



**Support technology and  
vibration control systems**

Copyright by

**MÜPRO**

65719 Hofheim-Wallau

All rights reserved. No part of this catalogue may be reproduced in any form or by any means, electronic or mechanical including photocopying, recording or by any information storage and retrieval systems, without the express written consent of MÜPRO GmbH.

MÜPRO reserves the right to make changes and additions without giving prior notice.  
MÜPRO accepts no liability for printing errors.

Please refer to the Internet for current data:  
[www.muepro.com/shop](http://www.muepro.com/shop).
























# MÜPRO

MÜPRO

MÜPRO

1. [Vibration control](#) 
2. [Fire protection](#) 
3. [Pipe clamps](#) 
4. [Support channels](#) 
5. [Accessories](#) 
6. [Anchor points/  
expansion points](#) 
7. [Heavy-duty pipe support](#) 
8. [MPT-Support system](#) 
9. [Ventilation](#) 
10. [Pipe connectors](#) 
11. [Stainless steel](#) 
12. [Hot-dip galvanised](#) 
13. [Anchor plugs](#) 
14. [Nameplates](#) 
15. [Insulation](#) 
16. [Sealing and  
protection materials](#) 
17. [Tools](#) 
18. [Radiator fastening](#) 
19. [Technical information](#) 





### A

Acrylic joint sealers	16/3
Adapter for mounting base for flat roof installation	9/6
Adhesive for foamglass	3/88
Adhesive for Mypotherm® Caoutchouc/Caoutchouc Plus	15/14
Adhesive for Mypotherm® Insulation tube	15/8
Allen bolts	5/19
Allen bolts, stainless steel	11/58
Allen key	17/19
Anchor point pipe clamps type 170 FL	6/10
Anchor points for pipes for chilled water pipes (Wooden blocks)	6/9
Anchor points for pipes PHONOLYT®	6/1–6/2
Anchor rods for chemical reaction anchors VBA	13/35
Anchor rods for injection anchors XV Plus	13/38–13/39 13/42
Anchoring cams	7/21
Angle plate	4/87
Angle plate, hot-dip galv.	12/57
Angle plate, stainless steel	11/49
Angle rail	4/93
Anti-vibration pads	1/5

### B

Base plates	5/8–5/9
Base plates, stainless steel	11/60
Bits for Zykon steel hammer set anchors FZEA	13/34
Blind rivets	9/11
Bolt screw plugs	13/31
Bolt screws	5/2
Bolt screws, stainless steel	11/56
Box-section heavy slide guide 7.8 kN	6/19
Box-section heavy slide guide, hot-dip galv.	12/66
Brackets refrigerant anchor points	6/11–6/12
Button anchor points PHONOLYT®	6/3
Button PHONOLYT®	1/3

### C

Cantilever brackets	4/83
Cantilever brackets, hot-dip galv.	12/54
Cantilever brackets, stainless steel	11/43
Caoutchouc pipe support	3/94–3/96
Cap nuts	5/21
Cartridge gun for PU-Foam	16/5
Cartridge guns	17/7
Cartridge guns for injection anchors XV Plus	13/44
Cavity plugs	13/21
Cavity plugs box	13/23–13/24
Ceramic fabric tapes	3/40
Channel connector, heavy-duty version	4/80–4/81
Channel connector, heavy-duty version, hot-dip galv.	12/51–12/52
Channel connector, heavy-duty version, stainless steel	11/41
Chemical reaction anchors VBA	13/35–13/36
Chisels for SDS chucks	17/17
Clamping claws	5/14
Claw anchors®	13/9
Cleaning kit for drill holes	13/44
Cold shrink tape	9/13

Color-Marker marking spray	16/5
Connection plates	4/87–4/88
Connection plates, hot-dip galv.	12/57
Connection plates, stainless steel	11/49
Construction brackets	4/84
Construction brackets, stainless steel	11/45–11/46
Craftsman boxes	17/23
Cramping connector	4/79
Cramping elements	7/25
Cramping sets	7/22–7/24
Cross connector plate	4/88
Cutter knives	17/19
Cutting-off discs	17/18
Cylinder head screws	5/19
Cylinder head screws, stainless steel	11/59

### D

DÄMMGULAST® blue	3/38
DÄMMGULAST® Channel sections for MPC-Profiles	1/9, 4/23 11/18, 12/12
DÄMMGULAST® Channel sections for MPR-Profiles	1/10, 4/53 11/36, 12/30
DÄMMGULAST® Junior	3/37
DÄMMGULAST® red	3/38
DÄMMGULAST® Resilient pad	1/7
DÄMMGULAST® Resilient pad, stainless steel	11/17
DÄMMGULAST® seewater proof	3/39
DÄMMGULAST® Vibration control linings	3/36–3/39
DÄMMGULAST® Washers	1/8
DÄMMGULAST® Washers and steel washers, stainless steel	11/17
DÄMMGULAST® yellow	3/37
Diamond cutting-off disc	17/18
Disposable gloves	17/21
Distance angles	5/24
Distance angles, stainless steel	11/60
Dome supports	6/4
Drill hole cleaning kit	13/44
Drill-in brackets for radiators	18/7–18/8
Duct clamps	9/1–9/4
Duct clamps, stainless steel	11/4–11/5
Duct fixing angles	9/9
Duct fixing angles, hot-dip galv.	12/67
Duct fixing angles, stainless steel	11/53
Duct fixing bracket	9/7–9/8
Duct joint clamps	9/10
Duo	3/7
DUPLO-Solar	3/89

### E

EASY clips	3/8
EURO-QUICK®	3/1
Expanders for radiators	18/1–18/2
Eye bolts	5/8

### F

Felt tapes	15/22
Filbow clamps pear-shaped	3/41
Filbow clamps with cup nut	3/43
Filbow clamps with knurled nut	3/42
Fine dust masks	17/20
Fixing clamps small	3/92
Flat chisels	17/17
Foam glass pipe holder, with DÄMMGULAST® blue	3/87–3/88
Foam rubbers	9/12
Foot PHONOLYT®	1/4

## G

Garbage bags	17/21
Gas-meter fixing kits	5/23
Girder clamps	5/11–5/13
Girder clamps, stainless steel	11/51
Glazing tapes	9/12
Gloves	17/21
Guide angles	7/28
Guide rails	6/16

## H

Hammer drills	17/11–17/15
Hand washing paste	17/21
Hanger bracket	5/10
Hanger sockets	5/8
Hanger sockets, stainless steel	11/59
Headed drills with SDS chuck for steel anchors	13/3
Heavy load plug (Heavy-duty anchors BZ)	13/6–13/7
Heavy load plug (Heavy-duty anchors BZ), stainless steel	11/63–11/64
Heavy slide guide 7.8 kN box-section	6/19
Heavy slide guide box-section, hot-dip galv.	12/66
Heavy-duty anchors BZ	13/6–13/7
Heavy-duty anchors BZ, stainless steel	11/63–11/64
Hex connectors	5/5
Hexagon head bolts	5/20
Hexagon head bolts, hot-dip galv.	12/59
Hexagon head bolts, stainless steel	11/58
Hexagon head chucks	17/9
Hexagon wood screws	5/1
Hexagon wood screws, stainless steel	11/59
Hexagonal nuts	5/21
Hexagonal nuts, hot-dip galv.	12/59
Hexagonal nuts, stainless steel	11/57
Hole punches	17/7
Hollow-core slab ceiling anchors	13/20
Hook & loop strip for signage system	14/7
Hose clamps	3/90–3/91

## I

Impact mandrels for Zykon steel hammer anchors FZEA	13/34
Injection anchor XV Plus assortment case	13/43
Injection anchors XV Plus	13/37–13/43
Installation pliers	13/22
Installation plug set	15/23
Insulation (MypoTHERM® Insulation tubes)	15/8–15/9
Insulation (MypoTHERM® Kompakt floor tubes)	15/10
Insulation clamps RG 250	3/50–3/51
Insulation clamps RG 80	3/46–3/47
Insulation clamps type 170/175 EX	3/83–3/86
Insulation clamps type H, M, T	3/52–3/67
Insulation clamps type RTN+	3/68–3/79
Insulation shells type RTN+	3/80–3/82

## J

Joint brackets	5/24
Joint brackets, hot-dip galv.	12/63
Joint brackets, stainless steel	11/50
Joint tape	1/13
JUNIOR	3/6

## L

Laminated plastic signs for signage system	14/5
Laser distance meter	17/1
Lightweight concrete plug (Under cut anchors)	13/8
Link chain, hot-dip galv.	12/60
Load-distributing sleeves for PU shells	3/49

## M

Machine-setting tools for steel anchors	13/3
MAFUND® plate	1/14
Manual fixing tool	17/19
Marking spray Color-Marker	16/5
Metal twist drills	17/16
Mineral wool pipe jackets with aluminium facing	15/20–15/21
ML-Clamping bodies for strap clamps	14/11
ML-Clamping sets for clamping bodies	14/12
ML-Clamping straps for strap clamps	14/11
ML-Fastening plates for pipework signposting	14/9
ML-Strap clamps for fastening plates	14/10
Mortar cartridge for chemical reaction anchors VBA	13/35
Mounting adhesive tapes	16/6
Mounting angles	4/85–4/86
Mounting angles, hot-dip galv.	12/55–12/56
Mounting angles, stainless steel	11/47–11/48
Mounting base for flat roofs, hot-dip galv.	12/58
Mounting bases for flat roof installation	9/5
Mounting bases for signage system	14/6–14/7
Mounting strap for signage system	14/8
MPC-Channel connectors	4/24
MPC-Channel connectors, stainless steel	11/19
MPC-Channel support brackets	4/25
MPC-Channel support brackets, stainless steel	11/20
MPC-Clamp brackets	4/22
MPC-Clamp brackets, hot-dip galv.	12/11
MPC-Clamp brackets, stainless steel	11/17
MPC-Cross channel connectors	4/33
MPC-Cross channel connectors, hot-dip galv.	12/16
MPC-Cross channel connectors, stainless steel	11/24
MPC-Diagonal struts	4/15
MPC-Diagonal struts, hot-dip galv.	12/10
MPC-Double rail nut	4/22
MPC-Double rail nut, hot-dip galv.	12/11
MPC-Double rail nut, stainless steel	11/17
MPC-Girder cleats	4/34
MPC-Girder cleats, stainless steel	11/25
MPC-Girder support	4/35
MPC-Hammer head bolts	4/21
MPC-Hammer head bolts, stainless steel	11/16
MPC-Hammer head fasteners	4/19–4/20
MPC-Hammer head fasteners, stainless steel	11/15
MPC-Headed drill and MPC-Setting tool	13/16, 13/18
MPC-Lateral angles	4/31–4/32
MPC-Lateral angles, hot-dip galv.	12/15
MPC-Mounting anchors	13/16–13/19
MPC-Mounting angles	4/29–4/30
MPC-Mounting angles, stainless steel	11/23
MPC-Protection caps	4/22, 11/16
	12/11
MPC-Quick fasteners	4/16–4/18



MPC-Quick fasteners, stainless steel	11/13–11/14	MPR-Hammer head fasteners, zinc lamella coating	12/25–12/26
MPC-Rail nuts	4/22	MPR-Mid connector type S+	4/76
MPC-Rail nuts, hot-dip galv.	12/11	MPR-Mid connector type S+, hot-dip galv.	12/49
MPC-Rail nuts, stainless steel	11/17	MPR-Mounting angle	4/57
MPC-Saddle supports	4/26–4/27	MPR-Mounting angle, stainless steel	11/39
MPC-Saddle supports, hot-dip galv.	12/13	MPR-Mounting angles type S+	4/70–4/71
MPC-Saddle supports, stainless steel	11/21	MPR-Mounting angles type S+, hot-dip galv.	12/43–12/44
MPC-Support channels	4/1–4/8	MPR-Protection caps	4/52, 11/35 12/29
MPC-Support channels, hot-dip galv.	12/1–12/5	MPR-Quick fasteners	4/46–4/47
MPC-Support channels, stainless steel	11/6–11/10	MPR-Quick fasteners type S+	4/60
MPC-VARIO joint	4/36	MPR-Quick fasteners type S+, zinc-nickel	12/35
MPC-VARIO-Saddle support	4/28	MPR-Saddle supports	4/55
MPC-VARIO-Saddle support, hot-dip galv.	12/14	MPR-Saddle supports, hot-dip galv.	12/31
MPC-VARIO-Saddle support, stainless steel	11/22	MPR-Saddle supports, stainless steel	11/37
MPC-Wall hanger brackets	4/9–4/12	MPR-Saddle supports type S+	4/66–4/68
MPC-Wall hanger brackets, hot-dip galv.	12/6–12/8	MPR-Saddle supports type S+, hot-dip galv.	12/39–12/41
MPC-Wall hanger brackets, stainless steel	11/11–11/12	MPR-Slide nuts type S+	4/61
MPC-Wall hanger supports	4/13–4/14	MPR-Slide nuts type S+, hot-dip galv.	12/36
MPC-Wall hanger supports, hot-dip galv.	12/9	MPR-Support channels	4/37–4/42
MPR-3D-Connectors type S+	4/76	MPR-Support channels, hot-dip galv.	12/17–12/22
MPR-3D-Connectors type S+, hot-dip galv.	12/49	MPR-Support channels, stainless steel	11/26–11/30
MPR-Adapter discs type S+	4/64	MPR-T-connection plate	4/75
MPR-Angle connectors type S+	4/72–4/74	MPR-T-connection plate type S+, hot-dip galv.	12/48
MPR-Angle connectors type S+, hot-dip galv.	12/45–12/47	MPR-Threaded plates	4/50
MPR-Angle plate 90° type S+	4/75	MPR-Threaded plates, hot-dip galv.	12/27
MPR-Angle plate 90° type S+, hot-dip galv.	12/48	MPR-Threaded plates, stainless steel	11/34
MPR-Channel connector type S+, heavy-duty version	4/64	MPR-VARIO joint type S+	4/78
MPR-Channel connector type S+, heavy-duty version, hot-dip galv.	12/38	MPR-VARIO-Saddle support	4/56
MPR-Channel connectors	4/54	MPR-VARIO-Saddle support, hot-dip galv.	12/32
MPR-Channel support bracket type S+	4/65	MPR-VARIO-Saddle support, stainless steel	11/38
MPR-Clamp brackets	4/51	MPR-Wall hanger brackets	4/43–4/45
MPR-Clamp brackets, hot-dip galv.	12/28	MPR-Wall hanger brackets, hot-dip galv.	12/23–12/24
MPR-Clamp brackets, stainless steel	11/35	MPR-Wall hanger brackets, stainless steel	11/31–11/32
MPR-Connection lock type S+	4/62	MPT-Angle plate	8/27
MPR-Connection lock type S+, zinc-nickel	12/37	MPT-Base plate	8/36
MPR-Connection plates type S+	4/75	MPT-Brackets	8/17
MPR-Connection plates type S+, hot-dip galv.	12/48	MPT-Cantilever bracket	8/22
MPR-Construction bracket type S+	4/69	MPT-Connection plates	8/26
MPR-Construction bracket type S+, hot-dip galv.	12/42	MPT-Consoles Q100	8/15–8/16
MPR-Corner connectors type S+	4/76	MPT-Consoles Q50	8/13
MPR-Corner connectors type S+, hot-dip galv.	12/49	MPT-Consoles Q80	8/14
MPR-Cross channel connector type S+	4/77	MPT-Cross channel connectors	8/18
MPR-Cross channel connector type S+, hot-dip galv.	12/50	MPT-Cross plate	8/28
MPR-Cross channel connectors	4/58	MPT-Girder cleats	8/35
MPR-Cross channel connectors, hot-dip galv.	12/33	MPT-Guide	8/33
MPR-Cross channel connectors, stainless steel	11/39	MPT-Hammer head bolts	8/23
MPR-Cross connection plate type S+	4/75	MPT-Hexagon head bolt	8/24
MPR-Cross connection plate type S+, hot-dip galv.	12/48	MPT-Mounting angles 45°	8/20
MPR-Diagonal struts type S+	4/63	MPT-Mounting angles 90°	8/19
MPR-Diagonal struts type S+, hot-dip galv.	12/38	MPT-Protection caps	8/25
MPR-Girder cleats	4/59	MPT-Retaining plate	8/29
MPR-Girder cleats, hot-dip galv.	12/34	MPT-Saddle supports	8/31–8/32
MPR-Girder cleats, stainless steel	11/40	MPT-Steel beam adaptor plate	8/34
MPR-Hammer head fasteners	4/48–4/49	MPT-Support profile connectors	8/30
MPR-Hammer head fasteners, stainless steel	11/33	MPT-Support profile Q100	8/5–8/6
		MPT-Support profile Q100 with 3 slots	8/7–8/8
		MPT-Support profile Q100 with 4 slots	8/9–8/10
		MPT-Support profile Q150 with 3 slots	8/11–8/12
		MPT-Support profile Q50	8/1–8/2
		MPT-Support profile Q80	8/3–8/4
		MPT-T-connection plate	8/27
		MPT-VARIO joints	8/21

Multi-purpose plugs	13/29
MÜPRO-PHONEX® Anchors	1/16, 13/32
MypoTHERM® Butt joint tape	15/7
MypoTHERM® Caoutchouc	15/12–15/14
MypoTHERM® Caoutchouc Plus	15/15–15/18
MypoTHERM® Caoutchouc tapes	15/19
MypoTHERM® Insulating wraps	15/6–15/7
MypoTHERM® Insulation sleeves	15/4
MypoTHERM® Insulation sleeves ECO	15/5
MypoTHERM® Insulation tubes	15/8–15/9
MypoTHERM® Kompakt floor tubes	15/10
MypoTHERM® PE protection sleeves	15/3

## N

Nail anchors	13/14–13/15
Nail plugs	13/30
Nails for pipe clips	15/11
Nealed wire	15/22
Nylon plugs	13/27

## O

OPTIMAL	3/2–3/3
OPTIMAL Junior®	3/5
Oval head screws	5/20

## P

Paper rolls	17/22
Parallel couplings for threaded rods or threaded pins	5/6
Perforated sleeves for injection anchors XV Plus	13/40
PHONEX® Anchors	1/16, 13/32
PHONOLYT®	1/2
PHONOLYT® Anchor points for pipes	6/1–6/2
PHONOLYT® Button	1/3
PHONOLYT® Button anchor points	6/3
PHONOLYT® Foot	1/4
Pipe clamp linings	3/36–3/39
Pipe clamps (Single bossed clamps)	3/20–3/27
Pipe clamps (Single bossed clamps) with connection socket	3/28–3/31
Pipe clamps (Single bossed clamps), heavy-duty version	3/13–3/19
Pipe clamps (Single bossed clamps), stainless steel	11/1–11/3
Pipe clamps (Suspension clamps)	3/32–3/35
	6/21
Pipe clamps DIN 3567	7/26
Pipe clips	3/93
Pipe clips for MypoTHERM® Kompakt floor tube	15/11
Pipe connector DUPLO	10/3
Pipe connector DUPLO, stainless steel	10/4
Pipe connector MONO	10/1
Pipe connector MONO, stainless steel	10/2
Pipe cutters	17/2–17/5
Pipe slides	7/5–7/20
Plasterboard plugs	13/30
Plastic sealing plates	5/17
Plastic signs for signage system	14/1–14/3
Plug-in setting tools for steel anchors	13/3
Plugs, stainless steel	11/61–11/64
Plumbers case S	17/22
Pointed chisels	17/17
Polyboxes	17/22
Power hook	5/20

Pozidriv recessed head bolts	5/3
ProfiBit-Toolbox	17/11
Protection caps with inner hexagon	5/21
Protective cover for signage system	14/6–14/7
Protective goggles	17/20
PU-Cleaner	16/4
PU-Foams	16/4
Punched tapes	5/18
Punched tapes, stainless steel	11/60
Pure aluminium self-adhesive tapes	15/22
PU-Sealer	3/51, 6/10
PVC-Self-adhesive tapes	16/8

## Q

Quick-change adapters for screwdriving tools	17/9
--	------

## R

Ratchet box	17/8
Recipro-saw blades	17/18
Reducers	5/7
Reducers, stainless steel	11/56
Reducing connectors	5/7
Reducing couplings	10/6
Reinforcement angle	4/82
Reinforcement angle, hot-dip galv.	12/53
Reinforcement angle, stainless steel	11/42
Reinforcement section for twin brackets	3/10
Rip hexagon nuts	5/21
Rotary stacking container	17/23
Rough grinding disc	17/18
Round connectors	5/6
Round connectors, stainless steel	11/56
Rubber washers for duct fixing angles	9/9

## S

Safety clips	3/11–3/12
Saniplast	1/12
Saw blades	17/18
Screwdriver	17/19
Screwdriver bits	17/10
Screw-in chucks for power driver	17/9
Screws for concrete	13/10–13/13
Sealing compound for air ducts	9/14
Sealing tape	9/13
Securing clamps	10/5
Self-drilling screws	9/11
Self-drilling screws, stainless steel	11/59
Serrated lock washers	5/22
Setting tool for nails	15/11
Setting tools for steel anchors	13/3
Setting tools for under cut anchors	13/8
Shoulder pins	5/3
Shoulder screws	5/2–5/3
Silicones	16/1–16/2
Single bossed clamps	3/20–3/27
Single bossed clamps JUNIOR	3/6
Single bossed clamps, heavy-duty version	3/13–3/19
Single bossed clamps, stainless steel	11/1–11/3
Single bossed clamps, with connection socket	3/28–3/31
Sink fastener	13/26
Sleeves for load-distributing of PU shells	3/49
Slide clamps	3/4
Slide guide 4 kN	6/18–6/19



Slide guide 4 kN for crisscross arrangement	6/18
Slide guides, heavy-duty version	6/20
Slide guides 1.75 kN	6/17
Slide guides, stainless steel	11/52
Sliding shoes	6/15
Sliding stirrups	6/13
Slot bolts	5/3, 5/8
Socket adapters	5/7
Socket spanners	17/9
Special adhesive for ceramic fabric tapes	3/40
StaboFix® Bolts	4/92
StaboFix® Clamps	4/92
StaboFix® Drilling screws	4/92
StaboFix® Economy set	4/90
StaboFix® Fixing system	4/89–4/92
StaboFix® Pliers	4/92
StaboFix® Plumbers case	4/90
StaboFix® Retaining plate	4/89
StaboFix® Section	4/89
Stand bracket sets for radiators	18/4–18/6
STATO® Brackets	6/5–6/6
STATO® Brackets, hot-dip galv.	12/64–12/65
STATO® Clamps	6/7–6/8
Steel anchors	13/2
Steel anchors, stainless steel	11/61
Steel wire brushes for chemical reaction anchors VBA	13/36
Steel wire brushes for injection anchors XV Plus	13/44
Supporting angles	5/15
Supporting angles, hot-dip galv.	12/61
Supporting angles, stainless steel	11/44
Suspension clamps for spiral-seam pipes, one-piece	3/32–3/33
Suspension clamps for spiral-seam pipes, two-piece	3/34–3/35
Suspension clamps, three-pieces	6/21
Swivel hangers	3/44, 6/14

## T

T-connection plate	4/87
T-connection plate, hot-dip galv.	12/57
T-connection plate, stainless steel	11/49
Tension bolts	13/22
Text strips for signage system	14/4
Textile tapes	16/7
Threaded bolts	3/10
Threaded pins	5/4–5/5
Threaded pins, hot-dip galv.	12/60
Threaded pins, stainless steel	11/55
Threaded pipes	5/10
Threaded pipes, stainless steel	11/60
Threaded rod cutters	17/6
Threaded rods	5/4
Threaded rods, hot-dip galv.	12/59
Threaded rods, stainless steel	11/55
Through anchors	13/4–13/5
Through anchors, stainless steel	11/62
Toggle plugs	13/25
Toilet fastener	13/26
Torque wrench	17/20
Trapezoid-sheet hangers	5/16
Trapezoid-sheet hangers, hot-dip galv.	12/62
Trapezoid-sheet hangers, stainless steel	11/54
Trapezoid-sheet pliers	17/6
Turnbuckles	5/5
Turnbuckles, hot-dip galv.	12/60
Twin brackets for safety clip	3/10

## U

U-bolts	3/45
U-bolts DIN 3570	7/27
Under cut anchors	13/8
Universal nameplate supports for signage system	14/8
Universal plugs (Nylon plugs)	13/27

## V

VARIO-Twin brackets for safety clip	3/10
VARIO-Twin pipe clamps	3/9
Ventilated-brick plugs	13/28
Vibration control element	1/6
Vibration control hangers	1/11
Vibration control linings	3/36–3/39
Vibration control linings for MPC-Profiles	1/9, 4/23
Vibration control linings for MPR-Profiles	11/18, 12/12
Vibration control linings for MPR-Profiles	1/10, 4/53
Vibration control plugs (PHONEX® Anchors)	11/36, 12/30
Vibration dampers	1/16, 13/32
	1/15

## W

Wall hanger brackets for radiators	18/3
Washer bolts	5/3
Washer for hanger brackets	5/10
Washers DIN 125	5/22
Washers DIN 125, hot-dip galv.	12/60
Washers DIN 125, stainless steel	11/57
Washers for MPC-Support channels	5/22
Washers for MPC-Support channels, hot-dip galv.	12/11, 12/60
Washers for MPC-Support channels, stainless steel	11/16, 11/57
Washers for MPR-Support channels	4/52, 5/22
Washers for MPR-Support channels, mechanically galvanised	12/29, 12/60
Washers for MPR-Support channels, stainless steel	11/35, 11/57
Welding pin for signage system	14/6
Wire brush	17/19
Wooden blocks	6/9
Work gloves	17/21

## Z

Zinc spray	16/6
Zykon steel hammer-set anchors FZEA	13/33
Zykon steel hammer-set anchors FZEA, stainless steel	13/33

## Premium fastening solutions for every application:

MÜPRO is a fast-growing, international corporate group with subsidiaries and sales partners throughout the world. We are a leading solutions provider and premium supplier in the areas of fixing technology, vibration control and fire protection. Our products are "Engineered in Germany" – we have more than 50 years of industry experience in design and production. Today, MÜPRO products are used all over the world.

Our system solutions offer high quality and cost efficiency. They are used in all building services areas as well as in industrial and plant technology. We also offer our customers a wide range of variable products produced on a customer and order basis.

## Specialist with comprehensive expertise:

We provide assistance throughout the entire development, production and delivery process and support our customers with technical plans and project support at the construction site. We reliably perform the pre-assembly of components, special packaging and special deliveries, as well as enabling cost-saving delivery options on site. We also have many years of expertise in special areas of fixing technology such as cleanrooms and tunnels or mounting in the case of heavy loads. Based in Hamburg, MÜPRO Maritim specializes in support systems for shipbuilding.

## Your personal contact:

### Austria

MÜPRO GmbH  
Vienna • [www.muepro.at](http://www.muepro.at)

### Belgium

MÜPRO Belgium B.V.B.A.  
Aarschot • [www.muepro.be](http://www.muepro.be)

### Croatia

MÜPRO d.o.o.  
Zagreb • [www.muepro.hr](http://www.muepro.hr)

### Czech Republic

MÜPRO CZ s.r.o.  
Jeneč • [www.muepro.cz](http://www.muepro.cz)

### France

MÜPRO France SAS  
Arras Cedex • [www.mupro.fr](http://www.mupro.fr)

### Hungary

MÜPRO Magyarországi KFT.  
Budapest • [www.muepro.hu](http://www.muepro.hu)

### India

MÜPRO India Pvt. Ltd.  
Mumbai • [www.mupro.in](http://www.mupro.in)

### Luxembourg

MÜPRO Luxembourg S.à.r.l.  
Leudelange • [www.muepro.lu](http://www.muepro.lu)

### Netherlands

MÜPRO Nederland B.V.  
Kerkrade • [www.muepro.nl](http://www.muepro.nl)

### Russia

OOO MÜPRO  
Moscow • [www.muepro.ru](http://www.muepro.ru)

### Slovak Republic

MÜPRO SK spol. s r.o.  
Bratislava • [www.muepro.sk](http://www.muepro.sk)

### Spain

MÜPRO Hispania S.L.  
Leganés (Madrid) • [www.muepro.es](http://www.muepro.es)

### United Arab Emirates

MUEPRO Middle East FZE  
Jebel Ali, Dubai • [www.mueprom.com](http://www.mueprom.com)

### Berlin Region

Wattstraße 10-13  
13355 Berlin  
Tel. +49 30 39 42 016  
Fax +49 30 39 44 113

### Chemnitz Region

Röhrsdorfer Allee 16  
09247 Röhrsdorf  
Tel. +49 3722 50 03 11  
Fax +49 3722 50 03 12

### Hamburg Region

Luisenweg 40  
20537 Hamburg  
Tel. +49 40 23 80 04 78-10  
Fax +49 40 23 80 04 78-78

### MÜPRO Maritim

Tel. +49 40 23 800 478-0  
Fax +49 40 23 800 478-88  
[www.muepro-maritim.com](http://www.muepro-maritim.com)  
[info@muepro-maritim.de](mailto:info@muepro-maritim.de)

### Munich Region

Stuttgarter Straße 7  
80807 München  
Tel. +49 89 35 91 984  
Fax +49 89 35 90 236

### Stuttgart Region

Solitudeallee 16  
70439 Stuttgart  
Tel. +49 711 80 30 84  
Fax +49 711 80 11 65

### Sales partners

Bahrain	Latvia
Bulgaria	Lebanon
Croatia	Malta
Denmark	New Zealand
Egypt	Norway
England	Oman
Finland	Portugal
Greece	Qatar
Iceland	Romania
Ireland	Saudi Arabia
Israel	Slovenia
Italy	South Korea
Jordan	Switzerland
Kuwait	

### MÜPRO Services GmbH

Hessenstrasse 11  
65719 Hofheim-Wallau  
Germany

Tel. +49 6122 808-0

Fax +49 6122 470-2

[info@muepro.com](mailto:info@muepro.com)

[www.muepro.com](http://www.muepro.com)

### 24h online order option:

[www.muepro.com](http://www.muepro.com)

To the shop



### You can find us on:



### MÜPRO Apps:

Order anytime and anywhere online and perform static calculations!

[www.muepro.de/apps](http://www.muepro.de/apps)





## Your expert partner

### It's all in the combination: expertise, high-quality products and comprehensive service!

Our successful project business is based on high-quality support technology and vibration control systems engineered in Germany, worldwide support from our expert team and optimal system solutions for your construction requirements.

#### What we offer:

- **Project support:** we support you with expertise and advice throughout all phases of the project.
- **Technical expertise:** we provide precise specifications tailored to your requirements, including designs, parts lists and tender specifications.
- **Construction site support:** our application technicians and engineers provide support on site and directly at the construction site.
- **CustomMade:** we make products based on customer specifications as well as products made to order.
- **CustomServ®:** we assemble entire components and deliver them directly to the construction site on schedule.
- **Construction site logistics:** we ensure optimal supply of construction sites through cost-saving storage options on site and reliably implement requirements such as special packaging and deliveries.
- **Planning software:** our calculation programmes help you to respond to the challenges you face in support technology, such as in relation to the calculation of support channels, or anchor or expansion points.
- **MÜPRO apps:** these practical help tools allow you to use the most important calculation programmes or place orders in the online shop directly from the construction site.



## Quality creates trust:

At MÜPRO quality is self-evident. Today, quality assurance is integrated into an overall quality management system in which all processes are defined and subject to permanent inspection.

Our quality management system, which complies with the requirements of DIN ISO 9001:2015, is certified by one of the largest internationally recognised certifying bodies, the "DNV Zertifizierung und Umweltgutachter GmbH".

## MANAGEMENT SYSTEM CERTIFICATE

Certificate No:  
88125-2010-AQ-GER-DAKKS

Initial certification date:  
30. October 1995

Valid:  
01. April 2017 - 31. March 2020

This is to certify that the management system of

### MÜPRO

**MÜPRO Services GmbH**

Hessenstr. 11, 65719 Hofheim-Wallau, Germany  
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Quality Management System standard:

**ISO 9001:2015**

This certificate is valid for the following scope:

**Development, production and distribution of support technology and vibration control systems**

Place and date:  
Essen, 23. March 2017



For the issuing office:  
DNV GL - Business Assurance  
Schlierlinghof 14, 45329 Essen, Germany

Thomas Beck  
Technical Manager

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.  
ACCREDITED UNIT: DNV GL Business Assurance Zertifizierung und Umweltgutachter GmbH, Schlierlinghof 14, 45329 Essen, Germany.  
TEL: +49 201 7296-222, www.dnvgl.de/assurance



## Recycling-Zertifikat 2019 Transportverpackungen und gewerblich anfallende Verkaufsverpackungen

Müpro Services GmbH  
65719 Hofheim-Wallau

ist Kunde der INTERSEROH Dienstleistungs GmbH mit Vertrag Nr. 28306.

Mit diesem Zertifikat bestätigen wir, dass

- angemeldete Transportverpackungen und gewerblich anfallende Verkaufsverpackungen bei den Kunden des Unternehmens von Interseroh-Partnern erfasst,
- erfasste Transportverpackungen und gewerblich anfallende Verkaufsverpackungen stofflich verwertet und
- alle Anforderungen der Verpackungsverordnung erfüllt werden.

Gemäß der Angaben der o.g. Firma sind folgende Verpackungsarten über Interseroh vom 01.01.2019 bis 31.12.2019 gemeldet:

### angemeldet

Papier/Pappe/Karton; PE-Folie (transparent, eingefärbt, Stretchfolie, Luftpolsterfolie); Bänder Stahl; Bänder Kunststoff; Dosen, Kartuschen aus PE/PP; Dosen, Kartuschen aus Aluminium

### nicht angemeldet

Massivholz, unbehandelt; Holzwerkstoffe, unbehandelt; PUR-Schaum; PE Schaum unvernetzt; EPS (Styropor) Formteile & Chips; PE/PP-Eimer; PE/PP-Kanister; Weiß-/Schwarzblech im Holsystem; Kantenschutzdecken; Sonstige Verbunde; PE-Paletten; Pappkern

Köln, Dezember 2018

Markus Müller-Dressel

ppa. Frank Kourat

Qualität und Nachhaltigkeit – wir machen aus gebrauchten Verpackungen Rohstoffe.



Vertrauen Sie auf die Interseroh Dienstleistungs- und Servicequalität, die auf zertifizierten Managementsystemen für Qualität, Umweltschutz, Arbeitssicherheit und Gesundheitsschutz sowie der Zertifizierung als Entsorgungsfachbetrieb basiert.

ALBA Group

## Our contribution to environmental protection:

When manufacturing our products, we always ensure that the methods used comply with environmental legislation and the latest technological standards. Taking care of the environment forms an equally important part of a sustainable, forwarding-looking corporate strategy as economic foresight.

For this reason, MÜPRO ensures an optimum use of natural resources starting right at the development and design stages for our products.

A continuous improvement in our manufacturing methods with regard to environmental aspects is a key element in our approach.

Of course we also require the same environmental protection standards which we apply to ourselves of our partners and suppliers.

## Quality mark RAL-GZ 655 “Pipe Mounting“:

The technical regulation RAL-GZ 655 contains rules for any kind of pipe mountings and characterises pipe clamps, brackets, mounting rails and equipment. Technical performance and quality is proven in comprehensive, neutral tests and the resulting security is an advantage to all concerned partners.

RAL has given the authority to award the quality mark to the Pipe Mounting Quality Association. The RAL quality mark can only be awarded to products, which completely meet the high requirements on quality assured pipe mountings.

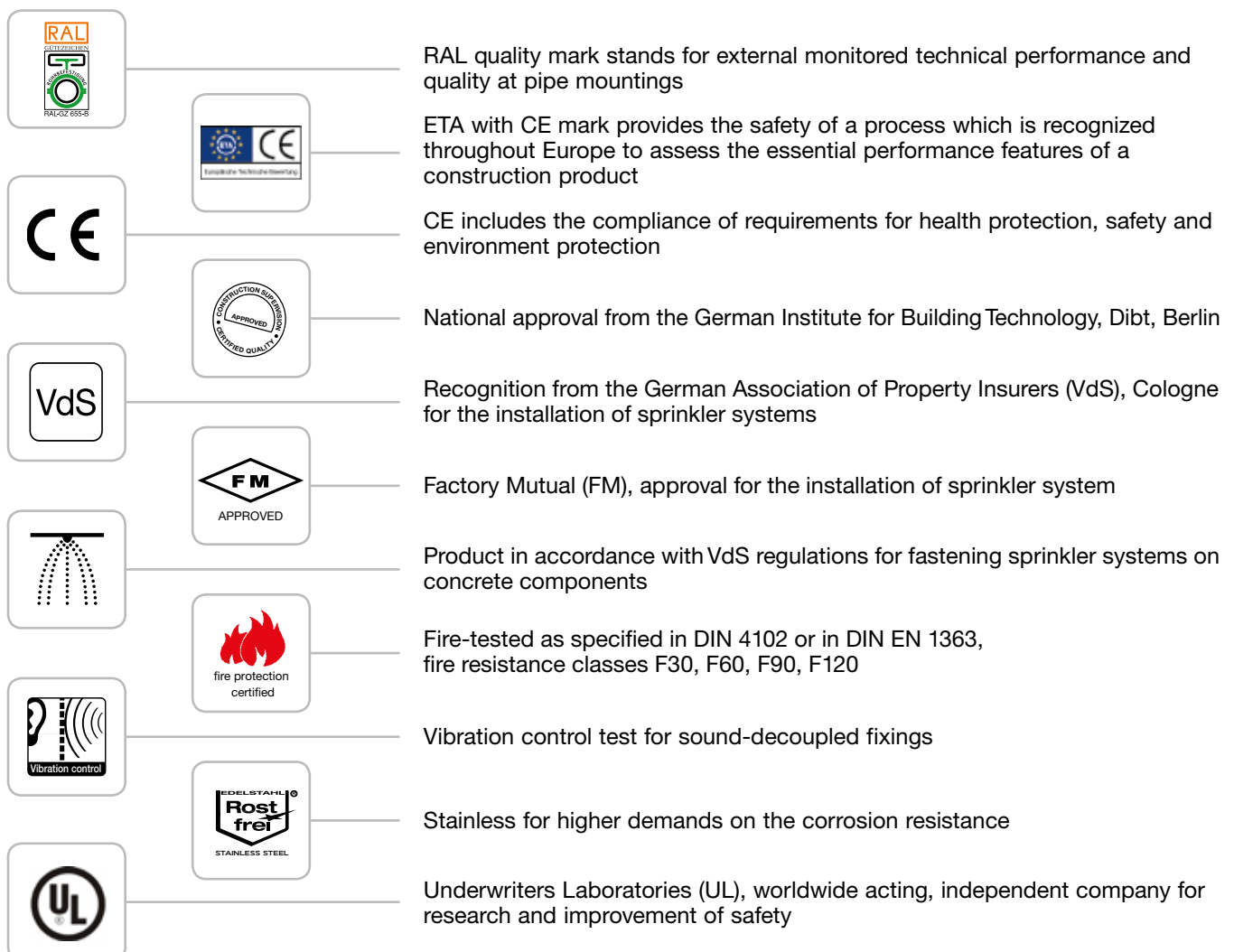
These requirements are defined in the RAL-GZ 655 quality and test regulations. All products are thoroughly evaluated by a neutral, independent test centre before the seal is awarded. All products awarded subject to continuous external monitoring by this test centre and by the quality association. The technical performance of these pipe mountings is neutrally determined, using modern methods. Thus the Pipe Mounting Quality Association offers safety and facilitates the selection of pipe mountings.

The RAL quality mark is characterized by the high level of trust established among consultants, traders and installers.

Please find further information and the current product range under:  
[www.safe-connection.de](http://www.safe-connection.de)














## Our quality standards at a glance:





## Your added value through our certified products:




















Quality comes first at MÜPRO. Consistent alignment with high quality standards is therefore a key part of our company philosophy.
















Product areas											
Vibration control								●	●		
Fire protection		●		●							
Pipe clamps	●				●	●		●	●		●
Support channels	●				●			●	●		
Accessories					●	●		●	●		●
Anchors/ expansions								●	●		
Ventilation	●								●		
Pipe connectors			●	●							
Stainless steel		●		●		●	●	●	●	●	
Hot-dip galvanised								●	●		
Anchor plugs		●		●	●	●	●	●	●	●	
Insulation			●	●				●			




## Vibration control

MÜPRO

1. Vibration control 
2. Fire protection 
3. Pipe clamps 
4. Support channels 
5. Accessories 
6. Anchor points/  
expansion points 
7. Heavy-duty pipe support 
8. MPT-Support system 
9. Ventilation 
10. Pipe connectors 
11. Stainless steel 
12. Hot-dip galvanised 
13. Anchor plugs 
14. Nameplates 
15. Insulation 
16. Sealing and  
protection materials 
17. Tools 
18. Radiator fastening 
19. Technical information 

	PHONOLYT®	1/2
	PHONOLYT® Button	1/3
	PHONOLYT® Foot	1/4
	Anti-vibration pads	1/5
	Vibration control element	1/6
	DÄMMGULAST® Resilient pad	1/7
	DÄMMGULAST® Washers	1/8
	DÄMMGULAST® Channel sections for MPC-Profiles	1/9
	DÄMMGULAST® Channel sections for MPR-Profiles	1/10
	Vibration control hangers	1/11
	Saniplast	1/12
	Joint tape	1/13
	MAFUND® plate	1/14
	Vibration dampers	1/15
	MÜPRO-PHONEX® Anchors	1/16

## VIDEO TIP

 „PHONOLYT® range – the highly effective solution for noise reduction: MÜPRO explains the operating principle of the PHONOLYT® vibration absorber in the video and presents sample applications.



### The current situation

Building technology is becoming increasingly complex and technical progress has led to a parallel rise in the ambitions of building owners. After **35, 30 and 25 dB(A)** starting from **DIN 4109** and up to **VDI 4100** vibration control level III, **20 dB(A)** and for waste water pipework without the associated fittings noise, we are already seeing **values 5 dB(A)** lower **than the vibration upper limit** being specified. At the same time, legal developments are increasingly oriented towards the sensitivities of the consumers.

Traditionally, the standards that have always had to be redefined for best quality are the **generally acknowledged handcraft rules**.

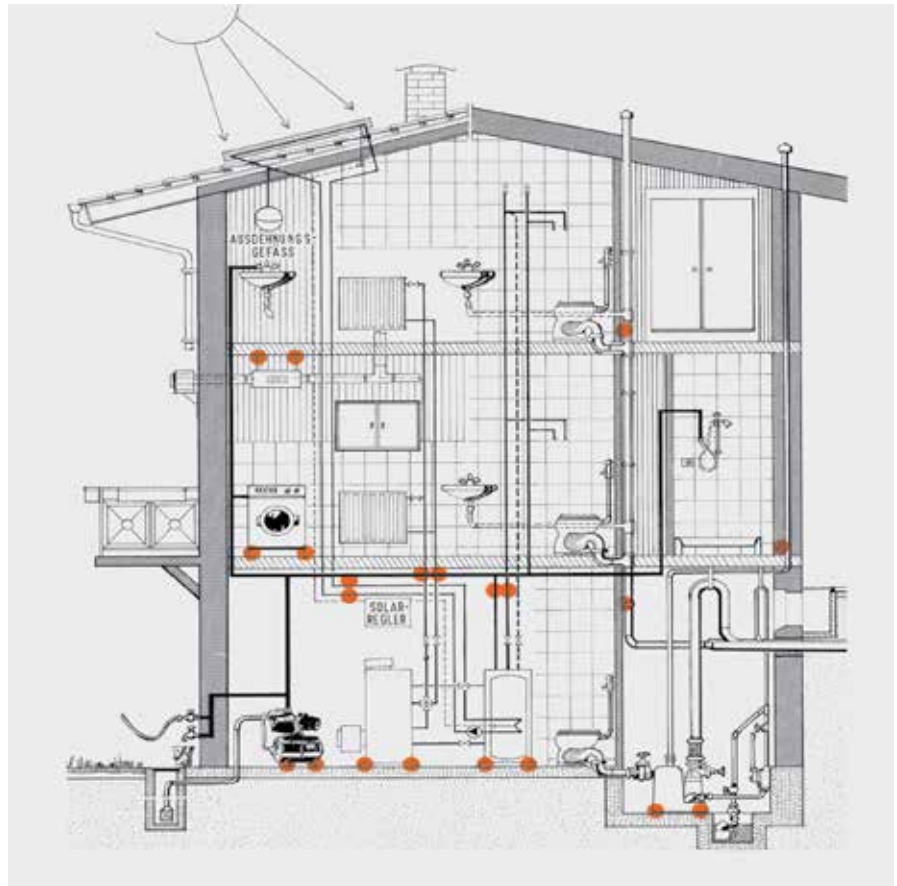
The almost never-ending stream of standards and regulations means that anyone working on a building site, including planners and installation engineers, is facing an ever-increasing liability risk.

### The challenge

The greatest vibration damage occurs in building technology when noise in the installed equipment is transferred to the building structure, i.e. to the large "powerful" resonating body. An added complication is the fact that those involved in the construction cannot predict the size of the vibrations. Attachments that have to absorb forces and static loads, such as pipe anchor points, are particularly problematic, as there is mutual physical contradiction between the tasks to be solved, namely strength and vibration control.

If the stipulation is that the lower vibration level must not exceed **25 or 20 dB(A), or in extreme cases even 5 dB(A)**, utmost care must be taken to ensure that only the very best products and the very latest technology are used. Vibration damage, which usually cannot be localised and can often only be eliminated by a total renovation, is one of the most expensive construction defects.

Work that has not been carried out according to the regulations and the recognised technical rules can have a "time bomb" effect, even if a client overlooks existing defects during acceptance and does not make a complaint. If the work was not carried out according to the current state of technology and the generally



recognised installation standards, subsequent buyers or users can still hold the planner and the installation company liable for any damage, for a period of up to 30 years.

### The solution

#### The solution is vibration control!

By making sure that all potential sources of vibration and vibration conducting pipes are consistently decoupled from the structure, you can avoid every conceivable vibration coupling in your area of responsibility. Even with large loads and/or high vibration intensities, the MÜPRO vibration control programme offers you **system components to help you** solve the diverse vibration and attachment problems in building technology.

From the simplest attachment using pipe anchoring points, to the attachment of small and large assemblies, you will find a solution for every individual attachment and vibration control problem by using MÜPRO system components.

*Remember: Vibration that you have under control cannot spread elsewhere.*



### PHONOLYT®

galvanised

#### Field of application

- The ideal component for vibration controlled anchor points for pipes to meet the vibration control requirements of DIN 4109 and VDI 4100
- Versatile use, e.g. for vibration control of support structures made from MPC-Support channels
- Ideal as vibration decoupled down pipe-support for all pipe types
- Ideal for vibration controlled fixing of devices such as boilers, pumps, motors, air-conditioning and ventilation systems
- Suitable for ceiling, wall or floor mounting
- For sound-decoupled pipeline fixed points

#### Advantages

- Vibration decoupler available in two versions for different duties

- Isolates the pipe acoustically from the building structure
- Reduces the structure-borne noise by up to 40 dB(A)
- Predictable vibration control for planners and users
- Practical design made for easy installation
- High static loading capacity
- Encapsulated vibration control – safety that you can rely on
- Effective isolation of vibration coupling using vulcanised-in MÜPROLAN
- The cast-steel vibration-control capsule provides a high degree of safety, even in the case of fire
- Approved for all installation positions
- Silicone-free



**Down-pipe support** for all pipe types vibration-decoupled



**Vibration-decoupled water pipe anchor points**

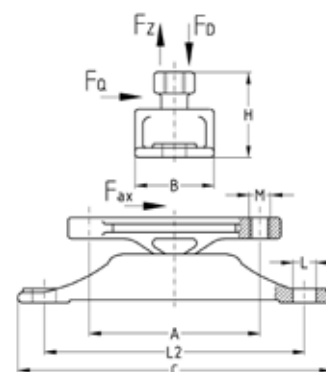


**Vibration-decoupled support for equipment**

#### Features



Type	dB(A) 27	dB(A) 40
Average vibration reduction [dB(A)]	27	40
Max. recommended load tension $F_z$ [N]	3,000	3,700
Max. recommended load compression $F_D$ [N]	5,700	15,000
Max. recommended load axial $F_{ax}$ [N]	2,500	5,000
Max. recommended load lateral $F_Q$ [N]		3,000



Type	Connecting thread	Part no.	Sales unit	Pack unit	Dimensions [mm]						
					A	B	C	H	M	Ø L	L2
dB(A) 27	M10	120292	1	pieces	80	37	147	40	10	11	122
dB(A) 40	M12	120296			126	60	227	66	12	13	194

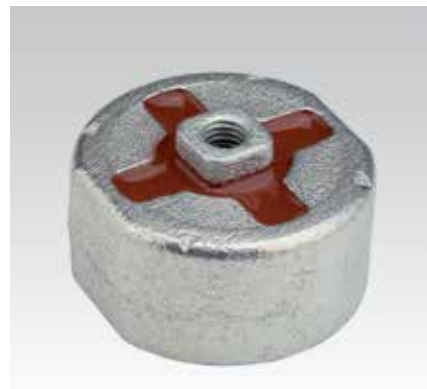
## PHONOLYT® Button galvanised

### Field of application

- Ideal for vibration controlled fixing of devices such as boilers, pumps, motors, air-conditioning and ventilation systems; also vessels, MPC-Support channels, etc.
- Suitable for ceiling, wall or floor mounting
- For sound-decoupled pipeline fixed points
- The ideal component for vibration controlled elevating devices to meet the vibration control requirements of DIN 4109 and VDI 4100
- Various mounting options when used with cross beams and frames made of MPC-Support channels: stable, versatile and optionally expandable

### Advantages

- High-performance anchor point attachments with outstanding structure-borne noise reduction of up to 30 dB(A)
- High loading capacity in all directions
- Time-saving fitting due to only one connection thread on each side
- Adjustment using threaded pins or rods
- Security provided by undercut vulcanised-in anchor
- Effective isolation of vibration coupling using vulcanised-in MÜPRO-LAN
- Silicone-free



Vibration-isolated wall mounting



Vibration-isolated pump baseframe made from MPC-Support channels

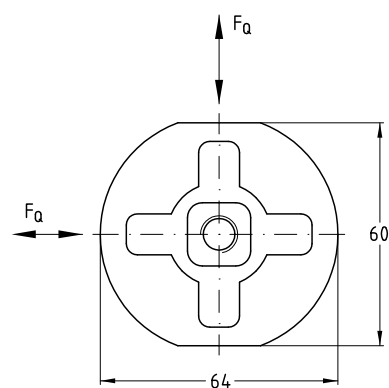
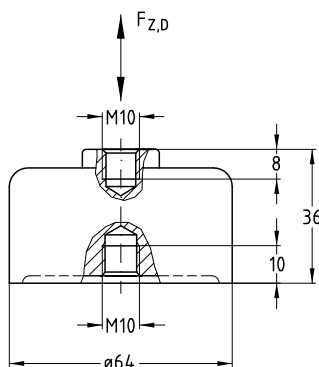


Vibration-isolated ceiling suspension

### Features



Average vibration reduction [dB(A)]	30
Max. recommended loading tension/compression $F_{z,D}$ [N]	1,500
Max. recommended loading lateral $F_o$ [N]	



Connecting thread	Part no.	Sales unit	Pack unit
M10	120442	1	pieces

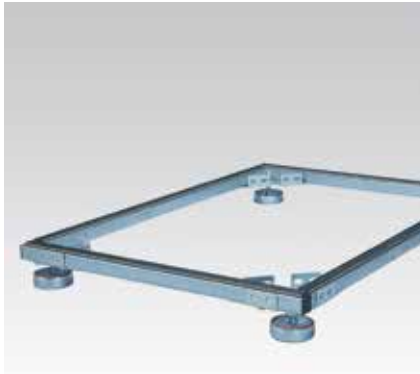
### PHONOLYT® Foot galvanised

#### Field of application

- High-performance vibration-insulating element for floor-mounting
- For the structure-borne vibration control of heavy equipment such as boilers, whirlpools, motors, pumps, chillers and air compressors
- Variety of mounting possibilities when used with cross beams and frames made of MPC-Support channels: stable, versatile and can be extended as desired
- The ideal component for vibration controlled elevating devices to meet the vibration control requirements of DIN 4109 and VDI 4100

#### Advantages

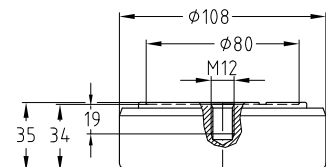
- Heavy duty, compressive load capacity up to 20 kN
- Rubber sole prevents skidding
- Easy height adjustment using threaded pin or hexagonal head screw in the M12 connecting thread
- Effective isolation of vibration coupling using vulcanised-in MÜPROLAN
- Silicone-free



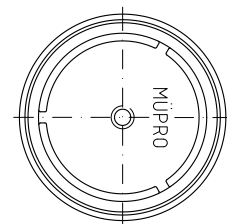
#### Features



Average vibration reduction [dB(A)]	30
Max. recommended compression load [N]	20,000



Connecting thread	Screw-in depth [mm]	Part no.	Sales unit	Pack unit
M12	19	120430	1	pieces



## Anti-vibration pads

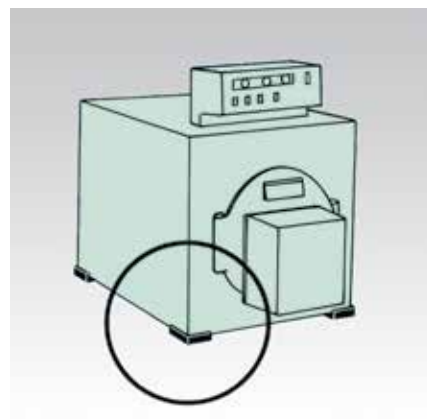
galvanised

### Field of application

- For the structure-borne vibration control of boilers, air-conditioning and ventilation systems
- Simply slip under item to be supported: no fixings on floor or equipment are necessary

### Advantages

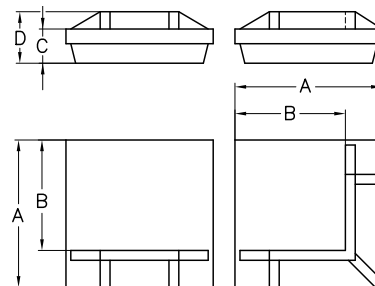
- Dampens the transfer of structure-borne noise to the building structure
- Low overall height
- Highly elastic rubber pad absorbs up to 95 % of its own and external vibrations
- Oil-resistant, synthetic rubber
- Resistant to temperatures from  $-50\text{ °C}$  to  $+120\text{ °C}$
- Aluminium base plate



### Features



Size edge length [mm]	Recommended loading per anti-vibration pad [N]
60	up to 500
90	500–1,000
125	1,000–2,000
200	2,000–3,000



Mounting	Size edge length [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]			
					A	B	C	D
For corner mounting	60	107117	4	pieces	60	45	14	21
	90	107118			90	70	20	30
	125	107115			125	98	25	40
	200	107116			200	165	37	58
For side mounting	60	107113			60	45	14	21
	90	107114			90	70	20	30
	125	107111			125	98	25	40
	200	107112			200	165	37	58



### Vibration control element galvanised

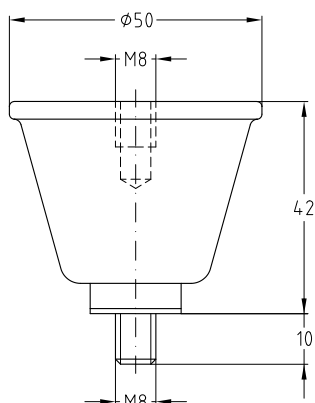


#### Field of application

- Versatile use, e.g. for the fixing of pipelines, air ducts and equipment
- Also for the vibration-damped suspension of sound absorbing ceilings
- Suitable for ceiling, wall or floor mounting

#### Advantages

- High noise reduction of up to 26 dB(A)
- With self-extinguishing, decoupling washer
- Does not tear out in case of fire due to steel casing



#### Features



Max. recommended loading (with optimum damping) [N]:	
axial tension	600
axial compression	300
radial compression	200

Connecting thread	Part no.	Sales unit	Pack unit
M8	117722	50	pieces

## DÄMMGULAST® Resilient pad

galvanised

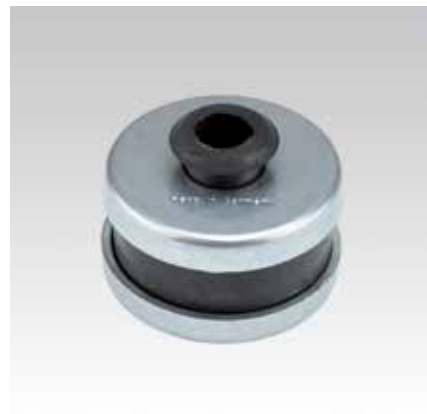


### Field of application

- Vibration control of traverses and pipe bridges made of MPC-Support channels

### Advantages

- Effective structure-borne vibration control for many installation situations
- Bushing to prevent metal contact between screws and mounted object
- Very simple installation without additional work
- Average sound level improvement of up to 17 dB(A)
- Ideal combination with DÄMMGULAST® Washers for vibration-isolated fitting of MPC-Support channels



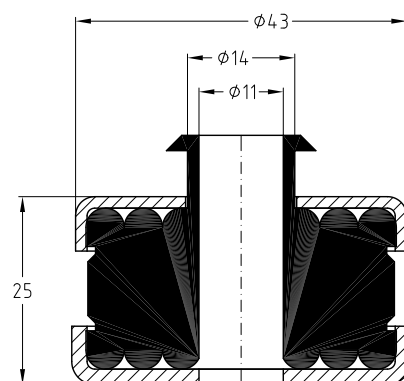
### Features



Max. recommended load [N]

1,000

For thread	Size [mm]	Part no.	Sales unit	Pack unit
M8/M10	43 x 25	107083	50	pieces



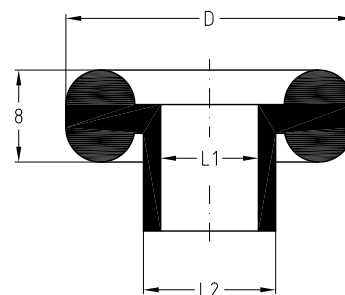
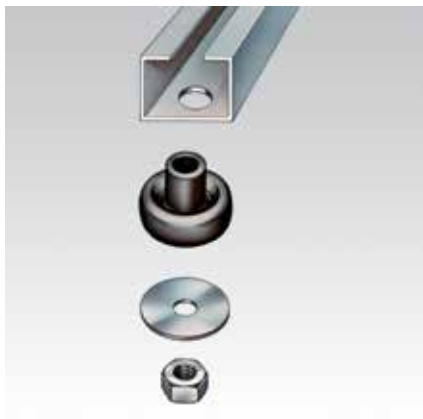
### DÄMMGULAST® Washers

#### Field of application

- Decoupling of traverses and pipe bridges made of MPC-Support channels
- Can be fitted using screws, threaded pins and rods up to M10
- Ideal supplement to DÄMMGULAST® Resilient pad in channel installation

#### Advantages

- Highly elastic vibration decoupler for light compressive loadings
- Protective bushing against metal contact
- Very simple installation without additional work
- Noise reduction of up to 18 dB(A)



#### Features



	For thread	Size D x L1 [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]		
						D	L1	L2
DÄMMGULAST® Washers	M8	24 x 8.5	107087	100	pieces	24	8.5	11
		28 x 8.5	107089			28		
	M10	34 x 10.5	107086			34	10.5	14
	DÄMMGULAST® Washers, flame-resistant	M8	24 x 8.5			107088	24	8.5
Washers	24 x 8.5		127238	28		–		
	28 x 8.5		127229					
	M10		36 x 10.5	127121			36	10.5



For an even load distribution, always combine DÄMMGULAST® Washers with metal washers. Maximum recommended loading: 300 N.

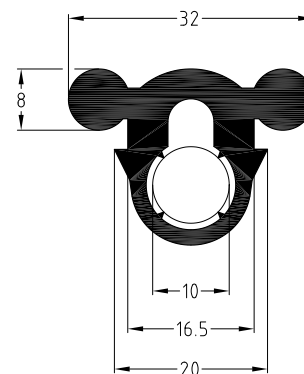
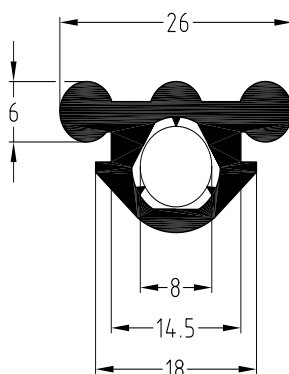
## DÄMMGULAST® Channel sections for MPC-Profiles

### Field of application

- Ideal for the decoupling of traverses for air duct fixtures
- For secure vibration-decoupling of MPC-Support channels

### Advantages

- Easy installation by inserting into MPC-Support channels and/or screwing onto threaded rods
- Prevents structure-borne noise coupling by avoiding contact between the air duct and the threaded rods
- Interlocking profile prevents channel section being pushed out
- Prevents fluttering and other vibration noises in the air ducts
- Small contact surface, large absorption mass



### Features



Design	For support channels	Suitable for	Part no.	Sales unit	Pack unit
<b>DÄMMGULAST® Channel section</b> roll of 30 m	27/18, 28/30	Channels with slot widths of 13–16 mm, M8 threaded rods	<b>107689</b>	1	roll
<b>DÄMMGULAST® Channel sections</b> section of 50 mm	38/24–40/120	Channels with slot widths of 15–18 mm, M8 and M10 threaded rods	<b>107690</b>	300	pieces
<b>DÄMMGULAST® Channel sections</b> section of 100 mm			<b>107691</b>		
			<b>107686</b>	200	

**!** When installing air conditioning and ventilation equipment, MPC-Support channels can be used as load-bearing traverses. Structure-borne vibration coupling bridges resulting from direct metal contact between the air duct and the traverse or threaded rods can be prevented by the use of DÄMMGULAST® Channel section as intermediate layer.

The DÄMMGULAST® Channel section was developed especially for these application areas and provides the optimum solution from a practical installation point of view.



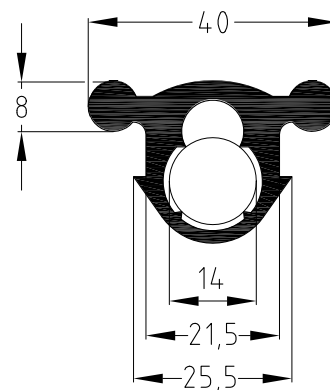
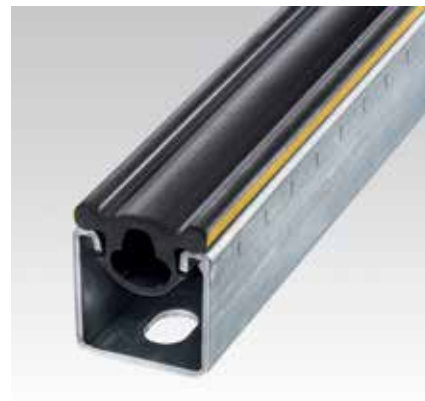
### DÄMMGULAST® Channel sections for MPR-Profiles

#### Field of application

- Ideal for the decoupling of traverses for air duct fixtures
- For secure vibration-decoupling of MPR-Support channels

#### Advantages

- Easy installation by inserting into MPR-Support channels and/or screwing onto threaded rods
- Prevents structure-borne noise coupling by avoiding contact between the air duct and the threaded rods
- Interlocking profile prevents channel section being pushed out
- Prevents fluttering and other vibration noises in the air ducts
- Small contact surface, large absorption mass



#### Features



Design	For support channels	Suitable for	Part no.	Sales unit	Pack unit
<b>DÄMMGULAST®</b> Channel section roll of 20 m	41/21–41/124	Channels with slot widths of 22 mm, M8 and M10 threaded rods	<b>151189</b>	1	roll
<b>DÄMMGULAST®</b> Channel sections section of 50 mm			<b>155366</b>	200	pieces

**!** When installing air conditioning and ventilation equipment, MPR-Support channels can be used as load-bearing traverses. Structure-borne vibration coupling bridges resulting from direct metal contact between the air duct and the traverse or threaded rods can be prevented by the use of DÄMMGULAST® Channel section as intermediate layer.

The DÄMMGULAST® Channel section was developed especially for these application areas and provides the optimum solution from a practical installation point of view.

## Vibration control hangers

galvanised

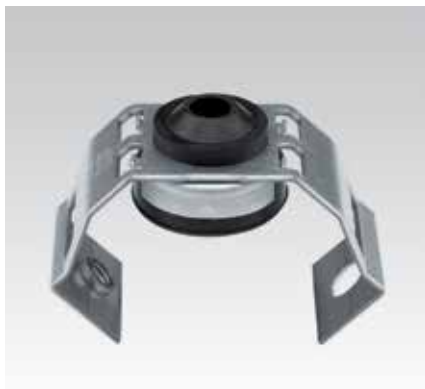


### Field of application

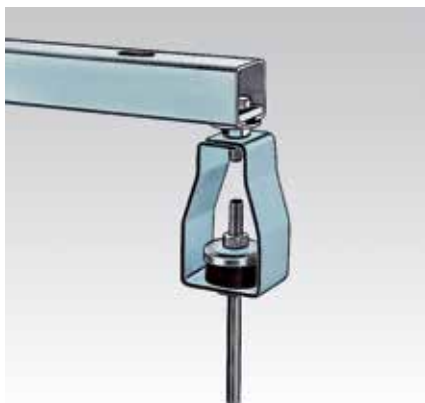
- Decoupling of traverses and pipe bridges made of MPC-Support channels

### Advantages

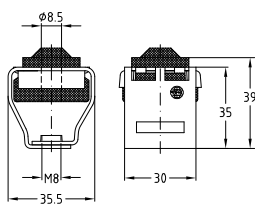
- Noise decoupling integrated into the hanger
- Very good vibration improvement of up to 17 dB(A) due to the highly elastic DÄMMGULAST® Spring element
- Attachment for threaded rods M8, M10 or alternatively for strip-mounting, depending on type
- The design for strip-mounting is also suitable for suspension attachment by means of hanger sockets
- Subsequent height adjustment of the threaded rods is possible



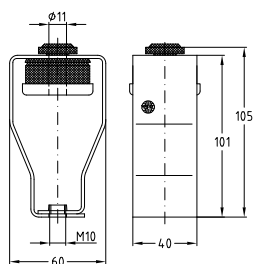
Vibration control hanger M8



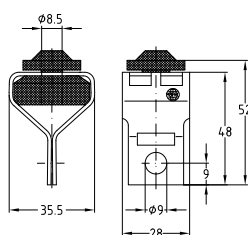
Vibration control hanger M10



For M8



For M10



For strip-mounting



For strip-mounting

### Features



Connection for	Overall height L [mm]	Max. permitted load [N]	Average vibration reduction [dB(A)]	Part no.	Sales unit	Pack unit
Threaded rods M8	40	230	16	117736	100	pieces
Threaded rods M10	110	1,000	17	117733		
Strip-mounting, screws up to M8	55	230	16	117728		

### Saniplast



#### Field of application

- Ideal fitting assistance for all kinds of sanitary ware
- Can be used on both walls and floors

#### Advantages

- Prevents crushing and scraping between sanitary ware and tiles
- Toothed profile adaptable to any shape of sanitary ware
- Special self-adhesive tape allows repeated removal and application
- Double-length use due to central split into two strips
- Resistant to acetic acid-moistened silicone



Length of roll [m]	Usable length [m]	Thickness [mm]	Width [mm]	Part no.	Sales unit	Pack unit
4.5	9	3	36	117338	1	roll



Mounting surfaces must be dry and free of dust and grease. Saniplast should be attached by leaving a short distance to the edge. Mount the object in place and seal the joint with a permanently flexible sealant.

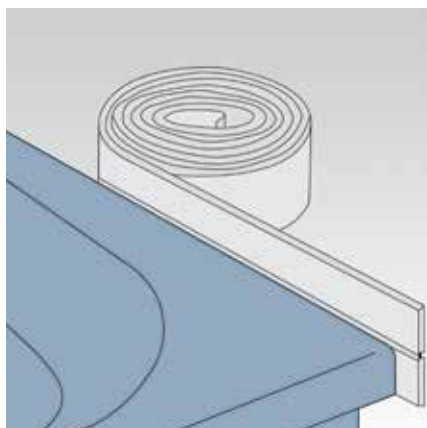
## Joint tape

**Field of application**

- For preventing acoustic bridges between wall and sanitary ware

**Advantages**

- Self-adhesive on one side
- Tape fold-down ensures a mortar-free joint
- Perforation of the joint tape facilitates removal after the tiles have been laid
- Allows easy sealing of the joint with silicone

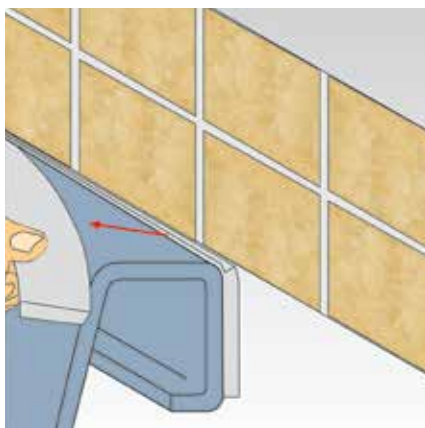


Remove protective film.

The adhesive tape is fitted with the broad side on the edge of the bath and pressed firmly.

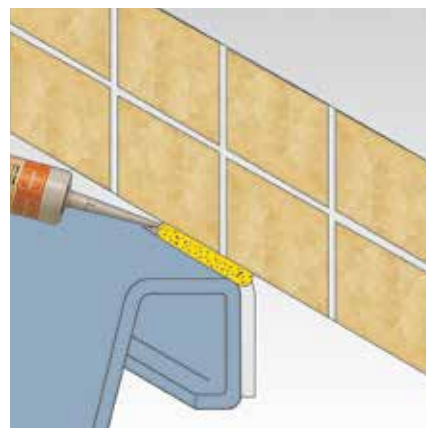
The narrow side is folded down to the bath and fixed in place.

Align the bath to the wall.



The tiles can now be laid with the appropriate distance, taking the width of the joint into account.

Once the tiles are laid, the overlapping strip is removed with a gentle pull.



Subsequently, the clean joint can easily be sealed with silicone.

Length of roll [m]	Thickness [mm]	Width [mm]	Part no.	Sales unit	Pack unit
3.3	4	50	130217	1	roll



### MAFUND® plate



#### Field of application

- For machines, equipment, body soundproofing
- Effective protection from shock, vibration and structure-borne noise

#### Advantages

- High resistance against ageing and chemical influences
- High stability across a wide temperature range
- Convenient, secure application through selection of load and number of MAFUND® layers
- High static friction ensures installation without any further fastening in most cases
- Exceptional suspension and damping
- Minimal material usage with high insulation effect
- More cost-efficient than complete insulation systems
- Extended service life of machines, equipment, etc.
- Lower noise pollution through acoustic decoupling



#### Features

Material	NR/ SBR polymer with a hardness of $45 \pm 5$ Shore A
Temperature range	$-20\text{ °C}$ to $+80\text{ °C}$
Static elasticity module	Est = $324\text{ N/cm}^2$
Dynamic elasticity module	Ed = $441\text{ N/cm}^2$

Loading [ $\text{N/cm}^2$ ]		Dimensions [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
nominal	maximal					
2-25	50	500 x 250 x 25	133990	1	pieces	3,200

## Vibration dampers

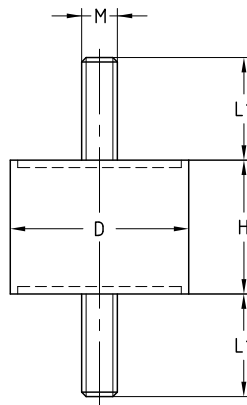
galvanised

### Field of application

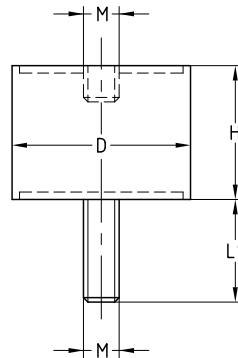
- For vibration-damped installation in various areas of application

### Advantages

- Buffer with cylindrical contour and optional dual-sided external thread or external and internal thread
- Damper available in M8 or M10
- Elastic mounting of equipment, units, pumps, etc.
- Isolation of vibration extends the service life of equipment and motors



Vibration damper with dual-sided external thread



Vibration damper with external and internal thread

### Features

Rubber	Natural rubber
Shore A hardness	57° (medium)

Design	Thread M	Threaded length L <sub>1</sub> [mm]	Outer diameter D [mm]	Height H [mm]	Pressure load <sup>1)</sup>			Part no.	Sales unit	Pack unit
					Spring rate c [N/mm]	Max. recommended load [N]	Optimal load <sup>2)</sup> [N]			
with dual-sided external thread	M8	23	40	30	232	1,060	570	<b>169006</b>	1	pieces
	M10	28	50		440	2,020	1,080	<b>156630</b>		
with external and internal thread	M8	23	40	40	141	860	460	<b>160169</b>		
	M10	28	50		259	1,580	840	<b>169007</b>		

<sup>1)</sup> Reference values, may vary somewhat due to tolerance of rubber hardness

<sup>2)</sup> Optimal for vibration damping (high dynamic stress)



Other types available on request.

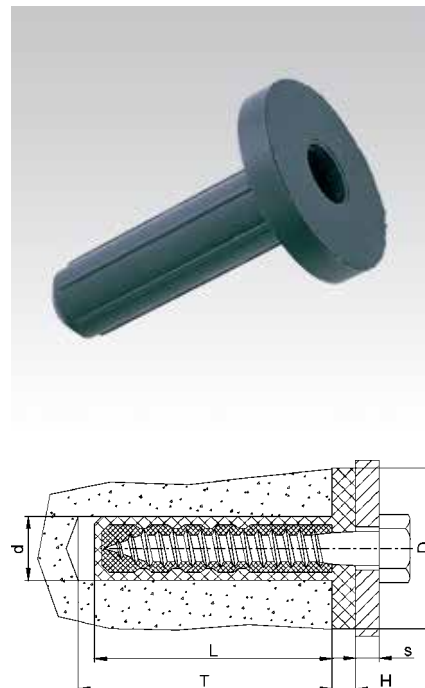
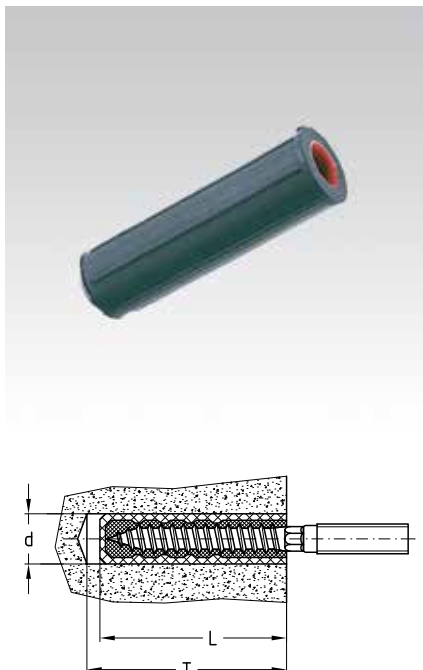
### MÜPRO-PHONEX® Anchors

#### Field of application

- Suitable for structure-borne noise decoupling anchorages in concrete, natural stone, solid brick, lime sand brick, ventilated brick, wood

#### Advantages

- Structure-borne noise isolation already integrated into the anchor
- No additional construction space required for vibration control elements
- Sound level reduction by up to 16 dB(A)
- Suitable for all types of wood screws, e. g. bolt screws and shoulder screws
- The version with vibration collar prevents structure-borne noise transmission even on wall-mounted objects
- Excellent screw guidance, no breaking out at the side
- Suitable for wall-mounted heaters




#### Features



Type	Anchor- $\varnothing$ d [mm]	Anchor length L [mm]	Collar- $\varnothing$ x depth D x H [mm]	Wood screw- $\varnothing$ [mm]	Part no.	Sales unit	Pack unit
With collar	10	30	22 x 5	3.5–5.0	<b>120239</b>	100	pieces
	12	40	30 x 5	4.5–6.0	<b>120243</b>	50	
	14	50	34 x 6	6.0–8.0	<b>120247</b>		
	16	60	42 x 7	8.0–10.0	<b>120251</b>		
	18	70		10.0–12.0	<b>120255</b>		
Without collar	10	30	–	3.5–5.0	<b>120259</b>	100	
	12	40		4.5–6.0	<b>120263</b>	50	
	14	50		6.0–8.0	<b>120268</b>		
	16	60		8.0–10.0	<b>120272</b>		
	18	70		10.0–12.0	<b>120276</b>		

Anchor- $\varnothing$ d [mm]	Drilling depth T [mm]	Screwing depth without collar [mm]	Screwing depth with collar [mm]	Load values <sup>1)</sup> [N]	
				max. recommended tensile load	max. recommended lateral load
10	40	30	34 + S	150	350
12	50	40	45 + S	300	500
14	60	50	55 + S	500	1,000
16	70	60	66 + S	800	1,200
18	80	70	75 + S	1,200	1,400

<sup>1)</sup> Load values apply for concrete strength class  $\geq$  B25 based on max. screw diameter according to table above and use of anchors according to the mounting instructions below (the recommended loads take a safety factor  $v = 5$  into account).

 With all frictional and chemical plug and anchor connections, the load-bearing capability of the plug is influenced decisively by the cleanliness of the drilled hole. Residues such as drill dust reduce the effectiveness of the fixture. For this reason, blow or brush out the hole to free it from dust before inserting the plug (see drill hole cleaning kit).



## Fire protection

	MÜPRO	
1.	Vibration control	
2.	<b>Fire protection</b>	
3.	Pipe clamps	
4.	Support channels	
5.	Accessories	
6.	Anchor points/ expansion points	
7.	Heavy-duty pipe support	
8.	MPT-Support system	
9.	Ventilation	
10.	Pipe connectors	
11.	Stainless steel	
12.	Hot-dip galvanised	
13.	Anchor plugs	
14.	Nameplates	
15.	Insulation	
16.	Sealing and protection materials	
17.	Tools	
18.	Radiator fastening	
19.	Technical information	





## Fire-tested pipe support systems

### The situation

#### Fire protection in building technology

Constructional fire protection is becoming increasingly important in house and building technology. Increasingly complex piping systems and thus rising fire load risks tighten up the requirements on planning, design and installation of piping systems.

This applies especially in the case of buildings for special purposes such as hospitals, old people's homes, shopping centres and schools where fire protection measures are indispensable.

Escape and rescue routes or wall and ceiling penetrations for pipes need to fulfill and combine the demands of constructional fire protection, such as obtaining minimum required duration of fire resistance as well as vibration control and thermal insulation.

The specifications for building fire protection are given by, among others, the German Model Building Code (MBO), the German State Building Codes (LBO), DIN 4102, the German Pipe Systems Guideline LAR (MLAR) as well as by the DIN 4109 standard for vibration control considerations and the German Energy Saving Regulation (EnEV) in the area of thermal insulation.

### The challenge

#### The Fire Protection Requirement according to LAR/DIN 4102

The following requirements are defined for fastenings in the region above self-supporting, fire-protecting false ceilings in terms of fire resistance:

- Fire resistance F30 in the region between ceiling and suspended fire-protection false ceiling
- Fire-proof fastenings for piping systems in escape and rescue routes

- Fastening to approved plugs and anchors made of steel with proof of fire protection
- Proof of stability and deformation of support systems by fire testing
- Material thickness  $\geq 1,5$  mm
- Mounting distance according to the instructions of the pipe manufacturer regarding the maximum permissible load as per the fire test reports.
- Wall hanger brackets additionally suspended at the free end.

### The solution

#### Fire-tested MÜPRO attachment systems

The use of fire-tested MÜPRO attachment systems in combination with a proper fire-protection design of the fastening construction creates a system meeting completely the high demands of a fire resistant attachment system as laid down in DIN 4102 and the LAR.

The modular product range of fire-tested MÜPRO products allows you to build up a comprehensive set of fire-protected attachment solutions. Our application technology team provides competent support in the planning and design of fixture solutions.










### Support technology products meeting the requirements of LAR 11/2005







#### Fire-tested vibration control

	Product	Size	Page
	PHONOLYT®	dB(A) 27-M10 dB(A) 40-M12	1/2

#### Fire-tested pipe clamps

	Product	Size	Page galvanised	Stainless steel
	Single bossed clamps, heavy-duty version, with DÄMMGULAST® yellow	3/8"-6" Connection thread ≥ M12	3/13-3/15	11/3
	Single bossed clamps, heavy-duty version, with DÄMMGULAST® red	3/8"-6" Connection thread ≥ M12	3/16	–
	Single bossed clamps, heavy-duty version, without lining	3/8"-6" Connection thread ≥ M12	3/17-3/19	–
	Single bossed clamps, with DÄMMGULAST® yellow	3/8"-170 mm Connection thread ≥ M10	3/20-3/21	11/1
	Single bossed clamps, with DÄMMGULAST® blue	3/8"-170 mm Connection thread ≥ M10	3/22-3/23	–
	Single bossed clamps, with DÄMMGULAST® red	3/8"-170 mm Connection thread ≥ M10	3/24-3/25	–
	Single bossed clamps, without lining	3/8"-6" Connection thread ≥ M10	3/26-3/27	11/2

#### Fire-tested anchor points/expansion points

	Product	Size	Page galvanised	Stainless steel
	PHONOLYT® Anchor points for pipes, double kit	2"-6" M12	6/2	–
	Sliding stirrups	M10	6/13	–
	Slide guides 1.75 kN	≥ M10	6/17	11/52
	Slide guide 4 kN	≥ M12	6/18-6/19	–
	Box section heavy slide guide 7.8 kN	M12 M16	6/19	–
	Swivel hangers long/short	M10 M12	6/14	–

#### Fire-tested accessories

	Product	Size	Page
	Hanger bracket	M10	5/10













# Support technology products meeting the requirements of LAR 11/2005



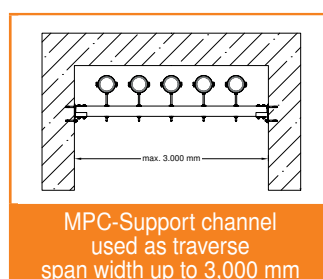
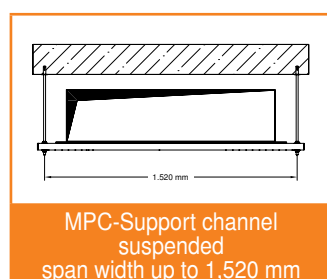
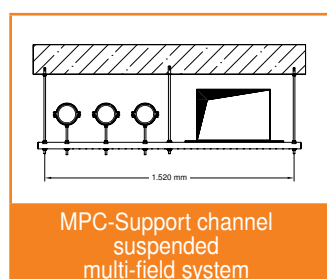
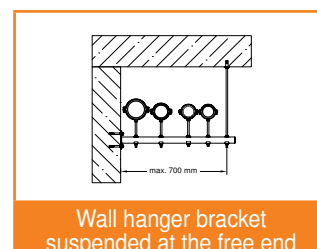
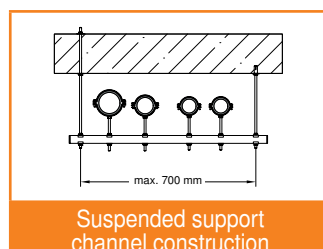
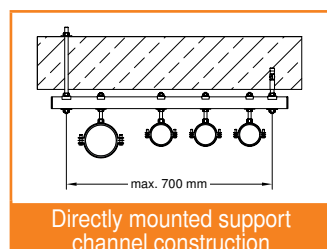
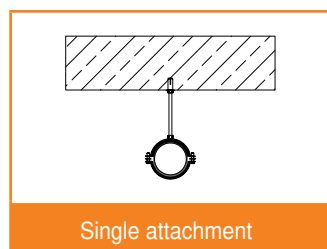
Fire-tested support channels				
	Product	Profile	Page galvanised	Stainless steel
<b>MPC-System components</b>				
	MPC-Support channels	38/40, 39/52, 40/60, 40/80	4/3–4/4	11/7–11/10
	MPC-Support channels, H-profiles	38/48, 38/80, 40/120	4/5–4/8	–
	MPC-Wall hanger brackets	38/40, 40/60, 38/80 ≤ 700 mm	4/9–4/10	11/11–11/12
	MPC-Quick fasteners with external thread	M10 for 38/40–40/120	4/16	–
	MPC-Quick fasteners with internal thread	M10 for 38/40–40/120	4/17–4/18	11/13–11/14
	MPC-Hammer head fasteners	M10 M12	4/19–4/20	11/15
	MPC-Hammer head bolts	M10 M12	4/21	11/16
	MPC-Clamp brackets	M10–M16	4/22	11/17
	MPC-Saddle supports	38/40, 39/52, 40/60, 40/80	4/26	11/21
	MPC-Lateral angle right/left	M10	4/31–4/32	–
<b>MPR-System components</b>				
	MPR-Support channels	41/21/2.0, 41/41/2.0, 41/41/2.5, 41/62/2.5	4/37–4/38	–
	MPR-Support channels, H-profiles	41/82/2.0, 41/124/2.5	4/39–4/42	
	MPR-Wall hanger brackets	41/41/2.5, 41/62/2.5 ≤ 800 mm	4/43–4/44	
	MPR-Quick fasteners	M10, M12 Size for 41/41	4/46–4/47	
	MPR-Hammer head fasteners	M8, M10, M12	4/48–4/49	
	MPR-Clamp brackets	M10, M12, M16	4/51	
	MPR-Quick fasteners type S+	M8, M10, M12	4/60	
	MPR-Slide nuts type S+	M8, M10, M12	4/61	
	MPR-Connection lock type S+	M10	4/62	
	MPR-Saddle supports type S+	41/41, 41/82	4/66	
	MPR-Construction bracket type S+	198 x 198 mm	4/69	

### Support technology products meeting the requirements of LAR 11/2005

#### Fire-tested plugs

	Product	Size	Page galvanised	Stainless steel
	Steel anchors	M6, M8, M10, M12, M16	13/2	11/61
	Through anchors	M8, M10, M12, M16	13/4–13/5	11/62
	Heavy-duty anchors BZ	M8, M10, M12, M16	13/6–13/7	11/63–11/64
	Under cut anchors	M8, M10, M12	13/8	–
	Screws for concrete	M10	13/10–13/13	
	Nail anchors	type N, N-K, N-M	13/14–13/15	
	Hollow-core slab ceiling anchors	M8, M10, M12	13/20	
	Zykon steel hammer set anchors FZEA	M8, M10, M12	13/33–13/34	
	Injection anchors XV Plus for concrete	M8, M10, M12	13/41	
	MPC-Mounting anchors with internal thread	M8	13/16–13/19	
	MPC-Mounting anchors with external thread	M6		
	Chemical reaction anchors VBA	M8	13/35–13/36	

System assemblies tested according to DIN 4102-2 by the North-Rhine Westphalia Materials Testing Office (MPA NRW)





## Products for the attachment of sprinkler systems

Minimum requirements for supports in compliance with VdS-Guideline 2092/CEA 4001

Nominal-Ø [mm]	Minimum load-bearing capacity at 20 °C [kg]	Minimum cross-section area [mm²]	Thread
DN ≤ 50	200	30	M8
50 < DN ≤ 100	350	50	M10
100 < DN ≤ 150	500	70	M12
150 < DN ≤ 200	850	125	M16



### Pipe clamps

	Product	Size	Type	Guideline	Page
	Single bossed clamps, heavy-duty version, without lining	for pipe outer diameter from 3/8" to 2", M8 from 70 mm to 4", M10 from 125 mm to 6", M12	galvanised	VdS 2100	3/17–3/19
	Single bossed clamps, heavy-duty version, with DÄMMGULAST® red	for pipe outer diameter from 3/8" to 2", M8 from 70 mm to 4", M10 from 125 mm to 6", M12			3/16
	Filbow clamps with knurled nut	for pipe outer diameter from 3/4" to 219.1 mm connection for M8–M16 threads			3/42
	Filbow clamps pear-shaped	for pipe outer diameter from 3/4" to 219.1 mm connection for M8–M16 threads			3/41
	Filbow clamps with cup nut	for pipe outer diameter from 1/2" to 10" connection thread M8–M20			3/43

### Wall hanger brackets

	Product	Profile	Type	Guideline	Page
	MPR-Wall hanger brackets	41/41/2.5, 41/62/2.5	galvanised	VdS 2100	4/43–4/44

### Plugs

	Product	Size	Type	Guideline	Page
	Steel anchors	M8 M10 M12	galvanised Stainless steel A4	information VdS <sup>1)</sup>	13/2 11/61
	Heavy-duty anchors BZ	M8 M10 M12 M16			13/6–13/7 11/63–11/64
	Screws for concrete	Ø 7.5 mm hexagonal head Ø 10.0 mm hexagonal head Ø 7.5 mm for tool fitting M8 Ø 10.0 mm for tool fitting M10	galvanised		13/10–13/13





## Products for the attachment of sprinkler systems

### Plugs

	Product	Size	Type	Guideline	Page
	MPC-Mounting anchors with internal thread	M8	galvanised	information VdS <sup>1)</sup>	13/18–13/19
	Hollow-core slab ceiling anchors	M8 M10 M12		VdS 2100	13/20
	Under cut anchors	M8 M10			13/8
	Zykon steel hammer set anchors FZEA	M8 M10 M12		information VdS <sup>1)</sup>	13/33

### Components for pipe suspensions

	Product	Size	Type	Guideline	Page
	Trapezoid-sheet hangers - with welded-on nut - with clearance hole - with adjusting nut	M8 M10	galvanised	VdS 2100	5/16
	Girder clamps with joint type Lindapter FLS	M8 M10			5/11
	Girder clamps, type VSG TKN10	M8 M10 M12			5/12
	Girder clamps, type TKM Kroko	M8 M10 M12		VdS 2100 VdS 2344	5/13
	MPC-Girder cleats	for 38/24 and 38/40 profiles, M8 for 39/52 and 40/60 profiles, M8 for 38/40 and 40/60 profiles, M10		VdS 2100	4/34
	MPR-Girder cleats	for 41/2.0 profile, M8 for 41/2.0 and 41/2.5 profiles, M10		VdS 2100	4/59
	U-bolts	M8–M20		VdS 2092 CEA 4001	3/45



VdS 2100: VdS-Guideline for sprinkler systems, requirements and test methods for components, Issue 1988-05.

VdS 2092: VdS-Guidelines for sprinkler systems; planning and installation incl. transitional arrangement p. 1/2001, Issue 1998-08.

CEA 4001: VdS CEA-Guidelines for sprinkler systems; planning and installation, Issue 2005-09.

Information VdS <sup>1)</sup>: VdS circular, dated, 14.11.2007 addressed to all firms that install fire extinguishers, concerning the use of plugs and anchors for fastening in concrete.



## Products for the attachment of sprinkler systems

Minimum requirements for support in compliance with FM guidelines classes 1951, 1952 and 1953

Nominal-Ø		Thread
[mm]	[inch]	
20 < DN ≤ 100	¾–4	M10
125 < DN ≤ 200	5–8	M12
250 < DN ≤ 300	10–12	M16



### Pipe clamps

	Product	Size	Type	Guideline	Page
	Single bossed clamps, heavy-duty version, without lining	for pipe outer diameter from ¾" to 6" connection thread M10 and M12	galvanised	FM 1951	3/17–3/19
	Filbow clamps with knurled nut	for pipe outer diameter from ¾" to 8" connection thread M10–M16			3/42
	Filbow clamps pear-shaped	for pipe outer diameter from ¾" to 6" connection thread M10, M12			3/41
	Filbow clamps with cup nut	for pipe outer diameter from ¾" to 8" connection thread M10–M16			3/43

### Plugs

	Product	Size	Type	Guideline	Page
	Through anchors	M10 M12 M16	galvanised	FM 1951 FM 1952 FM 1953	13/4–13/5
	Heavy-duty anchors BZ	M10 M12 M16			13/6–13/7
	Steel anchors	M10 M12 M16			13/2

### Components for pipe suspensions

	Product	Size	Type	Guideline	Page
	Girder clamps with joint type Lindapter FLS	M10	galvanised	FM 1951	5/11
	Girder clamps, type VSG TKN10	M10 M12			5/12
	Girder clamps, type TKM Kroko	M10 M12			5/13



## Pipe clamps

MÜPRO

MÜPRO

1. [Vibration control](#)



2. [Fire protection](#)



3. [Pipe clamps](#)



4. [Support channels](#)



5. [Accessories](#)



6. [Anchor points/  
expansion points](#)



7. [Heavy-duty pipe support](#)



8. [MPT-Support system](#)



9. [Ventilation](#)



10. [Pipe connectors](#)



11. [Stainless steel](#)



12. [Hot-dip galvanised](#)



13. [Anchor plugs](#)



14. [Nameplates](#)



15. [Insulation](#)



16. [Sealing and  
protection materials](#)



17. [Tools](#)

























18. [Radiator fastening](#)



19. [Technical information](#)



	Indoor use galvanised	Indoor and outdoor use		
		hot-dip galvanised	Stainless steel	
			V2A	V4A
One-piece pipe clamps				
	OPTIMAL Junior®	3/5		
	EASY clips	3/8		
	VARIO-Twin pipe clamps	3/9		
	Safety clips	3/11–3/12		
Two-piece pipe clamps				
	EURO-QUICK®	3/1		
	OPTIMAL	3/2–3/3		
	Single bossed clamps JUNIOR	3/6		
	Duo	3/7		
	Single bossed clamps, heavy-duty version	3/13–3/19	11/3	11/3
	Single bossed clamps	3/20–3/27	11/1–11/2	11/1–11/2
High-temperature pipe clamps				
	Single bossed clamps, heavy duty version, with DÄMMGULAST® red	3/16	upon request	
	Single bossed clamps, with DÄMMGULAST® red	3/24–3/25	upon request	
Ventilation duct clamps				
	Suspension clamps, for spiral-seam pipes, one-piece	3/32–3/33	upon request	
	Suspension clamps, for spiral-seam pipes, two-piece	3/34–3/35	upon request	
	Duct clamps	9/1–9/4	11/4–11/5	
Slide pipe clamps				
	Slide clamps	3/4		
Sprinkler pipe clamps				
	Filbow clamps pear-shaped	3/41		
	Filbow clamps with knurled nut	3/42		
	Filbow clamps with cup nut	3/43		
	Swivel hangers	3/44		

	Indoor use galvanised	Indoor and outdoor use hot-dip galvanised	Indoor and outdoor use Stainless steel	
			V2A	V4A
Sprinkler pipe clamps				
	Single bossed clamps, heavy-duty version, with DÄMMGULAST® red	3/16		
	Single bossed clamps, heavy-duty version, without lining	3/17–3/19		
Refrigerant pipe clamps				
	Insulation clamps RG 80	3/46–3/47		
	Insulation clamps RG 250	3/50–3/51		
	Insulation clamps type H, M, T	3/52–3/67		
	Insulation clamps type RTN+	3/68–3/79		
	Insulation shells type RTN+	3/80–3/82		
	Insulation clamps type 170/175 EX	3/83–3/86		
	Foam glass pipe holder, with DÄMMGULAST® blue	3/87–3/88		
Heavy-duty pipe support/DIN pipe clamps				
	Pipe clamps DIN 3567		7/26	7/26
	DIN pipe clamps also available without corrosion protection.			
Other pipe clamps				
	Single bossed clamps, with connection socket	3/28–3/31	upon request	
	DÄMMGULAST® Vibration control linings	3/36–3/39		
	Ceramic fabric tapes	3/40		
	U-bolts	3/45		
	Load-distributing sleeves	3/49		
	DUPLO-Solar	3/89		
	Hose clamps	3/90–3/91		
	Fixing clamp small	3/92	<div>VIDEO TIP</div> <div> <b>MÜPRO pipe clamps:</b> our comprehensive range offers the right solution for every application. The video shows the areas of application and sample installations.</div> 	
	Pipe clips	3/93		
	Caoutchouc pipe support	3/94–3/96		



### EURO-QUICK® galvanised

#### Field of application

- Suitable for fixings in housing and industrial areas
- Suitable for fastening of drinking water and heating pipes
- For indoor use

#### Advantages

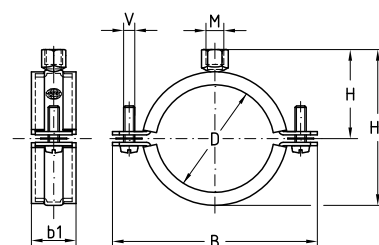
- With highly elastic insert
- Captive fastening screws
- High rigidity thanks to reinforcing rib
- Usable at a temperature range from -50 °C to +110 °C

- Fastening screws with combination cross-head
- Safe handling thanks to rounded flange
- Clip-over edges and the guide rib of the pipe clamp insert ensures a secure hold and prevents it from being pushed out



#### Features

Size	Max. recommended load [N]
12–15 to 25–30 mm	853
32–37 to 59–63 mm	880
63.5–70 to 75–78 mm	1,355
78–84 to 108–115 mm	2,044
114–118 to 212–222 mm	2,700



Connecting thread	For pipe outer Ø		Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[mm]	[inches]				B	b1	H	H1	V
M8	12–15	¼	132122	50	pieces	48.5	21	28.5	40	M6
	15–19	⅜	132123			52.5		30.5	44	
	20–25	½	132124			58.5		33.5	50	
	25–30	¾	132125			62.5		35.5	54	
	32–37	1	132126			70.5		39.5	62	
	40–45	1¼	132127			78.5		43.5	70	
	47–53	1½	132128			86.5		47.5	78	
	54–58		132129			92.5		50.5	84	
	59–63	2	132130			96.5		52.5	88	
	M8/M10	63–70				132131				
72–78		2½	132132	111.0	60.0	103				
78–86			132133	119.0	64.0	111				
87–93		3	132134	126.0	67.5	118				
98–104			132135	137.0	73.0	129				
108–115		4	132136	152.0	79.0	141				
114–118			132137	156.0	81.0	145				
124–130			132138	176.0	87.0	157				
132–137			132139	184.0	28	91.0	165			
137–142		5	132140	195.0		96.0	175			
159–163			132141	217.0		107.0	197			
164–168		6	132142	224.0		109.5	202			
193–203			139166	257.0		128.0	239			
212–222		8	132143	275.0		135.0	257			
				25						

### OPTIMAL galvanised

#### Field of application

- Suitable for fixings in housing and industrial areas
- Suitable for fastening of drinking water and heating pipes
- For indoor use

#### Advantages

Economical solution due to advanced technology:

- **Practical latching fastener**
- The 2 locking screws allow adjustment to accommodate a greater variation in pipe diameter
- Installation advantages of an one-piece clamp
- High security due to the **positive-fit edge hook-in opening**
- **The pipe is free to move during the installation**
- No inadvertent opening once it has clicked in, due to the safety latching fastener



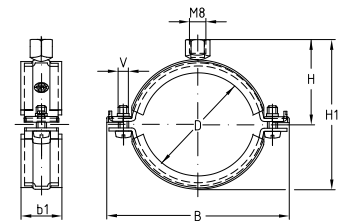
- Tightening bolts with combination, captive cross-head convenient for power driver
- DÄMMGULAST® vibration control lining with green identification stripe: average sound level improvement up to 18 dB(A)
- Optimum handling due to injury-proof design



#### Features



Size	Max. recommended load [N]
¼"-1 ¼"	800
1 ½"-70 mm	1,690
2 ½"-116 mm	2,320
125 mm-6"	2,696



The attachment of pipes, especially under the ceiling, often requires the use of two hands. It is then convenient, if the OPTIMAL latching fastener can be closed with only one hand. After closing the latch, the pipe is safely held in place but remains free to move. Consequently, adjustment of pipe can be made with two hands.

*And don't forget:* high security due to the **positive-fit** edge hook-in opening.

### OPTIMAL galvanised



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b1	H1	H	V
M8	¼		13–15	119822	100	pieces	55	23	42	26	M5
	⅜		16–18	119838			57		45	28	
	½		19–24	119818			63		51	31	
	¾		25–30	119834			70		57	34	
	1		32–37	119806			76		65	38	
	1¼		41–44	119814			85		71	41	
	1½		48–51	119810	50		93		79	45	M6
		57	53–58	119842			100		86	49	
	2		60–63	119826			107		92	52	
		70	69–73	119846			116		101	56	
	2½		74–78	119830			127		106	58	
M8/M10	¼		13–15	119866	100		55	23	46	30	M5
	⅜		16–18	119882			57		49	32	
	½		19–24	119862			63		55	35	
	¾		25–30	119878			70		61	38	
	1		32–37	119850			76		69	42	
	1¼		41–44	119858			85		75	45	
	1½		48–51	119854	50		93		83	49	M6
		57	53–58	119886			100		90	53	
	2		60–63	119870			107		96	56	
		70	69–73	119894			116		105	60	
	2½		74–78	119874			127		28	110	
		83	80–84	119898			132	117		66	
	3		88–90	119794			139	122		68	
		102	99–103	119770			155	136		75	
		110	108–112	119774			163	145		80	
	4		113–117	119798			168	150		82	
		116	116–120	119778			172	153		84	
		125	125–129	119782			174	164		89	
		133	133–137	119786			185	171		93	
	5		137–141	119802			188	176		95	
		160	159–162	119790			212	197		106	
	6		164–168	119890			220	202	108		

	Connecting thread	Size [inch]	Part no.	Sales unit	Pack unit	Content [clamps]	Part no. Polybox excl. clamps	Type
OPTIMAL, with DÄMMGULAST® green, in polybox	M8	¼	119954	1	box	300	121019	Polybox large 500/450 x 300 x 180
		⅜	119962					
		½	119950					
		¾	119958			200		
		1	119946					

### Slide clamps for plastic pipes, galvanised

#### Field of application

- Mounting of plastic pipes
- Gliding

#### Advantages

- The special lining designed for smooth, noiseless sliding of plastic pipes
- With DÄMMGULAST® compound vibration control lining for optimum structure-borne noise damping
- The positive-fit joining of lining and clamp prevents the lining from slipping out

#### The security of the advanced OPTIMAL technology offers further advantages:

- Quick mounting due to practical, self-securing latch mechanism
- No inadvertent opening once it has clicked in, due to the positive-fit edge hook-in opening
- Tightening screw with combination, captive cross-head convenient for power driver



In order to prevent the tilting of the slide clamp, the following threaded rod lengths should not be exceeded:

Size 16 mm–50 mm:

max. 80 mm

Size 56 mm–110 mm:

max. 60 mm

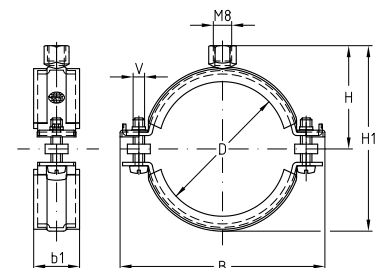
The distances between supports recommended by the plastic pipe manufacturers must be observed.



#### Features



Size [mm]	Max. recommended load [N]
16–40	800
50–63	1,690
75–110	2,320



Connecting thread	Size [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
					B	b1	H1	H	V
M8	16	119902	100	pieces	57	23	45	28	M5
	20	119906			63		51	31	
	25	119910			70		57	34	
	32	119914			76		65	38	
	40	119918	50		85		71	41	M6
	50	119922			93		79	45	
	56	119926			100		86	49	
	63	119930			107		92	52	
	M8/M10	75			119938	127	28	110	
90		119942	139		122	68			
110		119934	163		145	80			

### OPTIMAL Junior® with DÄMMGULAST®, galvanised

#### Field of application

- Suitable for fixings in housing and industrial areas
- Suitable for fastening of drinking water and heating pipes
- For indoor use

#### Advantages

- Practical latching fastener
- Easy clicking-in of the fastening bolt with the tip of a finger
- High safety due to the positive-fit edge hook-in opening
- The pipe is free to move during the installation
- No inadvertent opening once it has clicked in, due to the safety latching fastener
- Quick installation due to the single fastening bolt
- The easy click-in fastener allows opening and closing of the pipe clamp with only one hand
- Captive fastening bolt
- Fastener retains the pipe securely even at the full opening angle of the clamp



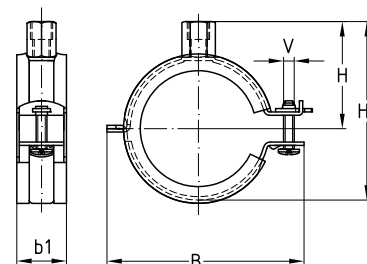
- DÄMMGULAST® vibration control lining with green identification stripe: average sound level improvement up to 18 dB(A)
- Vibration control tested
- **RAL** Gütezeichen This product is awarded with the "Gütezeichen Rohrbefestigung" (quality mark of pipe support) and is submitted to controls according to RAL-GZ 655-B



#### Features



Size	Max. recommended load [N]
12 mm–1¼"	400
1½"–2"	500
70–83 mm	850
3"–4"	1,000



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b1	H1	H	V
M8		12	12–14	141485	100	pieces	50	23	33	20	M5
	¾		15–18	136101			54		37	22	
	½		19–22	136102			58		41	24	
	¾		23–27	136103			63		46	27	
		28	26–30	141486			66		49	28	
	1		32–35	141487			71		54	31	
		40	37–41	141488			77		60	33	
	1¼		42–46	141489			82		65	36	
	1½		48–51	141490			88		71	39	
		55	53–58	141491			94		86	51	
M8/M10		70	59–64	141492	50		101	28	93	54	M6
	2		68–73	119532			119		101	59	
	2½		74–80	119536			126		108	62	
		83	83–87	119540			132		114	65	
	3		89–92	119544			137		119	68	
		102	100–104	119473			148		130	73	
		110	108–111	119477			156		138	77	
	4		112–115	119481			160		142	79	



## Single bossed clamps JUNIOR

two-piece, galvanised

## Field of application

- Suitable for pipe attachments in industrial areas
- Suitable for fastening of drinking water and heating pipes
- For indoor use

## Advantages

- Proven two-piece clamp
- High stiffness due to reinforcing bead
- The 2 locking screws allow adjustment to accommodate a greater variation in pipe diameter

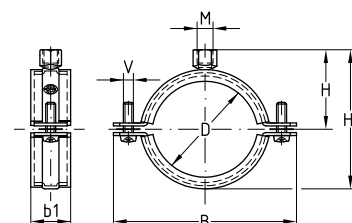
- Tightening bolts with combination cross-head convenient for power driver
- Fastener screws with captive washer
- Connecting thread with combi thread M8/M10
- DÄMMGULAST® vibration control lining with green identification stripe: average sound level improvement up to 18 dB(A)
- Vibration control tested



## Features



Size	Max. recommended load [N]
12 mm–½"	700
¾"–2"	1,200
70 mm–3"	2,000
102 mm–6"	2,500



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b1	H1	H	V
M8/M10		12	6–15	142357	100	pieces	45	22.5	38	28	M5
	3⁄8		15–19	142358			51		44	30	
	1⁄2		20–25	142359			57		50	33	
	3⁄4		25–30	142360			63		56	37	
	1		33–37	142361			70		64	40	
	1 1⁄4		42–46	142362	50		80		72	45	M6
	1 1⁄2		47–52	142363			86		79	48	
		57	54–58	142364			91		84	50	
	2		59–63	142365			96		88	53	
		70	68–73	142366			118		104	60	
	2 1⁄2		72–80	142367	127		113		65		
		83	82–85	142368	132		119		68		
	3		88–92	142369	139		125		71		
		102	99–103	142370	151		137		77		
		110	108–112	142371	160		145		81		
	4		112–118	142372	164		149		83		
		125	125–130	142373	25		174		159	88	
		133	133–137	142374			182		167	92	
	5		137–142	142375			191		175	96	
		160	159–164	142376			210		195	106	
	6		164–169	142377			216		201	109	

	Connecting thread	Size [inch]	Part no.	Sales unit	Pack unit	Content [clamps]	Part no. Polybox excl. clamps	Type
Single bossed clamps JUNIOR, with DÄMMGULAST® green, in polybox	M8/M10	⅜	143958	1	box	200	121019	Polybox large 500/450 x 300 x 180
		½	143959					
		¾	143960					
		1	143961					

### Duo galvanised

#### Field of application

- Suitable for fixings in industrial areas
- Suitable for fastening of drinking water and heating pipes
- For indoor use

#### Advantages

The easy to install quick fastening enables the efficient pipe support in any position:

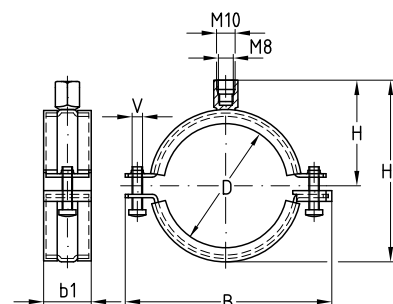
- Quick and reliable snapping in of the fastener once the clamp is closed, holding the pipe securely
- The easy to swivel lower clamp half allows opening and closing of the pipe clamp with only one hand
- Captive fastening bolts
- Wide opening of the clamp due to the swivelling ability of the lower clamp half
- Low vibration entry and exit areas due to the ribbed profile of the DÄMMGULAST® Lining
- Connection thread M8/M10 for suspended, floor or wall mounting
- DÄMMGULAST® vibration control lining with green identification stripe: average sound level improvement up to 18 dB(A)



#### Features



Size	Max. recommended load [N]
12 mm–2"	700
70 mm–4"	1,000



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b1	H1	H	V
M8/M10		12	12–15	142938	100	pieces	45	22.5	38	28	M5
	3⁄8		15–19	142939			51		44	30	
	1⁄2		20–25	142940			57		50	33	
	3⁄4		25–30	142941			63		56	37	
	1		33–37	142942			70		64	40	
	1¼		42–46	142943			80		72	45	
	1½		47–52	142944			86		79	48	
		57	54–58	142945			91		84	50	
	2		59–63	142946	96		88	53	M6		
		70	68–73	142947	118		104	60			
	2½		72–80	142948	127		113	65			
		83	82–85	142949	132		119	68			
	3		89–92	142950	139		125	71			
		102	99–103	142951	151		137	77			
		110	108–112	142952	160		145	81			
	4		112–118	142953	164		149	83			

## EASY clips

galvanised

### Field of application

- Ideal as support for risers or suspended pipes
- Suitable for fixings in housing and industrial areas
- For indoor use

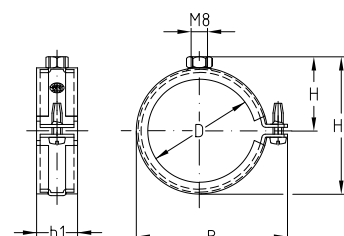
### Advantages

- Efficient fastener for quick pipe attachment
- Quick-fastening, suitable for screw-driver
- Self-locating fastener screw
- Fastener screw with captive washer
- Practical, one-piece design
- DÄMMGULAST® vibration control lining with green identification stripe: average sound level improvement up to 18 dB(A)
- Positive-fit vibration control lining with wide clip-over edges that prevent the lining from slipping out of the clamp



### Features

Size [mm]	Max. recommended load [N]
13.5–28.0	800
33.5–63.0	1,000
68.0–83.0	1,166
88.9–114.3	1,500



Connecting thread	Size		Part no.	Sales unit	Pack unit	Dimensions [mm]			
	[inch]	[mm]				B	b1	H	H1
M8	¼	13.5/15.0	124210	100	pieces	37	18	17	30
	⅜	17.2/18.0	124116			40		19	33
	½	21.3/22.0	124080			44		21	37
	¾	26.9/28.0	124111			50		24	43
	1	33.7	124068			57		27	49
	1¼	42.4	124076			50		67	32
	1½	48.3	124072	73			35	65	
		55.0	124126	79			38	71	
		57.0	124129	81			39	73	
	2	60.3	124093	85			41	77	
		63.0	124133	87			42	79	
		68.0	124137	23			98	52	92
		70.0	124141				100	53	94
		75.0	124145				104	56	100
	2½	76.1	124097				106		
		80.0	124149				111	58	105
		83.0	124153				113	59	107
	3	88.9	124107				121	63	115
		90.0	124157				122	64	116
		102.0	124084				133	69	127
		110.0	124088				142	74	136
	4	114.3	124250	146		76	140		

	Connecting thread	Size [inch]	Part no.	Sales unit	Pack unit	Content [clamps]	Part no.	Type
EASY clips, with DÄMMGULAST® green, in polybox	M8	1/4	124214	1	box	300	Polybox excl. clamps	
		3/8	124239				121031	Polybox medium 350/300 x 200 x 150
		1/2	124202				121019	Polybox large 500/450 x 300 x 180
		3/4	124227					
		1	148138			200		

### VARIO-Twin pipe clamps galvanised

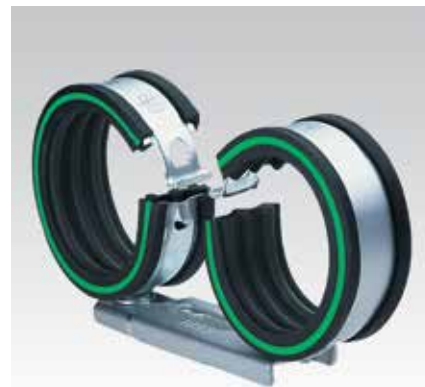
#### Field of application

- Ideal for parallel pipes
- Ideal as support for risers or suspended pipes
- Ideal for good appearance as the safety fastener is on the inside
- Suitable for attachment of pipelines in residential and industrial constructions
- For indoor use

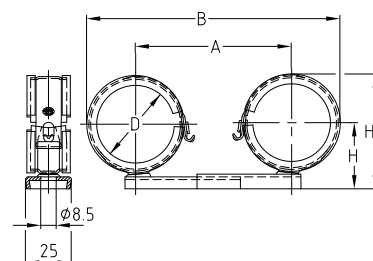
#### Advantages

- Twin clip has the fastening advantages of the safety clip

- Safety fastener without fastening screws
- Distance between pipe axes is adjustable
- Markings facilitate the distance adjustments
- Allows combination of different pipe diameters on one twin clip
- Efficient support for 2 pipes with one anchor plug
- DÄMMGULAST® vibration control lining with green identification stripe: average sound level improvement up to 18 dB(A)



**!** The mounting distance of the pipe from the structure element is determined by the selection of the appropriate bolt screw length. The distance can be adjusted by means of the nut and locknut. The fitting of the VARIO-Twin bracket by means of **anchors** enables the distance from the structure **to be continuously adjusted** while maintaining flexural rigidity.



#### Features



Suitable for	Size		Part no.	Sales unit	Pack unit	Dimensions [mm]			
	[inch]	[mm]				H1	H	B	Adjustment range A
Copper pipes		10	107299	100	pieces	30	21	23+A	40–80
		12	107300			32	22		
		15	107301			35	24	28+A	
		18	107302			38	25	31+A	
		20	107303			40	26		
		22	107304			42	27	35+A	
		24	107305			44	28	37+A	
		28	107306	50		48	30	42+A	50–95
		30	107309			50	31	46+A	
		33	107310			53	33		
		35	107311			55	34		60–105
		42	107312			62	37	56+A	
		43	107313			63	38		
Steel pipes	¾		107308			100	38	25	31+A
	½		107298	42			27	35+A	
	¾		107307	47			30	41+A	50–95
	1		107295	50		54	33	46+A	
	1¼		107297			63	38	56+A	
	1½		107296			69	41	63+A	

### VARIO-Twin brackets

for safety clip, with internal thread, galvanised

Connecting thread	Adjustment range between pipe axes [mm]	Part no.	Sales unit	Pack unit
M8	40–80	107248	50	pieces
	50–95	107249		
	60–105	107247		



### Twin brackets

for safety clip, with internal thread, galvanised

Connecting thread	Distance between pipe axes [mm]	Part no.	Sales unit	Pack unit
M8	40	107243	50	pieces
	55	107244		
	65	107245		
	85	107246		
	105	107240		
	150	107241		
	200	107242		



### Threaded bolts

galvanised

Connecting thread	Total length [mm]	Thread length [mm]	Part no.	Sales unit	Pack unit
M8	9	4	121244	100	pieces
	15	5	121213		
	25		121221		
	35		121228		
	45		121232		
	55		121236		
	65		121240		



### Reinforcement section

for twin brackets from 105 mm upwards, galvanised

Fixing hole Ø [mm]	Part no.	Sales unit	Pack unit
8	107139	50	pieces





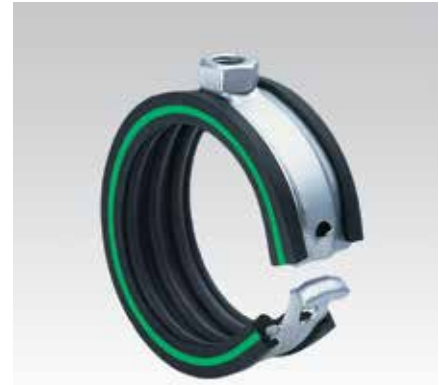
### Safety clips galvanised

#### Field of application

- Suitable for all attachment of pipes in residential constructions
- Ideal as support for risers or suspended pipes
- Ideal for attachment using bolt screws or shoulder screws
- Ideal for the installation of pipes in parallel when used together with twin brackets
- For indoor use

#### Advantages

- Quick and efficient attachment without fastener bolts
- Safety fastening due to form-fit click-in
- Self-locking due to spring effect
- Easy to handle as the shape of the fastener is made to fit the tool
- The pipe is free to move during the installation
- Without fastener lugs – ideal where appearance is important



- The slender construction without fastening lugs allows pipes to be installed close together
- DÄMMGULAST® vibration control lining with green identification stripe: average sound level improvement up to 18 dB(A)



As support for risers



For suspended pipes



For two risers



**To close:** Place the screwdriver on the tool application point, hook into the latch and press the clamp to close

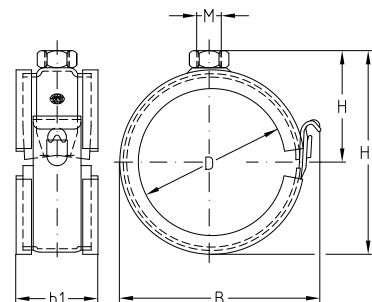


**To open:** Place the screwdriver on the tool application point, press and lift the fastener over the latch

## Safety clips

galvanised

Features	
Size	Max. recommended load [N]
10–22 mm	240
3/8"–1/2"	
24–28 mm	
3/4"	360
1"	
30–40 mm	
42–43 mm	480
1 1/4"–1 1/2"	



Connecting thread	Size		Part no.		Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]	green	white			D	B	b1	H1	H
M8		10.0	123222		100	pieces	10.0	22	19	25	18
		12.0	123226	123324			12.0	24		27	19
		15.0	123230	123328			15.0	27		30	20
		16.0	123234				16.0	28		31	21
	3/8	17.2	123261				17.2	29		32	22
		18.0	123238	123332			18.0	30		33	
		20.0	123242	123351			20.0	32		35	23
	1/2	21.3	123218				21.3	33		36	24
		22.0	123246	123336			22.0	34		37	
		24.0	123250	123340			24.0	36		39	25
	3/4	26.9	123258				26.9	39		42	26
		28.0	123254	123344			28.0	40		43	27
		30.0	123266	123348			30.0	42	24	45	28
		33.0	123274				33.0	45		48	29
	1	33.7	123206	123321			33.7	46		49	30
		35.0	123282				35.0	47		50	
		40.0	123285				40.0	52		55	33
		42.0	123289				42.0	54		57	34
	1 1/4	42.4	123214				42.4				
		43.0	123293				43.0	55		58	35
	1 1/2	48.3	123210				48.3	60		63	37

	Connecting thread	Size [mm]	Part no.	Sales unit	Pack unit	Content [clamps]	Part no. Polybox excl. clamps	Type
Safety clips, with DÄMMGULAST® green, in polybox	M8	15	123305	1	box	300	121031	Polybox medium 350/300 x 200 x 150
		18	123309					
		22	123313					
		28	123317					

### Single bossed clamps

heavy-duty version, with DÄMMGULAST® yellow, galvanised

#### Field of application

- Suitable for pipelines with dynamic loads in combination with expansion points
- Suitable for fixings in industrial areas
- Suitable for fixings in air-conditioning, ventilation and sanitary areas
- For indoor use

#### Advantages

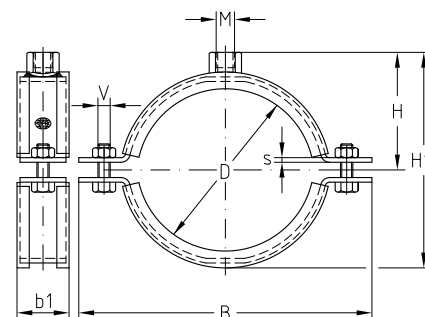
- Proven two-part clamp with increased material cross-section
- Stronger tightening bolts for high load capacity
- DÄMMGULAST® vibration control lining with yellow identification stripe: average sound level improvement up to 22 dB(A)



#### Features



Size	Connecting thread	Max. recommended load [N]
1½"-2"	M12	4,200
2½"-4"		5,000
125 mm-6"		6,700
180-280 mm	M12	7,500
315 mm	M12/M16/½" ET	7,500
	M12/M16/½" IT	
	M12/M16/1" IT	
	M12	
323-355 mm	M12/M16/½" EG	11,000
	M12/M16/½" IT	
	M12/M16/1" IT	
	M12	
405-429 mm	M12/M16/½" ET	9,000
	M12/M16/½" IT	
	M12/M16/1" IT	
	M12	
450-635 mm	M12/M16/½" ET	11,000
	M12/M16/½" IT	
	M12/M16/1" IT	
405-429 mm	M12/M16/½" ET	12,500
	M12/M16/½" IT	
	M12/M16/1" IT	
450-635 mm	M12/M16/½" ET	17,000
	M12/M16/½" IT	
	M12/M16/1" IT	



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]					
	[inch]	[mm]					b x s	B	b1	H1	H	V
M12	1½		48-54	121914	50	pieces	30 x 3.0	110	34	82	49	M8
	2		57-64	122099				126		99	57	M8
	2½	83	72-80	122111				144		111	63	M10
			79-85	122534				146		114	65	M8
	3	102	88-92	122266				159		122	69	M10
			99-103	121934				170		134	75	M10
	4	125	108-118	122353				184		149	82	M10
			121-127	121998				204	46	160	88	M10
	5	133	133-141	122018			40 x 4.0	212		176	95	M10
			138-144	122429				217		177	96	M10
			159-168	122052				235		195	105	M10
			164-170	122473				242		204	109	M10
	6	180	178-182	122079				260		220	118	M10
			193-203	122123				280		235	125	M10

⚠ Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications.

ℹ Please refer to chapter „Heavy-duty pipe support“ for pipe clamps DIN 3567.

### Single bossed clamps

heavy-duty version, with DÄMMGULAST® yellow, galvanised

Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]								
	[inch]	[mm]					b x s	B	b1	H1	H	V			
M12		212	208–214	122151	10	pieces	40 x 4.0	299	46	245	130	M10			
		219	217–224	122167				302		257	136				
		225	222–228	122187						260	138				
		250	244–254	122214				330		285	148				
		267	267–277	122234				360		311	163				
		280	278–282	122250						315	165				
		315	313–318	122294				394		350	183				
		323	320–326	122305				50 x 5.0		415	56		360	188	M12
		355	353–360	122325						447			392	204	
M12/M16/ ½" ET		180	176–181	166474	1		40 x 4.0	283	46	229	125	M16			
		198	193–200	166475				301		247	134				
		212	208–214	166476				315		261	141				
		223	219–225	166477				326		272	147				
		248	244–250	166478				351		297	159				
		272	267–274	166479				375		321	171				
		280	276–282	166480				383		329	175				
		315	311–316	166481				50 x 5.0		421	57		370	194	
		326	322–327	166482						432			381	199	
		355	351–356	166483			461		410	214					
		405	400–407	166484			511	460	239						
		429	425–430	166485			535	484	251						
		450	446–451	166486			60 x 6.0	559	66	506	262				
		457	453–458	166487				566		513	266				
		500	495–501	166488				609		556	287				
		508	503–509	166489				617		564	291				
		532	527–533	166490				641		582	303				
		560	555–561	166491				669		602	317				
		610	605–611	166492				719		641	342				
		635	630–636	166493				744		691	355				
	M12/M16/ ½" IT		180	176–181			167427			40 x 4.0	283	46	248	144	
		198	193–200	167428	301	266	153								
		212	208–214	167429	315	280	160								
		223	219–225	167430	326	291	166								
		248	244–250	167431	351	316	178								
		272	267–274	167432	375	340	190								
		280	276–282	167433	383	348	194								
		315	311–316	167434	50 x 5.0	421	57				389		213		
		326	322–327	167435		432					400		218		
		355	351–356	167436		461				429	233				
		405	400–407	167437	511	479	258								
		429	425–430	167438	535	503	270								
		450	446–451	167439	60 x 6.0	559	66			525	281				
		457	453–458	167440		566				532	285				
		500	495–501	167441		609				575	306				
		508	503–509	167442		617				583	310				
		532	527–533	167443		641				601	322				
		560	555–561	167444		669				621	336				
		610	605–611	167445		719				660	361				
		635	630–636	167446		744				710	374				



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications.



Please refer to chapter „Heavy-duty pipe support“ for pipe clamps DIN 3567.

### Single bossed clamps

heavy-duty version, with DÄMMGULAST® yellow, galvanised

Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]					
	[inch]	[mm]					b x s	B	b1	H1	H	V
M12/M16/ 1" IT		180	176–181	167467	1	pieces	40 x 4.0	283	46	266	162	M16
		198	193–200	167468				301		284	171	
		212	208–214	167469				315		298	178	
		223	219–225	167470				326		309	184	
		248	244–250	167471				351		334	196	
		272	267–274	167472				375		358	208	
		280	276–282	167473				383		366	212	
		315	311–316	167474			50 x 5.0	421	57	407	231	
		326	322–327	167475				432		418	236	
		355	351–356	167476				461		447	251	
		405	400–407	167477				511		497	276	
		429	425–430	167478				535		521	288	
		450	446–451	167479			60 x 6.0	559	66	543	299	
		457	453–458	167480				566		550	303	
		500	495–501	167481				609		593	324	
		508	503–509	167482				617		601	328	
		532	527–533	167483				641		619	340	
		560	555–561	167484				669		639	354	
		610	605–611	167485				719		678	379	
		635	630–636	167486				744		728	392	



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications.



Please refer to chapter „Heavy-duty pipe support“ for pipe clamps DIN 3567.



## Single bossed clamps

heavy-duty version, with DÄMMGULAST® red, galvanised

## Field of application

- Suitable for pipelines with dynamic loads in combination with expansion points
- Suitable for fixings in industrial areas
- Suitable for fastening of drinking water and heating pipes as well as for thermal oil pipes
- Attachment of pipelines in increased temperature ranges
- For indoor use

## Advantages

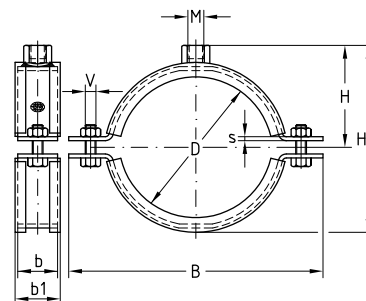
- Proven two-part clamp with increased material cross-section
- Stronger fastening latches for high load capacity
- High strength all-round welding of the connecting nut
- DÄMMGULAST® vibration control lining red, high-temperature resistant up to +225 °C
- Average sound level improvement up to 24 dB(A)
- Approved for the attachment of sprinkler systems by VdS



## Features



Size	Max. recommended load [N]
3/8"–3"	5,000
102–133 mm	5,830
5" upwards	6,666



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]							
	[inch]	[mm]					b x s	B	b1	H1	H	V		
M8	⅜		14–19	124418	100	pieces	30 x 3.0	74.0	34	46.0	29.0	M8		
	½		20–26	124422				83.0		52.0	32.0			
	¾		25–28	124425				88.3		57.0	34.5			
	1		30–35	124430				91.5		61.0	36.5			
	1¼		40–43	124434				102.5		72.0	42.0			
	1½		48–54	124438				109.9		79.0	45.5			
	2		57–64	124442				125.6		96.0	54.0			
M10		70	68–72	124302	50		pieces	30 x 3.0	133.6	34	105.0	59.5	M10	
	2½		72–80	124306					144.4		110.0	62.0		
		83	82–86	124311					155.0		119.1	66.6		
	3		88–92	124315					158.6		121.0	67.5		
		102	99–103	124283					170.4		133.2	73.6		
	4		108–118	124287					184.2		147.6	80.8		
		125	125–130	124331					202.5		164.0	90.0		
M12		133	133–141	124339	25			pieces	40 x 4.0	211.5	46	177.0	96.5	M12
	5		138–144	124343						217.0		178.0	97.0	
		160	159–168	124347						235.0		196.0	106.0	
	6		164–170	124359						242.0		205.0	110.5	



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

### Single bossed clamps

heavy-duty version, without lining, galvanised

#### Field of application

- Applicable as a pipeline anchor point
- Suitable for installations without vibration control requirements
- Attachment of sprinkler lines
- Suitable for fixings in industrial areas
- For indoor use

#### Advantages

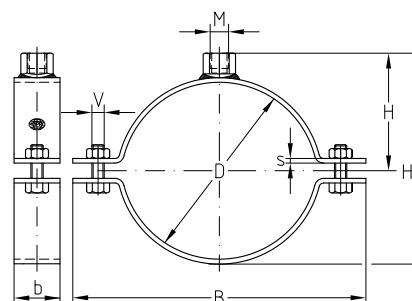
- Proven two-part clamp with increased material cross-section
- Stronger fastening latches for high load capacity
- High strength all-round welding of the connecting nut



#### Features



Size	Max. recommended load [N]
3/8"-3"	5,000
102-125 mm	5,800
5"-6"	6,700
180-280 mm	11,000
315-429 mm	15,000
450-635 mm	17,000



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	VdS	FM	Dimensions [mm]				
	[inch]	[mm]							b x s	B	H1	H	V
M8	⅜		14–18	125699	100	pieces	●		30 x 3.0	66	33	22	M8
	½		20–22	125693			●			71	38	25	
	¾		25–28	125697			●			74	45	28	
	1		31–35	125687			●			83	51	31	
	1¼		40–43	125691	50		●			92	60	35	
	1½		48–52	125689			●			100	69	40	
		57	53–57	125701			●			105	74	43	
	2		58–61	125695			●			110	78	45	
M10	⅜		14–18	124771	100			66		35	24	M10	
	½		20–22	124507				71		40	27		
	¾		25–28	124765			●	74		47	30		
	1		31–35	124495			●	83		53	33		
	1¼		40–43	124503	50		●	92		62	37		
	1½		48–52	124499			●	100		71	42		
		57	53–57	124861			●	105		76	45		
	2		58–61	124650			●	110		80	47		
		70	68–73	124906		●	●	121	92	52			
	2½		73–78	124653		●	●	126	97	55			
		83	80–85	124930		●	●	134	104	59			
	3		85–90	124762		●	●	144	109	61			
		102	98–104	124519		●	●	159	120	67			
	4		108–116	124814		●	●	170	132	73			

⚠ Please refer to chapter „Anchor points/expansion points" for further information regarding the attachment of anchor and expansion points.

ℹ Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications.

### Single bossed clamps heavy-duty version, without lining, galvanised

Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	VdS	FM	Dimensions [mm]				
	[inch]	[mm]							b x s	B	H1	H	V
M12	3⁄8		14–18	125259	100	pieces			30 x 3.0	66	37	26	M8
	1⁄2		20–22	124965						71	42	29	
	3⁄4		25–28	125257				●		74	49	32	
	1		31–35	124955			●	83		55	35		
	1¼		40–43	124961	50		●	92		64	39		
	1½		48–52	124958			●	100		73	44		
		57	53–57	125372			●	105		78	47		
	2		58–61	125127			●	110		82	49		
		70	68–73	125406			●	121		94	54		
	2½		73–78	125129			●	126		99	57		
		83	80–85	125434			●	134		106	61		
	3		85–90	125255			●	144		111	63	M10	
		102	98–104	124968			●	159		122	69		
	4		108–116	125314			●	170		134	75		
		125	124–130	125038			●	184		149	82		
	5		133–140	125356			25	●	●	40 x 4.0	203	163	89
	6		160–169	125374	●			●	231		191	103	
M12/M16/ ½" ET		180	176–181	166454	1			50 x 5.0	271	213	119	M16	
		198	193–200	166455					289	231	128		
		212	208–214	166456					303	245	135		
		223	219–225	166457					314	256	141		
		248	244–250	166458					339	281	153		
		272	267–274	166459					363	305	165		
		280	276–282	166460					371	313	169		
		315	311–316	166461					409	350	188		
		326	322–327	166462				420	361	193			
		355	351–356	166463				449	390	208			
		405	400–407	166464				499	440	233			
		429	425–430	166465				523	464	245			
		450	446–451	166466				60 x 6.0	547	487	256		
		457	453–458	166467					554	494	260		
		500	495–501	166468					597	537	281		
		508	503–509	166469					605	545	285		
		532	527–533	166470					629	569	297		
		560	555–561	166471					657	597	311		
		610	605–611	166472					702	647	336		
		635	630–636	166473					732	672	349		
M12/M16/ ½" IT		180	176–181	167407			40 x 4.0	271	232	138			
		198	193–200	167408				289	250	147			
		212	208–214	167409				303	264	154			
		223	219–225	167410				314	275	160			
		248	244–250	167411				339	300	172			
		272	267–274	167412			363	324	184				
		280	276–282	167413			371	332	188				
		315	311–316	167414			50 x 5.0	409	369	207			
		326	322–327	167415				420	380	212			
		355	351–356	167416				449	409	227			
	405	400–407	167417			499		459	252				
	429	425–430	167418			523		483	264				



Please refer to chapter „Anchor points/expansion points“ for further information regarding the attachment of anchor and expansion points.



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications.

### Single bossed clamps heavy-duty version, without lining, galvanised

Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	VdS	FM	Dimensions [mm]				
	[inch]	[mm]							b x s	B	H1	H	V
M12/M16/ ½" IT		450	446–451	167419	1	pieces			60 x 6.0	547	506	275	M16
		457	453–458	167420						554	513	279	
		500	495–501	167421						597	556	300	
		508	503–509	167422						605	564	304	
		532	527–533	167423						629	588	316	
		560	555–561	167424						657	616	330	
		610	605–611	167425						702	666	355	
		635	630–636	167426						732	691	368	
		180	176–181	167447					40 x 4.0	271	250	156	
M12/M16/ 1" IT		198	193–200	167448						289	268	165	
		212	208–214	167449						303	282	172	
		223	219–225	167450						314	293	178	
		248	244–250	167451						339	318	190	
		272	267–274	167452						363	342	202	
		280	276–282	167453						371	350	206	
		315	311–316	167454					50 x 5.0	409	387	225	
		326	322–327	167455						420	398	230	
		355	351–356	167456						449	427	245	
		405	400–407	167457						499	477	270	
		429	425–430	167458						523	501	282	
		450	446–451	167459					60 x 6.0	547	524	293	
		457	453–458	167460						554	531	297	
		500	495–501	167461						597	574	318	
		508	503–509	167462						605	582	322	
		532	527–533	167463						629	606	334	
		560	555–561	167464						657	634	348	
		610	605–611	167465						702	684	373	
		635	630–636	167466						732	709	386	



Please refer to chapter „Anchor points/expansion points" for further information regarding the attachment of anchor and expansion points.



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications.

## Single bossed clamps

with DÄMMGULAST® yellow, galvanised

### Field of application

- Suitable combination for pipelines with dynamic loads with expansion points
- Suitable for fixings in housing and industrial areas
- Suitable for fixings in industrial areas, as well as in air-conditioning, ventilation and sanitary areas
- For indoor use

### Advantages

- Proven two-piece single bossed clamp
- The 2 locking screws allow adjustments to accommodate a greater variation in pipe diameter
- Tightening bolts with combination cross-head convenient for power driver

- Tightening bolts secured with captive washers
- Heavy duty type with high load capacity due to creased shape
- Acoustic insulation, positive-fit liner with wide clip-over edges prevent the lining from slipping out of the pipe clamp
- DÄMMGULAST® vibration control lining with yellow identification stripe: average sound level improvement up to 22 dB(A)



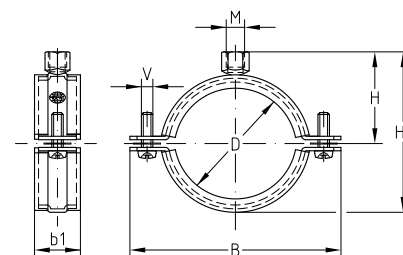
This product is awarded with the „Gütezeichen Rohrbefestigung“ (quality mark of pipe support) up to size ≤ 200 mm and is submitted to controls according to RAL-GZ 655-B



### Features



Size	Max. recommended load [N]
3/8"-2"	1,700
70-83 mm	2,200
3"-6"	2,900
170-200 mm	3,500
212-225 mm	5,800



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b1	H1	H	V
M8/M10	⅜		14–20	151359	100	pieces	64	23	55	35.5	M6 x 20
	½		21–26	151360			71		61	38.5	
	¾		26–30	151361			75		65	40.5	
	1		31–38	151362			81		71	43.5	M6 x 25
	1¼		40–47	151364			91		81	48.5	
	1½		48–54	151365			100		89	52.5	
		57	54–60	151366	105		94	55.0			
	2		60–66	151367	50		111	100	58.0	M8 x 35	
		70	68–73	151369			126	109	62.5		
	2½		73–80	151370			131	114	65.0		
		83	82–87	151371			142	124	70.0		
	3		87–94	151372			146	128	72.0	M8 x 40	
		102	99–104	151373			157	139	77.5		
		110	105–112	151374			166	148	82.0		
	4		112–118	151375			172	154	85.0		
		125	122–128	151376			182	164	90.0		
		133	132–137	151377			191	173	94.5		
	5		137–142	151378			196	178	97.0		
		144	142–148	151379			202	184	100.0		
		150	149–156	151380			210	192	104.0		
		160	159–164	151422			218	200	108.0		
	6		164–169	151423			223	205	110.5		
		170	169–172	151424			225	207	111.5		



Single bossed clamps can be produced in all other pipe sizes and types. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

### Single bossed clamps with DÄMMGULAST® yellow, galvanised

Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]					
	[inch]	[mm]					B	b1	H1	H	V	
M10/M12	⅜		14–20	151425	100	pieces	64	23	60	40.5	M6 x 20	
	½		21–26	151426			71		66	43.5	M6 x 25	
	¾		26–30	151427			75		70	45.5		
	1		31–38	151428			81		76	48.5		
	1¼		40–47	151430	91		86		53.5			
	1½		48–54	151431	100		94		57.5	M8 x 35		
		57	54–60	151432	105		99		60.0			
	2		60–66	151433	111		105		63.0			
		70	68–73	151435	126		28	114	67.5			
	2½		73–80	151436	131			119	70.0			
		83	82–87	151437	142			129	75.0			
	3		87–94	151438	146			133	77.0		M8 x 40	
		102	99–104	151439	157			144	82.5			
		110	105–112	151440	166			153	87.0			
	4		112–118	151441	172			159	90.0			
		125	122–128	151442	182			169	95.0			
		133	132–137	151443	191			178	99.5			
	5		137–142	151444	196			183	102.0			
		144	142–148	151445	202			189	105.0			
		150	149–156	151446	210			197	109.0			
		160	159–164	151447	218			205	113.0			
	6		164–169	151448	223			210	115.5			
		170	169–172	151449	225			212	116.5			
		180	177–183	151450	25			235	223	122.0		
		200	197–203	151451				256	243	132.0		
		212	208–214	151452			284	46	256	138.5	M10 x 40	
	8		217–225	151453			295		267	144.0		
		225	225–232	151454	304		274		147.5			
	M12/M16/½"	5		137–142	151455		50		196	28		187
			144	142–148	151456			202	193		109.0	
		150	149–156	151457	210			201	113.0			
		160	159–164	151458	218			209	117.0			
6			164–169	151459	223			214	119.5			
		170	169–172	151460	225			216	120.5			
		180	177–183	151461	235			227	126.0			
		200	197–203	151462	256			247	136.0			
		212	208–214	151463	284		46	260		M10 x 40		
8			217–225	151464	295			271	142.5			
		225	225–232	151465	304			278	148.0			



Single bossed clamps can be produced in all other pipe sizes and types.  
For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.



# Single bossed clamps

with DÄMMGULAST® blue, galvanised

## Field of application

- Suitable combination for pipelines with dynamic loads with expansion points
- Suitable for fixings in housing and industrial areas
- Suitable for fixings in industrial areas as well as in air-conditioning, ventilation and sanitary areas
- For indoor use

## Advantages

- Proven two-piece single bossed clamp
- The 2 locking screws allow adjustments to accommodate a greater variation in pipe diameter
- Vibration control lining DÄMMGULAST® with blue identification stripe: **Fire classification B1 according to DIN 4102, no flammable dripping**

- Average sound level improvement up to 16.5 dB(A)
- Tightening bolts with combination cross-head convenient for power-driver
- Tightening bolts secured with captive washers
- Heavy-duty type with high load capacity due to creased shape
- Acoustic insulation, positive-fit liner with wide clip-over edges prevent the lining from slipping out of the pipe clamp



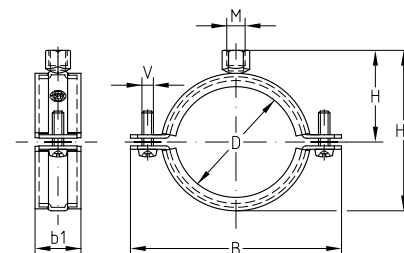
This product is awarded with the „Gütezeichen Rohrbefestigung“ (quality mark of pipe support) up to size ≤ 200 mm and is submitted to controls according to RAL-GZ 655-B



## Features



Size	Max. recommended load [N]
3/8"-2"	1,500
70-83 mm	2,200
3"-6"	2,900
170-200 mm	3,200
212-225 mm	5,800



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b1	H1	H	V
M8/M10	3/8		14–20	151466	100	pieces	64	23	55	35.5	M6 x 20
	1/2		21–26	151467			71		61	38.5	
	3/4		26–30	151468			75		65	40.5	
	1		31–38	151469			81		71	43.5	
	1 1/4		40–47	151471			91		81	48.5	
	1 1/2		48–54	151472	50		100	89	52.5	M6 x 25	
		57	54–60	151473		105	94	55.0			
	2		60–66	151474		111	100	58.0			
		70	68–73	151476		126	109	62.5	M8 x 35		
	2 1/2		73–80	151477		131	114	65.0			
		83	82–87	151478		142	124	70.0			
	3		87–94	151479		146	128	72.0	M8 x 40		
		102	99–104	151480		157	139	77.5			
		110	105–112	151481		166	148	82.0			
	4		112–118	151482		172	154	85.0			
		125	122–128	151483		182	164	90.0			
		133	132–137	151484		191	173	94.5			
			137–142	151485		196	178	97.0			
		144	142–148	151486		202	184	100.0			
		150	149–156	151487		210	192	104.0			
		160	159–164	151488		218	200	108.0			
	6		164–169	151489		223	205	110.5			
		170	169–172	151490		225	207	111.5			



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

### Single bossed clamps

with DÄMMGULAST® blue, galvanised



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]						
	[inch]	[mm]					B	b1	H1	H	V		
M10/M12	⅜		14–20	151491	100	pieces	64	23	60	40.5	M6 x 20		
	½		21–26	151492			71		66	43.5	M6 x 25		
	¾		26–30	151493			75		70	45.5			
	1		31–38	151494			81		76	48.5			
	1¼		40–47	151496			91		86	53.5			
	1½		48–54	151497			100		94	57.5			
		57	54–60	151498	50		105		99	60.0	M8 x 35		
	2		60–66	151499			111		105	63.0			
		70	68–73	151501			126	28	114	67.5		M8 x 35	
	2½		73–80	151502			131		119	70.0			
		83	82–87	151503			142		129	75.0			
	3		87–94	151504			146		133	77.0	M8 x 40		
		102	99–104	151505			157		144	82.5			
		110	105–112	151506			166		153	87.0			
	4		112–118	151507			172		159	90.0			
		125	122–128	151508			182		169	95.0			
		133	132–137	151509			191	178	99.5				
	5		137–142	151510			196	183	102.0				
		144	142–148	151511			202	189	105.0				
		150	149–156	151512			210	197	109.0				
		160	159–164	151513			218	205	113.0				
	6		164–169	151514			223	210	115.5				
		170	169–172	151515			225	212	116.5				
		180	177–183	151516			25	235	223	122.0			
		200	197–203	151517				256	243	132.0			
		212	208–214	151518				284	46	256	138.5	M10 x 40	
	8		217–225	151519				295		267	144.0		
		225	225–232	151520				304		274	147.5		
	M12/M16/½"	5		137–142				151521	50	196	28	187	106.0
			144	142–148			151522	202		193		109.0	
		150	149–156	151523	210		201	113.0					
		160	159–164	151524	218		209	117.0					
6			164–169	151525	223		214	119.5					
		170	169–172	151526	225		216	120.5					
		180	177–183	151527	25		235	227	126.0	M10 x 40			
		200	197–203	151528			256	247	136.0				
		212	208–214	151529			284	46	260				
8			217–225	151530			295		271		142.5		
		225	225–232	151531			304		278		148.0		



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

# Single bossed clamps

with DÄMMGULAST® red, galvanised

## Field of application

- Suitable for pipelines with dynamic loads in combination with expansion points
- Suitable for fixings in housing and industrial areas
- Suitable for fixings in industrial areas as well as in air-conditioning, ventilation and sanitary areas and thermal oil pipes
- Attachment of pipelines in increased temperature ranges
- For indoor use

## Advantages

- Proven two-piece single bossed clamp
- The 2 locking screws allow adjustment to accommodate a greater variation in pipe diameter
- With **high-temperature resistant DÄMMGULAST® Vibration control lining red**

- The high-quality DÄMMGULAST® section maintains its properties in **the temperature range -60 °C to +225 °C**
- Average sound level improvement up to 24 dB(A)
- Tightening bolts with combination cross-head convenient for power driver
- Tightening bolts secured with captive washers
- Heavy-duty type with high load capacity due to creased shape
- Acoustic insulation, positive-fit liner with wide clip-over edges prevent the lining from slipping out of the pipe clamp

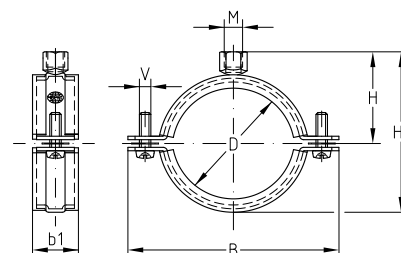
This product is awarded with the „Gütezeichen Rohrbefestigung“ (quality mark of pipe support) up to size ≤ 200 mm and is submitted to controls according to RAL-GZ 655-B



## Features



Size	Max. recommended load [N]
3/8"-2"	1,300
70-83 mm	2,200
3"-6"	2,900
170-200 mm	3,500
212-225 mm	5,300



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b1	H1	H	V
M8/M10	⅜		14–20	151532	100	pieces	64	23	55	35.5	M6 x 20
	½		21–26	151533			71		61	38.5	M6 x 25
	¾		26–30	151534			75		65	40.5	
	1		31–38	151535			81		71	43.5	
	1¼		40–47	151537	91		81		48.5		
	1½		48–54	151538	100		89		52.5		
		57	54–60	151539	105		94		55.0		
	2		60–66	151540	111		100		58.0		
		70	68–73	151542	126		28	109	62.5	M8 x 35	
	2½		73–80	151543	131			114	65.0		
		83	82–87	151544	142			124	70.0		
	3		87–94	151545	146			128	72.0	M8 x 40	
		102	99–104	151546	157			139	77.5		
		110	105–112	151547	166			148	82.0		
	4		112–118	151548	172			154	85.0		



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

### Single bossed clamps with DÄMMGULAST® red, galvanised

Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]									
	[inch]	[mm]					B	b1	H1	H	V					
M8/M10		125	122–128	151549	50	pieces	182	28	164	90.0	M8 x 40					
		133	132–137	151550			191		173	94.5						
	5		137–142	151551			196		178	97.0						
		144	142–148	151552			202		184	100.0						
		150	149–156	151553			210		192	104.0						
		160	159–164	151554			218		200	108.0						
	6		164–169	151555			223		205	110.5						
		170	169–172	151556			225		207	111.5						
	M10/M12	3⁄8		14–20			151557		100			64	22	60	40.5	M6 x 20
		1⁄2		21–26			151558					71		66	43.5	
3⁄4			26–30	151559	75	70	45.5									
1			31–38	151560	81	76	48.5	M6 x 25								
1¼			40–47	151562	91	86	53.5									
1½			48–54	151563	100	94	57.5									
		57	54–60	151564	105	99	60.0									
2			60–66	151565	111	105	63.0									
		70	68–73	151567	126	28	114	67.5	M8 x 35							
2½			73–80	151568	131		119	70.0								
		83	82–87	151569	142		129	75.0								
3			87–94	151570	146		133	77.0	M8 x 40							
		102	99–104	151571	157		144	82.5								
		110	105–112	151572	166		153	87.0								
4			112–118	151573	172		159	90.0								
		125	122–128	151574	182		169	95.0								
		133	132–137	151575	191		178	99.5								
5			137–142	151576	196		183	102.0								
		144	142–148	151577	202		189	105.0								
		150	149–156	151578	210		197	109.0								
		160	159–164	151579	218		205	113.0								
6			164–169	151580	223		210	115.5								
		170	169–172	151581	225		212	116.5								
		180	177–183	151582	25		235	223			122.0					
		200	197–203	151583			256	243			132.0					
		212	208–214	151584			284	46	256		138.5	M10 x 40				
8			217–225	151585		295	267		144.0							
		225	225–232	151586		304	274		147.5							
M12/M16/1½"		5		137–142	151587	50		196	28		187	106.0	M8 x 40			
			144	142–148	151588			202			193	109.0				
		150	149–156	151589	210			201			113.0					
		160	159–164	151590	218			209			117.0					
	6		164–169	151591	223			214			119.5					
		170	169–172	151592	225			216			120.5					
		180	177–183	151593	25	235		227			126.0					
		200	197–203	151594		256		247			136.0					
		212	208–214	151595		284		46			260		M10 x 40			
	8		217–225	151596		295					271	142.5				
		225	225–232	151597		304			278		148.0					



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

## Single bossed clamps without lining, galvanised

### Field of application

- Applicable as a pipeline anchor point from ½" to 1½"
- Suitable for installations without vibration control requirements
- Suitable for fixings in housing and industrial areas
- Suitable for fixings in air-conditioning, ventilation and sanitary areas
- For indoor use

### Advantages

- The 2 locking screws allow adjustment to accommodate a greater variation in pipe diameter

- Tightening bolts secured with captive washers
- Robust design
- Tightening bolts with combination cross-head convenient for power driver



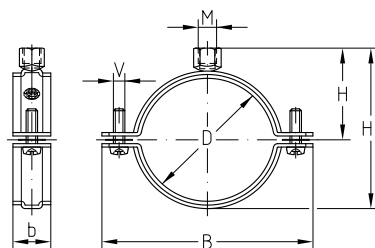
This product is awarded with the „Gütezeichen Rohrbefestigung“ (quality mark of pipe support) up to size ≤ 210 mm and is submitted to controls according to RAL-GZ 655-B



### Features



Size	Max. recommended load [N]
¾"-70 mm	1,900
2½"-174 mm	4,400
179-210 mm	5,000
223-241 mm	5,300



Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b	H1	H	V
M8/M10	¾"		14-18	151598	100	pieces	50	20	39	27.5	M6 x 20
	½"		19-25	151599			57		45	30.5	
	¾"		26-30	151600			64		55	35.5	
	1		31-37	151601			71		61	38.5	
		40	38-41	151602			75		65	40.5	
	1¼"	42.4	42-46	151603			81		71	43.5	M6 x 25
	1½"		47-52	151604	50		87	25	76	46.0	
		57	53-57	151605			91		81	48.5	
	2		58-63	151606			100		89	52.5	
		70	64-71	151607			105		94	55.0	
	2½"		72-78	151609			120		103	59.5	M8 x 35
		83	79-85	151610			126		109	62.5	
	3		85-90	151611			131		114	65.0	
		98	94-99	151612			142		124	70.0	
		102	99-104	151613			146		128	72.0	M8 x 40
	4		108-115	151614			157		139	77.5	
		122	118-123	151615			166		148	82.0	
		125	125-130	151616			172		154	85.0	
	5		133-140	151617			182		164	90.0	
		147	142-148	151618			191		173	94.5	
		152	148-153	151619			196		178	97.0	
		160	154-160	151620			202		184	100.0	
	6		160-169	151621			210		192	104.0	
		174	170-175	151622			218		200	108.0	

⚠ Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

ℹ Please refer to chapter „Anchor points/expansion points“ for further information regarding the attachment of anchor and expansion points.

### Single bossed clamps without lining, galvanised

Connecting thread	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]					
	[inch]	[mm]					B	b	H1	H	V	
M10/M12	¾		26–30	151624	100	pieces	64	20	60	40.5	M6 x 20	
	1		31–37	151625			71		66	43.5		
		40	38–41	151626			75		70	45.5		
	1¼	42.4	42–46	151627			81		76	48.5	M6 x 25	
	1½		47–52	151628			87		81	51.0		
		57	53–57	151629			91		86	53.5		
	2		58–63	151630			100		94	57.5		
		70	64–71	151631			105		99	60.0		
	2½		72–78	151633			120	25	108	64.5	M8 x 35	
		83	79–85	151634			126		114	67.5		
	3		85–90	151635			131		119	70.0		
		98	94–99	151636			142		129	75.0		
		102	99–104	151637			146		133	77.0	M8 x 40	
	4		108–115	151638			157		144	82.5		
		122	118–123	151639			166		153	87.0		
		125	125–130	151640			172		159	90.0		
	5		133–140	151641			182		169	95.0		
		147	142–148	151642			191		178	99.5		
		152	148–153	151643			196		183	102.0		
		160	154–160	151644			202	189	105.0			
	6		160–169	151645			210	197	109.0			
		174	170–175	151646			218	205	113.0			
		179	175–180	151647			223	210	115.5			
		190	187–194	151649	25		235	223	122.0			
		210	206–214	151650			256	243	132.0			
	M12/M16/½"	5		133–140			159169	50	182	173	99.0	
			147	142–148	159170		191		182	103.5		
			152	148–153	159171		196		187	106.0		
			160	154–160	159172		202		193	109.0		
		6		160–169	159173		210		201	113.0		
			174	170–175	159174		218		209	117.0		
			179	175–180	159175		223		214	119.5		
			181	180–182	159176		225		216	120.5		
			190	187–194	159177		25		235	227	126.0	
			210	206–214	159178				256	247	136.0	
			223	218–226	159179				284	40	260	M10 x 40
			234	227–235	159180				295		271	
		241	235–244	159181	304			278	148.0			

⚠ Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

ℹ Please refer to chapter „Anchor points/expansion points" for further information regarding the attachment of anchor and expansion points.



# Single bossed clamps

with connection socket and DÄMMGULAST® yellow, galvanised

## Field of application

- Suitable for pipelines with dynamic loads in combination with expansion points
- Suitable for fixings in industrial areas
- Specially suitable for standing fixings
- Suitable for fixings in air-conditioning, ventilation and sanitary areas
- For indoor use

## Advantages

- Proven, two-piece single bossed clamp in heavy-duty design
- For bending-resistant fastening at greater distances from the building structure
- Ideal combination when used with pipe nipple and base plate or socket adapter
- DÄMMGULAST® vibration control lining with yellow identification stripe: average sound level improvement up to 22 dB(A)

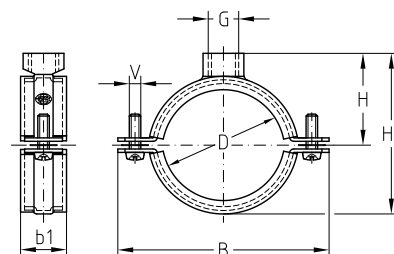


This product is awarded with the „Gütezeichen Rohrbefestigung“ (quality mark of pipe support) and is submitted to controls according to RAL-GZ 655-B



## Features

Size	Max. recommended load [N]
3/8"-2"	1,700
70-83 mm	2,200
3"-6"	2,900
170-200 mm	3,500



Connecting thread G [inch]	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]					
	[inch]	[mm]					B	b1	H1	H	V	
½	⅜		14–20	154944	100	pieces	64	23	64	44.5	M6 x 20	
	½		21–26	154945			71		70	47.5		
	¾		26–30	154946			75		74	49.5		
	1		31–38	154947			81		80	52.5	M6 x 25	
	1¼		40–47	154948			91		90	57.5		
	1½		48–54	154949			100		98	61.5		
		57	54–60	154950	50		105	28	103	64.0	M8 x 35	
	2		60–66	154951			111		109	67.0		
		70	68–73	154816			126		118	71.5		M8 x 35
	2½		73–80	154817			131		123	74.0		
		83	82–87	154818			142		133	79.0	M8 x 40	
	3		87–94	154819			146		137	81.0		
		102	99–104	154820			157		148	86.5		
		110	105–112	154821			166		157	91.0		
	4		112–118	154822			172		163	94.0		
		125	122–128	154823			182		173	99.0		
		133	132–137	154824			191		182	103.5		
	5		137–142	154825			196		187	106.0		
		144	142–148	154826			202		193	109.0		
		150	149–156	154827			210		201	113.0		
		160	159–164	154828			218		209	117.0		
	6		164–169	154829			223		214	119.5		
		170	169–172	154830			225		216	120.5		
		180	177–183	154831	25		235		227	126.0		
		200	197–203	154832			256		247	136.0		

### Single bossed clamps

with connection socket and DÄMMGULAST® yellow, galvanised



Connecting thread G [inch]	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b1	H1	H	V
¾	1½		48–54	154952	50	pieces	100	23	102	65.5	M6 x 25
		57	54–60	154953			105		107	68.0	
	2		60–66	154954			111		113	71.0	
		70	68–73	154833			126	28	122	75.5	M8 x 35
	2½		73–80	154834			131		127	78.0	
		83	82–87	154835			142		137	83.0	
	3		87–94	154836			146		141	85.0	
		102	99–104	154837			157	152	90.5		
		110	105–112	154838			166	161	95.0		
	4		112–118	154839			172	167	98.0		
		125	122–128	154840			182	177	103.0		
		133	132–137	154841			191	186	107.5		
	5		137–142	154842			196	191	110.0		
		144	142–148	154843			202	197	113.0		
		150	149–156	154844			210	205	117.0		
		160	159–164	154845			218	213	121.0		
	6		164–169	154846			223	218	123.5		
		170	169–172	154847			225	220	124.5		
		180	177–183	154848	25	235	231	130.0			
		200	197–203	154849		256	251	140.0			

# Single bossed clamps

with connecting socket, without lining, galvanised

## Field of application

- Applicable as a pipeline anchor point
- Suitable for fixings in industrial areas
- Suitable for fixings in air-conditioning, ventilation and sanitary areas
- For indoor use

## Advantages

- Proven, two-piece single bossed clamp in heavy-duty design
- For bending-resistant fastening at greater distances from the building structure
- Ideal combination when used with pipe nipple and base plate or socket adapter

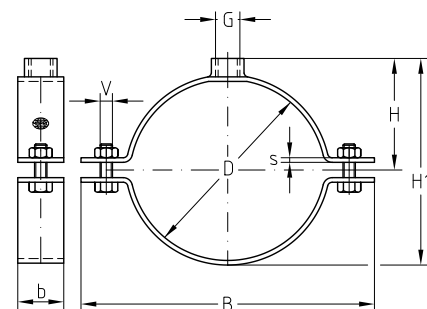


This product is awarded with the „Gütezeichen Rohrbefestigung“ (quality mark of pipe support) and is submitted to controls according to RAL-GZ 655-B



## Features

Size	Max. recommended load [N]
¾"-70 mm	1,900
2½"-174 mm	4,400
179-210 mm	5,000



Connecting thread G [inch]	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b	H1	H	V
½	¾		26–30	154977	100	pieces	64	20	64	44.5	M6 x 20
	1		31–37	154978			71		70	47.5	
		40	38–41	154979	50		75		74	49.5	M6 x 25
	1¼	42.4	42–46	154980			81		80	52.5	
	1½		47–52	154981			87	85	55.0		
		57	53–57	154982			91	90	57.5		
	2		58–63	154983			100	98	61.5		
		70	64–71	154984			105	103	64.0	M8 x 35	
	2½		72–78	154931			120	25	112		68.5
		83	79–85	154932			126		118		71.5
	3		85–90	154933			131		123	74.0	M8 x 40
		102	99–104	154934			146		137	81.0	
	4		108–115	154935			157		148	86.5	
		122	118–123	159190			166		157	91.0	
		125	125–130	154936			172		163	94.0	
	5		133–140	154937			182		173	99.0	
		147	142–148	159191			191		182	103.5	
		152	148–153	159192			196		187	106.0	
		160	154–160	154938			202		193	109.0	
	6		160–169	154939			210		201	113.0	
		174	170–175	154940			218		209	117.0	




Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications.

### Single bossed clamps

with connecting socket, without lining, galvanised

Connecting thread G [inch]	Size		Clamping range [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]					B	b	H1	H	V
½		179	175–180	154941	50	pieces	223	25	214	119.5	M8 x 40
		190	187–194	154942	25		235		227	126.0	
		210	206–214	154943			256		247	136.0	
¾	1½		47–52	154985	50		86	20	85	55.0	M6 x 25
		57	53–57	154986			91		90	57.5	
			58–63	154987			100		102	65.5	
	2		64–71	159203			105		107	68.0	
		70									
			72–78	154918			120	25	116	72.5	M8 x 35
	2½		79–85	154919			126		122	75.5	
		83					131		127	78.0	
			85–90	154920			146		141	85.0	M8 x 40
	3		99–104	154921			157		152	90.5	
		102					166		161	95.0	
			108–115	154922			172		167	98.0	
	4		118–123	159206			182		177	103.0	
		122					191		186	107.5	
			125–130	154923			196		191	110.0	
	5		133–140	154924			202		197	113.0	
		147					210		205	117.0	
			142–148	159207			218		213	121.0	
	6		148–153	159208			223		218	123.5	
		152					235		231	130.0	
			154–160	154925			256		251	140.0	
			160–169	154926							
		174									
			170–175	154927							
			175–180	154928							
		179									
			187–194	154929							
			187–194	154929							
		190									
			206–214	154930							
			206–214	154930							
		210									

 Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications.

## Suspension clamps

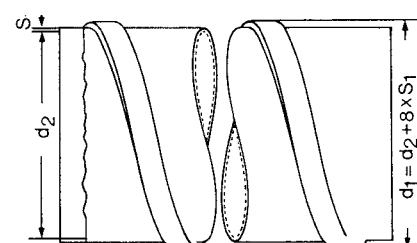
for spiral-seam pipes, one-piece, galvanised

### Field of application

- Attachment of air ducts
- Ideal for suspended pipe attachment from ceilings as well as from support structures of MPC-Support channels

### Advantages

- Easy to install due to one-piece design
- Only one locking screw
- Manufactured to suit spiral-seam pipe dimensions
- Variety of attachment possibilities using eye bolts or hanger sockets
- Suitable for use with expansion roller
- Available with and without vibration control lining



Nominal size d2 [mm]	Connection hole-Ø L [mm]	Part no.		Sales unit	Pack unit
		Without lining	With DÄMMGULAST®		
71	8.5	118455	117952	1	pieces
80		118463	117958		
90		118471	117964		
100		118345	117869		
112		118352	117872		
125		118364	117879		
140		118372	117885		
150		118376	117888		
160		118384	117894		
180		118388	117900		
200		118396	117906		
224		118400	117909		
250		118408	117915		
280	10.5	118412	117918		
300		118416	117921		
315		118420	117924		
355		118424	117927		
400		118428	117930		
450		118431	117933		
500		118435	117936		
560		118439	117939		
630		118447	117945		
710		118451	117949		
800		118459	117955		
900		118467	117961		
1,000		118341	117866		
1,120		118349	117875		
1,250		118360	117877		



Suspension clamps can be produced in all other pipe sizes and types according to customer specifications.



For duct clamps please refer to chapter „Ventilation“.

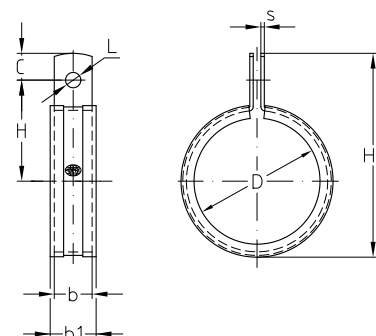
### Suspension clamps

for spiral-seam pipes, one-piece, galvanised

#### Features



Nominal size d <sub>2</sub> [mm]	Max. recommended load [N]
71-160	2,133
180-250	4,533
280-560	7,000
630-800	8,666
900-1,250	9,066



Nominal size d2 [mm]	Connection hole-Ø L [mm]	Dimensions [mm]											
		Without lining					With DÄMMGULAST®						
		Part no.	b x s	C	H1	H	Part no.	b x s	C	H1	H	b1	
71	8.5	118455	20 x 1.0	14	105	53	117952	20 x 1.0	14	113	57	23	
80		118463			114	57	117958			122	61		
90		118471			124	62	117964			132	66		
100		118345			135	68	117869			143	72		
112		118352			147	74	117872			155	78		
125		118364			160	80	117879			168	84		
140		118372			175	81	117885			183	92		
150		118376			185	93	117888			198	97		
160		118384			195	98	117894			203	102		
180		118388	25 x 1.5		216	108	117900	25 x 1.5		15	224	112	28
200		118396			236	118	117906				244	122	
224		118400			260	130	117909				268	134	
250		118408			286	143	117915				294	147	
280		118412			318	158	117918				326	162	
300	118416	25 x 2.5	337	168	117921	25 x 2.5	15	346	172		34		
315	118420		355	177	117924			363	181				
355	118424		395	197	117927			403	201				
400	118428		440	219	117930			448	223				
450	118431		490	244	117933			498	248				
500	118435		540	269	117936			548	273				
560	118439		600	299	117939			608	303				
630	118447		25 x 3.0	673	336			117945	25 x 3.0			681	340
710	118451			753	376			117949				761	380
800	118459	844		421	117955	852		425					
900	118467	30 x 3.0	944	471	117961	30 x 3.0		952	475				
1,000	118341		1,046	522	117866			1,054	526				
1,120	118349		1,166	582	117875			1,174	586				
1.250	118360		1,296	647	117877			1,304	651				



## Suspension clamps

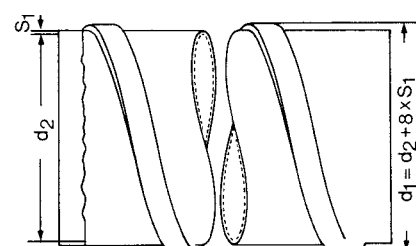
for spiral-seam pipes, two-piece, galvanised

### Field of application

- Attachment of air ducts

### Advantages

- Proven two-piece design for attachment using the locking lugs
- Manufactured to suit spiral-seam pipe dimensions
- Attachment using threaded rods through the holes in the lugs
- Variety of attachment possibilities using hexagonal screws and nuts, as well as hanger sockets or eye bolts
- Available with and without vibration control lining



Nominal size d <sub>2</sub> [mm]	Connection hole-Ø L [mm]	Part no.		Sales unit	Pack unit
		Without lining	With DÄMMGULAST®		
71	8.5	123181	120095	1	pieces
80		123201	120111		
90		123213	120127		
100		122943	119888		
112		122963	119904		
125		122983	119916		
140		122995	119924		
150		123003	119928		
160		123015	119936		
180		123023	119952		
200		123035	119963		
224		123043	119971		
250		123051	119980		
280	10.5	123063	119983		
300		123067	119987		
315		123083	119996		
355		123091	120012		
400		123111	120020		
450		123123	120032		
500		123135	120048		
560		123147	120063		
630		123158	120079		
710		123177	120091		
800		123197	120107		
900		123209	120123		
1,000		122939	119884		
1,120		122959	119900		
1,250		122979	119911		



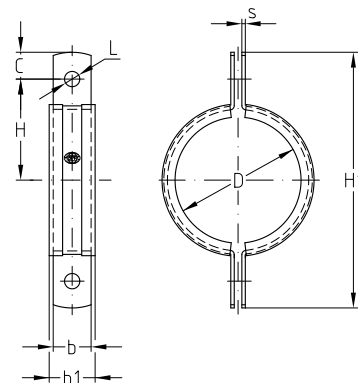
Suspension clamps can be produced in all other pipe sizes and types according to customer specifications.

### Suspension clamps for spiral-seam pipes, two-piece, galvanised

#### Features



Nominal size d <sub>2</sub> [mm]	Max. recommended load [N]
71-160	2,133
180-250	4,533
280-560	7,000
630-800	8,666
900-1,250	9,066



Nominal size d <sub>2</sub> [mm]	Connection hole-Ø L [mm]	Dimensions [mm]											
		Without lining					With DÄMMGULAST®						
		Part no.	b x s	C	H1	H	Part no.	b x s	C	H1	H	b1	
71	8.5	123181	20 x 1.0	14	133	53	120095	20 x 1.0	14	141	57	23	
80		123201			142	57	120111			150	61		
90		123213			152	62	120127			160	66		
100		122943			163	68	119888			171	72		
112		122963			175	74	119904			183	78		
125		122983			188	80	119916			196	84		
140		122995			203	81	119924			211	92		
150		123003			213	93	119928			221	97		
160		123015			223	98	119936			231	102		
180		123023	25 x 1.5		244	108	119952	25 x 1.5		15	252	112	28
200		123035			264	118	119963				272	122	
224		123043			288	130	119971				296	134	
250		123051			314	143	119980				322	147	
280	10.5	123063	25 x 2.5	15	346	158	119983	25 x 2.5	15		354	162	
300		123067			365	168	119987				374	172	
315		123083			383	177	119996				391	181	
355		123091			423	197	120012				431	201	
400		123111			468	219	120020				476	223	
450		123123			518	244	120032				526	248	
500		123135			568	269	120048				576	273	
560		123147			628	299	120063				636	303	
630		123158	25 x 3.0		701	336	120079	25 x 3.0			709	340	
710		123177			781	376	120091			787	379		
800		123197			872	421	120107			880	425		
900		123209	30 x 3.0		972	471	120123	30 x 3.0		980	475	34	
1,000		122939			1,074	522	119884			1,082	526		
1,120		122959			1,194	582	119900			1,201	586		
1.250		122979			1.324	647	119911			1.332	651		

## DÄMMGULAST® Vibration control linings

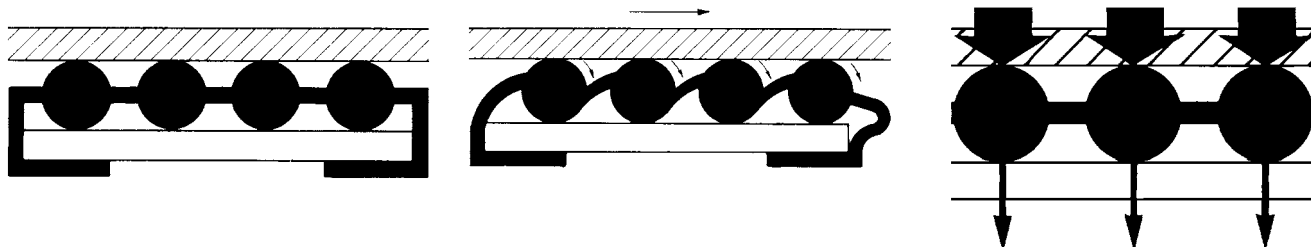
**Field of application**

- Ideal for structure-borne vibration isolation of the pipeline from the pipe clamp once mounted

**Advantages**

- Optimum rolling motion due to the cylindrical profiles in the lining
- Prevents the occurrence of friction and stiction noises caused by thermal, axial expansion of the pipe
- Prevents the build-up of forces on the attachment due to the good rolling motion of the lining

- Available in a variety of grades and sizes to suit all applications
- Clip-over edges prevent the lining from slipping out of the clamp
- As a mark of a real MÜPRO product, a coloured stripe on each edge remains visible after installation

**Mode of action**

Optimum rolling motion due to the cylindrical profiles in the lining prevents the occurrence of noise and the build-up of forces within the pipe clamp

The low upper line-contact reduces the vibration entry area from the pipe into the vibration control lining. The highly elastic cylindrical profile absorbs the greater part of the structure-borne noise. The lower line-contact reduces yet again the transfer of the remaining vibration to the pipe anchor point.



In order to accommodate **large changes of pipe lengths**, **pipe guides allowing axial motion** should be provided at the fixing points (see chapter "Anchor/expansion points").

Vibration control linings are generally not suitable for vibration control at the pipe anchor point. For taking up the anchor point forces and providing good vibration control, **PHONOLYT® Anchor point for pipes** should be used.

### DÄMMGULAST® yellow

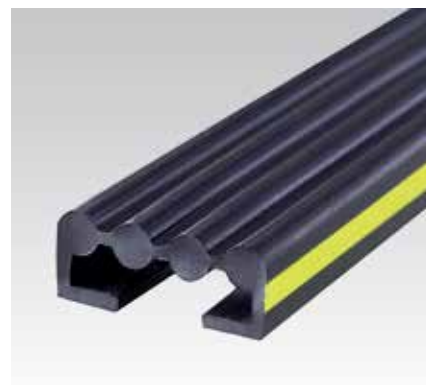
#### Field of application


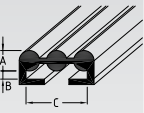
- Ideal pipe clamp lining for vibration reduction

#### Advantages

- Average vibration reduction up to 22 dB(A) due to 6 mm cylindrical profile
- Prevents the occurrence of friction and stiction noises caused by thermal, axial expansion of the pipe
- Prevents the build-up of forces on the attachment due to the good rolling motion of the lining

- Clip-over edges prevent the lining from slipping out of the clamp
- Marked with the **yellow MÜPRO identification stripe**
- Silicone-free



	Size [mm]	Description	Length of roll [m]	Part no.	Sales unit	Pack unit	Dimensions [mm]		
							A	B	C
	20 x 6	3-string	30	<b>107634</b>	1	roll	6	3	20
	25 x 6	4-string		<b>107656</b>				4	25
	30 x 6			<b>107659</b>					30
	40 x 6	6-string		<b>107681</b>				6	40
	50 x 6	7-string		<b>107682</b>			10		50
	60 x 6	8-string		<b>107683</b>					60
	80 x 8	9-string		<b>107684</b>			8		80

### DÄMMGULAST® Junior

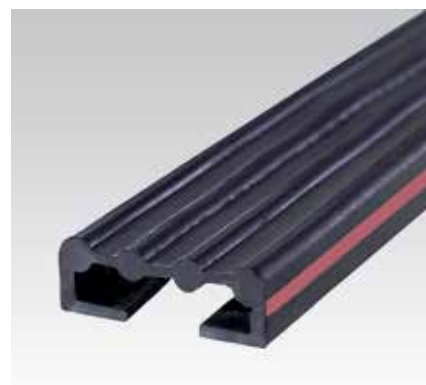
#### Field of application


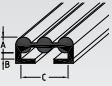
- Ideal pipe clamp lining for vibration reduction

#### Advantages

- Average vibration reduction up to 18 dB(A) due to 4.5 mm cylindrical profile
- Prevents the occurrence of friction and stiction noises caused by thermal, axial expansion of the pipe
- Prevents the build-up of forces on the attachment due to the good rolling motion of the lining

- Clip-over edges prevent the lining from slipping out of the clamp
- Marked with the **orange MÜPRO identification stripe**
- Silicone-free



	Size [mm]	Description	Length of roll [m]	Part no.	Sales unit	Pack unit	Dimensions [mm]		
							A	B	C
	16 x 4.5	2-string	30	<b>107956</b>	1	roll	4.5	2	16
	20 x 4.5	3-string		<b>107957</b>				3	20
	25 x 4.5	4-string		<b>107959</b>				4	25

# DÄMMGULAST® blue

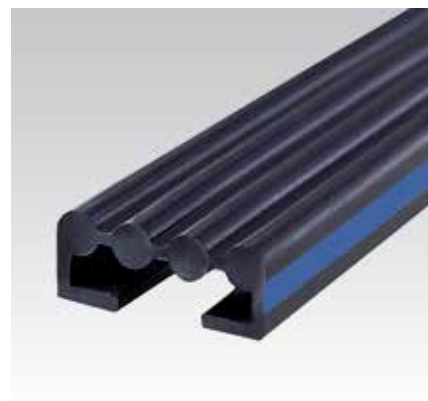
## Field of application


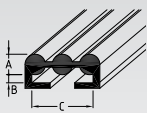
- Ideal pipe clamp lining acc. to fire classification B1 (DIN 4102)
- Also suitable for outdoor use

## Advantages

- Fire-resistant and self-extinguishing, no burning drips
- **Fire classification B1 according to DIN 4102, no flammable dripping**
- Average vibration reduction up to 16.5 dB(A) due to 6 mm cylindrical profile

- Prevents the occurrence of friction and stiction noises caused by thermal, axial expansion of the pipe
- Prevents the build-up of forces on the attachment due to the good rolling motion of the lining
- Clip-over edges prevent the lining from slipping out of the clamp
- Marked with the **blue MÜPRO identification stripe**
- Silicone-free



	Size [mm]	Description	Length of roll [m]	Part no.	Sales unit	Pack unit	Dimensions [mm]		
							A	B	C
	20 x 6	3-string	30	107524	1	roll	6	3	20
	25 x 6	4-string		107525				4	25
	30 x 6			107527					30
	40 x 6	6-string		107528				6	40
	50 x 6	7-string		107530				10	50

# DÄMMGULAST® red

## Field of application


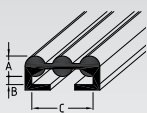
- Ideal pipe clamp lining for high temperature range up to 225 °C

## Advantages

- Average vibration reduction up to 24 dB(A) due to 6 mm cylindrical profile
- Temperature range from -60° C to +225 °C
- Prevents the occurrence of friction and stiction noises caused by thermal, axial expansion of the pipe

- Prevents the build-up of forces on the attachment due to the good rolling motion of the lining
- Clip-over edges prevent the lining from slipping out of the clamp



	Size [mm]	Description	Length of roll [m]	Part no.	Sales unit	Pack unit	Dimensions [mm]		
							A	B	C
	20 x 6	3-string	30	108002	1	roll	6	3	20
	25 x 6	4-string		108003				4	25
	30 x 6			108005					30
	40 x 6	6-string		108006				6	40
	50 x 6	7-string		108008				10	50

### DÄMMGULAST® seawater proof

#### Field of application


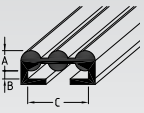
- Seawater resistant material, specially suitable for shipbuilding and off-shore applications

#### Advantages

- Average vibration reduction up to 20 dB(A) due to 6 mm cylindrical profile
- Prevents the occurrence of friction and stiction noises caused by thermal, axial expansion of the pipe

- Prevents the build-up forces on the attachment due to the good rolling motion of the lining
- Clip-over edges prevent the lining from slipping out of the clamp
- Silicone-free
- Vibration-control certified



	Size [mm]	Description	Length of roll [m]	Part no.	Sales unit	Pack unit	Dimensions [mm]		
							A	B	C
	20 x 6	2-string	30	108217	1	roll	6	3	20
	25 x 6	4-string		108218				4	25
	30 x 6	3-string		108219					30
	40 x 6	5-string		108220				6	40
	50 x 6	6-string		108221				8	50
	60 x 6	7-string		108222				10	60



## Ceramic fabric tapes

**Field of application**

- Ideal pipe clamp lining for especially high temperatures up to 1,150 °C

- Good acoustic and electrical insulating properties
- Asbestos-free

**Advantages**

- Non-fraying at both sides
- Largely resistant to oil, steam, water and liquid metal
- Inconel-enhanced
- Good thermal shock resistance



Width [mm]	Thickness [mm]	Length of roll [m]	Part no.	Sales unit	Pack unit
20	5	10	113093	1	roll
25			113095		
30			113097		
40			113099		
50			113101		
60			113103		

**Special adhesive**

for ceramic fabric tapes, asbestos-free, temperature-resistant up to 1,000 °C, tin of 1.6 kg

Part no.	Sales unit	Pack unit
113200	1	pieces



### Filbow clamps pear-shaped galvanised

#### Field of application

- Attachment of sprinkler lines

#### Advantages

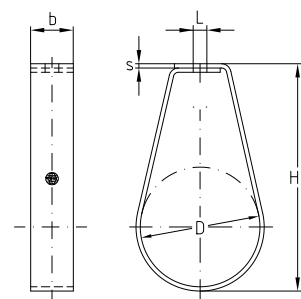
- One-piece design allows quick and easy installation of sprinkler pipes
- Ideal for suspension using threaded pins and threaded rods
- Easy height adjustment on the threaded rod
- Approved by VdS and FM



#### Features



Size	Max. recommended load [N]
3/4"-2"	4,500
2 1/2"-4"	7,333
133 mm-6"	8,666
168.3-219.1 mm	13,333



Size		VdS	FM	Part no.	Sales unit	Pack unit	Dimensions [mm]			
[inch]	[mm]						Ø L	b x s	H1	
¾		●		126504	100	pieces	8.5	25 x 1.5	71	
			●	126506			10.5			
1		●		126462			8.5			83
			●	126460			10.5			
1¼			●	126468						95
		●		126470			8.5			
1½		●		126466						103
			●	126464			10.5			
2			●	126492						118
		●		126494			8.5			
2½		●	●	126496	50		10.5	25 x 2.5	142	
3		●	●	126508					166	
	108.0	●	●	126472					192	
4		●	●	126512					204	
	133.0	●	●	126476			25	13.0	25 x 3.0	237
5		●	●	126518						249
	152.4	●	●	126482						264
	159.0	●	●	126484						273
6	165.1	●	●	126520						284
	168.3	●		126490						17.0
			●	126488	13.0					
	219.1	●		126498	17.0	376				

## Filbow clamps with knurled nut galvanised

### Field of application



- Attachment of sprinkler lines

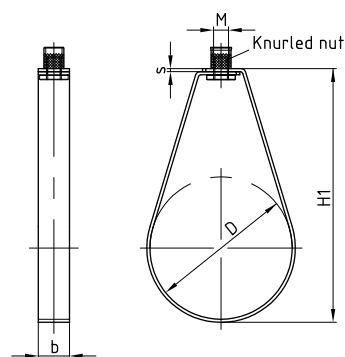
### Advantages

- Approved for the attachment of sprinkler systems by VdS and FM
- One-piece design allows quick and easy installation of sprinkler pipes
- Ideal for suspension using threaded pins and threaded rods

- Simple height adjustment using the knurled nut
- Knurled nut secured by locking hook against falling out



Features		 	
Size		Max. recommended load [N]	
¾"-1½"		4,666	
2"-4"		6,666	
133 mm-6"		7,333	
8"		9,833	



Connecting thread	Size		Pipe outer diameter [mm]	VdS	FM	Part no.	Sales unit	Pack unit	Dimensions [mm]		
	[inch]	[mm]							b	s	H1
M8	¾		26.9	●		126586	100	pieces	24	2.0	73.0
	1		33.7	●		126578					84.7
	1¼		42.4	●		126580					96.5
	1½		48.3	●		126582					104.3
	2		60.3	●		126584					121.0
M10	¾		26.9	●	●	126604	50		25	2.5	73.0
	1		33.7	●	●	126588					84.7
	1¼		42.4	●	●	126592					96.5
	1½		48.3	●	●	126590					104.3
	2		60.3	●	●	126598					121.0
	2½		76.1	●	●	126600			141.5		
	3		88.9	●	●	126602			166.5		
		108	108.0	●	●	126596			192.5		
	4		114.3	●	●	126606			204.0		
	M12		133	133.0	●	●			126614	25	32
5			139.7	●	●	126620	247.2				
		150	153.4	●	●	126616	263.0				
		159	159.0	●	●	126618	271.5				
6			165.1	●	●	126622	282.6				
M16	8		219.1	●	●	126624			40	3.0	376.1

### Filbow clamps with cup nut galvanised

#### Field of application

- For fastening sprinkler pipes as per VdS and FM Guidelines

#### Advantages

- One-piece design allows quick and easy installation of sprinkler pipes
- Approved by VdS and FM

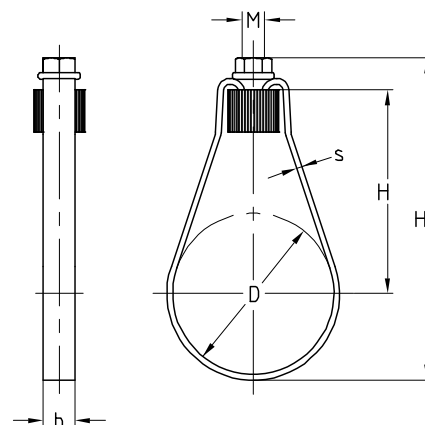
- Ideal for suspension using threaded pins and threaded rods
- Easy height adjustment on a threaded rod or threaded pin



#### Features



Size	Max. recommended load [N]
½"-2"	4,000
2½"-4"	6,000
5"-6"	8,000
8"	10,000
10"	11,000



Connecting thread	Size [inch]	For pipe outer-Ø [mm]	VdS	FM	Part no.	Sales unit	Pack unit	Dimensions [mm]						
								b	s	H	H1			
M8	½	21.3	●		153204	50	pieces	12	1.5	56	76			
	¾	26.9	●		153205					57	80			
	1	33.7	●		153207						83			
	1¼	42.4	●		153209						88			
	1½	48.3	●		153211					62	96			
	2	60.3	●		153213					72	112			
M10	¾	26.9	●	●	153206	25		15	2.5	57	82			
	1	33.7	●	●	153208						85			
	1¼	42.4	●	●	153210						90			
	1½	48.3	●	●	153212					62	98			
	2	60.3	●	●	153214					72	114			
	2½	76.1	●	●	153215					89	140			
	3	88.9	●	●	153216					104	161			
	4	114.3	●	●	153217					135	205			
M12	5	139.7	●	●	153218	15			20	3.0	151	235		
	6	168.3	●	●	153219						188	287		
M16	8	219.1	●	●	153220				15		20	3.0	236	364
M20	10	273.0	●		153221								307	470

## Swivel hangers

galvanised

### Field of application



- Attachment of sprinkler lines

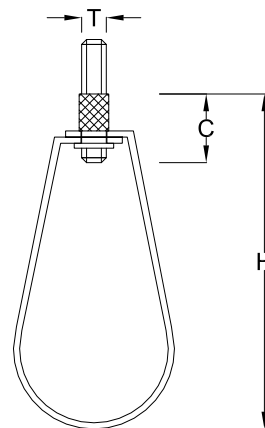
### Advantages

- Size range from 3/4" to 8"
- Made of carbon steel
- Galvanised, other finish available upon request
- Easy height adjustment due to knurled nut

- Complies with Manufacturers Standardization Society MSS-SP-58 and MSS-SP-69 (Type 10)
- Approved by FM and UL



Features		 	
Size		Max. recommended load [N]	
3/4"-2"		2,220	
2 1/2"-4"		4,440	
5"-8"		8,450	



Connecting thread T	Nominal size		Part no.	Sales unit	Pack unit	Dimensions [mm]	
	[inch]	[DN]				H	C
M10	3/4	20	147417	300	pieces	78	25
	1	25	147411	250		84	
	1 1/4	32	147413	200		90	
	1 1/2	40	147412			97	
	2	50	147414	150		108	
	2 1/2	65	147415			124	
	3	80	147416	100		144	
	4	100	147418			174	
M12	5	125	147419	50		208	32
	6	150	147420			245	
	8	200	147421	30		313	

### U-bolts

similar to DIN 3570, form A, galvanised

#### Field of application

- For simple pipe attachment in building technology and industrial construction
- Complies with the VdS (German Association of Property Insurers) Guideline 2092 for sprinkler systems

#### Advantages

- Design similar to DIN 3570
- Standard material S235JR (St37) acc. to DIN EN 10025
- Electrolytically galvanised
- Supplied with 4 nuts acc. to DIN 934. In the M8 to M12 versions, also with 4 washers

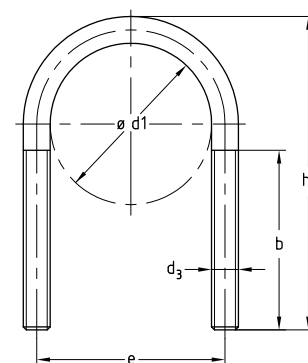


Versions M8 to M12 with nuts and washers



Versions M16 to M20 with nuts

Pipe outer diameter d1 [mm]	Nominal size	Part no.	Sales unit	Pack unit	Dimensions [mm]			
					b	d <sub>3</sub>	e	h <sub>1</sub>
22	15	113317	100	pieces	25	M8	30	52
27	20	113320			40		35	67
34	25	113323					42	74
43	32	113326					51	83
49	40	113329					57	89
61	50	124881	50		45	M10	71	104
77	65	124884					87	120
89	80	124887					100	132
108	100	124920			55	M12	121	162
115		124929					127	168
133	125	124932	25				146	183
140		124935					152	191
159	150	124938					172	208
169		124941					182	218
220	200	125109	5			M16	233	278
273	250	113174			70	M20	295	334
324	300	113180					352	385



**!** U-bolts with M8 to M12 threads are supplied with 4 washers and 4 nuts acc. to DIN 934 in electrolytically galvanised finish. For M16 threads and bigger, they are supplied with 4 nuts but without washers. Other sizes can be supplied upon request.



### Insulation clamps RG 80

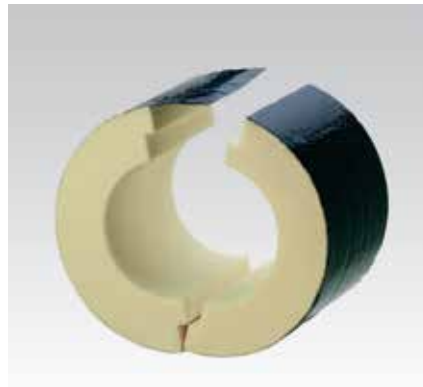
with DÄMMGULAST® and insulation shells, galvanised

#### Field of application

- Thermal decoupled pipe support in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for chilled water pipes

#### Advantages

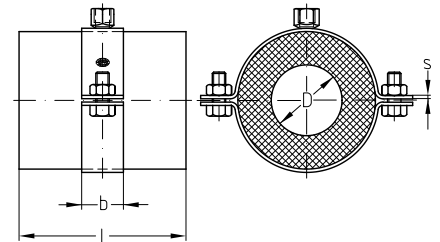
- Rigorous avoidance of temperature bridges in hot or cold pipework
- **High insulation effect**, low effective density
- Prevents the formation of condensation on the pipe clamp
- **Vapour barrier** due to the aluminium facing
- Good adhesion between shell and vibration lining due to **releasing agent-free surfaces**
- Longer shell lengths are available if the vapour barrier is required to overlap within the region of the butt joints



- Load-distributing sleeves are available for improved spreading of the load
- Insulation shells and pipe clamps with DÄMMGULAST® lining are matched to fit exactly
- Average vibration reduction up to 22 dB(A)

#### Features

Material	Polyurethane rigid foam, with closed cells
Density	80 kg/m³
Thermal conductivity	$\lambda = 0.026 \text{ W/mK}$
Fire classification (according to DIN 4102)	B2
Temperature range	-30 °C to +120 °C
Compression strength	0.65 N/mm²
Type	PU shell, aluminium facing, black surface finish, vibration damping due to single bossed clamp with DÄMMGULAST® lining



**!** According to the **AGI Working Sheet Q 11** ("Arbeitsgemeinschaft Industriebau", an association for industrial construction works) the insulating shell must have the same thickness as that of the vibration lining. The butt joints between the insulation shell halves and the outer vibration lining must overlap and be functionally linked to each other. This can be done e.g. by the use of adhesive or self-adhesive tape. To achieve as good a **vapour-tight joint** as possible, an adhesive tape overlap of 50 mm on each side of the butt joints is occasionally required. For this purpose, the insulation shells can be supplied in longer lengths. The length of the insulation shells in all cases should be agreed in detail by the pipe-laying contractor on the one hand and the insulation contractor on the other prior to starting the installation work.

**For pipe diameters of 2" and upwards we recommend as a principle the insertion of load-distributing sleeves for spreading the load.**

The use of load-distributing metal sleeves can also be required for smaller pipe diameters depending on the spacing between supports (for further details, please refer to the following pages).

When installing **pipe anchor points** we recommend wooden blocks and STATO® Clamps (see chapter "Anchor points/expansion points").

### Insulation clamps RG 80

with DÄMMGULAST® and insulation shells, galvanised

Connecting thread M10, aluminium facing with black surface finish,  
length of shell L = 100 mm



Pipe outer-Ø D		Insulation thickness 20 mm	Insulation thickness 30 mm	Sales unit	Pack unit
[inch]	[mm]	Part no.	Part no.		
3/8	17.2	124404	124408	1	pieces
1/2	21.3	124436	124440		
3/4	26.9	124502	124506		
1	33.7	124546	124550		
1 1/4	42.4	124582	110226		
1 1/2	48.3	110242	110244		
	57.0	110256	110258		
2	60.3	110266	110268		
	70.0	110286	110288		
2 1/2	76.1	110300	110302		
	83.0	110310	110312		
3	88.9	110320	110322		
	102.0	124180	124184		
	110.0	124212	124216		
4	114.3	124245	124249		
	125.0	124269	124273		
	133.0	124289	124293		
5	139.7	124329	124333		
	160.0	124358	124362		
6	168.3	124381	124389		
8	219.1	124464	124472		



Differing diameters, connection threads, insulation thicknesses and shell lengths can be produced upon request.

#### Sizes for copper pipes

Pipe outer diameter D [mm]	Insulation thickness 20 mm Part no.	Sales unit	Pack unit
15.0	110328	1	pieces
18.0	110330		
22.0	110332		
28.0	110334		
35.0	110336		
42.0	124582		
54.0	110338		

### Insulation clamps

#### Load capacity and support spacings for insulation clamps

High pipe weights and large spacings between supports lead to high compressive loads on the PU shells at the seating surface of the pipe clamp.

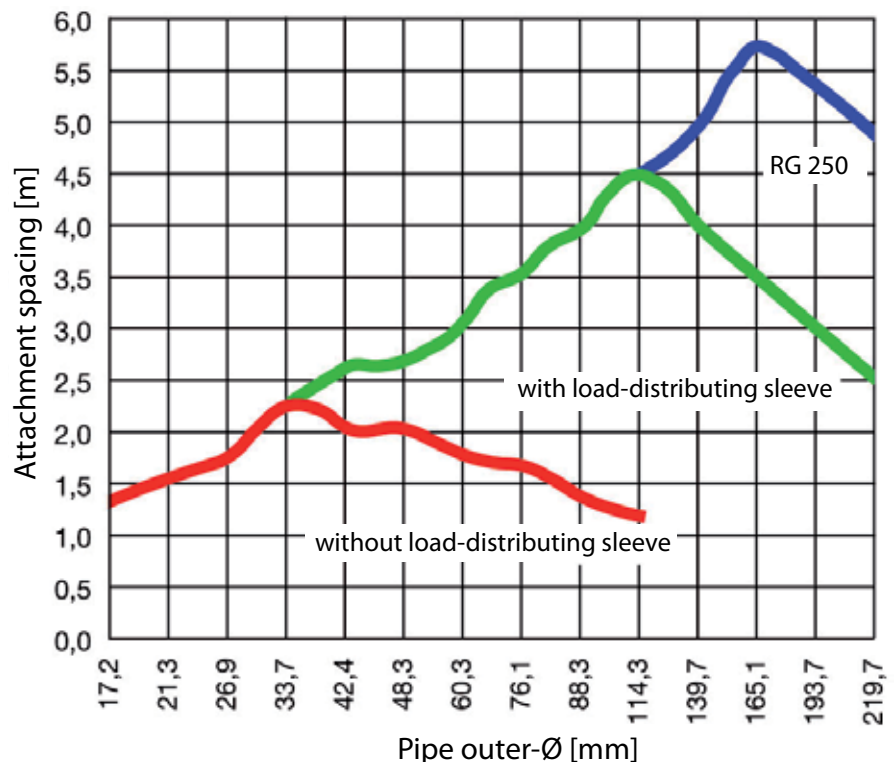
The "Arbeitsgemeinschaft Industriebau" in its AGI Q11 working sheet recommends a theoretical, long-term maximum compressive load on PU rigid foam RG 80 of 0.15 N/mm<sup>2</sup> (corresponds to 25 % of the breaking load).

**In addition to the recommendation of the AGI Q11, the deflection of the pipes is also taken into account in the values of the table below.**

The recommended maximum load values of the respective pipe clamps shells are to be observed.

Shell length: 100 mm

Shell thickness: 1 mm



Pipe outer diameter		Pipe (steel) max. recommended support spacing [m]	Insulation clamp RG 80 without load-distributing sleeve		Insulation clamp RG 80 with load-distributing sleeve		Insulation clamp RG 250	
[inch]	[mm]		Permanent load-bearing capacity [N]	Max. support spacing [m]	Permanent load-bearing capacity [N]	Max. support spacing [m]	Permanent load-bearing capacity [N]	Max. support spacing [m]
3/8	17.2	1.4	36	1.4	182	–	180	1.4
1/2	21.3	1.6	45	1.6	225	–	223	1.6
3/4	26.9	1.9	71	1.9	285	–	282	1.9
1	33.7	2.2	89	2.2	357	2.2	442	2.2
1 1/4	42.4	2.6	112	2.0	449	2.6	556	2.6
1 1/2	48.3	2.7	128	2.0	512	2.7	634	2.7
	57.0	3.1	151	1.8	604	3.1	748	3.1
2	60.3	3.1	159	1.8	639	3.1	791	3.1
2 1/2	76.1	3.6	201	1.7	807	3.6	998	3.6
3	88.9	3.9	235	1.4	942	3.9	1,166	3.9
	108.0	4.1	286	1.3	1,145	4.1	2,268	4.1
4	114.3	4.6	303	–	1,212	4.6	2,400	4.6
	133.0	5.0	564	–	1,410	4.5	2,793	5.0
5	140.0	5.1	592	–	1,481	4.4	2,933	5.1
	159.0	5.6	674	–	1,686	3.9	3,339	5.6
6	168.3	5.7	714	–	1,785	3.8	3,534	5.7
8	219.1	6.0	929	–	2,323	3.0	4,601	4.8

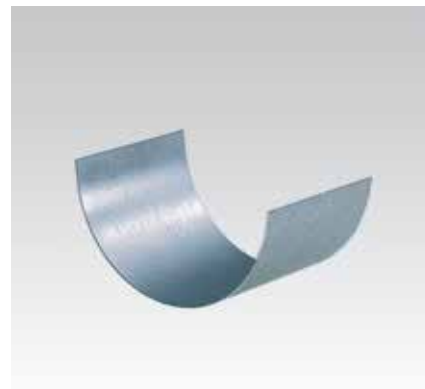
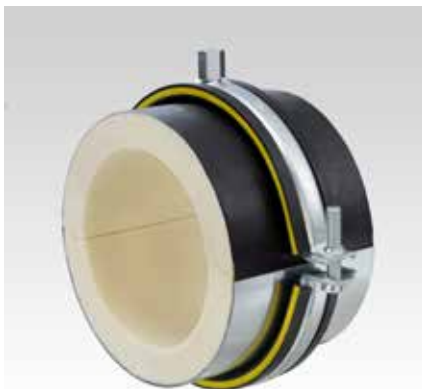


For other pipe materials, the appropriate max. recommended spacings between supports need to be considered.

### Load-distributing sleeves for insulation clamps with PU shells, galvanised

For large pipe diameters or spacings between supports it is mandatory that insulation clamps with PU shells are fitted with load-distributing sleeves for improved load distribution.

The use of load-distributing sleeves for pipe diameters of 2" and more is recommended.



Pipe outer-Ø D		Insulation thickness 20 mm	Insulation thickness 30 mm
[inch]	[mm]	Part no. (1 half-sleeve)	Part no. (1 half-sleeve)
3/8	17.2	–	116834
1/2	21.3		116855
3/4	26.9		116897
1	33.7	116968	116971
1 1/4	42.4	117022	117025
1 1/2	48.3	117055	117058
	57.0	117082	117085
2	60.3	117097	117100
	70.0	117109	117112
2 1/2	76.0	117124	117127
	83.0	117138	117141
3	88.9	117150	117153
	102.0	116699	116702
	110.0	116717	116720
4	114.3	116732	116735
	125.0	116750	116753
	133.0	116765	116768
5	139.7	116780	116783
	160.0	116804	116807
6	168.3	116815	116818
8	219.1	116864	116867

**Please submit your order as follows:**

- For load-distributing sleeves in half-sleeve design:  
Part no. of insulation clamp  
+ **1 piece of part no.** of load distributing sleeve
- For load-distributing sleeves as full-sleeve design:  
Part no. of insulation clamp  
+ **2 pieces of part no.** of load-distributing sleeve



Depending on the conduit **one** or, e.g. for vertical pipes, **two half-sleeves are needed around the shells** to distribute the load.

If vapour-tight, overlapped and glued butt joints are required, **100 mm-long load-distributing sleeves** should always be combined **with PU shells of 250 mm length**.

This leaves the insulation contractor sufficient excess to mask the butts.

## Insulation clamps RG 250

with DÄMMGULAST® and insulation shells, galvanised

### Field of application

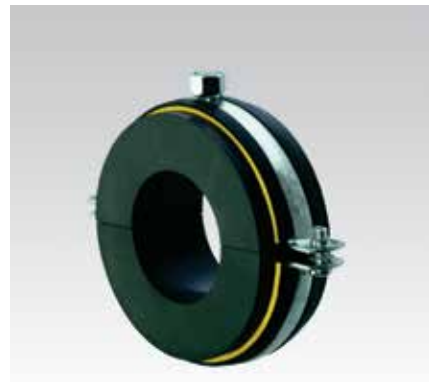
- Thermal decoupled pipe attachment in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

### Advantages

- Rigorous avoidance of temperature bridges in hot or cold pipelines
- Rigid, highly compressed PU insulation shell for heavy loads
- **High insulation effect**
- Prevents the formation of condensation on the pipe clamp
- High vapour diffusion resistance
- **Easy, precise installation due to centring knobs**
- **Structure-borne noise damping due to DÄMMGULAST® vibration control lining with yellow identification stripe:** Average sound level improvement up to 22 dB(A)

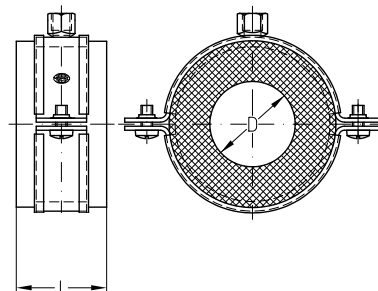


- Surfaces free from release agents allow good bonding with the pipe insulation



### Features

Material	Polyurethane rigid foam, with closed cells
Effective density	250 kg/m³
Thermal conductivity	$\lambda = 0.043 \text{ W/mK at } 0 \text{ °C}$
Fire classification (according to DIN 4102)	B2
Temperature range	-45 °C to +105 °C
Water vapour diffusion resistance	$\mu = 1,000$
Compression strength	4.3 N/mm² at 23 °C
Type	PU shell, black, with two-piece pipe clamp, vibration-damped with DÄMMGULAST® lining



According to the **AGI Working Sheet Q 11** ("Arbeitsgemeinschaft Industriebau", an association for industrial construction works) the insulation of refrigeration lines must be made diffusion tight. Also, the joints of the shell halves in the insulation clamps need to be sealed using PU sealer.

The bond with the outer pipe insulation is made by means of an adhesive suitable for PU.

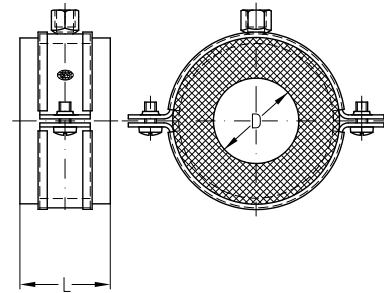
The use of wooden blocks and STATO® Clamps (see chapter "Anchor points/expansion points") is recommended when installing pipe anchor points.

### Insulation clamps RG 250

with DÄMMGULAST® and insulation shells, galvanised



Connecting thread	Size [mm]	Insulation thickness [mm]	Shell length L [mm]	Part no.	Sales unit	Pack unit	
M10	17.2	20	40	124401	1	pieces	
	18.0			124424			
	21.3			124432			
	22.0			124484			
	26.9			124498			
	28.0			124530			
	33.7			45			124542
	35.0	124566					
	42.4	30	124578				
	48.3		110240				
	54.0		110252				
	57.0		110254				
	60.3		50				110264
	63.5			110276			
	70.0			110284			
	76.1	110298					
	88.9	110318					
	108.0	40		70			124208
	114.3						124237
	133.0		124285				
	139.7		124321				
	159.0		124350				
	168.3		124378				
	219.1		60				100



### PU-Sealer 310 ml cartridge

Part no.	Sales unit	Pack unit
122470	12	pieces





### Insulation clamps type H, M, T

two-piece, with single bossed clamps with DÄMMGULAST® yellow and insulation shells, galvanised

#### Field of application

- Thermal decoupled pipe attachment in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

#### Advantages

- Rigorous avoidance of temperature bridges in cold pipelines
- Highly effective insulation due to support elements made of PET and a synthetic rubber mantle
- Insulation thickness matched to the increasing insulation layer thickness of the insulation sleeves

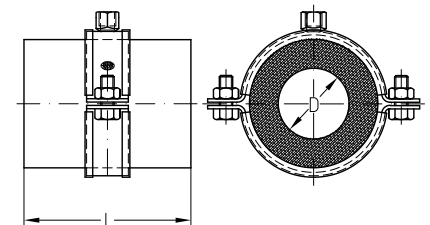
- Secure water vapour diffusion barrier
- Easy installation using self-adhesive fasteners in the part-joint
- Rubber surfaces on the face sides allow easy bonding with the rubber pipe insulation
- Fixed load-distribution sleeves for improved load transfer
- Structure-borne noise damping due to DÄMMGULAST® vibration control lining with yellow identification stripe:** Average sound level improvement up to 22 dB(A)



#### Features



Material	Polyethylene terephthalate, synthetic rubber
Effective density	100 kg/m³
Thermal conductivity	$\lambda = 0.033 \text{ W/mK at } 0^\circ\text{C}$ $\lambda = 0.037 \text{ W/mK at } +40^\circ\text{C}$
Fire classification	Euroclass E - EN 13501-1 in systems association with AF/Armaflex: B-S3-d0
Temperature range	-50 °C to +110 °C
Water vapour diffusion resistance	$\mu = 10,000$
Design	2 PET segment shells and closed-cell elastomeric foam, integral load-distributing sleeves, with two-piece pipe clamp, vibration-damped with DÄMMGULAST® lining




Pipe outer diameter	Max. recommended fastening distance [m]
10–18 mm	2.00
½"–24 mm	2.75
¾"–30 mm	3.00
1"–38 mm	3.50
1¼"–44.5 mm	3.75
1½"–57 mm	4.25
2"–70 mm	4.75
2½"–80 mm	5.50
from 3" upwards	6.00

### Insulation clamps type H – Insulation thickness 9.5–16 mm


two-piece, with single bossed clamps with DÄMMGULAST® yellow and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell type H					
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
10		10.2	111364	1	pieces	10/12	45	34	124168	1	pieces
12								36			
	1/4							38			
15			111374			15/18	40	111773			
18	3/8						43				
22	1/2						47		111779		
24			50								
28	3/4		53			111781					
30			56								
35	1		64				111783				
38			65								
42			69			111785					
		44.5	72								
	1 1/2		76				111787				
54			82			111789					
57			85								
	2		89				111791				
64			92								
70			98			111793					
	2 1/2		105				111795				
80			109								
	3		118			111797					
		101.6	134				111765				
108			137								
	4		144			111767					
125			155				111769				
		133.0	165					111771			
	5		172								
160			193			111775					
	6		198				111777				
		168.3	201								

 Please refer to chapter „Insulation“ for further information and insulation products.

### Insulation clamps type M – Insulation thickness 15.5–25 mm two-piece, with single bossed clamps with DÄMMGULAST® yellow and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell type M					
Pipe outer -Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
10		10.2	111404	1	pieces	10/12	55	46	111801	1	pieces
12								48			
	1/4							50			
15			111414			15/18	55	52	111809		
18	3/8							55			
22	1/2		111426			22/25	55	59	111821		
24								62			
28	3/4		111430			28/30	55	68	111829		
30								70			
35	1		111432			35/38	65	79	111835		
38								81			
42			111434			42/45	65	85	111837		
		44.5						88			
	1 1/2		111436			48	65	91	111839		
54			111438			54/57	65	98	111841		
57								101			
	2		111440			60/64	75	105	111843		
64								109			
70			111442			70	75	116	111845		
	2 1/2		111444			76/80	85	122	111847		
80								127			
	3		111446			89	100	136	111849		
		101.6	111402			102/108	100	151	111799		
108								156			
	4		111406			114	115	162	111803		
125			111408			125	115	173	111805		
		133.0	111410			133/140	115	183	111807		
	5		111412					189			
160			111416			160	115	210	111811		
	6		111418			165/168	125	216	111813		
		168.3	111420					219			
		216.0	111428			216/219	170	267	111823		
		219.1						270			

 Please refer to chapter „Insulation“ for further information and insulation products.

### Insulation clamps type T – Insulation thickness 32–45 mm

two-piece, with single bossed clamps with DÄMMGULAST® yellow and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell type T					
Pipe outer -Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
15			111527	1	pieces	15/18	75	77	111887	1	pieces
18	3/8							77			
22	1/2		111537			22/25	75	80	111895		
24								84			
28	3/4		111541			28/30	75	93	111901		
30								95			
35	1		111547			35/38	85	104	111905		
38								107			
42			111549			42/45	85	113	111909		
		44.5						116			
	1 1/2		111551			48	85	119	111911		
54			111553			54/57	85	126	111913		
57								129			
	2		111555			60/64	100	134	111915		
64								137			
70			111557			70	100	144	111917		
	2 1/2		111559			76/80	115	152	111919		
80								156			
	3		111560			89	125	167	111921		
		101.6	111515			102/108	125	182	111879		
108								188			
	4		111519			114	145	196	111881		
125			111521			125	145	207	111883		
		133.0	111523			133/140	145	219	111885		
	5		111525					225			
160			111529			160	145	248	111889		
	6		111531			165/168	165	254	111891		
		168.3	111533					257			
		200.0	111535			204	215	305	111893		
		216.0	111539			216/219	215	317	111897		
		219.1						320			
		267.0	111543			267/273	215	368	111903		
		273.0	111545					374			



Please refer to chapter „Insulation“ for further information and insulation products.

### Insulation clamps type H, M, T

two-piece, with single bossed clamps without lining and insulation shells, galvanised

#### Field of application

- Thermal decoupled pipe attachment in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

#### Advantages

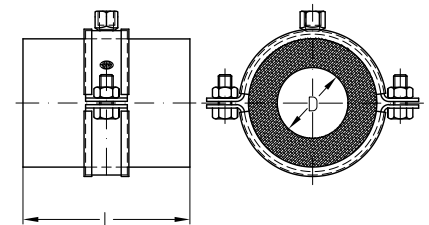
- Rigorous avoidance of temperature bridges in cold pipelines
- Highly effective insulation due to support elements made of PET and a synthetic rubber mantle

- Insulation thickness matched to the increasing insulation layer thickness of the insulation sleeves
- Secure water vapour diffusion barrier
- Easy installation using self-adhesive fasteners in the part-joint
- Rubber surfaces on the face sides allow easy bonding with the rubber pipe insulation
- Fixed load-distribution sleeves for improved load transfer



#### Features

Material	Polyethylene terephthalate, synthetic rubber
Effective density	100 kg/m³
Thermal conductivity	$\lambda = 0.033 \text{ W/mK at } 0^\circ\text{C}$ $\lambda = 0.037 \text{ W/mK at } +40^\circ\text{C}$
Fire classification	Euroclass E - EN 13501-1 in systems association with AF/Armaflex: B-S3-d0
Temperature range	-50 °C to +110 °C
Water vapour diffusion resistance	$\mu = 10,000$
Design	2 PET segment shells and closed-cell elastomeric foam, integral load-distributing sleeves, with two-piece pipe clamp



Pipe outer diameter	Max. recommended fastening distance [m]
10–18 mm	2.00
1/2"–24 mm	2.75
3/4"–30 mm	3.00
1"–38 mm	3.50
1 1/4"–44.5 mm	3.75
1 1/2"–57 mm	4.25
2"–70 mm	4.75
2 1/2"–80 mm	5.50
from 3" upwards	6.00

### Insulation clamps type H – Insulation thickness 9.5–16 mm

two-piece, with single bossed clamps without lining and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell type H						
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit	
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]										
10		10.2	148502	1	pieces	10/12	45	34	124168	1	pieces	
12								36				
	1/4							38				
15			148503			15/18		40	111773			
18	3/8							43				
22	1/2		148504			22/25		47	111779			
24								50				
28	3/4		148505			28/30		53	111781			
30								56				
35	1		148506			35/38	50	64	111783			
38								65				
42			148507			42/45		69	111785			
		44.5						72				
	1 1/2		148508			48	55	76	111787			
54			148509			54/57		82	111789			
57								85				
	2		148510			60	65	89	111791			
64			148511			64		92				
70			148512			70		98				111793
	2 1/2		148513			76	75	105	111795			
80			148514			80		109				
	3		148515			89	95	118	111797			
		101.6	148516			102/108		134				111765
108								137				
	4		148517			114	115	144	111767			
125			148518			125		155				111769
		133.0	148519			133/140		165				
	5		148583					172				
160			150298			160	125	193	111775			
	6	165.1	150299			165/168		198				111777
		168.3	150300					201				




Please refer to chapter „Insulation“ for further information and insulation products.



### Insulation clamps type M – Insulation thickness 15.5–25 mm two-piece, with single bossed clamps without lining and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell type M					
Pipe outer -Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
10		10.2	148530	1	pieces	10/12	55	46	111801	1	pieces
12								48			
	1/4							50			
15			148531			15/18		52	111809		
18	3/8							55			
22	1/2		148532			22/25		59	111821		
24								62			
28	3/4		148533			28/30		68	111829		
30								70			
35	1		148534			35/38	79	111835			
38							81				
42			148535			42/45	85	111837			
		44.5					88				
	1 1/2		148536			48	91	111839			
54			148537			54/57	98	111841			
57							101				
	2		148538			60/64	105	111843			
64							109				
70			148539			70	116	111845			
	2 1/2		148540			76	122	111847			
80			148541			80	127				
	3		148542			89	100	136	111849		
		101.6	148543			102		151	111799		
108			148544			108		156			
	4		148545			114	115	162	111803		
125			148546			125		173	111805		
		133.0	150301			133/140		183	111807		
	5						189				
160			150302			160	125	210	111811		
	6		150303			165/168		216	111813		
		168.3						219			
		216.0	150304			216/219	170	267	111823		
		219.1							270		

 Please refer to chapter „Insulation“ for further information and insulation products.

### Insulation clamps type T – Insulation thickness 32–45 mm

two-piece, with single bossed clamps without lining and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell type T					
Pipe outer -Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
15			148552	1	pieces	15/18	75	77	111887	1	pieces
18	3/8							80			
22	1/2		148553	22/25	84	111901					
24					93			95			
28	3/4		148554	28/30		85	104	111905			
30							107				
35	1		148555	35/38			113	111909			
38					42/45		116				
42			148556		119		111911				
		44.5			54/57			126	111913		
	1 1/2		148557		129		100	134		111915	
54					60/64			137			
57			148558		144	111917					
	2				70			152	111919		
64			148559		156	125	167	111921			
70					89		182		111879		
	2 1/2		148560	102/108	188		145	196		111881	
80					114			207	111883		
	3		148561	125	219	111885					
		101.6			133/140			225	215	248	111889
108	4		150305	160	254	111891					
125					165/168		257	215		305	111893
		133.0	150306		317	111897					
	5				204		320		267/273	368	111903
160			150307	267/273	374	215	374			111903	
	6							215			374
		168.3	150308				215			374	111903
		200.0								215	
		216.0	150311			215			374		111903
		219.1							215		
		267.0	150312				215	374			111903
		273.0								215	
			150313			215		374			111903
									215		
							215	374			111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								215		374	
						215				374	111903
									215	374	
							215			374	111903
								2			



Please refer to chapter „Insulation“ for further information and insulation products.

### Insulation clamps type H, M, T

two-piece, with single bossed clamps JUNIOR with DÄMMGULAST® green and insulation shells, galvanised

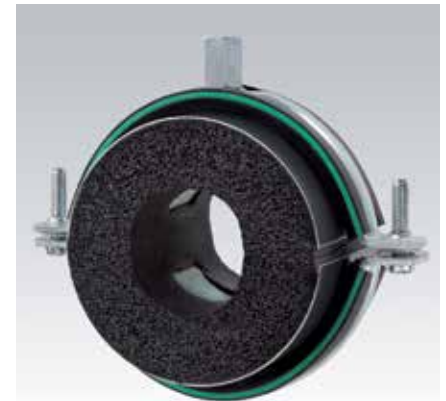
#### Field of application

- Thermal decoupled pipe attachment in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

#### Advantages

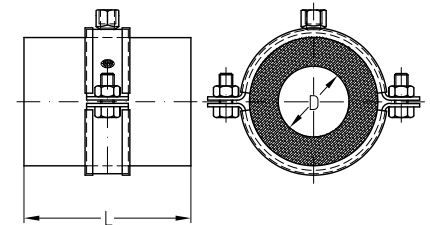
- Rigorous avoidance of temperature bridges in cold pipelines
- Highly effective insulation due to support elements made of PET and a synthetic rubber mantle

- Insulation thickness matched to the increasing insulation layer thickness of the insulation sleeves
- Secure water vapour diffusion barrier
- Easy installation using self-adhesive fasteners in the part-joint
- Rubber surfaces on the face sides allow easy bonding with the rubber pipe insulation
- Fixed load-distribution sleeves for improved load transfer
- Structure-borne noise damping due to DÄMMGULAST® vibration control lining with green identification stripe: Average sound level improvement up to 18.6 dB(A)



#### Features

Material	Polyethylene terephthalate, synthetic rubber
Effective density	100 kg/m³
Thermal conductivity	$\lambda = 0.033 \text{ W/mK at } 0^\circ\text{C}$ $\lambda = 0.037 \text{ W/mK at } +40^\circ\text{C}$
Fire classification	Euroclass E - EN 13501-1 in systems association with AF/Armaflex: B-S3-d0
Temperature range	-50 °C to +110 °C
Water vapour diffusion resistance	$\mu = 10,000$
Design	2 PET segment shells and closed-cell elastomeric foam, integral load-distributing sleeves, with two-piece pipe clamp, vibration-damped with DÄMMGULAST® lining



Pipe outer diameter	Max. recommended fastening distance [m]
10–18 mm	2.00
½"–24 mm	2.75
¾"–30 mm	3.00
1"–38 mm	3.50
1¼"–44.5 mm	3.75
1½"–57 mm	4.25
2"–70 mm	4.75
2½"–80 mm	5.50
from 3" upwards	6.00

### Insulation clamps type H – Insulation thickness 9.5–16 mm

two-piece, single bossed clamps JUNIOR with DÄMMGULAST® green and insulation shells, galvanised

			Insulation clamp M8/M10 connection thread			Insulation shell type H					
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
10		10.2	149350	1	pieces	10/12	45	34	124168	1	pieces
12								36			
	1/4							38			
15			149351			15/18		40	111773		
18	3/8							43			
22	1/2		149352			22/25		47	111779		
24								50			
28	3/4		149353			28/30		53	111781		
30								56			
35	1		149354			35/38	50	64	111783		
38								65			
42			149355			42/45		69	111785		
		44.5						72			
	1 1/2		149356			48	55	76	111787		
54			149357					82	111789		
57						85					
	2		149358			60/64	65	89	111791		
64								92			
70			149359			70		75	98		
	2 1/2		149360			76/80	105		111795		
80							109				
	3		149361			89	95	118	111797		
		101.6	150261					134			
108			149362			102		115	137		
	4		149363			108	144		111767		
125			149364			114	155		111769		
		133.0	149365			125	165		111771		
						133					
	5		149366	140		172					




Please refer to chapter „Insulation“ for further information and insulation products.

### Insulation clamps type M – Insulation thickness 15.5–25 mm

two-piece, single bossed clamps JUNIOR with DÄMMGULAST® green and insulation shells, galvanised

			Insulation clamp M8/M10 connection thread			Insulation shell type M					
Pipe outer -Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
10		10.2	149368	1	pieces	10/12	55	46	111801	1	pieces
12								48			
	1/4							50			
15			149369			15/18		52	111809		
18	3/8							55			
22	1/2		149370			22/25		59	111821		
24								62			
28	3/4		149371			28/30		68	111829		
30								70			
35	1		149372			35/38	65	79	111835		
38								81			
42			149373			42/45		85	111837		
		44.5						88			
	1 1/2		149374			48		91	111839		
54			149375			54/57		98	111841		
57								101			
	2		149376			60/64	75	105	111843		
64								109			
70			149377			70		116	111845		
	2 1/2		149378			76/80	85	122	111847		
80								127			
	3		149379			89		100	136		
		101.6	149380			102	151		111799		
108			149381			108	156				
	4		149382			114	115	162	111803		
125			151163			125		173	111805		

 Please refer to chapter „Insulation“ for further information and insulation products.

### Insulation clamps type T – Insulation thickness 32–45 mm

two-piece, single bossed clamps JUNIOR with DÄMMGULAST® green and insulation shells, galvanised

			Insulation clamp M8/M10 connection thread			Insulation shell type T					
Pipe outer -Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
15			149390	1	pieces	15/18	75	77	111887	1	pieces
18	3/8							80	111895		
22	1/2		149391			22/25		84	111901		
24								93			
28	3/4		149392			28/30		95	111905		
30							104				
35	1		149393			35/38	107	111909			
38							113				
42			149394			42/45	116	111911			
		44.5					119				
	1 1/2		149395			48	126	111913			
54			149396			54/57	129	111915			
57							60/64		100		
64	2		149397			60/64	100	137	111917		
70							70	144			
	2 1/2		149399			76/80	115	152	111919		
80								156			
	3		149400				89	125	167		



Please refer to chapter „Insulation“ for further information and insulation products.



### Insulation clamps type H, M, T

two-piece, with single bossed clamps JUNIOR without lining and insulation shells, galvanised

#### Field of application

- Thermal decoupled pipe attachment in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

#### Advantages

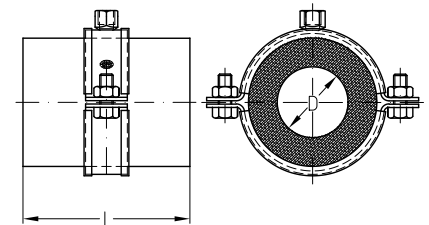
- Rigorous avoidance of temperature bridges in cold pipelines
- Highly effective insulation due to support elements made of PET and a synthetic rubber mantle

- Insulation thickness matched to the increasing insulation layer thickness of the insulation sleeves
- Secure water vapour diffusion barrier
- Easy installation using self-adhesive fasteners in the part-joint
- Rubber surfaces on the face sides allow easy bonding with the rubber pipe insulation
- Fixed load-distribution sleeves for improved load transfer



#### Features

Material	Polyethylene terephthalate, synthetic rubber
Effective density	100 kg/m³
Thermal conductivity	$\lambda = 0.033 \text{ W/mK at } 0^\circ\text{C}$ $\lambda = 0.037 \text{ W/mK at } +40^\circ\text{C}$
Fire classification	Euroclass E - EN 13501-1 in systems association with AF/Armaflex: B-S3-d0
Temperature range	-50 °C to +110 °C
Water vapour diffusion resistance	$\mu = 10,000$
Design	2 PET segment shells and closed-cell elastomeric foam, integral load-distributing sleeves, with two-piece pipe clamp



Pipe outer diameter	Max. recommended fastening distance [m]
10-18 mm	2.00
1/2"-24 mm	2.75
3/4"-30 mm	3.00
1"-38 mm	3.50
1 1/4"-44.5 mm	3.75
1 1/2"-57 mm	4.25
2"-70 mm	4.75
2 1/2"-80 mm	5.50
from 3" upwards	6.00

### Insulation clamps type H – Insulation thickness 9.5–16 mm

two-piece, single bossed clamps JUNIOR without lining and insulation shells, galvanised

			Insulation clamp M8/M10 connection thread			Insulation shell type H					
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
10		10.2	148565	1	pieces	10/12	45	34	124168	1	pieces
12								36			
	1/4		148566					38			
15			148567			15/18		40	111773		
18	3/8							43			
22	1/2		148568			22/25		47	111779		
24								50			
28	3/4		148569			28/30		53	111781		
30								56			
35	1		148570			35/38	50	64	111783		
38								65			
42			148571			42		69	111785		
		44.5	148572			45		72			
	1 1/2		148573			48	55	76	111787		
54			148574			54/57		82	111789		
57								85			
	2		148575			60/64	65	89	111791		
64								92			
70			148576			70		98	111793		
	2 1/2		148577			76/80	75	105	111795		
80								109			
	3		148578			89	95	118	111797		
		101.6	148579			102/108		134	111765		
108			148580					137			
	4		148581			114	115	144	111767		
125			150344			125		155	111769		
		133.0	148582			133/140		165	111771		
	5							172			




Please refer to chapter „Insulation“ for further information and insulation products.

### Insulation clamps type M – Insulation thickness 15.5–25 mm

two-piece, single bossed clamps JUNIOR without lining and insulation shells, galvanised

			Insulation clamp M8/M10 connection thread			Insulation shell type M					
Pipe outer -Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]									
10		10.2	148589	1	pieces	10/12	55	46	111801	1	pieces
12								48			
	1/4							50			
15			148590			15/18		52	111809		
18	3/8							55			
22	1/2		148591			22/25		59	111821		
24								62			
28	3/4		148592			28/30	68	111829			
30							70				
35	1		148593			35/38	65	79	111835		
38								81			
42			148594			42/45		85	111837		
		44.5						88			
	1 1/2		148595			48		91	111839		
54			148596			54/57		98	111841		
57								101			
	2		148597			60/64	75	105	111843		
64								109			
70			148598			70		116	111845		
	2 1/2		148599			76/80	85	122	111847		
80								127			
	3		148600			89	100	136	111849		
		101.6	148601					151	111799		
108			150345			102/108			156		
	4		148602				114	115	162		
125			151164			125	173		111805		
		133.0	151165			133/140	183		111807		
	5						189				

 Please refer to chapter „Insulation“ for further information and insulation products.

### Insulation clamps type T – Insulation thickness 32–45 mm

two-piece, single bossed clamps JUNIOR without lining and insulation shells, galvanised

			Insulation clamp M8/M10 connection thread			Insulation shell type T									
Pipe outer -Ø D			Part no. complete clamp	Sales unit	Pack unit	Size [mm]	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit				
Cooper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]													
15			148603	1	pieces	15/18	75	77	111887	1	pieces				
18	3/8					148604			22/25			80	111895		
22	1/2		84									111901			
24			93												
28	3/4		148605			28/30		95	111905						
30			148606			85	104	111905							
35	1						107	111909							
38							113								
42			148607				42/45		116			111911			
		44.5	148608						119						
	1 1/2		48				126	111913							
54			148609				54/57					129			
57			148610			60/64	100	134	111915						
64								137							
70			148611			70		144	111917						
	2 1/2		150346			76/80	115	152	111919						
80								156							
	3							148612	89			125	167	111921	
		101.6	151166			102	182	111879							
108						151167	108						188		



Please refer to chapter „Insulation“ for further information and insulation products.

## Insulation clamps RTN+ type 2 and 4

two-piece, with single bossed clamps with DÄMMGULAST® yellow and insulation shells, galvanised

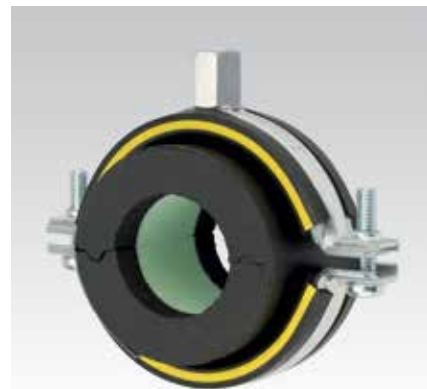
### Field of application

- Insulation of pipelines in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

### Advantages

- Rigorous avoidance of temperature bridges in cold pipelines

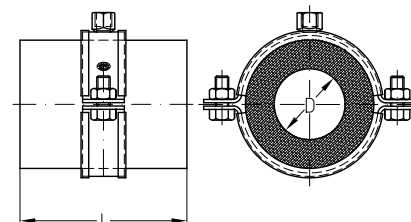
- Highly effective insulation due to support elements made of PIR and a synthetic rubber mantle
- Insulation thickness matched to the increasing insulation layer thickness of the insulation sleeves
- Rubber surfaces on the face sides allow easy bonding with the rubber pipe insulation
- **Structure-borne noise damping due to DÄMMGULAST® vibration control lining with yellow identification stripe:** Average sound level improvement up to 22 dB(A)



### Features



Material	Polyurethane-polyisocyanurate rigid foam, synthetic rubber
Effective density	120 kg/m³
Thermal conductivity	$\lambda = 0.034 \text{ W/mK at } 0^\circ\text{C}$ $\lambda = 0.038 \text{ W/mK at } +40^\circ\text{C}$
Fire classification	DIN EN 13501-1:2007 Euroclass E
Temperature range	-45 °C to +105 °C
Water vapour diffusion resistance	$\mu = 10,000$
Design	Insulation clamp with ultraflexible closed cell insulation system with high water vapour diffusion resistance and low thermal conductivity, with two-piece pipe clamp, vibration-damped with DÄMMGULAST® lining



Pipe outer diameter	Single bossed clamp with DÄMMGULAST® yellow, galvanised
	Max. recommended fastening distance [m]
6–15 mm	2.00
3/8"–18 mm	2.25
1/2"–24 mm	2.75
3/4"–30 mm	3.00
1"–38 mm	3.50
1 1/4"–44.5 mm	3.75
1 1/2"–57 mm	4.25
2"–70 mm	4.75
2 1/2"–80 mm	5.50
from 3" upwards	6.00

### Insulation clamps RTN+ type 2 – Insulation thickness 9.5–15 mm

two-piece, with single bossed clamp with DÄMMGULAST® yellow and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell RTN+ type 2				
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Copper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]								
6.0		6.0	150509	1	pieces	50	25	149190	1	pieces
8.0		8.0	150510				28	149191		
10.0	1/8	10.2	150511				34	149192		
12.0		12.5	150512				36	149193		
15.0	1/4	13.5	150513				40	149194		
18.0	3/8	17.2	150514				43	149195		
22.0	1/2	21.3	150515				47	149196		
28.0	3/4	26.9	150516				53	149197		
35.0	1	33.7	150517				61	149198		
38.0		38.0	150518				65	149199		
42.0	1 1/4	42.4	150519				69	149200		
	1 1/2	48.3	150520				76	149201		
54.0		54.0	150521				82	149202		
57.0		57.0	150522				85	149203		
	2	60.3	150523				89	149204		
64.0		63.5	150524				92	149205		
		70.0	150525				98	149206		
76.1	2 1/2	76.1	150526				105	149207		
		80.0	150527				109	149208		
88.9	3	88.9	150528				118	149209		
	3 1/2	101.6	150529				134	149210		
108.0		108.0	150530				141	149211		
114.0	4	114.3	150531				144	149212		





### Insulation clamps RTN+ type 4 – Insulation thickness 15.5–25.5 mm two-piece, with single bossed clamp with DÄMMGULAST® yellow and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell RTN+ type 4				
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Copper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]								
10.0	⅜	10.2	150532	1	pieces	50	46	149213	1	pieces
12.0		12.5	150533				48	149214		
15.0	¼	13.5	150534				52	149215		
18.0	⅜	17.2	150535				55	149216		
22.0	½	21.3	150536				60	149217		
28.0	¾	26.9	150537				66	149219		
35.0	1	33.7	150538				74	149220		
38.0		38.0	150539				79	149221		
42.0	1¼	42.4	150540				85	149222		
	1½	48.3	150541				91	149223		
54.0		54.0	150542				98	149224		
57.0		57.0	150543				101	149225		
	2	60.3	150544				105	149226		
64.0		63.5	150545				109	149227		
		70.0	150546				116	149228		
76.1	2½	76.1	150547				122	149229		
		80.0	150548				126	149230		
88.9	3	88.9	150549				136	149231		
	3½	101.6	150550				149	149232		
108.0		108.0	150551				156	149233		
114.0	4	114.3	150552				162	149234		
133.0		133.0	150553				183	149235		
	5	139.7	150554				189	149236		
159.0		160.0	150555				210	149237		
		165.0	150556				216	149238		
168.0		168.3	150557				219	149239		



### Insulation clamps RTN+ type 2 and 4

two-piece, with single bossed clamps without lining and insulation shells, galvanised

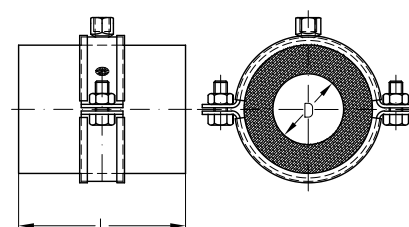
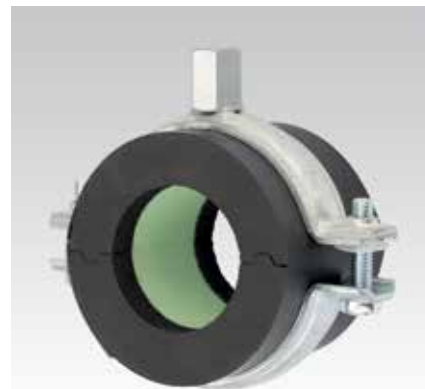
#### Field of application

- Insulation of pipelines in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

#### Advantages

- Rigorous avoidance of temperature bridges in cold pipelines

- Highly effective insulation due to support elements made of PIR and a synthetic rubber mantle
- Insulation thickness matched to the increasing insulation layer thickness of the insulation sleeves
- Rubber surfaces on the face sides allow easy bonding with the rubber pipe insulation



#### Features

Material	Polyurethane-polyisocyanurate rigid foam, synthetic rubber
Effective density	120 kg/m <sup>3</sup>
Thermal conductivity	$\lambda = 0.034 \text{ W/mK at } 0^\circ\text{C}$ $\lambda = 0.038 \text{ W/mK at } +40^\circ\text{C}$
Fire classification	DIN EN 13501-1:2007 Euroclass E
Temperature range	-45 °C to +105 °C
Water vapour diffusion resistance	$\mu = 10,000$
Design	Insulation clamp with ultraflexible closed cell insulation system with high water vapour diffusion resistance and low thermal conductivity, with two-piece pipe clamp

Pipe outer diameter	Single bossed clamp without lining, galvanised Max. recommended fastening distance [m]
6–15 mm	2.00
3/8"–18 mm	2.25
1/2"–24 mm	2.75
3/4"–30 mm	3.00
1"–38 mm	3.50
1 1/4"–44.5 mm	3.75
1 1/2"–57 mm	4.25
2"–70 mm	4.75
2 1/2"–80 mm	5.50
from 3" upwards	6.00

### Insulation clamps RTN+ type 2 – Insulation thickness 9.5–15 mm two-piece, with single bossed clamp without lining and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell RTN+ type 2				
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Copper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]								
6.0		6.0	150558	1	pieces	50	25	149190	1	pieces
8.0		8.0	150559				28	149191		
10.0	1/8	10.2	150560				34	149192		
12.0		12.5	150561				36	149193		
15.0	1/4	13.5	150562				40	149194		
18.0	3/8	17.2	150563				43	149195		
22.0	1/2	21.3	150564				47	149196		
28.0	3/4	26.9	150565				53	149197		
35.0	1	33.7	150566				61	149198		
38.0		38.0	150567				65	149199		
42.0	1 1/4	42.4	150568				69	149200		
	1 1/2	48.3	150569				76	149201		
54.0		54.0	150570				82	149202		
57.0		57.0	150571				85	149203		
	2	60.3	150572				89	149204		
64.0		63.5	150573				92	149205		
		70.0	150574				98	149206		
76.1	2 1/2	76.1	150575				105	149207		
		80.0	150576				109	149208		
88.9	3	88.9	150577				118	149209		
	3 1/2	101.6	150578				134	149210		
108.0		108.0	150579				141	149211		
114.0	4	114.3	150580				144	149212		



### Insulation clamps RTN+ type 4 – Insulation thickness 15.5–25.5 mm two-piece, with single bossed clamp without lining and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell RTN+ type 4				
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Copper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]								
10.0	⅜	10.2	150581	1	pieces	50	46	149213	1	pieces
12.0		12.5	150582				48	149214		
15.0	¼	13.5	150583				52	149215		
18.0	⅜	17.2	150584				55	149216		
22.0	½	21.3	150585				60	149217		
28.0	¾	26.9	150586				66	149219		
35.0	1	33.7	150587				74	149220		
38.0		38.0	150588				79	149221		
42.0	1¼	42.4	150589				85	149222		
	1½	48.3	150590				91	149223		
54.0		54.0	150591				98	149224		
57.0		57.0	150592				101	149225		
	2	60.3	150593				105	149226		
64.0		63.5	150594				109	149227		
		70.0	150595				116	149228		
76.1	2½	76.1	150596				122	149229		
		80.0	150597				126	149230		
88.9	3	88.9	150598				136	149231		
	3½	101.6	150599				149	149232		
108.0		108.0	150600				156	149233		
114.0	4	114.3	150601				162	149234		
133.0		133.0	150602				183	149235		
	5	139.7	150603				189	149236		
159.0		160.0	150604				210	149237		
		165.0	150605				216	149238		
168.0		168.3	150606				219	149239		



## Insulation clamps RTN+ type 2 and 4

two-piece, with single bossed clamps JUNIOR with DÄMMGULAST® green and insulation shells, galvanised

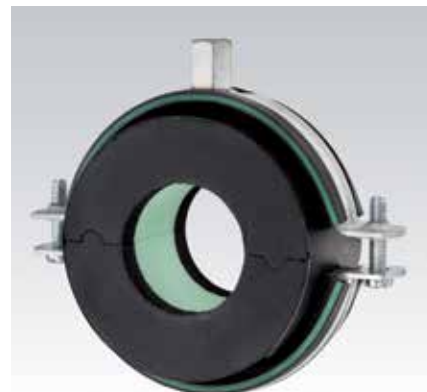
### Field of application

- Insulation of pipelines in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

### Advantages

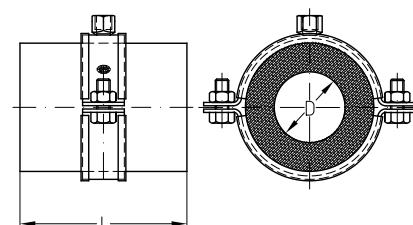
- Rigorous avoidance of temperature bridges in cold pipelines

- Highly effective insulation due to support elements made of PIR and a synthetic rubber mantle
- Insulation thickness matched to the increasing insulation layer thickness of the insulation sleeves
- Rubber surfaces on the face sides allow easy bonding with the rubber pipe insulation
- **Structure-borne noise damping due to DÄMMGULAST® vibration control lining with green identification stripe:** Average sound level improvement up to 18 dB(A)



### Features

Material	Polyurethane-polyisocyanurate rigid foam, synthetic rubber
Effective density	120 kg/m³
Thermal conductivity	$\lambda = 0.034 \text{ W/mK at } 0^\circ\text{C}$ $\lambda = 0.038 \text{ W/mK at } +40^\circ\text{C}$
Fire classification	DIN EN 13501-1:2007 Euroclass E
Temperature range	-45 °C to +105 °C
Water vapour diffusion resistance	$\mu = 10,000$
Design	Insulation clamp with ultraflexible closed cell insulation system with high water vapour diffusion resistance and low thermal conductivity, with two-piece pipe clamp, vibration-damped with DÄMMGULAST® lining



Pipe outer diameter	Single bossed clamp JUNIOR with DÄMMGULAST® green, galvanised
	Max. recommended fastening distance [m]
6–15 mm	2.00
3/8"–18 mm	2.25
1/2"–24 mm	2.75
3/4"–30 mm	3.00
1"–38 mm	3.50
1 1/4"–44.5 mm	3.75
1 1/2"–57 mm	4.25
2"–70 mm	4.75
2 1/2"–80 mm	5.50
from 3" upwards	6.00

### Insulation clamps RTN+ type 2 – Insulation thickness 9.5–15 mm

two-piece, single bossed clamp JUNIOR with DÄMMGULAST® green and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell RTN+ type 2				
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Copper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]								
6.0		6.0	150411	1	pieces	50	25	149190	1	pieces
8.0		8.0	150412				28	149191		
10.0	1/8	10.2	150413				34	149192		
12.0		12.5	150414				36	149193		
15.0	1/4	13.5	150415				40	149194		
18.0	3/8	17.2	150416				43	149195		
22.0	1/2	21.3	150417				47	149196		
28.0	3/4	26.9	150418				53	149197		
35.0	1	33.7	150419				61	149198		
38.0		38.0	150420				65	149199		
42.0	1 1/4	42.4	150421				69	149200		
	1 1/2	48.3	150422				76	149201		
54.0		54.0	150423				82	149202		
57.0		57.0	150424				85	149203		
	2	60.3	150425				89	149204		
64.0		63.5	150426				92	149205		
		70.0	150427				98	149206		
76.1	2 1/2	76.1	150428				105	149207		
		80.0	150429				109	149208		
88.9	3	88.9	150430				118	149209		
	3 1/2	101.6	150431				134	149210		
108.0		108.0	150432				141	149211		
114.0	4	114.3	150433				144	149212		



### Insulation clamps RTN+ type 4 – Insulation thickness 15.5–25.5 mm two-piece, single bossed clamp JUNIOR with DÄMMGULAST® green and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell RTN+ type 4				
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Copper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]								
10.0	⅜	10.2	150434	1	pieces	50	46	149213	1	pieces
12.0		12.5	150435				48	149214		
15.0	¼	13.5	150436				52	149215		
18.0	⅜	17.2	150437				55	149216		
22.0	½	21.3	150438				60	149217		
28.0	¾	26.9	150439				66	149219		
35.0	1	33.7	150440				74	149220		
38.0		38.0	150441				79	149221		
42.0	1¼	42.4	150442				85	149222		
	1½	48.3	150443				91	149223		
54.0		54.0	150444				98	149224		
57.0		57.0	150445				101	149225		
	2	60.3	150446				105	149226		
64.0		63.5	150447				109	149227		
		70.0	150448				116	149228		
76.1	2½	76.1	150449				122	149229		
		80.0	150450				126	149230		
88.9	3	88.9	150451				136	149231		
	3½	101.6	150452				149	149232		
108.0		108.0	150453				156	149233		
114.0	4	114.3	150454				162	149234		





### Insulation clamps RTN+ type 2 and 4

two-piece, with single bossed clamps JUNIOR without lining and insulation shells, galvanised

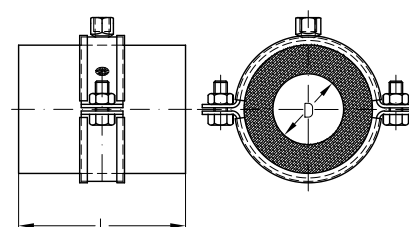
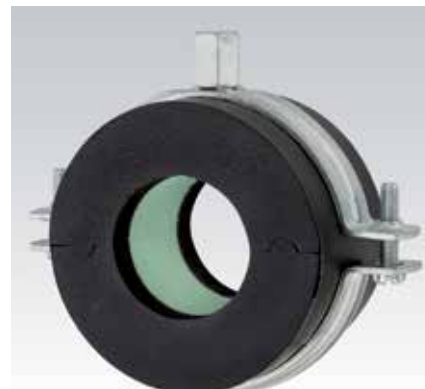
#### Field of application

- Insulation of pipelines in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

#### Advantages

- Rigorous avoidance of temperature bridges in cold pipelines

- Highly effective insulation due to support elements made of PIR and a synthetic rubber mantle
- Insulation thickness matched to the increasing insulation layer thickness of the insulation sleeves
- Rubber surfaces on the face sides allow easy bonding with the rubber pipe insulation



#### Features

Material	Polyurethane-polyisocyanurate rigid foam, synthetic rubber
Effective density	120 kg/m <sup>3</sup>
Thermal conductivity	$\lambda = 0.034 \text{ W/mK at } 0^\circ\text{C}$ $\lambda = 0.038 \text{ W/mK at } +40^\circ\text{C}$
Fire classification	DIN EN 13501-1:2007 Euroclass E
Temperature range	-45 °C to +105 °C
Water vapour diffusion resistance	$\mu = 10,000$
Design	Insulation clamp with ultraflexible closed cell insulation system with high water vapour diffusion resistance and low thermal conductivity, with two-piece pipe clamp

Pipe outer diameter	Single bossed clamps JUNIOR without lining, galvanised Max. recommended fastening distance [m]
6–15 mm	2.00
3/8"–18 mm	2.25
1/2"–24 mm	2.75
3/4"–30 mm	3.00
1"–38 mm	3.50
1 1/4"–44.5 mm	3.75
1 1/2"–57 mm	4.25
2"–70 mm	4.75
2 1/2"–80 mm	5.50
from 3" upwards	6.00

### Insulation clamps RTN+ type 2 – Insulation thickness 9.5–15 mm two-piece, single bossed clamp JUNIOR without lining and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell RTN+ type 2				
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Copper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]								
6.0		6.0	150460	1	pieces	50	25	149190	1	pieces
8.0		8.0	152109				28	149191		
10.0	1/8	10.2	150462				34	149192		
12.0		12.5	150463				36	149193		
15.0	1/4	13.5	150464				40	149194		
18.0	3/8	17.2	150465				43	149195		
22.0	1/2	21.3	150466				47	149196		
28.0	3/4	26.9	150467				53	149197		
35.0	1	33.7	150468				61	149198		
38.0		38.0	150469				65	149199		
42.0	1 1/4	42.4	150470				69	149200		
	1 1/2	48.3	150471				76	149201		
54.0		54.0	150472				82	149202		
57.0		57.0	150473				85	149203		
	2	60.3	150474				89	149204		
64.0		63.5	150475				92	149205		
		70.0	150476				98	149206		
76.1	2 1/2	76.1	150477				105	149207		
		80.0	150478				109	149208		
88.9	3	88.9	150479				118	149209		
	3 1/2	101.6	150480				134	149210		
108.0		108.0	150481				141	149211		
114.0	4	114.3	150482				144	149212		



### Insulation clamps RTN+ type 4 – Insulation thickness 15.5–25.5 mm

two-piece, single bossed clamp JUNIOR without lining and insulation shells, galvanised

			Insulation clamp M10 connection thread			Insulation shell RTN+ type 4				
Pipe outer-Ø D			Part no. complete clamp	Sales unit	Pack unit	Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
Copper pipe [mm]	Steel pipe [inch]	Steel pipe [mm]								
10.0	⅜	10.2	150483	1	pieces	50	46	149213	1	pieces
12.0		12.5	150484				48	149214		
15.0	¼	13.5	150485				52	149215		
18.0	⅜	17.2	150486				55	149216		
22.0	½	21.3	150487				60	149217		
28.0	¾	26.9	150488				66	149219		
35.0	1	33.7	150489				74	149220		
38.0		38.0	150490				79	149221		
42.0	1¼	42.4	150491				85	149222		
	1½	48.3	150492				91	149223		
54.0		54.0	150493				98	149224		
57.0		57.0	150494				101	149225		
	2	60.3	150495				105	149226		
64.0		63.5	150496				109	149227		
		70.0	150497				116	149228		
76.1	2½	76.1	150498				122	149229		
		80.0	150499				126	149230		
88.9	3	88.9	150500				136	149231		
	3½	101.6	150501				149	149232		
108.0		108.0	150502				156	149233		
114.0	4	114.3	150503				162	149234		
133.0		133.0	150504				183	149235		
	5	139.7	150505				189	149236		



### Insulation shells type RTN+

#### Field of application

- Insulation of pipelines in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for hot and chilled water pipes

#### Advantages

- Rigorous avoidance of temperature bridges in cold pipelines
- Highly effective insulation due to support elements made of PIR and a synthetic rubber mantle

- Insulation thickness matched to the increasing insulation layer thickness of the insulation sleeves
- Rubber surfaces on the face sides allow easy bonding with the rubber pipe insulation



#### Features

Material	Polyurethane-polyisocyanurate rigid foam, synthetic rubber
Effective density	120 kg/m <sup>3</sup>
Thermal conductivity	$\lambda = 0.034 \text{ W/mK at } 0^\circ\text{C}$ $\lambda = 0.038 \text{ W/mK at } +40^\circ\text{C}$
Fire classification	DIN EN 13501-1:2007 Euroclass E
Temperature range	-45 °C to +105 °C
Water vapour diffusion resistance	$\mu = 10,000$
Design	Insulation clamp with ultraflexible closed cell insulation system with high water vapour diffusion resistance and low thermal conductivity

### Insulation shells RTN+ type 2 – Insulation thickness 9.5–15 mm

Copper pipe [mm]	Pipe outer-Ø D		Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
	Steel pipe [inch]	Steel pipe [mm]					
6.0		6.0	50	25	149190	1	pieces
8.0		8.0		28	149191		
10.0	⅜	10.2		34	149192		
12.0		12.5		36	149193		
15.0	¼	13.5		40	149194		
18.0	⅝	17.2		43	149195		
22.0	½	21.3		47	149196		
28.0	¾	26.9		53	149197		
35.0	1	33.7		61	149198		
38.0		38.0		65	149199		
42.0	1¼	42.4		69	149200		
	1½	48.3		76	149201		
54.0		54.0		82	149202		
57.0		57.0		85	149203		
	2	60.3		89	149204		
64.0		63.5		92	149205		
		70.0		98	149206		
76.1	2½	76.1		105	149207		
		80.0		109	149208		
88.9	3	88.9		118	149209		
	3½	101.6		134	149210		
108.0		108.0		141	149211		
114.0	4	114.3		144	149212		



### Insulation shells RTN+ type 4 – Insulation thickness 15.5–25.5 mm

Copper pipe [mm]	Pipe outer-Ø D		Length of shell L [mm]	Outer-Ø shell [mm]	Part no. single shell	Sales unit	Pack unit
	Steel pipe [inch]	Steel pipe [mm]					
10.0	1/8	10.2	50	46	149213	1	pieces
12.0		12.5		48	149214		
15.0	1/4	13.5		52	149215		
18.0	3/8	17.2		55	149216		
22.0	1/2	21.3		60	149217		
28.0	3/4	26.9		66	149219		
35.0	1	33.7		74	149220		
38.0		38.0		79	149221		
42.0	1 1/4	42.4		85	149222		
	1 1/2	48.3		91	149223		
54.0		54.0		98	149224		
57.0		57.0		101	149225		
	2	60.3		105	149226		
64.0		63.5		109	149227		
		70.0		116	149228		
76.1	2 1/2	76.1		122	149229		
		80.0		126	149230		
88.9	3	88.9		136	149231		
	3 1/2	101.6		149	149232		
108.0		108.0		156	149233		
114.0	4	114.3		162	149234		
133.0		133.0		183	149235		
	5	139.7		189	149236		
159.0		160.0		210	149237		
		165.0		216	149238		
168.0		168.3		219	149239		



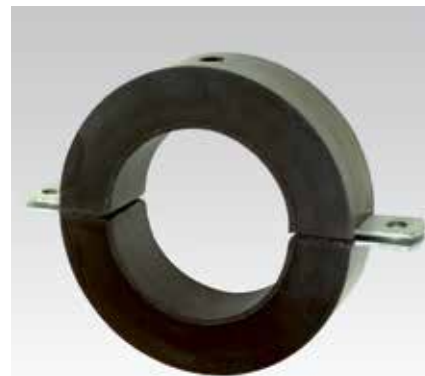
### Insulation clamps type 170 EX galvanised

#### Field of application

- Thermal decoupled pipe attachment in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for chilled water pipes
- Stable insulating element for high impacts

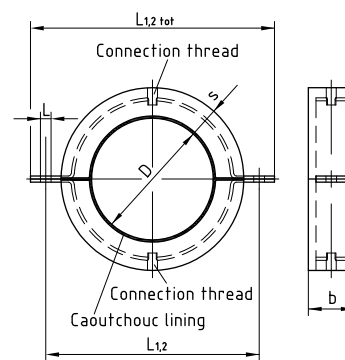
#### Advantages

- Exterior connection joints (without screws)
- With dual-side metric connection thread
- Highly resistant to water vapour diffusion
- With caoutchouc lining on the pipe side and on the separation surfaces of the insulating clamp; no PU-Sealer necessary
- Ideal for separating individual pipe sections when using open diffusion insulating materials (mineral fibre)



#### Features

Material	Polyurethane, black
Density	250 kg/m³
Thermal conductivity	$\lambda = 0.049 \text{ W/mK at } 0^\circ\text{C}$
Fire classification (according to DIN 4102)	B2
Temperature range	$-50^\circ\text{C to } +105^\circ\text{C}$
Water vapour diffusion resistance	$\mu = 1,430$



Pipe outer diameter [mm]	Connecting thread	Strip perforation for L [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]					
						s	b	L1	L1 tot	L2	L2 tot
114.3	M10	M12	111173	1	pieces	40	60	238	274		
133.0			111175					264	300		
139.7			111177								
159.0	M12		111179					279	319		
168.3			111181					288	328		
219.1			111183								
273.0	M16	111187	413				453				
323.9		M20	111191				464	504			
406.4			M24				111199	120	556	606	
219.1	M16		M12			111185	60	100			399
273.0		M16	111189							453	493
323.9	M20		111193							504	544
355.6			111195							536	576
368.0			111197							548	588
406.4			M24			111201				596	646
457.2	111203								647	697	
508.0	111205								698	748	
609.6	111207								798	848	



According to the **AGI Working Sheet Q 11** ("Arbeitsgemeinschaft Industriebau", an association for industrial construction works) the insulation of refrigeration lines must be made diffusion tight.

The connection with the outer pipe insulation is made by using a complying adhesive for the insulating material (use adhesive suitable for PU).



# Insulation clamps type 175 EX galvanised

## Field of application

- Thermal decoupled pipe attachment in the field of refrigeration
- Specially suitable for attachments in ventilation, air-conditioning, heating, refrigeration installations as well as for chilled water pipes
- Stable insulating element for high impacts

## Advantages

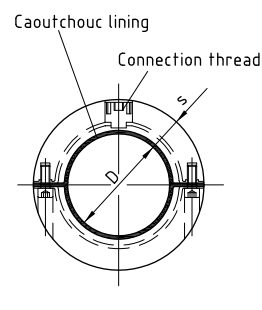
- Two half shells including screws, mounted

- With combined connecting thread metric and inch
- Highly resistant to water vapour diffusion
- Ideal for separating individual pipe sections when using open diffusion insulating materials (mineral fibre)
- With caoutchouc lining on the pipe side and on the separation surfaces of the insulating clamp; no PU-Sealer necessary



## Features

Material	Polyurethane, black
Density	250 kg/m³
Thermal conductivity	$\lambda = 0.049 \text{ W/mK at } 0^\circ\text{C}$
Fire classification (according to DIN 4102)	B2
Temperature range	$-50^\circ\text{C to } +105^\circ\text{C}$
Water vapour diffusion resistance	$\mu = 1,200$

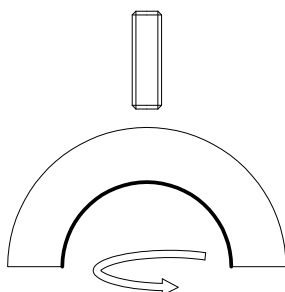


Pipe outer diameter D [mm]	Insulation thickness s [mm]	Shell length b [mm]	Connecting thread	Connecting thread	Part no.	Sales unit	Pack unit	
9.5	30	40	M8 / M10 / ½"	5	111360	1	pieces	
12.7					111304			
15.8					111312			
17.2					111318			
18.0					111320			
21.3					111326			
22.0					111330			
26.9					111332			
28.0					111334			
33.7					111336			
35.0					111338			
42.4					111340			
48.3					111342			
50.0					111344			
54.0					111346			
57.0					111348			
60.3					50			111350
64.0								111352
70.0		M10 / ½"	6	111354				
76.1				111356				
88.9	111358							
108.0	111299							
114.3	40	60	111302					

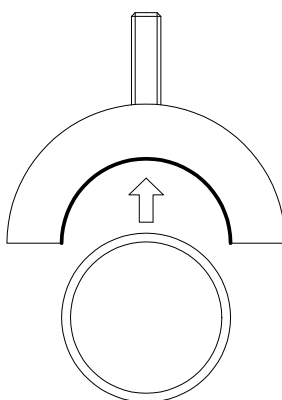
### Insulation clamps type 175 EX galvanised

Pipe outer diameter D [mm]	Insulation thickness s [mm]	Shell length b [mm]	Connecting thread	Connecting thread	Part no.	Sales unit	Pack unit
129.0	40	60	M10 / ½"	6	111306	1	pieces
133.0					111308		
139.7					111310		
159.0	M12 / ½"	8	111314				
168.3			111316				
193.7			60	100	111322		
204.0	111324						
219.1	111328						

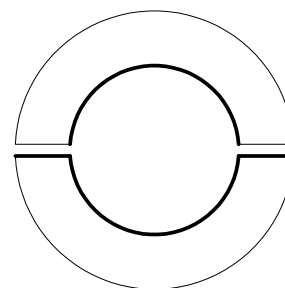
#### Mounting instructions



Screw on upper half with dual thread



Position pipe



Firmly screw lower half with the offset caoutchouc seating (PUR on caoutchouc, caoutchouc on PUR) firmly to the upper half. The additional use of PU-Sealer may be omitted

**!** According to the **AGI Working Sheet Q 11** ("Arbeitsgemeinschaft Industriebau", an association for industrial construction works) the insulation of refrigeration lines must be made diffusion tight.  
The connection with the outer pipe insulation is made by using a complying adhesive for the insulation material (use adhesive suitable for PU).

### Insulation clamps type 170/175 EX galvanised

Type 175 EX ≤ 219; Type 170 EX ≥ 219	
Pipe outer diameter [mm]	Permanent loading capacity [N]
17	210
21	
27	320
34	400
42	510
48	580
57	650
60	720
70	1,260
76	1,370
89	1,600
108	2,590
114	2,740
133	3,190
139	3,350
159	3,830
168	4,040
219	5,260
273	8,190
324	11,600
356	12,000
369	13,250
406	19,500
457	21,900
508	24,300
609	29,200

Average temperature [°C]	Thermal conductivity [W/mK]
40	0.054
20	0.052
0	0.049
-20	0.047
-50	0.044
-100	0.038
-150	0.032
-180	0.029

Temperature [°C]	Compression strength [N/cm²]
23	3.96
0	4.91
-80	9.62
-180	8.11



### Foam glass pipe holder

with DÄMMGULAST® blue, galvanised

#### Field of application

- **Ideal for cooling systems in areas with special fire protection requirements**
- Thermally decoupled fixing of pipelines in buildings
- Ideally suited for fixing pipelines that carry higher temperature media in air conditioning and heating systems, and for cooling systems and hot or cold water pipes

#### Advantages

- Reliable prevention of temperature bridges between the building and hot or cold pipelines
- No damage is caused by aggressive media and atmosphere to the foam-glass insulation
- Dimensionally stable under a variety of temperature and humidity conditions – no changes to shape or surface are caused by the influence of climate or weather
- Outstanding compressive strength

- **Non-combustible, does not soak up flammable liquids (materials class A1 in accordance with DIN 4102 Part 1 / Euro class A in accordance with EN 13501-1) – does not spread fire**
- Impermeable to water and water vapour - no soaking through of insulation material with condensed water, i.e. does not promote corrosion
- Foam-glass shell and pipe clamp fitted perfectly to DÄMMGULAST® blue lining
- For an optimal load transfer, the half-shells are glued to the load-distribution sleeves over their entire surface
- **DÄMMGULAST® Vibration control lining with blue indicator stripe, fire class B1 in accordance with DIN 4102, non-dripping in a fire**
- **Structure-borne noise damping due DÄMMGULAST® vibration control lining with blue indicator stripe: average sound level improvement up to 16.5 dB(A)**



#### Features

Type of foam glass	Grade T4	Grade F
Approx. bulk density [kg/m³]	120	165
Thermal conductivity	$\lambda = 0.041 \text{ W/mK at } +10^\circ\text{C}$	$\lambda = 0.048 \text{ W/mK at } +10^\circ\text{C}$
Behaviour in fire in accordance with DIN 4102 Part 1	Material class A1 Euro class A	Material class A1 Euro class A
Compressive strength in accordance with DIN 53421 [N/mm²]	0.70	1.70
Coefficient of thermal expansion [K <sup>-1</sup> ]	$8.5 \times 10^{-6} \text{ K}^{-1}$	$9 \times 10^{-6} \text{ K}^{-1}$
Water vapour diffusion resistance	$\mu = \infty$	$\mu = \infty$
Heat capacity [kJ/kgK]	0.84	0.84
Temperature range	-260 °C to +430 °C	-260 °C to +430 °C

External pipe-Ø [mm]	Foam glass pipe holder			Part no.  Foam glass pipe holder with load distributing sleeve		Distance between fixings for foam glass with load distributing sleeve and single bossed clamp	Sales unit	Pack unit
	Grade	Insulation thickness [mm]	Length [mm]	without single bossed clamp	with single bossed clamp	Max. recommended fastening distance [m]		
12.0	T4	25	150	143890	144615	1.8	1	pieces
13.5				143891	144692			
15.0				143892	144693			
17.2				143893	144694			
18.0				143894	144695	2.0		
21.3				143895	144696			
22.0				143896	144697			
26.9				143898	144698			
28.0				143899	144699			
33.7				143900	144700			
35.0				143901	144701	2.2		
42.4				143902	144702	2.5		
48.3				143903	144703	3.0		
		40	143904	144704				

## Foam glass pipe holder

with DÄMMGULAST® blue, galvanised

External pipe-Ø [mm]	Foam glass pipe holder			Part no.  Foam glass pipe holder with load distributing sleeve		Distance between fixings for foam glass with load distributing sleeve and single bossed clamp	Sales unit	Pack unit
	Grade	Insulation thickness [mm]	Length [mm]	without single bossed clamp	with single bossed clamp	Max. recommended fastening distance [m]		
51.0*	T4	40	150	143905	144705	3.0	1	pieces
54.0		25		143906	144706	3.5		
57.0		40		143907	144707			
60.3		25		143908	144708			
		40		143909	144709			
64.0		25		143910	144710			
70.0*		40		143911	144711			
76.1		25		143912	144712			
		40		143913	144713	5.0		
88.9		25		143914	144714			
		40		143915	144715			
101.6*				143916	144716			
108.0*		25		143917	144717			
		40		143918	144718			
114.3		25		143919	144719			
		40		143920	144720	5.9		
		50		143921	144721			
127.0*		40		143922	144722			
		50		143923	144723			
133.0*		40		143924	144724	5.0		
		50		143925	144725			
135.0*				143926	144726			
139.7		40		143927	144727			
		50		143928	144728	4.0		
159.0*		40	143929	144729				
		50	143930	144730				
160.0*			143931	144731				
168.3		40	143932	144732	3.7			
		50	143933	144733				
193.7*		40	143934	144734				
		50	143935	144735				
219.1	F	40	143936	144736	3.2			
		50	143937	144737				
244.5*		40	143938	144738				
		50	143939	144739				
273.0*		40	143940	144740	2.9			
		50	143941	144741				
298.5*			143942	144742				
323.9*			143943	144743				
355.6*			143944	144744				



Fast delivery upon request.

Delivery times for foam-glass pipe holders marked with\* are provided upon request.

Load distributing sleeve, 1 mm thickness, from 12.0 mm to 139.7 mm

Load distributing sleeve, 2 mm thickness, from 159.0 mm to 168.3 mm

Load distributing sleeve, 2.5 mm thickness, from 193.7 mm to 355.6 mm

Single bossed clamp with M10 connection thread, from 12.0 mm to 139.7 mm

Single bossed clamp with M12 connection thread, from 159.0 mm to 355.6 mm

## Adhesive for foamglass, PITTSEAL® CW sealant

cartridge à 305 ml

Part no.	Sales unit	Pack unit
172104	1	pieces



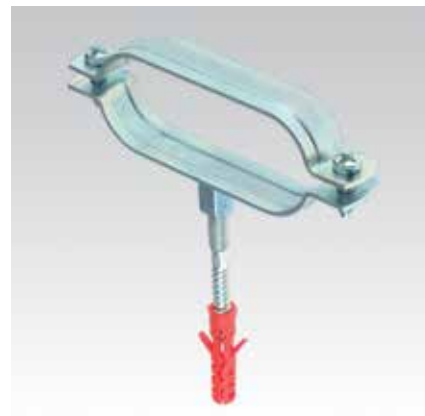
### DUPLO-Solar galvanised

#### Field of application

- Clamp for fastening header pipes and return lines from the collector to the heat accumulator for solar heating systems

#### Advantages

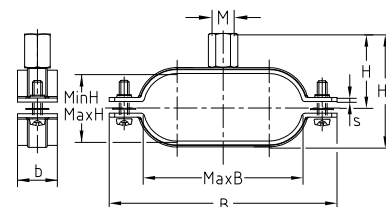
- Clamp is delivered in a set with the required accessories
- Easy to use – minimal installation effort
- Stable design due to creased half clamps
- Connecting thread M8/M10
- Full insulation effect is ensured
- Clamp holds pre-insulated pipe securely and material friendly



#### Features

Max. recommended load [N]

2,000



Connecting thread	Clamping range [mm]			Part no.	Sales unit	Pack unit	Dimensions [mm]			
	Min H	Max H	Max B				b x s	B	H	H1
M8/M10	28	55	80	132249	5	set	20 x 2	120	37	57
	32	65	95	132248				134	39	61
	38	60	115	132247				154	42	67
	42	75	125	132246				164	44	71



1 set consists of 4 clamps, 4 bolt screws (M8 x 80mm) and 4 nylon plugs (10mm x 50mm).

### Hose clamps

DIN 3017, galvanised

#### Field of application

- Ideally suited for fastening in demanding standard applications with industrial hoses in plumbing applications
- Robust, easy and secure mounting of light and smooth-walled hoses on pipe ends, couplings or other connections in plumbing
- For indoor use

#### Advantages

- Embossed inside of clamp band throughout, rounded edges for safe and easy installation and to prevent damage to the hose

- Uniform distribution of tensile forces over the entire hose diameter ensures the best possible installation and reliable sealing behaviour
- Central arrangement of the screw plug and the thread allows uniform distribution of the contact pressure across the clamp band width and thus simple and safe installation
- Optimised helical thread guarantees higher tightening torques and a frictional connection



Clamping range [mm]	Width [mm]				Sales unit	Pack unit
	9 Part no.	Max. tightening torque [Nm]	12 Part no.	Max. tightening torque [Nm]		
8–12	153412	3.0 + 0.5	–	–	100	pieces
10–16	153413					
12–19	153414					
12–20	153415		153444	5.0 + 0.5		
12–22	153416		153445			
16–25	153417		153446			
16–27	153418		153447			
20–32	153419		153448			
23–35	153420		153449			
25–40	153421		153450			
30–45	153422		153451			
32–50	153423		153452	50		
40–60	153424		153453			
50–70	153425		153454			
60–80	153426		153455			
70–90	153427		153456			
80–100	153428		153457	5.5 + 0.5	1	
90–110	153429		153458			
100–120	153430		153459			
110–130	153431		153460			
120–140	153432		153461			
130–150	153433		153462			
140–160	153434		153463			
150–170	153435		153464			
160–180	153436		153465			
170–190	153437		153466			
180–200	153438		153467			
190–210	153439		153468			
200–220	153440		153469			
210–230	153441		153470			
220–240	153442		153471			
230–250	153443		153472			



### Hose clamps

MAXI, galvanised

#### Field of application

- Ideally suited for fastening in demanding applications with industrial hoses in plumbing
- Robust, easy and secure mounting of light and smooth-walled hoses on pipe ends, couplings or other connections in plumbing
- For indoor use

#### Advantages

- Embossed inside of clamp band throughout, rounded edges for safe and easy installation and to prevent damage to the hose

- Uniform distribution of tensile forces over the entire hose diameter ensures the best possible installation and reliable sealing behaviour
- Central arrangement of the screw plug and the thread allows uniform distribution of the contact pressure across the clamp band width and thus simple and safe installation
- Optimised helical thread guarantees higher tightening torques and a frictional connection



Clamping range [mm]	Width [mm]	Max. tightening torque [Nm]	Part no.	Sales unit	Pack unit
60–80	20	18	153473	1	pieces
70–90			153474		
90–120			153475		
105–130			153476		
122–157			153477		
142–177			153478		
167–202			153479		
192–227			153480		
217–252			153481		
242–277			153482		
267–302			153483		
292–327			153484		

## Fixing clamps small

with lining, galvanised

### Field of application

- Suitable for attachment of pipelines in domestic building
- Suitable for attachment of pneumatic and compressed air pipes
- For indoor use

### Advantages

- Connecting thread M6
- Two tightening bolts secured with captive washers
- Tightening bolts with combination cross-head convenient for power driver
- Structure-borne noise reduction due to the vibration control lining



Connecting thread	Size [mm]	Part no.	Sales unit	Pack unit
M6	8	119695	100	pieces
	10	119687		

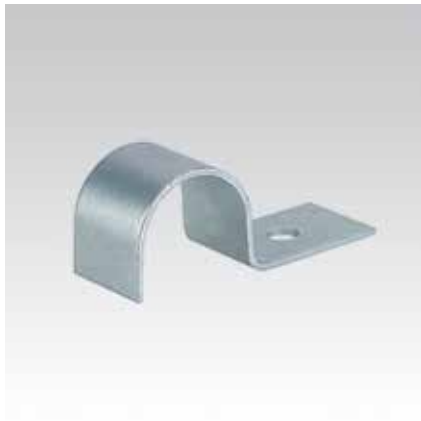
### Pipe clips galvanised

#### Field of application

- Direct mounting of pipelines on concrete floors under screed

#### Advantages

- Time-saving, easy installation
- Hardened nails for pipe clips prevent from time-consuming drilling, plugging and screwing
- A setting tool and a hammer will suffice for attachment



Type	Pipe outer diameter [mm]	Fixing hole Ø [mm]	Part no.	Sales unit	Pack unit
Single	15-16	6.1	114941	100	pieces
	17-18		114953		
	19-20		114965		
	21-22		114980		
	23-24		114989		
	27-28		115004		
	34-35		115016		
	39-40		115025		
Double	15-16		115054		
	17-18		115060		
	19-20		115066		
	21-22		115072		
	23-24		115078		
	27-28		115084		
	34-35		115090		
	39-40		115096		



Please refer to chapter „Insulation“ for nails and setting tool.

### Caoutchouc pipe support 13 mm

#### Field of application

- Thermally decoupled fastening of pipelines in low-temperature applications
- Ideally suited for attachments in ventilation and climate control technology, cooling technology and cold water pipes

#### Advantages

- Consistent prevention of temperature bridges on cold pipelines

- High insulating effect due to support element made of PIR (polyisocyanurate)
- Insulation thickness matched to the insulation layer thickness of the insulation sleeve
- Reliable water vapour diffusion barrier
- Caoutchouc surfaces at the front enable easy gluing with the pipe insulation made of caoutchouc material
- Temperature resistance -50 °C to +105 °C



Pipe outer-Ø D [mm]	Pipe outer-Ø D Steel pipe		Shell length L [mm]	Outer-Ø shell [mm]	Part no.	Sales unit	Pack unit
CU-pipe	[inch]	[mm]					
10	⅜	10.2	50	36	137791	1	pieces
12				38	133687		
15	¼	13.5		41	137792		
18	⅝	17.2		44	133689		
22	½	21.3		48	133690		
28	¾	26.9		54	133691		
35	1	33.7		61	133692		
42	1¼	42.4		68	133693		
	1½	48.3		74	133694		
54				80	133695		
57				83	133696		
	2	60.3		86	133697		
64				92	133698		
70				98	133699		
	2½	76.1		104	133700		
	3	88.9		117	133701		
	3½	101.6		130	137793		
108				136	133685		
	4	114.3		144	133686		
133			100	163	137794		
	5	139.7		170	137795		
159		160.0		190	133688		



Common products in stock, others available within approx. 10-15 working days.  
From 1¼" upwards, we recommend using load distribution sleeves.

### Caoutchouc pipe support 19 mm

#### Field of application

- Thermally decoupled fastening of pipelines in low-temperature applications
- Ideally suited for attachments in ventilation and climate control technology, cooling technology and cold water pipes

#### Advantages

- Consistent prevention of temperature bridges on cold pipelines
- High insulating effect due to support element made of PIR (polyisocyanurate)
- Insulation thickness matched to the insulation layer thickness of the insulation sleeve
- Reliable water vapour diffusion barrier
- Caoutchouc surfaces at the front enable easy gluing with the pipe insulation made of caoutchouc material
- Temperature resistance -50 °C to +105 °C



Pipe outer-Ø D [mm]	Pipe outer-Ø D Steel pipe		Shell length L [mm]	Outer-Ø shell [mm]	Part no.	Sales unit	Pack unit
CU-pipe	[inch]	[mm]					
10	⅜	10.2	50	48	137796	1	pieces
12				50	137797		
15	¼	13.5		53	137798		
18	⅝	17.2		56	133707		
22	½	21.3		60	133709		
28	¾	26.9		66	133710		
35	1	33.7		73	133711		
42	1¼	42.4		80	133712		
	1½	48.3		86	133713		
54				92	135524		
57				95	133714		
	2	60.3		98	133715		
64				104	133716		
70				110	137799		
	2½	76.1		116	133717		
	3	88.9		129	133718		
	3½	101.6		142	137800		
108				148	137801		
	4	114.3		156	133702		
133			100	175	133703		
	5	139.7		182	133704		
159		160.0		202	133705		
	6	168.3		208	133706		
	8	219.1		259	133708		



Common products in stock, others available within approx. 10-15 working days.  
From 1¼" upwards, we recommend using load distribution sleeves.

### Caoutchouc pipe support 32 mm

#### Field of application

- Thermally decoupled fastening of pipelines in low-temperature applications
- Ideally suited for attachments in ventilation and climate control technology, cooling technology and cold water pipes

#### Advantages

- Consistent prevention of temperature bridges on cold pipelines

- High insulating effect due to support element made of PIR (polyisocyanurate)
- Insulation thickness matched to the insulation layer thickness of the insulation sleeve
- Reliable water vapour diffusion barrier
- Caoutchouc surfaces at the front enable easy gluing with the pipe insulation made of caoutchouc material
- Temperature resistance -50 °C to +105 °C



Pipe outer-Ø D [mm]	Pipe outer-Ø D Steel pipe		Shell length L [mm]	Outer-Ø shell [mm]	Part no.	Sales unit	Pack unit
CU-pipe	[inch]	[mm]					
10	⅜	10.2	50	74	137802	1	pieces
12				76	137803		
15	¼	13.5		79	137804		
18	⅝	17.2		82	133729		
22	½	21.3		86	133732		
28	¾	26.9		92	133733		
35	1	33.7		99	133734		
42	1¼	42.4		106	133735		
	1½	48.3		112	133736		
54				118	133737		
57				121	133738		
	2	60.3		124	133739		
64				130	136652		
70				136	137805		
	2½	76.1		142	133740		
	3	88.9		155	133741		
	3½	101.6		168	137806		
108				174	133723		
	4	114.3		182	133724		
133			100	201	133725		
	5	139.7		208	133726		
159		160.0		228	133727		
	6	168.3		234	133728		
	8	219.1		285	133731		



Common products in stock, others available within approx. 10-15 working days.  
From 1¼" upwards, we recommend using load distribution sleeves.



## Support channels





















	MÜPRO	
1.	Vibration control	
2.	Fire protection	
3.	Pipe clamps	
4.	<b>Support channels</b>	
5.	Accessories	
6.	Anchor points/ expansion points	
7.	Heavy-duty pipe support	
8.	MPT-Support system	
9.	Ventilation	
10.	Pipe connectors	
11.	Stainless steel	
12.	Hot-dip galvanised	
13.	Anchor plugs	
14.	Nameplates	
15.	Insulation	
16.	Sealing and protection materials	
17.	Tools	
18.	Radiator fastening	
19.	Technical information	



		Indoor use galvanised	hot-dip galvanised	Indoor and outdoor use		
				zinc-nickel/ zinc lamella	Stainless steel V2A	Stainless steel V4A
MPC-System components						
	MPC-Support channels	4/1–4/8	12/1–12/5		11/6–11/10	11/6–11/10
	MPC-Wall hanger brackets	4/9–4/12	12/6–12/8		11/11–11/12	11/11–11/12
	MPC-Wall hanger supports	4/13–4/14	12/9			
	MPC-Diagonal struts	4/15	12/10			
	MPC-Quick fasteners	4/16–4/18			11/13–11/14	
	MPC-Hammer head fasteners	4/19–4/20			11/15	11/15
	MPC-Hammer head bolts	4/21			11/16	
	MPC-Rail nuts	4/22	12/11		11/17	11/17
	MPC-Double rail nut	4/22	12/11		11/17	
	MPC-Clamp brackets	4/22	12/11		11/17	11/17
	MPC-Protection caps	4/22	12/11		11/16	11/16
	Washers	5/22	12/11, 12/60		11/16, 11/57	11/16, 11/57
	DÄMMGULAST® Channel sections	4/23	12/12		11/18	11/18
	MPC-Channel connectors	4/24			11/19	11/19
	MPC-Channel support brackets	4/25			11/20	11/20
	MPC-Saddle supports	4/26	12/13		11/21	11/21
	MPC-Saddle support type 3	4/27				
	MPC-VARIO-Saddle support	4/28	12/14		11/22	
	MPC-Mounting angles	4/29–4/30			11/23	11/23
	MPC-Lateral angles	4/31–4/32	12/15			
	MPC-Cross channel connectors	4/33	12/16		11/24	11/24
	MPC-Girder cleats	4/34			11/25	11/25
	MPC-Girder support	4/35				
	MPC-VARIO joint			4/36		




Further surfaces available upon request.

		Indoor use galvanised	hot-dip galvanised	Indoor and outdoor use zinc-nickel/ zinc lamella			Stainless steel V2A		Stainless steel V4A
MPR-System components									
	MPR-Support channels	4/37–4/42	12/17–12/22						11/26–11/30
	MPR-Wall hanger brackets	4/43–4/45	12/23–12/24						11/31–11/32
	MPR-Quick fasteners	4/46–4/47							
	MPR-Hammer head fasteners	4/48–4/49			12/25–12/26				11/33
	MPR-Threaded plates	4/50	12/27						11/34
	MPR-Clamp brackets	4/51	12/28						11/35
	MPR-Protection caps	4/52	12/29						11/35
	Washers	4/52, 5/22	12/29, 12/60						11/35, 11/57
	DÄMMGULAST® Channel sections	4/53	12/30						11/36
	MPR-Channel connectors	4/54							
	MPR-Saddle supports	4/55	12/31						11/37
	MPR-VARIO-Saddle support	4/56	12/32						11/38
	MPR-Mounting angle	4/57							11/39
	MPR-Cross channel connectors	4/58	12/33						11/39
	MPR-Girder cleats	4/59	12/34						11/40
MPR-System components type S+									
Not usable with MPR-Support channels 41/41/3.0									
	MPR-Quick fasteners type S+	4/60			12/35				
	MPR-Slide nuts type S+	4/61	12/36						
	MPR-Connection lock type S+	4/62			12/37				
	MPR-Diagonal struts type S+	4/63	12/38						
	MPR-Adapter disc type S+	4/64							
























## VIDEO TIP

 **MÜPRO support channel system:** the video presents our comprehensive range of support channels and shows the various processing and installation options.



 **MÜPRO MPR quick-mounting system type S+:** more time savings, greater flexibility, greater safety. MÜPRO presents its innovative MPR quick-mounting system type S+ in this video.



		Indoor use galvanised	hot-dip galvanised	Indoor and outdoor use zinc-nickel/ zinc lamella	Stainless steel V2A	Stainless steel V4A
<b>MPR-System components type S+</b>						
Not usable with MPR-Support channels 41/41/3.0						
	MPR-Channel connector type S+, heavy-duty version	4/64	12/38			
	MPR-Channel support bracket type S+	4/65				
	MPR-Saddle supports type S+	4/66–4/68	12/39–12/41			
	MPR-Construction brackets type S+	4/69	12/42			
	MPR-Mounting angles type S+	4/70–4/71	12/43–12/44			
	MPR-Angle connectors type S+	4/72–4/74	12/45–12/47			
	MPR-Connection plates type S+	4/75	12/48			
	MPR-3D-Connectors type S+	4/76	12/49			
	MPR-Cross channel connector type S+	4/77	12/50			
	MPR-VARIO joint type S+	4/78				
<b>Products for usage with MPC-/MPR-System components</b>						
	Cramping connector	4/79				
	Channel connector, heavy-duty version	4/80–4/81	12/51–12/52			11/41
	Reinforcement angle	4/82	12/53		11/42	11/42
	Cantilever brackets	4/83	12/54		11/43	11/43
	Construction brackets	4/84			11/45–11/46	
	Mounting angles	4/85–4/86	12/55–12/56		11/47–11/48	11/47
	Angle-, T- and Cross connector plates	4/87–4/88	12/57		11/49	11/49
	StaboFix® Fixing system	4/89–4/92				
	Angle rail	4/93				
<b>Accessories</b>						
	Threaded rods	5/4	12/59		11/55	11/55
	Hexagon head bolts	5/20	12/59		11/58	11/58
	Hexagonal nuts	5/21	12/59		11/57	11/57
	Washers DIN 125	5/22	12/60		11/57	11/57



Further surfaces available upon request.

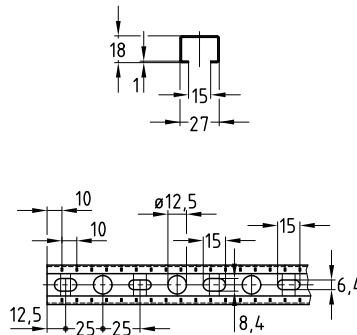
### MPC-Support channels 27/18 L (light) sendzimir galvanised

#### Field of application

- Ideal for pipe installation as support structure for air ducts in dry interiors
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components

#### Advantages

- Quick and efficient attachment of pipe sections and multiple pipe ways
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure fixing that is adjustable laterally and vertically
- High bending stiffness due to the cross-section design
- For setting up structures with correctly measured static loads by means of diverse connection components
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPC-protection caps



Profile	Length [mm]	Part no.	Sales unit	Pack unit
27/18 L	2,000	129876	25	pieces

### MPC-Support channels

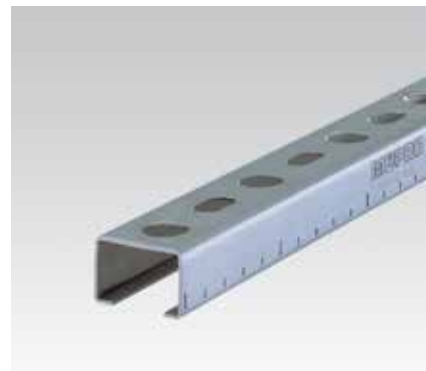
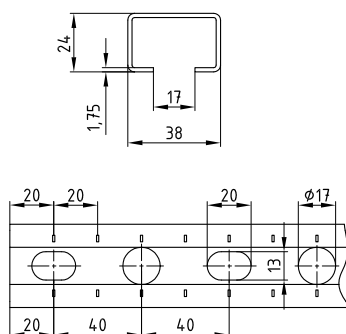
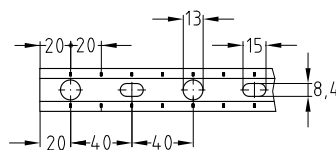
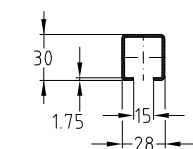
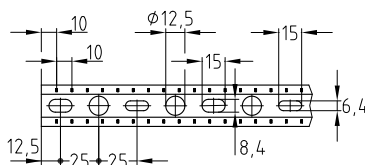
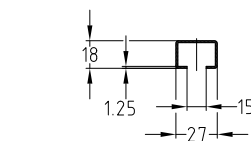
sendzimir galvanised

#### Field of application

- Ideal for pipe installation as support structure for air ducts in dry interiors
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components

#### Advantages

- Quick and efficient attachment of pipe sections and multiple pipe-ways
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure fixing that is adjustable laterally and vertically
- High bending stiffness due to the cross-section design
- For setting up structures with correctly measured static loads by means of diverse connection components
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPC-protection caps



Profile 27/18



Profile 28/30



Profile 38/24

Profile	Length [mm]	Part no.	Sales unit	Pack unit
27/18	1,000	129883	25	pieces
	2,000	129911		
	3,000	105208	1	
	6,000	130003		
28/30	2,000	118590	8	
	3,040	118692	1	
	4,000	118822	8	
	6,000	118994	1	
38/24	2,000	139920	10	
	3,040	153256	5	
	6,000	139922	1	

## MPC-Support channels

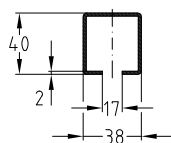
sendzimir galvanised

### Field of application

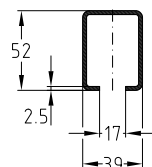
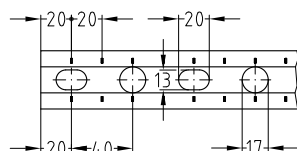
- Ideal for pipe installation as support structure for air ducts in dry interiors
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components

### Advantages

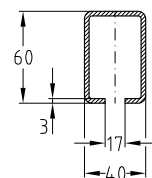
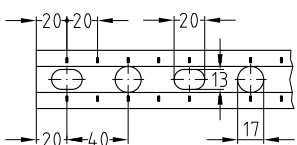
- Quick and efficient attachment of pipe sections and multiple pipe-ways
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure fixing that is adjustable laterally and vertically
- High bending stiffness due to the cross-section design
- For setting up structures with correctly measured static loads by means of diverse connection components
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPC-protection caps
- Support channels 38/40 and 40/60 are awarded the RAL-quality mark of the „Gütegemeinschaft Rohrbe-festigung“



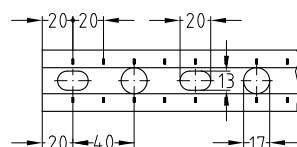
Profile 38/40



Profile 39/52



Profile 40/60



### Features



Profile	Length [mm]	Part no.	Sales unit	Pack unit
38/40	2,000	129917	5	pieces
	3,040	129945	4	
	4,000	129964	1	
	6,000	130011		
39/52	130015			
40/60	2,000	129921		
	3,040	129946		
	4,000	129965		
	6,000	130020		



For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

### MPC-Support channels

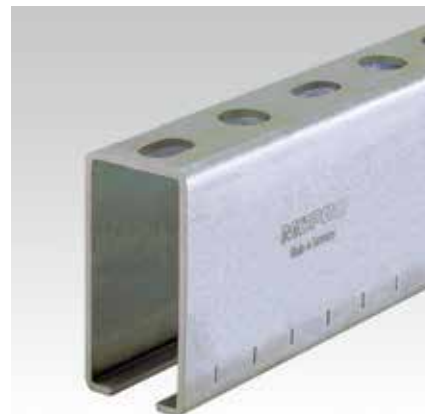
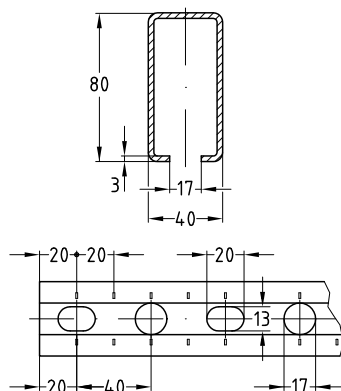
sendzimir galvanised

#### Field of application

- Ideal for pipe installation as support structure for air ducts in dry interiors
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components

#### Advantages

- Quick and efficient attachment of pipe sections and multiple pipe-ways
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure fixing that is adjustable laterally and vertically
- High bending stiffness due to the cross-section design
- For setting up structures with correctly measured static loads by means of diverse connection components
- Clean-cut appearance by the use of MPC-protection caps




Profile 40/80

#### Features



Profile	Length [mm]	Part no.	Sales unit	Pack unit
40/80	6,000	130024	1	pieces

 For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.



## MPC-Support channels

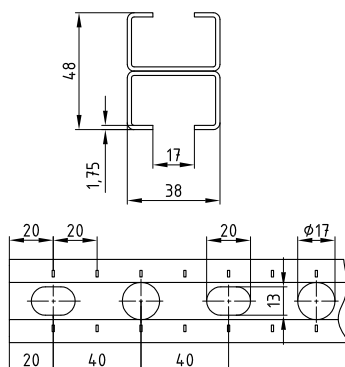
H-Profiles, sendzimir galvanised

## Field of application

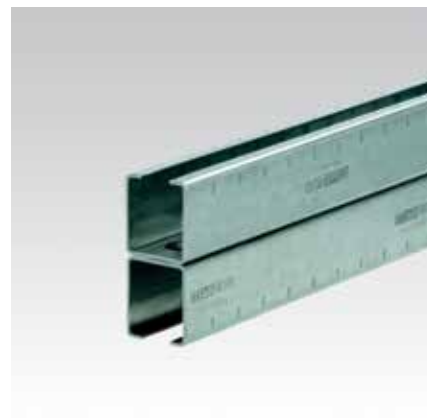
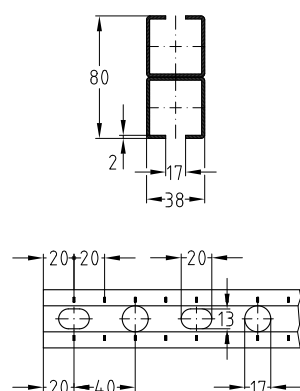
- Ideal for space-saving support structure of multisection pipeways between ceiling joists
- Ideal for pipe installation as support structure for air ducts in dry interiors
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components

## Advantages

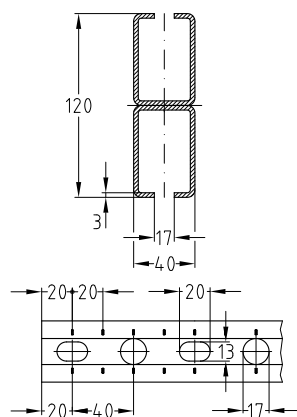
- Quick and efficient attachment of pipe sections and multiple pipe-ways
- Ideal combination of high bending stiffness and ease of installation
- Channel slots on both sides allow simple and quick alignment of all suspended and floor-mounted pipe supports
- Scale marks sideways and on the sides with the slots simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPC-protection caps



Profile 38/48



Profile 38/80



Profile 40/120

## Features




Profile	Length [mm]	Part no.	Sales unit	Pack unit
38/48	6,000	141179	1	pieces
38/80	2,000	129870		
	4,000	129872		
	6,640	129874		
40/120		129875		



For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

### MPC-Support channels sendzimir galvanised


#### Technical data of profiles:

Profile	Material	Surface	Admissible steel stress $\sigma_{adm}$ [N/mm <sup>2</sup> ]	Available MPC-Rail nuts	Profile weight [kg/m]	Profile cross-section [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
							$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
27/18 L	DX51D	sendzimir galvanised	153	M8, M10	0.50	0.56	0.2387	0.7572	0.254	0.560
27/18					0.60	0.69	0.2911	0.9554	0.310	0.707
28/30					1.15	1.36	1.3999	2.0551	0.911	1.467
38/24					1.21	1.40	1.0871	3.6213	0.905	1.905
38/40				M8, M10, M12, M16	1.82	2.21	4.3286	6.1000	2.164	3.210
39/52					2.80	3.35	10.4472	9.7614	4.018	5.005
40/60					3.50	4.44	17.5426	13.3946	5.847	6.697
40/80					4.68	5.64	37.9390	17.5106	9.484	8.755
38/48 H-Profile					2.43	2.79	6.1952	7.2427	2.581	3.811
38/80 H-Profile					3.58	4.42	26.3479	12.2001	6.586	6.421
40/120 H-Profile					7.00	8.88	115.0004	26.7890	19.166	13.394

#### Load bearing capacities of profiles for bending around the y-axis [N]:

Profile	L [m]						L [m]					
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
27/18 L	308	117	49	24	—	—	230	69	29	14	—	—
27/18	376	143	60	29	—	—	280	84	35	17	—	—
28/30	1,099	549	303	162	—	—	814	410	178	95	—	—
38/24	1,094	541	233	122	—	—	812	317	136	72	—	—
38/40	2,609	1,308	867	523	92	—	1,927	979	559	307	54	—
39/52	4,830	2,430	1,612	1,198	260	43	3,555	1,816	1,206	752	153	25
40/60	7,019	3,537	2,349	1,748	467	117	5,157	2,643	1,758	1,272	274	69
40/80	11,311	5,733	3,815	2,844	1,080	359	8,246	4,274	2,852	2,128	634	211
38/48 H-Profile	3,100	1,559	1,032	753	139	—	2,280	1,165	772	442	82	—
38/80 H-Profile	7,834	3,977	2,646	1,971	741	235	5,696	2,962	1,977	1,475	435	138
40/120 H-Profile	22,447	11,542	7,711	5,765	2,785	1,353	16,040	8,554	5,749	4,307	2,026	794

Profile	L [m]						L [m]					
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
27/18 L	154	49	21	10	—	—	128	39	16	—	—	—
27/18	187	60	25	12	—	—	156	47	20	—	—	—
28/30	544	274	128	68	—	—	451	228	100	54	—	—
38/24	542	228	98	52	—	—	450	179	77	41	—	—
38/40	1,287	652	401	220	39	—	1,067	542	315	173	30	—
39/52	2,374	1,210	804	540	110	18	1,965	1,006	670	424	86	14
40/60	3,444	1,760	1,172	873	197	49	2,848	1,464	976	717	154	39
40/80	5,508	2,847	1,901	1,420	455	151	4,541	2,365	1,582	1,182	357	119
38/48 H-Profile	1,523	776	515	317	59	—	1,260	645	429	249	46	—
38/80 H-Profile	3,804	1,973	1,318	984	312	99	3,133	1,639	1,097	819	245	78
40/120 H-Profile	10,711	5,697	3,833	2,873	1,391	570	8,763	4,723	3,186	2,391	1,141	447

 The determined loads apply for static loads. Calculation based on Eurocode (EC3).  
 The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.  
 For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

### MPC-Support channels sendzimir galvanised

#### Permissible buckling loads for profiles [N]:

Buckling length Lk [mm]	MPC 27/18	MPC 28/30	MPC 38/24	MPC 38/40	MPC 39/52	MPC 40/60	MPC 40/80	MPC 38/48	MPC 38/80	MPC 40/120
200	10,105	20,698	20,992	33,744	51,172	67,749	86,061	42,610	67,488	135,498
300	9,403	19,911	20,046	33,405	51,172	67,749	86,061	42,392	67,488	135,498
400	8,553	19,069	19,000	32,478	50,269	66,660	84,785	41,299	66,644	134,144
500	7,531	18,133	17,798	31,508	49,109	65,155	82,904	40,166	65,642	132,242
600	6,416	17,068	16,404	30,469	47,902	63,593	80,954	38,964	64,571	130,223
700	5,355	15,861	14,839	29,338	46,627	61,946	78,904	37,669	63,403	128,040
800	4,444	14,529	13,190	28,095	45,264	60,190	76,721	36,258	62,104	125,636
900	3,705	13,132	11,582	26,730	43,794	58,302	74,378	34,714	60,639	122,951
1,000	3,116	11,749	10,109	25,245	42,206	56,263	71,852	33,033	58,966	119,914
1,100	2,648	10,451	8,818	23,663	40,491	54,064	69,128	31,226	57,046	116,455
1,200	2,273	9,278	7,713	22,023	38,654	51,706	66,208	29,323	54,851	112,513
1,300	1,970	8,243	6,778	20,374	36,712	49,209	63,109	27,368	52,374	108,052
1,400	1,722	7,343	5,987	18,765	34,696	46,605	59,869	25,417	49,641	103,084
1,500	1,517	6,565	5,318	17,237	32,643	43,942	56,545	23,518	46,719	97,686
1,600	1,346	5,893	4,750	15,813	30,597	41,274	53,199	21,712	43,703	91,997
1,700	1,203	5,312	4,265	14,506	28,599	38,652	49,897	20,023	40,692	86,189
1,800	1,080	4,809	3,848	13,317	26,680	36,121	46,695	18,463	37,772	80,436
1,900	976	4,370	3,488	12,244	24,864	33,712	43,636	17,037	35,004	74,879
2,000	886	3,987	3,176	11,278	23,163	31,448	40,748	15,740	32,423	69,614
2,100	807	3,651	2,902	10,409	21,584	29,336	38,047	14,563	30,042	64,696
2,200	739	3,355	2,663	9,628	20,126	27,380	35,539	13,499	27,862	60,148
2,300	679	3,092	2,451	8,925	18,784	25,576	33,219	12,536	25,874	55,968
2,400	626	2,859	2,263	8,292	17,553	23,916	31,082	11,664	24,065	52,141
2,500	579	2,651	2,096	7,720	16,425	22,392	29,115	10,874	22,421	48,645
2,600	537	2,464	1,947	7,203	15,391	20,993	27,308	10,157	20,927	45,454
2,700	499	2,297	1,813	6,735	14,443	19,709	25,647	9,506	19,567	42,540
2,800	465	2,145	1,692	6,309	13,574	18,530	24,121	8,912	18,328	39,879
2,900	435	2,008	1,583	5,921	12,776	17,447	22,718	8,371	17,198	37,446
3,000	407	1,884	1,484	5,567	12,043	16,451	21,425	7,875	16,165	35,217
3,100	382	1,771	1,394	5,243	11,368	15,533	20,234	7,422	15,219	33,174
3,200	359	1,667	1,312	4,946	10,746	14,686	19,135	7,005	14,351	31,297
3,300	339	1,573	1,237	4,674	10,172	13,904	18,120	6,622	13,553	29,569
3,400	320	1,486	1,168	4,422	9,641	13,181	17,180	6,269	12,819	27,977
3,500	302	1,406	1,105	4,191	9,149	12,511	16,309	5,943	12,142	26,507
3,600	286	1,332	1,047	3,977	8,693	11,890	15,501	5,641	11,516	25,148
3,700	271	1,264	993	3,778	8,270	11,312	14,750	5,362	10,936	23,888
3,800	257	1,202	943	3,594	7,876	10,775	14,051	5,102	10,398	22,719
3,900	245	1,143	897	3,423	7,509	10,274	13,399	4,861	9,899	21,632
4,000	233	1,089	854	3,264	7,167	9,807	12,791	4,636	9,434	20,621
4,100	222	1,038	815	3,116	6,847	9,370	12,222	4,426	9,001	19,678
4,200	212	991	777	2,977	6,548	8,962	11,690	4,230	8,597	18,797
4,300	202	948	743	2,847	6,268	8,579	11,192	4,047	8,219	17,974
4,400	193	906	710	2,726	6,005	8,220	10,724	3,875	7,865	17,203
4,500	185	868	680	2,612	5,758	7,883	10,285	3,714	7,534	16,480
4,600	177	832	652	2,505	5,526	7,565	9,872	3,563	7,223	15,801
4,700	170	798	625	2,405	5,308	7,267	9,483	3,421	6,930	15,163
4,800	163	766	600	2,310	5,102	6,986	9,116	3,287	6,655	14,563
4,900	157	736	576	2,221	4,908	6,720	8,770	3,160	6,396	13,998
5,000	151	708	554	2,137	4,724	6,469	8,443	3,041	6,152	13,464
5,100	145	681	533	2,058	4,551	6,232	8,134	2,928	5,921	12,961
5,200	139	656	513	1,983	4,387	6,008	7,841	2,822	5,703	12,485
5,300	134	632	495	1,912	4,231	5,795	7,564	2,721	5,497	12,034
5,400	129	610	477	1,844	4,084	5,594	7,302	2,626	5,302	11,608
5,500	125	588	460	1,780	3,944	5,403	7,052	2,535	5,117	11,203
5,600	121	568	444	1,720	3,812	5,221	6,815	2,449	4,941	10,819
5,700	116	549	429	1,662	3,685	5,048	6,590	2,367	4,775	10,455
5,800	112	531	415	1,608	3,565	4,884	6,376	2,290	4,616	10,109
5,900	109	513	401	1,556	3,451	4,727	6,172	2,216	4,465	9,779
6,000	105	497	388	1,506	3,342	4,578	5,977	2,145	4,322	9,466



### MPC-Support channels

sendzimir galvanised

Buckling loads as per DIN EN 1993-1-1 sections 6.2 and 6.3.

The values in the table apply for fully bearing cross-sections and central load transmission!

The potentially lower slenderness parameter for buckling and lateral torsional buckling must be examined separately!

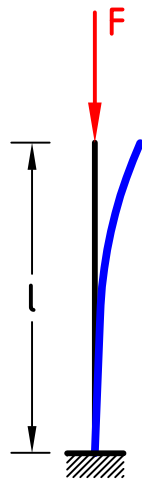
Buckling about the z-axis and the y-axis was considered.

The least favourable buckling load is documented in the table.

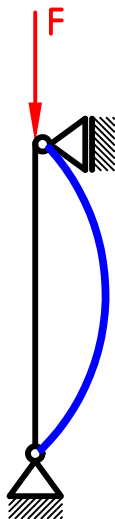
The safety coefficient  $\gamma = 1.54$  takes into account the safety and combination coefficients as well as the safety factor of the material.

Determine the authoritative buckling length  $L_k$  depending on the storage conditions and the rod length  $l$ , as shown in the figure.

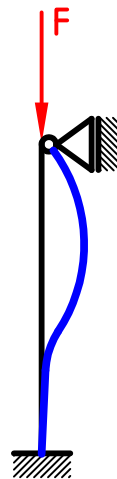
Read off the buckling load  $F$  as  $L_k$  from the table.



$$L_k = 2,0 \times l$$



$$L_k = 1,0 \times l$$



$$L_k = 0,7 \times l$$



$$L_k = 0,5 \times l$$

## MPC-Wall hanger brackets

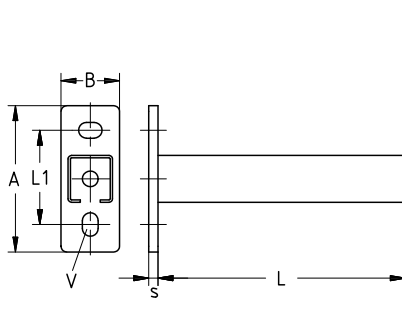
galvanised

### Field of application

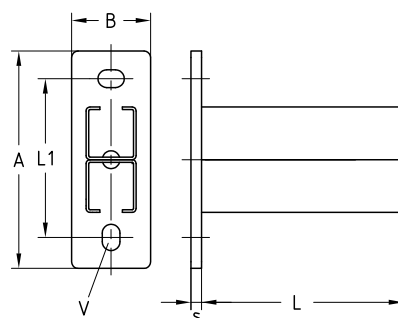
- Ideal as cantilever support structure of multisection pipeways
- Applicable as cantilever bracket for air ducts and cable trays
- Applicable in combination with saddle support and channel support brackets as a cross-beam for pipe attachments in shafts and ducts
- Solid wall bracket for valves and equipment
- The 38/80 profile is ideally suitable for double-sided installation of pipe sections due to double channel slots

### Advantages

- The strong base plate ensures a high load carrying capacity
- The vertical and horizontal holes in the base plate allow easy height adjustment of the bracket
- Variety of lengths covers all construction requirements
- Clean-cut appearance by the use of MPC-protection caps



Sections 27/18, 28/30, 38/40, 40/60



Sections 38/80

### Features




Profile	Length L [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]							
					A	B	L1	s	V			
27/18	200	156710	25	pieces	120	40	80	4	11 x 19			
	300	156711										
	500	156712										
28/30	240	156713						5				
	400	156714										
38/40	160	156715	30			125	50		8	13.5 x 20		
	240	156716										
	320	156717	25									
	400	156718										
	480	156719	20									
	560	156720										
	640	156721	10									
	720	156727										
	800	156728	1									
	1,040	156722										
40/60	560	156723				165	60	120				
	640	156724										
	800	156725										
	1,040	156726										
38/80	400	156729										
	800	156730										



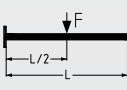
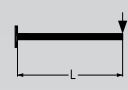
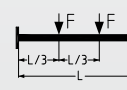
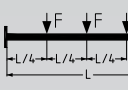
For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

### MPC-Wall hanger brackets galvanised

#### Technical data of brackets:

Profile	Dimensions H x W x D [mm]	Base plate Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Support channel Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]
					
27/18	120 x 40 x 4	S355MC	231	DC01	153
28/30	120 x 40 x 5			DD11	
38/40	125 x 50 x 8	S235	162		
40/60	165 x 60 x 8	S355MC	231		
38/80 H-Profile					

#### Load bearing capacities of brackets for bending around the y-axis:

Profile	Base plate $M_{max.}$ [Nmm]	Length L [mm]				
Max. allowable load [N]						
27/18	52,255	200	463	235	232	155
		300	311	156	156	104
		500	186	93	93	62
28/30	98,082	240	817	408	408	272
		400	490	245	245	163
38/40	260,845	160	3,260	1,630	1,630	1,086
		240	2,173	1,086	1,086	724
		320	1,630	815	815	543
		400	1,304	652	652	434
		480	1,086	543	543	362
		560	931	465	465	310
		640	815	407	407	271
		720	724	362	362	241
		800	652	279	326	217
		1,040	501	161	242	156
40/60	514,741	560	1,838	919	919	612
		640	1,608	804	804	536
		800	1,286	643	643	428
		1,040	989	494	494	329
38/80 H-Profile	676,681	400	3,383	1,691	1,691	1,127
		800	1,691	845	845	563



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/150$  are not exceeded, taking the deadweight into consideration.

The load-carrying values refer to the console support. Fastening elements such as plugs and screws, must be chosen in accordance with the loads.

## MPC-Wall hanger brackets

for the attachment on support channels, galvanised

### Field of application

- Wall hanger bracket with solid, rounded-edge base plate for the attachment on support channels
- Solid cantilever construction due to support from diagonal strut

### Advantages

- Clip-over edges of the base plate for good appearance
- Variety of set lengths covers all constructional requirements
- Simple height adjustment when mounted in the channel slot
- Clean-cut appearance by the use of MPC-protection caps

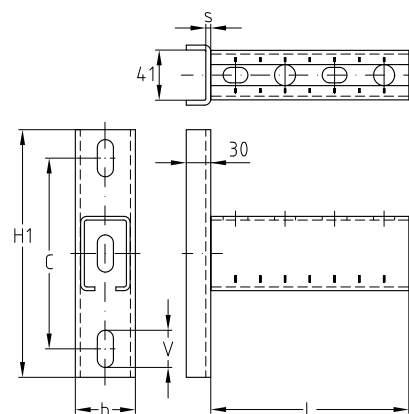


For support channels	Length L [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
					H1	b	s	C	V
40/60, 40/80, 40/120	560	<b>118401</b>	1	pieces	200	49	4	154	13 x 30
	640	<b>118405</b>							
	800	<b>118413</b>							
	1,040	<b>118397</b>							



See MPC-Wall hanger bracket 40/60 for load-bearing capacities.

When mounted in the channel slots, the max. recommended shear and tensile loads for the accessories (e.g. MPC-Hammer head bolts) must be observed.





### MPC-Wall hanger brackets

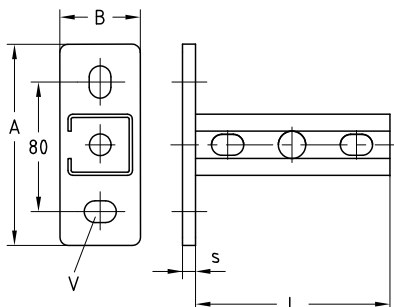
with lateral slot, galvanised

#### Field of application

- Ideal as cantilever support structure for riser pipes
- Applicable in combination with saddle support and channel support brackets as a cross-beam for pipe attachments in shafts and ducts
- Applicable as a cantilever bracket for supporting air ducts

#### Advantages

- The strong base plate ensures a high load carrying capacity
- The vertical and horizontal holes in the base plate allow easy height adjustment of the bracket
- Fixing in the side slot of the support channel allows simple alignment of parallel pipelines
- Clean-cut appearance by the use of MPC-protection caps



For support channels	Length L [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]			
					A	B	s	V
27/18	600	156777	20	pieces	120	40	4	11 x 19
28/30	400	156778					5	
38/40	240	156779			125	50	8	13.5 x 20
	480	156780						

### MPC-Wall hanger supports

without vibration control, galvanised

#### Field of application

- For wall mounting of air-conditioning units where no vibration damping is required
- Galvanised version for use in dry interiors

#### Advantages

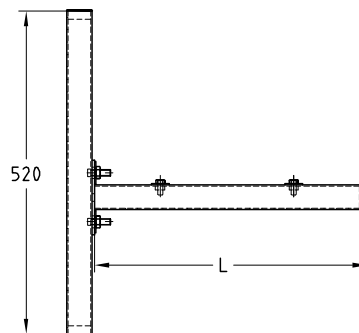
- Efficient mounting due to pre-assembled parts
- MPC-Support channels cut-to length and with holes on the rear side including MPC-Protection caps

- Various bracket lengths available (depending on device type)
- Simple height adjustment of the brackets due to sliding MPC-Hammer head bolts
- Variable adjustment of the mounting spaces on the bracket due to MPC-Rail nuts



#### Features

Length L [mm]	Max. recommended load (set) [N]
480	1,500
560	
640	
800	1,200
1.040	0,900



Complete kit consists of:

- 2 MPC-Support channels 38/40, length 520 mm
- 2 MPC-Wall hanger brackets 38/40
- 6 MPC-Protection caps for 38/40 profile
- 4 MPC-Hammer-head bolts M10/30
- 4 Washers 8.5 x 36 x 2 mm
- 4 MPC-Rail nuts M8 for 38/40 profile
- 4 Hexagon head bolts M8/20
- 4 MPC-Clamp brackets M10 for 38/40 profile

Length L [mm]	Part no.	Sales unit	Pack unit
480	113538	1	set
560	113544		
640	113547		
800	113550		
1.040	113535		

### MPC-Wall hanger supports

with vibration control, galvanised

#### Field of application

- **For the vibration dampened attachment** of equipment such as ventilation and air conditioning devices, pumps, household water tanks, etc. on walls
- Galvanised version for use in dry interiors

#### Advantages

- Efficient mounting due to pre-assembled parts

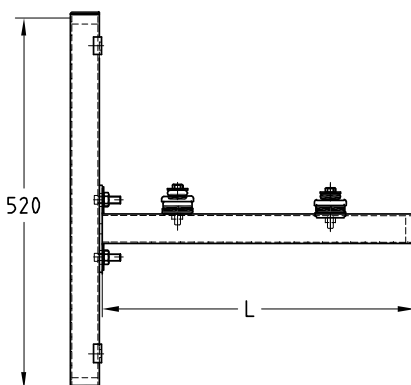
- MPC-Support channels cut-to length and with holes on the rear side including MPC-Protection caps
- Various bracket lengths available (depending on device type)
- Simple height adjustment of the brackets due to sliding MPC-Hammer head bolts
- Variable adjustment of the mounting spaces on the bracket due to MPC-Rail nuts
- **Average vibration reduction of 17 dB(A) due to DÄMMGULAST® Resilient pads**



#### Features



Length L [mm]	Max. recommended load (set) [N]
480	1,500
560	
640	
800	1,200
1.040	0,900



Complete kit consists of:

- 2 MPC-Support channels 38/40, length 520 mm
- 2 MPC-Wall hanger brackets 38/40
- 4 DÄMMGULAST® Resilient pads 43 x 11 mm
- 6 MPC-Protection caps for 38/40 profile
- 4 MPC-Hammer head bolts M10/30
- 4 DÄMMGULAST® Washers 8.5 x 28 mm
- 4 Washers 8.5 x 28 x 1 mm
- 4 MPC-Rail nuts M8 for 38/40 profile
- 4 Hexagon head bolts M8/55
- 4 MPC-Clamp brackets M10 for 38/40 profile

Length L [mm]	Part no.	Sales unit	Pack unit
480	113493	1	set
560	113511		
640	113517		
800	113523		
1.040	113487		

## MPC-Diagonal struts

galvanised

### Field of application

- Diagonal strut applicable for the direct wall-mounting of wall hanger brackets

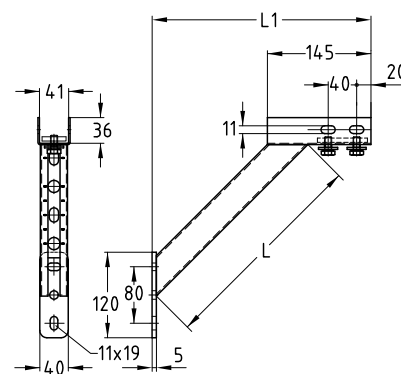
### Advantages

- Quick mounting due to pre-installed double rail nuts
- With clip-over edges for the wall hanger bracket
- Oblong holes at the side enable the positioning of MPC-Support channels 38/40 with slot at the side



### Features

	Length L [mm]	Mounting of bracket and diagonal strut in the support channel slot max. recommended load F [N]	Directly mounted max. recommended load F [N]
	440	2,500	6,000
	900	2,000	3,000



For support channels	Length L [mm]	Length L1 [mm]	Part no.	Sales unit	Pack unit
38/24-40/120	440	405	129790	1	pieces
	900	730	139228		

### MPC-Quick fasteners

with external thread, galvanised

#### Field of application

- Secure and easy installation in slot of MPC-Support channel in order to connect pipe clamps

#### Advantages

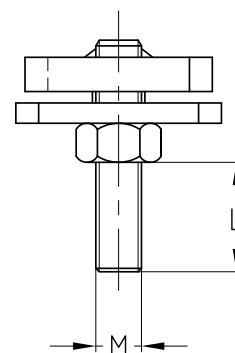
- Time-saving attachment in the channel slot, even if subsequently fitted between existing pipe sections
- Simple and secure handling: insert in the MPC-Support channels, turn and the MPC-Quick fastener is fixed. No slipping, no falling out
- Adjustment marks on the side facilitate its positioning in the support channel
- Reduction of installation effort due to integral threaded pin in various lengths
- Threaded pins are secured against unscrewing
- Subsequent height adjustment of the threaded pin facilitates corrections of the installation
- Suitable for all MPC-Support channels 27/18 to 40/120



For profiles 27/18 and 28/30



For profiles 38/24 to 40/120



#### Features



For support channels	Connecting thread	Usable thread length L [mm]	Total length [mm]	Part no.	Sales unit	Pack unit
27/18, 28/30	M8	7	30	120890	100	pieces
		25	50	120870		
		45	70	120882		
		65	90	120886		
	M10	30	55	120838		
38/24-40/120	M8	7	35	120894	50	
		30	60	120874		
		40	70	120878		
	M10	7	35	120846		
		25	55	120834		
		50	80	120842		

## MPC-Quick fasteners

with internal thread, galvanised

## Field of application

- Secure and easy installation in slot of MPC-Support channel in order to attach mounting accessories
- Angle-mounting for fast and efficient installation of brackets and mounting angles

## Advantages

- Time-saving attachment in the channel slot, even if subsequently fitted between existing pipe sections
- Simple and secure handling: insert in the MPC-Support channels, turn and the MPC-Quick fastener is fixed. No slipping, no falling out
- Adjustment marks on the side facilitate its positioning in the support channel
- High quality and load capacity
- Suitable for all MPC-Support channels 27/18 to 40/120



For profiles 27/18 and 28/30



For profiles 38/24 to 40/120



For angle mounting



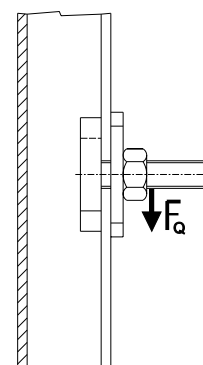
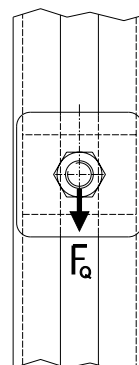
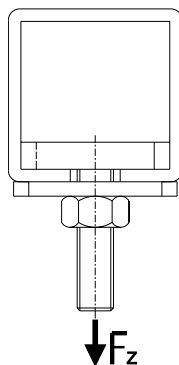
## Features



Type	For support channels	Connecting thread	Part no.	Sales unit	Pack unit
With internal thread	27/18, 28/30	M8	120858	100	pieces
		M10	120822		
	38/24-40/120	M8	120862		
		M10	120826		
For angle mounting		M8	120790		
		M10	120782		

### MPC-Quick fasteners

with internal thread, galvanised



For support channels	MPC-Quick fasteners			
	Connecting thread	Max. recommended tensile load $F_z$ [N]	Max. recommended transverse load $F_q$ (displacement) [N]	For a tightening torque of [Nm]
27/18	M8	1,400	300	10
	M10			
28/30	M8	2,100	350	
	M10			

For support channels	MPC-Quick fasteners				
	Connecting thread	Max. recommended tensile load Fz [N]]	Max. recommended transverse load Fq (displacement) [N]	For a tightening torque of [Nm]	
38/24	M8	2,000	500	20	
	M10			25	
38/40	M8	2,800	1,000	20	
	M10			25	
39/52	M8	3,300		20	
	M10			25	
40/60	M8	4,000		20	
	M10			25	
40/80	M8			20	
	M10			25	
38/80	M8			2,800	20
	M10				25
40/120	M8	4,000		20	
	M10			25	



## MPC-Hammer head fasteners

galvanised

## Field of application

- For time-saving, efficient attachment of pipe clamps to MPC-Support channels

## Advantages

- Practical range of lengths
- For insertion at any point into the slot of channel support profiles 27/18 and 28/30
- Lateral adjustment at any time, allows perfect alignment of the pipeline after installation
- Various lengths and thread diameters can be combined within the same channel



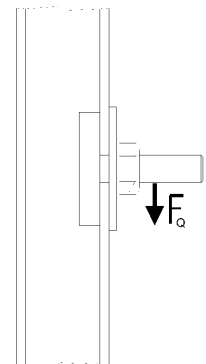
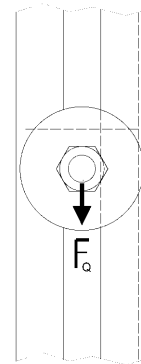
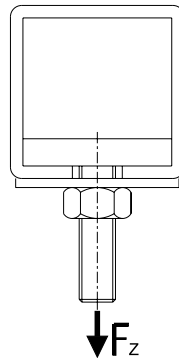
## Features



For support channels	Connecting thread	Length [mm]	Usable thread length [mm]	Part no.	Sales unit	Pack unit
27/18, 28/30	M8	20	7	115129	100	pieces
		30	15	115152		
		40	25	115166		
		50	35	115175		
		60	45	115178		
		70	55	115181		
		80	65	115190		
		90	75	115193		
		100	85	115113		
		120	105	115116		
		140	125	115119		
		160	145	115122		
		180	165	115125		
	M10	35	18	115104		
38/24–40/120	M8	30	15	115056	50	
		35	20	115074		
		40	25	115080		
		50	35	115092		
		80	65	115101		
		100	85	115035		
		120	105	115038		
		140	125	115041		
		160	145	115044		
		180	165	115047		
	M10	35	18	114990		
		55	35	114999		
		80	60	115002		
		100	80	114963		
		120	100	114966		
		140	120	114969		
		160	140	114972		
		180	160	114975		
	M12	35	15	115014		

### MPC-Hammer head fasteners

galvanised



For support channels	Max. allowable bearing point load capacity of channel [N]	MPC-Hammer head fasteners			
		Connecting thread	Max. recommended tensile load Fz [N]	Max. recommended transverse load Fq (displacement) [N]	For a tightening torque of [Nm]
27/18	1,700	M8	1,000	400	10
		M10	1,700	1,200	30
28/30	2,500	M8	1,000	400	10
		M10	2,500	1,200	30

For support channels	Max. allowable bearing point load capacity of channel [N]	MPC-Hammer head fasteners			
		Connecting thread	Max. recommended tensile load Fz [N]	Max. recommended transverse load Fq (displacement) [N]	For a tightening torque of [Nm]
38/24	2,200	M8	1,000	600	20
		M10	2,200	800	30
38/40	5,000	M8	2,500	1,000	20
		M10	2,800	1,100	30
		M12	5,000	1,200	40
39/52	6,700	M8	3,000	1,000	20
		M10	3,300	1,100	30
		M12	6,700	1,200	40
40/60 40/80	8,300	M8	3,500	1,000	20
		M10	4,000	1,100	30
		M12	8,300	1,200	40
38/80	5,000	M8	2,500	1,000	20
		M10	2,800	1,100	30
		M12	5,000	1,200	40
40/120	8,300	M8	3,500	1,000	20
		M10	4,000	1,100	30
		M12	8,300	1,200	40

## MPC-Hammer head bolts

galvanised

**Field of application**

- For time-saving, efficient attachment to MPC-Support channels

**Advantages**

- Ideal for attachment of channel constructions and connecting elements
- Suitable for profiles 38/24, 38/40, 39/52, 40/60, 40/80, 38/48, 38/80 and 40/120

- For direct insertion in the channel slot – even between the attachment bolts

**Features**

For support channels	Connecting thread	Max. allowable bearing point load capacity of channel [N]	Max. recommended tensile load F <sub>z</sub> [N]	Max. recommended transverse load F <sub>Q</sub> (displacement) [N]	For a tightening torque of [Nm]
38/24, 38/48	M8	2,200	2,200	600	20
	M10			800	30
	M12			1,000	40
38/40, 38/80	M8	5,000	5,000		20
	M10			1,500	30
	M12			1,800	40
39/52	M8	6,700	6,700	1,000	20
	M10			1,500	30
	M12			1,800	40
40/60, 40/80, 40/120	M8	8,300	8,300	1,000	20
	M10			1,500	30
	M12			1,800	40

Connecting thread	Length [mm]	Usable thread length [mm]	Part no.	Sales unit	Pack unit
M8	30	20	115340	50	pieces
M10		19	115298		
M12		17	115316		

### MPC-Rail nuts

for MPC-Support channels and wall hanger brackets, galvanised

	For support channels	Thread	Length L [mm]	Width [mm]	Height [mm]	Part no.	Sales unit	Pack unit
<b>MPC-Rail nuts</b>	27/18, 28/30	M6	21.5	11.8	4.0	<b>118013</b>	100	pieces
		M8		14.0	5.0	<b>120043</b>		
	38/24–40/120	M6	31.0	16.0	6.0	<b>148757</b>		
			32.8	23.0		<b>148759</b>		
		M8	31.0	16.0		<b>148761</b>		
			32.8	23.0		<b>118040</b>		
		M10	31.0	16.0		<b>147854</b>		
			32.8	23.0		<b>117968</b>		
		M12				<b>117986</b>		
						<b>117986</b>		
<b>MPC-Rail nuts</b>	polybox á 300 pieces	M16	32.5	32.5	8.0	<b>148762</b>	25	box
		M8	32.8	23.0	6.0	<b>157362</b>	1	
		M10				<b>157361</b>		



Size 27/18–28/30



Size 38/24–40/120

### MPC-Double rail nut

for MPC-Support channels and wall hanger brackets, galvanised

For support channels	Thread	Part no.	Sales unit	Pack unit
38/24–40/120	M10	<b>117944</b>	50	pieces



### MPC-Clamp brackets

for MPC-Support channels and wall hanger brackets, galvanised

For support channels	For thread	Part no.	Sales unit	Pack unit
27/18, 28/30	M8	<b>114439</b>	100	pieces
	M10	<b>114503</b>		
38/24, 38/40, 38/48, 38/80	M8	<b>114447</b>		
	M10	<b>114450</b>		
39/52, 40/60, 40/80, 40/120	M8	<b>114471</b>		
	M10	<b>114474</b>		
	M12	<b>114477</b>		
	M16	<b>114459</b>	25	



### MPC-Clamp bracket

heavy-duty version, for MPC-Support channels and wall hanger brackets, to transfer large forces, galvanised

For support channels	For thread	Part no.	Sales unit	Pack unit
39/52, 40/60, 40/80, 40/120	M12	<b>114557</b>	25	pieces



### MPC-Protection caps

for MPC-Support channels and wall hanger brackets

For support channels	Part no.	Sales unit	Pack unit
27/18	106000	100	pieces
28/30	106002		
38/24, 38/48	106004		
38/40, 38/80	106006	50	
39/52	106007		
40/60, 40/120	106008	25	
40/80	106009		



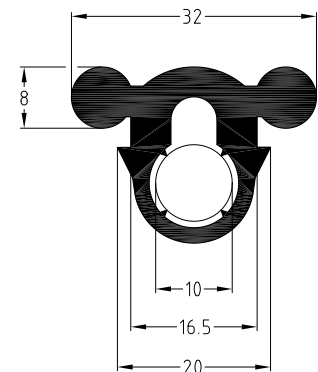
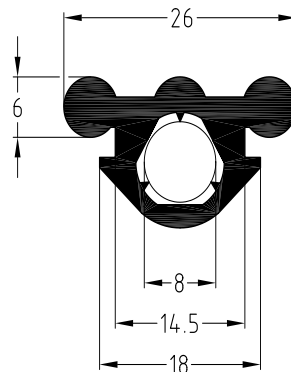
### DÄMMGULAST® Channel sections for MPC-Profiles

#### Field of application

- Ideal for the decoupling of traverses for air duct fixtures
- For secure vibration-decoupling of MPC-Support channels

#### Advantages

- Easy installation by inserting into MPC-Support channels and/or screwing onto threaded rods
- Prevents structure-borne noise coupling by avoiding contact between the air duct and the threaded rods
- Interlocking profile prevents channel section being pushed out
- Prevents fluttering and other vibration noises in the air ducts
- Small contact surface, large absorption mass



#### Features



Design	For support channels	Suitable for	Part no.	Sales unit	Pack unit
<b>DÄMMGULAST®</b> Channel section roll of 30 m	27/18, 28/30	Channels with slot widths of 13–16 mm, M8 threaded rods	<b>107689</b>	1	roll
<b>DÄMMGULAST®</b> Channel sections section of 50 mm	38/24–40/120	Channels with slot widths of 15–18 mm, M8 and M10 threaded rods	<b>107690</b>	300	pieces
<b>DÄMMGULAST®</b> Channel sections section of 100 mm			<b>107691</b>		
			<b>107686</b>	200	

**!** When installing air conditioning and ventilation equipment, MPC-Support channels can be used as load-bearing traverses. Structure-borne vibration coupling bridges resulting from direct metal contact between the air duct and the traverse or threaded rods can be prevented by the use of DÄMMGULAST® Channel section as intermediate layer.

The DÄMMGULAST® Channel section was developed especially for these application areas and provides the optimum solution from a practical installation point of view.

### MPC-Channel connectors galvanised

#### Field of application

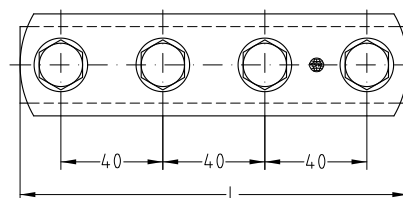
- Quick butt-joint connection for MPC-Support channels


#### Advantages

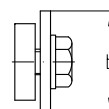
- Enables exact alignment of the channel
- Four bolts provide a frictional joint
- Smooth attachment by sliding into the channel section



For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]	
				L	b
27/18, 28/30	<b>120060</b>	50	pieces	148	25
38/24, 38/40, 39/52, 40/60, 40/80	<b>163109</b>	25		152	40



 Please refer to page 4/80 for the heavy-duty version of the channel connectors.



### MPC-Channel support brackets

galvanised

#### Field of application

- Ideal for attachment of MPC-Support channels as cross-beam in shafts and ducts
- For right-angled connection of two channels where section slots do not have the same alignment
- Applicable as floor or ceiling mounting for vertical MPC-Support channels

#### Advantages

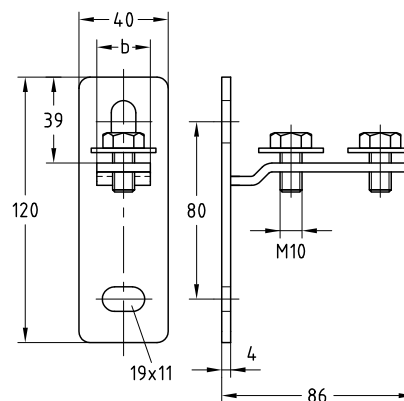
- The vertical and horizontal holes in the base plate enable easy height adjustment of the MPC-Channel support bracket
- Supplied with two clamping bolts, pre-installed



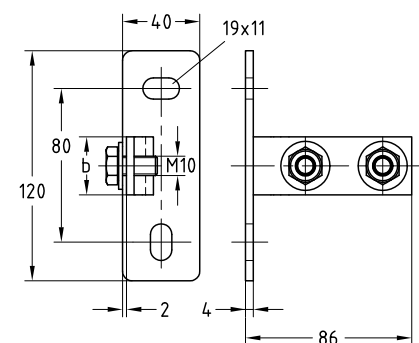
MPC-Channel support bracket, crosswise



MPC-Channel support bracket, lengthwise



MPC-Channel support bracket, crosswise



MPC-Channel support bracket, lengthwise

Description	For support channels	Part no.	Sales unit	Pack unit	Dimensions b [mm]
Crosswise	27/18, 28/30	156797	25	pieces	24
	38/40	156799			30
Lengthwise	27/18, 28/30	156796			24
	38/40	156798			30



### MPC-Saddle supports galvanised

#### Field of application

- Simple assembly of strong cross-beams using MPC-Support channels
- Applicable for cramped installation conditions in shafts and ducts

#### Advantages

- The vertical and horizontal holes in the base plate enable simple alignment of the MPC-Saddle support
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel section structures
- The section 38/80 provides torque-resistant support as channel is encompassed on both sides



MPC-Saddle support, crosswise



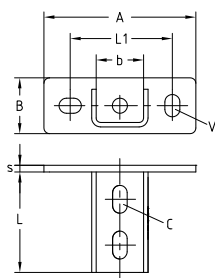
MPC-Saddle support, lengthwise



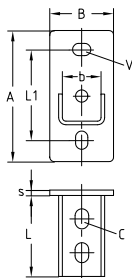
MPC-Saddle support lengthwise pre-assembled with double rail nut



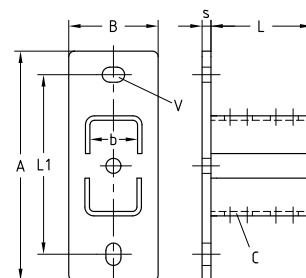
MPC-Saddle support, lengthwise for profiles 38/80, 40/80 and 40/120



MPC-Saddle support, crosswise



MPC-Saddle support, lengthwise



MPC-Saddle support, lengthwise for profiles 38/80 and 40/120

#### Features



	Description	For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]							
						A	B	b	L	L1	s	C	V
<b>MPC-Saddle supports</b>	Crosswise	27/18, 28/30	<b>156818</b>	30	pieces	125	50	30	70	80	5	11 x 19	11 x 19
		38/24–40/80	<b>156816</b>	25		136		42	90	91.5	6	13 x 25	13.5 x 20
	Lengthwise	27/18, 28/30	<b>156811</b>	30		125		30	70	80	5	11 x 19	11 x 19
		38/24–40/60	<b>156809</b>	25		144	70	42	90	100	6	13 x 25	13.5 x 20
		38/80, 40/80	<b>156812</b>	1		205	80			160	8		
		40/120	<b>156813</b>			245				200			
<b>MPC-Saddle supports, pre-assembled with double rail nut</b>	Crosswise	38/24–40/80	<b>156817</b>	25		136	50			91.5	6		
	Lengthwise	38/24–40/60	<b>156810</b>			144	70			100			

MPC-Doublerail nut, please refer to page 4/22.

## MPC-Saddle support type 3

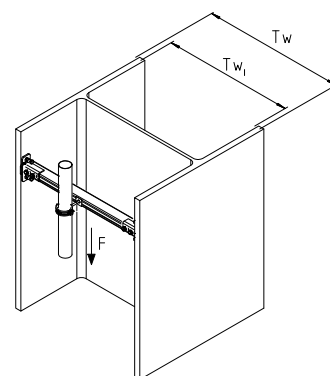
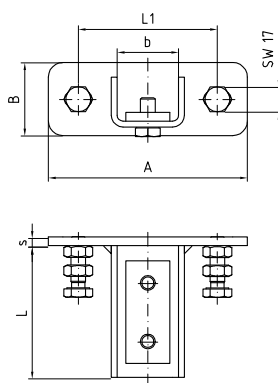
thrust piece crosswise, galvanised

## Field of application

- Crosswise saddle support with clamping bolts for a safe and quick installation of the MPC-Support channels between the flange of structural steel sections

## Advantages

- Fastening on the structural steel element without drilling or welding work; saves time and costs
- Secure installation of the MPC-Support channels in the channel slot through double rail nuts
- Can be fastened quickly and easily via clamping screws
- Universal implementation at different section widths



## Features

For girder flange expanses $T_w$	$T_w \geq 260 \text{ mm}$
Max. recommended load for cut length $L < 500 \text{ mm}$	3,000 N
Max. recommended load for cut length $L < 700 \text{ mm}$	2,000 N
Max. recommended load for cut length $L < 900 \text{ mm}$	1,000 N
Cut length $L$ of the channel section	Girder flange expanse (inside), $T_{wi} - 17 \text{ mm}$

For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]					
				A	B	b	L	L1	s
38/24-40/60	156808	8	pieces	136	50	42	90	91.5	6

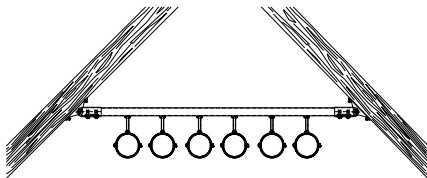
### MPC-VARIO-Saddle support galvanised

#### Field of application

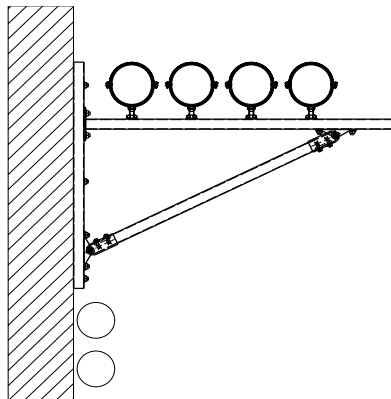
- Ideal for attachment to inclined roof trusses, vaults and in round cable shafts

#### Advantages

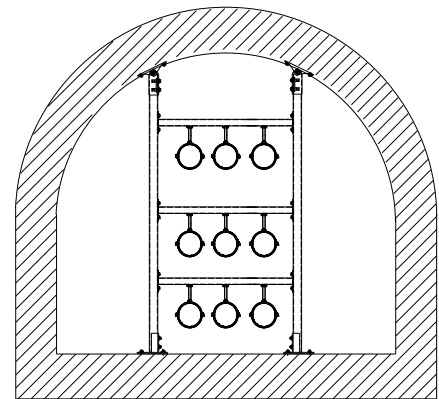
- Variable angle adjustment possible during installation
- Simple and quick installation due to pre-installed double rail nut
- Attachment to the slot of support channels 38/40 possible in all directions



Attachment of a pipe run to an inclined roof truss



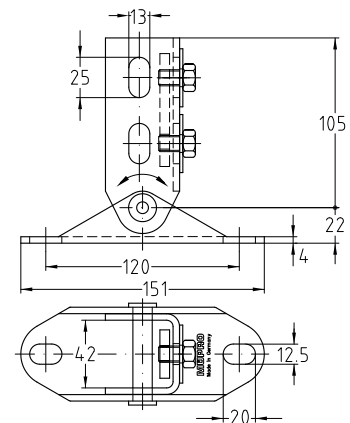
Pipes installed on a MPC-Wall hanger with diagonal strut



Installation of brackets in vaults or round cable ducts and shafts

Completely pre-assembled:

- 1 MPC-VARIO-Saddle support
- 1 Double rail nut
- 2 Hexagonal head bolts M10
- 2 Washers



For support channels	Minimum angle [°]	Part no.	Sales unit	Pack unit
38/24-40/120	20	129660	1	pieces

## MPC-Mounting angles

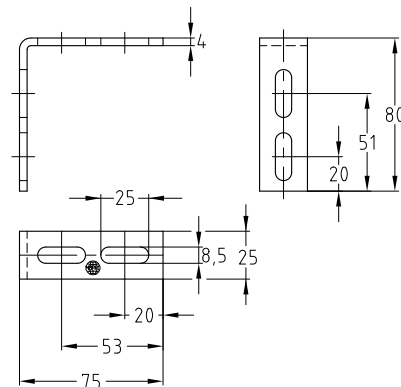
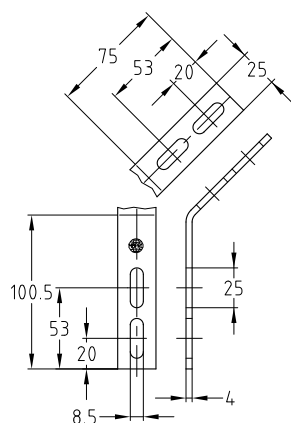
for MPC-Support channels 27/18 and 28/30, galvanised

## Field of application

- Solid fixing element for construction of pre-wall installations, shelves as well as for channel constructions for mountings of pipelines and air ducts without welding
- Also applicable for direct mounting on walls, ceilings or floors

## Advantages

- Versatile in use due to oblong holes
- Versatile in use, e.g. as:
  - Angular support bracket
  - Angular load-bearing bracket
  - Connection element
  - Angular bracket
- Multi-purpose component for professional, practical installation solutions



Angle [°]	For support channels	Part no.	Sales unit	Pack unit
45	27/18, 28/30	118753	50	pieces
90		118797		

### MPC-Mounting angle 45°

for MPC-Support channels 38/24 to 40/120, galvanised

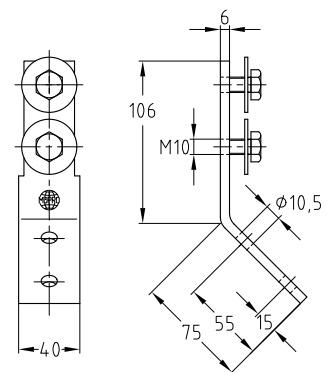
#### Field of application

- Solid fixing element for construction of pre-wall installations, shelves as well as for channel constructions for mountings of pipelines and air ducts without welding
- Also applicable for direct mounting on walls, ceilings or floors


#### Advantages

- Versatile in use, e.g. as:
  - Angular support bracket
  - Connection element
- Multi-purpose component for professional, practical installation solutions
- Quick installation on site due to pre-assembled bolts and washers

Completely pre-assembled:  
 1 MPC-Mounting angle 45°  
 2 Hexagonal head bolts M10  
 2 Washers



For support channels	Part no.	Sales unit	Pack unit
38/24–40/120	118769	25	pieces

 Please refer to pages 4/85 and 4/86 for mounting angles 90° for MPC-Support channels 38/24 to 40/120.

## MPC-Lateral angles

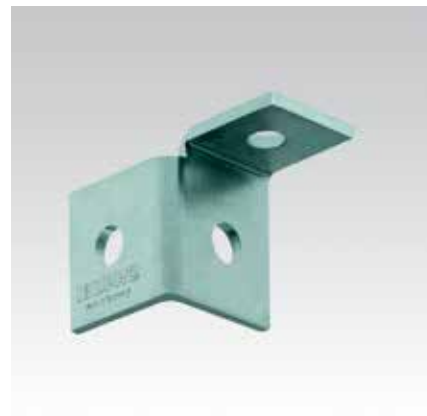
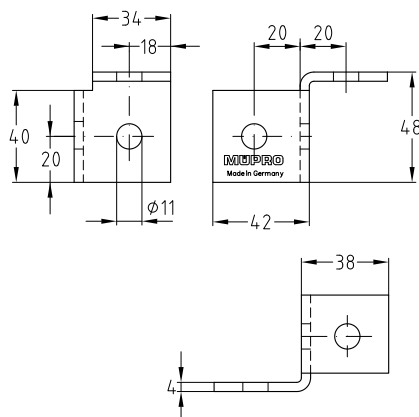
galvanised

### Field of application

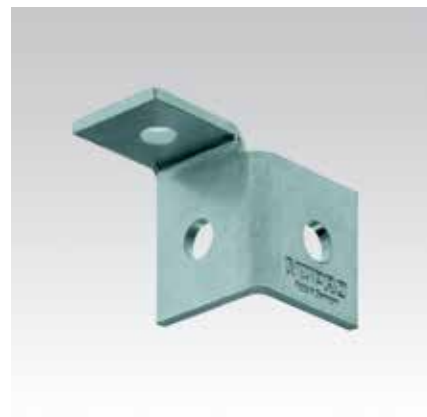
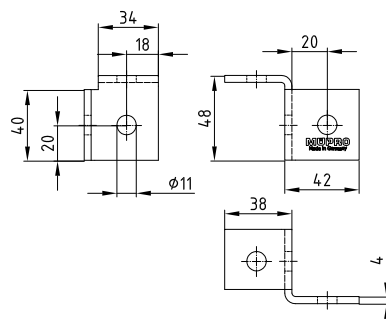
- Connecting elements for the construction of frames, shelves and wall-mounted installations using MPC-Support channels

### Advantages

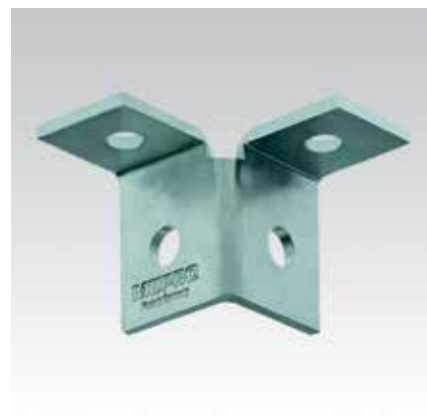
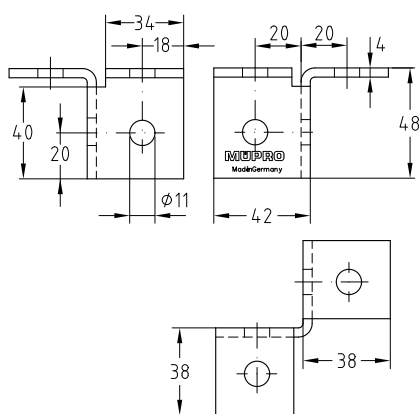
- Creation of solid connections without welding
- Various mounting options for stable joint and angle connections with MPC-Support channels
- Appropriate combination of elements allows junctions with up to four exit directions
- Great flexibility – a large variety of connections can be made with only a few components
- Quick and simple attachment in combination with MPC-Quick fastener for angle mounting



MPC-Lateral angle, right



MPC-Lateral angle, left



MPC-Lateral angle, double-sided

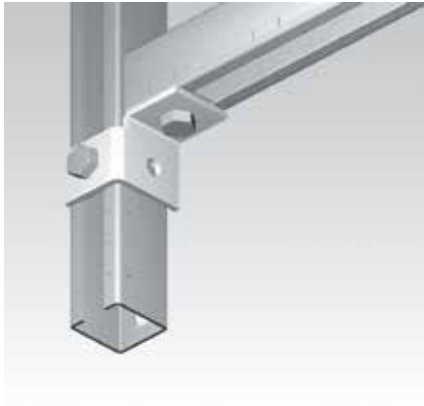
### Features



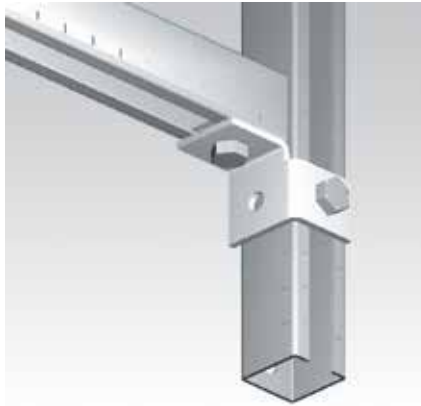
Description	Angle [°]	For support channels	Part no.	Sales unit	Pack unit
Right	90	38/24-40/120	<b>123068</b>	25	pieces
Left			<b>123060</b>		
Double-sided			<b>123048</b>		

⚠ Stainless steel version available upon request.

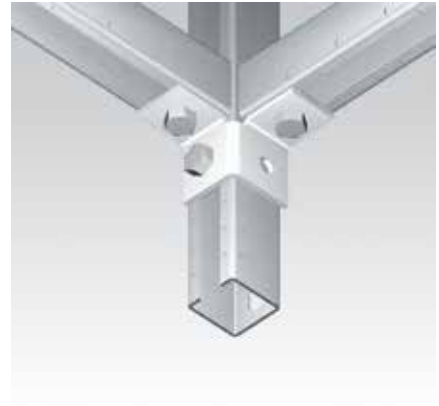
### MPC-Lateral angles galvanised



MPC-Lateral angle, right



MPC-Lateral angle, left



MPC-Lateral angle, double-sided



Construction of shelf using MPC-Support channels – junction point with connections in **2 directions**



Construction of shelf using MPC-Support channels – junction point with connections in **3 directions**



Construction of shelf using MPC-Support channels – junction point with connections in **4 directions**



Frame construction consisting of MPC-Support channels, MPC-Wall hanger brackets, mounting angles, short and connection plates



## MPC-Cross channel connectors

galvanised

## Field of application

- For cross-connections in pre-wall installations and for shelves made from MPC-Support channels

## Advantages

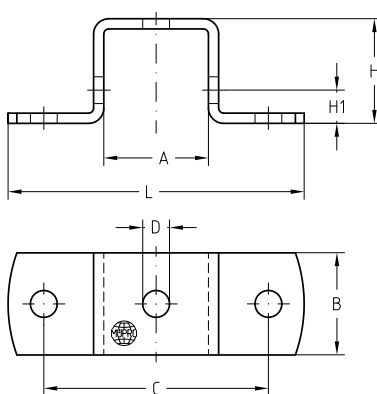
- Easy-to-install connection elements for setting up structures with the correctly calculated static loads using MPC-Support channels
- Greater flexibility when setting up structures made from channels
- Multiple punching allows the section slots to be aligned in 4 directions
- For rotation-resistant attachment to building structure



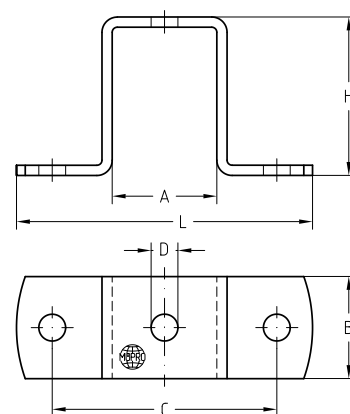
For profiles 28/30 and 38/40



For profiles 40/60, 40/80, 38/80 and 40/120



For profiles 28/30 and 38/40



For profiles 38/48, 39/52, 40/60, 40/80, 38/80 and 40/120

For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]						
				A	B	C	D	H	H1	L
28/30	118243	25	pieces	31	25	80	9.0	31	13	104
38/40	118246			41	40		10.5	41	18	110
38/48	144838							49	—	
39/52	145069							53		
40/60	118316							62		
38/80, 40/80	118276							82		
40/120	118284							122		

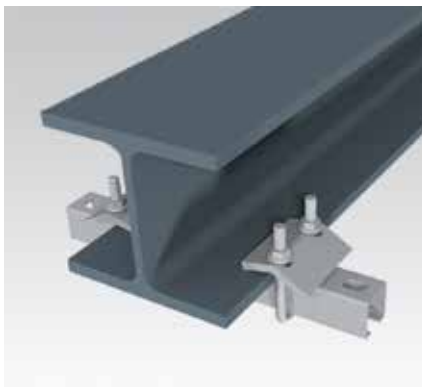
### MPC-Girder cleats galvanised

#### Field of application

- Attachment of MPC-Support channels to steel girders without drilling or welding
- For use in dry interiors

#### Advantages

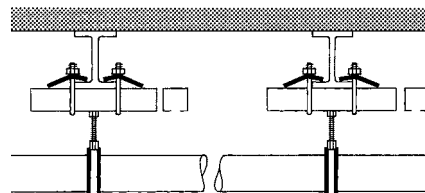
- Attachment to supporting structure without welding or drilling
- Allows subsequent adjustment of the channels along and across the supporting structure
- Suitable for all flange thicknesses of common girders
- Easy to install, pre-assembled kit
- Proper attachment of suspended loads on girders
- Approved by VdS



#### Proof of usability

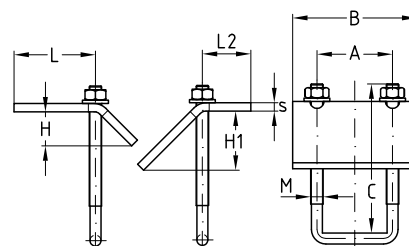


Girder cleat	Profiles	For threaded connection with hammer head bolts, hammer head fasteners
M8	38/24, 38/40, 39/52, 40/60	M8, M10, M12
M10	38/40, 38/80, 39/52, 40/60, (40/80), (40/120)	(M8), M10, M12, M16



#### Features

For support channels	Thread U-brackets	Max. permitted loading/pair [N] with hammer head bolts, hammer head fasteners		
		M8	M10	M12
38/24, 38/48	M8	1,000	2,200	5,000
38/40		2,500	2,800	
39/52		3,000	3,300	6,700
40/60		3,500	4,000	8,300
38/40, 38/80	M10	2,500	2,800	5,000
39/52		3,000	3,300	6,700
40/60, 40/80, 40/120		3,500	4,000	8,300



For support channels	Thread	Spanner width [SW]	VdS approved	Part no.	Sales unit	Pack unit	Dimensions [mm]							
							A	B	C	H	H1	L	L2	s
27/18, 28/30	M6	10	●	130281	50	pieces	37	60	80	18.0	29.0	43.8	27.8	4
38/24, 38/40	M8	13	●	130283	20		48	70		17.0	24.5	38.2	27.2	6
39/52, 40/60			●	130284					100					
38/40, 39/52, 40/60	M10	15	●	130273	15		50	80		18.5		39.7	30.7	8
38/80, 40/80		17		130272					125	19.4	43.0	64.0		
40/120		15	●	130274						18.5	24.5	39.7		
			●	130277					180					

## MPC-Girder support

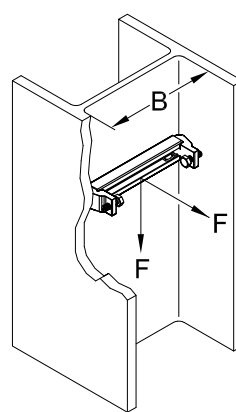
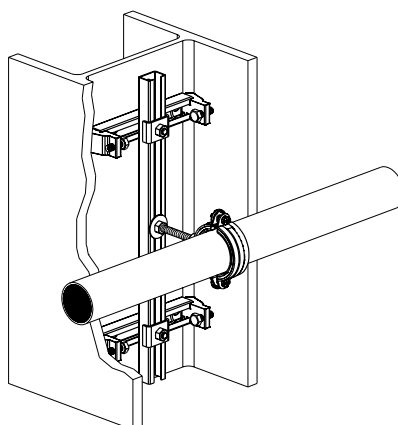
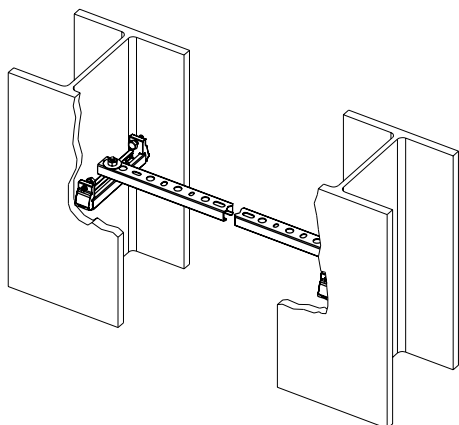
galvanised

### Field of application

- Clamping element for fastening MPC-Support channel sections between the flanges of structural steel sections

### Advantages

- Ideal for attachment of pipelines and electrical systems to steel girders
- Attachment to the girder without welding or drilling
- Tight hold due to 3-point load transfer on both sides
- Lock washer for a secure hold in the channel section during installation
- Simple attachment of pipelines using MPC-Hammer head fasteners
- Adaptable to all girder widths on site by the length of the channel section



### Features

For girder flange width B	Min. 90 mm to max. 350 mm
Max. recommended load F	850 N
Cut length L of the channel section	$L = B - 25 \text{ mm}$

For support channels	Part no.	Sales unit	Pack unit
27/18, 28/30	130286	20	pieces



Larger spans are possible, however at reduced loads.

### MPC-VARIO joint

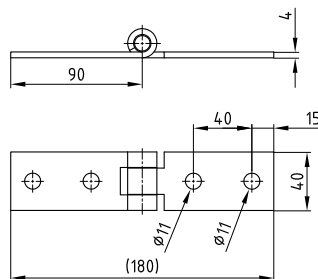
zinc-nickel

#### Field of application

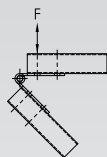
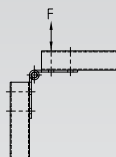
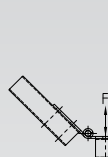
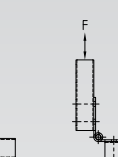
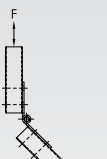
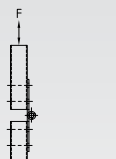
- Flexible implementation for connecting MPC-Support channels, for which different angle adjustments are required for versatile implementation possibilities, such as frame subconstructions for solar modules, angular support brackets, etc.

#### Advantages

- Pivot angle from 10° to 180° for fast and flexible adaptation to a wide variety of attachment situations
- Cost savings can be realised in the area of stockkeeping, as a variety of support solutions
- Stable design of the joint for optimal transmission of force
- Quick and easy mounting at the construction site via double rail nuts
- Zinc-nickel coating ensures trouble-free outdoor use



#### Features

Design				Max. recommended load [N]	
				1,000	
					
				2,000	
					
					
					

For support channels	Length [mm]	Width [mm]	Thickness [mm]	Hole diameter [mm]	Part no.	Sales unit	Pack unit
38/24-40/120	90	40	4	11	139746	25	pieces

## MPR-Support channels

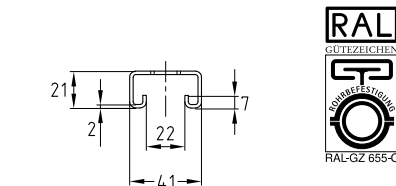
sendzimir galvanised

### Field of application

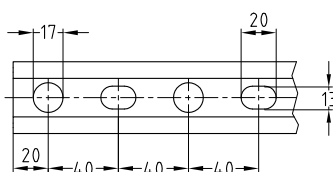
- Ideal for pipe installation as support structure for air ducts in dry interiors
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components

### Advantages

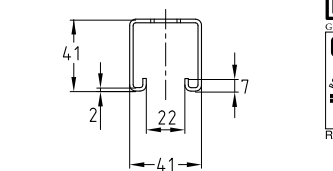
- Quick and efficient attachment of pipe sections and multiple pipe-ways
- High bending stiffness due to the cross-section design
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure fixing that is adjustable laterally and vertically
- For setting up structures with correctly measured static loads by means of diverse connection components
- Interlocking rail slot for positive locking of attachments
- Clean-cut appearance by the use of MPR-protection caps



Profile 41/21/2.0



Profile 41/41/2.0



Profile 41/41/2.5

### Features



Profile	Length [mm]	Part no.	Sales unit	Pack unit
41/21/2.0	2,000	150930	8	pieces
	3,040	150931	1	
	6,000	150932		
41/41/2.0	2,000	150933	4	
	3,040	150934	1	
	6,000	150935		
41/41/2.5	2,000	150864	4	
	3,040	150937	1	
	6,000	150938		



Profile 41/41 in profile thickness 3.0 mm available upon request. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

### MPR-Support channels

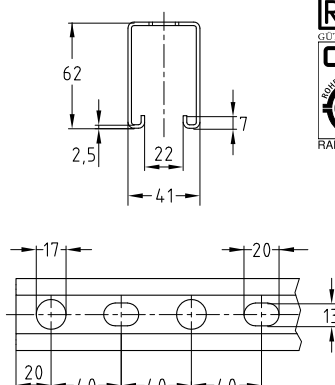
sendzimir galvanised

#### Field of application

- Ideal for pipe installation as support structure for air ducts in dry interiors
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components
- For indoor use

#### Advantages

- Quick and efficient attachment of pipe sections and multiple pipe-ways
- High bending stiffness due to the cross-section design
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure fixing that is adjustable laterally and vertically
- For setting up structures with correctly measured static loads by means of diverse connection components
- Interlocking rail slot for positive locking of attachments
- Clean-cut appearance by the use of MPR-protection caps



Profile 41/62/2.5

#### Features



Profile	Length [mm]	Part no.	Sales unit	Pack unit
41/62/2.5	2,000	150936	1	pieces
	3,040	150978		
	6,000	150979		



For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

## MPR-Support channels

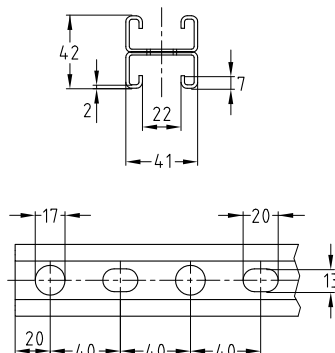
H-Profiles, sendzimir galvanised

## Field of application

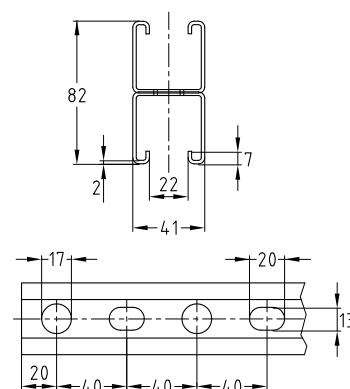
- Ideal for space-saving support of multisection pipeways between ceiling beams
- Ideal for pipe installation as support structure for air ducts in dry interiors
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components

## Advantages

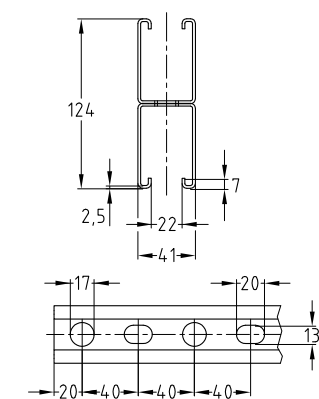
- Quick and efficient attachment of pipe sections and multiple pipe-ways
- Ideal combination of high bending stiffness and ease of installation
- Channel slots on both sides allow simple and quick alignment of all suspended and floor-mounted pipe supports
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPR-protection caps
- Interlocking rail slot for positive locking of attachment parts



Profile 41/42/2.0



Profile 41/82/2.0



Profile 41/124/2.5

## Features



Profile	Length [mm]	Part no.	Sales unit	Pack unit
41/42/2.0	6,640	150968	1	pieces
41/82/2.0		150969		
41/124/2.5		151050		




For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.



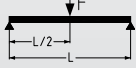
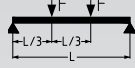
### MPR-Support channels


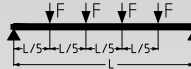
sendzimir galvanised


#### Technical data of profiles:

 Profile	Material	Surface	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Available threaded plates M6, M8, M10, M12, M16	Profile weight [kg/m]	Profile cross-section [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
							$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
41/21/2.0	S250GD	sendzimir galvanised	162	M6, M8, M10, M12, M16	1.45	1.62	0.8894	4.5246	0.839	2.207
41/41/2.0			188		2.08	2.42	4.9736	7.5692	2.451	3.692
41/41/2.5					2.53	3.08	5.8103	9.0333	2.839	4.406
41/62/2.5					3.38	3.98	17.2090	12.9297	5.671	6.307
41/42/2.0 H-Profile					2.90	3.24	5.2844	9.0492	2.516	4.414
41/82/2.0 H-Profile					4.16	4.83	30.6876	15.1385	7.485	7.385
41/124/2.5 H-Profile					6.76	7.96	111.7528	25.8595	18.025	12.614

#### Load bearing capacities of profiles for bending around the y-axis [N]:

Profile	 L [m]						 L [m]					
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
41/21/2.0	1,090	440	190	90	—	—	800	260	110	60	—	—
41/41/2.0	3,681	1,833	1,095	601	106	—	2,755	1,376	643	353	62	—
41/41/2.5	4,262	2,122	1,278	701	121	—	3,190	1,593	750	411	71	—
41/62/2.5	8,521	4,248	2,818	2,099	459	117	6,378	3,189	2,114	1,248	270	68
41/42/2.0 H-Profile	3,080	1,878	1,157	630	95	—	1,540	1,410	679	370	56	—
41/82/2.0 H-Profile	6,563	5,608	3,722	2,774	865	277	3,281	3,281	2,791	2,079	508	162
41/124/2.5 H-Profile	13,646	13,522	8,987	6,711	3,256	1,316	6,823	6,823	6,740	5,031	1,969	772

Profile	 L [m]						 L [m]					
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
41/21/2.0	540	180	80	40	—	—	450	150	60	30	—	—
41/41/2.0	1,841	916	461	253	44	—	1,534	764	362	199	35	—
41/41/2.5	2,131	1,061	538	295	51	—	1,776	884	423	232	40	—
41/62/2.5	4,260	2,124	1,409	896	193	49	3,550	1,770	1,174	703	152	39
41/42/2.0 H-Profile	1,027	939	487	265	40	—	770	770	383	208	32	—
41/82/2.0 H-Profile	2,188	2,188	1,861	1,387	364	116	1,641	1,641	1,551	1,156	286	91
41/124/2.5 H-Profile	4,549	4,549	4,493	3,356	1,412	554	3,411	3,411	3,411	2,796	1,109	435

 The determined loads apply for static loads. Calculation based on Eurocode (EC3).  
 The safety coefficient  $\gamma = 1.54$  takes into account the safety and combination coefficients as well as the safety factor of the material.  
 For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

### MPR-Support channels

sendzimir galvanised

#### Permissible buckling loads for profiles [N]:

Buckling length Lk [mm]	MPR 41/21/2.0	MPR 41/41/2.0	MPR 41/41/2.5	MPR 41/62/2.5	MPR 41/42/2.0	MPR 41/82/2.0	MPR 41/124/2.5
200	29,182	45,557	56,946	75,004	60,984	91,020	150,007
300	27,244	44,788	55,811	75,004	59,289	91,010	150,007
400	24,922	43,416	54,027	73,330	57,182	89,656	147,921
500	22,127	41,962	52,126	71,527	54,901	88,232	145,627
600	19,030	40,383	50,048	69,639	52,369	86,698	143,164
700	16,008	38,641	47,743	67,631	49,527	85,009	140,464
800	13,362	36,711	45,181	65,469	46,359	83,114	137,446
900	11,181	34,586	42,366	63,124	42,910	80,954	134,020
1,000	9,427	32,296	39,350	60,579	39,301	78,468	130,091
1,100	8,024	29,902	36,233	57,831	35,692	75,599	125,569
1,200	6,896	27,489	33,134	54,898	32,234	72,317	120,394
1,300	5,981	25,140	30,161	51,823	29,033	68,635	114,570
1,400	5,232	22,922	27,392	48,668	26,139	64,626	108,190
1,500	4,613	20,875	24,864	45,505	23,563	60,419	101,439
1,600	4,095	19,015	22,589	42,406	21,289	56,168	94,553
1,700	3,659	17,342	20,558	39,428	19,290	52,015	87,762
1,800	3,289	15,846	18,752	36,612	17,533	48,063	81,249
1,900	2,971	14,512	17,150	33,983	15,989	44,375	75,131
2,000	2,697	13,324	15,728	31,550	14,629	40,978	69,467
2,100	2,459	12,265	14,464	29,314	13,426	37,877	64,274
2,200	2,251	11,319	13,338	27,266	12,361	35,059	59,541
2,300	2,068	10,473	12,333	25,395	11,413	32,506	55,240
2,400	1,907	9,715	11,433	23,688	10,568	30,194	51,340
2,500	1,764	9,033	10,625	22,131	9,811	28,101	47,802
2,600	1,636	8,418	9,898	20,711	9,130	26,204	44,592
2,700	1,521	7,862	9,240	19,413	8,517	24,483	41,676
2,800	1,419	7,358	8,645	18,227	7,963	22,918	39,022
2,900	1,326	6,900	8,105	17,141	7,461	21,492	36,604
3,000	1,242	6,483	7,613	16,144	7,004	20,192	34,395
3,100	1,166	6,102	7,164	15,229	6,587	19,002	32,374
3,200	1,096	5,753	6,753	14,387	6,206	17,912	30,522
3,300	1,033	5,433	6,376	13,611	5,857	16,911	28,820
3,400	975	5,138	6,029	12,894	5,536	15,990	27,254
3,500	921	4,867	5,710	12,231	5,241	15,141	25,810
3,600	872	4,616	5,415	11,617	4,969	14,357	24,475
3,700	827	4,385	5,142	11,047	4,717	13,631	23,241
3,800	785	4,170	4,889	10,517	4,484	12,959	22,096
3,900	747	3,970	4,655	10,024	4,268	12,334	21,032
4,000	711	3,784	4,436	9,565	4,067	11,753	20,043
4,100	677	3,611	4,233	9,136	3,879	11,212	19,121
4,200	646	3,450	4,043	8,734	3,705	10,707	18,261
4,300	617	3,299	3,866	8,359	3,542	10,235	17,457
4,400	590	3,157	3,700	8,006	3,389	9,794	16,705
4,500	565	3,025	3,544	7,676	3,246	9,380	16,000
4,600	541	2,900	3,398	7,365	3,112	8,992	15,338
4,700	519	2,784	3,261	7,073	2,986	8,627	14,717
4,800	498	2,674	3,132	6,797	2,867	8,284	14,132
4,900	478	2,570	3,011	6,538	2,755	7,961	13,581
5,000	459	2,472	2,896	6,293	2,650	7,656	13,062
5,100	442	2,380	2,788	6,061	2,551	7,368	12,571
5,200	425	2,293	2,686	5,842	2,457	7,097	12,108
5,300	410	2,211	2,589	5,634	2,368	6,840	11,670
5,400	395	2,132	2,497	5,437	2,284	6,596	11,255
5,500	381	2,058	2,410	5,250	2,204	6,366	10,862
5,600	368	1,988	2,328	5,073	2,129	6,147	10,489
5,700	355	1,921	2,250	4,905	2,057	5,939	10,135
5,800	343	1,858	2,175	4,744	1,989	5,742	9,798
5,900	332	1,798	2,105	4,592	1,924	5,554	9,478
6,000	321	1,740	2,037	4,446	1,862	5,375	9,173



### MPR-Support channels

sendzimir galvanised

Buckling loads as per DIN EN 1993-1-1 sections 6.2 and 6.3.

The values in the table apply for fully bearing cross-sections and central load transmission!

The potentially lower slenderness parameter for buckling and lateral torsional buckling must be examined separately!

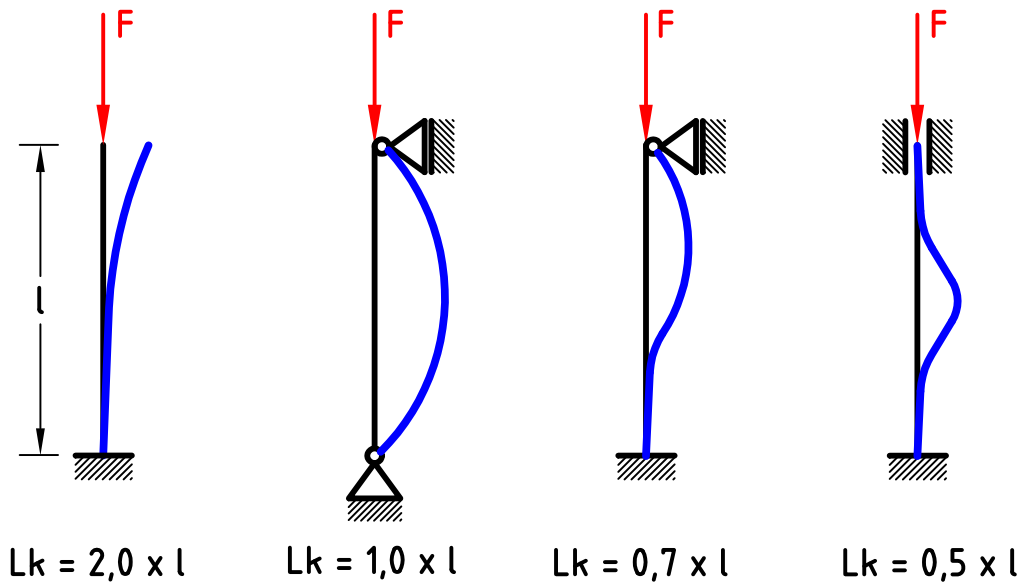
Buckling about the z-axis and the y-axis was considered.

The least favourable buckling load is documented in the table.

The safety coefficient  $\gamma = 1.54$  takes into account the safety and combination coefficients as well as the safety factor of the material.

Determine the authoritative buckling length  $L_k$  depending on the storage conditions and the rod length  $l$ , as shown in the figure.

Read off the buckling load  $F$  as  $L_k$  from the table.

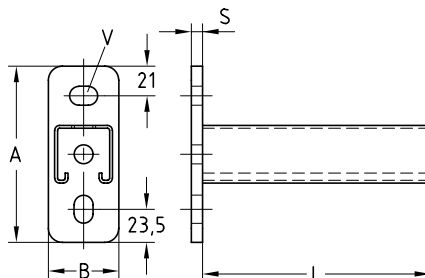


## MPR-Wall hanger brackets

galvanised

### Field of application

- Ideal as cantilever support structure of multisection pipeways
- Applicable as cantilever bracket for air ducts and cable trays
- Applicable in combination with saddle support and channel support brackets as a cross-beam for pipe attachments in shafts and ducts
- Solid wall bracket for valves and equipment
- For indoor use
- Selected sizes with VdS certificate for the installation of sprinkler systems



### Advantages

- The strong base plate ensures a high load carrying capacity
- Elongated- and cross-hole for flexible attachment to the building structure
- Variety of lengths covers all construction requirements
- Clean-cut appearance by the use of MPR-protection caps
- Wall hanger brackets with VdS certificate – oblong holes in a 50 mm grid



Wall hanger brackets with VdS certificate

### Features



Profile	Length L [mm]	VdS approved	Fire protection certified	Part no.	Sales unit	Pack unit	Dimensions [mm]								
							A	B	s	V					
41/21/2.0	160			156763	30	pieces	125	50	6	13.5 x 20					
	240			156764	25										
	320			156765											
	400			156766											
41/41/2.0	160			156767	20							8			
	240			156768											
	320			156769											
	400			156770	15										
	480			156771											
	560			156772											
	640			156773	10										
	720			156774											
	800			156775									1		
	1,040			156776											
41/41/2.5	150	●	●	166150	25										
	300	●	●	166151	20										
	450	●	●	166152	15										
41/62/2.5		●	●	166153	1		165	60							
	600	●	●	166154											
	800	●	●	166155											
	1 000	●		166156											

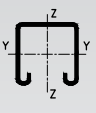


For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

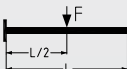

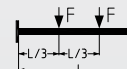

### MPR-Wall hanger brackets

galvanised

#### Technical data of brackets:

Profile	Dimensions H x W x D [mm]	Base plate Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Support channel Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]
					
41/21/2.0	125 x 50 x 6	S235	162	S235	188
41/41/2.0	125 x 50 x 8				
41/41/2.5	125 x 50 x 8				
41/62/2.5	165 x 60 x 8	S355MC	231		

#### Load bearing capacities of brackets for bending around the y-axis:

Profile	Base plate $M_{max.}$ [Nmm]	Length L [mm]				
Max. allowable load [N]						
41/21/2.0	112,154	160	1,399	700	700	466
		240	931	466	466	310
		320	696	348	348	232
		400	555	231	278	185
41/41/2.0	275,080	160	3,435	1,718	1,718	1,145
		240	2,287	1,144	1,144	762
		320	1,712	856	856	571
		400	1,367	684	684	456
		480	1,136	568	568	379
		560	971	485	485	324
		640	846	422	423	282
		720	749	373	375	250
		800	671	320	336	224
		1,040	508	185	254	169
41/41/2.5		150	3,664	1,832	1,832	1,227
		300	1,826	913	913	609
		450	1,211	606	606	403
41/62/2.5	382,960	450	1,687	844	844	562
		600	1,257	628	628	419
		800	931	465	465	310
		1,000	733	366	366	244



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/150$  are not exceeded, taking the deadweight into consideration.

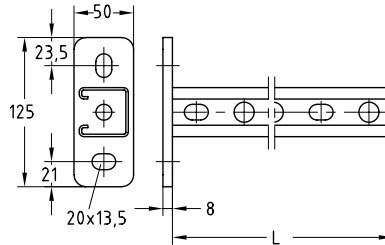
The load-carrying values refer to the console support. Fastening elements such as plugs and screws, must be chosen in accordance with the loads.

### MPR-Wall hanger brackets

with lateral slot, galvanised

#### Field of application

- Ideal as cantilever support structure for riser pipes
- Applicable in combination with saddle support and channel support brackets as a cross-beam for pipe attachments in shafts and ducts
- Applicable as a cantilever bracket for supporting air ducts
- For use in dry interiors



#### Advantages

- The strong base plate ensures a high load carrying capacity
- The vertical and horizontal holes in the base plate allow easy height adjustment of the bracket
- Fixing in the side slot of the support channel allows simple alignment of parallel pipelines
- Clean-cut appearance by the use of MPR-protection caps

Profile	Length L [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]			
					A	B	S	V
41/41/2.0	320	165251	20	pieces	125	50	8	13.5 x 20
	480	165253						

### MPR-Quick fasteners

galvanised

#### Field of application

- For secure and fast installation in the channel slot of MPR-Support channels for connecting pipe clamps and mounting elements
- Angle-mounting for fast and efficient installation of brackets and mounting angles

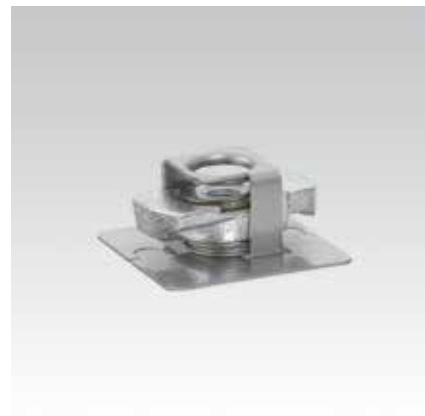
#### Advantages

- Versatile quick fastener for all common channel profiles with upturned edges in the channel slot
- Simply turn into the slot – click and ready
- For channels with a material thickness of 2 to 3 mm
- Can be used for slot widths from 20 mm upwards
- Gives a secure hold once it has been turned, remains adjustable till the screw is tightened
- Secure hold even in vertical channel slots
- Serrated profile on the fastener ensures form-locking connection with serrated channel sections
- Suitable for MPR-Support channels

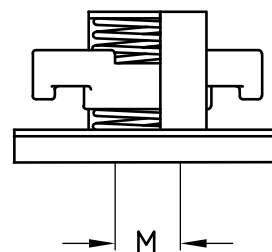
41/41



MPR-Quick fasteners



MPR-Quick fasteners for angle mounting



#### Features

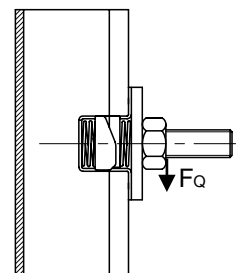
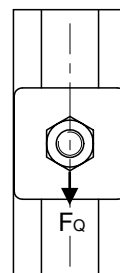
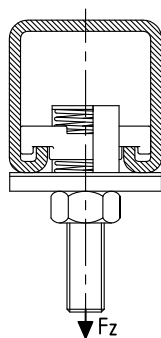


	Connecting thread	Part no.	Sales unit	Pack unit
MPR-Quick fasteners	M8	120907	100	pieces
	M10	120898		
	M12	120902		
MPR-Quick fasteners for angle mounting	M8	120806	100	pieces
	M10	120798		



## MPR-Quick fasteners

galvanised



For support channel	Connecting thread	Max. recommended tensile load $F_z$ [N]	Max. recommended transverse load $F_Q$ (displacement) [N]	Tightening torque [Nm]
41/41	M8	6,000	3,000	30
	M10			
	M12			

### Mounting instructions:



Insert the MPR-Quick fastener in the channel slot



Rotate the MPR-Quick fastener by 90°



Position the MPR-Quick fastener in the channel



Screw the threaded pin into the MPR-Quick fastener and lock in place with a hexagonal nut. Then mount the pipe clamp

### MPR-Hammer head fasteners

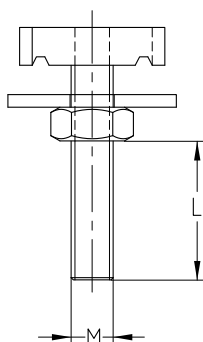
galvanised

#### Field of application

- For time-saving, efficient attachment of pipe clamps to MPR-Support channels
- For indoor use

#### Advantages

- Easy and fast assembly in the rail slot
- Lateral adjustment at any time, allows perfect alignment of the pipeline after installation
- Various lengths and thread diameters can be combined within the same channel
- Interlocking threaded plate for secure positive connection in the rail slot of the MPR-Support channels



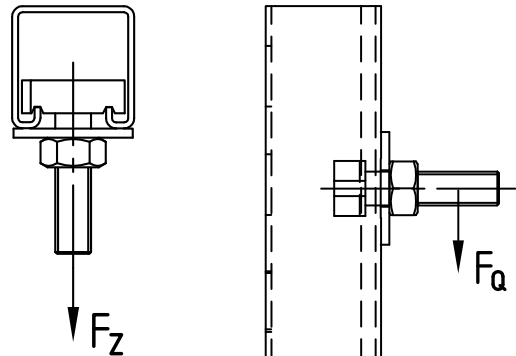
#### Features



For support channels	Connecting thread	Length [mm]	Usable thread length L [mm]	Part no.	Sales unit	Pack unit
41/21/2.0, 41/41/2.0, 41/41/2.5, 41/62/2.5, 41/42/2.0, 41/82/2.0, 41/124/2.5	M8	35	10	151057	50	pieces
		40	15	151058		
		50	25	151059		
		80	55	151060		
		100	75	151061		
	M10	35	8	151062	25	
		40	13	151063		
		55	28	151064		
		60	33	151065		
		80	53	151066		
41/21/2.0, 41/41/2.0, 41/41/2.5, 41/62/2.5, 41/82/2.0, 41/124/2.5	M12	100	73	151067		
		40	9	151069	50	
		55	24	151070		
		60	29	151071		
		80	49	151072	25	
100	69	151073				
41/41/2.0, 41/41/2.5, 41/62/2.5, 41/82/2.0, 41/124/2.5	M16	65	30	151074	25	
		100	65	151075		

### MPR-Hammer head fasteners

galvanised



For support channels Material thickness [mm]	MPR-Hammer head fasteners			
	Connecting thread	Max. recommended tensile load Fz [N]	Max. recommended transverse load Fq [N]	For a tightening torque of [Nm]
2.0	M8	4,500	2,000	9
	M10		2,500	17
	M12			29
	M16			
2.5	M8	5,000	2,000	9
	M10		3,000	17
	M12		4,000	29
	M16			

### MPR-Threaded plates galvanised

#### Field of application

- For fixing of attachment parts in the rail slot of the MPR-Support channels
- For indoor use

#### Advantages

- Interlocking threaded plate for secure positive connection in the rail slot of the MPR-Support channels
- Galvanised version for use in dry interiors



For support channels	Thread	Part no.	Sales unit	Pack unit	Dimensions [mm]		
					l	b	s
41/21/2.0, 41/41/2.0, 41/41/2.5, 41/62/2.5, 41/42/2.0, 41/82/2.0, 41/124/2.5	M6	<b>151051</b>	100	pieces	34.5	19.5	6.0
	M8	<b>151052</b>					8.0
41/21/2.0, 41/41/2.0, 41/41/2.5, 41/62/2.5, 41/82/2.0, 41/124/2.5	M10	<b>151053</b>	25				9.0
	M12	<b>151054</b>					12.0
41/41/2.0, 41/41/2.5, 41/62/2.5, 41/82/2.0, 41/124/2.5	M16	<b>151055</b>					

Max. permissible load values of MPR-Threaded plates (channel 2.0 mm)					
	Transverse load Fx in rail slot direction with threaded pin 4.6 and washer 40 x 3 mm		Transverse load Fx in rail slot direction with hexagon screw 8.8 and clamp bracket heavy-duty		Tensile load Fz with threaded pin 4.6 and washer 40 x 3 mm
	Tightening torque [Nm]	[N]	Tightening torque [Nm]	[N]	[N]
M6	4	1,000	–	–	2,400
M8	9	2,000	20	3,000	4,500
M10	17	2,500	30		
M12	29		40		
M16					

Max. permissible load values of MPR-Threaded plates (channel 2.5 mm)					
	Transverse load Fx in rail slot direction with threaded pin 4.6 and washer 40 x 3 mm		Transverse load Fx in rail slot direction with hexagon screw 8.8 and clamp bracket heavy-duty		Tensile load Fz with threaded pin 4.6 and washer 40 x 3 mm
	Tightening torque [Nm]	[N]	Tightening torque [Nm]	[N]	[N]
M6	4	1,000	–	–	2,400
M8	9	2,000	20	4,000	4,500
M10	17	3,000	30	4,500	5,000
M12	29	4,000	40		
M16					

## MPR-Clamp brackets

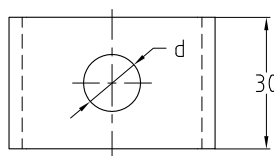
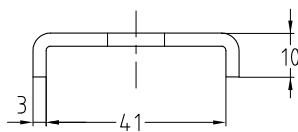
galvanised

### Field of application

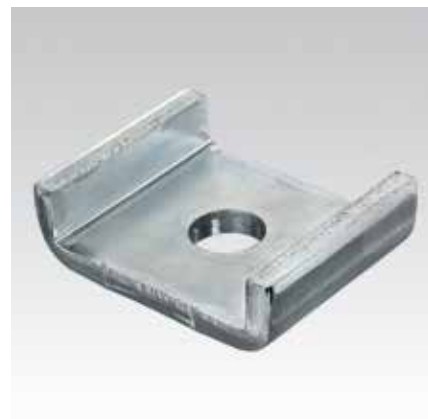
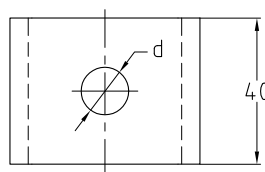
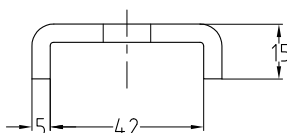
- For safe force transmission when installing MPR-Support channels together with threaded rods, anchor plugs and screws

### Advantages

- Two versions available
- Heavy-duty type available for transferring large forces
- Safe, folded edge prevents expansion of the rail slot



Standard version



Heavy-duty version

### Features



Design	For support channels	For thread d	Part no.	Sales unit	Pack unit
Standard version	41/21–41/124	M8	165188	100	pieces
		M10	151198		
		M12	151195		
Heavy-duty version		M8	151097	25	
		M10	151098		
		M12	114489		
		M16	151100		

### MPR-Protection caps

#### Field of application

- Plastic protection cap for mounting on open ends of the MPR-Support channels

#### Advantages

- Visually clean finish of the MPR-Support channels protects from injury
- Weather-resistant plastic material for long service life

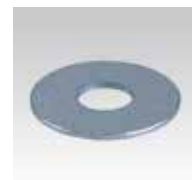


For support channels	Part no.	Sales unit	Pack unit
41/21, 41/42	151076	100	pieces
41/41, 41/82	151077	50	
41/62, 41/124	151078	25	

#### Washers

for MPR-Support channels, galvanised

For thread	Outer diameter [mm]	Thickness [mm]	Part no.	Sales unit	Pack unit
M8	40	3	151101	100	pieces
M10			151102		
M12			151103		
M16			127169		



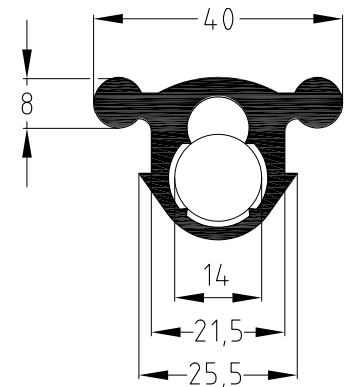
### DÄMMGULAST® Channel sections for MPR-Profiles

#### Field of application

- Ideal for the decoupling of traverses for air duct fixtures
- For secure vibration-decoupling of MPR-Support channels

#### Advantages


- Easy installation by inserting into MPR-Support channels and/or screwing onto threaded rods
- Prevents structure-borne noise coupling by avoiding contact between the air duct and the threaded rods
- Interlocking profile prevents channel section being pushed out
- Prevents fluttering and other vibration noises in the air ducts
- Small contact surface, large absorption mass



#### Features



Design	For support channels	Suitable for	Part no.	Sales unit	Pack unit
<b>DÄMMGULAST®</b> <b>Channel section</b> roll of 20 m	41/21–41/124	Channels with slot widths of 22 mm, M8 and M10 threaded rods	<b>151189</b>	1	roll
<b>DÄMMGULAST®</b> <b>Channel sections</b> section of 50 mm			<b>155366</b>	200	pieces

 When installing air conditioning and ventilation equipment, MPR-Support channels can be used as load-bearing traverses. Structure-borne vibration coupling bridges resulting from direct metal contact between the air duct and the traverse or threaded rods can be prevented by the use of DÄMMGULAST® Channel section as intermediate layer.

The DÄMMGULAST® Channel section was developed especially for these application areas and provides the optimum solution from a practical installation point of view.



### MPR-Channel connectors galvanised

#### Field of application


- Quick butt-joint connection for MPR-Support channels

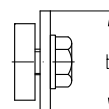
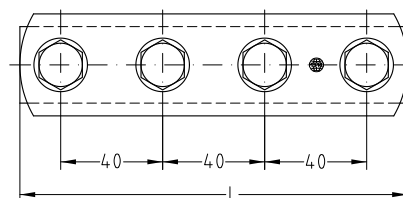
#### Advantages

- Enables exact alignment of the channel
- Four bolts provide a frictional joint
- Smooth attachment by sliding into the channel section



For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]	
				L	b
41/21, 41/41, 41/62	<b>163109</b>	25	pieces	152	40

 Please refer to page 4/80 for the heavy-duty version of the channel connectors.



## MPR-Saddle supports

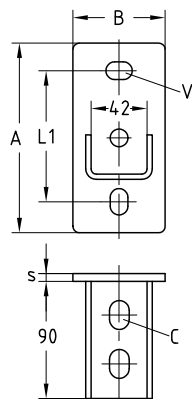
galvanised

### Field of application

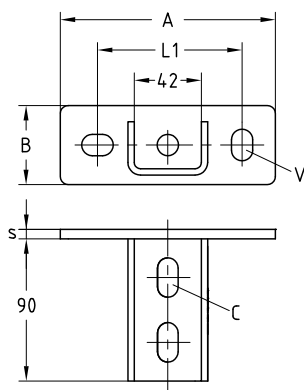
- Simple assembly of strong cross-beams using MPR-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- For indoor use

### Advantages

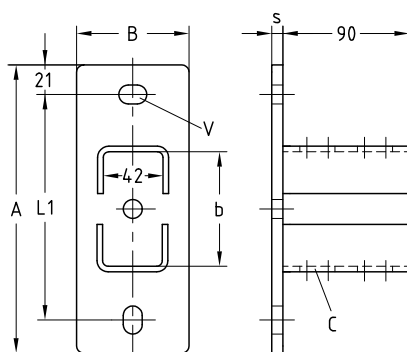
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions
- Type for 41/82 and 41/124 profiles with rotation-free bearing due to clamping on both sides by the MPR-Support channels



MPR-Saddle support, lengthwise



MPR-Saddle support, crosswise



MPR-Saddle support, lengthwise for profiles 41/82 and 41/124

Description	For support channel	Part no.	Sales unit	Pack unit	Dimensions [mm]						
					A	B	b	L1	s	C	V
Crosswise	41/21–41/62	156816	25	pieces	136	50	–	91.5	6	13 x 25	13.5 x 20
Lengthwise		156809			144	70		100			
	41/82	156814	1		205	80	83	160	8		
	41/124	156815			245		125	200			

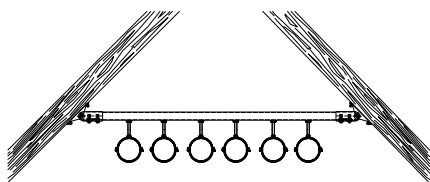
### MPR-VARIO-Saddle support galvanised

#### Field of application

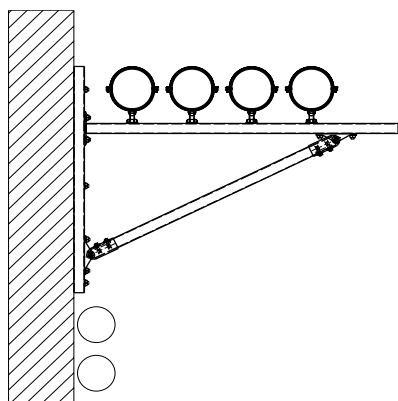
- Ideal for attachment to inclined roof trusses, vaults and in round cable shafts
- For use in dry interiors

#### Advantages

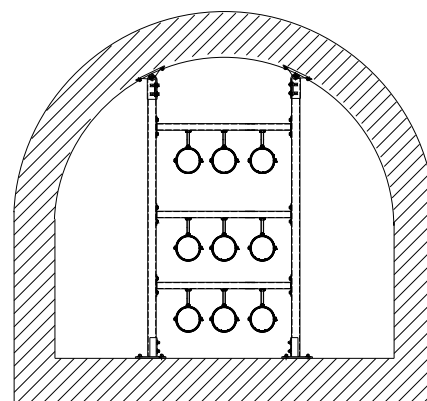
- Variable angle adjustment possible during installation
- Simple and quick installation due to pre-installed screws and MPR-Threaded plate
- Attachment to the slot of support channels 41/41 possible in all directions
- Positive-fit joining due to interlocking MPR-Support channels and MPR-Threaded plates



Attachment of a pipe run to an inclined roof truss



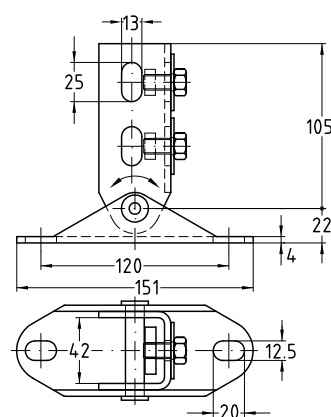
Pipes installed on a wall hanger with diagonal strut



Installation of brackets in vaults or round cable ducts and shafts

Completely pre-assembled:

- 1 MPR-VARIO-Saddle support
- 2 MPR-Threaded plates M10
- 2 Hexagonal head bolts M10
- 2 Washers



For support channels	Minimum angle [°]	Part no.	Sales unit	Pack unit
41/21–41/62	20	157375	1	pieces

### MPR-Mounting angle 45° galvanised

#### Field of application


- Solid fixing element for constructions of wall-mounted installations, shelves as well as for channel constructions for pipeline attachments and air ducts without welding
- Also applicable for direct mounting on walls, ceilings or floors

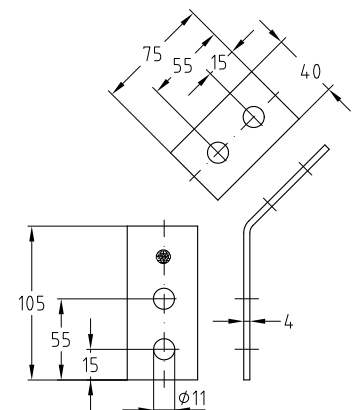
#### Advantages

- Variable mounting options
- Versatile in use, e.g. as:
  - Angular support bracket
  - Angular load-bearing bracket
  - Connection element
  - Angular bracket
- Multi-purpose component for professional, practical installation solutions



For support channel	Part no.	Sales unit	Pack unit
41/21–41/124	<b>118781</b>	25	pieces

 Please refer to pages 4/85 and 4/86 for mounting angles 90° for MPR-Support channels 41/21 to 41/124.



### MPR-Cross channel connectors

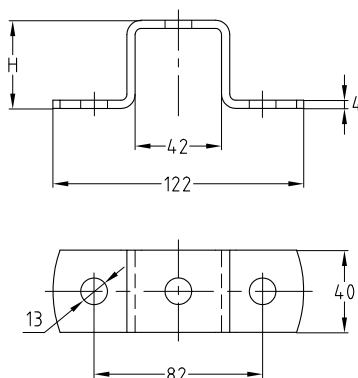
galvanised

#### Field of application

- For cross-connections in pre-wall mounted installations and shelves made from MPR-Support channels

#### Advantages

- Easy-to-install connection element for setting up structures with correctly designed static loads using MPR-Support channels
- Greater flexibility when setting up structures made from channels
- For rotation-resistant attachment to building structure



For support channels	Part no.	Sales unit	Pack unit	Dimension H [mm]
41/21	151093	25	pieces	23
41/41, 41/42	151994			43
41/62	151094			64
41/82	151995			84
41/124	151996			126

## MPR-Girder cleats

galvanised

### Field of application

- Attachment of MPR-Support channels to steel girders without drilling or welding
- For use in dry interiors

### Advantages

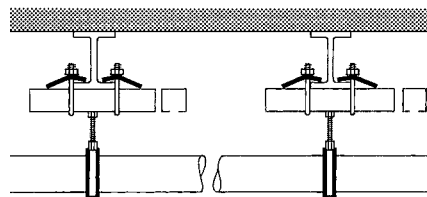
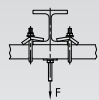
- Ideal solution for attachment of MPR-Support channels to steel girders
- Allows subsequent adjustment of the channels along and across the supporting beam
- Suitable for all flange thicknesses of common support profiles ( $\leq 24.5$  mm)
- Easy to install, pre-assembled kit
- Proper attachment of suspended loads on girders
- Girder cleats M8 or M10 VdS approved (please observe the profile size)



### Proof of usability

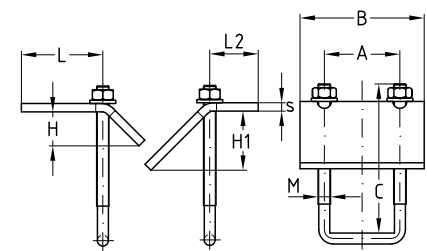
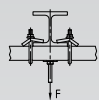
VdS  
G 413048

Girder cleat	Profiles	For threaded connection with hammer head fasteners, quick fasteners type S
M8	41/2.0	M8, M10, M12
M10	41/2.0, 41/2.5	(M8), M10, M12, M16



### Features

For support channels	Thread U-brackets	Max. permitted loading/pair [N] with hammer head fasteners			
		M8	M10	M12	M16
41/21/2.0	M8	4,500	4,500	4,500	4,500
41/41/2.0			5,000	5,000	5,000
41/42/2.0					
41/41/2.5	M10	4,500	4,500	4,500	4,500
41/21/2.0			5,000	5,000	5,000
41/41/2.0					
41/42/2.0					
41/41/2.5			4,500	4,500	4,500
41/62/2.5					
41/82/2.0					
41/124/2.5			5,000	5,000	5,000



For support channels	Thread	Spanner width [SW]	Part no.	Sales unit	Pack unit	Dimensions [mm]							
						A	B	C	H	H1	L	L2	s
41/21, 41/41, 41/42	M8	13	151992	20	pieces	48	70	90	17.0	24.5	38.2	27.2	6
	M10	15	151095	15		50	80		18.5		39.7	30.7	8
						130							
						170							

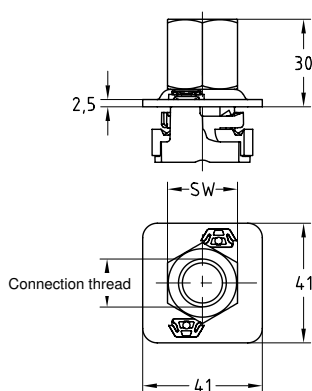
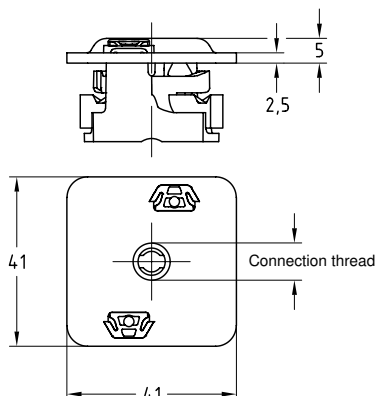
### MPR-Quick fasteners type S+ galvanised

#### Field of application

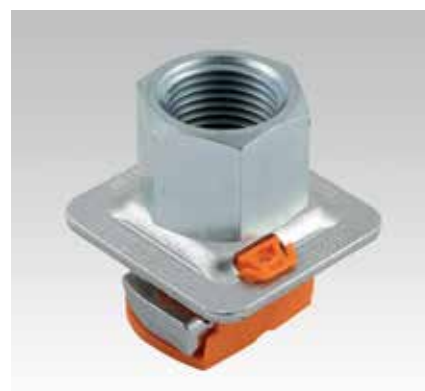
- For safe and fast connecting of pipe clamps and mounting parts in the rail slot of MPR-Support channels
- For indoor use

#### Advantages

- Simply screw into the rail slot – done
- Safely retained after screwing in, alignable until screw is tightened
- Secure interlocking design for a positive connection with the MPR-Support channels
- No shifting even on vertical rail slots



Version M8, M10, M12



Version M16 + R $\frac{1}{2}$ "

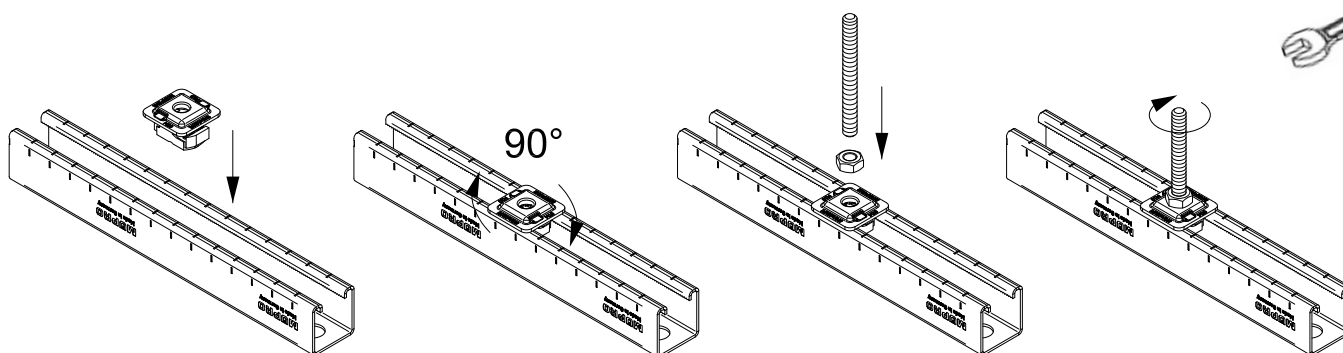
For support channels	Connecting thread	Spanner width [SW]	Part no.	Sales unit	Pack unit
41/21–41/124	M8	–	165680	50	pieces
	M10		165679		
	M12		165678		
	M16	22	165677		
	R $\frac{1}{2}$ "	27	165676		

#### Features



 MPR-Support channels 2.0 mm MPR-Support channels 2.5 mm	Max. recommended load F <sub>1</sub> [N]					Tightening torque [Nm]				
	M8	M10	M12	M16	R $\frac{1}{2}$ "	M8	M10	M12	M16	R $\frac{1}{2}$ "
MPR-Support channels 2.0 mm	4,500	4,500	4,500	4,500	4,500	9	17	29	29	29
MPR-Support channels 2.5 mm		5,000	5,000	5,000	5,000					

#### Mounting instructions





## MPR-Slide nuts type S+ galvanised

### Field of application

- For fast and safe fastening of flush mounting parts such as installation brackets in the rail slot of MPR-Support channels
- For indoor use

### Advantages

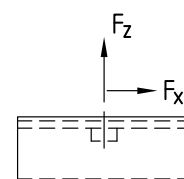
- Simply screw into the rail slot – done
- Safely retained after screwing in, alignable until screw is tightened
- No shifting even on vertical rail slots
- Flush-mounted, tensionally locked connection of accessories to the MPR-Support channels



### Features

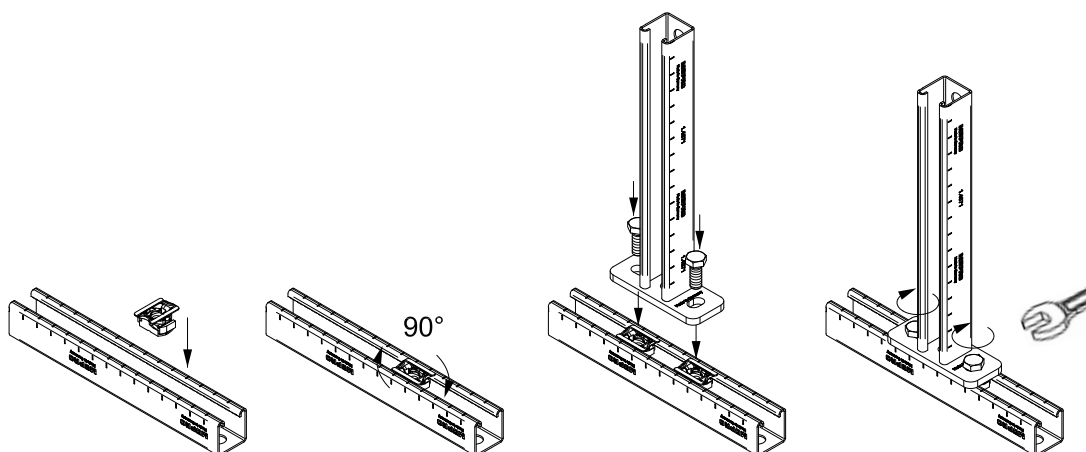


For support channels	Thread	Part no.	Sales unit	Pack unit
41/21–41/124	M8	165674	50	pieces
	M10	165673		
	M12	165672		



For support channels Material thickness [mm]	MPR-Slide nuts type S+			
	Connecting thread	Max. recommended tensile load Fz [N]	Max. recommended transverse load Fx [N]	For a tightening torque of [Nm]
2.0	M8	4,500	2,700	20
	M10		3,000	30
	M12			40
2.5	M8	5,000	1,500	20
	M10		2,200	30
	M12		2,700	40

### Mounting instructions



### MPR-Connection lock type S+ galvanised

#### Field of application

- For connecting type S+ mounting parts with MPR-Support channels
- For indoor use

#### Advantages

- Time-saving – fast and powerful frictional connection of type S+ mounting parts with MPR-Support channels
- Easy – simply slot into the type S+ mounting part and tighten the connection lock by turning 90°

- Secure interlocking design for a positive connection with the MPR-Support channels
- No wrench or auxiliary tool needed to hold in place
- No confusion – one size fits all type S+ mounting parts



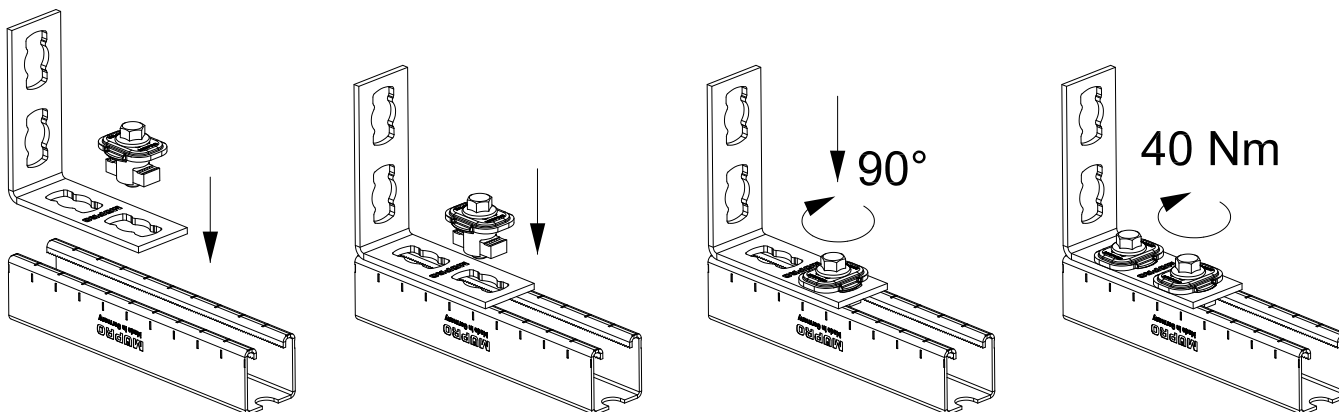
For support channels	Thread	Spanner width [SW]	Part no.	Sales unit	Pack unit
41/21–41/124	M10	13	169020	50	pieces

#### Features



	Max. recommended tensile load [N]	Max. recommended transverse load [N]	Tightening torque [Nm]
MPR-Support channels 2.0 mm	4,500	4,000	40
MPR-Support channels 2.5 mm	5,000		

#### Mounting instructions



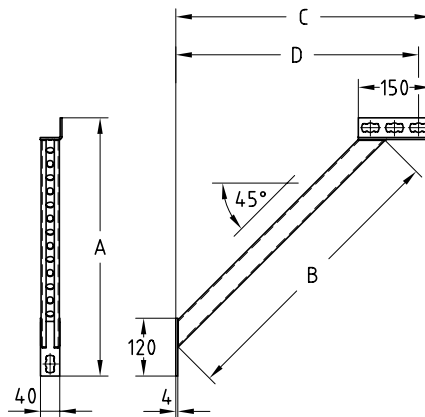
### MPR-Diagonal struts type S+ galvanised

#### Field of application

- Supporting strut for reinforcement of corner joints in structures made of MPR-Support channels and MPR-Connection lock type S+
- For indoor use
- Also suitable for lateral support of consoles, e.g. for use with fixed points

#### Advantages

- Easily connected with the MPR-Support channels due to installation with the MPR-Connection lock type S+
- Various lengths available for different on-site installation conditions



	Length [mm]	Mounting of bracket and diagonal strut in the support channel slot max. recommended load F [N]
	440	2,500
	900	2,000

For support channels	Length [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]			
					A	B	C	D
41/41-41/124	440	165816	1	pieces	395	440	380	355
	900	165818			741	900	734	709

### MPR-Adapter discs type S+ galvanised

#### Field of application

- Attachment of MPR-system components type S+ when making a through-fitting or direct attachment to the structure e.g. with anchor plugs

#### Advantages

- Three versions available
- Safe due to form lock in openings of MPR-system components type S+
- Galvanised version for use in dry interiors



For thread	Part no.	Sales unit	Pack unit
M8	165511	50	pieces
M10	165512		
M12	165513		

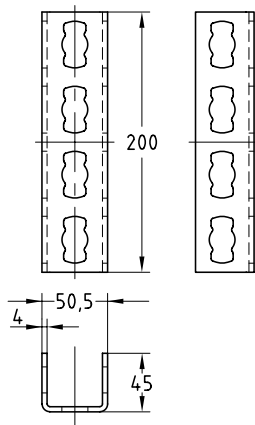
### MPR-Channel connector type S+ heavy-duty version, galvanised

#### Field of application

- Fast butt-joining of MPR-Support channels and MPR-Connection lock type S+
- For indoor use

#### Advantages

- Enables exact alignment of the channels
- Frictional connection via 4 connection locks type S+
- Easy handling thanks to installation with connection lock type S+



For support channels	Part no.	Sales unit	Pack unit
41/41-41/124	165844	1	pieces

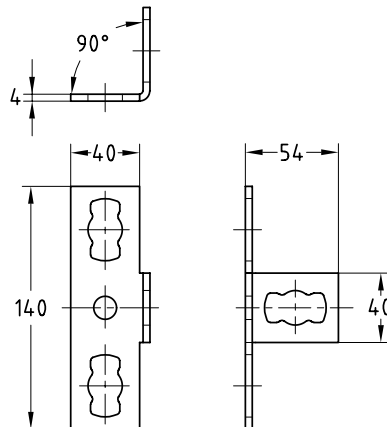
### MPR-Channel support bracket type S+ galvanised

#### Field of application

- For right-angled connection of two channels where section slots do not have the same alignment
- Can be used as a connecting element in three-dimensional spatial structures preferably with the MPR-Support channel 41/41
- For indoor use

#### Advantages

- Fast and simple installation of joints in combination with the MPR-Connection lock type S+
- Flexible in connecting MPR-Support channels with, e.g. crossing support channels



For support channels	Part no.	Sales unit	Pack unit
41/21-41/124	165826	25	pieces

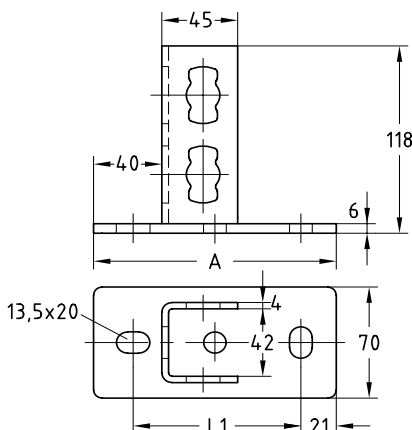
### MPR-Saddle supports type S+ galvanised

#### Field of application

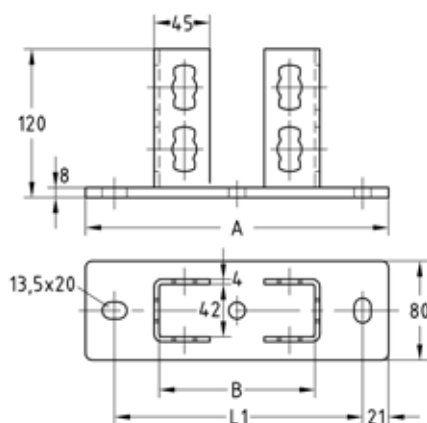
- Simple assembly of strong cross-beams using MPR-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- For indoor use

#### Advantages

- Easily connected with the MPR-Support channels due to installation with the MPR-Connection lock type S+
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions
- Type for 41/82 and 41/124 profiles with rotation-free bearing due to clamping on both sides by the MPR-Support channels



MPR-Saddle support type S+  
for profiles 41/41 and 41/62



MPR-Saddle support type S+  
for profiles 41/82 and 41/124

#### Features



For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]		
				A	B	L1
41/41, 41/62	<b>165822</b>	10	pieces	144	–	100
41/82	<b>165823</b>	1		205	83	160
41/124	<b>165824</b>			245	125	200

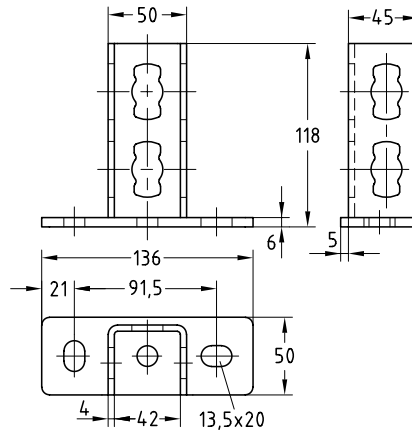
### MPR-Saddle support crosswise type S+ galvanised

#### Field of application

- Simple assembly of strong cross-beams using MPR-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- For indoor use

#### Advantages

- Easily connected with the MPR-Support channels due to installation with the MPR-Connection lock type S+
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions especially of support channels 41/41
- Elongated- and cross-holes for direct attachment to the building structure



For support channels	Part no.	Sales unit	Pack unit
41/21-41/124	165825	10	pieces



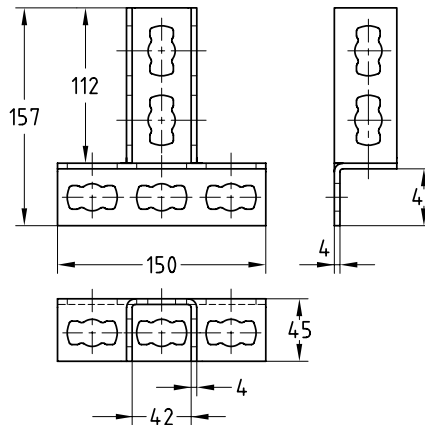
### MPR-Saddle support crosswise type S+ for channel support fitting, galvanised

#### Field of application

- Simple assembly of strong cross-beams using MPR-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- For indoor use

#### Advantages

- Easily connected with the MPR-Support channels due to installation with the MPR-Connection lock type S+
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions especially of support channels 41/41



For support channels	Part no.	Sales unit	Pack unit
41/21-41/124	165821	10	pieces

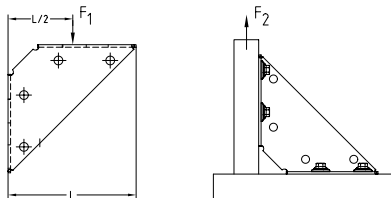
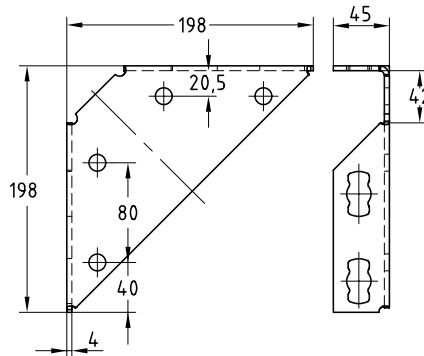
### MPR-Construction bracket type S+ galvanised

#### Field of application

- Ideal connecting element for the construction of cross-beams, frames and shelving systems when used with MPR-Support channels
- For indoor use

#### Advantages

- A wide variety of installation options in MPR-Support channels and with the connection lock type S+
- Ensures stable corner joints



#### Features



Size [mm]	Admissible load F <sub>1</sub> [N]	Admissible load F <sub>2</sub> (material thickness of support channel 2.0 mm) [N]	Admissible load F <sub>2</sub> (material thickness of support channel 2.5 mm) [N]
198 x 198	3,500	4,000	5,000

Size [mm]	Part no.	Sales unit	Pack unit
198 x 198	165851	1	pieces

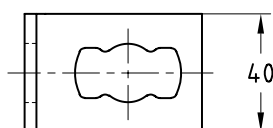
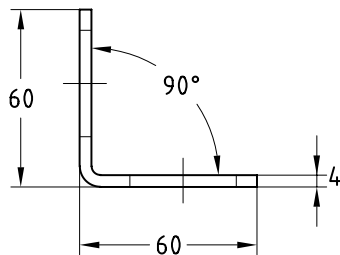
### MPR-Mounting angles 90° type S+ galvanised

#### Field of application

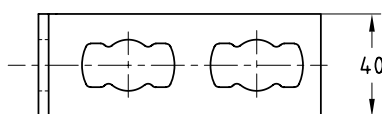
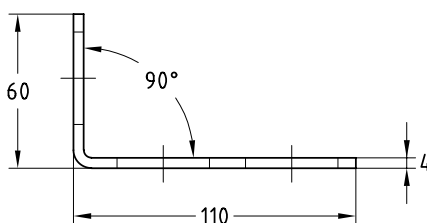
- Solid fixing element for construction of pre-wall installations and shelves as well as for channel constructions for attachments of pipelines and air ducts without welding
- For indoor use

#### Advantages

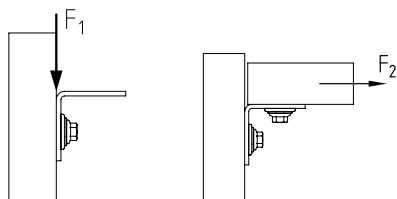
- Fast and simple installation of 90° corner joints with the MPR-Connection lock type S+
- Flexible use due to up to 4 connection locks depending on the design
- Increased load transfer when using 2 connection locks per leg



MPR-Mounting angle 90° 1+1 type S+

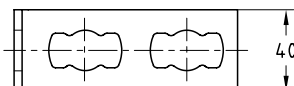
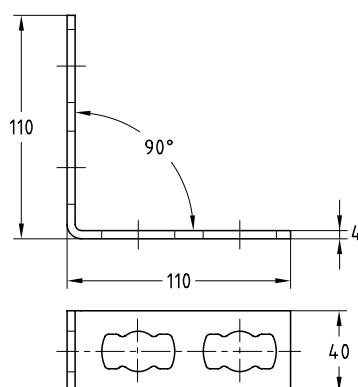


MPR-Mounting angle 90° 1+2 type S+



#### Features

Design	Admissible load F <sub>1</sub> [N]	Admissible load F <sub>2</sub> [N]
1+1	4,000	2,500
1+2		
2+2	8,000	



MPR-Mounting angle 90° 2+2 type S+

Design	For support channels	Part no.	Sales unit	Pack unit
1+1	41/21-41/124	165838	25	pieces
1+2		165839		
2+2		165840		

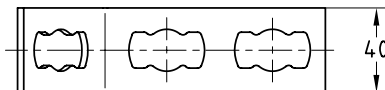
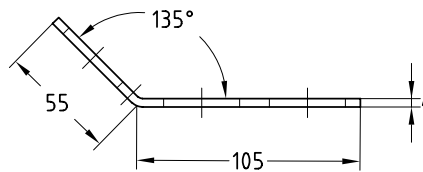
### MPR-Mounting angles 135° type S+ galvanised

#### Field of application

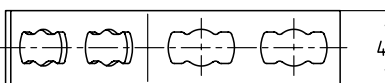
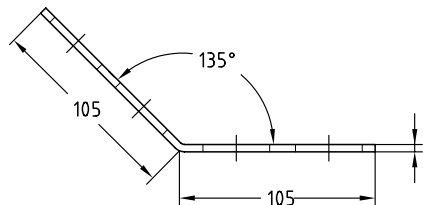
- Solid fixing element for construction of pre-wall installations and shelves as well as for channel constructions for attachments of pipelines and air ducts without welding
- For indoor use

#### Advantages

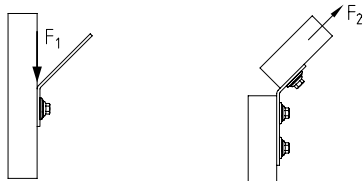
- Fast and simple installation of angled joints with the MPR-Connection lock type S+
- Flexible use due to up to 4 connection locks depending on the design
- Increased load transfer when using 2 connection locks per leg



MPR-Mounting angle 135° 1+2 type S+



MPR-Mounting angle 135° 2+2 type S+



#### Features

Design	Admissible load F <sub>1</sub> [N]	Admissible load F <sub>2</sub> [N]
1+2	4,000	1,500
2+2	8,000	3,000

Design	For support channels	Part no.	Sales unit	Pack unit
1+2	41/21-41/124	165841	25	pieces
2+2		165842		

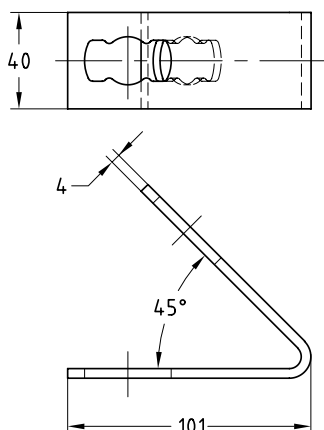
### MPR-Angle connector 45° type S+ galvanised

#### Field of application

- Connecting element for on-the-wall installations, shelves and rail constructions, preferably by using the MPR-Support channel 41/41

#### Advantages

- Fast and simple installation of angled joints in combination with the MPR-Connection lock type S+



Design	For support channels	Part no.	Sales unit	Pack unit
1+1	41/21-41/124	165830	25	pieces

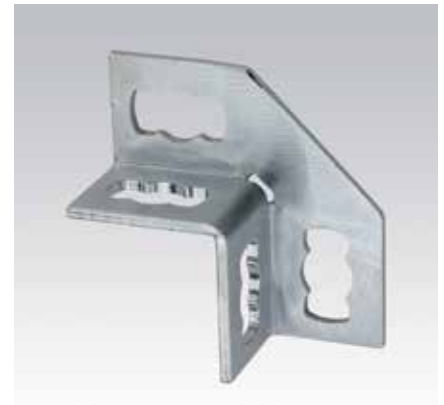
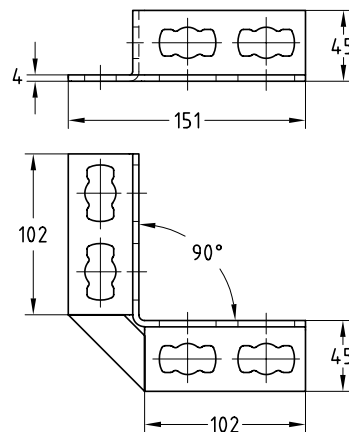
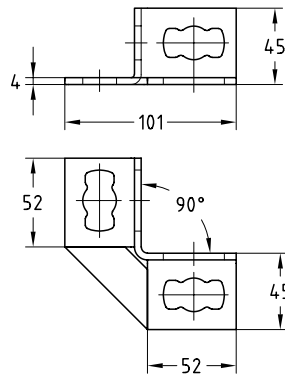
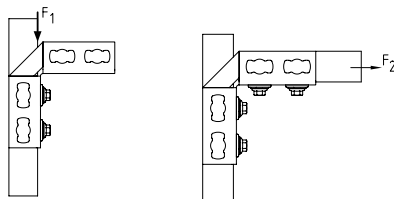
### MPR-Angle connectors 90° type S+ galvanised

#### Field of application

- Connecting element for on-the-wall installations, shelves and rail constructions, preferably by using the MPR-Support channel 41/41
- For indoor use

#### Advantages

- Fast and simple installation of angled joints with the MPR-Connection lock type S+
- Flexible use due to up to 4 connection locks depending on the design
- Increased load transfer when using 2 connection locks per leg
- Flexible connections in 2 directions with MPR-Support channels 41/41



MPR-Angle connector 90° 2+2 type S+



MPR-Angle connector 90° 4+4 type S+

#### Features

Design	Admissible load F <sub>1</sub> [N]	Admissible load F <sub>2</sub> [N]
2+2	4,000	2,000
4+4	8,000	4,000

Design	For support channels	Part no.	Sales unit	Pack unit
2+2	41/21–41/124	165831	10	pieces
4+4		165832		

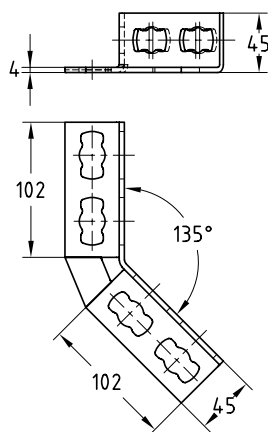
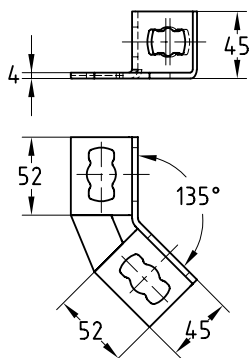
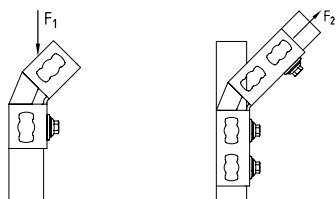
### MPR-Angle connectors 135° type S+ galvanised

#### Field of application

- Connecting element for on-the-wall installations, shelves and rail constructions, preferably by using the MPR-Support channel 41/41
- For indoor use

#### Advantages

- Fast and simple installation of angled joints with the MPR-Connection lock type S+
- Flexible use due to up to 4 connection locks depending on the design
- Increased load transfer when using 2 connection locks per leg
- Flexible connections in 2 directions with MPR-Support channels 41/41



MPR-Angle connector 135°  
2+2 type S+



MPR-Angle connector 135°  
4+4 type S+

#### Features

Design	Admissible load F <sub>1</sub> [N]	Admissible load F <sub>2</sub> [N]
2+2	4,000	3,000
4+4	8,000	5,000

Design	For support channels	Part no.	Sales unit	Pack unit
2+2	41/21-41/124	165833	10	pieces
4+4		165834		



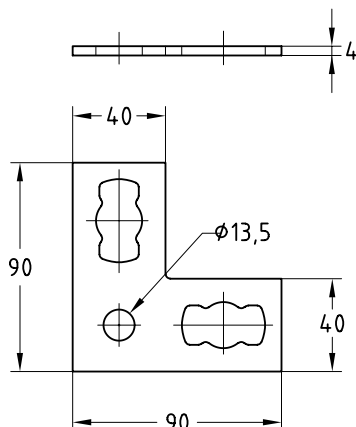
## MPR-Connection plates type S+ galvanised

### Field of application

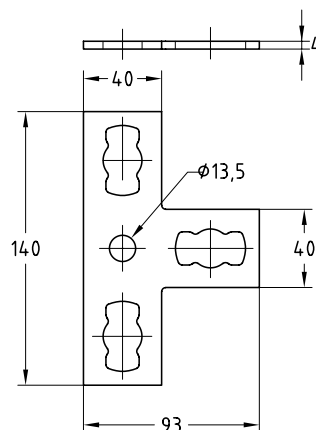
- Strong connection elements for frames and pre-wall installations using the MPR-System components
- For indoor use

### Advantages

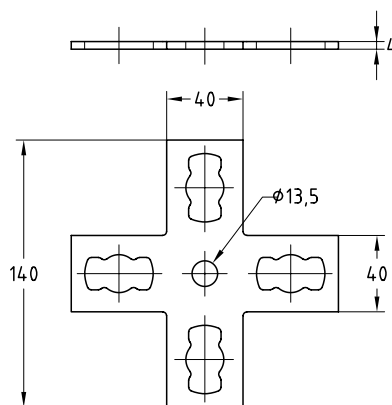
- Simple and quick connection of **angle connections, cross connections and T-connections**
- The mounting plates enable frame construction in one plane in which the channel slots have the same alignment
- Good adaptation to channel widths; the corners remain free in frame constructions
- Quick and simple attachment in combination with the MPR-Connection lock type S+



MPR-Angle plate 90° type S+



MPR-T-connection plate type S+



MPR-Cross connection plate type S+

	For support channels	Part no.	Sales unit	Pack unit
Angle plate 90°	41/21-41/124	165829	25	pieces
T-connection plate		165827		
Cross connection plate		165828		

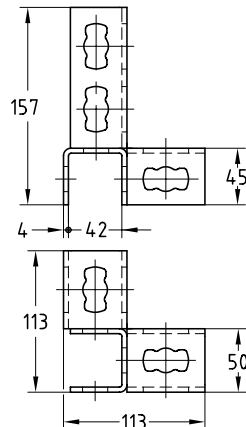
### MPR-3D-Connectors type S+ galvanised

#### Field of application

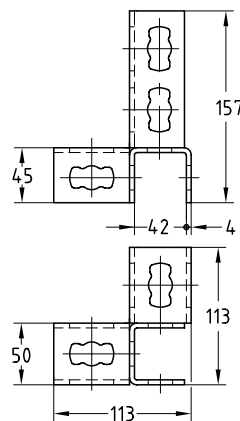
- Fasteners for three-dimensional structures in on-the-wall installations, shelves and rail constructions
- For indoor use

#### Advantages

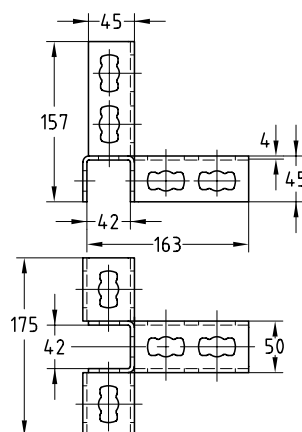
- Fast and simple installation of 3-dimensional connections joints in combination with the MPR-Connection lock type S+
- Flexible arrangement of the rail slot on MPR-Support channels 41/41 with middle or corner connectors type S+
- Versatile design options using three different connector designs



MPR-Corner connector left type S+



MPR-Corner connector right type S+



MPR-Mid connector type S+

	For support channels	Part no.	Sales unit	Pack unit
Corner connector left	41/21-41/124	165835	10	pieces
Corner connector right		165836		
Mid connector		165837		

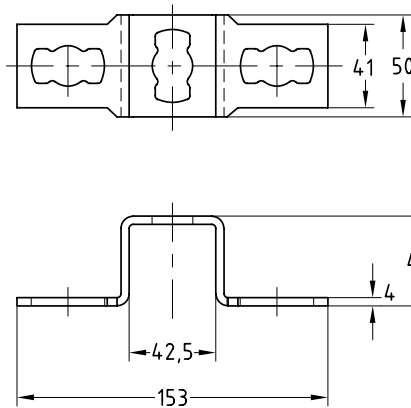
### MPR-Cross channel connector type S+ galvanised

#### Field of application

- For cross connections in on-the-wall installations and shelves made of MPR-Support channels in combination with the MPR-Connection lock type S+
- For indoor use

#### Advantages

- Easy-to-install connection element for setting up structures with correctly designed static loads using MPR-Support channels
- More flexibility in creating rail constructions in combination with the MPR-Connection lock type S+



For support channels	Part no.	Sales unit	Pack unit
41/41, 41/42	165846	25	pieces

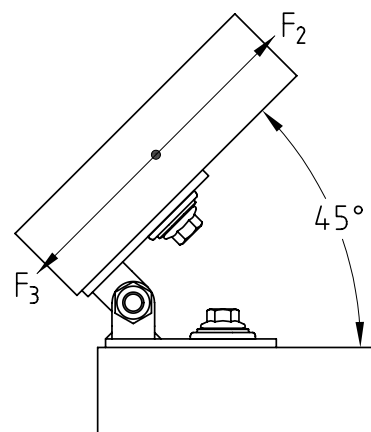
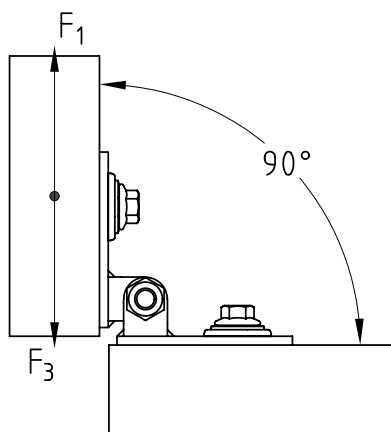
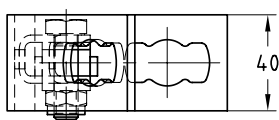
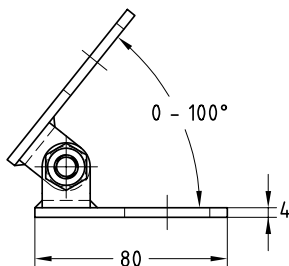
### MPR-VARIO joint type S+ galvanised

#### Field of application

- Flexible use for connection of MPR-Support channels, where different angle settings are required, such as for supports on brackets, etc.
- For indoor use

#### Advantages

- Pivot angle from 0° to 100° for fast and flexible adaptation to a wide variety of attachment situations – saves time and costs at the construction site
- Cost savings can be realised in the area of stockkeeping, as a variety of support solutions can be realized with only one item
- Stable design of the joint for optimal transmission of force
- Fast and simple installation using connection locks type S+



#### Features

Max. recommended load $F_1$ [N]	750
Max. recommended load $F_2$ [N]	500
Max. recommended load $F_3$ [N]	4,000
Tightening torque [Nm]	40

For support channels	Part no.	Sales unit	Pack unit
41/21–41/124	165819	10	pieces

## Cramping connector

galvanised

### Field of application

- Connection of MPC- and MPR-Support channels at the rear perforations for creating H-profiles
- For use in dry interiors

### Advantages

- Easy connection of MPC- and MPR-Support channels back to back
- Secure fixing via the rear perforation
- Perfect solution for creating H-profiles on site



Spanner width connecting screw	Part no.	Sales unit	Pack unit
Allen SW 8	163050	25	pieces

### Mounting instructions



Please take care of the mounting instruction which is enclosed with the product. It is recommended to install the connector with a max. fastening distance of 160 mm.

### VIDEO TIP

■ **MPC/MPR Cramping connector – short-term production of H-profiles:** the video shows how H-profiles can be put together quickly and conveniently from MPC- and MPR-support channels using the cramping connector.



### Channel connector

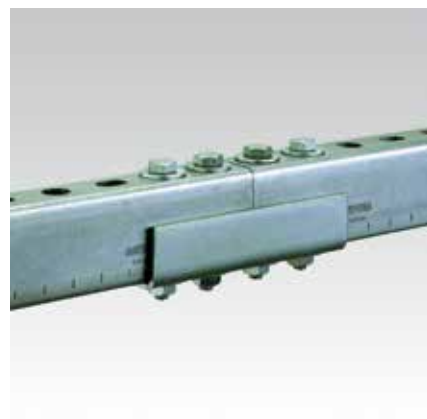
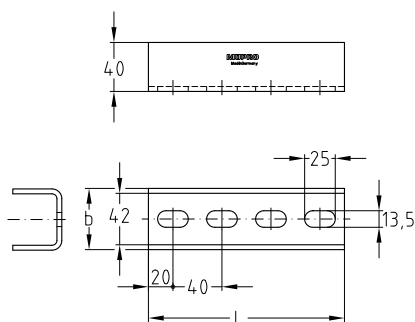
heavy-duty version, galvanised

#### Field of application

- Quick butt-joint connection for MPC- and MPR-Support channels

#### Advantages

- Enables exact alignment of the channels
- Four bolts provide a frictional joint
- Form-locking connection between channel and connector (passthrough installation)
- Also available in double length for heavy-duty connections



For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]	
				b	L
38/40–40/120, 41/21–41/124	120136	1	pieces	50	160

### Channel connector

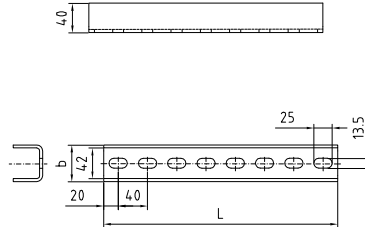
heavy-duty version, double length, galvanised

#### Field of application

- Channel connector in heavy, stable design for secure connection of MPC- and MPR-Support channels

#### Advantages

- Form-locking connection due to max. eightfold screw connection
- Especially long guidance of the connected MPC- and MPR-Support channels ensures a high level of protection against lateral deflection
- Oblong holes in the channel connector compensate tolerances when installing



For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]	
				b	L
38/40–40/120, 41/21–41/124	134833	1	pieces	50	320



### Reinforcement angle galvanised

#### Field of application

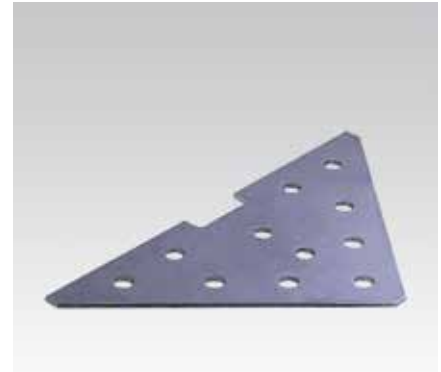
- Support for MPC- and MPR-Wall hanger brackets where transverse forces occur

#### Advantages

- Suitable for wall, ceiling and floor mounting
- Further mounting facilities for angle and joint connection of MPC- and MPR-Support channels

#### Suitable for:

- Support of wall hanger bracket 38/40, 40/60, 41/21, 41/41
- Applicable as angle and joint connection of all MPC- and MPR-Support channels



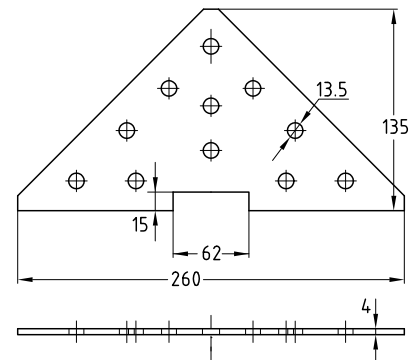
For support channels	Part no.	Sales unit	Pack unit
38/24–40/120, 41/21–41/124	159436	1	pieces

#### Suitable add-on parts for MPC-Support channels 38/24–40/120

	Part no.	Sales unit	Pack unit
Hexagon head bolt, M10 x 20 mm, galvanised	105560	100	pieces
MPC-Rail nut, M10, galvanised	117968		

#### Suitable add-on parts for MPR-Support channels 41/21–41/124

	Part no.	Sales unit	Pack unit
Hexagon head bolt, M10 x 20 mm, galvanised	105560	100	pieces
MPR-Threaded plate, M10, galvanised	151053		



## Cantilever brackets

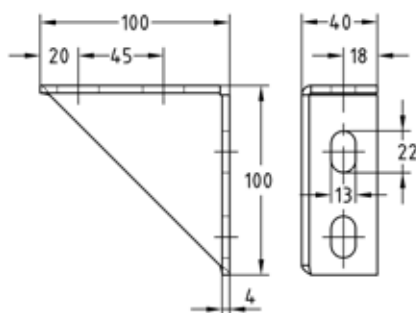
galvanised

### Field of application

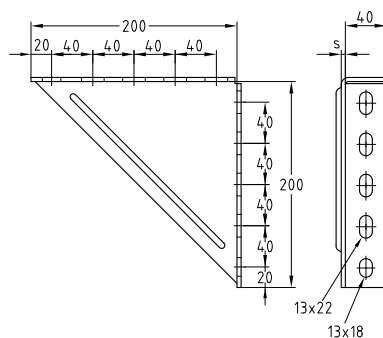
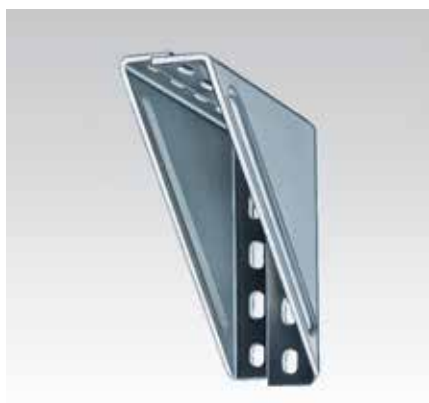
- Ideal connecting element for the construction of cross-beams and frames systems with support channels
- For use in dry interiors

### Advantages

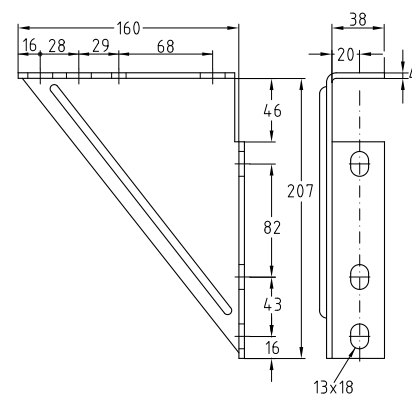
- Variety of mounting possibilities when used with MPC- and MPR-Support channels
- Reinforces and increases the load capacity of channel structures and cross-beams
- Even greater strength values can be achieved by bolting two equal-sided cantilever brackets together



Cantilever bracket 100 x 100



Cantilever bracket 200 x 200



Cantilever bracket 207 x 160

Design	Type	For support channels	Size [mm]	Part no.	Sales unit	Pack unit
100 x 100	–	38/24–40/120, 41/21–41/124	100 x 100 x 4	<b>167126</b>	20	pieces
200 x 200	1		200 x 200 x 4	<b>113628</b>	1	
	2		200 x 200 x 6	<b>113643</b>		
207 x 160	–		207 x 160 x 4	<b>113610</b>		



For further technical information please refer to chapter "Technical information".

### Construction brackets

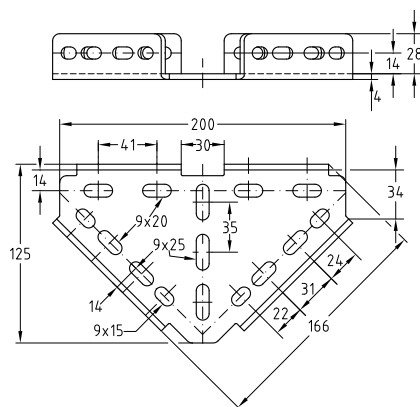
galvanised

#### Field of application

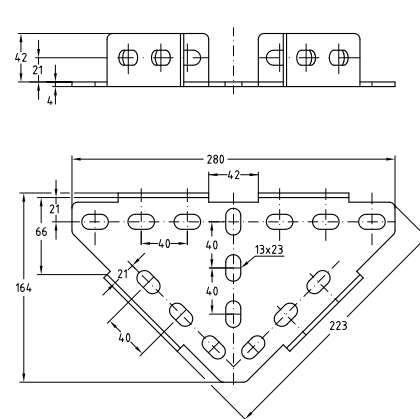
- Ideal connecting element for the construction of cross-beams, frames and shelving systems

#### Advantages

- Great variety of mounting possibilities when used with MPC- and MPR-Support channels
- Provides solid joint and angle connections
- Any arrangement of channel opening possible
- For direct mounting on ceilings, walls and floors or for installation with MPC- and MPR-Support channels as:
  - Angular support brackets
  - Angular load-bearing brackets
  - Floor supports
  - Junction brackets
  - Cross connections
  - Transverse support angles
  - Connection element



Type 1



Type 2

Type	For support channels	Suitable for	Size [mm]	Part no.	Sales unit	Pack unit
1	27/18, 28/30	MPC	200 x 125 x 4	113598	1	pieces
2	38/24-40/120, 41/21-41/124	MPC/MPR	280 x 164 x 4	113601		

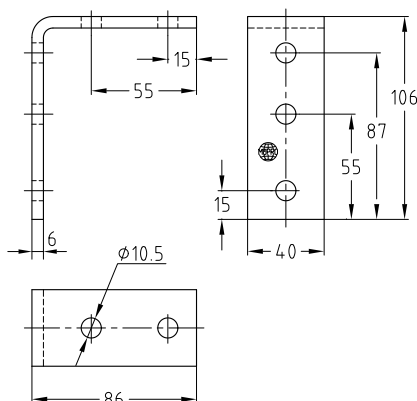
## Mounting angles 90° galvanised

### Field of application

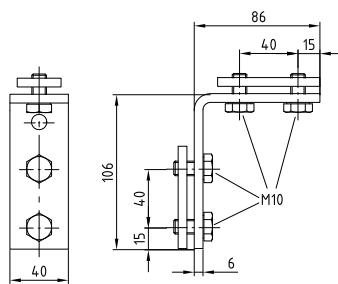
- Solid fixing element for construction of pre-wall installations and shelves as well as for channel constructions for attachments of pipelines and air ducts without welding
- Also applicable for direct mounting on walls, ceilings or floors

### Advantages

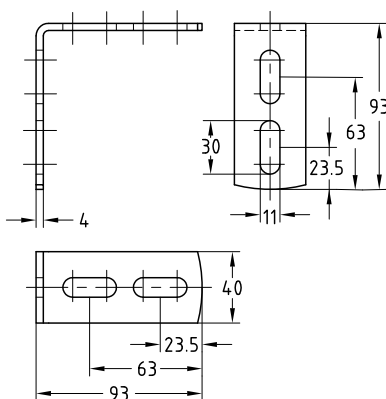
- Variable fitting possibilities
- Versatile in use, e.g. as:
  - Angular support bracket
  - Angular load-bearing bracket
  - Connection element
  - Angular bracket
- Multi-purpose component for professional, practical installation solutions
- Can be provided already pre-assembled with MPC-Double rail nut for the quick attachment within channel slot



MPC-Mounting angle 90°



MPC-Mounting angle 90°, pre-assembled



Mounting angle 90°, type 3, light

	For support channels	Suitable for	Part no.	Sales unit	Pack unit
MPC-Mounting angle 90°	38/24–40/120	MPC	118808	25	pieces
MPC-Mounting angle 90° pre-installed			147764		
Mounting angle 90° type 3, light	38/24–40/120, 41/21–41/124	MPC/MPR	118906		

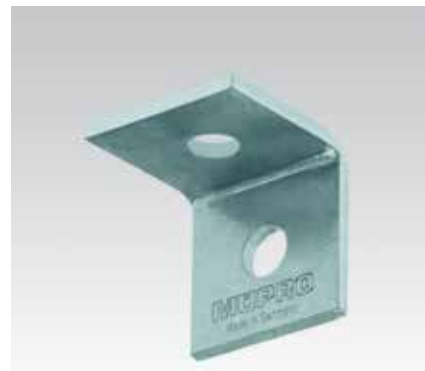
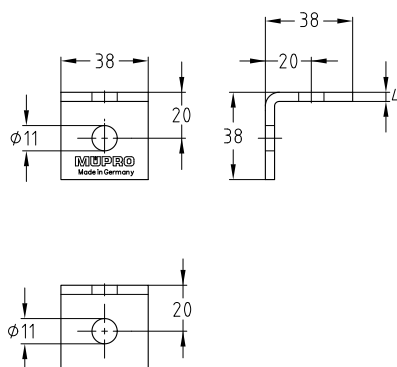
### Mounting angle 90° short, galvanised

#### Field of application

- Strong and good value connecting element for the construction of frames, shelves and supports for pre-wall mounted installations

#### Advantages

- Creation of rigid structures without welding
- High flexibility and easy mounting
- Good adjustment to the widths of MPC- and MPR-Support channels



For support channels	Part no.	Sales unit	Pack unit
38/24-40/120, 41/21-41/124	118820	25	pieces

### Angle- and T-connection plates galvanised

#### Field of application

- Strong connection elements for frames and pre-wall installations using the MPC- and MPR-System components

#### Advantages

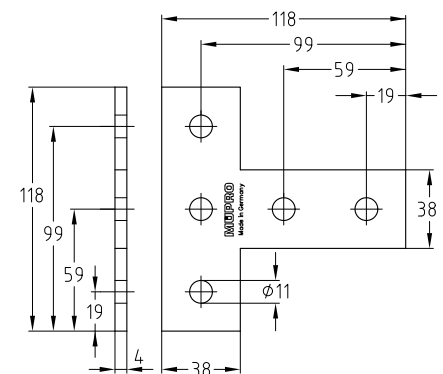
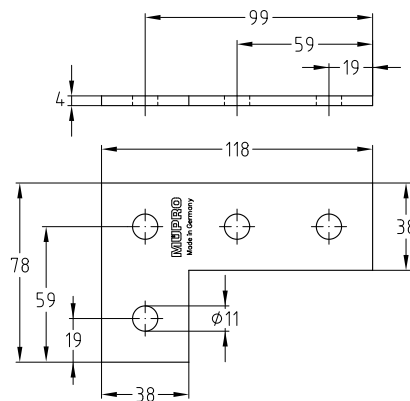
- Simple and quick connection of **angles and T-connections**
- The mounting plates allow frame construction in one plane, in which the channel slots have the same alignment
- Good adaptation to channel widths; the corners remain free in frame constructions
- Quick and simple attachment in combination with the MPC-Quick fastener for angle mounting
- Hole spacings allow pass-through mounting using the MPC- and MPR-Support channels



Angle plate



T-connection plate



	For support channels	Part no.	Sales unit	Pack unit
Angle plate	38/24–40/120,	127840	25	pieces
T-connection plate	41/21–41/124	130297		

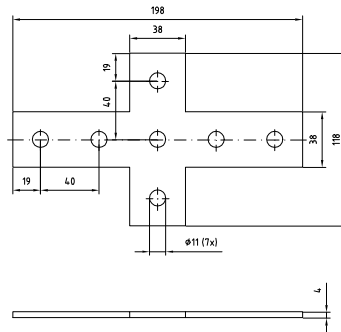
### Cross connector plate galvanised

#### Field of application

- Cross connection plate for connecting up to four MPC- and MPR-Support channels in one plane

#### Advantages

- Attachment at the rear perforation of the MPC- and MPR-Support channel leaves the channel slot free in all directions and enables fast installation of add-on parts
- Ideal connection element for creating subconstructions for ceiling suspensions



For support channels	Part no.	Sales unit	Pack unit
38/24-40/120, 41/21-41/124	113778	25	pieces



## StaboFix® Fixing system

galvanised

### Field of application

- Fixing system for mounting in cramped shafts, ducts and washbasin installation

### Advantages

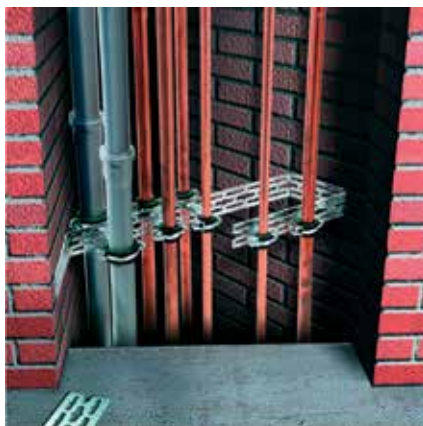
- High flexibility due to versatile range of applications in front of and within a wall, in wall recesses, wall break-throughs as well as in supply shafts
- Simple folding on site can bring the StaboFix® Sections into the desired form
- The StaboFix® Retaining plate can be simply and quickly clipped onto the sections and enables the attachment of non-twisting and centred wall carrier plates
- Smooth attachment of all common sanitary systems, while obtaining standard sanitary measures by means of a special hole template in the section
- Simple height adjustment of syphon bends or cross-running pipes using StaboFix® Clamps and threaded pins
- Pipe clamps with connection threads M8 and M8/M10 can be simply and quickly attached with StaboFix® Bolts
- All system components are perfectly matched to each other reducing the assembly effort
- High quality and firmness of the components
- Effective installation due to the basic assortment of installation components



StaboFix® Retaining plate



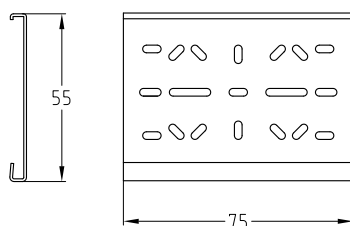
StaboFix® Section



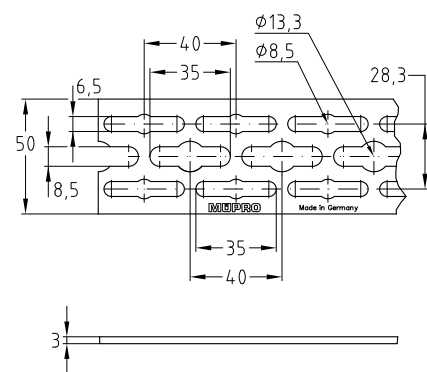
For simple, quick and secure fixing of pipe clamps with connection threads M8 and M8/M10



For the fixing of syphon bends and cross-running pipes – simple height adjustment



StaboFix® Retaining plate



StaboFix® Section

	Size [mm]	Part no.	Sales unit	Pack unit
StaboFix® Section	2,000 x 50 x 3	129076	10	pieces
StaboFix® Retaining plate	75 x 55	129073	25	

### StaboFix® Fixing system

#### Field of application

- Carrying case includes complete set to be used on the construction site

#### Advantages

- Practical basic assortment in the handy carrying case
- Due to the packing of the individual parts in cartons an organized access is possible
- StaboFix® Pliers within the case
- No loose parts lying around on site
- Compact case size of 400 x 300 x 90 mm
- Also available as economy kit: the complete StaboFix® Plumbers case plus 20 StaboFix® Sections

The StaboFix® Fixing system consists of:

- 1 StaboFix® Pliers
- 25 StaboFix® Retaining plates
- 25 StaboFix® Clamps
- 100 StaboFix® Bolts M8 short
- 100 StaboFix® Bolts M8 long
- 100 StaboFix® Drilling screws 4.2 x 16
- 100 StaboFix® Drilling screws 4.8 x 19



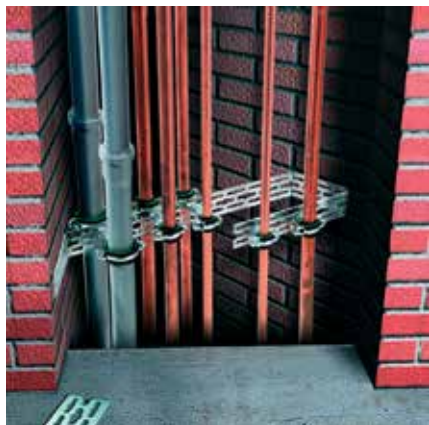
StaboFix® Plumbers case



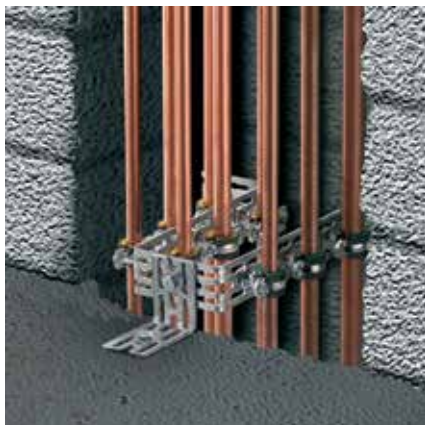
StaboFix® Economy set

	Part no.	Sales unit	Pack unit
<b>StaboFix® Plumbers case</b>	<b>166021</b>	1	pieces
<b>StaboFix® Economy sets</b> consisting of 1 StaboFix® Plumbers case + 20 StaboFix® Sections	<b>166085</b>		set

## StaboFix® Fixing system



**Installation in a shaft:**  
Pass-through mounting with two pipe clamps and a threaded pin M8 or M10 for the attachment of parallel pipelines



**Installation in a shaft:**  
Pipe clamps are fitted in no time using the StaboFix® M8 bolt



**Washbasin installation:**  
Installation in tight wall recesses



**Washbasin installation:**  
Everything fitted exactly to gauge



**Installation in a wall:**  
Waste pipe of washing machine



**Wall-mounted installation:**  
Wall-mounted installation using StaboFix® with MPC-Support channels

### StaboFix® Pliers

for StaboFix® Fixing system  
with minimum effort you can bend the StaboFix® Sections using the pliers to the right shape  
bending angles of 90° and more

Part no.	Sales unit	Pack unit
129070	1	pieces



### StaboFix® Clamps

for StaboFix® Fixing system, galvanised  
for safe and quick attachment of threaded pins for pipe clamp mounting  
the simple, stepless height adjustment enables an exact alignment of cross-running pipelines

For thread	Part no.	Sales unit	Pack unit
M8	129075	25	pieces



### StaboFix® Bolts

for StaboFix® Fixing system, galvanised  
for simple, quick and secure attachment of pipe clamps with connection threads M8 and M8/M10

For pipe clamps with connecting thread	Size [mm]	Part no.	Sales unit	Pack unit
M8	M8 x 8	129078	100	pieces
M8/M10	M8 x 13,5	129077		



### StaboFix® Drilling screws

for StaboFix® Fixing system, galvanised  
with pozidriv cross-head for attachment to the StaboFix® Retaining plate

Size [mm]	Part no.	Sales unit	Pack unit
4,2 x 16	129071	100	pieces
4,8 x 19	129072		



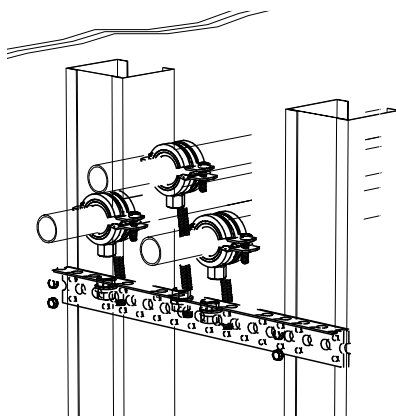
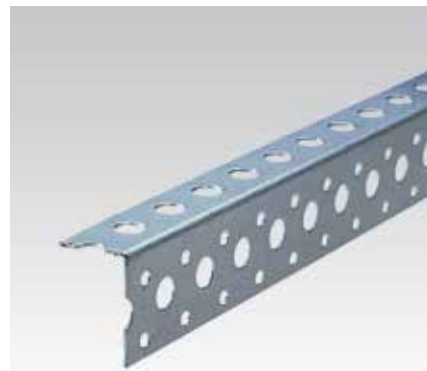
## Angle rail galvanised

### Field of application

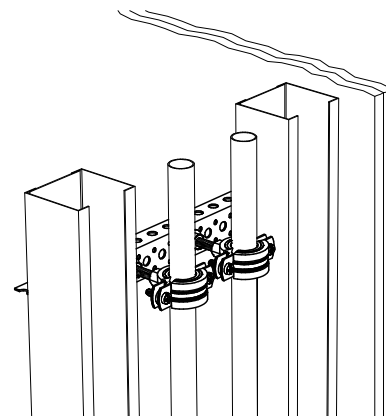
- For the attachment of pipelines in dry building construction
- For screwing or riveting on metal supports of drywalls

### Advantages

- Versatile use at restaurations or renovations
- Connection options via 4.1 mm and 8.5 mm perforation
- Attachment for vertical and horizontal pipe routings



Mounting example for horizontal pipe routings

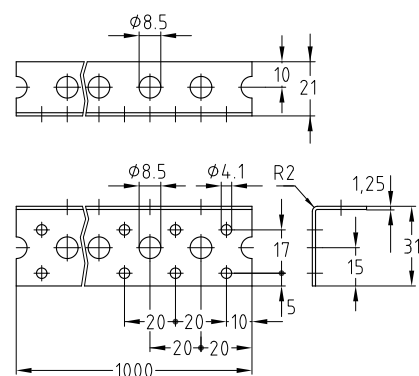


Mounting example for vertical pipe routings

### Features

Perforation	4.1 mm for bolts and rivets 8.5 mm for pipe attachments
-------------	--

Length [mm]	Part no.	Sales unit	Pack unit
1,000	127858	25	pieces










## Accessories

	MÜPRO	
1.	<u>Vibration control</u>	
2.	<u>Fire protection</u>	
3.	<u>Pipe clamps</u>	
4.	<u>Support channels</u>	
5.	<u>Accessories</u>	
6.	<u>Anchor points/ expansion points</u>	
7.	<u>Heavy-duty pipe support</u>	
8.	<u>MPT-Support system</u>	
9.	<u>Ventilation</u>	
10.	<u>Pipe connectors</u>	
11.	<u>Stainless steel</u>	
12.	<u>Hot-dip galvanised</u>	
13.	<u>Anchor plugs</u>	
14.	<u>Nameplates</u>	
15.	<u>Insulation</u>	
16.	<u>Sealing and protection materials</u>	
17.	<u>Tools</u>	
18.	<u>Radiator fastening</u>	
19.	<u>Technical information</u>	

	Hexagon wood screws	5/1		Hanger bracket	5/10
	Bolt screws	5/2		Girder clamps	5/11–5/13
	Shoulder screws	5/2–5/3		Clamping claws	5/14
	Washer bolts	5/3		Supporting angles	5/15
	Pozidriv recessed head bolts	5/3		Trapezoid-sheet hangers	5/16
	Shoulder pins	5/3		Plastic sealing plates	5/17
	Slot bolt with wood thread	5/3		Punched tapes	5/18
	Threaded rods	5/4		Allen bolts	5/19
	Threaded pins	5/4–5/5		Cylinder head screws	5/19
	Turnbuckles	5/5		Oval head screws	5/20
	Hex connectors	5/5		Power hook	5/20
	Round connectors	5/6		Hexagon head bolts	5/20
	Parallel couplings	5/6		Hexagonal nuts	5/21
	Reducers	5/7		Rip hexagon nuts	5/21
	Reducing connectors	5/7		Cap nuts	5/21
	Socket adapters	5/7		Protection caps	5/21
	Hanger sockets with inner thread and reinforcement ring	5/8		Washers	5/22
	Slot bolt with metric thread	5/8		Serrated lock washers	5/22
	Eye bolts	5/8		Gas-meter fixing kits	5/23
	Base plates	5/8–5/9		Distance angles	5/24
	Threaded pipes	5/10		Joint brackets	5/24



## Hexagon wood screws

DIN 571, galvanised



Thread	Total length [mm]	Wood thread length [mm]	Spanner size [mm]	Part no.	Sales unit	Pack unit
H6	40	24	10	105355	200	pieces
	45	27		105356		
	50	30		105358		
	55	33		105359		
	60	36		105362		
	70	42		105363		
	80	48		105364		
	90	54		105365	100	
	100	60		105351		
	110	66		105352		
	120	72		105353		
	H7	50		30		
70		42	105376			
80		48	105377			
100		60	105366			
120		72	105368			
130		78	105369			
140		84	105370			
150		90	105372			
170		102	105373			
H8	30	18	13	105388	200	
	35	21		105389		
	40	24		105390		
	45	27		105391		
	50	30		105395		
	55	33		105396	100	
	60	36		105400		
	65	39		105401		
	70	42		105404		
	80	48		105406		
	90	54		105407		
	100	60		105379		
	110	66		105381	50	
	120	72		105383		
H10	30	18	17	105328	100	
	45	21		105329		
	50	30		105331		
	60	36		105333		
	70	42		105336		
	80	48		105338		
	90	54		105339	50	
	100	60		105321		
	110	66		105322		
	120	72		105323		
	130	78		105325		
	140	84		105327		
H12	40	24	19	105344		
	50	30		105345		
	60	36		105346		



### Bolt screws

for fastening to wooden ceilings or for use with nylon plugs, galvanised

	Connecting thread	Total length [mm]	Wood thread	Wood thread length [mm]	Metric thread length [mm]	Spanner size [mm]	Size TX-drive	Part no.	Sales unit	Pack unit				
Bolt screws	M6	50	H6	37	11	–	T 15	129687	100	pieces				
		80		47	30			129693						
	M8	50	H7	30	10	6	T 25	129714						
		60			20			129717						
		80		37	30			129725						
		100		50	40			129694						
		120		62	50			129702						
		140						129706						
		160						129708						
		180						129709						
		200						129710						
		M10		60	H9			37			20	–  8		129678
				80				47						129680
	100		57	30		129666								
	120			50		129668								
	140					129670								
	160					129672								
	180					129674								
	200					129675								
	220					129676								
	M12		100	H10			25	10			T 30			129681
		120			40	129682								
		160				129683								
Bolt screws polybox á 300 pieces	M8	50	H7	30	10	6	T 25	129711	1	box				
		60			20			153108						
		80		37	30			129721						
		100		50	40			153109						
		120		62	50			153110						



### Shoulder screws with tool attachment SW 10

for quick mounting with electric screwdriver, galvanised

Connecting thread	Total length [mm]	Wood thread	Wood thread length [mm]	Metric thread length [mm]	Part no.	Sales unit	Pack unit
M8	50	H6	27	6.0	106302	100	pieces
	80				106303		
	100	H7	47	6.5	106308		
					106304		
					106305		
					106306		
					106307		
					106297		
	100	H9	57	8.0	106298		
	120				106301		
	160				106296		
M10	80		47		106292		
	100		57		106293		
	120				106294		
	140				106295		
	160						



**Shoulder screws with collar**

for fastening to wooden ceilings or for use with nylon plugs, galvanised

Connecting thread	Total length [mm]	Wood thread	Wood thread length [mm]	Metric thread length [mm]	Part no.	Sales unit	Pack unit
M6	50	H6	30	6	106309	100	pieces
	80				106310		
M8	50				106315		
	80				106316		
	120	H7			106311		

**Washer bolts**

galvanised

Thread	Total length [mm]	Wood thread length [mm]	Spanner size [mm]	Part no.	Sales unit	Pack unit
H8	50	30	13	117793	100	pieces
	70	42		117799		

**Pozidriv recessed head bolts**

galvanised

Thread	Length [mm]	Part no.	Sales unit	Pack unit
M6	18	113826	100	pieces
	20	113835		
	25	113844		
M8	20	113850		
	25	113853		
	30	113856		
	35	113859		

**Shoulder pins**

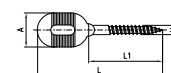
galvanised

Thread	Total length [mm]	Length of short thread [mm]	Part no.	Sales unit	Pack unit
M8	21	7	106313	100	pieces
	26		106314		

**Slot bolt**

with wood thread, galvanised

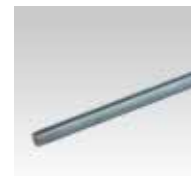
Thread	Oblong hole [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]		
					A	L	L1
H6	6.5 x 13	114451	100	pieces	22	84	50



### Threaded rods

strength class 4.8, galvanised

Thread	Length [m]	Part no.	Sales unit	Pack unit
M6	1	113603	100	pieces
	2	113612	50	
M8	1	113639	25	
	2	113651		
	3	113660		
M10	1	113467	20	
	2	113486		
	3	113495		
M12	1	113513	15	
	2	113525	10	
	3	113534	5	
M16	1	113549		
	2	113561		
	3	113567		
M20	1	113579		
	2	113582		



### Threaded pins

galvanised

Connecting thread	Length [mm]	Part no.	Sales unit	Pack unit
M6	25	114094	100	pieces
	40	114097		
	70	114099		
	80	114103		
	100	114082		
M8	20	114149		
	30	114184		
	40	114211		
	50	114223		
	60	114241		
	70	114253		
	80	114262		
	90	114271		
	100	114115		
	110	114118		
	120	114128		
	140	114137		
	160	114140		
	180	114143		
	M10	25		
35		113792		
55		113825		
80		113858		
100		113699		
120		113714		
140		113723		
160		113729		
M12	180	113744		
	25	113942		
	55	113983		
	80	114001		
	100	113882		
	130	113900		
M16	150	113915		
	60	114058	25	
	120	114016		
	160	114031		
250	114046			



**Turnbuckles**

with left-hand and right-hand threads and safety sight holes, galvanised

Connecting thread	Total length [mm]	Adjustment range [mm]	Part no.	Sales unit	Pack unit
M8	50	30	125025	100	pieces
M10	60	40	125007	50	
M12	70	50	125013		
M16	170	120	125019	10	

**Threaded pins with left-hand and right-hand threads**

for turnbuckles, galvanised

Connecting thread	Length [mm]	Part no.	Sales unit	Pack unit
M8	50	114226	100	pieces
M10	60	113840		
M12	70	113992		
	150	113921		
M16	210	114040	50	

**Hex connectors**

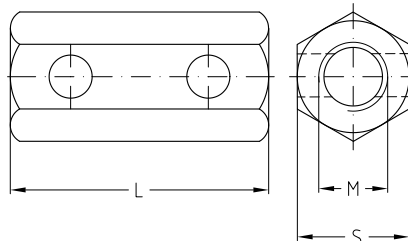
with cross hole, galvanised

**Field of application**

- For the extension and joining of threaded rods and pins

**Advantages**

- Robust, galvanised, threaded pipe coupling with hexagonal section and a cross hole
- Two check holes for verifying the required screw-in depth of the threaded ends



Connecting thread	Hole diameter D [mm]	Length L [mm]	Spanner size S [mm]	Part no.	Sales unit	Pack unit
M8	5	30	13	113319	100	pieces
M10			17	113322		
M12		35	113328	50		
M16	—	50	24		113307	

### Round connector

according to DIN EN 10241, galvanised

#### Field of application

- Connecting element for the combination of slide guides 4.0 kN and threaded pipes 1/2"
- For the extension and joining of threaded pipes

- Fast and easy extension and joining of threaded pipes
- Stable, galvanised round connector according to DIN EN 10241

#### Advantages

- Ideal combination of round connector and threaded pipe for a rigid attachment with greater distance from building structure



Thread [inch]	Total length [mm]	Outer diameter [mm]	Part no.	Sales unit	Pack unit
1/2	34	26.6	147091	1	pieces

### Round connectors

for joining or connecting threaded items, galvanised

Thread	Length [mm]	Outer diameter [mm]	Part no.	Sales unit	Pack unit
M6	20	10	113239	100	pieces
	30		113248		
	40		113251		
M8	20	11	113254		
	30		113259		
	40		113274		
	50		113283		
M10	30	13	113175		
	40		113190		
M12	30	15	113196		
	40		113205		
	55		113220		
M20	50	28	113193	1	



### Parallel couplings

for threaded rods or threaded pins, galvanised

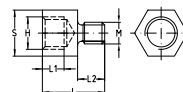
For thread	Length [mm]	Max. recommended load [N]	Part no.	Sales unit	Pack unit
M8	35	1,000	120137	100	pieces
M10		1,500	120141	50	



## Reducers

galvanised

Outer thread	Inner thread	Spanner size S [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]			
						L	L1	L2	
M6	M8	13	113494	100	pieces	19	7	7	
	M10		113491			22	9		
M8	M6	113506	20			7	8		
	M10	113509	23						
	M12	17	113503					8	
M10	M6	13	113462				21	7	
	M8		113468						
	M12	17	113456				25	8	10
	M16	24	113459	50		32	13		
M12	M8	13	113482	100			23	7	
	M10		113474					8	
	M16	24	113477	50			32	13	9
M16	M10	19	113485				9	14	
	M12		113488				10		



## Reducing connectors

galvanised

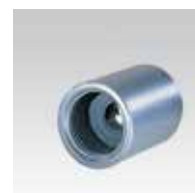
Thread	Length [mm]	Outer diameter [mm]	Part no.	Sales unit	Pack unit
M6/M8	30	13	113441	100	pieces
M8/M10	40	16	113444		
M8/M12			113447		
M10/M12			113434		



## Socket adapters

galvanised

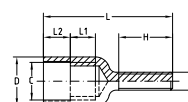
Thread	Length [mm]	Outer diameter [mm]	Part no.	Sales unit	Pack unit
M8-½"	38	26	130314	50	pieces
M10-½"			130312		
M12-½"			130313		



## Socket adapters

transition piece from pipe thread to metric thread, galvanised (also see chapter "Anchor points/expansion points")

Connecting thread	Pipe thread [inch]	Total length L [mm]	Thread length H [mm]	Part no.	Sales unit	Pack unit
M10	½	52	10	123596	1	pieces
		72	30	123612		
M12	¾	60	10	123600		
				123604		
		85	35	123608		

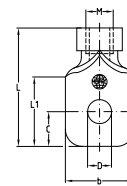




### Hanger sockets with inner thread and reinforcement ring

with round hole, galvanised

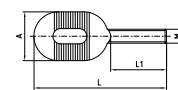
Thread	Hole diameter D [mm]	Max. permitted suspension load [N]	Part no.	Sales unit	Pack unit	Dimensions [mm]			
						b	C	L	L1
M8	8.5	3,600	<b>106600</b>	100	pieces	25	14	50	29
M10	10.5	4,600	<b>106597</b>			30	15	52	30
M12	13.0	3,600	<b>106598</b>						



### Slot bolt

with metric thread, galvanised

Thread	Width eye bolt A [mm]	Overall length L [mm]	Threaded length L1 [mm]	Oblong hole [mm]	Part no.	Sales unit	Pack unit
M8	28	77	30	8.5 x 25	<b>114454</b>	100	pieces



### Eye bolts with metric thread

forged, galvanised

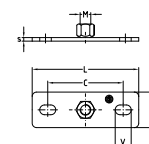
Thread	Thread length [mm]	Total length [mm]	Hole diameter [mm]	Outer-Ø eye bolt [mm]	Part no.	Sales unit	Pack unit
M8	20	52	8.5	21	<b>120053</b>	100	pieces
M10	22	61	10.5	24	<b>120041</b>		



### Base plates with nut

galvanised

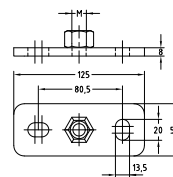
Size L x b x s [mm]	Connection socket	Oblong holes V [mm]	Hole-centre distance C [mm]	Part no.	Sales unit	Pack unit
Size 1 (80 x 30 x 3)	M8	9 x 16	54	<b>112407</b>	50	pieces
	M10			<b>112395</b>		
	M12			<b>112401</b>		
Size 2 (120 x 40 x 4)	M8	11 x 19	80	<b>112467</b>		
	M10			<b>112451</b>		
	M12			<b>112459</b>		
	M16			<b>112463</b>		



### Base plates with hexagonal nut

welded around, galvanised

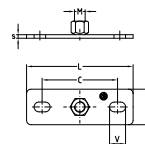
Size L x b x s [mm]	Connection socket	Oblong holes V [mm]	Hole- centre distance C [mm]	Part no.	Sales unit	Pack unit
125 x 50 x 8	M16	13 x 20	80.5	165187	10	pieces
	M20			164912		



### Base plates with combi-nut with two oblong holes

galvanised

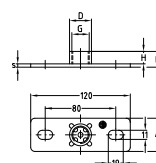
Size L x b x s [mm]	Connecting nut with dual-thread	Oblong holes V [mm]	Hole- centre distance C [mm]	Part no.	Sales unit	Pack unit
Size 1 (80 x 30 x 3)	M8/M10	9 x 16	54	112397	50	pieces



### Base plates with connection socket with two oblong holes

galvanised

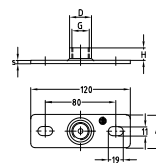
Size L x b x s [mm]	Connection socket G [inch]	Oblong holes V [mm]	Hole- centre distance C [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]	
							D	H
Size 1 (80 x 30 x 3)	1/2	9 x 16	54	112389	50	pieces	26.4	15
Size 2 (120 x 40 x 4)	3/4	11 x 19	80	112435			31.8	17
				112443				



### Base plates with connection socket

welded around, galvanised

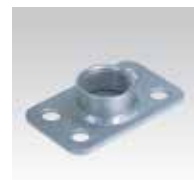
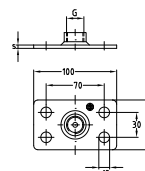
Size L x b x s [mm]	Connection socket G [inch]	Oblong holes V [mm]	Hole- centre distance C [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]	
							D	H
Size 2 (120 x 40 x 4)	1/2	11 x 19	80	112807	50	pieces	26.4	15
	3/4			112809			31.8	17
	1			112805			39.5	19



### Base plates with connection socket

welded around, with four attachment holes, galvanised

Size L x b x s [mm]	Connection socket G [inch]	Part no.	Sales unit	Pack unit
Size 3 (100 x 60 x 4)	1/2	112825	50	pieces
	3/4	112829		
	1	112817		



### Threaded pipes galvanised

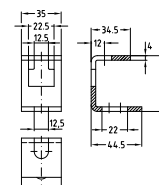
Thread [inch]	Length [mm]	Part no.	Sales unit	Pack unit
½	500	113393	1	pieces
	1,000	113384		
	2,000	113390	5	
¾		113426		
1		113375		



### Hanger brackets

for quick hooking-in, with height adjustment, galvanised

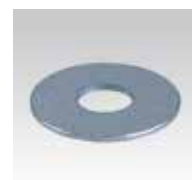
For threaded rods	Max. recommended load [N]	Part no.	Sales unit	Pack unit
M8-M12	1,200	106350	50	pieces



### Washers for hanger brackets

for use with threaded rods or threaded pins M8, galvanised

Dimensions [mm]	Part no.	Sales unit	Pack unit
8,5 x 20,5 x 2	127232	100	pieces



## Girder clamps with joint

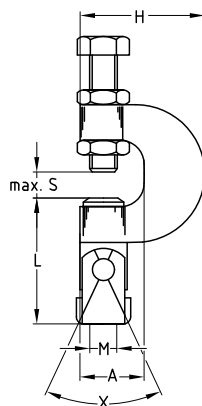
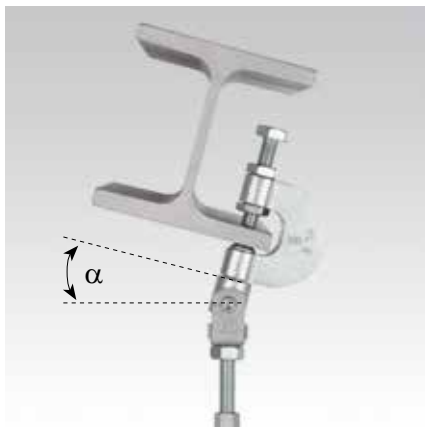
type Lindapter FLS, galvanised

### Field of application

- For flexible attachment of hangers on inclined girders and flanges

### Advantages

- For suspensions that cannot be achieved using conventional girder clamps
- Easy fitting using a hexagonal head clamping screw
- Rotatable about 360°
- High load transfer
- Approved by the FM and VdS for the suspension of sprinkler lines from girders inclined at an angle of up to 25°



### Features



Size	Max. permitted load [N] deflection angle		Tightening torque [Nm]
	$\alpha \leq 25^\circ$ VdS + FM	$25^\circ \leq \alpha \leq 45^\circ$	
M8	2,500	1,500	18
M10			



When fastening pipes bigger than DN 65, a safety steel strip must be used according to VdS certification.

Size	Part no.	Sales unit	Pack unit	Dimensions [mm]				
				A	H	L	M	S max.
M8	130262	10	pieces	27	53	55	M8	17
M10	130261						M10	

	Part no.	Sales unit	Pack unit
<b>Safety steel strip</b> , galvanised Length 300 mm, material 40 x 3.0 mm	163053	25	pieces

### Girder clamps type VSG TKN10, galvanised

#### Field of application

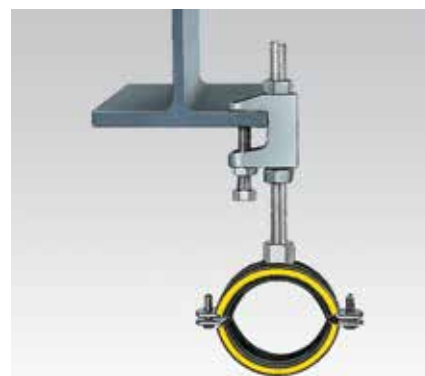
- For attachment of pipelines, air ducts and sprinkler systems on steel girders
- For suspension of threaded pins and threaded rods for the attachment of pipe clamps or cross-beams made with MPC-Support channels

#### Advantages

- Attachment on girder without welding or drilling
- Subsequent alignment on the girder possible
- High loading capacity
- Quick, subsequent height adjustment of the threaded rods at the non-threaded through-hole
- Approved by VdS
- Sizes M10 and M12 have FM approval
- Also available with internal thread



- ⚠ The girder clamp with clearance hole allows quick and efficient installation when suspending pipes from steel girders. To fasten the pipe clamp, a threaded rod with locknut is inserted into the unthreaded clearance hole of the girder clamp and held in place by screwing a nut on to the upper end. The pipe clamp can be pre-mounted on the threaded rod.
- In contrast to girder clamps with internal thread, a height adjustment of the assembled pipework can also be made after the pipe has been installed. The threaded rod can be moved freely upwards in the clearance hole without screwing. Thus there is no risk of loosening the connection between the rod and the pipe clamp by screw movements. The rod is then fixed in position by tightening the locknut.

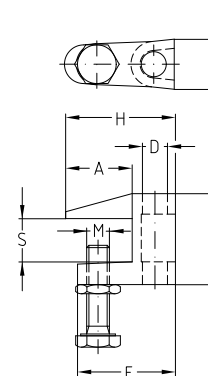


#### Features



Size	Max. permitted load [N]
M8	1,200
M10	2,500
M12	3,500

- ⚠ When fastening pipes bigger than DN 65, a safety steel strip must be used according to VdS certification.



Size	Clamping range S [mm]	VdS approved	FM approved*	Part no.	Sales unit	Pack unit	Dimensions [mm]						
							A	B	C	D	E	H	M
with clearance hole	M8	3-18	●	130248	50	pieces	21	19	35	9	35	38	8
	M10	0-20	●	130251			23	21	42	11	41	44	10
	M12	4-26	●	130257			35	24	54	13	48	58	
with internal thread	M8	3-18	●	130260			21	19	35	M8	35	38	8
	M10	0-20	●	130252			23	21	42	M10	41	44	10
	M12	4-26	●	130258			35	24	54	M12	48	58	

\* FM approval VS-Guss AG

	Part no.	Sales unit	Pack unit
<b>Safety steel strip</b> , galvanised Length 350 mm, material 25 x 3.0 mm	123485	25	pieces

## Girder clamps

type TKM Kroko, galvanised

## Field of application

- To be used for static hanging pipe-work, lighting and ventilation shafts, plus many other uses

## Advantages

- Quick and safe setting and removal
- Slip-proof
- Girder clamp TKM bites securely into beam when installed

- No need for screws to set clamp
- Possible to insert threaded rod before setting
- Approved by VdS and FM for the attachment of sprinkler lines



## Features



Size	Max. permitted load [N]
M8	2,000
M10	3,500
M12	5,000

Type	Size	Clamping range [mm]	Hole diameter [mm]	VdS approved*	FM approved*	Part no.	Sales unit	Pack unit
TKM1	M8	8-20	9	●		162302	25	pieces
TKM2	M10		11	●	●	162303		
TKM3	M12		13	●	●	162304		



For installation, observe assembly instructions included with the product.

Strength class 4.6 threaded rods must be used for installation.

For steel profiles with sloping flange surfaces with an inclination of up to 14 %.

When fastening pipes bigger than DN 65, a safety steel strip must be used according to VdS certification.

\* VdS and FM approved by SMK Meister GmbH & Co. KG.

	Part no.	Sales unit	Pack unit
<b>Safety steel strip</b> , galvanised Length 350 mm, material 25 x 3.0 mm	123485	25	pieces

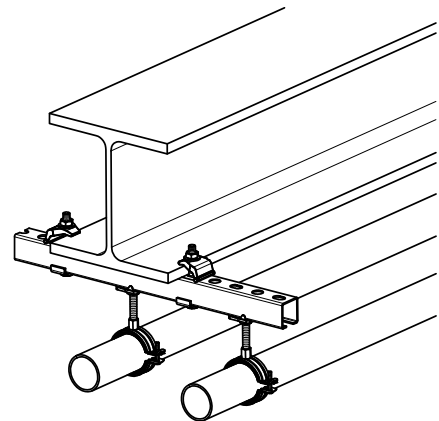
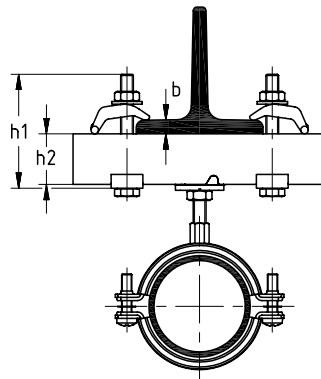
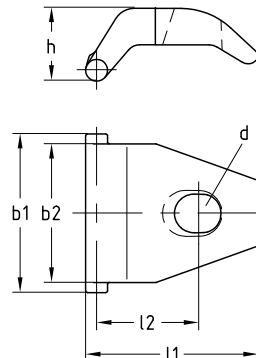
### Clamping claws galvanised

#### Field of application

- Attachment of MPC- and MPR-Support channels to profile steel structures without drilling or welding

#### Advantages


- Large clamping range for universal and quick attachment to profile steel structures
- Safe fastening without drilling or welding
- Suitable for attaching square pipes



#### Features

Size	Max. permitted loading/pair [N]	Breaking load [N]
M10	7,000	45,000
M12	10,000	80,000
M16	12,000	90,000

Size	Max. clamping range b [mm]	Screw length h1 [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]					
						b1	b2	l1	l2	d	h
M10	1-25	$0,8 \times b + h2 + 33$	157219	100	pieces	43	38	47	28	11	19
M12	1-35	$0,8 \times b + h2 + 40$	157220	50		51		66	37	13	27
M16		$0,8 \times b + h2 + 43$	157221			63	46	65		17	29

 Installation of the clamping claw with the wide side facing the support channel.



## Supporting angles

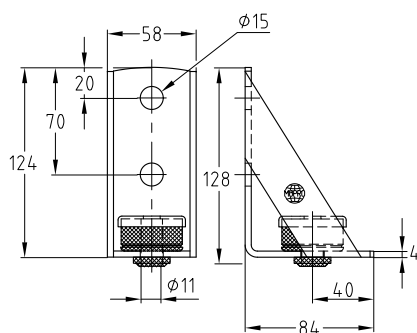
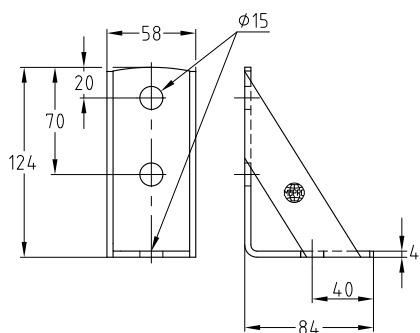
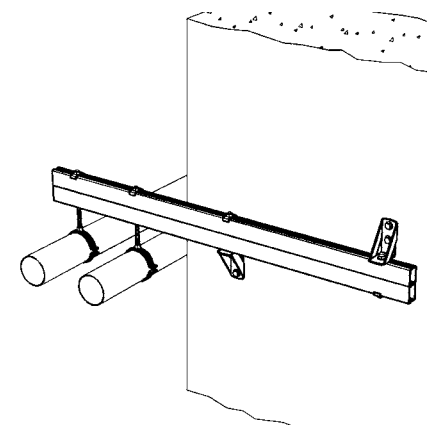
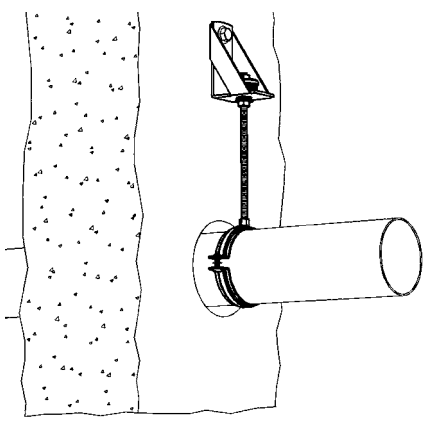
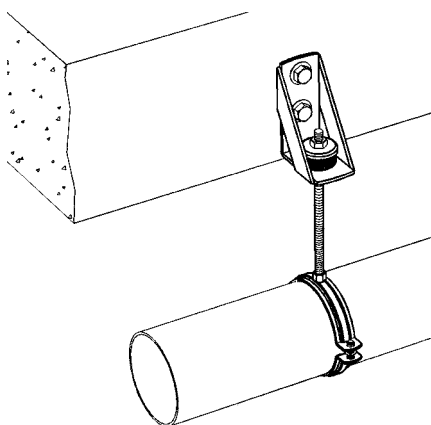
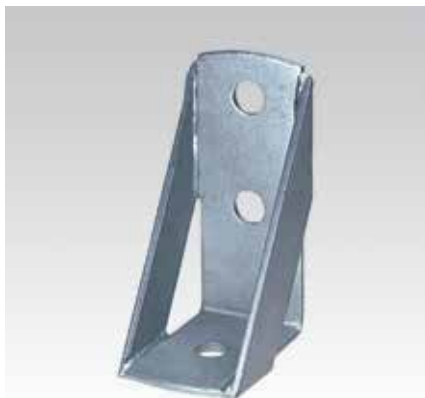
galvanised

### Field of application

- For lateral suspension of pipelines on reinforced concrete beams
- As substructure for the attachment of fittings, e.g. water meters

### Advantages

- Angle element for higher requirements for stability of mounting structures
- With high-quality vibration control of DÄMMGULAST® Resilient pad
- Usable as bracket for supporting heavy loads close to a wall
- For supporting cross-beams in confined spaces



### Features



Type	Max. recommended load [N]	Average vibration reduction [dB(A)]	Part no.	Sales unit	Pack unit
With DÄMMGULAST® Resilient pad	1,000	17	127789	25	pieces
Without DÄMMGULAST® Resilient pad	5,000	—	127792		

### Trapezoid-sheet hangers galvanised

#### Field of application

- For the professional attachment of installations to trapezoidal sheets

#### Advantages

- Attachment using sealing rivets or self-drilling screws to the stays of the corrugations
- Easy to adapt to different trapezoidal sheet sections due to pre-determined bending points
- Round holes at the end of the legs also enable a pass-through mounting of M8 or M10 threaded rods

- Available with either unthreaded through hole with welded-on hexagon nut or with adjusting nut for height setting
- Approved by VdS for pipe attachments up to DN 50 with threaded rods and counted nuts (observe assembly instructions included with the product)

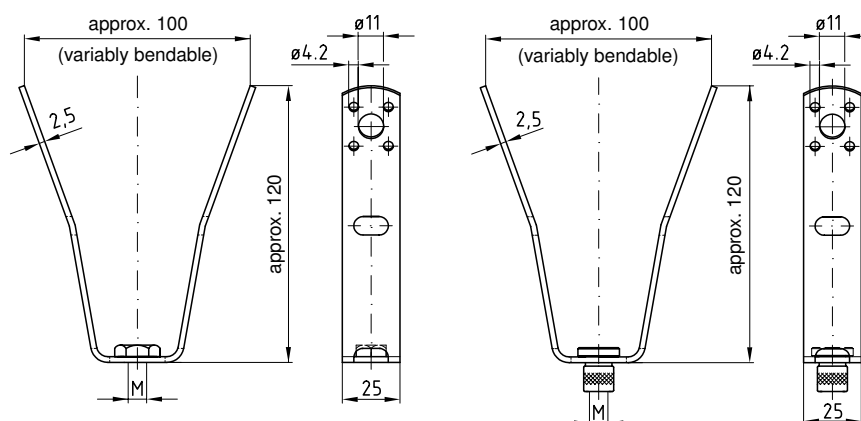


#### Features



Max. permitted load [N]

1,300



The specifications of the International Association for Light metal Construction IFBS must be observed for the attachment of trapezoidal sheet hangers on trapezoidal sheet metal by means of drilling screws made of cast hardened steel or blind rivets. Zinc plated drilling screws with ETA assessment can be found in the section "Ventilation". In case of attachment by means of threaded rods and through-hole mounting the max. hole bearing has to be calculated.

	Type	Part no.	Sales unit	Pack unit
With welded-on nut	M8	130203	100	pieces
	M10	130200		
With unthreaded through-hole	Hole-Ø 8.5 mm	130205		
	Hole-Ø 10.5 mm	130204		
With adjusting nut	M8	130202		
	M10	130201		



Refer to chapter „Tools“ for trapezoid-sheet pliers used for attachment.

	Part no.	Sales unit	Pack unit
DÄMMGULAST® Washer	107095	50	pieces

### Plastic sealing plates white

Pipe outer diameter-Ø		Overall-Ø [mm]	Part no.	Sales unit	Pack unit
[inch]	[mm]				
	8.0	38	115396	50	pieces
	10.0	39	115348		
	12.0		115323		
	14.0		43		
	15.0	115354			
	16.0	50			
3⁄8	17.2		115390		
	18.0		115362		
	20.0	55	115369		
1⁄2	21.3		115345		
	22.0		115372		
	24.0	61	115375		
3⁄4	26.9		115383		
	28.0		115378		
	30.0		115393		
1	33.7	70	115332	25	
1¼	42.4	75	115339		
1½	48.3	88	115335		
2	60.3	98	115366		



### Plastic sealing plates with dovetail closure for tilt-proof attachment to pipe, white

For pipe outer diameter-Ø	Overall-Ø [mm]	Part no.	Sales unit	Pack unit
12 mm	50	115326	100	pieces
15 mm	48	115357		
3/8"-18 mm	47	115387		
1/2"-22 mm	54	115342		
3/4"-28 mm	61	115380		
1"	66	115329		



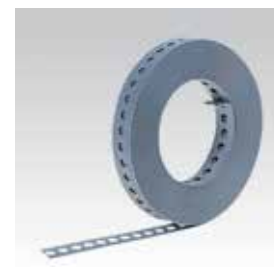
### Punched tapes galvanised or plastic coated

#### Field of application

- Efficient punched tape for simple fastening jobs

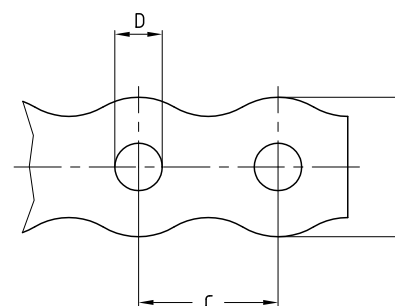
#### Advantages

- Easy to handle due to versatile mounting accessories
- Can be fitted with DÄMMGULAST® Junior vibration control lining



#### Features

Type	Tape width b [mm]	Max. recommended load [N]
Straight edges, galvanised	17	740
Corrugated edges, galvanised	12	480
	17	1,400
	25	2,250
Plastic coated	19	1,100
	27	1,300



Type	Tape width b [mm]	Hole diameter D [mm]	Hole spacing C [mm]	Length of roll [m]	Part no.	Sales unit	Pack unit
Straight edges, galvanised	17	6.5	11.5	10	114798	20	roll
				50	114804	1	
Corrugated edges, galvanised	12	5.5	14.5	10	114807	20	
	17	6.5	20.0		114801		
	25	8.5	25.0		114810	15	
Plastic coated	19	6.5	15.0		114786	12	
	27	8.5			114789	9	



Rolls of 50 m are supplied in a practical dispenser case.

### Bolts with nuts and washers for punched tapes, galvanised

	Connecting thread	Screw length [mm]	Part no.	Sales unit	Pack unit
Bolts with nuts	M5	15	121159	100	pieces
	M6	20	121163		
	M8	25	121167		

	For thread	Part no.	Sales unit	Pack unit
Washers	M6	127307	100	pieces
	M8	127310		



**Allen bolts with washer**

with metric thread, for installation of MPC-Support channels, galvanised

Thread	For support channels	Thread length [mm]	Free thread length [mm]	Allen bolt spanner width [mm]	Outer-Ø washer [mm]	Part no.	Sales unit	Pack unit
M8	27/18, 28/30, 38/24	13	11	6	20	121083	100	pieces
M10	38/24, 38/40, 39/52, 40/60, 40/80	16	14	8	28	121079		

**Allen bolts**

with metric thread, galvanised

Thread	Thread length [mm]	Allen bolt spanner width [mm]	Part no.	Sales unit	Pack unit
M8	13	6	121041	100	pieces
	20		121051		
	25		121059		
	30		121063		
M10	16	8	121014		
	25		121030		
	30		121035		

**Allen bolts**

with wood thread, for attachment of MPC-Support channels with nylon plugs, galvanised

Thread	Shaft length [mm]	Allen bolt spanner width [mm]	Part no.	Sales unit	Pack unit
H6	40	6	120998	100	pieces
	70		121006		

**Cylinder head screw**

galvanised

Connecting thread	Length [mm]	Part no.	Sales unit	Pack unit
M8	14	128658	100	pieces

**Cylinder head screws**

DIN 84, galvanised

Size	Part no.	Sales unit	Pack unit
M4 x 35	128644	100	pieces
M4 x 45	128646		
M5 x 35	128648		
M5 x 50	128650		
M5 x 60	128652		
M6 x 50	128654		
M6 x 60	128656		



### Oval head screws

DIN 964, nickel-plated

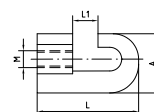
Size	Part no.	Sales unit	Pack unit
M4 x 35	114765	100	pieces
M4 x 45	114768		
M5 x 35	114771		
M5 x 50	114774		
M5 x 60	114777		
M6 x 50	114780		
M6 x 60	114783		



### Power hook

with internal thread, ideal for suspension of heaters, ceiling radiators, ventilators, air-conditioners and lighting units, galvanised

Connecting thread	Min. diameter of suspension hole [mm]	Max. permitted suspension load [N]	Part no.	Sales unit	Pack unit	Dimensions [mm]		
						L1	L	A
M10	11	1,320	113697	50	pieces	15	60	35



### Hexagon head bolts

DIN 933, galvanised

Thread	Length [mm]	Spanner size [mm]	Part no.	Sales unit	Pack unit
M6	20	10	105733	100	pieces
	30		105739		
M8	16	13	105757		
	20		105763		
	25		105770		
	30		105777		
	35		105781		
	45		105789		
	55		105794		
	60		105797		
	75		105798		
	85		105802		
	100		105743		
	110		105744		
	120		105752		
M10	20	17	105560	50	pieces
	25		105565		
	30		105575		
	35		105585		
	40		105590		
	55		105600		
	60		105605		
	80		105609		
	90		105612		
	100		105545		
	120		105547		
M12	25	19	105621	50	pieces
	30		105626		
	35		105633		
	60		105647		
	80		105653		
M16	45	24	105677	25	pieces
	60		105681		
	80		105687		
	100		105657		
	120		105660		
M20	50	30	105711		
M24	60	36	105720		



**Hexagonal nuts**

DIN 934, galvanised

	Thread	Nut height [mm]	Spanner size [mm]	Part no.	Sales unit	Pack unit
<b>Hexagonal nut, DIN 934</b>	M6	5.0	10	<b>105484</b>	100	pieces
	M8	6.5	13	<b>105498</b>		
	M10	8.0	17	<b>105433</b>		
	M12	10.0	19	<b>105447</b>		
	M16	13.0	24	<b>105460</b>		
	M20	16.0	30	<b>105469</b>	25	
<b>Hexagonal nut, DIN 934</b> polyboxes à 1,000 pieces	M8	6.5	13	<b>153151</b>	1	box
	M10	8.0	17	<b>153152</b>		

**Hexagonal nuts**

self-locking plastic ring, DIN 985, galvanised

Thread	Nut height [mm]	Spanner size [mm]	Part no.	Sales unit	Pack unit
M6	4.0	10	<b>105525</b>	100	pieces
M8	5.5	13	<b>105531</b>		
M10	6.5	17	<b>105511</b>		
M12	8.0	19	<b>105517</b>		

**Rip hexagon nuts**

galvanised

Thread	Part no.	Sales unit	Pack unit
M8	<b>151197</b>	200	pieces
M10	<b>142930</b>	100	

**Cap nuts**

DIN 1587, galvanised

Thread	Nut height [mm]	Spanner size [mm]	Part no.	Sales unit	Pack unit
M8	15	13	<b>117119</b>	100	pieces
M10	18	17	<b>117060</b>		
M12	22	19	<b>117069</b>		
M16	28	24	<b>117080</b>	50	
M20	34	30	<b>117086</b>	25	
M24	42	36	<b>117089</b>	5	

**Protection caps**

for the protection of threaded ends, with inner hexagon for attachment, black

For hexagonal nuts	Part no.	Sales unit	Pack unit
M8	<b>105994</b>	100	pieces
M10	<b>105996</b>		
M12	<b>105998</b>		





### Washers

DIN 125, galvanised

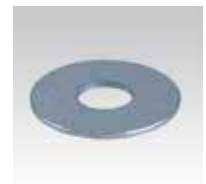
For thread	Outer diameter [mm]	Thickness [mm]	Part no.	Sales unit	Pack unit
M6	12	1.6	127307	100	pieces
M8	16		127310		
M10	20	2.0	127277		
M12	24	2.5	127286		
M16	30	3.0	127295		
M20	37		127298	50	



### Washers

for MPC-Support channels, galvanised

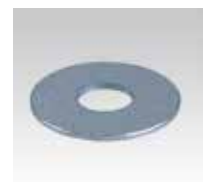
	For thread	Outer diameter [mm]	Thickness [mm]	Part no.	Sales unit	Pack unit	Content [pieces]
<b>Washers</b>	M6	18	1.6	127175	100	pieces	–
		24	2.0	127244			
		36		127184			
	M8	24	2.0	127253			
		30		165993			
		36		127214			
	M10	24	2.0	127079			
		29		127088			
		30	3.0	140876			
		36	2.0	127121			
	M12			127151			
	M16	40	3.0	127169			
<b>Washers in polybox</b>	M8	24	2.0	155286	1	box	1,000
		36		156849			500
	M10	24	2.0	155288			1,000
		29		156850			500
		36		156852			



### Washers

for MPR-Support channels, galvanised

For thread	Outer diameter [mm]	Thickness [mm]	Part no.	Sales unit	Pack unit
M8	40	3	151101	100	pieces
M10			151102		
M12			151103		
M16			127169		



### Serrated lock washers

form A, galvanised

For thread	Inside diameter [mm]	Part no.	Sales unit	Pack unit
M8	8.5	108556	200	pieces
M10	10.5	108551		
M12	12.5	108552		



## Gas-meter fixing kit with base plate

galvanised

Gas-meter fixing kit with base plates consists of:

- 2 Single bossed clamps with DÄMMGULAST® yellow, for pipe diameter 1", with connection socket ½"
- 2 Base plates size 2, with connection socket ½"
- 4 Washer bolts 8 x 50 mm
- 4 Claw anchors® 8 x 38 mm



Part no.	Sales unit	Pack unit
111289	1	set



Appropriate threaded pipe must be ordered separately, in accordance with on-site requirements.

## Gas-meter fixing kit OPTIMAL

galvanised

Gas-meter fixing kit OPTIMAL consists of:

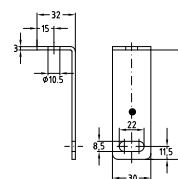
- 2 MPC-Support brackets 27/18, 200 mm length
- 2 Hammer-head fasteners for profile 27/18, M8 x 30 mm
- 2 OPTIMAL for pipe diameter 1", with connection thread M8
- 2 Protection caps for profile 27/18
- 4 Washer bolts 8 x 50 mm
- 4 Claw anchors® 8 x 38 mm



Part no.	Sales unit	Pack unit
111291	1	set

### Distance angles galvanised

Leg length L [mm]	Part no.	Sales unit	Pack unit
30	106019	100	pieces
35	106021		
40	106024		
45	106026		
50	106032		
60	106034		
70	106036		
80	106038		
90	106040		
100	106017		



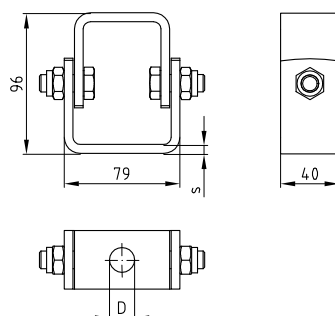
### Joint brackets galvanised

#### Field of application

- Joint bracket for suspensions and anchorings, e.g. for fixed points or fastenings of bridge drainage systems

#### Advantages

- Large swivel range for a wide variety of installation situations
- Additional materials / surfaces available upon request



#### Features

Size	Tensile load at swivel angle 0° [N]	Tensile load at swivel angle 45° [N]	Maximum recommended swivel angle [°]
40 x 6	8,000	5,000	90
40 x 4	5,000	3,500	

Size	For thread	Diameter D [mm]	Thickness s [mm]	Part no.	Sales unit	Pack unit
40 x 4 LG 13	M12	13	4	111872	1	pieces
40 x 6 LG 13			6	139130		
40 x 6 LG 17	M16	17		139147		



















⚠ Order-related manufacturing, price, and delivery time available upon request.

ℹ For hot-dip galvanised joint brackets please refer to chapter „Hot-dip galvanised products“. For stainless steel joint brackets please refer to chapter „Stainless steel“.



## Anchor points/ expansion points

	MÜPRO	
1.	Vibration control	
2.	Fire protection	
3.	Pipe clamps	
4.	Support channels	
5.	Accessories	
6.	<b>Anchor points/ expansion points</b>	
7.	Heavy-duty pipe support	
8.	MPT-Support system	
9.	Ventilation	
10.	Pipe connectors	
11.	Stainless steel	
12.	Hot-dip galvanised	
13.	Anchor plugs	
14.	Nameplates	
15.	Insulation	
16.	Sealing and protection materials	
17.	Tools	
18.	Radiator fastening	
19.	Technical information	

	PHONOLYT® Anchor points for pipes, single kit	6/1
	PHONOLYT® Anchor points for pipes, double kit	6/2
	PHONOLYT® Button anchor points	6/3
	Dome supports	6/4
	STATO® Brackets	6/5–6/6
	STATO® Clamps	6/7–6/8
	Wooden blocks	6/9
	Anchor point pipe clamps type 170 FL	6/10
	Brackets refrigerant anchor point	6/11–6/12
	Sliding stirrups	6/13
	Swivel hangers	6/14
	Sliding shoes	6/15
	Guide rails	6/16
	Slide guides 1.75 kN	6/17
	Slide guide 4 kN	6/18–6/19
	Box-section heavy slide guide 7.8 kN	6/19
	Slide guide, heavy-duty version	6/20
	Suspension clamps	6/21

# PHONOLYT® Anchor points for pipes

single kit, galvanised

## Field of application

- Ideal component for vibration-controlled pipe anchor points to meet the vibration control requirements of **DIN 4109** and **VDI 4100**
- Suitable for ceiling, wall or floor-mounting
- Floor mounting of pipe and duct lines
- Ideal as vibration-isolated pipeline anchor point for downpipe support or riser pipes

## Advantages

- Acoustically decouples the pipe from the building structure and reduces the structure-borne noise by up to 40 dB
- Practical design facilitates installation
- Practical construction for a 2-point fastening of the pipe
- Special feature: **Also approved for alternating load directions on plastic piping**
- Continuously adjustable distance from the wall
- Silicone-free

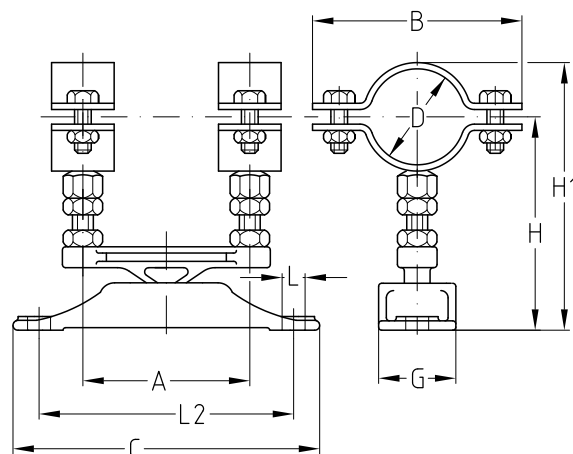


### Single kit dB(A) 27, consisting of:

- 1 PHONOLYT® Vibration decoupler dB(A) 27, M10
- 2 Single bossed clamps, 30 x 3 mm, without lining, heavy-duty version, M10, galvanised
- 2 Threaded pins M10
- 4 Hexagonal head nuts M10

### Single kit dB(A) 40, consisting of:

- 1 PHONOLYT® Vibration decoupler dB(A) 40, M12
- 2 Single bossed clamps, 30 x 3 mm, without lining, heavy-duty version, M12, galvanised
- 2 Threaded pins M12
- 4 Hexagonal head nuts M12



## Features



Type	Size		Clamping range [mm]	Threaded pin [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]							
	[inch]	[mm]						A	B	C	G	H	H1	Ø L	L2
dB(A) 27	3/8		14–18	M10 x 35	120348	1	pieces	80	66	147	37	81	92	11	122
	1/2		20–22		120340				71			84	97		
	3/4		25–28		120344				74			87	104		
	1		31–35		120308				83			90	110		
	1 1/4		40–43	M10 x 55	120304				92			94	119		
	1 1/2		48–52		120316				100			99	128		
		57	53–57		120332				105			120	150		
dB(A) 40	1		31–35	M12 x 50	120312			126	83	227	60	123	143	13	194
	1 1/4		40–43		120324				92			127	151		
	1 1/2		48–52		120320				100			132	161		
		57	53–57		120336				105			135	165		
	2		58–61		120328				110			137	170		



Please refer to the “Technical information” chapter for permissible loads.



### PHONOLYT® Anchor points for pipes

double kit, galvanised

#### Field of application

- Ideal component for vibration-controlled pipe anchor points to meet the vibration control requirements of **DIN 4109** and **VDI 4100**
- Suitable for ceiling, wall or floor-mounting
- Floor mounting of pipe and duct lines
- Ideal as vibration-isolated pipeline anchor point for downpipe support or riser pipes

#### Advantages

- Isolates the pipe acoustically from the building structure
- Practical downpipe support with perfect vibration decoupling

- Double kit for high loadings
- Special feature: **Also approved for alternating load directions on plastic piping**
- Lowest possible distance from the building structure attainable
- Continuously adjustable wall distance due to threaded pins
- Practical design facilitates installation
- **Fixed point for all pipe types**, regardless of pipe flanges and bushings
- Sound level reduction by up to 40 dB(A)
- Silicone-free

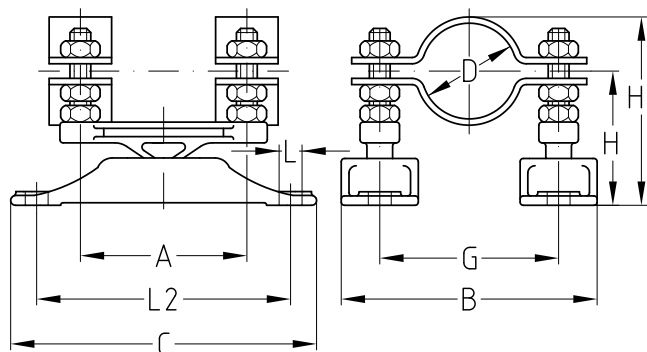


#### Double kit dB(A) 27, consisting of:

- 2 PHONOLYT® Vibration decoupler dB(A) 27, M10
- 2 STATO® Clamps, 30 x 3 mm, without lining, galvanised
- 4 Threaded pins M10
- 12 Hexagonal head nuts M10

#### Double kit dB(A) 40, consisting of:

- 2 PHONOLYT® Vibration decoupler dB(A) 40, M12
- 2 STATO® Clamps, 40 x 4 mm, without lining, galvanised
- 4 Threaded pins M12
- 12 Hexagonal head nuts M12



#### Features



Type	Size [mm]	Nominal size DN	Clamping range [mm]	Threaded pin [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]							
								A	B	C	G	H	H1	Ø L	L2
dB(A) 27	32.0	25	32–35	M10 x 55	<b>120352</b>	1	Stück	80	98	147	61	62–71	82–91	11	122
	42.4	32	40–42.4		<b>120356</b>				112		75		86–95		
	48.3	40	48.3–50		<b>120360</b>				117		80		89–98		
	56.0	50	56–60.3		<b>120371</b>				129		92		96–105		
dB(A) 40	60.3		60.3–61	M12 x 80	<b>120408</b>			126	163	227	103	95–102	130–138	13	194
	76.1	65/70	76.1–80	M12 x 100	<b>120413</b>				180		120	95–122	139–167		
	82.5	80	80–83		<b>168462</b>				187		127		140–168		
	88.9	90	88–90		<b>120375</b>				193		133		146–174		
	110.0	100	110–112	M12 x 110	<b>120391</b>				217		157	95–132	157–190		
	125.0	125	125–127		<b>120365</b>				231		171		164–202		
	133.0		133–135		<b>120395</b>				243		183		169–207		
	139.7		137–140		<b>168464</b>				246		186				
	159.0	150	159–162	M12 x 130	<b>120399</b>				269		209	95–152	182–240		
	200.0	200	199–202	M12 x 150	<b>168465</b>				284		224	95–172	199–276		
	212.0		210–212		<b>120403</b>				319		259		207–285		



Please refer to the “Technical information” chapter for permissible loads.



# PHONOLYT® Button anchor points

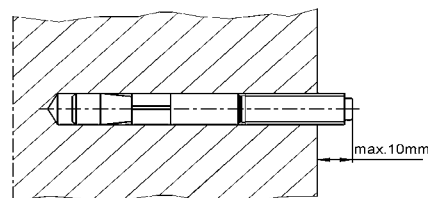
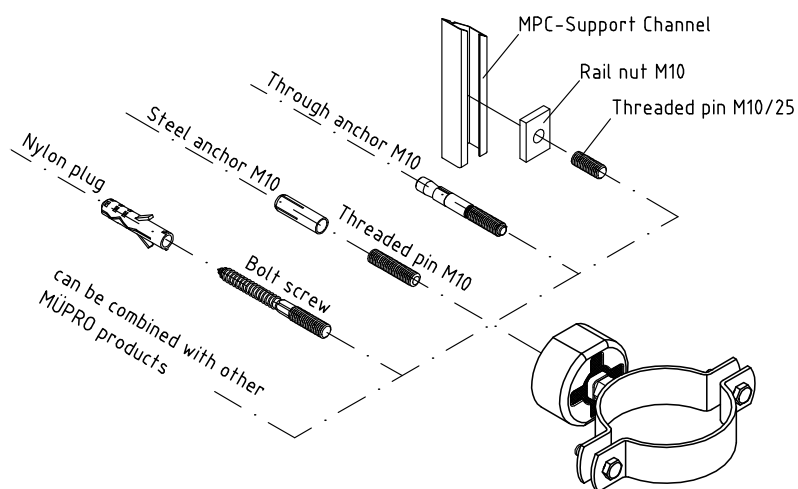
galvanised

## Field of application

- Pipe anchor point with outstanding sound isolation
- Efficient fixed point for plastic and cast pipes
- Suitable for wall, ceiling and floor mounting
- Alternative attachment by using nylon plug and bolt screw, through anchor, etc.

## Advantages

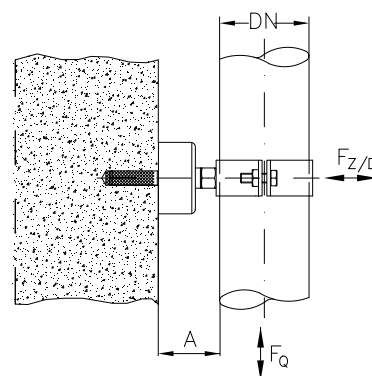
- Easy to fit as there is only one central connection thread
- Lower wall distance to building structure
- Easy to attach to the structure by means of steel anchor and threaded pin M10
- Silicone-free



**Attachment to building structure:**  
The projecting end of plug or threaded pin from the wall or ceiling must not exceed 10 mm!

## Features

Average vibration reduction [dB(A)]	30
Max. recommended loading tension / compression $F_{z,D}$ [N]	1,500
Axial to the pipe $F_Q$ [N]	1,080



Nominal size [mm]	Clamping range [mm]	Wall distance A [mm]	Part no.	Sales unit	Pack unit
70	73–78	51	120438	5	pieces
80	80–85		120279		
100	108–116		120434		

### Dome supports galvanised

#### Field of application

- Strong attachment for greater distances from the building structure
- Version 3/4" suitable for shock-resistant attachment of pipes
- Suitable as anchor point with pipe nipple and single bossed clamp with connecting socket
- Suitable as expansion point for large distance to wall with pipe nipple and socket adapter

#### Advantages

- Bend-proof design even under great axial and radial forces on the pipe
- Efficient attachment with only one plug
- Variable mounting distance can be determined on site by the length of the threaded pipe nipple
- Easy installation using spanner size SW 36
- Can be combined with pipe clamps with connecting socket
- Stable extension by means of socket adapters for the connection of single bossed clamps with M10 or M12 thread



Version 1/2"



Version 3/4"



Mounting as anchor assembly with pipe nipple and single bossed clamp with connecting socket

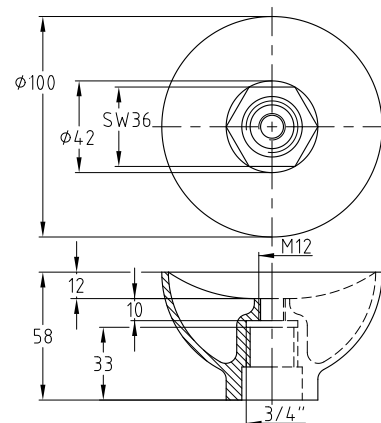
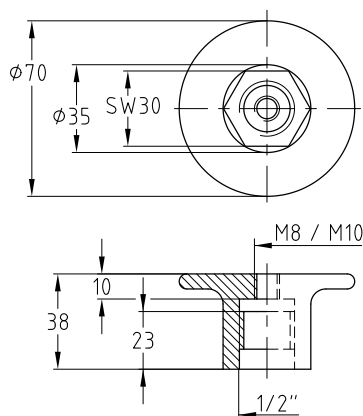


Mounting as expansion assembly for large distance to wall with pipe nipple and socket adapter

#### Features

Connecting thread	Max. recommended loading tension Fz [kN]	Max. recommended bending moment [Nm]
M8	10,000	65
M10		
M12	12,000	85

Applies for connection screw with strength class 8.8 on steel



For pipe thread	Connecting thread	Part no.	Sales unit	Pack unit
1/2"	M8	129783	1	pieces
	M10	129780		
3/4"	M12	129781		

- ⚠ For pipe anchor assemblies only pipe clamps without linings are to be used.
- The max. bending loading of the threaded pipe needs to be considered.

- ℹ For socket adapter please refer to chapter "Accessories".

# STATO® Brackets

galvanised

## Field of application

- Stable support system with high load-bearing capacity for pipe installations
- Ideal pipe anchor point in combination with STATO® Clamps without lining**
- Ideal as height adjustable subframe for anchor and expansion assemblies
- Ideal as **anchor point for insulated chilled water pipes in combination with wooden blocks and STATO® Clamps**

## Advantages

- Continuously adjustable in height and slope
- As height adjustment for waste water pipes or to compensate for unevennesses
- Can be fitted with up to 3 STATO® Clamps in case of heavy loads
- Especially suitable for heavy pipes with large wall clearances
- Can be used as bearing block, adjustable in height and slope

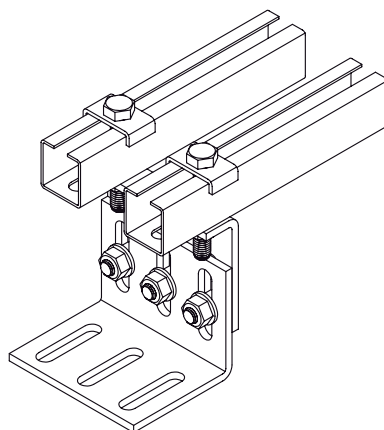
The complete kit consists of:

- 4 STATO® Angle pieces
- 6 Coach bolts M12
- 6 Hex. nuts M12
- 6 Washers for M12

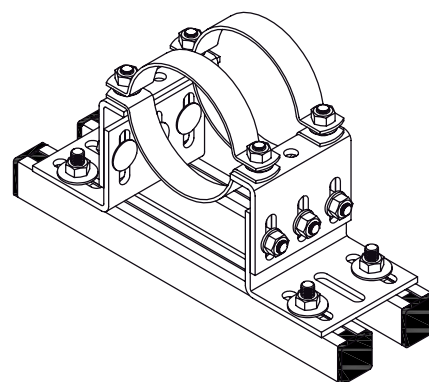
All parts are galvanised.



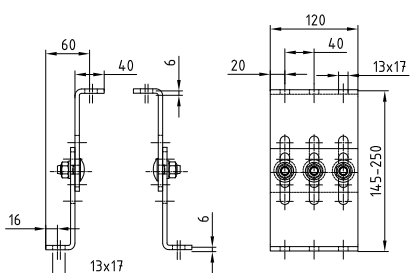
STATO® Clamps with adjustable STATO® Bracket



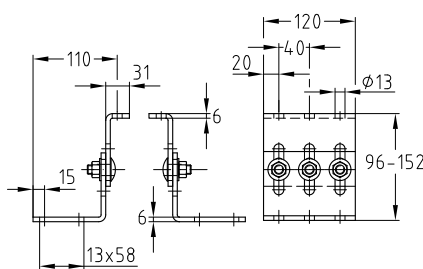
Height adjustable sub-frame for anchor and expansion assemblies



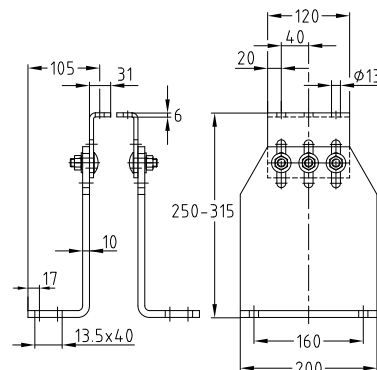
Free slidable elevation



Slim version



Standard version

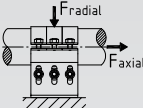
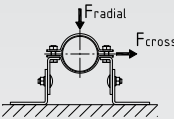


Heavy-duty version, larger distance from structure

Type	Overall height [mm]		Adjustment range [mm]	Part no.	Sales unit	Pack unit
	min.	max.				
Slim version	145	250	105	129171	5	pieces
Standard version	96	152	56	129167		
Heavy-duty version	250	315	65	129176	1	

### STATO® Brackets galvanised

#### Features

Type		Slim version	Standard version	Heavy-duty version	Tightening torque [Nm] (valid for M12, steel pipes without coating)	
<div>Max. recommended load [N]</div> <div></div> <div></div>	axial	5,500 per clamp	5,500 per clamp	5,500 per clamp	75	
	cross	min. overall height				
		6,000	8,000	7,000		
		max. overall height				
		3,000	6,000	7,000		
	radial	min. overall height	25,000	25,000		
		20,000				
		max. overall height				
		10,000				

#### VIDEO TIP

 **Installation of anchor points with MÜPRO STATO® brackets:** the video shows the installation options in industrial settings and plant design and explains the individual installation steps.



## STATO® Clamps

two-piece, galvanised

### Field of application

- Perfect for use as an anchor point clamp in version without vibration control lining
- Attachment of pipelines with higher load requirements
- In combination with the STATO® Bracket useable as the ideal pipe-line anchor point

### Advantages

- High-duty, two-part clamp
- The 2 locking screws allow adjustments to accommodate a greater variation in pipe diameter
- Also available with vibration control lining DÄMMGULAST® yellow
- The matching clamp for STATO® Bracket
- Supplied with connecting screws, nuts and captive washers



Nominal size pipe outer diameter		Without lining (anchor point clamp)			with DÄMMGULAST®		
[inch]	[mm]	Part no.	Sales unit	Pack unit	Part no.	Sales unit	Pack unit
2	60.3	168050	12	pieces	129214	12	pieces
	70.0	168051			129263		
2½	76.1	168052			129215		
	82.5	168053			129267		
3	88.9	168054			129235		
	101.6	168055			129187		
	108–110	168056	6		129191	6	
4	114.3	168057			129243		
	125–127	168058			129195		
	133.0	168059			129199		
5	139.7	168060			129255		
	152.4	168061			129202		
	159.0	168062			129205		
6	165.0	168063			129260		
	168.3	168064			129211		
	177.8	168065			129212		
	212.0	168066			129221		
8	219.1	168067			129224		
	244.5	168068			129227		
	267.0	168069			129231		
	273.0	168070			129233		




If required, the two types of STATO® clamps can be produced specifically in accordance with the external diameter of the pipelines or foam glass acoustic cladding, enabling axial movement of the pipeline in the clamp (guide or sliding clamp) or acoustic cladding to be stored with just a low contact pressure.

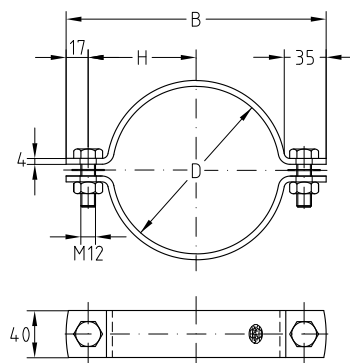
In combination with STATO® Brackets, a maximum of 3 STATO® Clamps without linings or a maximum of 2 STATO® Clamps with DÄMMGULAST® linings may be mounted per set of brackets. For a pipe outer diameter of 315 mm upwards, the STATO® Bracket heavy-duty version must be used.

### STATO® Clamps two-piece, galvanised

#### Features

Max. recommended tensile load [N]	without lining	10,000
Max. recommended tensile load [N]	with DÄMMGULAST®	4,660
Max. recommended load axial [N]		5,500

 Max. recommended load axial [N] in combination with wooden blocks please refer to page 6/9.



Nominal size pipe outer diameter		Locking bolts SW	Without lining (anchor point clamp)			with DÄMMGULAST®		
[inch]	[mm]		Part no.	B	H	Part no.	B	H
2	60.3	M12	168050	140	53	129214	148	57
	70.0		168051	148	57	129263	158	62
2½	76.1		168052	154	60	129215	164	65
	82.5		168053	161	64	129267	171	68
3	88.9		168054	168	67	129235	177	71
	101.6		168055	182	74	129187	190	78
	108–110		168056	188	78	129191	198	82
4	114.3		168057	195	80	129243	202	84
	125–127		168058	206	86	129195	213	90
	133.0		168059	213	90	129199	221	94
5	139.7		168060	220	93	129255	228	97
	152.4		168061	232	99	129202	240	103
	159.0		168062	239	103	129205	247	107
6	165.0		168063	246	106	129260	253	110
	168.3		168064	248	107	129211	256	111
	177.8		168065	258	112	129212	266	116
	212.0		168066	293	130	129221	300	133
8	219.1		168067	300	133	129224	307	137
	244.5		168068	326	146	129227	333	149
	267.0		168069	348	157	129231	355	161
	273.0		168070	354	160	129233	361	164

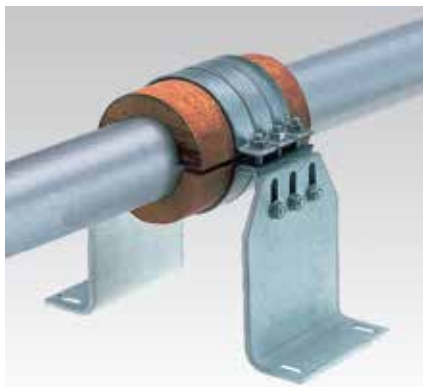
## Wooden blocks

### Field of application

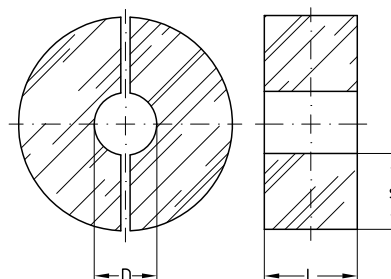
- Thermally decoupled attachment of chilled water pipes
- Insulation of anchoring point for chilled water pipes
- For friction attachments taking up axial pipe forces
- For indoor use

### Advantages

- Direct between pipe clamp and cold pipe: decreased heat flux between pipe and environment
- Simple attachment to the pipe insulation
- Suitable for all pipe materials
- Attachment possible at any point on a smooth pipe



Anchor point solution on chilled water pipe with STATO® Clamps and STATO® Brackets



### Features

Max. permitted loading axial [N] (mounted with 3 STATO® Clamps and STATO® Brackets)	8,000
Temperature range	0 °C to +90 °C
Shell length L [mm]	200

Pipe outer diameter [mm]	Insulation thickness 20 mm		Insulation thickness 30 mm	
	Wooden block	STATO® Clamp	Wooden block	STATO® Clamp
17.2	115826	168289	115835	168052
21.3	115874	168050	115883	168053
26.9	115951	168051	115960	168054
33.7	116174	168052	116183	164518
42.4	116286	168053	116295	168055
48.3	116325	168054	116334	168056
60.3	116445	168055	116454	129431
64.0	116484	168056	116493	168058
76.1	116526	168057	116538	129291
88.9	116565	168290	116574	153945
102.0	115495	147107	115504	168292
108.0	115531	153945	115540	168064
110.0	115566	168061	115575	153946
114.3	115602	168291	115611	153946
125.0	115638	168063	115647	138322
133.0	115673	153946	115682	129306
139.7	115709	138235	115718	153947
159.0	115748	153947	115757	168067
168.3	115787	129309	115796	152207
219.1	115910	129326	115919	129331
267.0	115987	129333	115996	129343
273.0	116023	129334	116032	129398



Pack size: 1 unit = 2 half-blocks.

On site, wooden blocks need to be insulated against vapor diffusion at least in same quality as sectional pipe insulation.

When choosing the shell thickness, the dew point needs to be considered.

Mount STATO® Clamps with a tightening torque of 50 Nm.

Other shell lengths, diameters and insulation thickness can be produced according to customers specifications upon request.



### Anchor point pipe clamps type 170 FL galvanised

#### Field of application

- Thermally decoupled attachment of chilled water pipes
- Complete anchor point pipe clamp for chilled water pipes
- For form-locking attachments taking up axial pipe forces
- For indoor use
- In particular for large nominal sizes

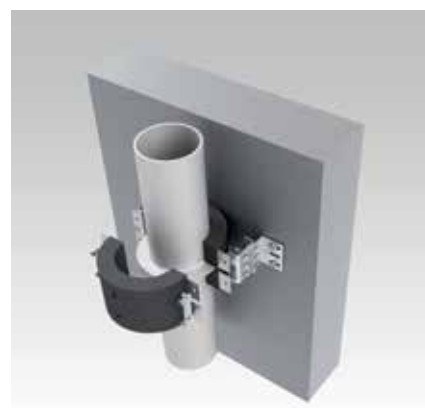
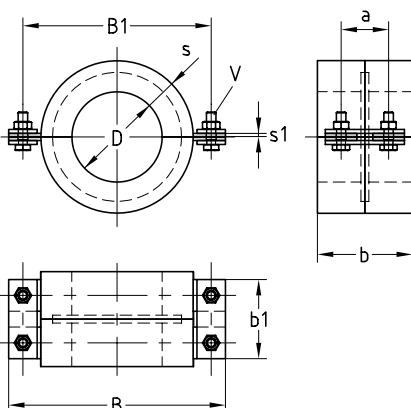
#### Advantages

- Direct between pipe clamp and cold pipe: decreased heat flux between pipe and environment
- Low thermal transfer with the insulation shells and internal clamp bracket used
- Simplified integration in sectional pipe insulation
- Specially suitable for attachments of steel pipelines according to DIN EN 10022



#### Features

Material insulation shell	Polyurethane, black
Effective density	250 kg/m³
Thermal conductivity	$\lambda = 0.045 \text{ W/mK}$
Fire classification (acc. to DIN 4102)	B2
Temperature range	-45 °C to +105 °C
Water vapour diffusion resistance	$\mu = 2,500$
Compression strength	4.3 N/mm² at 23 °C
Material clamp/pressure ring	S235JR



Nominal size pipe outer diameter		Insulation thickness s [mm]	Max. recommended load axial [N]	Max. recommended load radial [N]	Part no.	Sales unit	Pack unit	Dimensions [mm]						
[inch]	[mm]							s1	B	B1	b	b1	a	V
2	60.3	30	1,000	1,440	153065	1	pieces	4	203	173	100	90	50	M10
2½	76.1		2,500	3,600	150707									
3	88.9		3,000	4,300	150708				211	181				
4	114.3	40	4,000	6,900	150709			274	238	120	100	60	M12	
	133.0		4,500	7,700	167131			300	264					
5	139.7			8,100	150710									
6	168.3	60	6,000	9,700	152055			328	288	200	140	100	M16	
8	219.1		9,000	23,000	159107			439	399					
	273.0		12,000	28,000	156831			493	453					
	323.9		15,000	32,800	165046			544	504					
	355.6		17,000	36,000	160913			576	536					

#### PU-Sealer 310 ml cartridge

Part no.	Sales unit	Pack unit
122470	12	pieces



## Brackets refrigerant anchor point galvanised

### Field of application

- Stable support system with high load-bearing capacity for pipe installations
- Ideal pipe anchor point for chilled water pipes in combination with anchor point pipe clamps type 170 FL
- Ideal as height adjustable subframe for refrigerant anchor points

### Advantages

- Continuously adjustable in height and slope
- As height adjustment or to compensate for unevennesses
- Especially suitable for absorbing high axial loads on the pipe

1 kit consisting of:

- 2 Mounting brackets
- 2 Adapter brackets
- 6 Coach bolts M12
- 6 Hexagonal nuts M12
- 6 Washers for M12

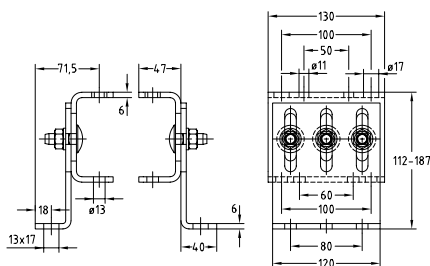
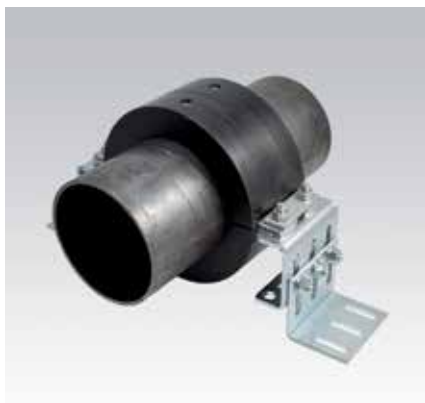
All parts are galvanised.



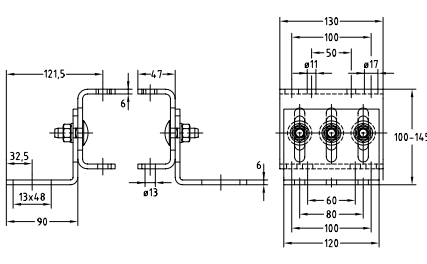
Standard version



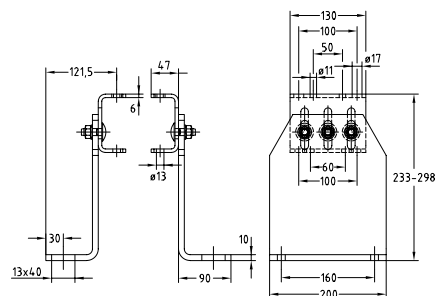
Heavy-duty version



Slim version



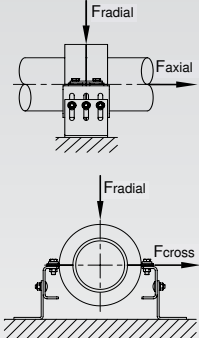
Standard version



Heavy-duty version

Design	Nominal size clamp	Overall height [mm]		Adjustment range [mm]	Part no.	Sales unit	Pack unit
		min.	max.				
Slim version	76.1–219.1	112	187	75	167717	1	pieces
Standard version	76.1–168.3	100	145	45	167121		
Heavy-duty version	219.1–355.6	233	298	65	167125		

### Brackets refrigerant anchor point galvanised

Features						
Type		Slim version	Standard version	Heavy-duty version	Tightening torque [Nm] (brackets)	
<div>Max. recommended load [N]</div> <div></div>	axial	see catalogue page anchor point pipe clamps type 170 FL			75	
	cross	min. overall height				
		6,000	8,000	7,000		
		max. overall height				
		3,000	6,000	7,000		
	radial	min. overall height	25,000	25,000		
		20,000				
		max. overall height				
		10,000				



These load values refer exclusively to brackets.  
For load values of anchor point pipe clamps type 170 FL please refer to the corresponding catalogue page.

## Sliding stirrups galvanised

### Field of application

- Expansion point attachment for suspended pipes
- Suitable for direct ceiling installations and for attachment to MPC-Support channels using rail nuts
- Attachment of pipes with thermal, axial expansion

### Advantages

- Prevents any force build-up at the attachment point in case of changes in pipe length
- If mounted reciprocally, an axial synchronous ganging of the pipes is ensured
- Smooth and silent movement due to the large roller
- Can be swivelled laterally, therefore especially useful near pipe side-branches
- Removable roller to facilitate screwing in



Fixing with steel anchor



Attachment on a MPC-Support channel



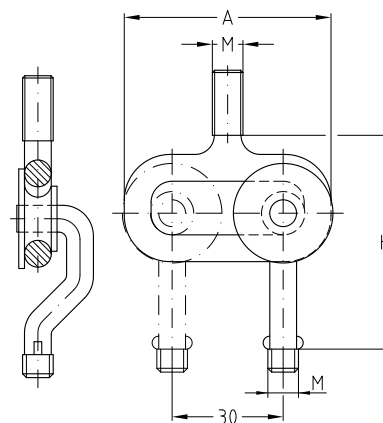
Sliding stirrup in combination with a single bossed clamp

### Features



Connecting thread	Max. recommended load [N]
M8	400
M10	650

Type	Connecting thread	Max. slide travel [mm]	Height adjustment up to [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]	
-	M8	30	-	118344	50	pieces	A	H
	M10			118340			68	60
XL			32	137991	25			



### Swivel hangers galvanised

#### Field of application

- Attachment solution for suspended pipes – allows axial and lateral pipe movements
- Attachment of pipes with thermal, axial expansion
- Especially suitable for large ceiling distances
- For the installation of swivel hangers together with MPR-Quick fasteners please follow the installation instructions accompanying the product

#### Advantages

- 360° degree of freedom
- Large deflection from the vertical
- Appropriate threaded rod lengths allow the pipes to be set to the desired height
- Screw-in depth of thread hanger allows precise height adjustment
- Screw-in depth visible through inspection hole (long version)
- Short version for low overall height



Swivel hanger, short



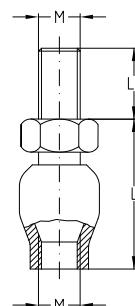
Swivel hanger, long



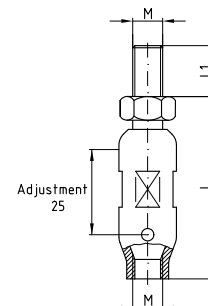
#### Features



Connecting thread	Max. recommended load [N]
M8	2,400
M10	3,000
M12	3,500



short version



long version

Type	Connecting thread	Overall height L [mm]	Threaded length L <sub>1</sub> [mm]	Deflection from the vertical	Height adjustment up to [mm]	Part no.	Sales unit	Pack unit
Short	M8	34	18	up to 12°	–	120231	100	pieces
	M10	35			120227	50		
Long, with inspection hole	M12	70	20		25	120211		
	M10	61	57			120208		
			18			120204		
	M8	60				120223		
Long, greater deflection	M10	61		up to 22°		120196		

**!** For secure tilt-free pipe guides two swivel hangers – one at the top and one at the bottom – must be considered for each attachment point.

The threaded rod must be secured against loosening by the use of locknuts.

## Sliding shoes

### Field of application

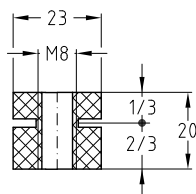
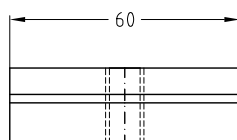
- Perfect solution for plastic pipes with large sliding movement
- Ideally suitable for riser pipes
- Suitable for pipes mounted from above and from below
- Attachment of pipes with thermal, axial expansion
- Expansion assembly attachment as cross connection for pipe movement in axial and lateral directions

### Advantages

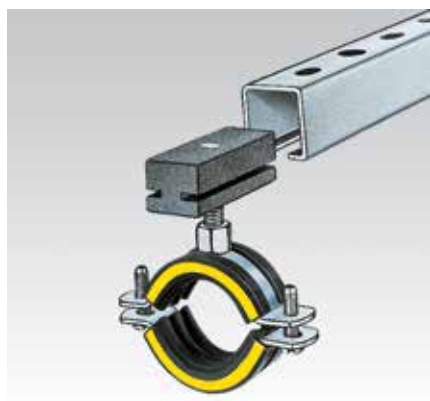
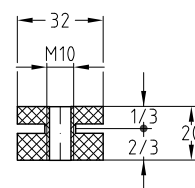
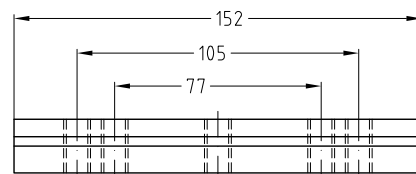
- Length of sliding distance can be freely determined by suitable selection of support channel length
- Large pipework movements in both axial and lateral directions can be accommodated by a module consisting of two sliding shoes, giving a low overall height of only 50 mm (for channel 27/18)
- High load carrying capacity and abrasion-resistant sliding shoe made of Ultramid, reinforced with glass fibre



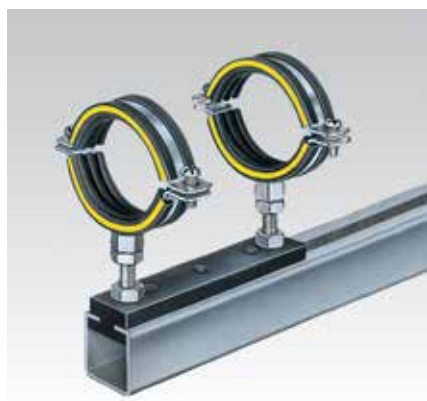
Sliding shoe M8



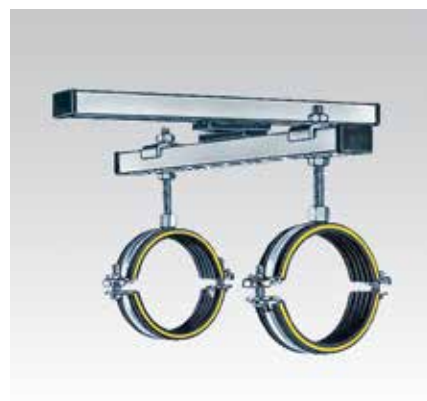
Sliding shoe M10



Sliding shoe M8 as suspended attachment



Sliding shoe M10 as standing support



Sliding attachment for pipe movement in axial and lateral directions

Connecting thread	For support channels	Max. permitted load [N]	Part no.	Sales unit	Pack unit
M8	27/18, 28/30	1,000	112056	50	pieces
M10	38/40, 39/52, 40/60, 40/80, 38/80, 40/120		112052	20	



When installed, the threaded pin must be fully screwed through the sliding shoe. When attached in combination with a pipe clamp, the threaded pin must not protrude more than 70 mm (M8) or 100 mm (M10).

**Attention:** Mind the tightening torque specified for the locknuts: connecting thread M8 16 Nm, connecting thread M10 18 Nm.



### Guide rails galvanised

#### Field of application

- Ideally suitable for pipes with large thermal, axial expansion
- Suitable for ceiling, suspension, risers and ground installations

#### Advantages

- Guide rail with long slide travel for versatile installation
- Perfect solution for installation under cramped conditions due to the low overall height of 28 mm (guide rail M8)
- Smooth-sliding, abrasion-resistant sliding shoe



Guide rail M8

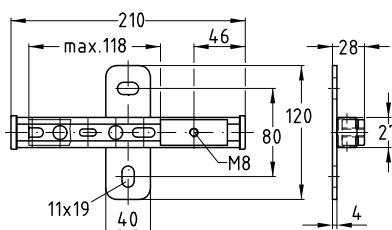


Guide rail M10

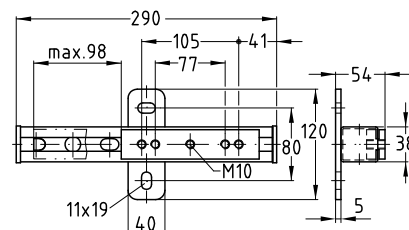


#### Features

Max. recommended load [N] 1,000



Guide rail M8



Guide rail M10

Connecting thread	Max. slide travel [mm]	Part no.	Sales unit	Pack unit
M8	118	112066	25	pieces
M10	98	112062		



**Attention:** Mind the tightening torque specified for the locknuts: connecting thread M8 16 Nm, connecting thread M10 18 Nm.



## Slide guides 1.75 kN galvanised

### Field of application

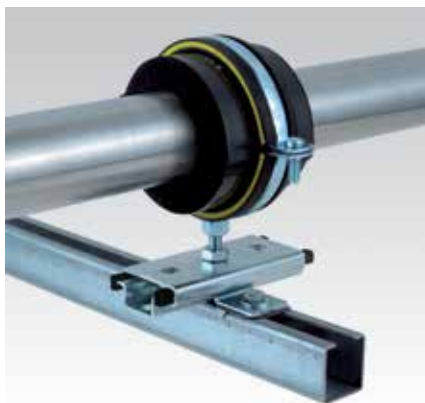
- Attachment of pipes with temperature affected, axial expansion
- A variety of installation possibilities (floor-mount, ceiling-mount, wall-mount)
- Expansion point attachment for standing and suspended pipes
- Expansion point attachment as cross connection for pipe movement in axial and lateral directions

### Advantages

- Flat, compact design for secure mounting in cramped mounting situations
- Large slide travel of up to 76 mm
- High-level application flexibility due to triple connection facilities for pipe clamps
- One or two pipe clamps can be mounted depending on the application
- Fire-proof design for application in escape routes and emergency routes



Ceiling installation with  
steel anchors M8



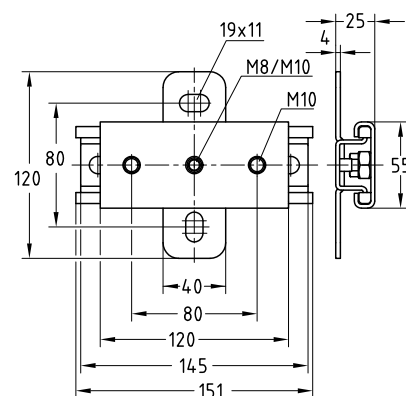
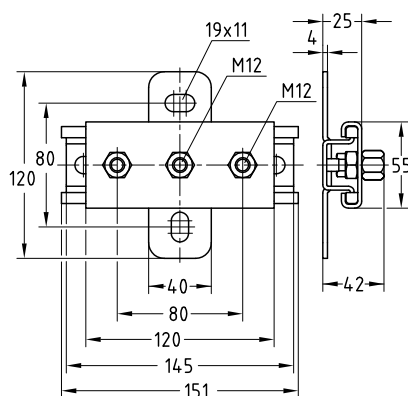
Upright installation of an insulation  
clamp on a MPC-Support channel



Upright installation of a sliding shoe  
and a slide guide on a MPC-Support  
channel



Upright installation of two slide guides  
in crisscross arrangement, on a  
MPC-Support channel



### Features

Connecting thread 1x	Connecting thread 2x	Temperature range	Max. recommended load [N]	Max. slide travel [mm]	Part no.	Sales unit	Pack unit
M8/M10	M10	-40 °C to +100 °C	1,750	76	130662	25	pieces
M12	M12				139199		



When attaching two slide guides in crisscross arrangement, the use of an allen bolt with washer, **part no. 121079**, is recommended.

### Slide guide 4 kN galvanised

#### Field of application

- Attachment of pipes with temperature affected, axial expansion
- A variety of installation possibilities (floor-mount, ceiling-mount, wall-mount)
- Expansion point attachment for standing and suspended pipes
- Expansion point attachment as cross connection for pipe movement in axial and lateral directions

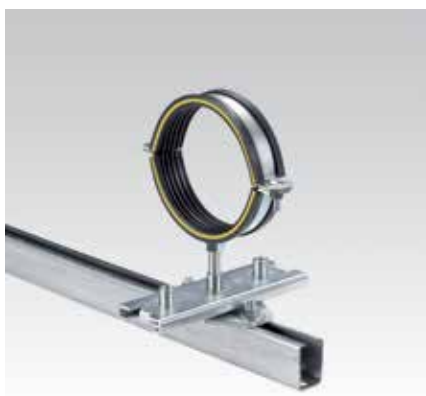
#### Advantages

- Smooth-running slide guide for high loads
- Flat, compact design for secure mounting in cramped spaces
- Large slide travel of up to 216 mm

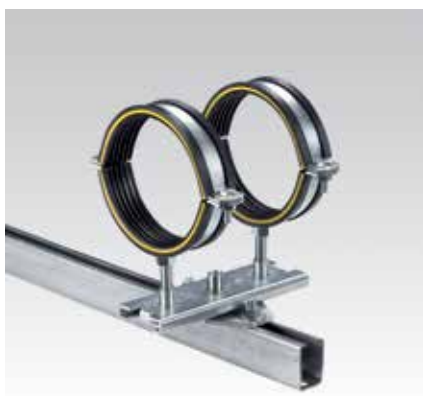
- Highly flexible use due to triple connection possibility with internal threads M12, M16 and external thread 1/2"
- One or two pipe clamps can be mounted depending on the application
- Quick and easy assembly due to center line and mounting marks
- Base plate compatible with MPC, MPR and MPT-Support channel systems
- Fire-proof design for use in escape routes and emergency routes
- For installation situations where both axial and radial movement needs to be accommodated, a 4 kN slide guide and a 4 kN



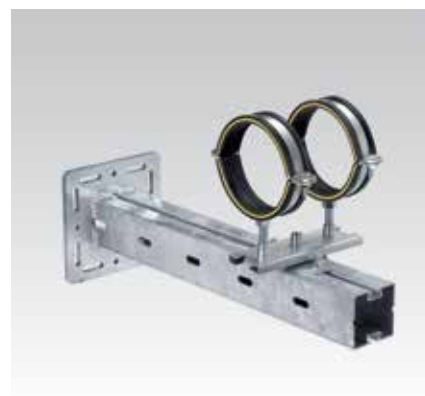
adapter slide guide can be mounted together as a cross connection



Single bossed clamp mounted with a M16 connection thread to a MPC-Support channel



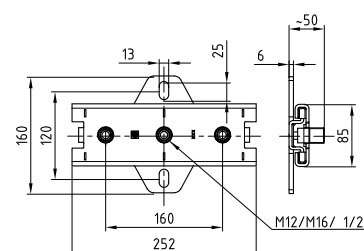
Two single bossed clamps with M16 connection threads mounted on a MPC-Support channel



Two single bossed clamps with M16 connection threads mounted on a MPT-Console Q100

#### Features

Connecting thread	Temperature range	Max. recommended load [N]	Max. slide travel [mm]	Part no.	Sales unit	Pack unit
M12/ M16/1/2"	-40 °C to +100 °C	4,000	216	139936	1	pieces



### Slide guide 4 kN for crisscross arrangement galvanised

Max. sliding distance [mm]	Part no.	Sales unit	Pack unit
216	139947	1	pieces



For cross connection assembly the following components are used:

	Thread	Length [mm]	Part no.	Sales unit	Pack unit
Coach bolt, DIN 603	–	30	143876	1	pieces
Hexagonal nut, DIN 934	M12	–	105447	100	
Washers, DIN 125			127286		

## Box-section heavy slide guide 7.8 kN galvanised

### Field of application

- Suitable for wall fixing with horizontal or vertical pipes
- Attachment of pipes with temperature affected, axial expansion
- Variety of installation possibilities (floor-mount, ceiling-mount, wall-mount, rail-mount, cross stay)
- Expansion point attachment for standing and suspended pipes

### Advantages

- Smooth-running slide guide for heavy loads

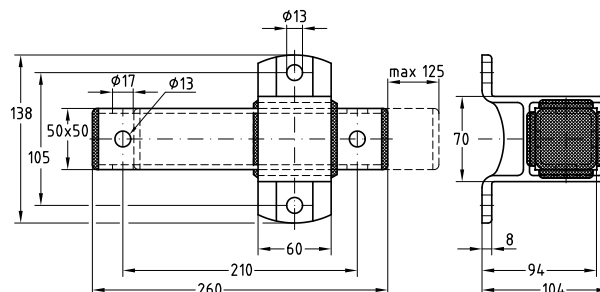
- With long slide travel up to 125 mm for pipelines with large changes in length
- Tilt-proof load distribution in standing and suspended installations
- Variable, height-adjustable pipe clamp attachments using threaded pins
- Two pipe clamps prevent jamming and misalignment
- Connection holes for M12 and M16



### Features



Max. recommended load [N] 7,800



Max. slide travel [mm]	Part no.	Sales unit	Pack unit
125	105309	1	pieces



Also available in stainless steel version upon request.

# Slide guide, heavy-duty version

**with guide brackets (without pipe clamps), galvanised**

## Field of application

- High strength version for standing arrangements
- Expansion point attachment for standing pipes
- Attachment of pipes with temperature affected, axial expansion and higher load requirements

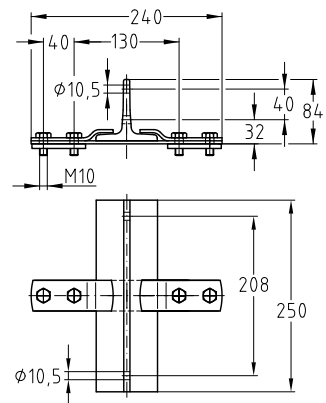
## Advantages

- Smooth-sliding pipe guide with polished sliding surface and slider made of abrasion-resistant polyamide
- For use with three-piece, double-sided flange-on suspension clamps
- Surface protection through galvanisation
- Stable guide brackets including M10 fixing bolts and nuts



## Features

Max. recommended compression load [N]		15,000	
Max. slide travel [mm]	Part no.	Sales unit	Pack unit
200	118129	1	pieces



Suitable three-piece suspension clamps can be found on the next page.

## Suspension clamps

three-pieces, galvanised

### Field of application

- Suitable pipe clamp for the heavy-duty slide guide
- Matching for pipe sizes of 4" and larger

### Advantages

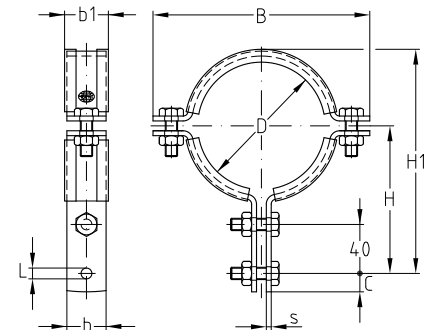
- Connection lug with two attachment bolts allows a robustly flanged joint to the heavy-duty slide guide

- The 2 locking screws allow good adaptation to a greater variation in pipe diameter
- Supply includes attachment nuts and bolts for connection of the lug to the heavy-duty slide guide
- Also available with longer connecting lug and reinforcement plates for installations with thicker pipe insulation



### Features

Max. recommended load [N] 6,660



Size		Without lining					With DÄMMGULAST®						Dimensions [mm]			Sales unit	Pack unit					
			Dimensions [mm]					Dimensions [mm]														
[inch]	[mm]	Part no.	B	D	H	H1	Part no.	B	b1	D	H	H1	b x s	C	Ø L							
4		123424	178	114.3	121	182	123347	188	44	114.3	126	192	40 x 4.0	15	11	1	pieces					
	125.0	123380	189	125.0	127	193	123295	199		125.0	132	203										
	127.0	123384	191	127.0	128	195	123299	201		127.0	133	205										
	133.0	123388	197	133.0	131	201	123303	207		133.0	136	211										
5		123428	204	139.7	134	208	123352	214		139.7	139	218										
	152.4	123392	216	152.0	140	220	123307	226		152.0	145	230										
	159.0	123396	223	159.0	144	227	123311	233		159.0	149	237										
6		123432	229	165.1	147	233	123356	239		165.1	152	243										
	168.3	123400	232	168.3	148	236	123315	242		168.3	153	246										
	177.8	123404	242	177.8	153	246	123319	252		177.8	158	256										
	212.0	123408	276	212.0	170	280	123323	286		212.0	175	290										
	219.1	123413	283	219.1	174	287	123327	293		219.1	179	297										
	244.5	123417	309	244.5	186	313	123331	319		244.5	191	323										
	267.0	123420	331	267.0	198	335	123335	341		267.0	203	345										



Suspension clamps can be produced for all other pipe sizes according to customer specifications.





## Heavy-duty pipe support

	MÜPRO	MÜPRO
1.	<a href="#">Vibration control</a>	
2.	<a href="#">Fire protection</a>	
3.	<a href="#">Pipe clamps</a>	
4.	<a href="#">Support channels</a>	
5.	<a href="#">Accessories</a>	
6.	<a href="#">Anchor points/ expansion points</a>	
7.	<a href="#">Heavy-duty pipe support</a>	
8.	<a href="#">MPT-Support system</a>	
9.	<a href="#">Ventilation</a>	
10.	<a href="#">Pipe connectors</a>	
11.	<a href="#">Stainless steel</a>	
12.	<a href="#">Hot-dip galvanised</a>	
13.	<a href="#">Anchor plugs</a>	
14.	<a href="#">Nameplates</a>	
15.	<a href="#">Insulation</a>	
16.	<a href="#">Sealing and protection materials</a>	
17.	<a href="#">Tools</a>	
18.	<a href="#">Radiator fastening</a>	
19.	<a href="#">Technical information</a>	



Pipe slides type TP-1

7/5–7/6



Pipe slides type TP-2

7/7–7/8



Pipe slides type TF-1

7/9–7/10



Pipe slides type TF-2

7/11–7/12



Pipe slides type LP-2

7/13–7/14



Pipe slides type DS-2

7/15–7/16



Pipe slides type UPG-1

7/17–7/18



Pipe slides type UPG-2

7/19–7/20



Anchoring cams

7/21



Cramping sets

7/22–7/24



Cramping elements

7/25



Pipe clamps DIN 3567

7/26



U-bolts DIN 3570

7/27



Guide angles

7/28



### Selection of heavy-duty pipe supports

Pipe slides, pipe clamps and accessories can be supplied in various designs. Part numbers for the desired design are given on the data sheets, that list the different combinations of material and surface treatment as well as the screws to be used.

#### Identification system for pipe slides

##### Example of codes:

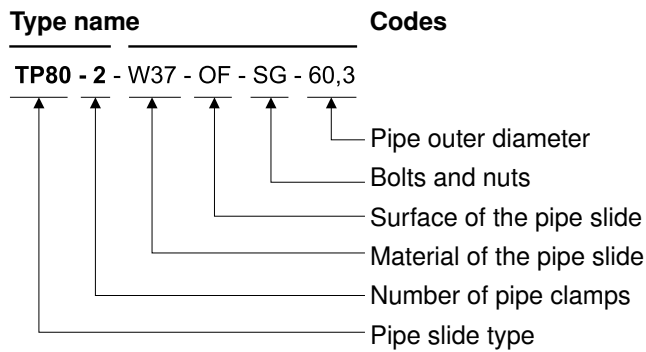
T-section slide guide made from S235JR (St37) with 2 pipe clamps, pipe slide hot-dip galvanised, with galvanised screws and nuts, strength class 8.8, for pipe outer diameter of 60.3 mm.

##### Part no. 116978

Type: TP80-2-W37-OF-SF-60,3

Type designation and code given by the following key code:

Pipe slide type:



#### Codes

##### Pipe slide material

W37 steel S235JR (RSt 37)  
 WA2 V2A stainless steel  
 WA4 V4A stainless steel

##### Pipe slide surface finish

OR untreated /black  
 OF hot-dip galvanised  
 OG primer coated  
 OP pickled and passivated

##### Screws and nuts for pipe slide

SG strength class 8.8, galvanised  
 SF strength class 8.8, hot-dip galvanised  
 SA2 V2A stainless steel  
 SA4 V4A stainless steel



### Selection of heavy-duty pipe supports

#### Identification system for pipe slides

In addition to standard combinations for pipe slides (see bold print in table below) you will find further feasible material/surface finish/attachment combinations in the table below. These can be manufactured upon request. Furthermore, pipe slides can be produced with a polyamide (PA) sliding seating.

Pipe slide material	Pipe slide code	Pipe slide surface	Code for surface	Bolts and nuts	Code for bolts and nuts
<b>S235JR (St37)</b>	<b>W37</b>	<b>untreated</b>	<b>OR</b>	<b>Strength class 8.8, galvanised</b>	<b>SG</b>
		untreated		Strength class 8.8, hot-dip galvanised	SF
		hot-dip galvanised	OF	Strength class 8.8, galvanised	SG
		<b>hot-dip galvanised</b>		<b>Strength class 8.8, hot-dip galvanised</b>	<b>SF</b>
		hot-dip galvanised		V2A stainless steel	SA2
		primer coated	OG	Strength class 8.8, galvanised	SG
		primer coated		Strength class 8.8, hot-dip galvanised	SF
		primer coated		V2A stainless steel	SA2
V2A stainless steel	WA2	pickled, passivated	OP	V2A stainless steel	SA2
		pickled, passivated		V4A stainless steel	SA4
V4A stainless steel	WA4	pickled, passivated		V4A stainless steel	SA4


#### Cramping elements and cramping sets

Cramping elements and complete cramping sets can be supplied for attaching the pipe slide to the supporting steel structure.

##### Sample order for a cramping set:

Cramping set, guidance with two lift-off securing devices, type F2AH for application of a pipe slide on an HEA 140 T-section.

**Part no. 134691 – for HEA 140 T-section, section width 140**

 Specification of the section type and the section width is absolutely necessary when ordering a cramping set.

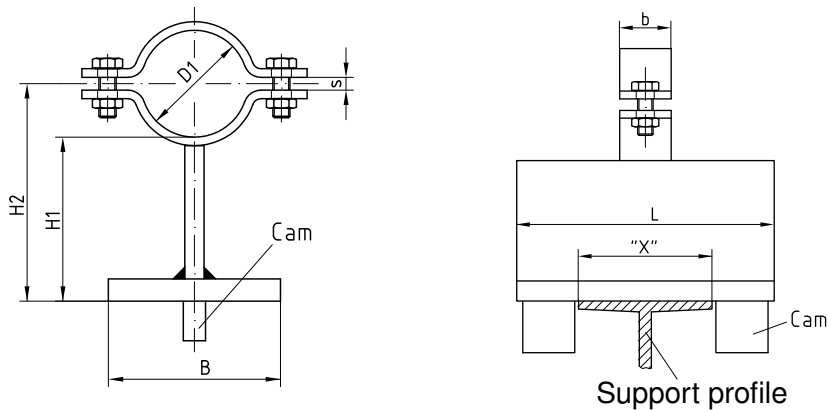
### Selection of heavy-duty pipe supports

#### Technical information

Important advice regarding the application of pipe slides: The pipe slide can be used individually as an anchor point, as a guidance with and without lift-off securing devices or as a simple support. The pipe slide can be fixed to the supporting structure using the appropriate cramping sets or cramping elements.

The cramping sets are supplied with bolts and nuts for attaching to the existing supporting structure. Hereto, the specification of the **section width „X“** or the standard designation for the support sections (see sketch below) respectively **is absolutely necessary**.

If applied as an anchor point, the pipe slide must be fitted additionally with cams (see sketch below). The cams are either already welded to the slide or supplied separately. If the cams are to be supplied ex-factory (welded to the pipe slide), it is imperative that this is specified in the order. For this reason, the specification of the section width or the standard designation for the support section, e.g. HEB 140 acc. to DIN 1025, is absolutely necessary.



### Selection of heavy-duty pipe supports

The pipe slide can be used in combination with various cramping sets for different functions:

1. Pipe slide as anchor point
2. Pipe slide as guide bearing with lift-off securing
3. Pipe slide as guide bearing without lift-off securing
4. Pipe slide as bearing

#### 1. Application:

Anchor point pipe slide with anchoring cams, fitted using the cramping set type F2AH



T-section pipe slide with two welded-on anchoring cams using cramping set "guidance with two lift-off securing devices".

The pipe slide is firmly fixed to the substructure by means of the anchoring stops in combination with the side guides and the lift-off securing devices.  
(0 degrees of freedom)

#### 2. Application:

Guidance with lift-off securing, pipe slide fitted using cramping set type F2AH



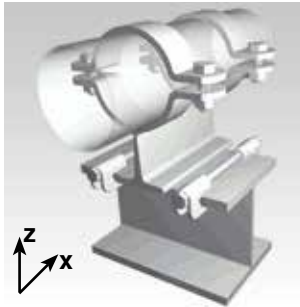
T-section pipe slide fitted using cramping set "guidance with two lift-off securing devices".

Due to the guidance of the pipe slide at the side and the lift-off securing, sliding of the pipe slide is only possible in the pipe axial directions.

(1 degree of freedom)

#### 3. Application:

Guidance without lift-off securing, pipe slide fitted using cramping set type F



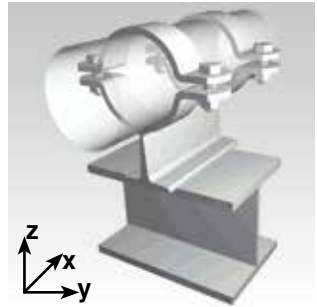
T-section pipe slide fitted using cramping set "type F guidance".

Due to the guidance of the pipe slide only at the side, movements in axial and vertical directions of the pipe are possible.

(2 degrees of freedom)

#### 4. Application:

Bearing



T-section pipe slide fitted without cramping set.

The pipe slide can move in the x, y and z directions.  
(3 degrees of freedom)

## Pipe slides type TP-1

with one pipe clamp, DIN 3567

## Field of application

- Attachment of pipelines in heavy-duty building technology, industrial construction and plant engineering
- For insulation thicknesses up to 75 mm for type TP80-1
- For insulation thicknesses up to 90 mm for type TP100-1

## Advantages

- Special lengths are available upon request
- Also available with polyamide sliding plate on request
- Also available in stainless steel as well as in primer coated version upon request



	Nominal size DN	Pipe outer diameter D1 [mm]	Part no.		Sales unit	Pack unit
			W37-OR-SG	W37-OF-SF		
T-Profile 80	25	33.7	116871	116826	1	pieces
	32	42.4	116874	116829		
	40	48.3	116877	116832		
	50	60.3	116880	116835		
	65	76.1	116883	116838		
	80	88.9	116886	116841		
	100	114.3	116856	116811		
	125	139.7	116859	116814		
	150	168.3	116862	116817		
	(175)	193.7	116865	116820		
	200	219.1	116868	116823		
T-Profile 100	25	33.7	116611	116581		
	32	42.4	116614	116584		
	40	48.3	116617	116587		
	50	60.3	116620	116590		
	65	76.1	116627	116593		
	80	88.9	116630	116596		
	100	114.3	116602	116566		
	125	139.7	116605	116569		
	150	168.3	116624	116572		
	(175)	193.7	116633	116575		
	200	219.1	116608	116578		

Pipe slide material	Pipe slide code	Pipe slide surface	Code for surface	Bolts and nuts	Code for bolts and nuts
S235JR (St37)	W37	untreated	OR	Strength class 8.8, galvanised	SG
		hot-dip galvanised	OF	Strength class 8.8, hot-dip galvanised	SF

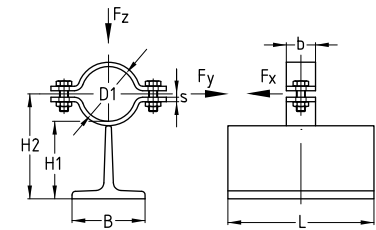
**Ordering example:** T-section slide guide made from S235JR (St37) with 1 pipe clamp, pipe slide hot-dip galvanised, with hot-dip galvanised bolts and nuts, strength class 8.8, for pipe outside diameter of 60.3 mm.

**Part no. 116590    Type: TP100-1-W37-OF-SF-60.3**



Pipe guide with polyamide sliding surface as well as other versions available upon request.

### Pipe slides type TP-1 with one pipe clamp, DIN 3567



	Nominal size DN	Pipe outer diameter D1 [mm]	Dimensions [mm]						Loading			Weight [kg/piece]	
			s	b	L	B	H1	H2	F <sub>x</sub> [kN]	F <sub>y</sub> [kN]	F <sub>z</sub> [kN]		
T-Profile 80	25	33.7	5	30	200	80	85	102	0.6	0.6	1.2	2.470	
	32	42.4						106	0.7	0.7		2.500	
	40	48.3						109				1.4	2.520
	50	60.3	6	40			86	116	1.2	1.2	2.4	2.840	
	65	76.1						124	1.3	1.3	2.6	2.930	
	80	88.9						130	1.4	1.4	2.8	3.020	
	100	114.3	8	50			88	145	2.8	2.8	5.6	4.040	
	125	139.7						158	2.9	2.9	5.8	4.230	
	150	168.3			250			172				5.020	
	(175)	193.7						185	3.0	3.0	6.0	5.360	
	200	219.1						198				5.580	
T-Profile 100	25	33.7	5	30	200	100	105	122	0.5	0.5	1.0	3.610	
	32	42.4						126	0.6	0.6		1.2	3.640
	40	48.3						129					3.660
	50	60.3	6	40			106	136	1.1	1.1	2.2	4.045	
	65	76.1						144	1.3	1.3	2.6	4.105	
	80	88.9						150				4.195	
	100	114.3	8	50			108	165	2.8	2.8	5.6	5.180	
	125	139.7						178	3.0	3.0	6.0	5.370	
	150	168.3			250			192	3.3	3.3	6.6	6.440	
	(175)	193.7						205	3.5	3.5	7.0	6.780	
	200	219.1						218	3.7	3.7	7.4	7.010	

## Pipe slides type TP-2

with two pipe clamps, DIN 3567

## Field of application

- Attachment of pipelines in heavy-duty building technology, industrial construction and plant engineering
- For insulation thicknesses up to 75 mm for type TP80-2
- For insulation thicknesses up to 90 mm for type TP100-2

## Advantages

- Special lengths are available upon request
- Also available with polyamide sliding plate upon request
- Also available in stainless steel as well as in primer coated version upon request



	Nominal size DN	Pipe outer diameter D1 [mm]	Part no.		Sales unit	Pack unit
			W37-OR-SG	W37-OF-SF		
T-Profile 80	25	33.7	117023	116960	1	pieces
	32	42.4	117026	116969		
	40	48.3	117029	116972		
	50	60.3	117032	116978		
	65	76.1	117035	116984		
	80	88.9	117038	116990		
	100	114.3	117008	116930		
	125	139.7	117011	116936		
	150	168.3	117014	116942		
	(175)	193.7	117017	116948		
	200	219.1	117020	116954		
T-Profile 100	25	33.7	116784	116716		
	32	42.4	116787	116722		
	40	48.3	116790	116727		
	50	60.3	116793	116733		
	65	76.1	116796	116739		
	80	88.9	116799	116745		
	100	114.3	116769	116686		
	125	139.7	116772	116692		
	150	168.3	116775	116698		
	(175)	193.7	116778	116704		
	200	219.1	116781	116710		

Pipe slide material	Pipe slide code	Pipe slide surface	Code for surface	Bolts and nuts	Code for bolts and nuts
S235JR (St37)	W37	untreated	OR	Strength class 8.8, galvanised	SG
		hot-dip galvanised	OF	Strength class 8.8, hot-dip galvanised	SF

**Ordering example:** T-section slide guide made from S235JR (St37) with 2 pipe clamps, pipe slide hot-dip galvanised, with hot-dip galvanised bolts and nuts, strength class 8.8, for pipe outer diameter of 60.3 mm.

**Part No. 116733    Type: TP100-2-W37-OF-SF-60.3**

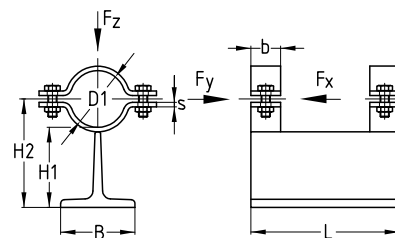


Pipe guide with polyamide sliding surface as well as other versions available upon request.



### Pipe slides type TP-2

with two pipe clamps, DIN 3567



	Nominal size DN	Pipe outer diameter D1 [mm]	Dimensions [mm]						Loading			Weight [kg/piece]
			s	b	L	B	H1	H2	F <sub>x</sub> [kN]	F <sub>y</sub> [kN]	F <sub>z</sub> [kN]	
T-Profile 80	25	33.7	5	30	200	80	85	102	1.1	1.1	2.2	2.800
	32	42.4						106	1.2	1.2	2.4	2.860
	40	48.3						109	1.4	1.4	2.8	2.910
	50	60.3	6	40			86	116	2.3	2.3	4.6	3.550
	65	76.1						124	2.5	2.5	5.0	3.710
	80	88.9						130	2.8	2.8	5.6	3.890
	100	114.3	8	50			88	145	5.0	5.0	10.0	5.930
	125	139.7						158	5.2	5.2	10.4	6.320
	150	168.3			172						7.360	
	(175)	193.7	185	5.4	5.4			10.8	8.040			
	200	219.1	198						8.490			
T-Profile 100	25	33.7	5	30	200	100	105	122	0.9	0.9	1.8	3.940
	32	42.4						126	1.1	1.1	2.2	4.000
	40	48.3						129	1.3	1.3	2.6	4.050
	50	60.3	6	40			106	136	2.0	2.0	4.0	4.690
	65	76.1						144	2.3	2.3	4.6	4.850
	80	88.9						150			5.0	5.030
	100	114.3	8	50			108	165	5.5	5.5	11.0	7.070
	125	139.7						178	6.0	6.0	12.0	7.460
	150	168.3			192			6.5	6.5	13.0	8.780	
	(175)	193.7	205	7.0	7.0			14.0	9.460			
	200	219.1	218	7.4	7.4			14.8	9.910			

## Pipe slides type TF-1

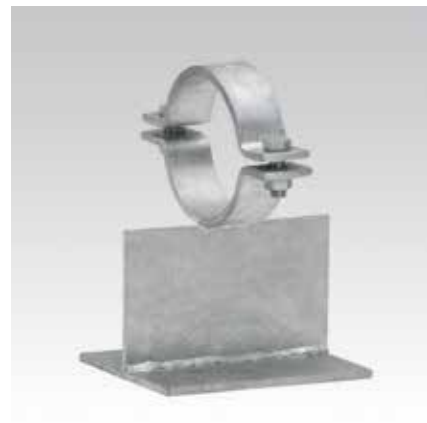
with one pipe clamp, DIN 3567

## Field of application

- Attachment of pipelines preferably with insulation in heavy-duty building technology, industrial construction and plant engineering
- Preferred for insulated pipes lines
- For insulation thicknesses up to 140 mm

## Advantages

- Special lengths are available upon request
- Also available with polyamide sliding plate upon request
- Also available in stainless steel as well as in primer coated version upon request



Nominal size DN	Pipe outer diameter D1 [mm]	Part no.		Sales unit	Pack unit
		W37-OR-SG	W37-OF-SF		
25	33.7	116403	116366	1	pieces
32	42.4	116406	116369		
40	48.3	116410	116372		
50	60.3	116413	116375		
65	76.1	116419	116380		
80	88.9	116422	116382		
100	114.3	116397	116357		
125	139.7	116400	116360		
150	168.3	116416	116363		

Pipe slide material	Pipe slide code	Pipe slide surface	Code for surface	Bolts and nuts	Code for bolts and nuts
S235JR (St37)	W37	untreated	OR	Strength class 8.8, galvanised	SG
		hot-dip galvanised	OF	Strength class 8.8, hot-dip galvanised	SF

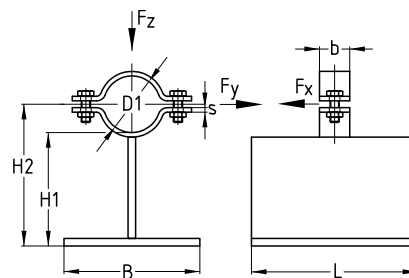
**Ordering example:** T-section slide guide made from S235JR (St37) with 1 pipe clamp, pipe slide hot-dip galvanised, with hot-dip galvanised bolts and nuts, strength class 8.8, for pipe outer diameter of 114.3 mm.

**Part no: 116357 Typ: TF-1-W37-OF-SF-114.3**



Pipe guide with polyamide sliding surface as well as other versions available upon request.

### Pipe slides type TF-1 with one pipe clamp, DIN 3567



Nominal size DN	Pipe outer diameter D1 [mm]	Dimensions [mm]						Loading			Weight [kg/piece]
		s	b	L	B	H1	H2	F <sub>x</sub> [kN]	F <sub>y</sub> [kN]	F <sub>z</sub> [kN]	
25	33.7	5	30	220	180	150	167	0.5	0.5	1.0	5.300
32	42.4						171	0.7	0.7	1.4	5.400
40	48.3						174	1.0	1.0	2.0	5.400
50	60.3	6	40				180	1.6	1.6	3.2	5.700
65	76.1						188	1.8	1.8	3.6	5.800
80	88.9						195	2.0	2.0	4.0	5.900
100	114.3	8	50				207	2.6	2.6	5.2	6.900
125	139.7						220	3.0	3.0	6.0	7.100
150	168.3						234	3.2	3.2	6.4	7.300

## Pipe slides type TF-2

with two pipe clamps, DIN 3567

## Field of application

- Attachment of pipelines preferably with insulation in heavy-duty building technology, industrial construction and plant engineering
- Preferred for insulated pipes lines
- For insulation thicknesses up to 140 mm

## Advantages

- Special lengths are available upon request
- Also available with polyamide sliding plate upon request
- Also available in stainless steel as well as in primer coated version upon request



Nominal size DN	Pipe outer diameter D1 [mm]	Part no.		Sales unit	Pack unit
		W37-OR-SG	W37-OF-SF		
25	33.7	116485	116446	1	pieces
32	42.4	116488	116449		
40	48.3	116491	116452		
50	60.3	116494	116455		
65	76.1	116497	116458		
80	88.9	116500	116461		
100	114.3	116476	116437		
125	139.7	116479	116440		
150	168.3	116482	116443		

Pipe slide material	Pipe slide code	Pipe slide surface	Code for surface	Bolts and nuts	Code for bolts and nuts
S235JR (St37)	W37	untreated	OR	Strength class 8.8, galvanised	SG
		hot-dip galvanised	OF	Strength class 8.8, hot-dip galvanised	SF

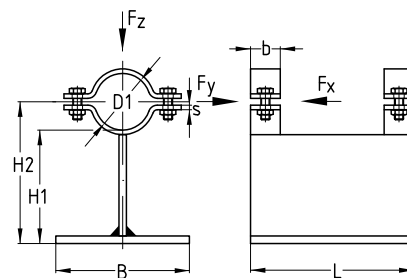
**Ordering example:** T-section slide guide made from S235JR (St37) with 2 pipe clamps, pipe slide hot-dip galvanised, with hot-dip galvanised bolts and nuts, strength class 8.8, for pipe outer diameter of 76.1 mm.

**Part no: 116458    Type: TF-2-W37-OF-SF-76.1**



Pipe guide with polyamide sliding surface as well as other versions available upon request.

### Pipe slides type TF-2 with two pipe clamps, DIN 3567



Nominal size DN	Pipe outer diameter D1 [mm]	Dimensions [mm]						Loading			Weight [kg/piece]
		s	b	L	B	H1	H2	F <sub>x</sub> [kN]	F <sub>y</sub> [kN]	F <sub>z</sub> [kN]	
25	33.7	5	30	220	180	150	167	1.0	1.0	2.0	6.100
32	42.4						171	1.4	1.4	2.6	6.200
40	48.3						174	2.0	2.0	4.0	6.200
50	60.3	6	40				180	3.2	3.2	6.4	6.800
65	76.1						188	3.6	3.6	7.6	7.000
80	88.9						195	4.0	4.0	8.0	7.200
100	114.3	8	50				207	5.2	5.2	10.4	9.200
125	139.7						220	5.5	5.5	11.0	9.600
150	168.3						234	5.7	5.7	11.4	10.100

## Pipe slides type LP-2

with two pipe clamps, DIN 3567

## Field of application

- Attachment of pipelines in heavy-duty building technology, industrial construction and plant engineering
- For insulation thicknesses up to 80 mm

## Advantages

- Special lengths are available upon request
- Also available with polyamide sliding plate upon request
- Also available in stainless steel as well as in primer coated version upon request



Nominal size DN	Pipe outer diameter D1 [mm]	Part no.		Sales unit	Pack unit
		W37-OR-SG	W37-OF-SF		
175	191.0	116257	116209	1	pieces
	193.7	116263	116212		
200	216.0	116269	116215		
	219.1	116275	116218		
250	267.0	116281	116221		
	273.0	116287	116224		
300	315.0	116293	116227		
	323.9	116299	116230		
350	355.6	116306	116233		
	368.0	116312	116236		
400	406.4	116318	116239		
	419.0	116324	116242		
500	508.0	116330	116245		
	521.0	116336	116248		
600	610.0	116342	116251		

Pipe slide material	Pipe slide code	Pipe slide surface	Code for surface	Bolts and nuts	Code for bolts and nuts
S235JR (St37)	W37	untreated	OR	Strength class 8.8, galvanised	SG
		hot-dip galvanised	OF	Strength class 8.8, hot-dip galvanised	SF

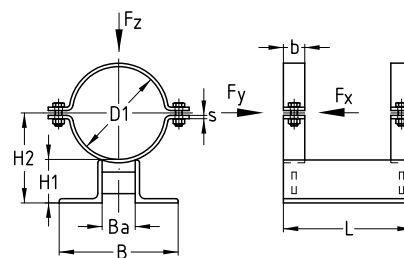
**Ordering example:** L-section slide guide made from S235JR (St37) with 2 pipe clamps, pipe slide hot-dip galvanised, with hot-dip galvanised bolts and nuts, strength class 8.8, for pipe outer diameter of 267 mm.

**Part no: 116221    Type: LP-2-W37-OF-SF-267.0**



Pipe guide with polyamide sliding surface as well as other versions available upon request.

### Pipe slides type LP-2 with two pipe clamps, DIN 3567



Nominal size DN	Pipe outer diameter D1 [mm]	Dimensions [mm]							Loading			Weight [kg/piece]
		s	b	L	B	Ba	H1	H2	F <sub>x</sub> [kN]	F <sub>y</sub> [kN]	F <sub>z</sub> [kN]	
175	191.0	8	50	300	269	69	102	198	10.0	10.0	20.0	14.740
	193.7				270	70		199				14.800
200	216.0				277	77		101				209
	219.1				278	78	211		10.5	10.5	21.0	15.300
250	267.0		60		294	94	100	233	11.2	11.2	22.4	18.210
	273.0				296	96		236				18.330
300	315.0				310	110	99	256				19.410
	323.9				313	113	98	260				19.600
350	355.6				324	124	97	275				20.870
	368.0				328	128		281				21.320
400	406.4	10	70		342	142	98	301	13.1	13.1	26.2	28.580
	419.0				346	146	97	307				29.070
500	508.0				376	176	95	349	14.5	14.5	29.0	32.150
	521.0				380	180		355				32.780
600	610.0				410	210	92	397	14.9	14.9	29.8	36.170



## Pipe slides type DS-2

with two pipe clamps, DIN 3567

## Field of application

- Attachment of pipelines preferably with insulation in heavy-duty building technology, industrial construction and plant engineering
- Preferred for insulated pipes lines
- For insulation thicknesses up to 140 mm

## Advantages

- Special lengths are available upon request
- Also available with polyamide sliding plate upon request
- Also available in stainless steel as well as in primer coated version upon request



Nominal size DN	Pipe outer diameter D1 [mm]	Part no.		Sales unit	Pack unit
		W37-OR-SG	W37-OF-SF		
175	191.0	115980	116254	1	pieces
	193.7	115982	116260		
200	216.0	115985	116266		
	219.1	115989	116272		
250	267.0	115992	116278		
	273.0	115995	116284		
300	315.0	115998	116290		
	323.9	116001	116296		
350	355.6	116004	116302		
	368.0	116007	116309		
400	406.4	116010	116315		
	419.0	116013	116321		
500	508.0	116016	116327		
	521.0	116019	116333		
600	610.0	116022	116339		

Pipe slide material	Pipe slide code	Pipe slide surface	Code for surface	Bolts and nuts	Code for bolts and nuts
S235JR (St37)	W37	untreated	OR	Strength class 8.8, galvanised	SG
		hot-dip galvanised	OF	Strength class 8.8, hot-dip galvanised	SF

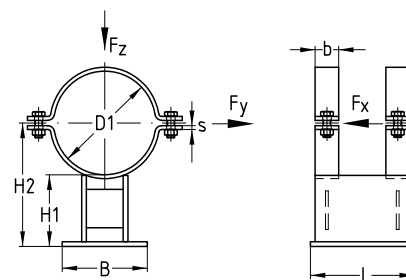
**Ordering example:** Twin-stay slide guide made from S235JR (St37) with 2 pipe clamps, pipe slide hot-dip galvanised, with hot-dip galvanised bolts and nuts, strength class 8.8, for pipe outer diameter of 406.4 mm.

**Part no: 116315    Type: DS-2-W37-OF-SF-406.4**



Pipe guide with polyamide sliding surface as well as other versions available upon request.

### Pipe slides type DS-2 with two pipe clamps, DIN 3567



Nominal size DN	Pipe outer diameter D1 [mm]	Dimensions [mm]						Loading			Weight [kg/piece]			
		s	b	L	B	H1	H2	F <sub>x</sub> [kN]	F <sub>y</sub> [kN]	F <sub>z</sub> [kN]				
175	191.0	8	50	220	180	150	246	12.0	12.0	24	13.700			
	247						13.760							
200	216.0						60	260	220	258	14.0	14.0	28	14.200
	219.1									260				14.300
250	267.0	284	17.0	17.0	34					18.650				
	273.0	287								18.790				
300	315.0	308	19.0	19.0	38					20.370				
	323.9	312								20.580				
350	355.6	328	20.5	20.5	41					21.440				
	368.0	334								21.910				
400	406.4	10	70	300	300		353	21.5	21.5	43	33.530			
	419.0						360				34.030			
500	508.0						404	23.0	23.0	46	37.270			
	521.0						411				37.920			
600	610.0										455	25.0	25.0	50

## Pipe slides type UPG-1

made of U profile as per DIN 1026

## Field of application

- Pipe slide made of U profile steel
- Version applicable for type 170 EX refrigerant pipe clamp

## Advantages

- Two different insulation thicknesses available

- Polyamide sliding plate for low sliding resistance
- Hot-dip galvanised version (further surfaces available upon request)
- Pipe slides also available with pipe clamp welded on at 45° (specify separately with order)



## Features (insulation shell)

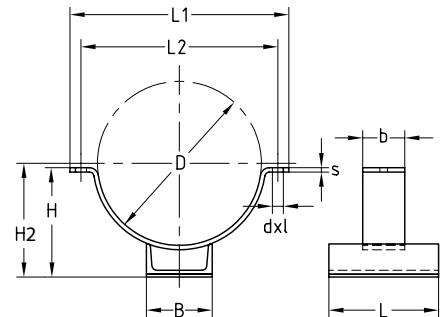
Material	Polyurethane, black
Effective density	250 kg/m³
Thermal conductivity	$\lambda = 0.049 \text{ W/mK at } 0^\circ\text{C}$
Building material class	B2 acc. to DIN 4102
Temperature range	-50 °C to +105 °C
Water vapour diffusion resistance	$\mu = 1,430$

Type	Nominal size DN	Part no.		Sales unit	Pack unit	Part no. accessories	
		slide	insulation shell			bolts	nuts
UPG-1-W37-OF-SF ISO40 114.3	100	117190	111173	1	pieces	105636	105445
UPG-1-W37-OF-SF ISO40 133.0	125	117096	111175			105636	105445
UPG-1-W37-OF-SF ISO40 139.7		117105	111177			105636	105445
UPG-1-W37-OF-SF ISO40 159.0	150	117108	111179			105636	105445
UPG-1-W37-OF-SF ISO40 168.3		117117	111181			105636	105445
UPG-1-W37-OF-SF ISO40 219.1	200	117193	111183			105642	105445
UPG-1-W37-OF-SF ISO40 273.0	250	117133	111187			105680	105459
UPG-1-W37-OF-SF ISO40 323.9	300	117196	111191			105680	105459
UPG-1-W37-OF-SF ISO40 406.4	400	117199	111199			105680	105459
UPG-1-W37-OF-SF ISO60 219.1	200	117129	111185			105642	105445
UPG-1-W37-OF-SF ISO60 273.0	250	117142	111189			105680	105459
UPG-1-W37-OF-SF ISO60 323.9	300	117151	111193			105680	105459
UPG-1-W37-OF-SF ISO60 355.6	350	117157	111195			105680	105459
UPG-1-W37-OF-SF ISO60 368.0		117163	111197			105680	105459
UPG-1-W37-OF-SF ISO60 406.4	400	117166	111201			105680	105459
UPG-1-W37-OF-SF ISO60 457.2	450	117175	111203			105680	105459
UPG-1-W37-OF-SF ISO60 508.0	500	117181	111205			105680	105459
UPG-1-W37-OF-SF ISO60 609.6	600	117186	111207			105680	105459



All single parts must be ordered separately. Please refer to the accessories table for corresponding article numbers. Pipe slides without polyamide sliding plate are available upon request.

### Pipe slides type UPG-1 made of U profile as per DIN 1026



Type	Nominal size DN	Diameter D [mm]	Dimensions [mm]							
			d x l	b x s	L	L1	L2	B	H	H2
UPG-1-W37-OF-SF ISO40 114.3	100	194	14 x 20	40 x 4	120	274	238	80	140	144
UPG-1-W37-OF-SF ISO40 133.0	125	213				300	264		150	154
UPG-1-W37-OF-SF ISO40 139.7		220							153	157
UPG-1-W37-OF-SF ISO40 159.0	150	239				319	279	100	165	169
UPG-1-W37-OF-SF ISO40 168.3		248				328	288		168	172
UPG-1-W37-OF-SF ISO40 219.1	200	299	18 x 25	50 x 8	200	399	359	120	199	207
UPG-1-W37-OF-SF ISO40 273.0	250	353				453	413		227	235
UPG-1-W37-OF-SF ISO40 323.9	300	404		60 x 8		504	464	140	257	265
UPG-1-W37-OF-SF ISO40 406.4	400	486		80 x 8	240	606	556		299	307
UPG-1-W37-OF-SF ISO60 219.1	200	339	14 x 20	50 x 8	200	439	399	120	219	227
UPG-1-W37-OF-SF ISO60 273.0	250	393	18 x 25			493	453		248	256
UPG-1-W37-OF-SF ISO60 323.9	300	444		60 x 8		544	504	140	277	285
UPG-1-W37-OF-SF ISO60 355.6	350	476		576		536	294		302	
UPG-1-W37-OF-SF ISO60 368.0		488		80 x 8		588	548		300	308
UPG-1-W37-OF-SF ISO60 406.4	400	526				646	596		319	327
UPG-1-W37-OF-SF ISO60 457.2	450	577				697	647		346	354
UPG-1-W37-OF-SF ISO60 508.0	500	628				748	698	180	378	386
UPG-1-W37-OF-SF ISO60 609.6	600	730			848	798	430		438	

## Pipe slides type UPG-2

made of U profile as per DIN 1026

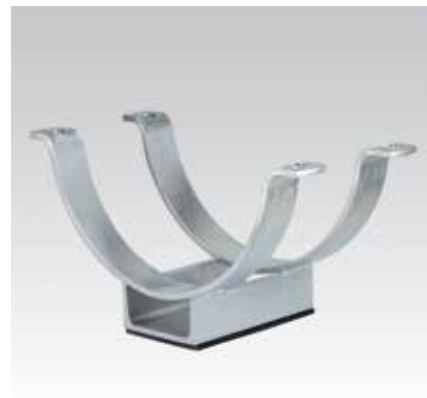
## Field of application

- Pipe slide made of U profile steel
- Version applicable for two type 170 EX refrigerant pipe clamps

## Advantages

- Two different insulation thicknesses available

- Polyamide sliding plate for low sliding resistance
- Hot-dip galvanised version (further surfaces available upon request)
- Pipe slides also available with pipe clamp welded on at 45° (specify separately with order)



## Features (insulation shell)

Material	Polyurethane, black
Effective density	250 kg/m³
Thermal conductivity	$\lambda = 0.049 \text{ W/mK at } 0^\circ\text{C}$
Building material class	B2 acc. to DIN 4102
Temperature range	-50 °C to +105 °C
Water vapour diffusion resistance	$\mu = 1,430$

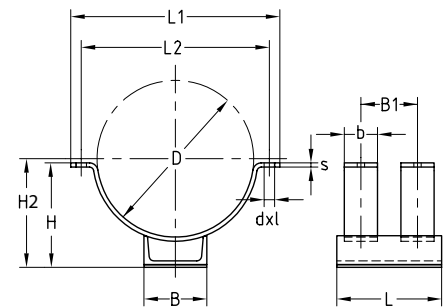
Type	Nominal size DN	Part no.		Sales unit	Pack unit	Part no. accessories	
		slide	insulation shell			bolts	nuts
UPG-2-W37-OF-SF ISO40 114.3	100	117099	111173	1	pieces	105636	105445
UPG-2-W37-OF-SF ISO40 133.0	125	117102	111175			105636	105445
UPG-2-W37-OF-SF ISO40 139.7		117111	111177			105636	105445
UPG-2-W37-OF-SF ISO40 159.0	150	117114	111179			105636	105445
UPG-2-W37-OF-SF ISO40 168.3		117120	111181			105636	105445
UPG-2-W37-OF-SF ISO40 219.1	200	117123	111183			105642	105445
UPG-2-W37-OF-SF ISO40 273.0	250	117136	111187			105680	105459
UPG-2-W37-OF-SF ISO40 323.9	300	117145	111191			105680	105459
UPG-2-W37-OF-SF ISO60 219.1	200	117126	111185			105642	105445
UPG-2-W37-OF-SF ISO60 273.0	250	117139	111189			105680	105459
UPG-2-W37-OF-SF ISO60 323.9	300	117148	111193			105680	105459
UPG-2-W37-OF-SF ISO60 355.6	350	117154	111195			105680	105459
UPG-2-W37-OF-SF ISO60 368.0		117160	111197			105680	105459
UPG-2-W37-OF-SF ISO60 406.4	400	117169	111201			105680	105459
UPG-2-W37-OF-SF ISO60 457.2	450	117172	111203			105680	105459
UPG-2-W37-OF-SF ISO60 508.0	500	117178	111205			105680	105459
UPG-2-W37-OF-SF ISO60 609.6	600	117184	111207			105680	105459



All single parts must be ordered separately. Please refer to the accessories table for corresponding article numbers. Pipe slides without polyamide sliding plate are available upon request.

### Pipe slides type UPG-2

made of U profile as per DIN 1026



Type	Nominal size DN	Diameter D [mm]	Dimensions [mm]								
			d x l	b x s	L	L1	L2	B	B1	H	H2
UPG-2-W37-OF-SF ISO40 114.3	100	194	14 x 20	40 x 4	120	274	238	80	60	140	144
UPG-2-W37-OF-SF ISO40 133.0	125	213				300	264			150	154
UPG-2-W37-OF-SF ISO40 139.7		220								153	157
UPG-2-W37-OF-SF ISO40 159.0	150	239				319	279	100		165	169
UPG-2-W37-OF-SF ISO40 168.3		248				328	288			168	172
UPG-2-W37-OF-SF ISO40 219.1	200	299				399	359	120		199	207
UPG-2-W37-OF-SF ISO40 273.0	250	353	18 x 25	50 x 8	200	453	413		100	227	235
UPG-2-W37-OF-SF ISO40 323.9	300	404		60 x 8		504	464	140		257	265
UPG-2-W37-OF-SF ISO60 219.1	200	339	14 x 20	50 x 8		439	399	120		219	227
UPG-2-W37-OF-SF ISO60 273.0	250	393	18 x 25			493	453			248	256
UPG-2-W37-OF-SF ISO60 323.9	300	444		60 x 8		544	504	140		277	285
UPG-2-W37-OF-SF ISO60 355.6	350	476				576	536			294	302
UPG-2-W37-OF-SF ISO60 368.0		488		80 x 8	240	588	548		120	300	308
UPG-2-W37-OF-SF ISO60 406.4	400	526				646	596			319	327
UPG-2-W37-OF-SF ISO60 457.2	450	577				697	647			346	354
UPG-2-W37-OF-SF ISO60 508.0	500	628				748	698	180		378	386
UPG-2-W37-OF-SF ISO60 609.6	600	730				848	798		140	430	438

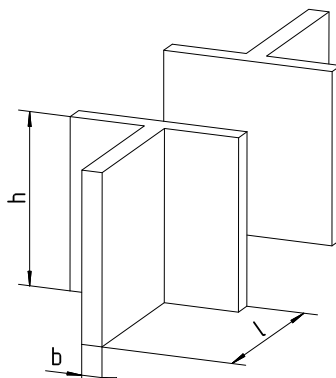
## Anchoring cams

## Field of application

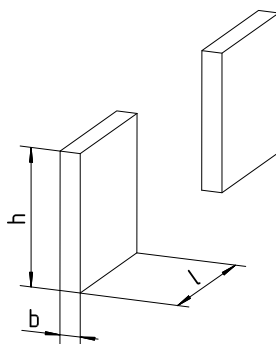
- Anchor cams for (one site) welding onto the pipe slides for application as anchor
- Individual applications in combination with all pipe slides

## Advantages

- Two versions available



Type N1



Type N2

	Type	Code	Dimensions [mm]			Weight [kg/piece]	Part no.	Sales unit	Pack unit
			b	h	l				
<b>Type N1</b> 2 pieces set	untreated	W37-OR	6	50	50	0.222	108956	1	set
	V2A	WA2-OP					108957		
	V4A	WA4-OP					108958		
<b>Type N2</b> 2 pieces set	untreated	W37-OR		40	40	0.075	108959		
	V2A	WA2-OP					108960		
	V4A	WA4-OP					108961		

Material	Code	Surface	Code for surface
S235JR (St37)	W37	untreated	OR
V2A stainless steel	WA2	pickled and passivated	OP
V4A stainless steel	WA4		



For application of pipe slide type LP-2 as anchor point four anchoring cams are required.



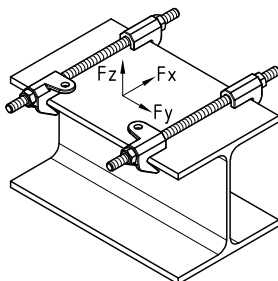
### Cramping sets type F1 AH, hot-dip galvanised

#### Field of application


- For attachment of pipe slide to the supporting steel structure
- Applicable as anchor point and as guidance (expansion point) with lift-off securing
- Hot-dip galvanised version for indoor and outdoor applications
- Applicable for pipe slides with a base plate thickness up to 15 mm

#### Advantages

- Pre-assembled sets consisting of cramping elements and the associated threaded pins and nuts for attachment of the pipe slide to the supporting steel structure



Max. flange thickness [mm]	Support profile width [mm]	Loading			Thread	Max. tightening torque [Nm]	Weight [kg/piece]	Part no.	Sales unit	Pack unit
		$F_x$ [kN]	$F_y$ [kN]	$F_z$ [kN]						
26	75–180	–	±4.0	–5.0	M12	22	1.212	167369	1	set
	180–300						1.422	167372		

 Applicable for pipe slides with a base plate thickness of up to 15 mm.

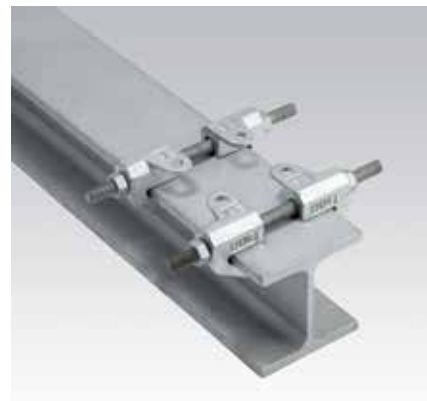
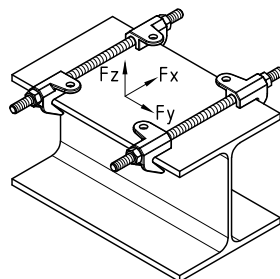
		Cramping set type F1 AH short Part no. 167369		Cramping set type F1 AH long Part no. 167372	
norm	profile type	Abbreviation		Abbreviation	
		min.	max.	min.	max.
1025-3	HE-A	HE-A 100	HE-A 180	HE-A 200	HE-A 650
1025-2	HE-B	HE-B 100	HE-B 180	HE-B 200	HE-B 450
1025-1	I	I 80	I 475	I 500	I 600
1025-5	IPE	IPE 80	IPE 400	IPE 450	IPE 600
1025-4	HE-M	HE-M 100	HE-M 180	HE-M 200	HE-M 220
EN 10055	T	T 80	T 140	–	–

## Cramping sets

type F2 AH, hot-dip galvanised

## Field of application

- For attachment of pipe slide to the supporting steel structure
- Applicable as anchor point and as guidance (expansion point) with lift-off securing
- Hot-dip galvanised version for indoor and outdoor applications
- Applicable for pipe slides with a base plate thickness up to 15 mm



## Advantages

- Pre-assembled sets consisting of cramping elements and the associated threaded pins and nuts for attachment of the pipe slide to the supporting steel structure

Max. flange thickness [mm]	Support profile width [mm]	Loading			Thread	Max. tightening torque [Nm]	Weight [kg/piece]	Part no.	Sales unit	Pack unit
		$F_x$ [kN]	$F_y$ [kN]	$F_z$ [kN]						
26	75–180	–	±4.0	–10.0	M12	22	1.400	167370	1	set
	180–300						1.610	167373		



Applicable for pipe slides with a base plate thickness of up to 15 mm.

		Cramping set type F2 AH short Part no. 167370		Cramping set type F2 AH long Part no. 167373	
norm	profile type	Abbreviation		Abbreviation	
		min.	max.	min.	max.
1025-3	HE-A	HE-A 100	HE-A 180	HE-A 200	HE-A 650
1025-2	HE-B	HE-B 100	HE-B 180	HE-B 200	HE-B 450
1025-1	I	I 80	I 475	I 500	I 600
1025-5	IPE	IPE 80	IPE 400	IPE 450	IPE 600
1025-4	HE-M	HE-M 100	HE-M 180	HE-M 200	HE-M 220
EN 10055	T	T 80	T 140	–	–

### Cramping sets

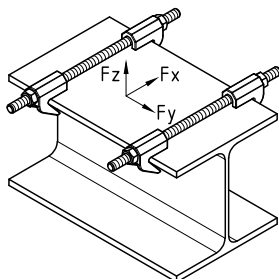
type F, hot-dip galvanised

#### Field of application

- For attachment of pipe slide to the supporting steel structure
- Applicable as anchor point and as guidance (expansion point) with lift-off securing
- Hot-dip galvanised version for indoor and outdoor applications
- Applicable for all pipe slides

#### Advantages

- Pre-assembled sets consisting of cramping elements and the associated threaded pins and nuts for attachment of the pipe slide to the supporting steel structure



Max. flange thickness [mm]	Support profile width [mm]	Loading			Thread	Max. tightening torque [Nm]	Weight [kg/piece]	Part no.	Sales unit	Pack unit
		$F_x$ [kN]	$F_y$ [kN]	$F_z$ [kN]						
26	75–180	–	±4.0	–	M12	22	1.212	167371	1	set
	180–300						1.422	167374		

		Cramping set type F short Part no. 167371		Cramping set type F long Part no. 167374	
norm	profile type	Abbreviation		Abbreviation	
		min.	max.	min.	max.
1025-3	HE-A	HE-A 100	HE-A 180	HE-A 200	HE-A 650
1025-2	HE-B	HE-B 100	HE-B 180	HE-B 200	HE-B 450
1025-1	I	I 80	I 475	I 500	I 600
1025-5	IPE	IPE 80	IPE 400	IPE 450	IPE 600
1025-4	HE-M	HE-M 100	HE-M 180	HE-M 200	HE-M 220
EN 10055	T	T 80	T 140	–	–

## Cramping elements

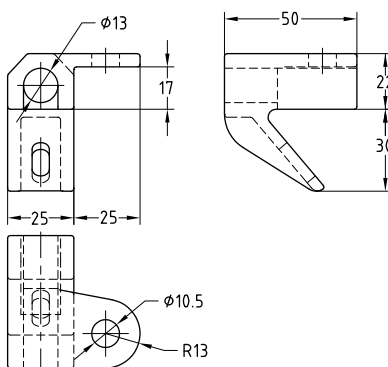
hot-dip galvanised

### Field of application

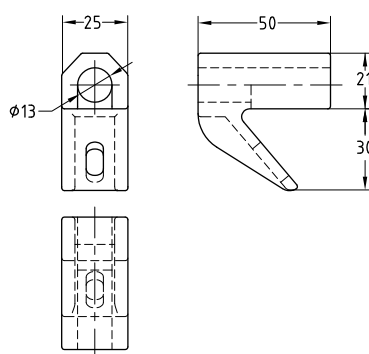
- Applicable in combination with pipe slides as anchor point, guidance with and without lift-off securing

### Advantages

- Simple and efficient attachment of pipe slides to steel girder supporting structure, e.g. pipe bridges
- All cramping elements are in cast steel GS 45 with hot-dip galvanised surface



Type K1



Type K2

Type	Thread	Type	Connection to profile		Weight [kg/piece]	Part no.	Sales unit	Pack unit
			Flange thickness S [min.]	Flange thickness S [max.]				
K1	M12	left	6	20	0.230	113238	1	pieces
		right				113241		
K2		—			0.183	113244		



Other cramping elements available upon request.

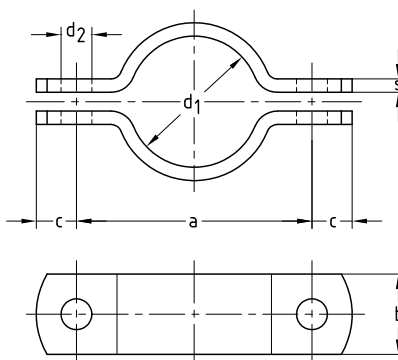
### Pipe clamps DIN 3567 form A

#### Field of application

- For high static loading requirements in plant construction
- Distribution of heavy loads when mounting pipes with great span lengths

#### Advantages

- Material S235JR according to DIN 17 100 approved for operating temperatures up to 300 °C
- Nominal size DN 15 is similar to DIN 3567, form A



For pipe outer-Ø d1 [mm]	Nominal size DN	Part no.				Sales unit	Pack unit	Dimensions [mm]					Accessories: hexagon head bolts
		untreated W37-OR	VFZ W37-OF	V2A WA2	V4A WA4			a	b	c	d2	s	
20	15	115466	115463	126682	126684	1	pieces	57	30	15	11.5	5	M10 x 30
22		115478	115475	126692	126694			59					
25	20	115493	115490	126700	126702			62					
27		115508	115505	126708	126710			66					
30	25	115771	115768	126720	126722			68					
34		115792	115789	126732	126734			72					
38	32	115809	115806	126744	126746			76					
43		115827	115824	126756	126758			82					
45	40	115833	115830	126760	126762			84					
49		115840	115837	126764	126766			88					
57	50	115861	115858	126776	126778			104	40	18	14.0	6	M12 x 35
61		115867	115864	126782	126784			108					
77	65	115879	115876	126788	126790			122					
89	80	115890	115888	126792	126794			136					
108	100	115409	115406	126646	126648			172	50	24	18.0	8	M16 x 45
115		115415	115412	126650	126652			178					
133	125	115427	115424	126656	126658			196					
140		115433	115430	126660	126662			204					
159	150	115442	115439	126664	126666			222					
169		115448	115445	126670	126672			232					
191	175	115454	115451	126674	126676			254					
194		115460	115457	126678	126680			258					
216	200	115472	115469	126688	126690			280					
220		115487	115481	126696	126698			284					
267	250	115502	115499	126704	126706			342	60	30	23.0		M20 x 50
273		115514	115511	126712	126714			348					
318	300	115780	115777	126724	126726			392					
324		115786	115783	126728	126730			398					
356	350	115797	115795	126736	126738			432					
368		115803	115800	126740	126742			444					
407	400	115815	115812	126748	126750			498	70	36	27.0	10	M24 x 60
419		115821	115818	126752	126754			510					
508	500	115846	115843	126768	126770			600					
521		115852	115849	126772	126774			614					

Material	Code	Surface	Code for surface
S235JR (St37)	<b>W37</b>	untreated	<b>OR</b>
V2A stainless steel	<b>WA2</b>	hot-dip galvanised	<b>OF</b>
V4A stainless steel	<b>WA4</b>	galvanised	<b>OG</b>

**i** Two identical half-shells are supplied per clamp ordered. Corresponding bolts and nuts must be ordered separately (refer to chapter „Accessories“).

## U-bolts DIN 3570

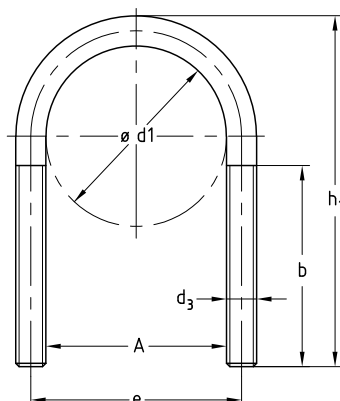
form A

### Field of application

- Simple and efficient attachment of pipes to steel supporting structures, e.g. pipe bridges

### Advantages

- Material S235JR (St37) according to DIN 17100 approved for operating temperatures up to 300°C



For pipe outer-Ø d1 [mm]	Nominal size DN	Part no.					Sales unit	Pack unit	Dimensions [mm]				
		untreated W37-OR	FVZ W37-OF	VZ W37-OV	V2A WA2	V4A WA4			A	b	d3	e	h1
20–22	15	124789	124786	131880	124709	124712	1	pieces	25	35	M10	35	65
25–27	20	124801	124798	124804	124724	124727			30	40		40	70
30–34	25	124822	124819	124825	124736	124739			38	50		48	76
38–43	32	124847	124844	124851	124748	124751			46		56	86	
45–49	40	124866	124863	124869	124770	124773			52		62	92	
57–61	50	124956	124953	124959	124896	124899			64	M12	76	109	
77	65	124973	124970	124976	124908	124911			82		94	125	
89	80	124982	124979	124985	124914	124917			94		106	138	
108–115	100	125039	125036	125042	124988	124991			120	60	M16	136	171
133–140	125	125058	125055	125061	125000	125003			148			164	191
159–169	150	125076	125073	125079	125012	125015			176			192	217
191–194	175	125094	125091	125097	125024	125027			202	70	M20	218	249
216–220	200	113135	113132	113138	125112	125115			228			248	283
267–273	250	113162	113159	113165	113114	113117			282			302	334
318–324	300	113141	113225	113144	113126	113129			332	M24	352	385	
356–368	350	113240	113237	113243	113189	113192			378		402	435	
407–419	400	113261	113258	113264	113201	113204			428		452	487	
508–521	500	113282	113279	113285	113213	113216			530		554	589	

Material	Code	Surface	Code for surface
S235JR (St37)	W37	untreated	OR
V2A stainless steel	WA2	hot-dip galvanised	OF
V4A stainless steel	WA4	galvanised	OV



U-bolts are supplied excluding nuts and washers. Order separately if required (refer to chapter „Accessories“).

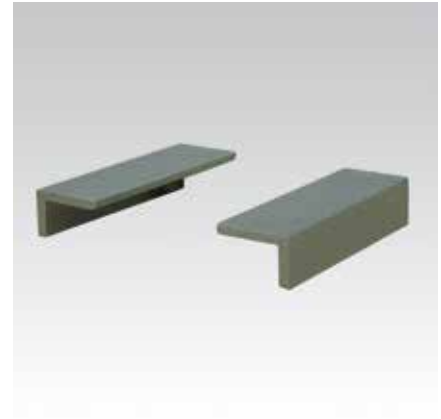
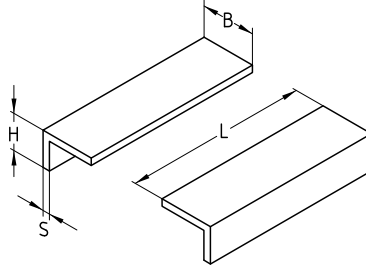
### Guide angles

#### Field of application

- Guide angle for (on-site) welding onto the supporting structure for guidance and to prevent lift-off of pipe slides
- Individually applicable in combination with all pipe slides

#### Advantages

- Two versions available



	Code	Dimensions [mm]				Weight [kg/piece]	Part no.	Sales unit	Pack unit
		S	H	L	B				
<b>L-30</b> 2 pieces set	W37-OR	4	20	100	30	0.159	<b>108999</b>	1	set
<b>L-40</b> 2 pieces set	W37-OR				40	0.212	<b>109000</b>		

Material	Code	Surface	Code for surface
S235JR (St37)	<b>W37</b>	untreated	<b>OR</b>



Guide angles are always supplied as pairs in untreated condition. Corrosion protection is made on site.






## MPT-Support system

MÜPRO


1. [Vibration control](#)
2. [Fire protection](#)
3. [Pipe clamps](#)
4. [Support channels](#)
5. [Accessories](#)
6. [Anchor points/  
expansion points](#)
7. [Heavy-duty pipe support](#)
8. [MPT-Support system](#)
9. [Ventilation](#)
10. [Pipe connectors](#)
11. [Stainless steel](#)
12. [Hot-dip galvanised](#)
13. [Anchor plugs](#)
14. [Nameplates](#)
15. [Insulation](#)
16. [Sealing and  
protection materials](#)
17. [Tools](#)
18. [Radiator fastening](#)
19. [Technical information](#)

MÜPRO



	Q50–2.5	Q80–2.0	Q100–2.5	Q100–3.5	Q150–2.5
 MPT-Support profiles	8/1–8/2	8/3–8/4	8/5–8/10	8/5–8/6	8/11–8/12
 MPT-Consoles	8/13	8/14	8/15–8/16		
 MPT-Brackets	8/17	8/17	8/17	8/17	8/17
 MPT-Cross channel connectors	8/18	8/18	8/18	8/18	
 MPT-Mounting angles 90°	8/19	8/19	8/19	8/19	8/19
 MPT-Mounting angles 45°	8/20	8/20	8/20	8/20	8/20
 MPT-VARIO joints	8/21	8/21	8/21	8/21	8/21
 MPT-Cantilever bracket	8/22		8/22	8/22	8/22
 MPT-Hammer head bolts	8/23	8/23	8/23	8/23	8/23
 MPT-Hexagon head bolt	8/24		8/24	8/24	8/24
 MPT-Protection caps	8/25	8/25	8/25	8/25	8/25
 MPT-Connection plates	8/26	8/26	8/26	8/26	8/26
 MPT-Angle- and T-connection plates			8/27	8/27	8/27
 MPT-Cross plate			8/28	8/28	
 MPT-Retaining plate	8/29	8/29	8/29	8/29	8/29
 MPT-Support profile connectors		8/30	8/30	8/30	8/30
 MPT-Saddle supports	8/31	8/31	8/31	8/31	8/31
 MPT-Saddle supports for installation of support profiles	8/32	8/32	8/32	8/32	8/32
 MPT-Guide	8/33	8/33	8/33	8/33	8/33
 MPT-Steel beam adaptor plates	8/34	8/34	8/34	8/34	8/34
 MPT-Girder cleats	8/35	8/35	8/35	8/35	
 MPT-Base plate	8/36	8/36	8/36	8/36	8/36

## VIDEO TIP

 **MPT support system – fastening solution for heavy loads:** the video shows installation options for individual fixing solutions based on the modular system.



## MPT-Support profile Q50

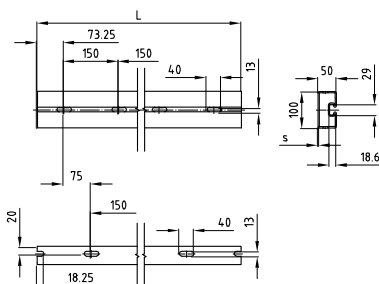
hot-dip galvanised

### Field of application

- Rectangular profile for fast and efficient connection of MPT support structures on floor, wall and ceiling

### Advantages


- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation outdoors and indoors
- Saves time and costs during installation with the functional accessories matched to the support profile
- Assurance of uniform product quality due to imprinted manufacturing code
- Single-side continuous fastening groove for flexible arrangement of accessories and support parts
- Clean-cut appearance by the use of MPT-protection caps




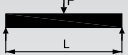
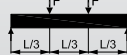
Profile	Profile length L [mm]	Profile thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q50-2.5	6,000	2.5	131624	1	pieces	41.700



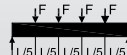
### MPT-Support profile Q50 hot-dip galvanised


#### Technical data of profile:

Profile 	Material	Surface	Admissible steel stress $\sigma_{adm}$ [N/mm <sup>2</sup> ]	Available hammer head bolts	Profile weight [kg/m]	Profile cross-section [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
							$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
Q50-2.5	S235	hot-dip galvanised	158	M10 M12	6.95	8.40	32.30	94.10	12.10	18.80

#### Max. load capacities of profile [N]:

Profile 	Bending into direction	L [m] 						L [m] 					
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q50-2.5	ZZ	13,664	7,392	4,983	3,731	847	197	9,147	5,353	3,675	2,338	497	115

Profile 	Bending into direction	L [m] 						L [m] 					
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q50-2.5	ZZ	6,106	3,565	2,450	1,678	357	83	4,884	2,929	2,027	1,318	280	65

-  The determined loads apply for static loads. Calculation based on Eurocode (EC3).  
 The safety coefficient  $\gamma = 1.48$  takes into account the partial and combination coefficients as well as the safety factor of the material.  
 For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

## MPT-Support profile Q80

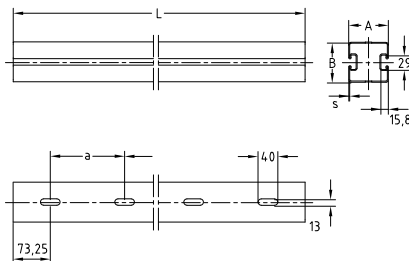
hot-dip galvanised

### Field of application

- For support structures used in heavy-duty building technology and on industrial and plant building sites

### Advantages

- For construction of safe structures due to the high load-bearing capacity of the profile
- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation
- Efficient installation due to the double fastening groove
- Saves time and costs due to functional accessories that are matched to the support profile
- System components with finished surface and ready for installation save set-up and installation time
- Product quality is ensured through the imprinted manufacturing code
- Continuous fastening groove for flexible arrangement of accessories and fastening components
- Clean-cut appearance by the use of MPT-protection caps




Profile	Profile length L [mm]	Profile thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]		
							A	B	a
Q80-2.0	6,000	2.0	167323	1	pieces	41.400	80	80	150


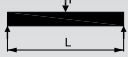
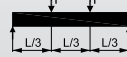



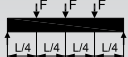
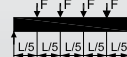
### MPT-Support profile Q80 hot-dip galvanised


#### Technical data of profile:

Profile 	Material	Surface	Admissible steel stress	Available hammer head bolts	Profile weight [kg/m]	Profile cross section [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
			$\sigma_{adm}$ [N/mm <sup>2</sup> ]				$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
Q80-2.0	S235	hot-dip galvanised	158	M10 M12	6.90	8.3	75.70	57.50	18.90	14.30

#### Max. load capacities of profile [N]:

Profile 	Bending into direction	L [m] 						L [m] 					
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q80-2.0	ZZ	21,462	11,588	7,826	5,878	2,240	843	14,418	8,405	5,776	4,366	1,315	495
	YY	16,955	8,869	5,945	4,448	1,667	588	11,831	6,523	4,417	3,317	978	345

Profile 	Bending into direction	L [m] 						L [m] 					
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q80-2.0	ZZ	9,625	5,599	3,851	2,912	943	355	7,709	4,601	3,188	2,418	741	279
	YY	7,899	4,345	2,945	2,212	702	248	6,407	3,591	2,444	1,839	551	194

 The determined loads apply for static loads. Calculation based on Eurocode (EC3).  
The safety coefficient  $\gamma = 1.48$  takes into account the partial and combination coefficients as well as the safety factor of the material.  
For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

## MPT-Support profiles Q100

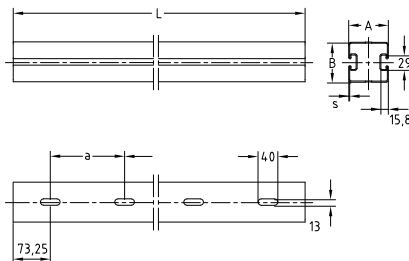
hot-dip galvanised

## Field of application

- For support structures used in heavy-duty building technology and on industrial and plant building sites

## Advantages

- For construction of safe structures due to the high load-bearing capacity of the profiles
- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation
- Efficient installation due to the double fastening groove
- Saves time and costs due to functional accessories that are matched to the support profile
- System components with finished surface and ready for installation save set-up and installation time
- Product quality is ensured through the imprinted manufacturing code
- Continuous fastening groove for flexible arrangement of accessories and fastening components
- Clean-cut appearance by the use of MPT-protection caps




Profile	Profile length L [mm]	Profile thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]		
							A	B	a
Q100-2.5	6,000	2.5	131608	1	pieces	59.820	100	100	150
Q100-3.5		3.5	131609			84.300			





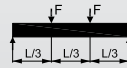
### MPT-Support profiles Q100


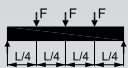
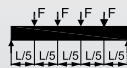
hot-dip galvanised

#### Technical data of profiles:

Profile	Material	Surface	Admissible steel stress	Available hammer head bolts	Profile weight	Profile cross section	Moment of inertia		Resistance moment	
			$\sigma_{adm}$ [N/mm <sup>2</sup> ]		[kg/m]	[cm <sup>2</sup> ]	$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
Q100-2.5	S235	hot-dip galvanised	158	M10	9.97	12.8	185.1	156.0	37.0	31.2
				M12						
Q100-3.5				M10	14.05	17.3	249.1	213.9	49.8	42.8
				M12						

#### Max. load capacities of profiles [N]:

Profile	Bending into direction	L [m]						L [m]					
													
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q100-2.5	ZZ	37,101	21,807	15,047	11,398	5,586	2,225	25,268	15,188	10,873	8,360	3,279	1,306
Q100-3.5	ZZ	50,653	29,493	20,296	15,357	7,502	2,971	34,767	20,636	14,703	11,280	4,404	1,744
Q100-2.5	YY	33,105	18,787	12,869	9,747	4,914	2,184	23,335	13,331	9,393	7,193	2,885	1,282
Q100-3.5	YY	45,733	25,820	17,670	13,378	6,738	2,995	32,325	18,358	12,910	9,878	3,955	1,758

Profile	Bending into direction	L [m]						L [m]					
													
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q100-2.5	ZZ	16,859	10,118	7,249	5,575	2,352	937	13,195	8,195	5,951	4,605	1,847	736
Q100-3.5	ZZ	23,199	13,747	9,802	7,524	3,159	1,251	18,191	11,152	8,056	6,218	2,481	982
Q100-2.5	YY	15,572	8,880	6,262	4,798	2,069	920	12,295	7,239	5,161	3,972	1,625	722
Q100-3.5	YY	21,572	12,229	8,607	6,589	2,837	1,261	17,050	9,976	7,096	5,456	2,228	990



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.48$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

### MPT-Support profile Q100 with 3 slots

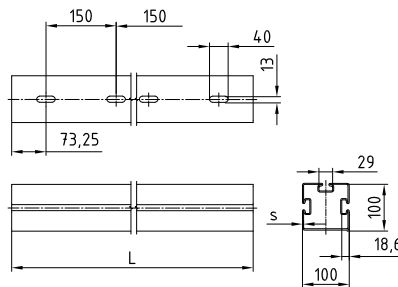
hot-dip galvanised

#### Field of application

- For support structures used in heavy-duty building technology and on industrial and plant building sites
- Additional mounting slot increases connection possibilities, for example for 3D fixtures

#### Advantages

- For construction of safe structures due to the high load-bearing capacity of the profile
- Saves time and costs due to functional accessories that are matched to the support profile
- High-level corrosion protection due to standardised hot-dip galvanising ensures flexible implementation indoors and outdoors
- Clean-cut appearance by the use of MPT-protection caps




Profile	Profile length L [mm]	Profile thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q100-2.5 with 3 slots	6,000	2.5	142547	1	pieces	64.800




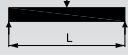
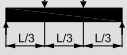
### MPT-Support profile Q100 with 3 slots



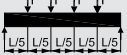
hot-dip galvanised


#### Technical data of profile:

Profile	Material	Surface	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Available hammer head bolts	Profile weight [kg/m]	Profile cross-section [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
							$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
Q100-2.5 with 3 slots	S235	hot-dip galvanised	158	M10 M12	10.8	13.75	187.5	171.3	37.5	32

#### Max. load capacities of profile [N]:

Profile	Bending into direction	L [m]						L [m]					
													
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q100-2.5 with 3 slots	ZZ	37,411	22,059	15,232	11,540	5,642	2,228	25,411	15,338	10,996	8,459	3,313	1,308
	YY	33,732	19,221	13,184	9,991	5,047	2,398	23,637	13,605	9,610	7,367	3,167	1,407

Profile	Bending into direction	L [m]						L [m]					
													
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q100-2.5 with 3 slots	ZZ	16,955	10,218	7,331	5,641	2,376	938	13,262	8,271	6,017	4,658	1,866	737
	YY	15,774	9,063	6,407	4,913	2,272	1,009	12,437	7,382	5,278	4,067	1,784	793

-  The determined loads apply for static loads. Calculation based on Eurocode (EC3).  
 The safety coefficient  $\gamma = 1.48$  takes into account the partial and combination coefficients as well as the safety factor of the material.  
 For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

### MPT-Support profile Q100 with 4 slots

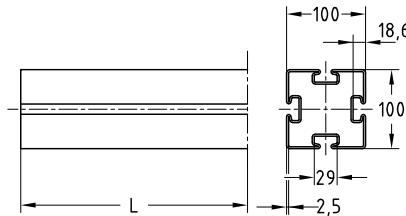
hot-dip galvanised

#### Field of application

- For support structures used in heavy-duty building technology and on industrial and plant building sites
- Additional mounting slot increases connection possibilities, for example for 3D fixtures

#### Advantages

- For construction of safe structures due to the high load-bearing capacity of the profile
- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation
- Saves time and costs due to functional accessories that are matched to the support profile
- Continuous fastening groove for flexible arrangement of accessories and fastening components on all sides
- Clean-cut appearance by the use of MPT-protection caps



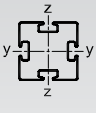
Profile	Profile length L [mm]	Profile thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q100-2.5 with 4 slots	6,000	2.5	166816	1	pieces	74.400



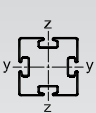
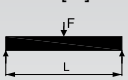
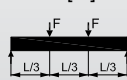
### MPT-Support profile Q100 with 4 slots

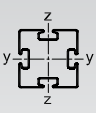

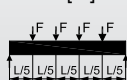
hot-dip galvanised


#### Technical data of profile:

 Profile	Material	Surface	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Available hammer head bolts	Profile weight [kg/m]	Profile cross-section [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
							$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
Q100-2.5 with 4 slots	S235	hot-dip galvanised	158	M10 M12	12.4	15.49	194.5	194.5	38.9	38.9

#### Max. load capacities of profile [N]:

 Profile	Bending into direction	 L [m]						 L [m]					
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q100-2.5 with 4 slots	ZZ	38,257	22,759	15,753	11,941	5,823	2,267	25,799	15,753	11,343	8,739	3,418	1,331
	YY	38,257	22,759	15,753	11,941	5,823	2,267	25,799	15,753	11,343	8,739	3,418	1,331

 Profile	Bending into direction	 L [m]						 L [m]					
		0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
Q100-2.5 with 4 slots	ZZ	17,213	10,494	7,562	5,828	2,452	954	13,436	8,482	6,200	4,809	1,925	750
	YY	17,213	10,494	7,562	5,828	2,452	954	13,436	8,482	6,200	4,809	1,925	750

-  The determined loads apply for static loads. Calculation based on Eurocode (EC3).  
 The safety coefficient  $\gamma = 1.48$  takes into account the partial and combination coefficients as well as the safety factor of the material.  
 For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

## MPT-Support profile Q150 with 3 slots

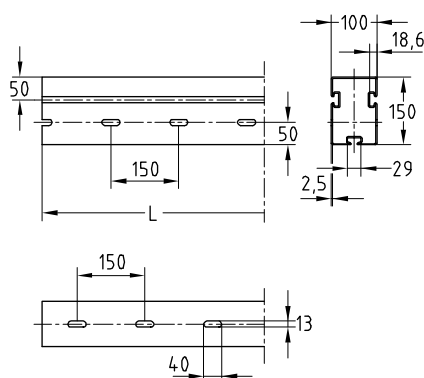
hot-dip galvanised

## Field of application

- For support structures used in heavy-duty building technology and on industrial and plant building sites
- Additional mounting slot increases connection possibilities, for example for 3D fixtures

## Advantages

- For construction of safe structures due to the high load-bearing capacity of the profile
- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation
- Saves time and costs due to functional accessories that are matched to the support profile
- System components with finished surface and ready for installation save set-up and installation time
- Product quality is ensured through the imprinted manufacturing code
- Continuous fastening groove for flexible arrangement of accessories and fastening components
- Clean-cut appearance by the use of MPT-protection caps



Profile	Profile length L [mm]	Profile thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q150-2.5 with 3 slots	7,050	2.5	161079	1	pieces	94.180



MPT-Girder cleats and further mounting parts for profile Q150 available upon request.

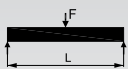
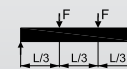
### MPT-Support profile Q150 with 3 slots

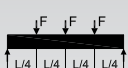
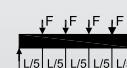
hot-dip galvanised


#### Technical data of profile:

Profile	Material	Surface	Admissible steel stress	Available hammer head bolts	Profile weight [kg/m]	Profile cross-section [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
			$\sigma_{adm}$ [N/mm <sup>2</sup> ]				$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
Q150-2.5 with 3 slots	S235	hot-dip galvanised	158	M10 M12	13.08	16.20	445.4	230.6	59.4	46.1

#### Max. load capacities of profile [N]:

Profile	Load into direction	L [m]						L [m]					
													
Q150-2.5 with 3 slots	YY	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
	ZZ	46,312	26,245	18,430	14,057	6,942	2,747	27,456	17,733	13,084	10,196	4,076	1,612
		58,015	34,692	24,067	18,278	9,090	5,754	38,983	23,958	17,307	13,366	6,774	3,377

Profile	Load into direction	L [m]						L [m]					
													
Q150-2.5 with 3 slots	YY	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
	ZZ	18,316	11,814	8,723	6,801	2,923	1,157	14,183	9,476	7,115	5,593	2,296	908
		26,009	15,960	11,538	8,915	4,515	2,423	20,289	12,890	9,456	7,354	3,752	1,903

 The determined loads apply for static loads. Calculation based on Eurocode (EC3).  
 The safety coefficient  $\gamma = 1.48$  takes into account the partial and combination coefficients as well as the safety factor of the material.  
 For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.



## MPT-Consoles Q50

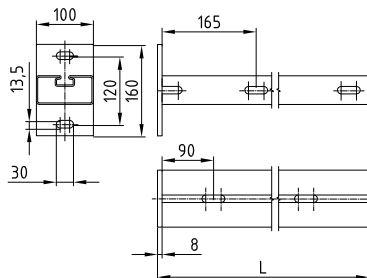
hot-dip galvanised

## Field of application

- Consoles for accommodation of pipelines and aggregates in industrial construction, plant building construction and heavy-duty building technology for attachment on floor, wall and ceiling

## Advantages

- Baseplate for direct or indirect connection to the structure
- Quick fixing due to continuous mounting slot
- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation outdoors and indoors
- Clean-cut appearance by the use of MPT-protection caps



Size	Length L [mm]	Part no.	Sales unit	Pack unit	weight [kg/piece]
Q50-2.5	500	147941	1	pieces	4.50
	750	147942			6.25
	1,000	147943			7.95

## Technical data of brackets:

Profile	Dimensions H x W x D	Base plate Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Support channel Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]
	[mm]				
Q50-2.5	160 x 100 x 8	S235	158	S235	158

## Load bearing capacities of brackets for bending around the y-axis:

Profile	Base plate $M_{max.}$ [Nmm]	Length L [mm]				
Max. allowable load [N]						
Q50-2.5	559,674	500	2,204	1,102	1,102	735
		750	1,441	721	721	480
		1,000	1,051	526	526	350



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.48$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/150$  are not exceeded, taking the deadweight into consideration.

The load-carrying values refer to the console support. Fastening elements such as plugs and screws, must be chosen in accordance with the loads.

### MPT-Consoles Q80

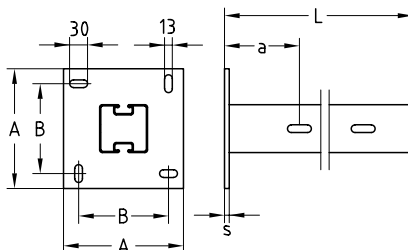
hot-dip galvanised

#### Field of application

- Consoles for accommodation of pipelines and aggregates in industrial construction, plant building construction and heavy-duty building technology for attachment on floor, wall and ceiling

#### Advantages

- Stable, perforated baseplate for direct or indirect connection to the structure
- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation outdoors and indoors
- Quick fastening of add-on parts via the dual-side fastening groove
- Can also be implemented universally as support from the floor or as a shaft from the ceiling
- Clean-cut appearance by the use of MPT-protection caps



Size	Length L [mm]	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]		
Q80-2.0	500	10	167930	1	pieces	6.028	200	150	165
	750		167931			7.712			
	1,000		167932			9.380			

#### Technical data of brackets:

Profile	Dimensions H x W x D [mm]	Base plate Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Support channel Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]
Q80-2.0	200 x 200 x 10	S235	152	S235	152

#### Load bearing capacities of brackets for bending around the y- and z-axis:

Profile	Base plate $M_{max.}$ [Nmm]	Length L [mm]	Max. allowable load [N]			
Q80-2.0	1,751,380	500	7,005	3,502	3,502	2,335
		750	4,670	2,335	2,335	1,556
		1,000	3,502	1,751	1,751	1,167



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/150$  are not exceeded, taking the deadweight into consideration.

The load-carrying values refer to the console support. Fastening elements such as plugs and screws, must be chosen in accordance with the loads.

### MPT-Consoles Q100

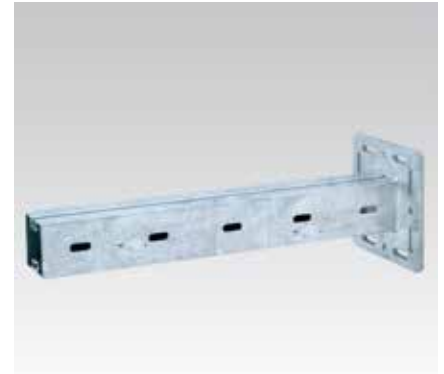
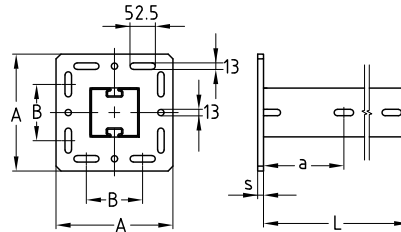
hot-dip galvanised

#### Field of application

- Consoles for accommodation of pipelines and aggregates in industrial construction, plant building construction and heavy-duty building technology for attachment on floor, wall and ceiling

#### Advantages

- Stable, perforated baseplate for direct or indirect connection to the structure
- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation outdoors and indoors
- Quick fastening of add-on parts via the dual-side fastening groove
- Can also be implemented universally as support from the floor or as a shaft from the ceiling
- Clean-cut appearance by the use of MPT-protection caps



Size	Length L [mm]	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]		
							A	B	a
Q100-2.5	500	12	135617	1	pieces	9.620	240	115.5	165
	750		135619			11.480			
	1,000		135620			13.960			
	1,500		135621			18.960			
	2,000		135622			23.960			
	3,000		135623			33.960			

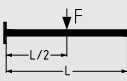
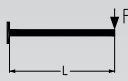
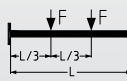
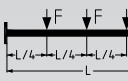
### MPT-Consoles Q100

hot-dip galvanised

#### Technical data of brackets:

Profile	Dimensions H x W x D  [mm]	Base plate		Support channel	
		Material	Admissible steel stress  $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Material	Admissible steel stress  $\sigma_{adm.}$ [N/mm <sup>2</sup> ]
Q100-2.5	240 x 240 x 12	S235	158	S235	158

#### Load bearing capacities of brackets for bending around the y- and z-axis:

Profile	Base plate M <sub>max.</sub> [Nmm]	Length L [mm]				
						
			Max. allowable load [N]			
Q100-2.5	3,994,128	500	15,976	7,988	7,988	5,325
		750	10,651	5,325	5,325	3,550
		1,000	7,988	3,994	3,994	2,662
		1,500	5,325	2,662	2,662	1,775
		2,000	3,994	1,870	1,997	1,331
		3,000	2,410	750	1,130	730



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.48$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/150$  are not exceeded, taking the deadweight into consideration.

The load-carrying values refer to the console support. Fastening elements such as plugs and screws, must be chosen in accordance with the loads.

## MPT-Brackets

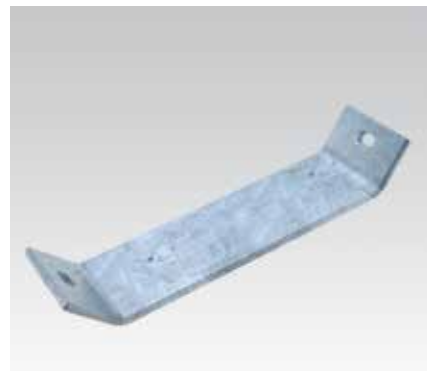
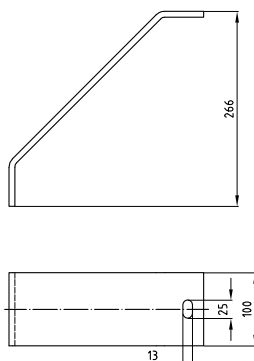
hot-dip galvanised

## Field of application

- Hot-dip galvanised brackets for support and bracing of 90° corner connections of MPT support structures

## Advantages

- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation outdoors and indoors
- Fast bracing of corner connections by using two fastening points only
- Easy and safe to install; oblong holes easily compensate for any installation tolerances that may occur



For profile	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]		
						B	L	b
Q50–2.5, Q100–2.5, Q100–3.5, Q150–2.5	8	131835	1	pieces	2.820	100	350	25
Q80–2.0		167324			1.736	80	300	30



The combination of MPT-Brackets and the profile Q150–2.5 is limited.

### MPT-Cross channel connectors

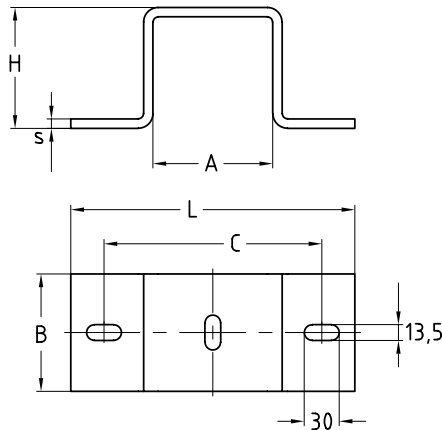
hot-dip galvanised

#### Field of application

- For cross connections made of MPT-Support profiles Q50, Q80 and Q100

#### Advantages

- Quick and safe installation via oblong holes in combination with MPT-Hammer head fasteners
- Standardised hot-dip galvanising for outdoor and indoor implementation



For profile	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]				
						A	H	L	C	B
Q50-2.5	8	147940	1	pieces	1.960	106	56	246	189	100
Q80-2.0		167936			1.630	82	86	212	150	80
Q100-2.5, Q100-3.5		138640			2.602	106	106	246	189	100

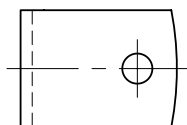
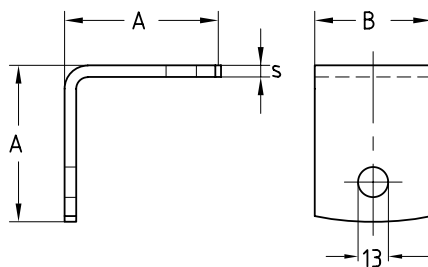
## MPT-Mounting angles 90° hot-dip galvanised

### Field of application

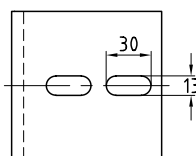
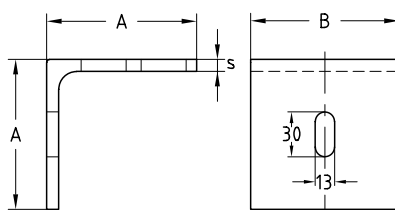
- Approved mounting angles in versions 90° and 90° light-duty model respectively, for corner and angle connections as well as for bracing in combination with MPT-Support profiles Q50, Q80, Q100 and Q150

### Advantages

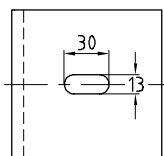
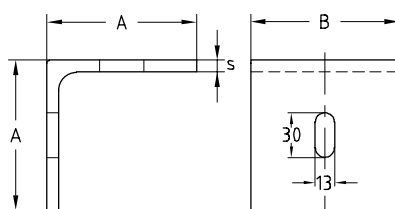
- Stable and good value connecting element for connecting MPT-Support profiles
- High-quality hot-dip galvanising for universal implementation outdoors and indoors



90°, light version, for profile Q50



90°, for profiles Q50, Q100, Q150



90°, for profile Q80

Design	For profile	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]	
							A	B
90°, light version	Q50-2.5	6	141460	1	pieces	0.239	67	50
90°	Q50-2.5, Q100-2.5, Q100-3.5, Q150-2.5	8	131605			1..130	100	100
	Q80-2.0		167322			0.780	80	80



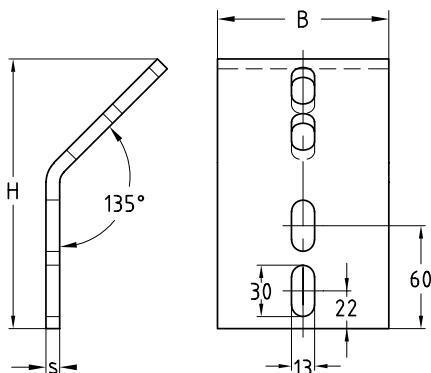
### MPT-Mounting angles 45° hot-dip galvanised

#### Field of application

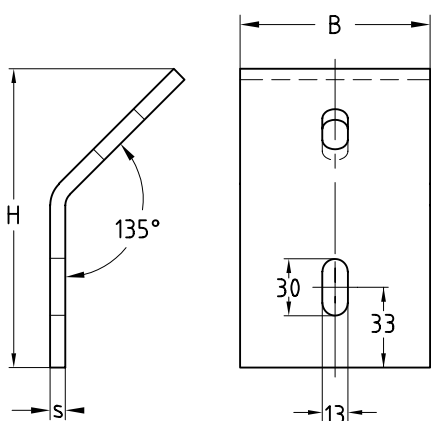
- Proven mounting angles for corner and angle connections as well as for bracing in combination with MPT-Support profiles Q50, Q80, Q100 and Q150
- Additional connection options due to fourfold perforation

#### Advantages

- Stable and good value connecting element for connecting MPT-Support profiles
- Occuring tolerances are compensated due to oblong holes in the mounting angle
- High-quality hot-dip galvanising for universal implementation outdoors and indoors



4-hole, for profiles Q50, Q100, Q150



2-hole, for profile Q80

Design	For profile	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]	
							B	H
4-Angle bars	Q50–2.5, Q100–2.5, Q100–3.5, Q150–2.5	8	151334	1	pieces	1.066	100	157.2
2-Angle bars	Q80–2.0		167933			0.830	80	140.0

## MPT-VARIO joints

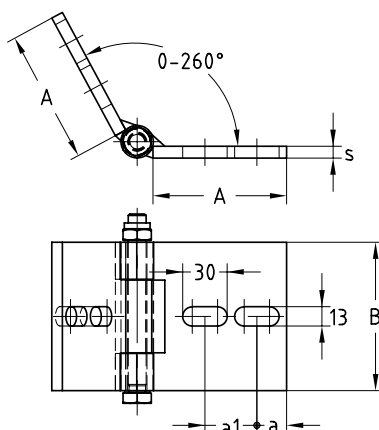
galvanised

### Field of application

- Reinforced joint angles for corner and angle connections as well as for bracing in combination with MPT-Support profiles Q50, Q80, Q100 and Q150
- Additional connection options due to fourfold perforation

### Advantages

- Flexible connecting element for connecting MPT-Support profiles with any connection angles
- Any tolerances that may occur can be compensated due to oblong holes in mounting angles



### Features

Design	Max. recommended load [N]
	5,000
	7,500
	10,000

For profile	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]			
						A	B	a	a1
Q50-2.5, Q100-2.5, Q100-3.5, Q150-2.5	8	166944	1	pieces	1.390	90	100	20	35
Q80-2.0		167939			1.095		80	22	38

### MPT-Cantilever bracket

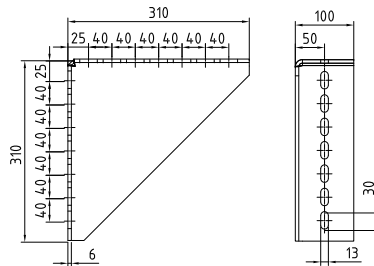
hot-dip galvanised

#### Field of application

- For attachment on ceiling, wall and floor
- Strong cantilever bracket for accommodation of pipelines and aggregates in industrial construction, plant building construction and heavy-duty building technology

#### Advantages

- Great variety of mounting possibilities when used with MPT-Support profiles
- High-level corrosion protection due to standardised hot-dip galvanising ensures flexible implementation indoors and outdoors



For profile	Size [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q50-2.5, Q100-2.5, Q100-3.5, Q150-2.5	310 x 310 x 100	143401	1	pieces	5.030



## MPT-Hammer head bolts

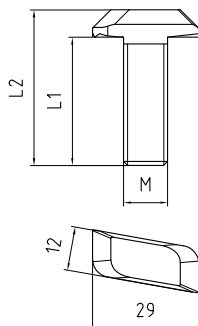
zinc lamella coating, silver

## Field of application


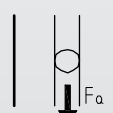
- Hammer head bolts with washer and hexagonal nut for safe fastening of add-on parts in the channel slot of the MPT-Support profiles and consoles

## Advantages

- No danger of confusing parts; can be implemented universally for MPT-Profiles Q50, Q80, Q100 and Q150
- Strength class 8.8 for safe transmission of high forces
- Rifled support on the hammer head for safe transmission of the holding force in the fastening groove



## Max. load capacities:

For profile	Size	Max. recommended tensile load $F_z$ [N] 	Max. recommended transverse load $F_Q^{1)}$ [N] 	At tightening torque $T_{inst}^{2)}$ [Nm]
Q50-2.5	M10 x 25	5,000	6,000	40
	M12 x 35	7,000	9,500	65
	M12 x 60			
	M12 x 80			
	M12 x 100			
Q80-2.0	M10 x 25	10,000	6,000	40
	M12 x 35	12,000	9,500	65
	M12 x 60			
Q100-2.5	M10 x 25	6,000	6,000	40
	M12 x 35	8,000	9,500	65
	M12 x 60			
Q100-3.5	M10 x 25	10,000	6,000	40
	M12 x 35	12,000	9,500	65
	M12 x 60			
Q150-2.5	M10 x 25	6,000	6,000	40
	M12 x 35	8,000	9,500	65
	M12 x 60			

Size	Length L1 [mm]	Length L2 [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
M10 x 25	25	32.5	139167	50	pieces	0.058
M12 x 35	35	42.5	139168			0.074
M12 x 60	60	67.5	139169			0.111
M12 x 80 <sup>3)</sup>	80	88.5	151341	1		0.110
M12 x 100 <sup>3)</sup>	100	108.5	151342			0.123

<sup>1)</sup> Hole tolerance of the bold has been adjusted.

<sup>2)</sup> Values apply for threads being dry and free of dust, oil and grease.

The MPT-Hammer head bolts are covered with a new type of zinc lamella coating, which has a lower friction coefficient than conventional galvanic coatings. This increases the ease of installation as the required preload force is reached at a much lower tightening torque.

<sup>3)</sup> Size M12 x 80 and M12 x 100 available on request.

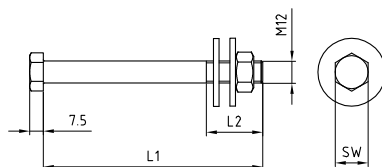
### MPT-Hexagon head bolt with washers and nuts, hot-dip galvanised

#### Field of application

- Hexagon head bolt with washers for form-locking connection of MPT system components

#### Advantages

- For fast and efficient installation at the construction site due to enclosed flat washers and nuts



For profile	Size	Length L1 [mm]	Length L2 [mm]	Spanner width [SW]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q50-2.5, Q100-2.5, Q100-3.5, Q150-2.5	M12 x 130	130	36	19	160781	25	pieces	0.179



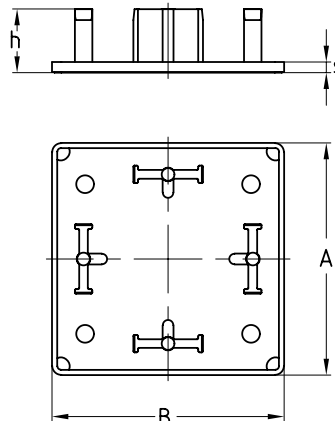
### MPT-Protection caps

#### Field of application

- Plastic protection caps with MÜPRO logo for mounting on open ends of the MPT-Support profiles Q50, Q80, Q100 and Q150

#### Advantages

- Clean end of the MPT-Support profiles protects from injury
- Weather-resistant plastic material for long service life



schematic sketch  
(original may vary)



For profile	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]			
					A	B	h	s
Q50	157359	25	pieces	0.020	50	100	27.5	4.6
Q80	167940			0.024	80	80	17.5	3.0
Q100	157360			0.034	100	100	27.5	4.6
Q150	168242			0.061	150			



### MPT-Connection plates

hot-dip galvanised

#### Field of application

- Hot-dip galvanised plates for connection of MPT-Support profiles

#### Advantages

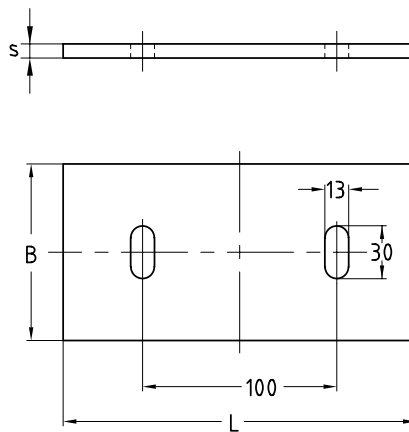
- Fast connection via oblong holes combined with MPT-Hammer head bolts
- High-quality hot-dip galvanising for universal implementation outdoors and indoors



For profiles Q50, Q100, Q150



For profiles Q50, Q80, Q100, Q150



For profile	Length L [mm]	Width B [mm]	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q50-2.5,	200	100	8	148007	1	pieces	1.320
Q100-2.5,	320			151337			2.020
Q100-3.5,							
Q150-2.5							
Q80-2.0	160	80		167321			0.779



## MPT-Angle- and T-connection plates

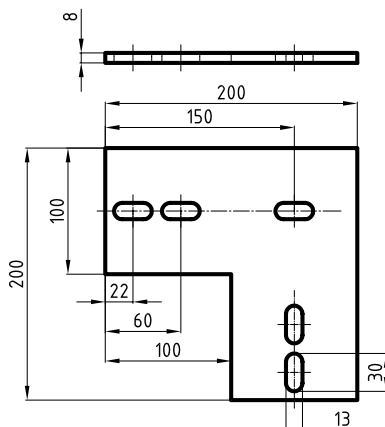
hot-dip galvanised

## Field of application

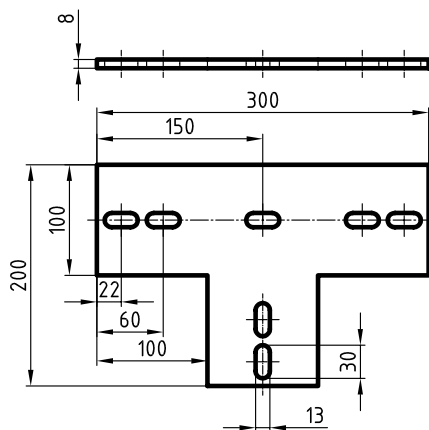
- Hot-dip galvanised angle- and T-connection plates for connection of MPT-Support profiles

## Advantages

- Fast connection via oblong holes combined with MPT-Hammer head bolts
- High-quality hot-dip galvanising for universal implementation outdoors and indoors



Angle plate



T-connection plate

	For profile	Length L [mm]	Width B [mm]	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Angle plate	Q100-2.5,	200	200	8	151338	1	pieces	1.750
T-Plate	Q100-3.5, Q150-2.5	300			151340			2.330

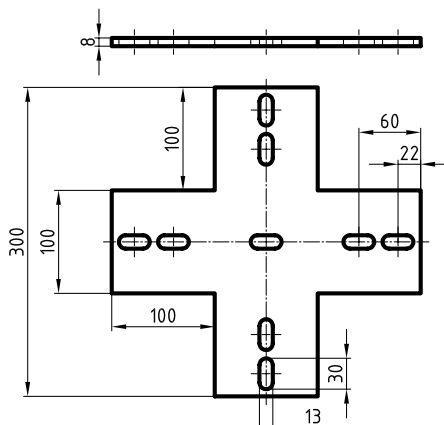
### MPT-Cross plate hot-dip galvanised

#### Field of application

- Hot-dip galvanised cross plate for connection of MPT-Support profiles

#### Advantages

- Fast connection via oblong holes combined with MPT-Hammer head bolts
- High-quality hot-dip galvanising for universal implementation outdoors and indoors



For profile	Length L [mm]	Width B [mm]	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q100-2.5, Q100-3.5	300	300	8	151339	1	pieces	2.900



## MPT-Retaining plate

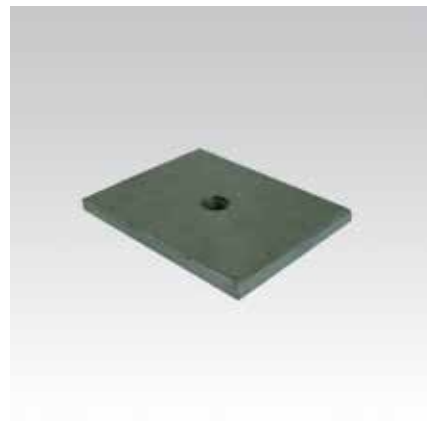
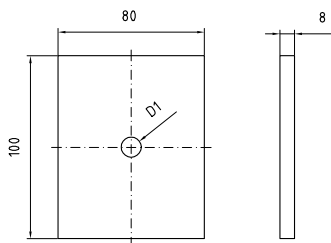
hot-dip galvanised

### Field of application

- Stable hot-dip galvanised plate for transmission of high forces onto MPT-Support profiles when installing attachment parts

### Advantages

- High-level corrosion protection due to standardised hot-dip galvanising ensures flexible implementation outdoors and indoors
- Broad support surface offers particularly safe transmission of force



For profile	D1 [mm]	For thread	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q50-2.5, Q80-2.0, Q100-2.5, Q100-3.5, Q150-2.5	13	M12	135605	1	pieces	0.500



### MPT-Support profile connectors

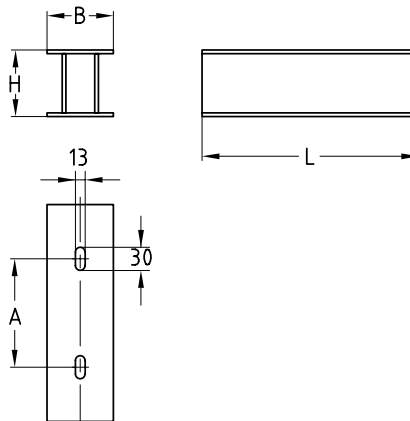
hot-dip galvanised

#### Field of application

- Axial connection of MPT-Support profiles

#### Advantages

- Safe and form-locking connection of MPT-Support profiles by inserting the support profile connection into the ends of the support profiles to be connected



schematic sketch  
(original may vary)



For profile	Length L [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]		
						A	B	H
Q80-2.0	550	167938	1	pieces	3.239	150	73	73
Q100-2.5	600	165094			7.750		92	92
Q100-3.5		165095			8.070		90	91
Q100-2.5 with 3 slots		166992			6.950		92	92
Q150-2.5 with 3 slots	550	167077			9.250			140



## MPT-Saddle supports

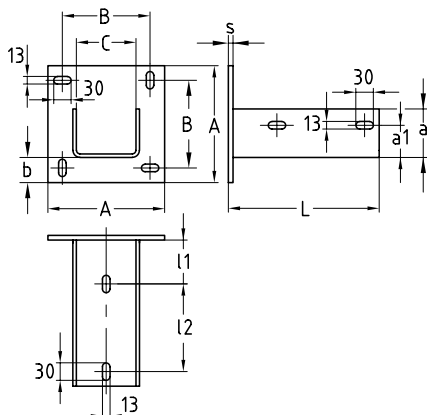
hot-dip galvanised

### Field of application

- Stable saddle supports in three sizes for accommodating MPT-Support profiles Q50, Q80, Q100 or Q150 for wall, floor, and ceiling connection

### Advantages

- For fast and efficient mounting of cross-beams of MPT-Support profiles
- Stable baseplate for safe fastening on the structural element
- Standardised hot-dip galvanising for flexible implementation outdoors and indoors
- Fully welded version of the grooved support saddle ensures high dimensional stability of the flange



### Max. load capacities:

For profile	Max. recommended tensile load $F_z$ [N]	At tightening torque $T_{inst}$ [Nm]
Q50-2.5	12,500	65
Q80-2.0		
Q100-2.5, Q100-3.5, Q150-2.5	15,000	

For profile	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]									
					A	B	C	s	b	L	a1	a	l1	l2
Q50–2.5	131837	1	pieces	4.850	200	150	102	8	72	258	37	57	75	150
Q80–2.0	167934			4.478	180	130	82		43		47	73		
Q100–2.5, Q100–3.5, Q150–2.5	131635			5.550	200	150	102				54	83		

### MPT-Saddle supports for installation of support profiles

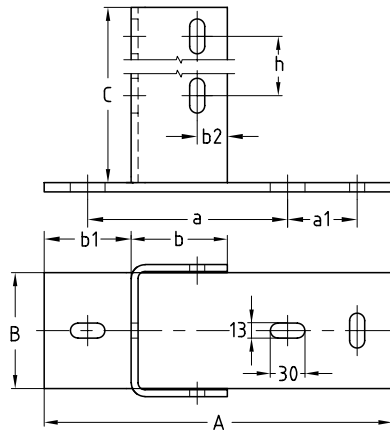
hot-dip galvanised

#### Field of application

- Stable saddle supports for the connection of MPT-Support profiles in case of 90°-corner connections

#### Advantages

- For fast and efficient mounting of cross-beams of MPT-Support profiles
- Standardised hot-dip galvanising for flexible implementation outdoors and indoors



For profile	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]								
					A	B	C	b	b1	b2	a	a1	h
Q50-2.5	151335	1	pieces	4.262	300	100	250	57	75	20	172.5	60	150
Q80-2.0	167935			3.916	280	80		73		26	152.5		
Q100-2.5, Q100-3.5, Q150-2.5	151336			4.964	300	100		83			172.5		



## MPT-Guide

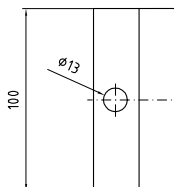
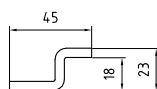
hot-dip galvanised

## Field of application

- Stable hot-dip galvanised and perforated guide plate for fastening heavy pipe slides on the MPT-Support profiles

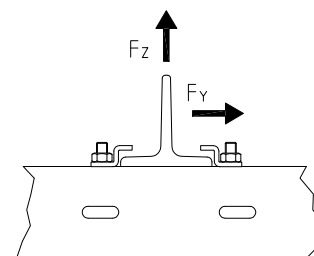
## Advantages

- High corrosion protection due to standardised hot-dip galvanising ensures flexible implementation outdoors and indoors
- The broad support surface offers particularly safe transmission of the clamping forces
- Safe fastening of pipe slides on the MPT-Support profiles



## Max. load capacities:

For profile	Max. recommended load F <sub>z</sub> [N]	Max. recommended load F <sub>y</sub> [N]
Q50-2.5, Q80-2.0, Q100-2.5, Q100-3.5, Q150-2.5	2,500	2,500



For profile	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q50-2.5, Q80-2.0, Q100-2.5, Q100-3.5, Q150-2.5	135607	1	pieces	0.250



For fixing a pipe slide two pieces guide angles must be ordered.

### MPT-Steel beam adaptor plates

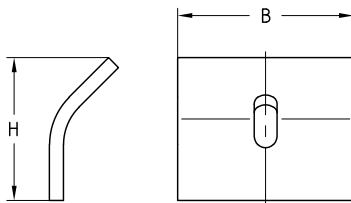
hot-dip galvanised

#### Field of application

- Stable hot-dip galvanised plates for connecting MPT-Support profiles with structural steel constructions

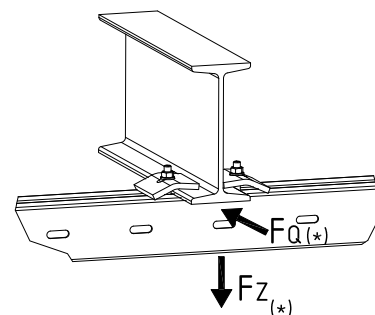
#### Advantages

- High-level corrosion protection due to standardised hot-dip galvanising ensures flexible implementation outdoors and indoors
- Broad support surface offers particularly safe transmission of force
- Suitable for girder flange thicknesses up to 24 mm



#### Max. load capacities:

For profile	Size of hammer head bolt	Max. recommended tensile load $F_z$ [N]	Max. recommended transverse load $F_o$ [N]	At tightening torque $T_{inst}$ [Nm]
Q50-2.5, Q100-2.5, Q100-3.5, Q150-2.5 Q80-2.0	M12 x 60	5,000	1,500	65



For profile	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]	
					B	H
Q50-2.5, Q100-2.5, Q100-3.5, Q150-2.5	131607	1	pieces	0.660	100	81.2
Q80-2.0	169017			0.530	80	

(\*) Max. load capacities  $F_z$  and  $F_o$  apply for attachments with 2 MPT-Steel beam adaptor plates



## MPT-Girder cleats

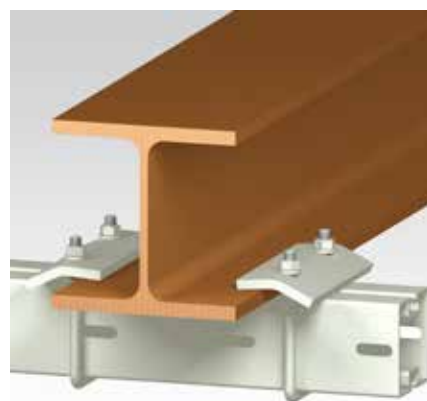
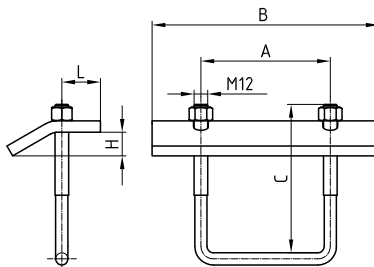
hot-dip galvanised

## Field of application

- Attachment of MPT-Support channels to steel girders without drilling or welding

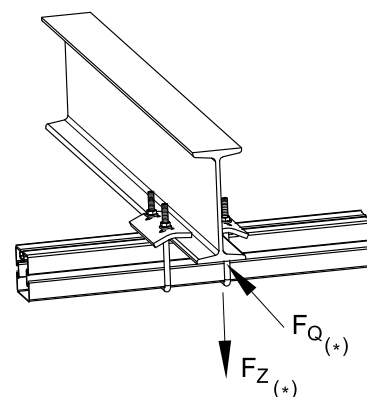
## Advantages

- Suitable for steel beams with flange thicknesses up to 25 mm
- Easy to install, pre-assembled kit
- High-level corrosion protection due to standardised hot-dip galvanising ensures flexible implementation outdoors and indoors



## Features

For profiles	Max. permitted loading/pair tension $F_z$ [N]	Max. permitted loading/pair lateral to MPT-Support profile $F_Q$ [N]	At tightening torque $T_{inst}$ [Nm]
Q50-2.5	12,000	4,500	33
Q80-2.0			
Q100-2.5,			
Q100-3.5			



(\*) Max. load capacities  $F_z$  and  $F_Q$  apply for attachments with 2 MPT-Girder cleats

For profile	Thread	Part no.	Sales unit	Pack unit	Weight [kg/piece]	Dimensions [mm]				
						A	B	C	H	L
Q50-2.5	M12	151343	1	pieces	1.634	114	200	130	17.4	28.6
Q80-2.0		167937			1.349	94	160	150		34.8
Q100-2.5, Q100-3.5		151344			1.714	114	200	180		28.6

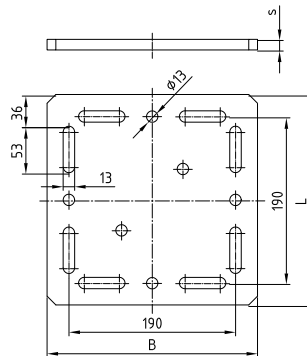
### MPT-Base plate untreated

#### Field of application

- Stable base and connection plate for welding onto MPT-Support profiles for producing individual consoles and component connections

#### Advantages

- Raw version without surface treatment for optimal results when welded
- Perforation that matches the MPT-Support system ensures system compatibility
- Cost-effective manufacturing of consoles with individual projection lengths



For profile	Length L [mm]	Width B [mm]	Thickness s [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
Q50-2.5, Q80-2.0, Q100-2.5, Q100-3.5, Q150-2.5	240	240	12	131840	1	pieces	4.950





## Ventilation

	MÜPRO	
1.	Vibration control	
2.	Fire protection	
3.	Pipe clamps	
4.	Support channels	
5.	Accessories	
6.	Anchor points/ expansion points	
7.	Heavy-duty pipe support	
8.	MPT-Support system	
9.	<b>Ventilation</b>	
10.	Pipe connectors	
11.	Stainless steel	
12.	Hot-dip galvanised	
13.	Anchor plugs	
14.	Nameplates	
15.	Insulation	
16.	Sealing and protection materials	
17.	Tools	
18.	Radiator fastening	
19.	Technical information	



Duct clamps

9/1–9/4



Mounting bases  
for flat roof installation

9/5



Adapter for mounting base  
for flat roof installation

9/6



Duct fixing bracket

9/7–9/8



Duct fixing angles

9/9



Duct joint clamps

9/10



Self-drilling screws

9/11



Blind rivets

9/11



Glazing tapes

9/12



Foam rubbers

9/12



Sealing tape

9/13



Cold shrink tape

9/13



Sealing compound for air ducts

9/14

## Duct clamps

with DÄMMGULAST® orange, galvanised

### Field of application

- For attachment of spiral-seam pipes

### Advantages

- Manufactured to suit spiral-seam dimensions
- Practical latching fastener: simple and secure insertion and fastening of the pipe due to quick fastener for nominal pipe size of up to 450 mm, M8 hexagon screws for pipe sizes from 450 mm and upwards
- Easy installation due to the wide opening angle of the clamp
- Added rigidity due to the grooved design of the duct clamp
- Easy clicking-in of the fastening bolt with the tip of a finger

- High level of safety due to the hinge-like opening
- No inadvertent opening once it has clicked in
- The easy click-in fastener allows opening and closing of the pipe clamp with only one hand
- DÄMMGULAST® Vibration control lining with orange identification stripe: average vibration reduction of 18 db(A)
- Manufactured to suite connecting thread M8/M10



This product is awarded with the "Gütezeichen Rohrbefestigung" (quality mark of pipe support) and is submitted to controls according to RAL-GZ 655-B



Pipe nominal size [mm]	Connecting thread	Part no.	Sales unit	Pack unit
80	M8/M10	143247	100	pieces
90		143248		
100		143249		
112		143250		
125		143251		
140		143252	50	
150		143253		
160		143254		
180		143255	25	
200		143256		
224		143257		
250		143258		
280		143259		
300		143260		
315		143261		
355		143262		
400		143263	1	
450		143264		
500		143265		
560		143266		
600		143267		
630		143268		
710		143269		
800		143270		



Duct clamps can be produced in all other pipe sizes and types according to customer specifications.

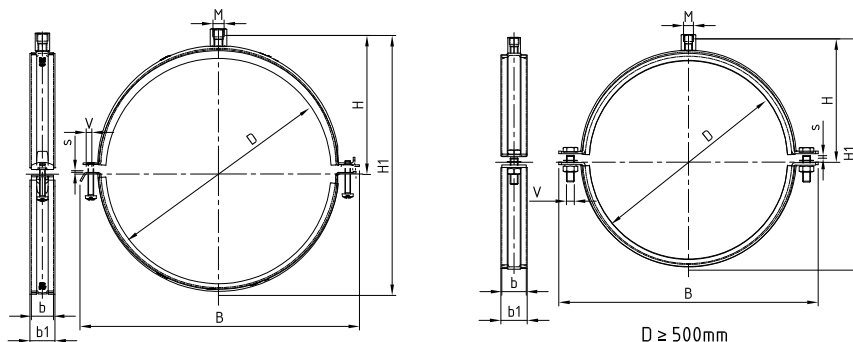
### Duct clamps

with DÄMMGULAST® orange, galvanised

#### Features



Nominal pipe diameter [mm]	Max. recommended load [N]
80–200	700
224–450	1,000
500–800	1,200



Pipe nominal size [mm]	Dimensions [mm]					
	V	b x s	B	b1	H	H1
80	M5	20 x 1.5	124	23	65	114
90			137		70	124
100			149		76	135
112			157		82	147
125			170		88	160
140			185		96	175
150			195		101	185
160			205		106	195
180			225		116	215
200			245		126	235
224			M6		25 x 1.5	286
250	312	151		285		
280	342	166		315		
300	363	177		336		
315	378	184		351		
355	418	204		391		
400	25 x 2.0	462		227		436
450		513		253	487	
500		M8		567	278	538
560	25 x 2.5			627	308	598
600			667	328	638	
630			697	343	668	
710			777	383	748	
800			867	428	838	



## Duct clamps

without lining, galvanised

### Field of application

- For attachment of spiral-seam pipes

### Advantages

- Two-part single bossed clamp with welded-on M8 connecting nut or M8/M10 combination nut (for pipes of 224 mm dia. and more)
- Manufactured to suit spiral-seam dimensions
- The 2 locking screws allow adjustment to accommodate a greater variation in pipe diameter

- Locking screws with combi-cross slit head and captive washer convenient for screwdrivers and nominal pipe size of up to 400 mm; M10 Hexagon screws for pipe sizes from 450 mm and upwards



Pipe nominal size [mm]	Connecting thread	Part no.	Sales unit	Pack unit
80	M8/M10	147092	50	pieces
90		147093		
100		147094		
112		147095		
125		147096		
140		147097		
150		147098		
160		147099		
180		147100		
200		147101		
224		115657		
250		115663		
280		115669		
300		115672		
315		115678		
355		115681		
400		115687		
450		115690	1	
500		115693		
560		115696		
600		115699		
630		115704		
710		115710		
800		115716		



Duct clamps can be produced in all other pipe sizes and types according to customer specifications.

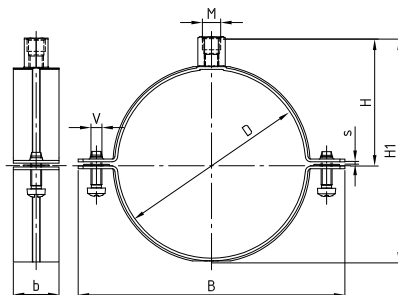


For stainless steel version (without lining or with DÄMMGULAST® Junior lining) please refer to chapter "Stainless steel".

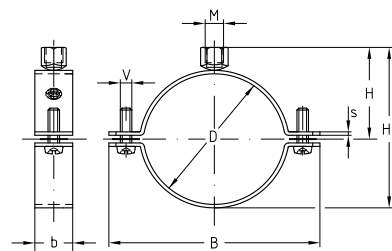
### Duct clamps without lining, galvanised

#### Features

Max. recommended load [N] 500



Pipe nominal size 80 to 200 mm



Pipe nominal size 224 to 800 mm

Pipe nominal size [mm]	Dimensions [mm]				
	V	b x s	B	H	H1
80	M6	25 x 1.5	125	59	102
90			135	64	112
100			146	70	123
112			158	76	135
125			171	82	148
140			186	90	163
150			196	95	173
160			206	100	183
180			226	110	203
200			246	120	223
224		25 x 2.5	272	131	247
250			298	144	273
280			328	159	303
300			349	170	324
315			364	177	339
355			404	197	379
400			449	220	424
450	M10		515	245	474
500			565	270	524
560			625	300	584
600		665	320	624	
630		25 x 3.0	696	335	655
710			776	375	735
800			866	420	825



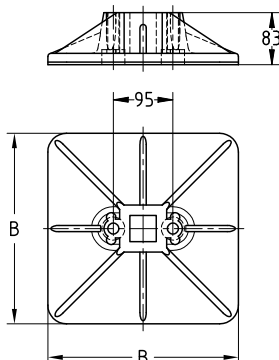
## Mounting bases for flat roof installation

### Field of application

- Installation of pipes, ventilation ducts, cable trays on flat roofs without roof penetration

### Advantages

- Fast and easy installation on site for mounting pipes, cable ducts, cable trays etc.
- High level of flexibility in installation
- Load handling without penetrating the roof membrane
- Good weight distribution and low deadweight
- Retroactive roof repair is simple



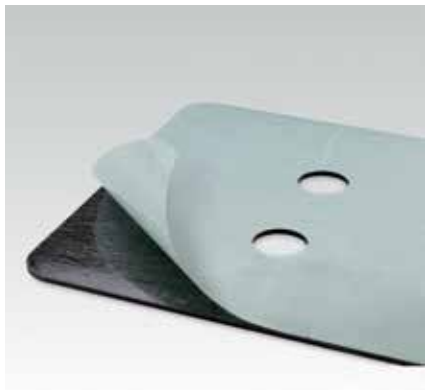
Mounting base

### Features

Material	Recycled polypropylene pellets with additives, elastomer
Temperature range	-20 °C to +70 °C
Max. recommended load [N]	10,000 N

Kit consists of:

- 1 Mounting base for flat roof installation
- 1 Anti-slip mat (must be attached on the base according to the mounting instruction)



Anti-slip mat

Dimensions B [mm]	Part no.	Sales unit	Pack unit	Weight [kg/piece]
304	165350	1	pieces	2.150
456	165353			4.300



All effects on the load-bearing building structure and the roof insulation must be checked on site. The exact chemical composition of the roof membrane determines its susceptibility to polymer migration. Accordingly, the manufacturer of the roof membrane must provide information on its susceptibility to polymer migration and make specific recommendations.

### Adapter for mounting base for flat roof installation

#### Field of application

- Adapter for mounting base for flat roof installation

#### Advantages

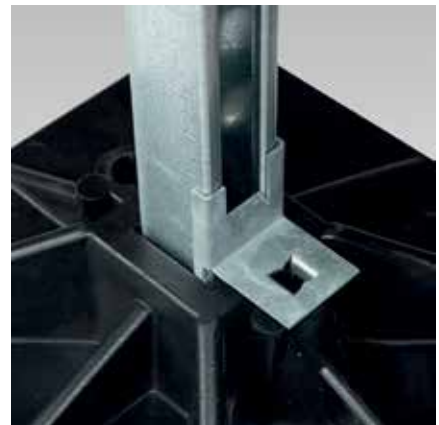
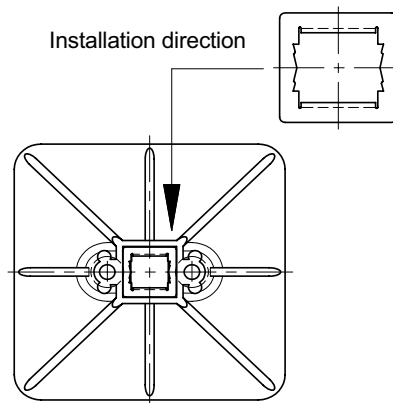
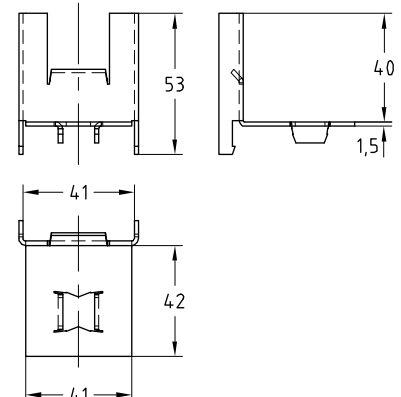
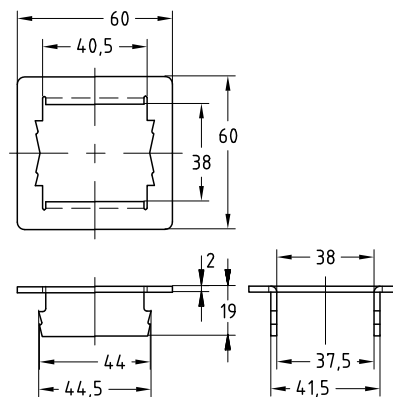
- The MPC- and MPR-Support channels are inserted into the plastic feet using an adapter
- Secure anchoring of the support channel in the mounting base



Mounting base adapter 38/40



Mounting base adapter 41/41



For support channels	Part no.	Sales unit	Pack unit
38/40	156892	1	pieces
41/41	159755		



All effects on the load-bearing building structure and the roof insulation must be checked on site.

## Duct fixing bracket with insulator, galvanised

### Field of application

- For vibration-isolated suspension of round and rectangular air ducts
- Versatile application options, e.g. on trapezoidal corrugated metal sheeting for the suspension of MPC-Support channels

### Advantages

- DÄMMGULAST® Spring element integrated in the duct fixing bracket
- Average vibration reduction of 16 dB(A)
- Ideal adaptation to all duct diameters and cross-sections due to pre-determined bending points
- Simple attachment to the air duct with rivets or self-drilling screws
- Suspension of the duct fixing bracket from threaded rods or direct attachment to the structure



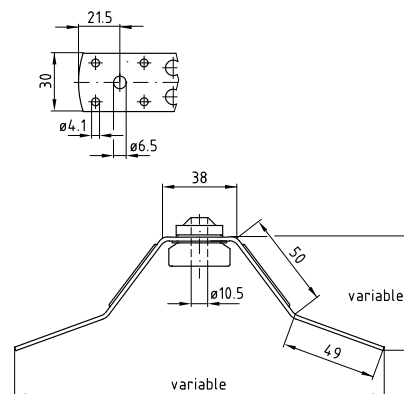
### Features



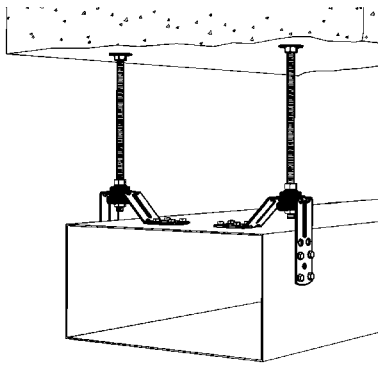
Max. recommended load [N]

230

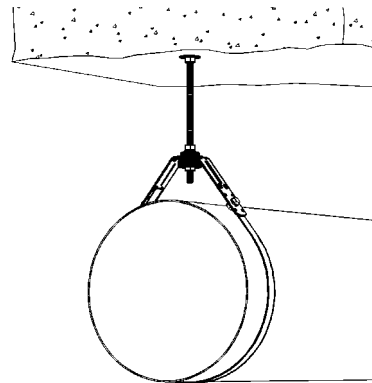
Part no.	Sales unit	Pack unit
116516	100	pieces



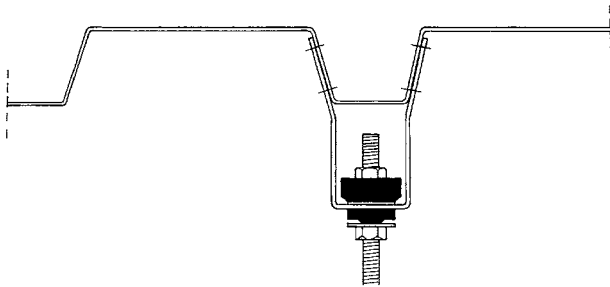
### Duct fixing bracket with insulator, galvanised



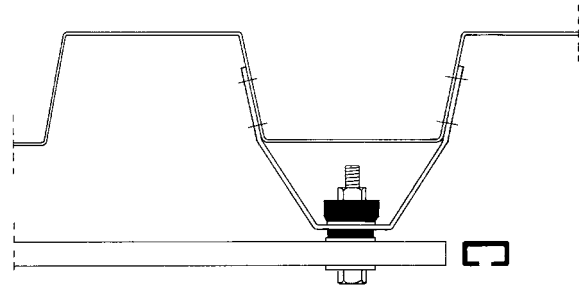
Rectangular duct attached to the ceiling with duct fixing brackets, threaded rods and steel anchors



Air duct suspended from the ceiling with duct fixing bracket, steel tape or punched tape



Direct attachment to trapezoidal corrugated steel sheet with a duct fixing bracket



Vibration damped attachment of a MPC-Support channel to a wide trapezoidal corrugated sheet with a duct fixing bracket

**!** The highly-elastic DÄMMGULAST® Spring element is essential for efficient prevention of structure-borne vibration. The installation is carried out with threaded rods. This prevents vibration coupling between air pipe or air duct and the structure. The duct fixing bracket is attached to the air pipe or duct section with rivets or selfdrilling screws.

## Duct fixing angles with insulator, galvanised

### Field of application

- Easy to install suspension for air ducts

### Advantages

- Incorporated highly-elastic vibration-isolating element
- Excellent alignment and height adjustment via the threaded rods
- Design as angle and twin-angle
- Various attachment options to air duct with rivets, self-drilling screws or bolts up to M8 in the oblong hole
- Direct attachment to building structure possible
- Average vibration reduction of 17 dB(A)



Duct fixing angles

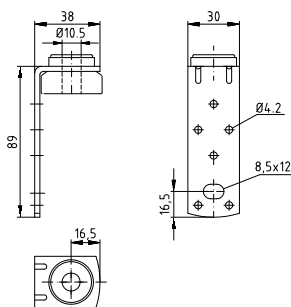
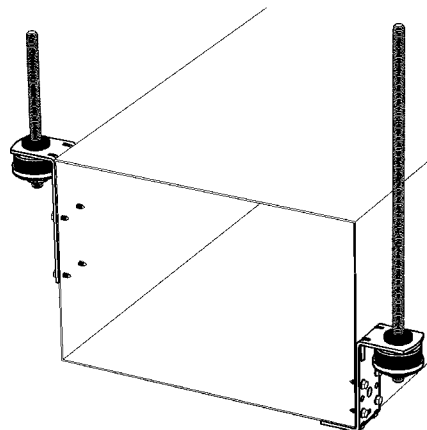


Duct fixing twin-angles

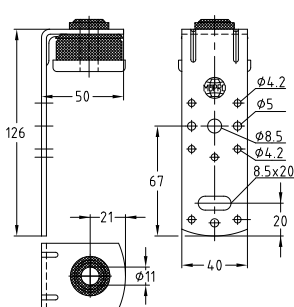
### Features



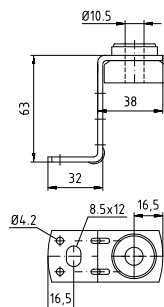
Type	Max. recommended load [N]	Average vibration reduction [dB(A)]
I	230	16
II	800	17



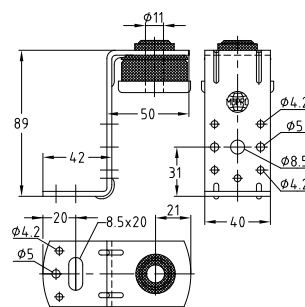
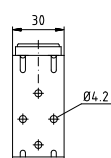
Duct fixing angles  
Type I



Duct fixing angles  
Type II



Duct fixing twin-angles  
Type I



Duct fixing twin-angles  
Type II

	Type	Part no.	Sales unit	Pack unit
Duct fixing angles with insulator, galvanised	I	116579	100	pieces
	II	116635	50	
Duct fixing twin-angles with insulator, galvanised	I	116543	100	
	II	116546	50	
Rubber washers, single	12 x 24 x 4 mm	113092	100	
	12 x 24 x 6 mm	113094		



Duct fixing angles and twin-angles are also available in other lengths.

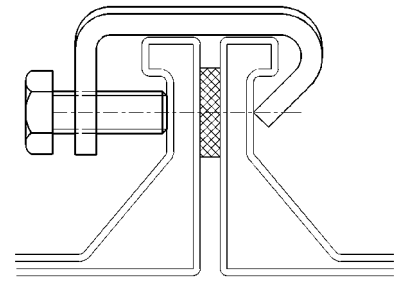
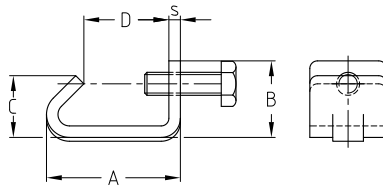
### Duct joint clamps

#### Field of application

- Simple and quick flange connection for large cross-section ducts and high pressure conditions

#### Advantages

- No pre-clamping or drilling required
- Supplied with hexagon head bolt already inserted
- High load capacity due to reinforcing rib



Type	Hexagon head bolts	Part no.	Sales unit	Pack unit	Dimensions [mm]				
					A	B	C	D	s
galvanised	M8/20	116570	100	pieces	35	20	17	23	3.0 x 30
		116576			31	23		18	4.0 x 30
V2A		116567			33	18	14	23	3.0 x 30

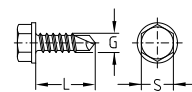


Normally recommended spacing 300–400 mm. For ducts with a side length of less than 800 mm, one clamp needs to be mounted in center of each side.

## Self-drilling screws

DIN 7504, with hexagonal head, for the attachment of air pipes, ducts, spiral-seam pipes, without pre-drilling, galvanised

Length [mm]	Sheet thread [mm]	Screw head Ø [mm]	Spanner size S [mm]	Part no.	Sales unit	Pack unit			
13	4.2	8.5	7	106661	500	pieces			
16				106663					
19				106665					
22				106666					
13	4.8	10.0	8	106668					
16				106670					
19				106671					
38				106672					
32	5.5	10.5		106673					
16	6.3	12.7		10			106674		
25							106675		
32							106676		
45			106677						
13	4.2	9.0	7	106662	1	carton*			
	4.8	10.0	8	106669					

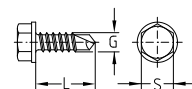


\* 12 boxes of 500 pieces in a carton.

## Self-drilling screws

with european technical approval, for attachment on trapezoid sheet according to approval ETA-10-0200, galvanised

Length [mm]	Sheet thread [mm]	Screw head Ø [mm]	Spanner size S [mm]	Part no.	Sales unit	Pack unit
16	4.2	9	7	147874	500	pieces
19	4.8	10	8	147875		



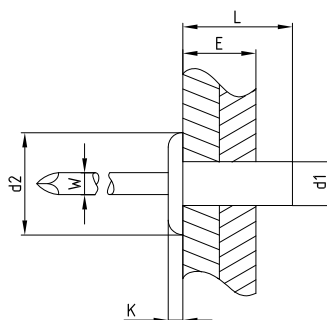
## Blind rivets

### Field of application

- For the attachment of duct fixing angles and brackets on air ducts and spiral-seam tubes respectively

### Advantages

- Blind rivet with large surface in order to secure various materials
- No surface damaging after riveting
- No loosening by dynamic influences (vibration resistant)
- Good behaviour at temperature fluctuations
- High-quality, simple and quick mounting



Type	Material sleeve	Material mandrel	Part no.	Sales unit	Pack unit	Dimensions [mm]					
						D1	L	E	D2	K	W
flat round head	aluminium	steel	140665	500	pieces	3,2	9.5	3,5-5,0	6.2	1.0	1.65
			140927			4,0	11.0	5,0-6,5	7.9	1.2	2.20
			140928			4,8	14.5	8,0-9,5	9.3	1.5	2.65

### Glazing tapes

for air ducts, self-adhesive and reinforced

#### Field of application

- Ideal for sealings in air duct installations

#### Advantages

- Closed-pore polyethylene tape
- Exceptionally good adhesion
- Self-adhesive on one side, protected with PE film
- Colour: black
- Free of plasticizer
- Tension-reinforced with fibre inserts



Width [mm]	Thickness [mm]	Length of roll [m]	Part no.	Sales unit	Pack unit
9	4	25	127502	10	roll
	6	10	127506		
12	4	20	127493	5	
15			127499		

⚠ In case of article 127502 no PE-film on the self-adhesive side.



### Foam rubbers

self-adhesive

#### Field of application

- Applicable for sealings of air ducts and spiral-seam tubes respectively

#### Advantages

- Closed-pore natural rubber tape
- Resistant to temperatures from -40 °C to +80 °C
- One-sided self-adhesive, protected with PE-film
- Colour: black
- Resistant to dilute acids and alkalis, paraffin and spindle oil



Width [mm]	Thickness [mm]	Length of roll [m]	Part no.	Sales unit	Pack unit
10	5	10	128567	1	roll
15			128569		
24	3		128571		



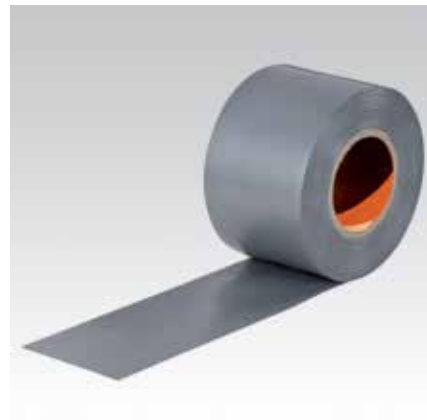
## Sealing tape

**Field of application**

- For permanent sealing of ventilation lines and fresh air conduits

**Advantages**

- Tear-proof, supple, soft PVC adhesive tape
- Aging resistant, natural rubber adhesive with high glue strength and shear strength
- Colour: silver grey



Width [mm]	Thickness [mm]	Length of roll [m]	Part no.	Sales unit	Pack unit
50	0.14	25	116513	1	roll

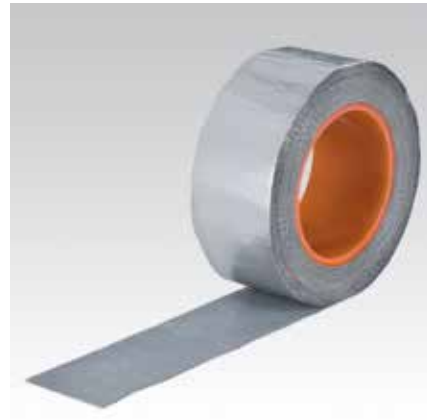
## Cold shrink tape

**Field of application**

- For permanent sealing of ventilation lines and fresh air conduits
- For wind-proof and steam-proof agglutinating of foils

**Advantages**

- Self-adhesive
- The carrier is a tear-resistant aluminium polyester composite coated with a cold sealing butyl rubber adhesive
- Reliably bonds and seals metal, plastic, masonry, concrete and wood
- Colour: silver grey



Width [mm]	Thickness [mm]	Length of roll [m]	Part no.	Sales unit	Pack unit
50	0.62	10	112895	1	roll

### Sealing compound for air ducts

cartridge à 310 ml

#### Field of application

- Ideally suited for sealing of galvanised steel sheets, in the construction of ventilation ducts and plant engineering

- Odourless and not corrosive as well as chemically neutral
- Remains permanently elastic and self-adhesive

#### Advantages

- Very good adhesion even on moist surfaces
- Simple and quick processing when used with common cartridge application guns
- Silicone-free



#### Features

Basis	Polyacrylate
Density	1.53 g/ml
Consistence	Soft pasty
Temperature range	-30 °C to +80 °C
Working temperature	+5 °C to +50 °C
Open time (+23 °C / 50 % relative humidity)	approx. 15-20 min.



Colour	Filling cartridge [ml]	Part no.	Sales unit	Pack unit
grey	310	141148	1	pieces



For further products please refer to chapter "Sealing and protection materials".



## Pipe connectors

	MÜPRO	MÜPRO
1.	Vibration control	
2.	Fire protection	
3.	Pipe clamps	
4.	Support channels	
5.	Accessories	
6.	Anchor points/ expansion points	
7.	Heavy-duty pipe support	
8.	MPT-Support system	
9.	Ventilation	
10.	Pipe connectors	
11.	Stainless steel	
12.	Hot-dip galvanised	
13.	Anchor plugs	
14.	Nameplates	
15.	Insulation	
16.	Sealing and protection materials	
17.	Tools	
18.	Radiator fastening	
19.	Technical information	



Pipe connector MONO

10/1



VA4 pipe connector MONO

10/2



Pipe connector DUPLO

10/3



VA2 pipe connector DUPLO

10/4



Securing clamps

10/5



Reducing couplings

10/6

## Pipe connectors MONO

**Field of application**

- For connecting cast iron (SML) pipes and fittings according to DIN 19522/EN 877

**Advantages**

- Simple visual check at the control slot\* if required tightening torque has been reached
- No torque spanner necessary
- The optimum tightening torque can be achieved despite variations in pipe size (within the tolerance)
- The single-bolt pipe connector is easy to fit and easy to handle
- The tightening bolt with hexagonal socket head enables fast fitting to and removal from the pipe
- Tightening strap made of high quality chrome steel
- Uniform tightening due to the wide central fastening
- A double seam at the sealing collar guarantees a strong radial contact with the pipe and allows the quick pre-assembly of pipes and plain fittings
- The strong fastening has a large adjustment range and thus compensates variations in pipe diameter
- The generously dimensioned inlet sealing lip allows easy insertion of the pipe or fitting
- Sealing collar in high-quality, boiling water resistant elastomeric material
- Tested and approved by the Material Testing Institute of North Rhine-Westphalia, supervision contract Nr. 117430



Before tightening the pipe connector:  
control slot open



**Visual check:**  
After tightening the pipe connector:  
control slot closed

**Features**

Type	Nominal SML pipe size [DN]	Pipe outside diameter [mm]	Fastener thread	Hexagonal socket spanner width [SW]	Part no.	Sales unit	Pack unit
One-piece	50	58	M8	6	115244	50	pieces
	70	78			115253		
	80	83			115262		
	100	110			115223		
	125	135			115229	25	
	150	160			115235	10	
	200**	210	M10	8	144583	5	

\* The function of the MÜPRO control slot is a registered design.

\*\* Pipe connector DN 200 without control slot.

### V4A pipe connectors MONO

#### Field of application

- For connecting cast iron (SML) pipes and fittings according to DIN 19522/EN 877. Especially suitable for applications outdoors and where greater corrosion resistance is required

#### Advantages

- Simple visual check at the control slot if required tightening torque has been reached
- No torque spanner necessary
- The optimum tightening torque can be achieved despite variations in pipe size (within the tolerance)
- The single-bolt pipe connector is ready for mounting and easy to handle
- The tightening bolt with hexagonal socket head enables fast fitting to and removal from the pipe
- A wide central fastener allows uniform tightening
- A double seam at the sealing collar guarantees a strong radial contact with the pipe and allows the quick

pre-assembly of pipes and plain fittings

- The strong fastener has a large adjustment range and thus compensates variations in pipe diameter
- The generously dimensioned inlet sealing lip allows easy slipping over the pipe or fitting
- Tested and approved by the Material Testing Institute of North Rhine-Westphalia, supervision contract Nr. 117430
- Clamp, fastener and fastening bolts are in rustproof, acid-resistant stainless steel, material type 1.4571 according to EN 10088
- Especially suited for outdoor applications, where higher demands on the corrosion resistance have to be fulfilled
- Coated bolts and nuts for secure and reliable tightening of the connector till the fastener is closed



Nominal SML pipe size [DN]	Pipe outside diameter [mm]	Fastener thread	Hexagonal socket spanner width [SW]	Part no.	Sales unit	Pack unit
50	58	M8	6	115247	10	pieces
70	78			115256		
80	83			115265		
100	110			115226		
125	135			115232		
150	160			115238		

## Pipe connectors DUPLO

### Field of application

- For connecting cast iron (SML) pipes and fittings according to DIN 19522/EN 877

### Advantages

- Pipe connector with two screws
- Compact design enables fitting in confined spaces
- Wide tightening strap guarantees extensive distribution of the clamping force

- Creased, dimensionally stable transition lip ensures uniform contact of the sealing collar on the pipe, even in the sealing region
- Simple fitting due to combihead bolt with hexagonal longitudinal slot
- Uniform clamping force distribution due to stable seal with large area pressure-plate
- Tightening bolts integrated into the pressure plate, no loose nuts
- Tested and approved by the Material Testing Institute of North Rhine-Westphalia, supervision contract Nr. 117430



Type DN 50–DN 150, one-piece



Type DN 200–DN 300, two-piece



V2A type DN 400, two-piece

### Features



Material	Type	Nominal SML pipe size [DN]	Pipe outside diameter [mm]	Fastener thread	Hexagonal socket spanner width [SW]	Part no.	Sales unit	Pack unit
Galvanised	one-piece	50	58	M8	10	115214	50	pieces
		70	78			115217		
		80	83			130659		
		100	110			115176		
		125	135			115182	25	
		150	160			115188	10	
	two-piece	200	210			115194	5	
		250	274			115200	4	
		300	326			115205	1	
		400	429			115211		
V2A				M10	17			



### V2A pipe connectors DUPLO

#### Field of application

- For connecting cast iron (SML) pipes and fittings according to DIN 19522/EN 877. Especially suitable for applications outdoors and where greater corrosion resistance is required

#### Advantages

- Clamp, fastener and fastener bolts are in rustproof, acid-resistant stainless steel, material type 1,4301 according to EN 10088
- The inner sealing collar is made of high-quality, boiling water resistant elastomeric material
- Especially suitable for applications outdoors and for underground installations

- Compact design enables fitting in confined spaces
- Wide tightening strap guarantees the distribution of the clamping force over a wide area
- Creased, dimensionally stable transition lip ensures uniform contact of the sealing collar on the pipe, even in the sealing region
- The combihead bolt with hexagon and slot simplifies the fitting
- The strong fastening with large area pressure plate enables an uniform clamping force distribution
- Tightening bolts integrated into the pressure plate, no loose nuts



Type DN 70–DN 150, one-piece



Type DN 200–DN 300, two-piece



Type DN 400, two-piece

Type	Nominal SML pipe size [DN]	Pipe outside diameter [mm]	Fastener thread	Hexagonal socket spanner width [SW]	Part no.	Sales unit	Pack unit
One-piece	70	78	M8	10	115220	50	pieces
	100	110			115179		
	125	135			115185	25	
	150	160			115191	10	
Two-piece	200	210	M10	17	115197	5	
	250	274			115202	4	
	300	326			115208	1	
	400	429			115211		



## Securing clamps

galvanised

### Field of application

- For longitudinal-locking connection of cast iron (SML) pipes according to DIN 19522/EN 877
- For pipe connections with high requirements, e.g. for use in back-pressure and impact zones or for deflections and diameter steps in downcomers

### Advantages

- Assembly time reduced by 50 % with the Securing clamp Express thanks to only 2 tightening screws in combination with suspension joint and one-piece design

- Especially strong flanges for absorbing large forces
- Stable wrap-around of pipe enables optimal securing of the pipe connection cast-iron
- Retro-fitting to pipelines that are already laid can be made at any time
- Tested and approved by the Material Testing Institute of North Rhine-Westphalia up to DN 150, supervision contract Nr. 117430
- One-piece securing clamps patent-nr. DE102012001439A1



Securing clamp Express,  
type DN 50–DN 150, one-piece



Securing clamp,  
type DN 200–DN 300, three-piece



Securing clamp,  
type DN 400, four-piece

Model	Type	Nominal SML pipe size [DN]	Pipe outside diameter [mm]	Fastener thread	Max. internal pressure [bar]	Hexagonal socket spanner width [SW]	Part no.	Sales unit	Pack unit
Express for MONO and DUPLO	one-piece	50	58	M8	10	6	152298	5	pieces
		70	78				152299		
		80	83				152300		
		100	110	M10	5	8	152301		
		125	135				152302		
		150	160				152304		
For DUPLO	three-piece	200	210	M12	3	19	123465	1	
		250	274				123437		
		300	326				123441		
	four-piece	400	429				123445		

### Reducing couplings

#### Field of application

- For the coupling of SML pipe systems according to DIN 19522/ EN 877 with other pipe systems according to DIN 19560 (PE-HD pipes) and DIN 19535 (PP pipes) as well as for use as end caps in pipe systems

#### Advantages

- The end cap can be easily removed by pulling on the tongue (with pliers, if necessary) – no cutting out of the coupling required, therefore:
  - Time and cost saving
  - No danger of damaging the sealing lip

- Two sealing lips guarantee stable guidance of the pipe
- A wide central fastener allows uniform tightening
- Highly elastic material with a great wall thickness guarantees a long life cycle and permanent connection
- High-stability of coupling due to the large insertion depth
- Can be used with an internal pressure of pipe up to 0.5 bar
- Tested and approved by the Material Testing Institute of North Rhine-Westphalia, supervision contract Nr. 117430
- Approved by building authorities



#### Features



Nominal SML pipe size [DN]	Pipe outside diameter [mm]	Spanner width [SW]	Part no.	Sales unit	Pack unit
50	58	7	130317	10	pieces
70	78		130318		
80	83		130319		
100	110		130315	20	
125	135		130316	5	



























## Stainless steel

	MÜPRO	MÜPRO
1.	<a href="#">Vibration control</a>	
2.	<a href="#">Fire protection</a>	
3.	<a href="#">Pipe clamps</a>	
4.	<a href="#">Support channels</a>	
5.	<a href="#">Accessories</a>	
6.	<a href="#">Anchor points/ expansion points</a>	
7.	<a href="#">Heavy-duty pipe support</a>	
8.	<a href="#">MPT-Support system</a>	
9.	<a href="#">Ventilation</a>	
10.	<a href="#">Pipe connectors</a>	
11.	<a href="#">Stainless steel</a>	
12.	<a href="#">Hot-dip galvanised</a>	
13.	<a href="#">Anchor plugs</a>	
14.	<a href="#">Nameplates</a>	
15.	<a href="#">Insulation</a>	
16.	<a href="#">Sealing and protection materials</a>	
17.	<a href="#">Tools</a>	
18.	<a href="#">Radiator fastening</a>	
19.	<a href="#">Technical information</a>	














## Pipe clamps

	Single bossed clamps	11/1–11/3
	Duct clamps	11/4–11/5








## MPC-System components

	MPC-Support channels	11/6–11/10
	MPC-Wall hanger brackets	11/11–11/12
	MPC-Quick fasteners	11/13–11/14
	MPC-Hammer head fasteners	11/15
	MPC-Hammer head bolts	11/16
	MPC-Protection caps	11/16
	MPC-Washers	11/16
	MPC-Clamp brackets	11/17
	MPC-Rail nuts	11/17
	MPC-Double rail nut	11/17
	DÄMMGULAST® Resilient pad	11/17
	DÄMMGULAST® Washers	11/17
	DÄMMGULAST® Channel sections	11/18
	MPC-Channel connectors	11/19
	MPC-Channel support brackets	11/20
	MPC-Saddle supports	11/21
	MPC-VARIO-Saddle support	11/22
	MPC-Mounting angles	11/23
	MPC-Cross channel connectors	11/24
	MPC-Girder cleats	11/25























## MPR-System components





	MPR-Support channels	11/26–11/30
	MPR-Wall hanger brackets	11/31–11/32
	MPR-Hammer head fasteners	11/33
	MPR-Threaded plates	11/34
	MPR-Clamp brackets	11/35
	MPR-Protection caps	11/35
	Washers	11/35
	DÄMMGULAST® Channel sections	11/36
	MPR-Saddle supports	11/37
	MPR-VARIO-Saddle support	11/38
	MPR-Mounting angle	11/39
	MPR-Cross channel connectors	11/39
	MPR-Girder cleats	11/40

## Products for usage with MPC-/MPR-System components

	Channel connector, heavy-duty version	11/41
	Reinforcement angles	11/42
	Cantilever brackets	11/43
	Supporting angles	11/44
	Construction bracket	11/45–11/46
	Mounting angles	11/47–11/48
	Angle- and T-connection plates	11/49

## Further products of stainless steel

	Joint brackets	11/50
	Girder clamps	11/51
	Slide guides	11/52
	Duct fixing angles	11/53
	Trapezoid-sheet hangers	11/54
	Threaded pins	11/55
	Threaded rods	11/55
	Round connectors	11/56
	Reducers	11/56
	Bolt screws	11/56
	Hexagonal nuts	11/57
	Washers	11/57
	Hexagon head bolts	11/58
	Allen bolts	11/58
	Hexagon wood screws	11/59
	Cylinder head screws	11/59
	Self-drilling screws	11/59
	Hanger sockets	11/59
	Distance angles	11/60
	Base plates	11/60
	Punched tapes	11/60
	Threaded pipes	11/60

	Steel anchors	11/61
	Through anchors	11/62
	BZ Heavy-duty anchors	11/63–11/64
	Anchor rods for injection anchors XV Plus	13/38–13/39, 13/42

## VIDEO TIP

 **MÜPRO support channel system:** the video presents our comprehensive range of support channels and shows the various processing and installation options.



### Single bossed clamps with DÄMMGULAST® yellow

#### Field of application

- Application in areas with high demands on sound insulation
- Suitable for attachments in industrial areas, as well as in air-conditioning, ventilation and sanitary areas
- For indoor and outdoor use

#### Advantages

- Proven two-piece single bossed clamp
- 2 locking screws allow adjustments to accommodate a greater variation in pipe diameter

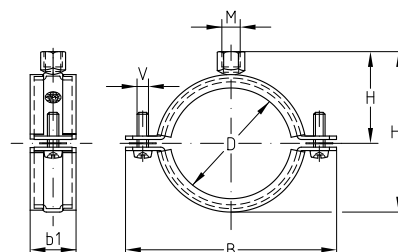
- Tightening bolts with combination cross-head convenient for power driver
- Tightening bolts secured with captive washers
- Acoustic insulation, positive-fit insulation lining with wide clip-over edges prevent them from slipping out of the clamp
- Vibration control lining DÄMMGULAST® with yellow identification stripe: average vibration improvement of up to 22 dB(A)



#### Features



Size	Max. recommended load [N]
3/8"-2"	1,700
70-83 mm	2,200
3"-133 mm	2,900
5"-6"	3,500



Connecting thread	Size		Clamping range [mm]	Part no.		Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]		V2A	V4A			B	b1	H1	H	V
M8/M10	3/8		14-20	157024	157134	25	pieces	64	23	55	35.5	M6 x 20
	1/2		21-26	157025	157135			71		61	38.5	
	3/4		26-30	157026	157136			75		65	40.5	
	1		31-38	157027	157137			81		71	43.5	
	1 1/4		40-47	157028	157138			91		81	48.5	
	1 1/2		48-54	157029	157139			100		89	52.5	
		57	54-60	157120	157140			105		94	55.0	
	2		60-66	157121	157141			111		100	58.0	
		70	68-73	157122	157142			126	28	109	62.5	M8 x 35
	2 1/2		73-80	157123	157143			131		114	65.0	
		83	82-87	157124	157144			142		124	70.0	
	3		87-94	157125	157145			146		128	72.0	M8 x 40
		102	99-104	157126	157146			157		139	77.5	
		110	105-112	157127	157147			166		148	82.0	
	4		112-118	157128	157148			172		154	85.0	
		125	122-128	157129	157149			182		164	90.0	
		133	132-137	157130	157150			191		173	94.5	
	5		137-142	157131	157151			196		178	97.0	
		144	142-148	160490	160493			202		184	100.0	
		150	149-156	160492	160494			210		192	104.0	
		160	159-164	157132	157152			218		200	108.0	
	6		164-169	157133	157153			223		205	110.5	

**!** Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.



## Single bossed clamps

without lining

### Field of application

- Applicable as a pipeline anchor point from 1/2" to 1 1/2"
- Suitable for installations without vibration control requirements
- Suitable for attachments in industrial areas as well as in air-conditioning, ventilation and sanitary areas
- For indoor and outdoor use

### Advantages

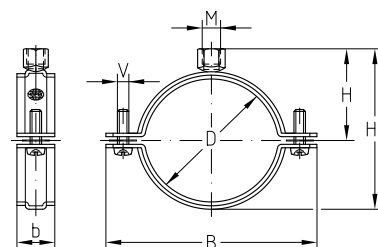
- 2 locking screws allow adjustment to accommodate a greater variation in pipe diameter
- Tightening bolts with combination cross-head convenient for power driver
- Tightening bolts secured with captive washers
- Robust design with high load carrying capacity due to bead



### Features



Size	Max. recommended load [N]
3/8"-70 mm	2,200
2 1/2"-6"	4,400



Connecting thread	Size		Clamping range [mm]	Part no.		Sales unit	Pack unit	Dimensions [mm]				
	[inch]	[mm]		V2A	V4A			B	b	H1	H	V
M8/M10	3/8		14-18	157154	157172	25	pieces	50	20	39	27.5	M6 x 20
	1/2		19-25	157155	157173			57		45	30.5	
	3/4		26-30	157156	157174			64		55	35.5	
	1		31-37	157157	157175			71		61	38.5	
		40	38-41	160495	160500			75		65	40.5	
	1 1/4	42.4	42-46	157158	157176			81		71	43.5	M6 x 25
	1 1/2		47-52	157159	157177			87		76	46.0	
		57	53-57	157160	157178			91		81	48.5	
	2		58-63	157161	157179			100		89	52.5	
		70	64-71	157162	157180			105		94	55.0	
	2 1/2		72-78	157163	157181			120	25	103	59.5	M8 x 35
		83	79-85	157164	157182			126		109	62.5	
	3		85-90	157165	157183			131		114	65.0	
		98	94-99	160496	160501			142		124	70.0	
		102	99-104	157166	157184			146		128	72.0	M8 x 40
	4		108-115	157167	157185			157		139	77.5	
		122	118-123	160497	160502			166		148	82.0	
		125	125-130	157168	157186			172		154	85.0	
	5		133-140	157169	157187			182		164	90.0	
		147	142-148	160498	160503			191		173	94.5	
		152	148-153	160499	160504			196		178	97.0	
		160	154-160	157170	157188			202		184	100.0	
	6		160-169	157171	157189			210		192	104.0	



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

### Single bossed clamps

heavy-duty version, with DÄMMGULAST® yellow

#### Field of application

- Suitable for attachments in industrial areas as well as in air-conditioning, ventilation and sanitary areas
- Application in areas with high demands on sound insulation
- For indoor and outdoor use

#### Advantages

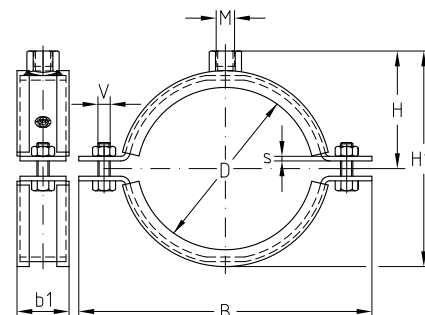
- Stronger tightening bolts for high load capacity
- Enhanced braking resistance due to increased material cross-section area
- Vibration control lining DÄMMGULAST® with yellow identification stripe: average vibration improvement of up to 22 dB(A)



#### Features



Size	Max. recommended load [N]
1½"-2"	4,166
2½"-4"	5,000
133-315 mm	6,666
323 mm upwards	8,333



Connecting thread	Size		Clamping range [mm]	Part no.		Sales unit	Pack unit	Dimensions [mm]							
	[inch]	[mm]		V2A	V4A			B	b x s	b1	H	H1	V		
M12	1½		45–52	121907	121323	50	pieces	111	30 x 3.0	34	48	81	M8		
	2		56–64	122091	121339			123					54	93	
	2½		72–80	122103	121343			138					62	109	
	3		88–92	122258	121371	25		157					69	122	M10
		110	110–114	121953	121327			178					79	143	
	4		112–116	122345	121387		183			81	147				
		133	133–137	122010	121331	10	203	40 x 4.0	46	92	168				
	5		137–145	122425	121391		210					95	175		
		160	159–165	122044	121335		230					105	195		
	6		164–170	122469	121394		235					108	200		
			193–203	122119	121346		270					125	235		
		212	208–214	122147	121350		282					131	247		
		219	217–224	122159	121354		289					135	254		
		250	244–254	122210	121358		320					150	285		
		267	267–273	122226	121362		337					159	302		
		280	278–282	122246	121367		350					165	315		
		315	313–318	122290	121375		385					183	350		
		323	320–326	122298	121379		415			50 x 5.0	56	188	360	M12	
		355	353–360	122321	121383		447					204	392		



Single bossed clamps can be produced in all other pipe sizes and types according to customer specifications. For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.



## Duct clamps

**Field of application**

- For attachment of air ducts as well as spiral-seam pipes

**Advantages**

- The 2 locking screws allow adjustments to accommodate a greater variation in pipe diameter
- Acoustic insulation, form-locking with wide clip-over edges prevent the lining from slipping out of the clamp
- Vibration control lining DÄMMGULAST® Junior with orange identification stripe: average vibration improvement of up to 18 dB(A)



Without lining



With DÄMMGULAST® Junior

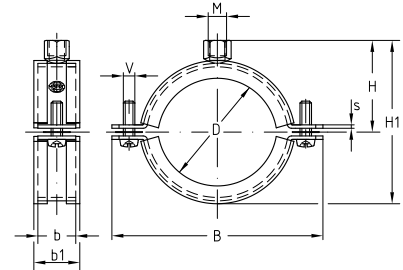
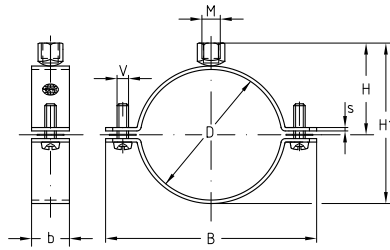
Connecting thread	Pipe nominal size [mm]	Part no. V2A		Sales unit	Pack unit
		Without lining	With DÄMMGULAST®		
M8	50	115606	115459	1	pieces
	63	115612	115264		
	71	115618	115274		
	80	115627	115280		
	90	115633	115289		
	100	115506	115115		
	112	115512	115121		
	125	115521	115128		
	140	115533	115137		
	150	115542	115146		
	160	115548	115156		
	180	115555	115168		
	200	115560	115177		
	224	115567	115186		
	250	115576	115199		
	280	115582	115209		
	300	115585	115218		
	315	115594	115227		
	355	115600	115236		
	400	115603	115245		
M10	450	115456	115091		
	500	115461	115094		
	560	115464	115097		
	600	115467	115100		
	630	115470	115103		
	710	115476	115106		
	800	115479	115109		

### Duct clamps

#### Features



Max. recommended load  
[N]  
500



Pipe nominal size [mm]	Dimensions [mm]										
	b x s	V	Part no.	B	H	H1	Part no.	B	b1	H	H1
50	25 x 1.5	M6	115606	95	39	66	115459	104	28	43	75
63			115612	108	45	79	115264	117		50	88
71			115618	116	49	87	115274	125		54	96
80			115627	125	54	96	115280	134		58	105
90			115633	135	59	106	115289	144		63	115
100			115506	146	64	117	115115	152		69	126
112			115512	158	70	129	115121	164		75	139
125			115521	171	77	142	115128	177		81	151
140			115533	186	84	157	115137	192		89	166
150			115542	196	89	167	115146	202		94	176
160			115548	206	94	177	115156	212		99	186
180			115555	226	107	197	115168	232		109	206
200			115560	246	114	217	115177	252		119	226
224			115567	272	131	247	115186	281		136	256
250			115576	298	144	273	115199	307		149	282
280			115582	328	159	303	115209	337		164	312
300			115585	349	170	324	115218	358		174	333
315			115594	364	177	339	115227	373		182	348
355			115600	404	197	379	115236	413		202	388
400			115603	449	220	424	115245	458		224	433
450	25 x 2.5	M8	115456	515	245	474	115091	521		248	480
500			115461	565	270	524	115094	571		273	530
560			115464	625	300	584	115097	631		303	590
600			115467	665	320	624	115100	671		323	630
630	25 x 3.0		115470	696	335	655	115103	702		338	661
710			115476	776	375	735	115106	782		378	741
800			115479	866	420	825	115109	872		423	831

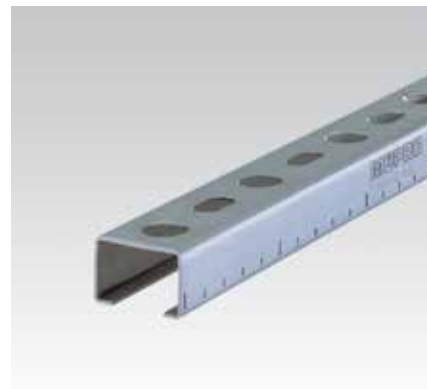
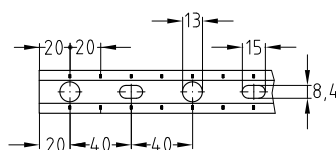
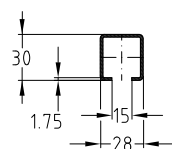
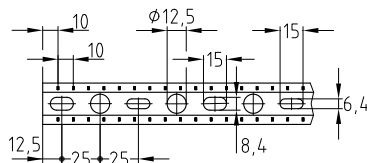
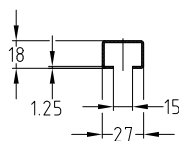
## MPC-Support channels

**Field of application**

- Ideally suitable as support structure for air ducts
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components

**Advantages**

- Quick and efficient attachment of pipe sections and multiple pipe-ways
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure attachment that is adjustable laterally and vertically
- High bending stiffness due to convenient cross-section design
- For setting up structures with correctly measured static loads by means of diverse connection components
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPC-Protection caps



Profile 27/18



Profile 28/30

**Features**

Profile	Length [mm]	Part no.		Sales unit	Pack unit
		V2A	V4A		
27/18	2,000	129907	129908	1	pieces
	6,000	129999	—		
28/30	2,000	118582	118586		
	6,000	118976	118979		

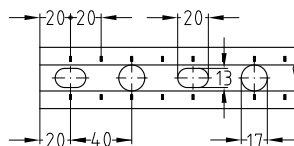
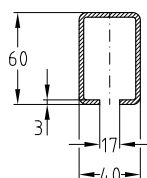
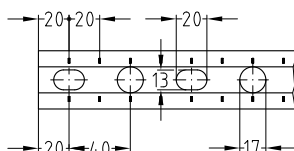
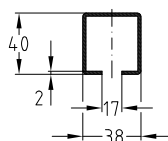
### MPC-Support channels

#### Field of application

- Ideally suitable as support structure for air ducts
- Variety of mounting options for pre-wall installations and shelves in combination with extensive range of system components

#### Advantages

- Quick and efficient attachment of pipe sections and multiple pipe-ways
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure attachment that is adjustable laterally and vertically
- High bending stiffness due to convenient cross-section design
- For setting up structures with correctly measured static loads by means of diverse connection components
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPC-Protection caps



Profile 38/40



Profile 40/60

#### Features



Profile	Length [mm]	Part no.		Sales unit	Pack unit
		V2A	V4A		
38/40	2,000	129914	129915	1	pieces
	4,000	129962	129963		
	6,000	130006	130007		
40/60		130017	130018		



For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

## MPC-Support channels

## Technical data of profiles:

Profile	Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Available MPC-Rail nuts	Profile weight [kg/m]	Profile cross-section [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
						$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
27/18	V2A, V4A	149	M8, M10	0.60	0.69	0.2911	0.9554	0.310	0.707
28/30				1.15	1.36	1.3999	2.0551	0.911	1.467
38/40			M8, M10, M12	1.82	2.21	4.3286	6.1000	2.164	3.210
40/60				3.50	4.44	17.5426	13.3946	5.847	6.697

## Load bearing capacities of profiles for bending around the y-axis [N]:

Profile												
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
27/18	368	136	57	28	—	—	274	80	33	16	—	—
28/30	1,076	537	288	154	—	—	797	390	169	90	—	—
38/40	2,553	1,280	847	497	85	—	1,886	958	532	292	50	—
40/60	6,870	3,462	2,299	1,710	440	105	5,047	2,586	1,720	1,210	259	62

Profile												
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
27/18	183	57	24	12	—	—	152	45	19	—	—	—
28/30	532	277	121	65	—	—	441	220	95	51	—	—
38/40	1,260	638	382	209	36	—	1,044	531	300	164	28	—
40/60	3,371	1,722	1,147	854	185	44	2,788	1,433	956	682	146	35



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

### MPC-Support channels

Permissible buckling loads for profiles [N]:

Buckling length Lk [mm]	MPC 27/18	MPC 28/30	MPC 38/40	MPC 40/60
200	9,873	20,236	33,026	66,308
300	9,172	19,455	32,658	66,308
400	8,320	18,616	31,736	65,162
500	7,297	17,680	30,770	63,666
600	6,191	16,613	29,733	62,110
700	5,148	15,402	28,602	60,468
800	4,262	14,071	27,356	58,713
900	3,548	12,683	25,988	56,823
1,000	2,981	11,319	24,500	54,780
1,100	2,531	10,047	22,920	52,575
1,200	2,171	8,904	21,287	50,212
1,300	1,881	7,901	19,655	47,713
1,400	1,644	7,031	18,071	45,115
1,500	1,448	6,282	16,574	42,467
1,600	1,285	5,635	15,185	39,826
1,700	1,147	5,078	13,915	37,242
1,800	1,031	4,595	12,764	34,757
1,900	931	4,175	11,727	32,403
2,000	845	3,808	10,795	30,196
2,100	770	3,486	9,958	28,144
2,200	705	3,203	9,207	26,249
2,300	647	2,952	8,532	24,504
2,400	597	2,729	7,925	22,901
2,500	552	2,530	7,377	21,432
2,600	512	2,351	6,881	20,085
2,700	476	2,191	6,432	18,850
2,800	444	2,047	6,024	17,718
2,900	415	1,916	5,653	16,678
3,000	388	1,797	5,315	15,721
3,100	364	1,689	5,005	14,841
3,200	343	1,590	4,721	14,030
3,300	323	1,500	4,460	13,281
3,400	305	1,417	4,220	12,588
3,500	288	1,341	3,999	11,947
3,600	273	1,271	3,794	11,352
3,700	258	1,206	3,605	10,799
3,800	245	1,146	3,429	10,285
3,900	233	1,090	3,266	9,807
4,000	222	1,038	3,113	9,360
4,100	212	990	2,972	8,942
4,200	202	945	2,839	8,552
4,300	193	903	2,716	8,186
4,400	184	864	2,600	7,843
4,500	176	827	2,491	7,521
4,600	169	793	2,389	7,218
4,700	162	761	2,293	6,933
4,800	155	730	2,203	6,664
4,900	149	702	2,118	6,410
5,000	143	675	2,038	6,171
5,100	138	649	1,962	5,945
5,200	133	625	1,890	5,730
5,300	128	603	1,823	5,527
5,400	123	581	1,758	5,335
5,500	119	561	1,698	5,152
5,600	115	542	1,640	4,979
5,700	111	523	1,585	4,814
5,800	107	506	1,533	4,657
5,900	104	489	1,483	4,508
6,000	100	473	1,436	4,366

## MPC-Support channels

Buckling loads as per DIN EN 1993-1-1 sections 6.2 and 6.3.

The values in the table apply for fully bearing cross-sections and central load transmission!

The potentially lower slenderness parameter for buckling and lateral torsional buckling must be examined separately!

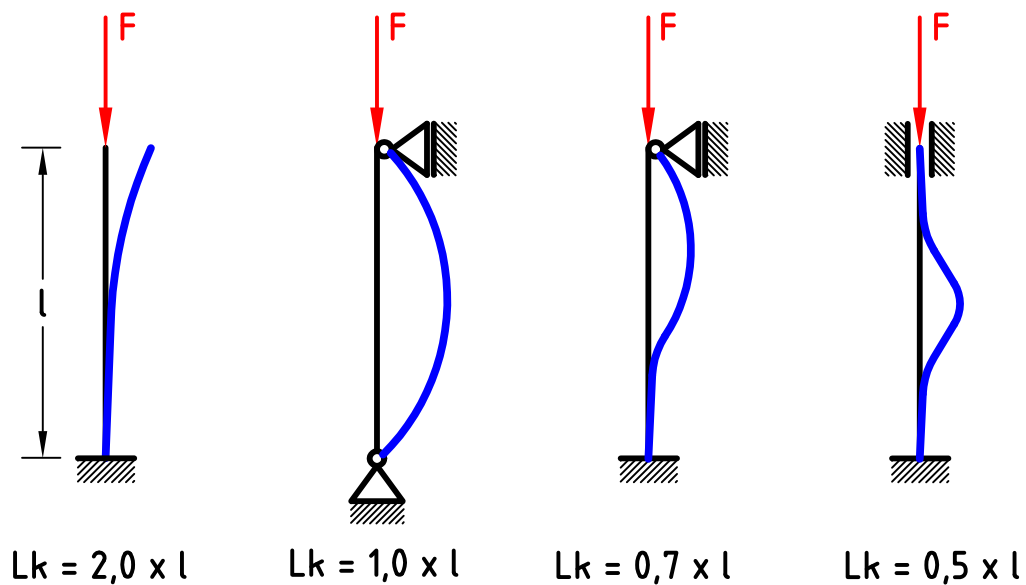
Buckling about the z-axis and the y-axis was considered.

The least favourable buckling load is documented in the table.

The safety coefficient  $\gamma = 1.54$  takes into account the safety and combination coefficients as well as the safety factor of the material.

Determine the authoritative buckling length  $L_k$  depending on the storage conditions and the rod length  $l$ , as shown in the figure.

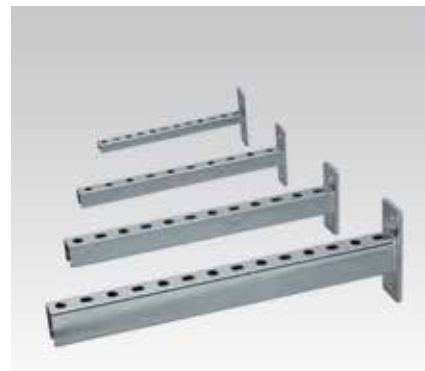
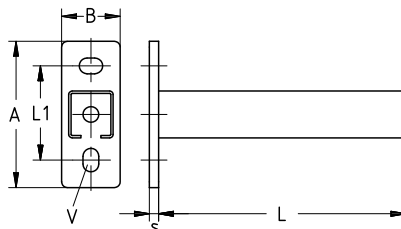
Read off the buckling load  $F$  as  $L_k$  from the table.



### MPC-Wall hanger brackets

#### Field of application

- Ideal as cantilever support structure of pipeways
- Applicable in combination with MPC-Saddle support and MPC-Channel support brackets as a cross-beam for pipe attachments in shafts and ducts
- Applicable as cantilever bracket for air ducts and cable trays
- Solid wall bracket for valves and equipment



#### Advantages

- The strong base plate ensures a high load carrying capacity
- The vertical and horizontal holes in the base plate allow easy height adjustment of the bracket
- Variety of lengths covers all construction requirements
- Clean-cut appearance by the use of MPC-Protection caps

#### Features



Profile	Length L [mm]	Part no.		Sales unit	Pack unit	Dimensions [mm]				
		V2A	V4A			A	B	L1	s	V
27/18	200	156743	156753	1	pieces	120	40	80	4	11 x 19
	300	156744	156754							
38/40	160	156745	156755			125	50	120	8	13.5 x 20
	240	156746	156756							
	320	156747	156757							
	400	156748	156758							
	480	156749	156759							
	560	156750	156760							
	640	156751	156761							
40/60	560	156752	156762			165	60	120		




For use in areas with requirements on the duration of fire resistance, the boundary conditions set out in the fire test report must be observed.

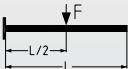

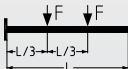



## MPC-Wall hanger brackets

## Technical data of brackets:

Profile	Dimensions H x W x D  [mm]	Base plate Material	Admissible steel stress  $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Support channel Material	Admissible steel stress  $\sigma_{adm.}$ [N/mm <sup>2</sup> ]
					
27/18	120 x 40 x 4	V2A, V4A	149	V2A, V4A	149
38/40	125 x 50 x 8		136		
40/60	165 x 60 x 8				

## Load bearing capacities of brackets for bending around the y-axis:

Profile	Base plate M <sub>max.</sub> [Nmm]	Length L [mm]				
Max. allowable load [N]						
27/18	34,049	200	340	170	170	113
		300	226	113	113	75
38/40	219,110	160	2,738	1,369	1,369	912
		240	1,825	912	912	608
		320	1,369	684	684	456
		400	1,095	547	547	365
		480	912	456	456	304
		560	782	391	391	260
		640	684	342	342	228
		560	1,087	543	543	362



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/150$  are not exceeded, taking the deadweight into consideration.

The load-carrying values refer to the console support. Fastening elements such as plugs and screws, must be chosen in accordance with the loads.



### MPC-Quick fasteners

#### Field of application

- Secure and easy installation in slot of MPC-Support channel in order to attach mounting accessories
- Angle mounting for fast and efficient installation of brackets and mounting angles

#### Advantages

- Time-saving attachment in the channel slot, even if subsequently fitted between existing pipe sections
- Simple and secure handling: insert in the MPC-Support channels, turn and the MPC-Quick fastener is fixed. No slipping, no falling out
- Adjustment marks on the side facilitate its positioning in the support channel
- High quality and load capacity
- Suitable for MPC-Support channel profiles 38/40 and 40/60



For angle mounting



With internal thread

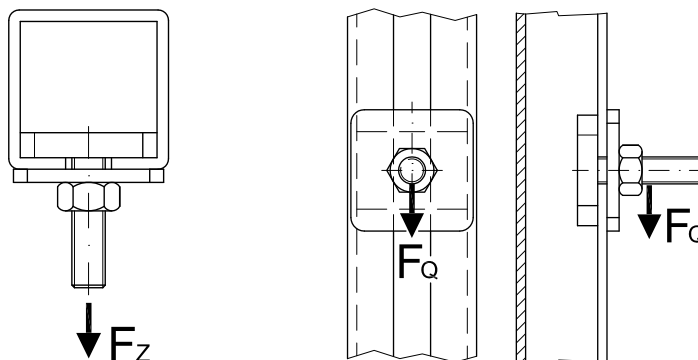


#### Features



Type	For support channels	Connecting thread	Material	Part no.	Sales unit	Pack unit
With internal thread	38/40, 40/60	M8	V2A	120866	50	pieces
		M10		120830		
For angle mounting		M8		120794		
		M10		120786		

## MPC-Quick fasteners



For support channels	MPC-Quick fastener			
	Connecting thread	Max. recommended tensile load Fz [N]	Max. recommended transverse load F <sub>Q</sub> (displacement) [N]	At a tightening torque of [Nm]
38/40	M8	2,800	1,000	20
	M10			25
40/60	M8	4,000		20
	M10			25



### MPC-Hammer head fasteners

#### Field of application

- For time-saving, efficient attachment of pipe clamps to MPC-Support channels

#### Advantages

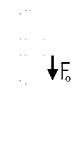
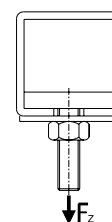
- Practical range of lengths
- For insertion at any point into the slot of channel profiles 27/18 and 28/30
- Lateral adjustment at any time, allows perfect alignment of the pipeline after installation
- Various lengths and thread diameters can be combined within the same channel



#### Features



For support channels	Connecting thread	Length [mm]	Thread length [mm]	Part no.		Sales unit	Pack unit
				V2A	V4A		
27/18, 28/30	M8	25	7	115134	115139	50	pieces
		30	15	115143	115148		
		40	25	115157	115160		
		50	35	115169	115172		
		80	65	115184	115187		
38/40, 40/60	M8	25	7	115050	115059		
		35	20	115053	115077		
		50	35	115098	115095		
	M10	35	18	114978	114993		
	M12		15	115008	115017		



For support channels	Max. allowable bearing point load capacity of channel [N]	MPC-Hammer head fasteners			
		Connecting thread	Max. recommended tensile load Fz [N]	Max. recommended transverse load F0 (displacement) [N]	At a tightening torque of [Nm]
27/18	1,700	M8	1,000	400	10
28/30	2,500		2,500	1,000	20
38/40	5,000	M10	2,800	1,200	30
		M12	5,000	1,800	40
40/60	8,300	M8	3,500	1,000	20
		M10	4,000	1,200	30
		M12	8,300	1,800	40

## MPC-Hammer head bolts

## Field of application

- For time-saving, efficient attachment to MPC-Support channels

- For direct insertion in the channel slot – even between the mounting bolts

## Advantages

- Ideal for attachment of channel constructions and connecting elements
- Suitable for profiles 38/24, 38/40, 39/52, 40/60, 40/80, 38/48, 38/80 and 40/120



## Features



For support channels	Connecting thread	Max. allowable bearing point load capacity of channel [N]	Max. recommended tensile load Fz [N]	Max. recommended transverse load Fq (displacement) [N]	At a tightening torque of [Nm]
38/24	M8	2,200	2,200	600	20
	M10			800	30
38/40, 38/80	M8	5,000	5,000	1,000	20
	M10			1,500	30
39/52	M8	6,700	6,700	1,000	20
	M10			1,500	30
40/60, 40/80, 40/120	M8	8,300	8,300	1,000	20
	M10			1,500	30

Connecting thread	Usable thread length [mm]	Length [mm]	Material	Part no.	Sales unit	Pack unit
M8	20	30	V2A	115331	50	pieces
M10	19			115307		



## MPC-Protection caps

for MPC-Support channels and wall hanger brackets

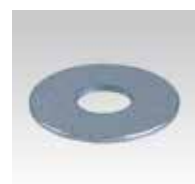
For support channels	Part no.	Sales unit	Pack unit
27/18	106000	100	pieces
28/30	106002		
38/40, 38/80	106006	50	
40/60, 40/120	106008	25	



## Washers

for attachment of MPC-Support channels

For thread	Outer diameter [mm]	Thickness [mm]	Part no.		Sales unit	Pack unit
			V2A	V4A		
M8	24	2.0	127190	127199	100	pieces
	30		127204	127207		
M10	35	2.5	127097	127103		
	35		127106	127112		
M12	37	3.0	127160	127163		





### MPC-Clamp brackets

for MPC-Support channels and wall hanger brackets

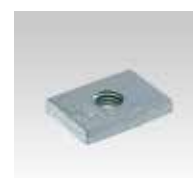
For support channels	For thread	Part no.		Sales unit	Pack unit
		V2A	V4A		
27/18, 28/30	M8	114539	114536	100	pieces
	M10	114506	114509		
38/40	M8	114542	114545		
	M10	114512	114515		
	M12	114524	114527		
40/60	M8	114551	114548		
	M10	114521	114518		
	M12	114533	114530		



### MPC-Rail nuts

for MPC-Support channels and wall hanger brackets

For support channels	Thread	Length [mm]	Width [mm]	Height [mm]	Part no.		Sales unit	Pack unit
					V2A	V4A		
27/18, 28/30	M8	22.0	14.0	5.0	120031	120035	100	pieces
38/40, 40/60	M6	32.8	23.0	6.0	148758	—		
	M8	31.0	16.0		148760	—		
		32.8	23.0		118034	118037		
					117962	117965		
	M12				117980	117983		



### MPC-Double rail nut

for MPC-Support channels and wall hanger brackets

For support channels	Thread [mm]	Material	Part no.	Sales unit	Pack unit
38/40, 40/60	M10	V2A	118147	50	pieces



### DÄMMGULAST® Resilient pad

for threaded rods M8 and M10

Size [mm]	Part no.		Sales unit	Pack unit
	V2A	V4A		
40 x 25	107081	107082	25	pieces



### DÄMMGULAST® Washers and steel washers

for threaded rods M8 and M10

	For thread	Size [mm]	Part no.	Sales unit	Pack unit
Washers	M8	28 x 8.5	107089	100	pieces
	M10	34 x 10.5	107086		



	For thread	Size [mm]	Part no.		Sales unit	Pack unit
			V2A	V4A		
Steel Washers	M8	30 x 8.5	127204	127207	100	pieces
	M10	35 x 10.5	127106	127112		

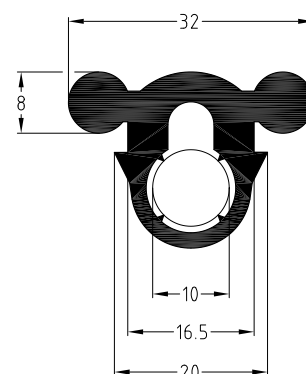
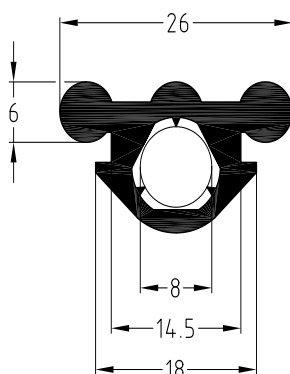
## DÄMMGULAST® Channel sections for MPC-Profiles

### Field of application

- Ideal for the decoupling of traverses for air duct fixtures
- For secure vibration-decoupling of MPC-Support channels

### Advantages


- Easy installation by inserting into MPC-Support channels and/or screwing onto threaded rods
- Prevents structure-borne noise coupling by avoiding contact between the air duct and the threaded rods
- Interlocking profile prevents channel section being pushed out
- Prevents fluttering and other vibration noises in the air ducts
- Small contact surface, large absorption mass



### Features



Design	For support channels	Suitable for	Part no.	Sales unit	Pack unit
<b>DÄMMGULAST® Channel section</b> roll of 30 m	27/18, 28/30	Channels with slot widths of 13–16 mm, M8 threaded rods	<b>107689</b>	1	roll
<b>DÄMMGULAST® Channel sections</b> section of 50 mm	38/24–40/120	Channels with slot widths of 15–18 mm, M8 and M10 threaded rods	<b>107690</b>	300	pieces
<b>DÄMMGULAST® Channel sections</b> section of 100 mm			<b>107691</b>		
			<b>107686</b>	200	

 When installing air conditioning and ventilation equipment, MPC-Support channels can be used as load-bearing traverses. Structure-borne vibration coupling bridges resulting from direct metal contact between the air duct and the traverse or threaded rods can be prevented by the use of DÄMMGULAST® Channel section as intermediate layer.

The DÄMMGULAST® Channel section was developed especially for these application areas and provides the optimum solution from a practical installation point of view.

### MPC-Channel connectors

#### Field of application

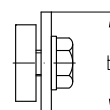
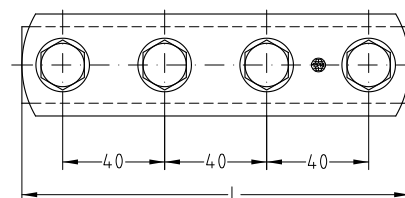
- Quick butt-joint connection for MPC-Support channels

#### Advantages

- Enables exact alignment of the channel
- 4 bolts provide a frictional joint
- Smooth attachment by sliding into the channel section



For support channels	Part no.		Sales unit	Pack unit	Dimensions [mm]	
	V2A	V4A			b	L
27/18, 28/30	120052	120056	1	pieces	25	150
38/40, 40/60	120064	120068			40	





### MPC-Channel support brackets

#### Field of application

- Ideal for attachment of MPC-Support channels as a cross-beam in shafts and ducts
- For right-angled connection of two channels where section slots do not have the same alignment
- Applicable as floor or ceiling flange for vertical MPC-Support channels

#### Advantages

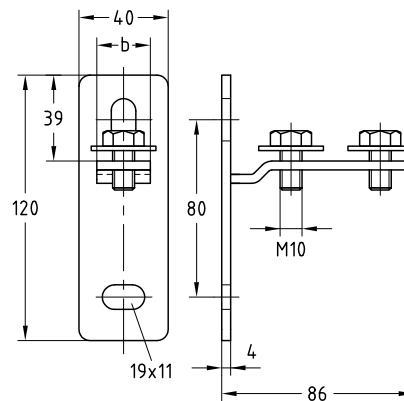
- The vertical and horizontal holes in the base plate enable easy height adjustment of the MPC-Channel support bracket
- Supplied with two clamping bolts, pre-installed



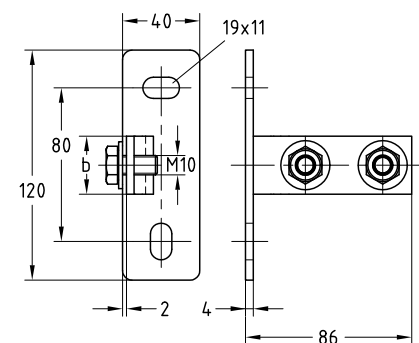
MPC-Channel support bracket, crosswise



MPC-Channel support bracket, lengthwise



MPC-Channel support bracket, crosswise



MPC-Channel support bracket, lengthwise

Description	For support channels	Part no.		Sales unit	Pack unit	Dimensions b [mm]
		V2A	V4A			
Crosswise	27/18, 28/30	156801	156805	10	pieces	24
	38/40	156803	156807			30
Lengthwise	27/18, 28/30	156800	156804			24
	38/40	156802	156806			30

### MPC-Saddle supports

#### Field of application

- Simple assembly of strong cross-beams using MPC-Support channels
- Applicable for cramped installation conditions in shafts and ducts

#### Advantages

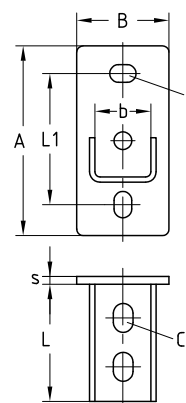
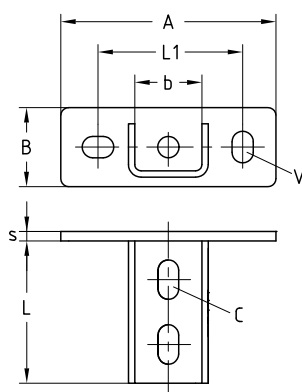
- The vertical and horizontal holes in the base plate enable simple alignment of the MPC-Saddle support
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions



MPC-Saddle support, crosswise



MPC-Saddle support, lengthwise



#### Features



Description	For support channels	Part no.		Sales unit	Pack unit	Dimensions [mm]							
		V2A	V4A			A	B	b	L	L1	s	C	V
Crosswise	27/18, 28/30	156822	159552	5	pieces	125	50	30	70	80	5	11 x 19	11 x 19
	38/40, 40/60	156824	156826			136		42	90	91.5	6	13 x 25	13.5 x 20
Lengthwise	27/18, 28/30	156821	159551			125	70	30	70	80	5	11 x 19	11 x 19
	38/40, 40/60	156823	156825			144		42	90	100	6	13 x 25	13.5 x 20

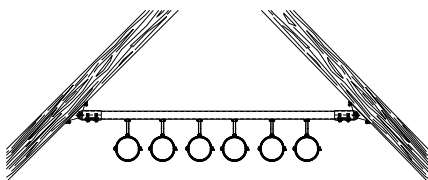
## MPC-VARIO-Saddle support

**Field of application**

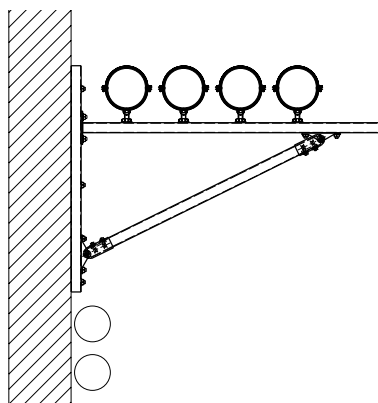
- Ideal for attachment to inclined roof trusses, vaults and in round cable shafts

**Advantages**

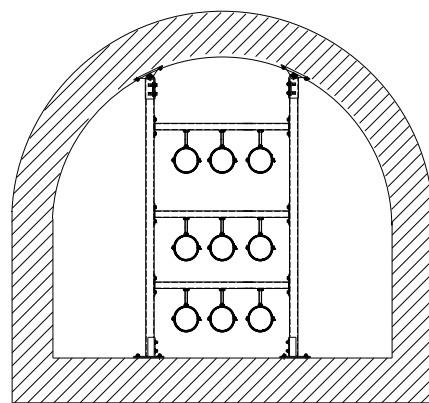
- Variable angle adjustment possible during installation
- Simple and quick installation due to pre-installed double rail nut
- If needed in profile 38/40, variable alignment of the channel slot in all directions possible



Attachment of a pipe run to an inclined roof truss



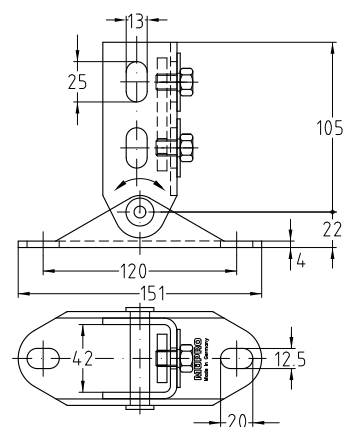
Pipes installed on a MPC-Wall hanger bracket with diagonal strut



Installation of brackets in vaults or round cable ducts and shafts

Completely pre-assembled:

- 1 MPC-VARIO-Saddle support
- 1 Double rail nut
- 2 Hexagonal head bolts M10
- 2 Washers



For support channels	Minimum angle [°]	Material	Part no.	Sales unit	Pack unit
38/40, 40/60	20	V2A	129659	1	pieces

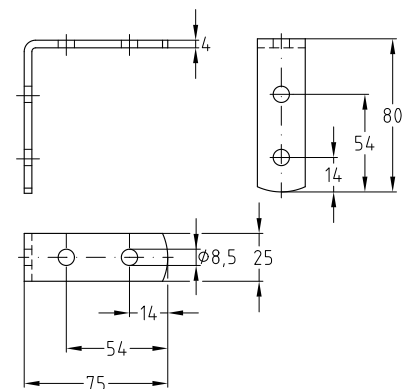
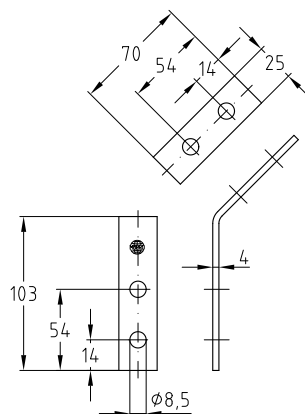
### MPC-Mounting angles for MPC-Support channels 27/18 and 28/30

#### Field of application

- Connection element for construction of pre-wall installations, shelves as well as channel constructions for mountings of pipelines and air ducts without welding
- Applicable for direct mounting on walls, ceilings or floors

#### Advantages

- Versatile applicability due to oblong holes, e.g. as:
  - Angular support bracket
  - Angular load-bearing bracket
  - Connection element
  - Angular bracket
- Multi-purpose component for professional, practical installation solutions



Type	For support channels	Part no.		Sales unit	Pack unit
		V2A	V4A		
45°	27/18, 28/30	118785	118789	25	pieces
90°		118898	118902		

## MPC-Cross channel connectors

**Field of application**

- For cross-connections in pre-wall installations and for shelves made from MPC-Support channels

**Advantages**

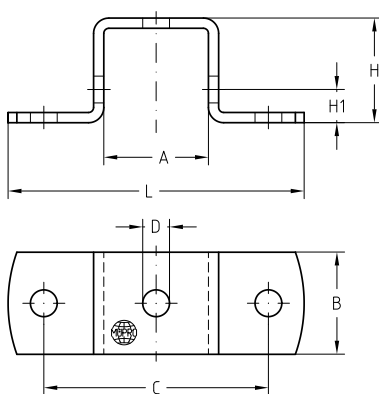
- Easy-to-install connection elements for setting up structures with correctly calculated static loads using MPC-Support channels
- Greater flexibility when setting up channel constructions
- Multiple punching allows the section slots to be aligned in 4 directions
- For rotation-resistant attachment to building structure



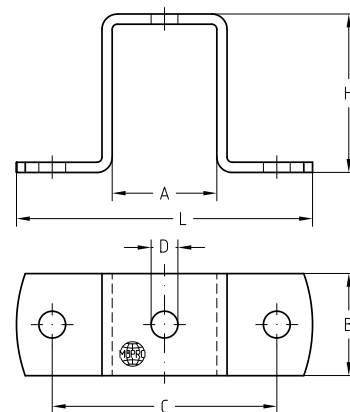
For profiles 28/30 and 38/40



For profile 40/60



For profiles 28/30 and 38/40



For profile 40/60

For support channels	Part no.		Sales unit	Pack unit	Dimensions [mm]						
	V2A	V4A			A	B	C	D	H	H1	L
28/30	118228	118225	25	pieces	31	30	80	8.5	31	13	102
38/40	118249	118268			41	40		10.5	41	18	116
40/60	118292	118300							62	—	110

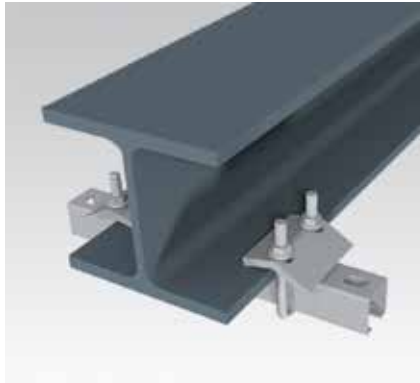
### MPC-Girder cleats

#### Field of application

- Attachment of MPC-Support channels to steel girders without drilling or welding

#### Advantages

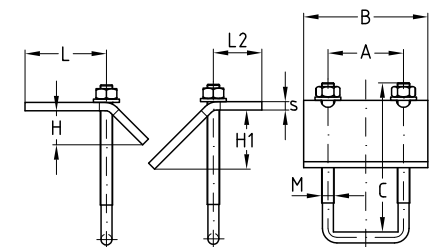
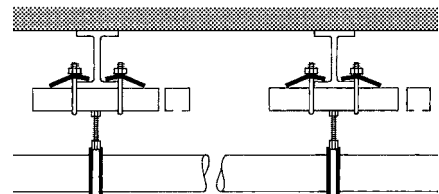
- Attachment to supporting structure without welding or drilling
- Allows subsequent adjustment of the channels along and across the supporting structure
- Suitable for all flange thicknesses of common girders
- Easy to install, pre-assembled kit
- Proper attachment of suspended loads on girders



#### Features



For support channels	Thread [mm]	Max. permitted loading/pair [N]
27/18, 28/30	M6	2,800
38/40, 40/60	M10	10,800



For support channels	Thread [mm]	Spanner width [SW]	Part no.		Sales unit	Pack unit	Dimensions [mm]						
			V2A	V4A			A	B	C	H	H1	L	L2
27/18, 28/30	M6	10	130282	130280	20	pieces	37	60	80	18.0	29.0	43.8	27.8
38/40, 40/60	M10	15	130270	130271			50	80	100	18.5	24.5	39.7	30.7

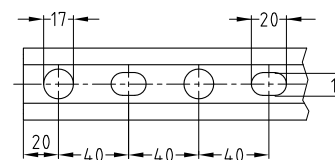
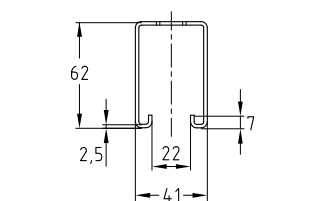
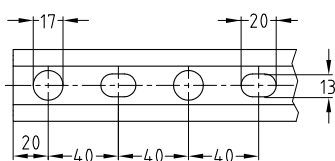
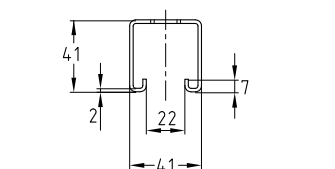
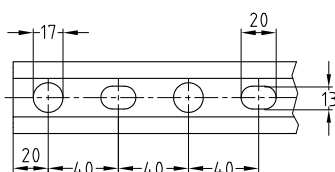
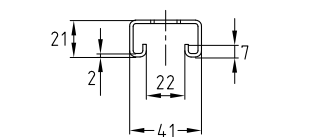
## MPR-Support channels

**Field of application**

- Ideal for pipe installation as support structure for air ducts
- Variety of mounting options in combination with extensive range of system components
- For indoor and outdoor use

**Advantages**

- Quick and efficient attachment of pipe sections and multiple pipe-ways
- High bending stiffness due to the cross-section design
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure fixing that is adjustable laterally and vertically
- For setting up structures with correctly measured static loads by means of diverse connection components
- Interlocking rail slot for positive locking of attachments
- Clean-cut appearance by the use of MPR-protection caps



Profile 41/21/2.0



Profile 41/41/2.0



Profile 41/62/2.5

Profile	Length [mm]	Material	Part no.	Sales unit	Pack unit
41/21/2.0	2,000	V4A	154393	1	pieces
	6,000		154395		
41/41/2.0	2,000		154396		
	6,000		154398		
41/62/2.5			154404		

### MPR-Support channels

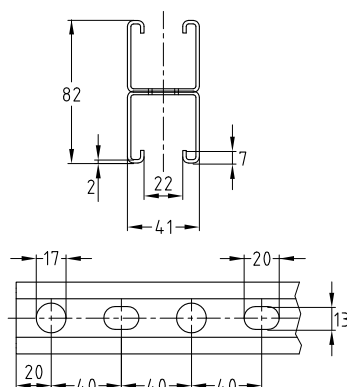
#### H-Profiles

#### Field of application

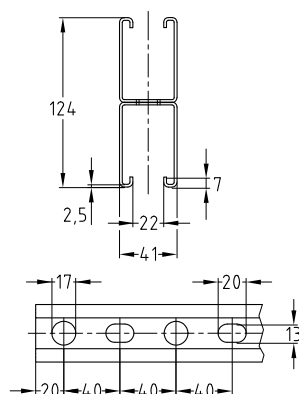
- Ideal for space-saving support of multisection pipeways between ceiling beams
- Ideal for pipe installation and support structure for air ducts
- Variety of mounting options in combination with extensive range of system components
- For indoor and outdoor use

#### Advantages

- Quick and efficient attachment of pipe sections and multiple pipe-ways
- Ideal combination of high bending stiffness and ease of installation
- Channel slots on both sides allow simple and quick alignment of all suspended and floor-mounted pipe supports
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPR-Protection caps
- Interlocking rail slot for positive locking of attachment parts



Profile 41/82/2.0



Profile 41/124/2.5


Profile	Length [mm]	Material	Part no.	Sales unit	Pack unit
41/82/2.0	6,000	V4A	154406	1	pieces
41/124/2.5			154407		



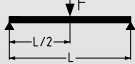
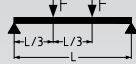


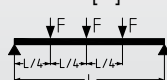
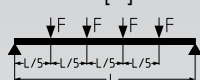
## MPR-Support channels

## Technical data of profiles:

Profile	Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Available threaded plates*	Profile weight [kg/m]	Profile cross-section [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
						$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
41/21/2.0	V4A	149	M8, M10, M12	1.45	1.62	0.8894	4.5246	0.839	2.207
41/41/2.0				2.08	2.42	4.9736	7.5692	2.451	3.692
41/62/2.5				3.38	3.98	17.2090	12.9297	5.671	6.307
41/82/2.0 H-Profile				4.16	4.83	30.6876	15.1385	7.485	7.385
41/124/2.5 H-Profile				6.76	7.96	111.7528	25.8595	18.025	12.614

## Load bearing capacities of profiles for bending around the y-axis [N]:

Profile												
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
41/21/2.0	995	418	176	89	—	—	741	246	104	52	—	—
41/41/2.0	2,895	1,450	960	571	98	—	2,141	1,085	612	335	58	—
41/62/2.5	6,659	3,358	2,230	1,659	433	105	4,891	2,508	1,668	1,187	254	62
41/82/2.0 H-Profile	6,541	4,425	2,943	2,191	819	256	3,271	3,261	2,200	1,640	481	150
41/124/2.5 H-Profile	13,612	10,625	7,096	5,309	2,557	1,241	6,806	6,790	5,292	3,963	1,871	729

Profile												
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
41/21/2.0	495	176	74	37	—	—	412	138	58	29	—	—
41/41/2.0	1,430	723	439	241	41	—	1,186	602	345	189	32	—
41/62/2.5	3,267	1,670	1,112	828	182	44	2,700	1,389	926	669	143	35
41/82/2.0 H-Profile	2,181	2,174	1,467	1,094	345	108	1,635	1,630	1,221	911	271	85
41/124/2.5 H-Profile	4,538	4,527	3,528	2,643	1,278	532	3,403	3,395	2,933	2,200	1,054	411

\* Please note additional information on the catalog pages of threaded plates/hammer head fasteners.



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

### MPR-Support channels

Permissible buckling loads for profiles in [N]:

Buckling length Lk [mm]	MPR 41/21/2.0	MPR 41/41/2.0	MPR 41/62/2.5	MPR 41/82/2.0	MPR 41/124/2.5
200	23,392	36,132	59,486	72,188	118,971
300	22,034	35,800	59,486	72,188	118,971
400	20,452	34,820	58,648	71,487	117,930
500	18,561	33,795	57,360	70,480	116,306
600	16,395	32,699	56,027	69,412	114,589
700	14,139	31,509	54,626	68,258	112,739
800	12,028	30,203	53,137	66,989	110,713
900	10,198	28,769	51,540	65,572	108,459
1,000	8,676	27,209	49,820	63,972	105,924
1,100	7,430	25,543	47,965	62,152	103,048
1,200	6,413	23,810	45,977	60,078	99,778
1,300	5,580	22,062	43,865	57,731	96,077
1,400	4,894	20,349	41,655	55,115	91,944
1,500	4,323	18,715	39,382	52,268	87,422
1,600	3,844	17,187	37,088	49,261	82,612
1,700	3,439	15,780	34,819	46,184	77,649
1,800	3,094	14,498	32,612	43,129	72,677
1,900	2,797	13,337	30,499	40,171	67,825
2,000	2,541	12,290	28,499	37,363	63,188
2,100	2,319	11,348	26,625	34,737	58,826
2,200	2,124	10,500	24,882	32,304	54,767
2,300	1,952	9,736	23,268	30,067	51,020
2,400	1,801	9,048	21,778	28,017	47,576
2,500	1,666	8,426	20,407	26,142	44,421
2,600	1,546	7,863	19,145	24,431	41,534
2,700	1,438	7,353	17,985	22,868	38,893
2,800	1,341	6,889	16,918	21,439	36,477
2,900	1,254	6,466	15,937	20,133	34,265
3,000	1,175	6,080	15,032	18,936	32,237
3,100	1,103	5,727	14,199	17,838	30,376
3,200	1,038	5,403	13,429	16,830	28,664
3,300	978	5,106	12,718	15,902	27,088
3,400	923	4,832	12,060	15,046	25,635
3,500	873	4,579	11,449	14,256	24,292
3,600	826	4,345	10,883	13,525	23,050
3,700	784	4,129	10,356	12,848	21,899
3,800	744	3,928	9,866	12,220	20,830
3,900	707	3,741	9,409	11,636	19,836
4,000	673	3,567	8,982	11,092	18,910
4,100	642	3,405	8,584	10,585	18,047
4,200	612	3,254	8,210	10,111	17,241
4,300	585	3,112	7,861	9,669	16,487
4,400	559	2,980	7,532	9,254	15,781
4,500	535	2,855	7,224	8,865	15,119
4,600	513	2,739	6,934	8,500	14,498
4,700	492	2,629	6,661	8,157	13,913
4,800	472	2,526	6,404	7,835	13,363
4,900	453	2,428	6,161	7,530	12,845
5,000	436	2,336	5,931	7,244	12,356
5,100	419	2,250	5,714	6,973	11,895
5,200	404	2,168	5,509	6,717	11,458
5,300	389	2,090	5,314	6,474	11,045
5,400	375	2,016	5,130	6,245	10,654
5,500	362	1,947	4,955	6,027	10,283
5,600	349	1,880	4,788	5,821	9,932
5,700	337	1,818	4,630	5,625	9,597
5,800	326	1,758	4,480	5,439	9,280
5,900	315	1,701	4,336	5,261	8,978
6,000	305	1,647	4,200	5,093	8,690



## MPR-Support channels

Buckling loads as per DIN EN 1993-1-1 sections 6.2 and 6.3.

The values in the table apply for fully bearing cross-sections and central load transmission!

The potentially lower slenderness parameter for buckling and lateral torsional buckling must be examined separately!

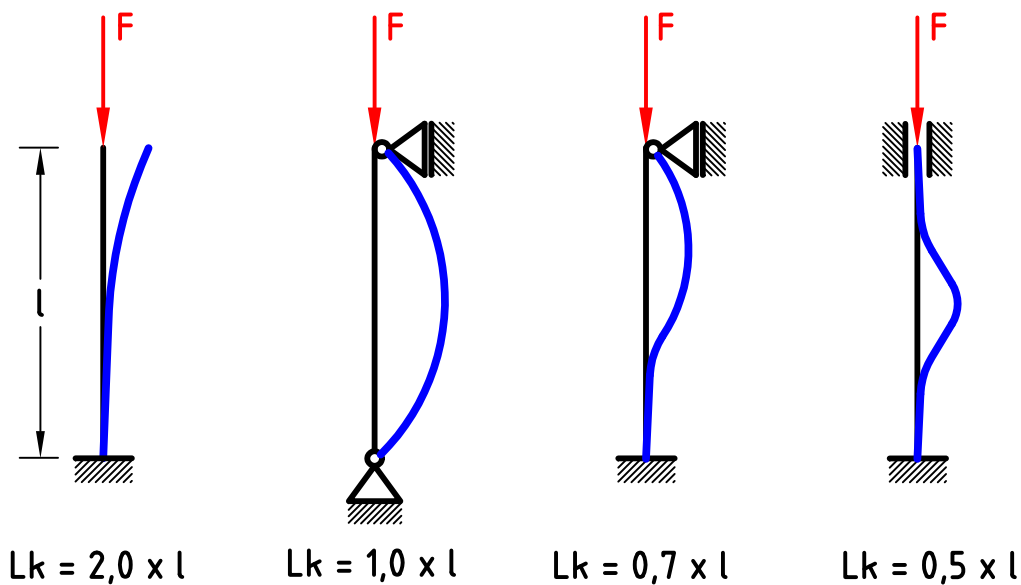
Buckling about the z-axis and the y-axis was considered.

The least favourable buckling load is documented in the table.

The safety coefficient  $\gamma = 1.54$  takes into account the safety and combination coefficients as well as the safety factor of the material.

Determine the authoritative buckling length  $L_k$  depending on the storage conditions and the rod length  $l$ , as shown in the figure.

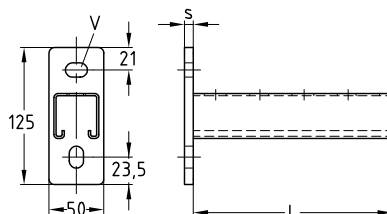
Read off the buckling load  $F$  as  $L_k$  from the table.



### MPR-Wall hanger brackets

#### Field of application

- Ideal as cantilever support structure of multisection pipeways
- Applicable as cantilever bracket for air ducts
- Applicable in combination with saddle support and channel support brackets as a cross-beam for pipe attachments in shafts and ducts
- Solid wall bracket for valves and equipment
- For indoor and outdoor use



#### Advantages


- The strong base plate ensures a high load carrying capacity
- Elongated- and cross-hole for flexible attachment to the building structure
- Variety of lengths covers all construction requirements
- Clean-cut appearance by the use of MPR-Protection caps

Profile	Length L [mm]	Material	Part no.	Sales unit	Pack unit	Dimensions [mm]	
						s	V
41/41/2.0	160	V4A	154435	1	pieces	8	13.5 x 20
	240		154436				
	320		154437				
	400		154438				
	480		154439				
	560		154440				
	640		154441				

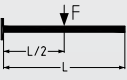
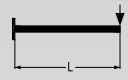
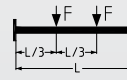



### MPR-Wall hanger brackets

#### Technical data of brackets:

Profile 	Dimensions H x W x D  [mm]	Base plate		Support channel	
		Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Material	Admissible steel stress $\sigma_{adm.}$ [N/mm <sup>2</sup> ]
41/41/2.0	125 x 50 x 8	V4A	143	V4A	149

#### Load bearing capacities of brackets for bending around the y-axis:

Profile	Base plate M <sub>max.</sub> [Nmm]	Length L [mm]				
			Max. allowable load [N]			
41/41/2.0	242,069	160	3,025	1,512	1,512	1,008
		240	2,017	1,008	1,008	672
		320	1,512	756	756	504
		400	1,210	605	605	403
		480	1,008	504	504	336
		560	864	432	432	288
		640	756	378	378	252



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/150$  are not exceeded, taking the deadweight into consideration.

The load-carrying values refer to the console support. Fastening elements such as plugs and screws, must be chosen in accordance with the loads.



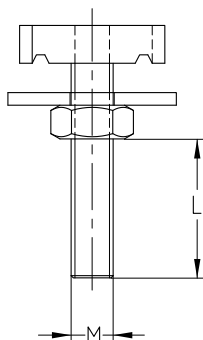
### MPR-Hammer head fasteners

#### Field of application

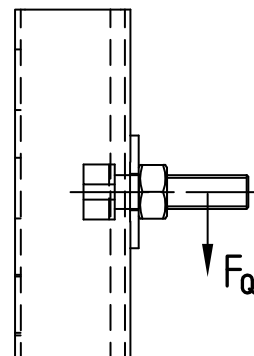
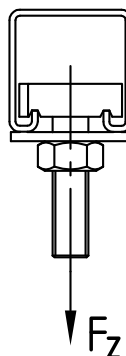
- For time-saving, efficient attachment of pipe clamps to MPR-Support channels
- For indoor and outdoor use

#### Advantages

- Easy and fast assembly in the rail slot
- Lateral adjustment at any time, allows perfect alignment of the pipeline after installation
- Various lengths and thread diameters can be combined within the same channel
- Interlocking threaded plate for secure positive connection in the rail slot of the MPR-Support channels



For support channels	Connecting thread	Length [mm]	Usable thread length L [mm]	Material	Part no.	Sales unit	Pack unit
41/21/2.0, 41/41/2.0, 41/62/2.5, 41/82/2.0, 41/124/2.5	M8	35	10	V4A	154413	25	pieces
		50	25		154415		
	M10	35	8		154418		
	M12	40	9		154424		



For support channels Material thickness [mm]	MPR-Hammer head fasteners			
	Connecting thread	Max. recommended tensile load Fz [N]	Max. recommended transverse load Fq [N]	For a tightening torque of [Nm]
2.0	M8	7,000	1,500	10
	M10		2,300	20
	M12		3,300	30
2.5	M8	12,000	2,500	10
	M10		3,300	20
	M12		4,000	30

## MPR-Threaded plates

**Field of application**

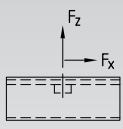
- For fixing of attachment parts in the rail slot of the MPR-Support channels
- For indoor and outdoor use

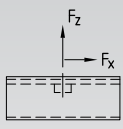
**Advantages**

- Interlocking threaded plate for secure positive connection in the rail slot of the MPR-Support channels



For support channels	Thread	Material	Part no.	Sales unit	Pack unit	Dimensions [mm]		
						l	b	s
41/21/2.0, 41/41/2.0, 41/62/2.5, 41/82/2.0, 41/124/2.5	M8	V4A	154409	25	pieces	34.5	19.5	8.0
	M10		154069					9.0
	M12		154411					

	Max. permissible load values of MPR-Threaded plates (channel 2.0 mm)				
	Transverse load Fx in rail slot direction with washer 40 x 3 mm		Transverse load Fx in rail slot direction with hexagon wood screw A70 and clamp bracket heavy-duty		Tensile load Fz with threaded pin A70 and washer 40 x 3 mm
Size	Tightening torque [Nm]	[N]	Tightening torque [Nm]	[N]	[N]
M8	10	1,500	20	3,500	7,000
M10	20	2,300	42	5,000	
M12	30	3,300	60	5,500	

	Max. permissible load values of MPR-Threaded plates (channel 2.5 mm)				
	Transverse load Fx in rail slot direction with washer 40 x 3 mm		Transverse load Fx in rail slot direction with hexagon wood screw A70 and clamp bracket heavy-duty		Tensile load Fz with threaded pin A70 and washer 40 x 3 mm
Size	Tightening torque [Nm]	[N]	Tightening torque [Nm]	[N]	[N]
M8	10	2,500	20	4,000	12,000
M10	20	3,300	42	5,500	
M12	30	4,000	60	6,000	

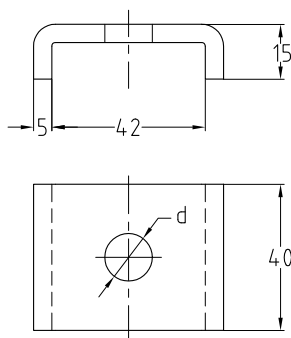
### MPR-Clamp brackets

#### Field of application

- For safe force transmission when installing MPR-Support channels together with threaded rods, anchor plugs and screws

#### Advantages

- Heavy-duty type for transferring large forces
- Safe, folded edge prevents expansion of the rail slot



Heavy-duty version

Design	For support channels	For thread	Material	Part no.	Sales unit	Pack unit	Dimensions d [mm]
Heavy-duty version	41/21/2.0, 41/41/2.0, 41/62/2.5, 41/82/2.0, 41/124/2.5	M10	V4A	154450	10	pieces	11
		M12		155638			13

### MPR-Protection caps

#### Field of application

- Plastic protection cap for mounting on open ends of the MPR-Support channels

#### Advantages

- Visually clean finish of the MPR-Support channels protects from injury
- Weather-resistant plastic material for long service life

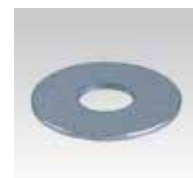


For support channels	Part no.	Sales unit	Pack unit
41/21	151076	100	pieces
41/41, 41/82	151077	50	
41/62, 41/124	151078	25	

#### Washers

for MPR-Support channels

For thread	Outer diameter [mm]	Thickness [mm]	Material	Part no.	Sales unit	Pack unit
M8	40	3	V4A	154454	100	pieces
M10				154455		
M12				154456		





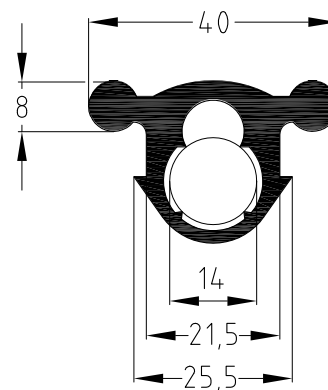
## DÄMMGULAST® Channel sections for MPR-Profiles

### Field of application

- Ideal for the decoupling of traverses for air duct fixtures
- For secure vibration-decoupling of MPR-Support channels

### Advantages

- Easy installation by inserting into MPR-Support channels and/or screwing onto threaded rods
- Prevents structure-borne noise coupling by avoiding contact between the air duct and the threaded rods
- Interlocking profile prevents channel section being pushed out
- Prevents fluttering and other vibration noises in the air ducts
- Small contact surface, large absorption mass



Design	For support channels	Suitable for	Part no.	Sales unit	Pack unit
<b>DÄMMGULAST®</b> <b>Channel section</b> roll of 20 m	41/21–41/124	Channels with slot widths of 22 mm, M8 and M10 threaded rods	<b>151189</b>	1	roll
<b>DÄMMGULAST®</b> <b>Channel sections</b> section of 50 mm			<b>155366</b>	200	pieces

**!** When installing air conditioning and ventilation equipment, MPR-Support channels can be used as load-bearing traverses. Structure-borne vibration coupling bridges resulting from direct metal contact between the air duct and the traverse or threaded rods can be prevented by the use of DÄMMGULAST® Channel section as intermediate layer.

The DÄMMGULAST® Channel section was developed especially for these application areas and provides the optimum solution from a practical installation point of view.

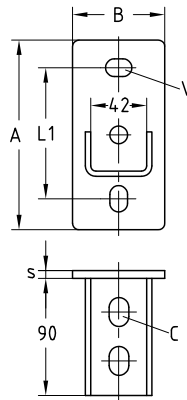
### MPR-Saddle supports

#### Field of application

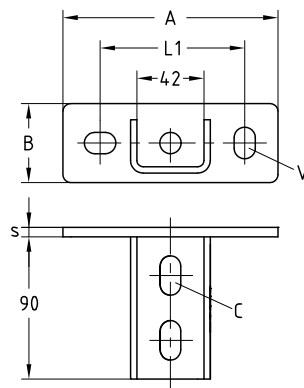
- Simple assembly of strong cross-beams using MPR-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- For indoor and outdoor use

#### Advantages

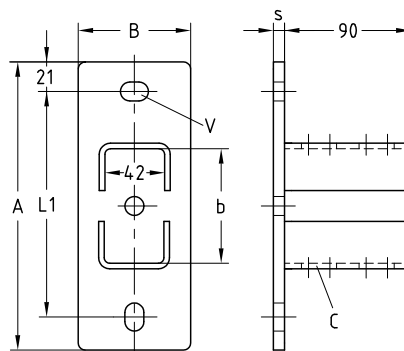
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions
- Type for 41/82 and 41/124 profiles with rotation-free bearing due to clamping on both sides by the MPR-Support channels



MPR-Saddle support, lengthwise



MPR-Saddle support, crosswise



MPR-Saddle support, lengthwise for profiles 41/82 and 41/124

Design	For support channel	Material	Part no.	Sales unit	Pack unit	Dimensions [mm]							
						A	B	b	L1	s	C	V	
Crosswise	41/21–41/62	V4A	156826	5	pieces	136	50	–	91.5	6	13 x 25	13.5 x 20	
Lengthwise			156825			144	70		100				
			41/82	155641		1	205	80	83	160			8
				41/124			155642		245	125			

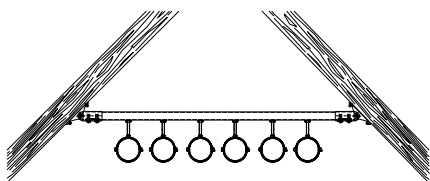
## MPR-VARIO-Saddle support

**Field of application**

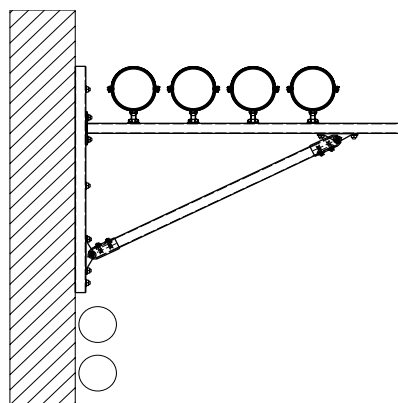
- Ideal for attachment to inclined roof trusses, vaults and in round cable shafts

**Advantages**

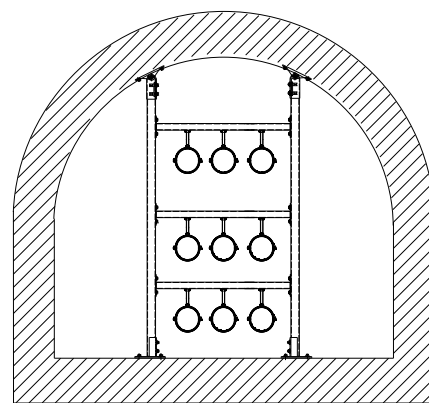
- Variable angle adjustment possible during installation
- Simple and quick installation due to pre-installed screws and MPR-Threaded plate
- Attachment to the slot of support channels 41/41 possible in all directions
- Positive-fit joining due to interlocking MPR-Support channels and MPR-Threaded plates



Attachment of a pipe run to an inclined roof truss



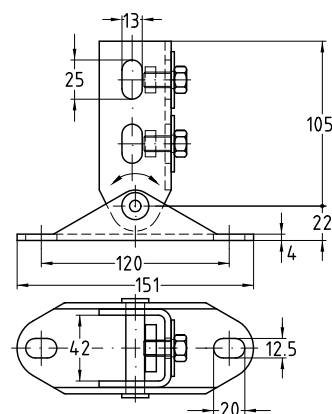
Pipes installed on a wall hanger with diagonal strut



Installation of brackets in vaults or round cable ducts and shafts

Completely pre-assembled:

- 1 MPR-VARIO-Saddle support
- 2 MPR-Threaded plates M10
- 2 Hexagonal head bolts M10
- 2 Washers



For support channels	Minimum angle [°]	Material	Part no.	Sales unit	Pack unit
41/21–41/62	20	V4A	160008	1	pieces

### MPR-Mounting angle 45°

for MPR-Support channel 41/41

#### Field of application

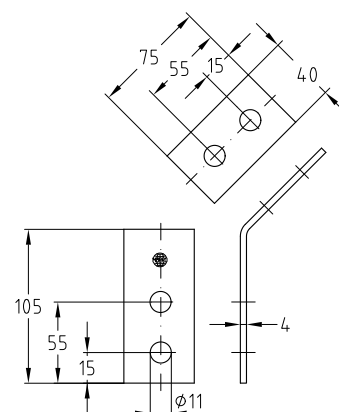
- Solid fixing element for constructions of wall-mounted installations, shelves as well as channel constructions for pipeline attachments and air ducts without welding
- Also applicable for direct mounting on walls, ceilings or floors

#### Advantages

- Variable mounting options
- Versatile in use, e.g. as:
  - Angular support bracket
  - Angular load-bearing bracket
  - Connection element
- Multi-purpose component for professional, practical installation solutions



For support channel	Material	Part no.	Sales unit	Pack unit
41/41	V4A	159471	10	pieces



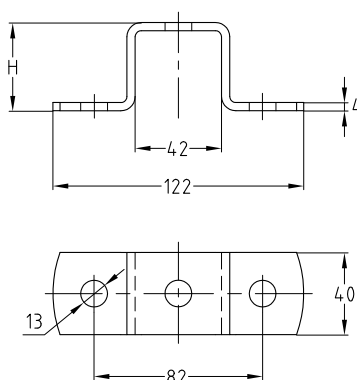
### MPR-Cross channel connectors

#### Field of application

- For cross-connections e.g. in shelves made from MPR-Support channels
- For indoor and outdoor use

#### Advantages

- Easy-to-install connection element for setting up structures with correctly designed static loads using MPR-Support channels
- Greater flexibility when setting up structures made from channels
- For rotation-resistant attachment to building structure



For support channels	Material	Part no.	Sales unit	Pack unit	Dimensions H [mm]
41/41	V4A	155634	10	pieces	43
41/62		155637			64

## MPR-Girder cleats

## Field of application

- Attachment of MPR-Support channels to steel girders without drilling or welding
- For indoor and outdoor use

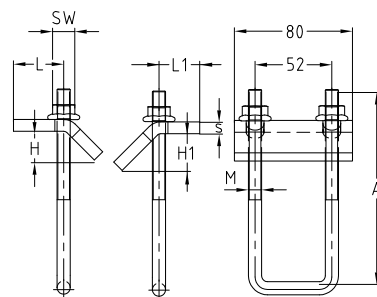
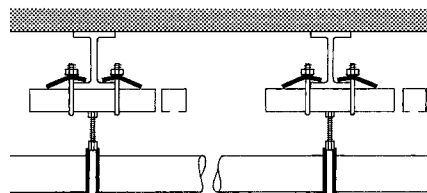
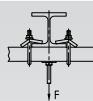
## Advantages

- Ideal solution for attachment of MPR-Support channels to steel girders
- Allows subsequent adjustment of the channels along and across the supporting beam
- Suitable for all flange thicknesses of common support profiles ( $\leq 24.5$  mm)
- Easy to install, pre-assembled kit
- Proper attachment of suspended loads on girders



## Features

For support channels	Thread U-brackets	Max. permitted loading/pair [N] with hammer head fasteners		
		M8	M10	M12
41/21/2.0	M10	7,000	7,000	7,000
41/41/2.0				
41/62/2.5		12,000	12,000	12,000
41/82/2.0		7,000	7,000	7,000



For support channels	Thread	Spanner width [SW]	Material	Part no.	Sales unit	Pack unit	Dimensions [mm]					
							A	H	H1	L	L1	s
41/21, 41/41	M10	15	V4A	154445	10	pieces	90	18.5	24.5	34	30	8
41/62, 41/82				154446			130					

### Channel connector

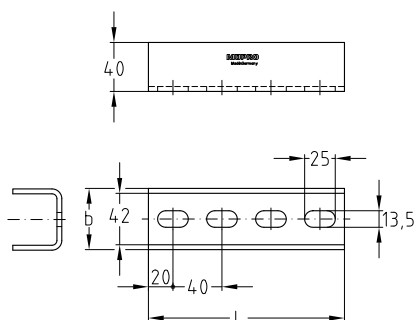
heavy-duty version

#### Field of application

- Quick butt-joint connection for MPC- and MPR-Support channels

#### Advantages

- Enables exact alignment of the channels
- Four bolts provide a frictional joint
- Form-locking connection between channel and connector (passthrough installation)



For support channels	Material	Part no.	Sales unit	Pack unit	Dimensions [mm]	
					b	L
38/40, 40/60, 41/21-41/124	V4A	159475	1	pieces	50	160



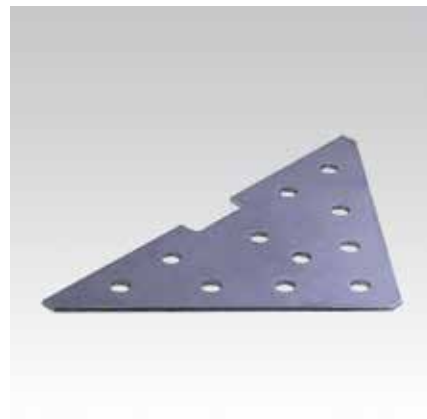
## Reinforcement angles

## Field of application

- Support for MPC- and MPR-Wall hanger brackets where transverse forces occur
- Further mounting facilities for angle and joint connection of MPC- and MPR-Support channels

## Advantages

- Suitable for wall, ceiling and floor mounting
- Various applications in many different constructions



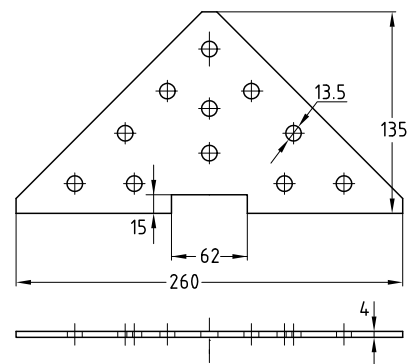
Part no.		Sales unit	Pack unit
V2A	V4A		
159434	159435	1	pieces

## Suitable add-on parts for MPC-Support channels 38/40, 40/60

	Material	Part no.	Sales unit	Pack unit
Hexagonal head bolt, M10 x 20 mm	V2A	105553	100	pieces
	V4A	105555		
MPC-Rail nut, M10	V2A	117962		
	V4A	117965		

## Suitable add-on parts for MPR-Support channels 41/21–41/124

	Material	Part no.	Sales unit	Pack unit
Hexagonal head bolt, M10 x 20 mm	V4A	105555	100	pieces
MPR-Threaded plate, M10		154069	25	



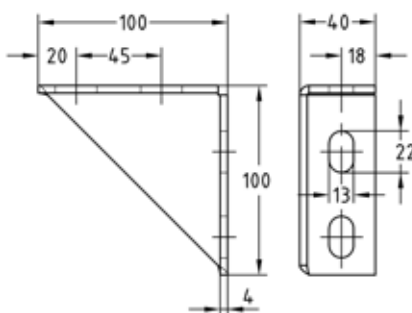
### Cantilever brackets

#### Field of application

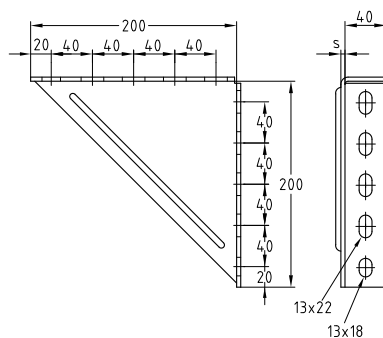
- Can be attached to ceiling, wall and floor, free-standing or in a shaft
- Strong support bracket for water meters, distributing batteries, pumps and many other items

#### Advantages

- Variety of mounting possibilities when used with MPC- and MPR-Support channels
- Reinforces and increases the load bearing capacity of channel structures and cross-beams
- Even greater strength values can be achieved by bolting two cantilever brackets together



Cantilever bracket 100 x 100



Cantilever bracket 200 x 200

Design	Type	For support channels	Size [mm]	Part no.		Sales unit	Pack unit
				V2A	V4A		
100 x 100	–	38/40, 40/60,	100 x 100 x 4	<b>167128</b>	–	20	pieces
200 x 200	1	41/21–41/124	200 x 200 x 4	<b>113616</b>	<b>113619</b>	1	

⚠ Cantilever brackets 100 x 100 made of V4A stainless steel are available upon request.

ℹ For further information please refer to chapter "Technical information".



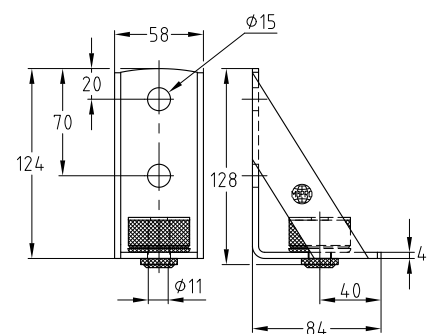
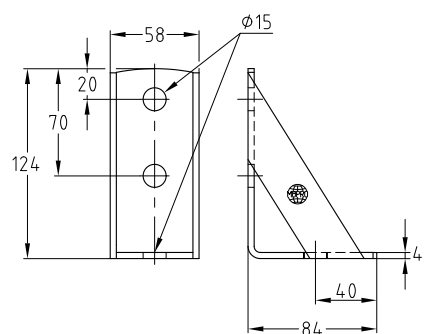
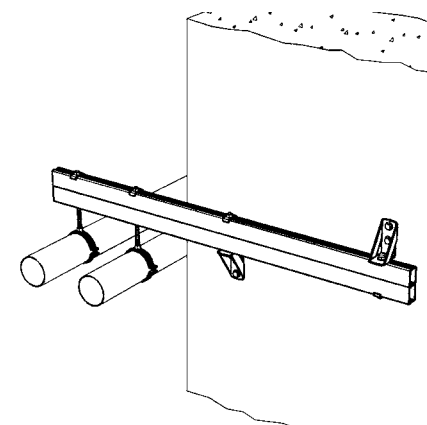
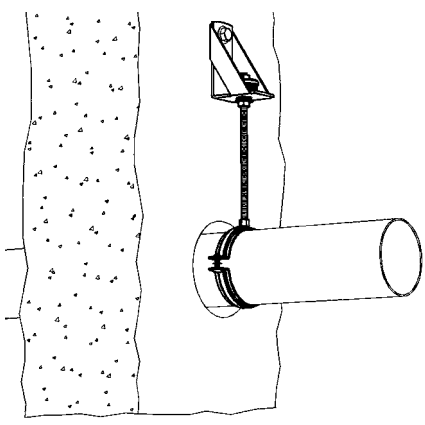
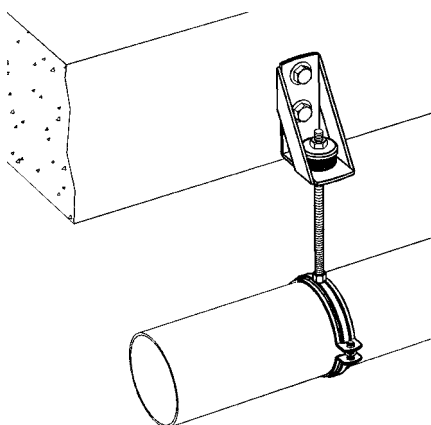
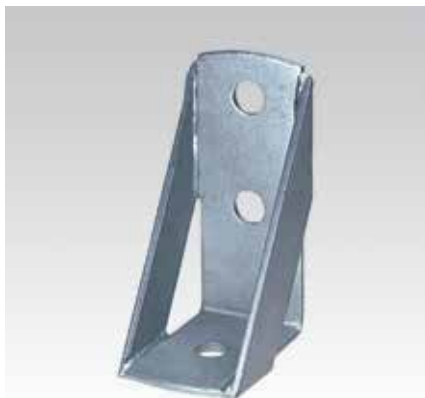
## Supporting angles

**Field of application**

- For lateral suspension of pipelines on reinforced concrete beams
- As substructure for the attachment of fittings, e.g. water meters

**Advantages**

- Angle element in cases of higher requirements for the stability of mounting structures
- With high-quality vibration control due to the DÄMMGULAST® Resilient pad
- Usable as bracket for supporting heavy loads close to a wall
- Construction component for cross-beams in confined spaces

**Features**

Type	Max. recommended load [N]	Average vibration reduction [dB(A)]	Part no.		Sales unit	Pack unit
			V2A	V4A		
With DÄMMGULAST® Resilient pad	1,000	17	127786	127783	10	pieces
Without DÄMMGULAST® Resilient pad	1,650	–	127795	127798		

### Construction bracket

#### Field of application

- Ideal connecting element for the construction of cross-beams, frames and shelving systems
- For direct mounting on ceilings, walls and floors or for installation with MPC- and MPR-Support channels used as:
  - Angular support bracket
  - Angular load-bearing bracket
  - Basic prop
  - Angle bracket
  - Cross connection

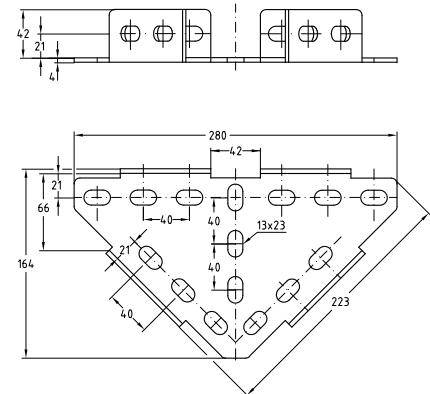
- Transverse support angle
- Support angle
- Connection element
- Angular bracket

#### Advantages

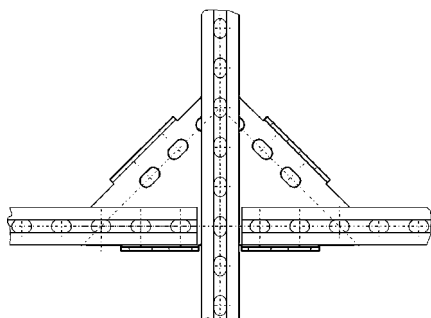
- Great variety of mounting possibilities when used with MPC- and MPR-Support channels
- Results in rigid junction and angle connections
- For any direction of channel opening



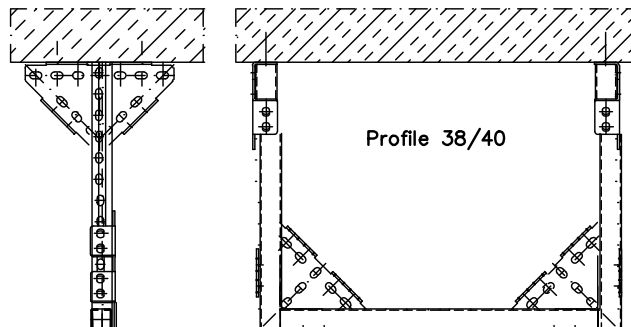
Size [mm]	For support channels	Material	Part no.	Sales unit	Pack unit
280 x 164 x 4	38/40, 40/60, 41/21–41/124	V2A	113595	1	pieces



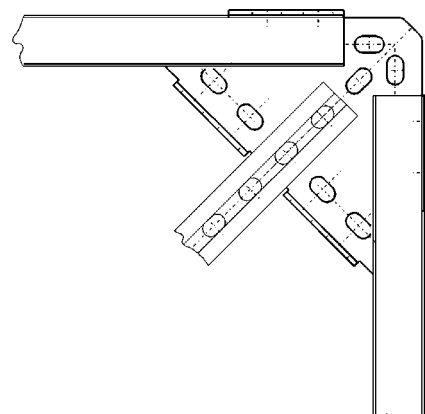
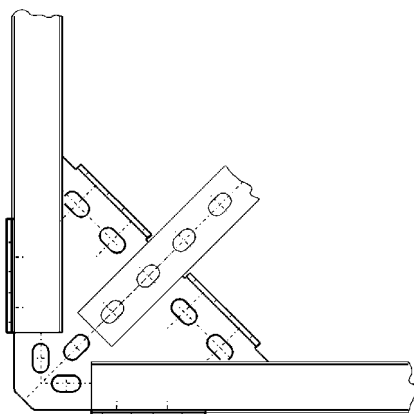
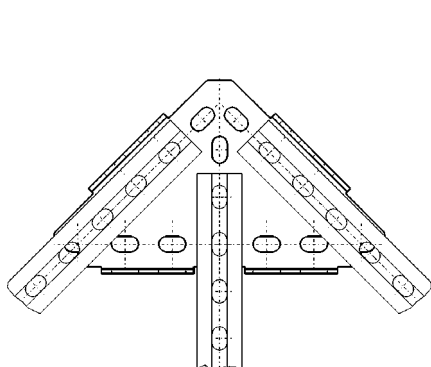
## Construction bracket



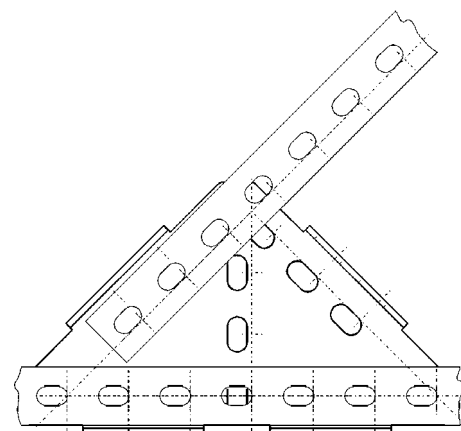
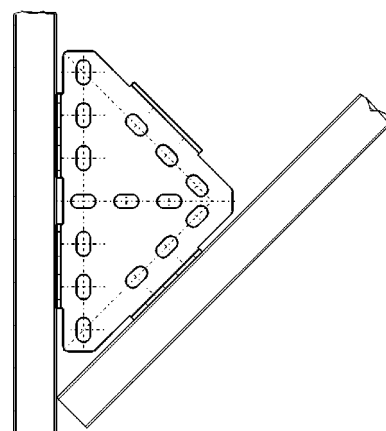
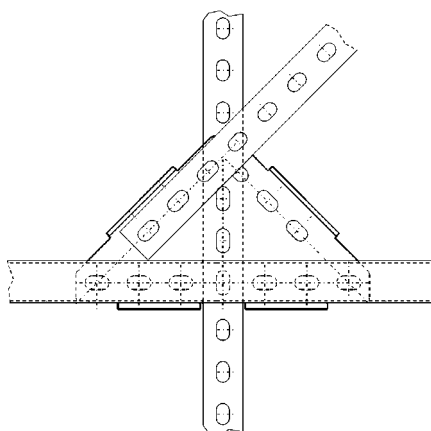
**As a cross-connection**, also realizable with continuous MPC-Support channels



**As transverse support**; for additional lateral rigidity



**As junction plate**; as the mounting slot of the MPC-Support channels can be aligned in any position, is guaranteed a variety of mounting arrangements for an optimum solution to any problem.



**As 45° support**; optional attachment with internally or externally positioned MPC-Support channel

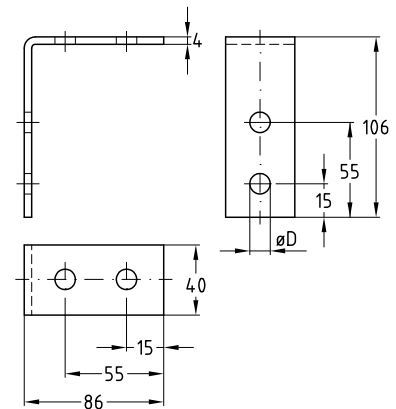
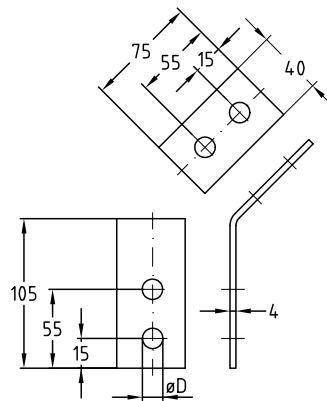
### Mounting angles

#### Field of application

- Connection element for construction of wall-mounted installations, shelves as well as channel constructions for mountings of pipelines and air ducts without welding
- Applicable for direct mounting on walls, ceilings or floors
- For MPC- and MPR-Support channels

#### Advantages

- Versatile applicability due to oblong holes, e.g. as:
  - Angular support bracket
  - Angular load-bearing bracket
  - Connection element
  - Angular bracket
- Multi-purpose component for professional, practical installation solutions



Type	For support channels	Hole diameter D [mm]	Part no.		Sales unit	Pack unit
			V2A	V4A		
45°	38/40, 40/60, 41/21–41/124	11.0	118757	118773	25	pieces
		13.5	–	159471		
90°		11.0	118824	118858		

## Mounting angle

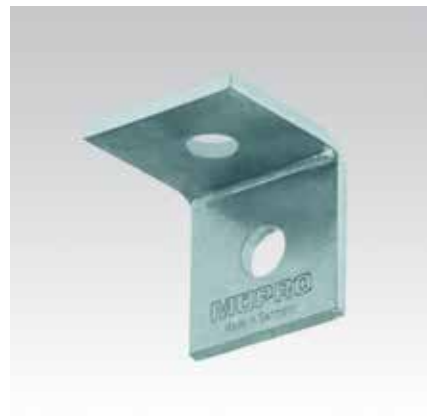
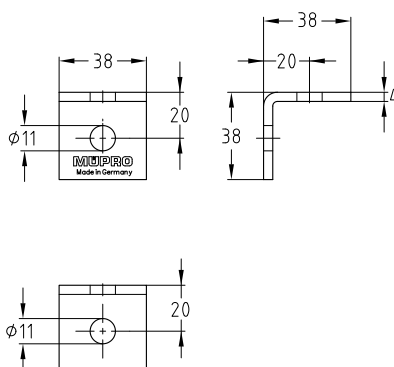
short

### Field of application

- Strong and good value connecting element for the construction of frames, shelves and supports for pre-wall installations

### Advantages

- Creation of rigid structures without welding
- High flexibility and easy mounting
- Good adjustment to the widths of MPC- and MPR-Support channels



For support channels	Material	Part no.	Sales unit	Pack unit
38/40, 40/60, 41/21–41/124	V2A	118854	25	pieces



### Angle- and T-connection plates

#### Field of application

- Strong connection elements for frames and pre-wall installations using the MPC- and MPR-System components

#### Advantages

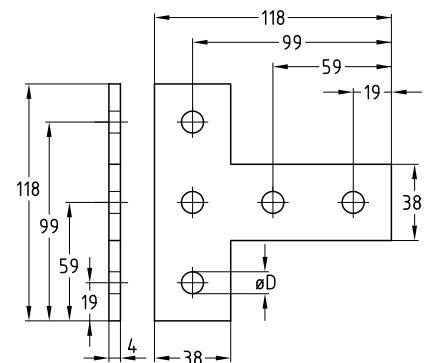
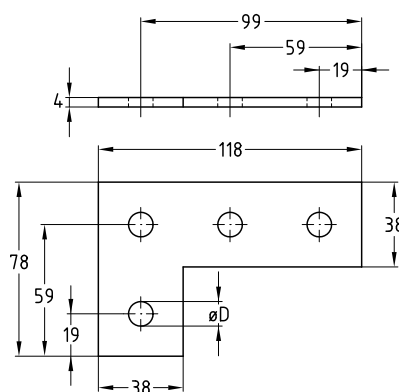
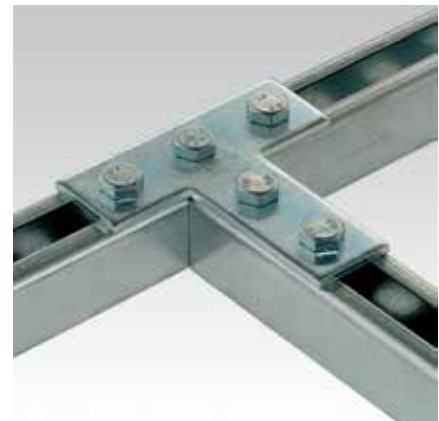
- Simple and quick connection of **corner-** and **T-connections**
- The mounting plates facilitate frame construction in one plane, in which the channel slots have the same alignment
- Hole spacings allow pass-through mounting using the MPC- and MPR-Support channels



Angle plate



T-connection plate



	For support channels	Hole diameter D [mm]	Material	Part no.	Sales unit	Pack unit
Angle plate	38/40, 40/60, 41/21–41/124	11.0	V2A	127843	1	pieces
		13.5	V4A	159473		
T-connection plate		11.0	V2A	130298		
		13.5	V4A	159474		

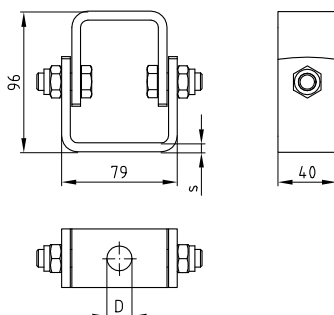
## Joint brackets

## Field of application


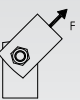
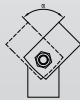
- Joint bracket for suspensions and anchorings, e.g. for fixed points or fastenings of bridge drainage systems

## Advantages

- Large swivel range for a wide variety of installation situations
- Additional materials / surfaces available upon request



## Features

Size	Tensile load at swivel angle 0° [N] 	Tensile load at swivel angle 45° [N] 	Max. recommended swivel angle [°] 
40 x 6	8,000	5,000	90

Size	For thread	Surface	Diameter D [mm]	Thickness s [mm]	Part no.	Sales unit	Pack unit
40 x 6 LG 13	M12	V4A	13	6	139140	1	pieces
40 x 6 LG 17	M16		17		130702		



Order-related manufacturing, price and delivery time available upon request.



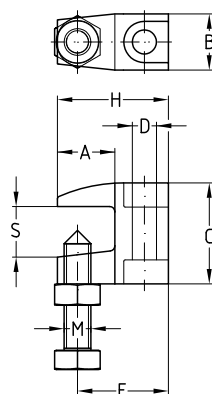
### Girder clamps

#### Field of application

- For attachment of pipelines, air ducts and sprinkler systems on steel girders without welding or drilling

#### Advantages

- Attachment on girder without welding or drilling
- Subsequent alignment on the girder possible
- Quick, subsequent height adjustment of the threaded rods at the non-threaded through-hole
- High loading capacity
- For suspension of threaded pins and threaded rods for the attachment of pipe clamps or crossbeams made with MPC-Support channels



#### Features

Size of clearance hole for	Max. recommended load [N]
M8	1,200
M10	2,500
M12	3,500

Size of clearance hole for	Clamping ranges [mm]	Part no.		Sales unit	Pack unit	Dimensions [mm]						
		V2A	V4A			A	B	C	D	E	H	M
M8	0-16	130246	130245	15	pieces	21.5	21	38	9	34	41.5	M10
M10		130235	130249						11			
M12		130239	130254						13			





## Slide guides

## Field of application

- Attachment of pipes with temperature affected, axial expansion
- A variety of installation possibilities (floor-mount, ceiling-mount, wall-mount)
- Expansion point attachment for standing and suspended pipes
- Expansion point attachment as cross connection for pipe movement in axial and lateral directions

## Advantages

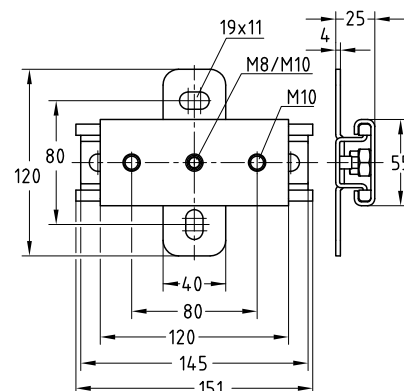
- Flat, compact design for secure mounting in cramped mounting situations
- Large slide travel of up to 76 mm
- High-level application flexibility due to triple connection facilities for pipe clamps
- One or two pipe clamps can be mounted depending on the application



Ceiling installation with steel anchors M8



Upright installation of two slide guides in crisscross arrangement, on a MPC-Support channel



## Features

Connecting thread 1x	Connecting thread 2x	Temperature resistance	Max. recommended loading [N]	Max. slide travel [mm]	Part no.		Sales unit	Pack unit
					V2A	V4A		
M8/M10	M10	-40 °C to +100 °C	1,750	76	148349	148345	25	pieces



### Duct fixing angles with insulator

#### Field of application

- Easy to install suspension for air ducts

#### Advantages

- Incorporated highly-elastic vibration-isolating element
- Excellent alignment and height adjustment via the threaded rods
- Design as angle and twin angle
- Various attachment options to air duct with rivets or self-drilling screws
- Direct attachment to building structure possible
- Average vibration reduction of 17 dB(A)



Duct fixing angles

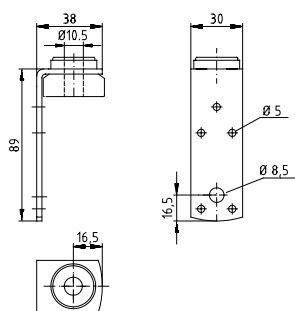
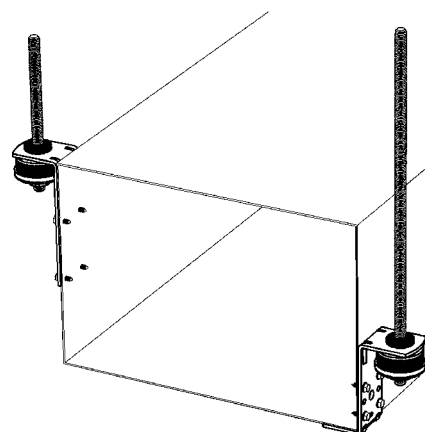


Duct fixing twin-angles

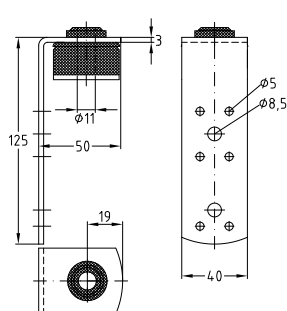
#### Features



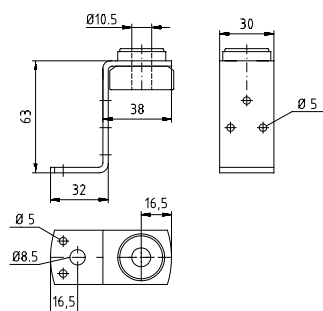
Type	Max. recommended load [N]	Average vibration reduction [dB(A)]
I	230	16
II	800	17



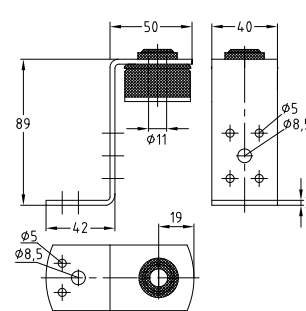
Duct fixing angles  
Type I



Duct fixing angles  
Type II



Duct fixing twin-angles  
Type I



Duct fixing twin-angles  
Type II

	Type	Part no.		Sales unit	Pack unit
		V2A	V4A		
Duct fixing angles	I	116626	116632	25	pieces
	II	116651	116534		
Duct fixing twin-angles	I	116537	116540		
	II	116561	116531		

## Trapezoid-sheet hangers

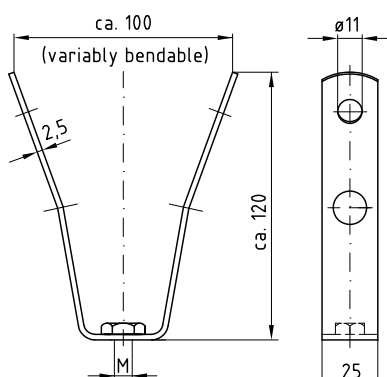
with welded-on nut

### Field of application

- For the professional attachment of installations to trapezoidal sheets

### Advantages

- Easy to adapt to different trapezoidal sheet sections due to predetermined bending points
- Round holes at the ends of the legs also enable a pass-through-mounting of M8 or M10 threaded rods



### Features



Max. recommended load [N]

1,300

	Part no.		Sales unit	Pack unit
	V2A	V4A		
M8	130198	130199	25	pieces
M10	130196	130197		

 Refer to chapter „Tools“ for trapezoid-sheet pliers used for attachment.



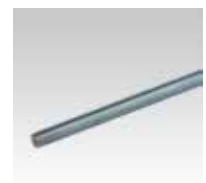
### Threaded pins

Thread	Length [mm]	Part no.		Sales unit	Pack unit
		V2A	V4A		
M8	25	114160	114163	100	pieces
	30	114175	114181		
	40	114202	114205		
	50	114217	114220		
	60	114235	114238		
	70	114247	114250		
	80	114256	114259		
	90	114265	114268		
	100	114105	114112		
	120	114122	114125		
	140	114131	114134		
M10	25	113756	113759	50	pieces
	30	113771	113774		
	40	113798	113801		
	50	113807	113810		
	55	113816	113819		
	60	113831	113834		
	70	113846	113849		
	80	113852	113855		
	90	113864	113867		
	100	113687	113690		
	120	113708	113711		
	140	113717	113720		
M12	25	113936	113939	50	pieces
	60	113986	113989		
	80	113995	113998		
	100	113873	113876		
	110	113888	113891		



### Threaded rods

Thread	Length [m]	Part no. V2A	Sales unit	Pack unit	Part no. V4A	Sales unit	Pack unit	
M6	1	113594	25	pieces	113597	25	pieces	
M8		113621			113624			
	2	113645			113648			
M10	1	113455			113458	10		
	2	113476	113479					
M12	1	113501	20		113504	5		
	2	113519			113522			
M16	1	113537	5		113540			
	2	113555			113558			



## Round connectors

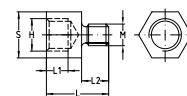
for extension of fastening threads

Thread	Length [mm]	Part no.	Outer diameter [mm]	Part no. V4A	Outer diameter [mm]	Sales unit	Pack unit
M8	30	113262	11	113266	11	100	pieces
	40	113277		113280			
M10	30	113169	13	113172	13	50	
	40	113178		113181			
M12	30	113199	15	113202	15		
	40	113208		—	—		
M16		113227	22	113230	25	25	



## Reducers

Outer thread	Internal thread	Spanner size S [mm]	Material	Part no.	Sales unit	Pack unit	Dimensions [mm]		
							L	L1	L2
M8	M10	13	V2A	113500	100	pieces	23	7	8
M10	M8			113465			21		
	M12	17		113453			25	8	10
M12	M10	13		113471			23		



## Bolt screws

for fastening to wooden ceilings or for use with nylon plugs

Connecting thread	Total length [mm]	Wood thread	Wood thread length [mm]	Metric thread length [mm]	Spanner size [mm]	Material	Part no.	Sales unit	Pack unit
M8	50	H8	27	20	–	V2A	129713	100	pieces
	60		37		129716				
	80			30	6		129723		
	100		47	40			129697		
	120			50			129701		
	140						129705		
	160						129707		
M10	60	H10	37	20	8		129677	50	
	80		47				129679		
	100		57	30			129665		
	120			40			129667		
	140						129669		
	160						129671		
	180						129673		
M12	80	H12		20	10		129684		



### Hexagonal nuts

DIN 934

Thread	Nut height [mm]	Spanner size [mm]	Part no.		Sales unit	Pack unit
			V2A	V4A		
M6	5.0	10	105477	105479	100	pieces
M8	6.5	13	105486	105488		
M10	8.0	17	105423	105425		
M12	10.0	19	105439	105441		
M16	13.0	24	105453	105455		
M20	16.0	30	105465	105467	50	
M24	19.0	36	105470	105472	25	



### Washers

DIN 125

For thread	Outer diameter [mm]	Thickness [mm]	Part no.		Sales unit	Pack unit
			V2A	V4A		
M6	12	1.6	127301	127304	100	pieces
M8	16		127313	127272		
M10	20	2.0	127269	127283		
M12	24	2.5	127280	127292		
M16	30	3.0	127289	127275		



### Washers

for MPC-Support channels

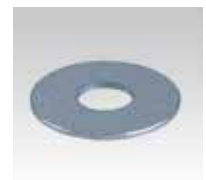
For thread	Outer diameter [mm]	Thickness [mm]	Part no.		Sales unit	Pack unit
			V2A	V4A		
M8	24	2.0	127190	127199	100	pieces
	30		127204	127207		
M10	35	2.5	127097	127103		
	37		127106	127112		
M12	37	3.0	127160	127163		



### Washers

for MPR-Support channels

For thread	Outer diameter [mm]	Thickness [mm]	Material	Part no.	Sales unit	Pack unit
M8	40	3	V4A	154454	100	pieces
M10				154455		
M12				154456		



## Hexagon head bolts

DIN 933

Thread	Length [mm]	Part no.		Sales unit	Pack unit	
		V2A	V4A			
M8	16	105754	105755	100	pieces	
	20	105760	105761			
	25	105765	105767			
	30	105772	105774			
	35	105778	105780			
	45	105785	105786			
	55	105791	105792			
M10	20	105553	105555			50
	25	105561	105562			
	30	105568	105570			
	35	105577	105579			
	40	105586	105588			
	55	105597	105598			
	60	105601	105602			
	80	105607	105608			
	100	105541	105540			
M12	25	105618	105619	100	50	
	30	105622	105624			
	35	105627	105629			
	50	105640	105641			
	60	105644	105645			
	70	105649	105650			
M16	30	105666	105667	25		
	35	105669	105670			
	40	105672	105673			
	45	105674	105675			
M20	50	105708	105709	25		
M24	60	105717	105718			



## Allen bolts

with metric thread for the attachment of MPC-Support channels with steel anchors

Thread	Thread length [mm]	Allen bolt spanner width [mm]	Material	Part no.	Sales unit	Pack unit
M8	16	6	V2A	121048	100	pieces
M10		8		121010		
				121033		



### Hexagon wood screws

DIN 571

Thread	Total length [mm]	Wood thread length [mm]	Spanner size [mm]	Part no.		Sales unit	Pack unit
				V2A	V4A		
H8	50	33	13	105392	105394	100	pieces
	60	40		105398	105399		
	70	45		105402	105403		
	100	60		105378	105412		
H10	70	50	17	105334	105335	50	
	80	60		105337	105393		



### Cylinder head screws

DIN 84

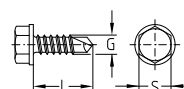
Thread	Length [mm]	Part no.		Sales unit	Pack unit
		V2A	V4A		
M8	25	121139	121142	100	pieces
	30	121147	121151		



### Self-drilling screws

DIN 7504, with hexagonal head, for the attachment of air pipes, ducts, spiral-seam pipes, etc. without pre-drilling

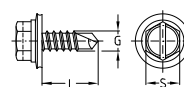
Sheet thread [mm]	Length [mm]	Screw head Ø [mm]	Spanner size S [mm]	Material	Part no.	Sales unit	Pack unit
4.2	13	8.5	7	V2A	106660	500	pieces
	16				106699		
	19				106664		



### Self-drilling screw

with building supervision approval, with sealing ring made of EPDM, for attachment on trapezoidal sheets in accordance with approval Z-14.1-4

Sheet thread [mm]	Length [mm]	Screw head Ø [mm]	Sealing ring Ø [mm]	Spanner size S [mm]	Material	Part no.	Sales unit	Pack unit
4.8	20	10.5	14	8	V2A	147873	100	pieces



### Hanger sockets

with round hole

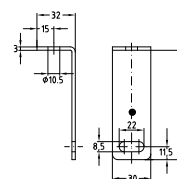
Thread	Hole diameter [mm]	Part no.		Sales unit	Pack unit
		V2A	V4A		
M8	8.5	106396	106590	50	pieces
M10	11.0	106393	106588		
M12	13.0	106394	106589		



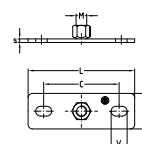


## Distance angles

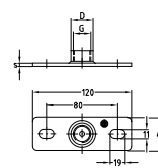
Leg length L [mm]	Part no.		Sales unit	Pack unit
	V2A	V4A		
50	106029	106031	50	pieces

Base plates with nut  
with two oblong holes

Size L x b x s [mm]	Connection socket	Oblong holes V [mm]	Hole-centre distance C [mm]	Part no.		Sales unit	Pack unit
				V2A	V4A		
Size 1 (80 x 30 x 3)	M8	9 x 16	54	112405	112379	10	pieces
	M10			112393	112373		
	M12			112399	112377		
Size 2 (120 x 40 x 4)	M8	11 x 19	80	112465	112427		
	M10			112449	112415		
	M12			112457	112421		
	M16			112461	112425		

Base plates with connection socket  
welded around, with two oblong holes

Size L x b x s [mm]	Connection socket	Oblong holes V [mm]	Hole-centre distance C [mm]	Part no.		Sales unit	Pack unit
				V2A	V4A		
Size 2 (120 x 40 x 4)	1/2"	11 x 19	80	112431	112411	10	pieces
	3/4"			112441	112413		
	1"			112429	112409		

Punched tapes  
straight edges

Width [mm]	Hole diameter [mm]	Hole spacing [mm]	Length of roll [m]	Material	Part no.	Sales unit	Pack unit
17	6.5	11.5	10	V2A	114792	1	roll
			50		114795		



50 metre long rolls are supplied in a practical dispenser case.

## Threaded pipes

Thread	Length [m]	Material	Part no.	Sales unit	Pack unit
1/2	1	V4A	105145	1	pieces
3/4			113417		
1			113369		



### Steel anchors

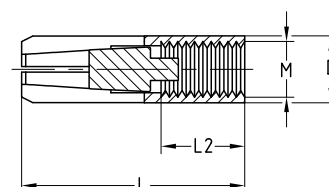
#### Field of application

- For anchorages of medium-weight loads in concrete and natural stone (hard) in dry interiors of buildings, in damp rooms as well as outdoor
- Versatilely applicable for attachment with screws or threaded rods in all plumbing, heating and ventilation installations

#### Advantages

- Secure grip due to controlled splaying as the taper is driven in

- Only small drilling depth required
- Flush finish with surface of the building material
- Secure expansion force even when the mounting screw is loosened
- European Technical Assessment (ETA) for non-cracked and cracked concrete (reduced loads)
- When using the setting tool for check marking, the load test (proof load) of the anchor is not necessary



#### Features



									Multiple attachment of non-load bearing systems ETA assessment	Non-cracked concrete, centrally tensile loaded ETA assessment		
Connecting thread	Overall length [mm]	Material	Part no.	Sales unit	Pack unit	Drill-Ø D [mm]	Usable thread length [mm]	FM	Drilled hole depth h <sub>0</sub> [mm]	Approved load <sup>1)</sup> [kN]	Drilled hole depth h <sub>0</sub> [mm]	Approved load <sup>2)</sup> [kN]
M6	30	V4A	129086	100	pieces	8	13		30	1.2	30	3.9 <sup>3)</sup>
M8			129087			10				1.7		
M10	40		129082	50		12	20	●	40	2.0	40	6.1
M12	50		129083			15	18	●	50	2.4	50	8.5
M16	65		129084	25		20	23	●	65	6.3	65	12.6

<sup>1)</sup> Use as multiple attachment of non-load-bearing systems. The overall safety coefficient according to ETAG is taken into consideration. The European Technical Assessment 05/0161 shall be observed for dimensioning.

<sup>2)</sup> The approved loading applies for single anchors in concrete strength class  $\geq$  C20/25 (B25) for axially applied tension without the influence of axial and edge spacings. The safety coefficient according to ETAG is included. The European Technical Assessment 05/0160 shall be observed for dimensioning.

<sup>3)</sup> Only for use in statically indeterminate systems.

### Setting tools for steel anchors

	Connecting thread	Part no.	Sales unit	Pack unit
Setting tools, hardened	M6 x 30	123117	1	pieces
Setting tools, hardened	M8 x 30	123104		
for check marking	M10 x 40	123092		
	M12 x 50	123096		
	M16 x 65	123113		



 For further setting tools for steel anchors please refer to chapter „Anchor plugs“.

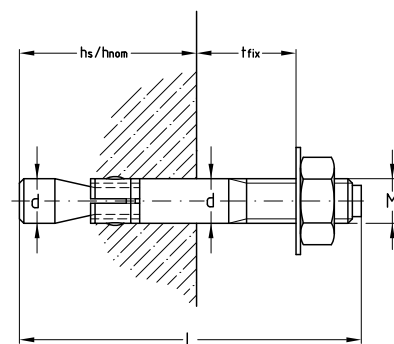
## Through anchors

## Field of application

- For anchorages of medium-weight loads in non-cracked concrete
- Attachment of metal and wood constructions, handrails, shelves, cable ducts and ventilation
- Also applicable in hard natural pipes stone

## Advantages

- **Quick handling:** Simply insert and tighten
- Practical through-fitting
- Splaying controlled by the tightening torque
- High security due to increasing splaying with increase in load
- European Technical Assessment (ETA) for non-cracked concrete



## Features



			Uncracked concrete with central tensile load ETA assessment	
Type	Drill-Ø D [mm]	Drilled hole depth [mm]	Setting depth h <sub>s</sub> [mm]	Approved load <sup>1)</sup> [kN]
St 8-45	8	65	55	5.7
St 10-10			60	7.6
St 10-20				
St 10-50	12	90	80	11.9
St 12-65				
St 16-30	16	110	98	17.2

<sup>1)</sup> The approved loading applies for single anchors in concrete strength class  $\geq$  C20/25 (B25) for axially applied tension without the influence of axial and edge spacings. The safety coefficient according to ETAG is included. The European Technical Assessment shall be observed for dimensioning.

Type	Connecting thread	Clamping thickness $t_{fix}$ [mm]	Overall length [mm]	Material	Part no.	Sales unit	Pack unit
St 8–45	M8	45	110	V4A	129518	100	pieces
St 10–10	M10	10	85		129489	50	
St 10–20		20	125		129494		
St 10–50		50	125		129492		
St 12–65	M12	65	160		129504	25	
St 16–30	M16	30	150		129488	20	

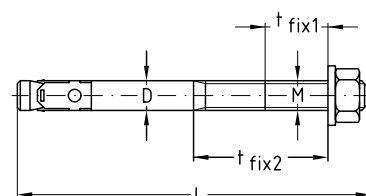
### BZ Heavy-duty anchors

#### Field of application

- For anchorages of medium-weight and heavy loads in cracked and non-cracked concrete
- Attachment of wall hanger brackets, support channels, ground plates, constructions made of metal and wood, cable ducts, etc.
- Also applicable in hard natural stone

#### Advantages

- Secure anchorage due to slit splaying sleeve with serrations
- Force-controlled splaying from the tightening torque
- Secure splaying due to taper with slide coating
- European Technical Assessment (ETA) for cracked concrete (tensile zone) and non-cracked concrete (compression zone)
- Higher loading possible when used in the compression zone
- Two effective anchorage depths for greater flexibility (maximum anchor length 210 mm)
- Approved for seismic loads, performance categories C1 and C2 (maximum anchor length 210 mm)
- Also available in HCR upon request








#### Standard anchorage depth:

Type	Connecting thread	Clamping thickness $t_{fix1}$ [mm]	Drill hole- $\varnothing$ x depth [mm]	Setting depth $h_{nom}$ [mm]	Anchoring depth $h_{ef}$ [mm]	Seismic	Anchor length L [mm]	Material	Part no.	Sales unit	Pack unit
BZ 8-30-41/95	M8	30	8 x 60	52	46	-	95	V4A	162179	100	pieces
BZ 8-50-61/115		50					115		162180		
BZ 10-10-30/90	M10	10	10 x 75	68	60	C1/C2	90		162181	50	
BZ 10-30-50/110		30					110		162182		
BZ 10-50-70/130		50					130		162183		
BZ 12-15-35/110	M12	15	12 x 90	80	70		110		162184	25	
BZ 12-50-70/145		50					145		162185		
BZ 12-85-105/180		85					180		162186		

#### Reduced anchorage depth:

Type	Connecting thread	Clamping thickness $t_{fix2}$ [mm]	Drill hole- $\varnothing$ x depth [mm]	Setting depth $h_{nom red}$ [mm]	Anchoring depth $h_{ef red}$ [mm]	Anchor length L [mm]	Material	Part no.	Sales unit	Pack unit
BZ 8-30-41/95	M8	41	8 x 49	41	35	95	V4A	162179	100	pieces
BZ 8-50-61/115		61				115		162180		
BZ 10-10-30/90	M10	30	10 x 55	48	40	90		162181	50	
BZ 10-30-50/110		50				110		162182		
BZ 10-50-70/130		70				130		162183		
BZ 12-15-35/110	M12	35	12 x 70	60	50	110		162184	25	
BZ 12-50-70/145		70				145		162185		
BZ 12-85-105/180		105				180		162186		

## BZ Heavy-duty anchors

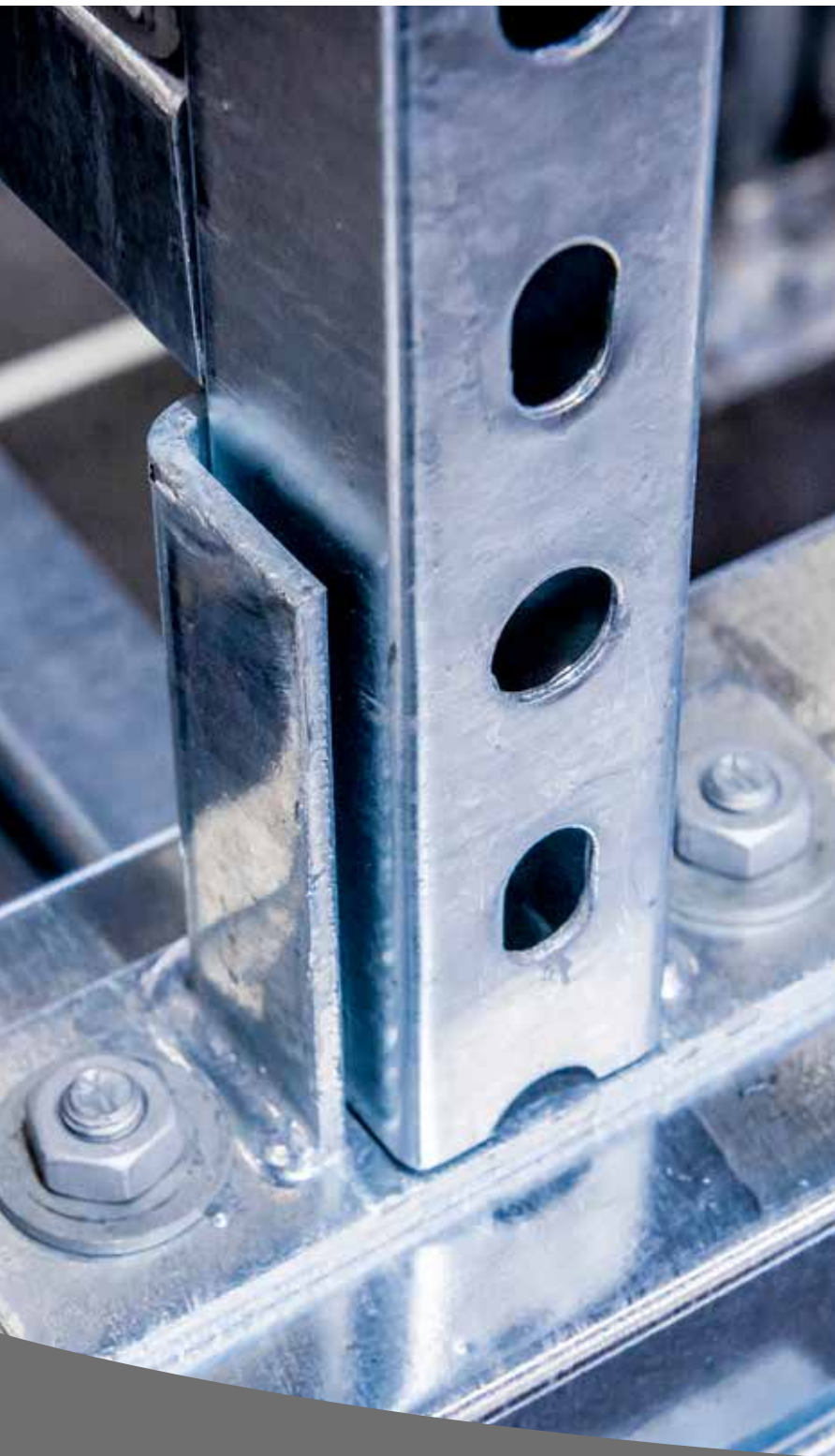
Features					    		
Type	FM	Standard anchorage depth			Reduced anchorage depth		
		Anchoring depth $h_{ef}$ [mm]	Permissible tensile load <sup>1)</sup> cracked concrete C20/25 [kN]	Permissible tensile load <sup>1)</sup> uncracked concrete C20/25 [kN]	Anchoring depth $h_{ef\ red}$ [mm]	Permissible tensile load <sup>1)</sup> cracked concrete C20/25 [kN]	Permissible tensile load <sup>1)</sup> uncracked concrete C20/25 [kN]
BZ 8-30-41/95		46	2.4	5.7	35	2.4	3.6
BZ 8-50-61/115							
BZ 10-10-30/90	●	60	4.3	7.6	40	3.6	4.3
BZ 10-30-50/110	●						
BZ 10-50-70/130	●						
BZ 12-15-35/110	●	70	7.6	11.9	50	6.1	8.5
BZ 12-50-70/145	●						
BZ 12-85-105/180	●						

<sup>1)</sup> The approved loading applies for single anchors in concrete strength class  $\geq$  C20/25 (B25) for axially applied tension without the influence of axial and edge spacings. The safety coefficient according to ETAG is included. The European Technical Assessment ETA-05/0158 shall be observed in dimensioning.



Please refer to chapter "Technical information" for additional characteristic values of plugs.



















Hot-dip  
galvanised







	MÜPRO	MÜPRO
1.	Vibration control	
2.	Fire protection	
3.	Pipe clamps	
4.	Support channels	
5.	Accessories	
6.	Anchor points/ expansion points	
7.	Heavy-duty pipe support	
8.	MPT-Support system	
9.	Ventilation	
10.	Pipe connectors	
11.	Stainless steel	
12.	Hot-dip galvanised	
13.	Anchor plugs	
14.	Nameplates	
15.	Insulation	
16.	Sealing and protection materials	
17.	Tools	
18.	Radiator fastening	
19.	Technical information	








## MPC-System components















	MPC-Support channels	12/1–12/5
	MPC-Wall hanger brackets	12/6–12/8
	MPC-Wall hanger supports	12/9
	MPC-Diagonal strut	12/10
	MPC-Rail nuts	12/11
	MPC-Double rail nut	12/11
	MPC-Clamp brackets	12/11
	MPC-Protection caps	12/11
	Washers	12/11, 12/60
	DÄMMGULAST® Channel sections	12/12
	MPC-Saddle supports	12/13
	MPC-VARIO-Saddle support	12/14
	MPC-Lateral angles	12/15
	MPC-Cross channel connectors	12/16

## MPR-System components






	MPR-Support channels	12/17–12/22
	MPR-Wall hanger brackets	12/23–12/24
	MPR-Hammer head fasteners	12/25–12/26
	MPR-Threaded plates	12/27
	MPR-Clamp brackets	12/28
	MPR-Protection caps	12/29

	Washers	12/29, 12/60
	DÄMMGULAST® Channel sections	12/30
	MPR-Saddle supports	12/31
	MPR-VARIO-Saddle support	12/32
	MPR-Cross channel connectors	12/33
	MPR-Girder cleats	12/34












## MPR-System components type S+

	MPR-Quick fasteners type S+	12/35
	MPR-Slide nuts type S+	12/36
	MPR-Connection lock type S+	12/37
	MPR-Diagonal struts type S+	12/38
	MPR-Channel connector type S+, heavy-duty version	12/38
	MPR-Saddle supports type S+	12/39
	MPR-Saddle support crosswise type S+	12/40
	MPR-Saddle support crosswise type S+ for channel support fitting	12/41
	MPR-Construction bracket type S+	12/42
	MPR-Mounting angles type S+	12/43–12/44
	MPR-Angle connectors type S+	12/45–12/47
	MPR-Connection plates type S+	12/48
	MPR-3D-Connectors type S+	12/49
	MPR-Cross channel connector type S+	12/50


## Products for usage with MPC-/MPR-System components


	Channel connectors, heavy-duty version	12/51–12/52
	Reinforcement angle	12/53
	Cantilever brackets	12/54
	Mounting angles	12/55–12/56
	Angle- and T-connection plates	12/57

## Further hot-dip galvanised products

	Mounting base for flat roofs	12/58
	Hexagon head bolts	12/59
	Hexagonal nuts	12/59
	Threaded rods	12/59
	Threaded pins	12/60
	Turnbuckles	12/60
	Washers	12/60
	Link chain	12/60
	Supporting angle	12/61
	Trapezoid-sheet hanger	12/62
	Joint brackets	12/63

	STATO® Brackets	12/64–12/65
---	-----------------	-------------

	Box-section heavy slide guide	12/66
---	-------------------------------	-------

	Duct fixing angle	12/67
---	-------------------	-------

## VIDEO TIP

 **MÜPRO support channel system:** the video presents our comprehensive range of support channels and shows the various processing and installation options.





### MPC-Support channels

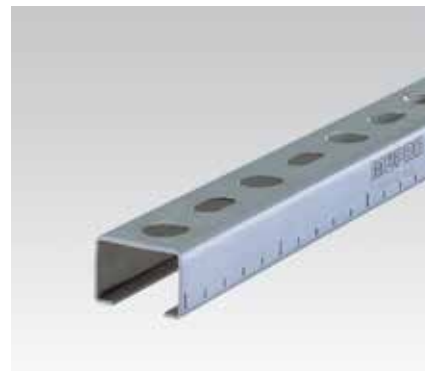
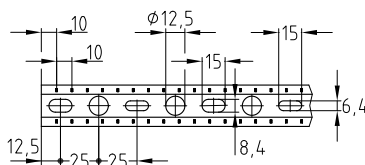
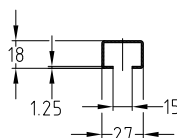
hot-dip galvanised

#### Field of application

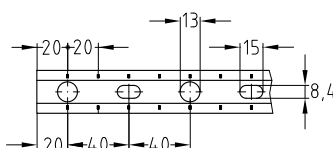
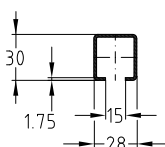
- Ideal for pipe installation as support structure for air ducts
- Variety of mounting options for wall-mounted installations and shelves in combination with extensive range of system components
- Suitable for outdoor use

#### Advantages

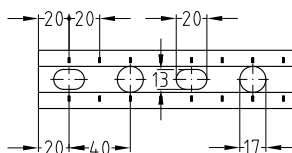
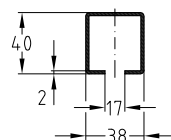
- Quick and efficient attachment of pipe sections and pipeways
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during the installation and facilitate the measuring and cutting to length of the profiles on site
- For secure fixing that is adjustable laterally and vertically
- High bending stiffness due to the good cross-section design
- For setting up structures with correctly measured static loads by means of diverse connection components
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPC-protection caps



Profile 27/18



Profile 28/30



Profile 38/40

Profile	Length [mm]	Part no.	Sales unit	Pack unit
27/18	2,000	129909	10	pieces
	6,000	130004	1	
28/30		118990		
38/40	2,000	129916	4	
	6,000	130008	1	



For further technical information please refer to chapter "Technical information".

# MPC-Support channels

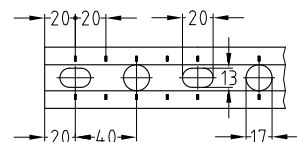
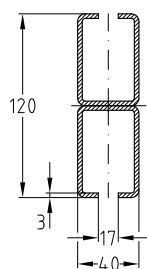
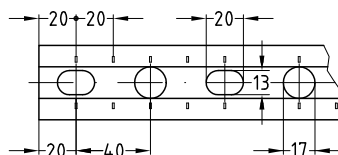
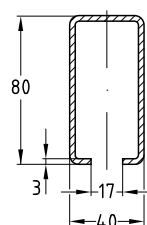
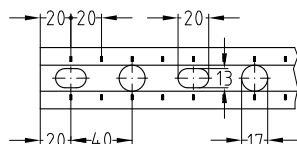
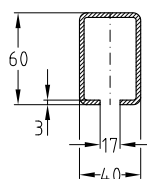
hot-dip galvanised

## Field of application

- Ideal for pipe installation as support structure for air ducts
- Variety of mounting options for wall-mounted installations and shelves in combination with extensive range of system components
- Suitable for outdoor use

## Advantages

- Quick and efficient attachment of pipe sections and pipeways
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during the installation and facilitate the measuring and cutting to length of the profiles on site
- For secure fixing that is adjustable laterally and vertically
- High bending stiffness due to the good cross-section design
- For setting up structures with correctly measured static loads by means of diverse connection components
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPC-protection caps



Profile 40/60




Profile 40/80



Profile 40/120


Profile	Length [mm]	Part no.	Sales unit	Pack unit
40/60	2,000	129920	1	pieces
	6,000	130019		
40/80		130022		
40/120	6,640	130033		

 For further technical information please refer to chapter "Technical information".

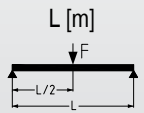
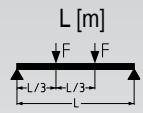
### MPC-Support channels

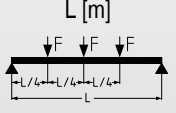
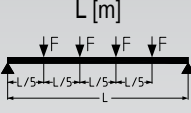
hot-dip galvanised

#### Technical data of profiles:

Profile	Material	Surface	Admissible steel stress	Available MPC-Rail nuts	Profile weight	Profile cross-section	Moment of inertia		Resistance moment	
			$\sigma_{adm.}$ [N/mm <sup>2</sup> ]		[kg/m]	[cm <sup>2</sup> ]	$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
27/18	S235 DD11 DC01	hot-dip galvanised	153	M8, M10	0.60	0.69	0.2911	0.9554	0.310	0.707
28/30					1.15	1.36	1.3999	2.0551	0.911	1.467
38/40				M8, M10, M12, M16	1.82	2.21	4.3286	6.1000	2.164	3.210
40/60					3.50	4.44	17.5426	13.3946	5.847	6.697
40/80					4.68	5.64	37.9390	17.5106	9.484	8.755
40/120 H-Profile					7.00	8.88	115.0004	26.7890	19.166	13.394

#### Load bearing capacities of profiles for bending around the y-axis [N]:

Profile												
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
27/18	376	143	60	29	–	–	280	84	35	17	–	–
28/30	1,099	549	303	162	–	–	814	410	178	95	–	–
38/40	2,609	1,308	867	523	92	–	1,927	979	559	307	54	–
40/60	7,019	3,537	2,349	1,748	467	117	5,157	2,643	1,758	1,272	274	69
40/80	11,311	5,733	3,815	2,844	1,080	359	8,246	4,274	2,852	2,128	634	211
40/120 H-Profile	22,447	11,542	7,711	5,765	2,785	1,353	16,040	8,554	5,749	4,307	2,026	794

Profile												
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
27/18	187	60	25	12	–	–	156	47	20	–	–	–
28/30	544	274	128	68	–	–	451	228	100	54	–	–
38/40	1,287	652	401	220	39	–	1,067	542	315	173	30	–
40/60	3,444	1,760	1,172	873	197	49	2,848	1,464	976	717	154	39
40/80	5,508	2,847	1,901	1,420	455	151	4,541	2,365	1,582	1,182	357	119
40/120 H-Profile	10,711	5,697	3,833	2,873	1,391	570	8,763	4,723	3,186	2,391	1,141	447



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

## MPC-Support channels

hot-dip galvanised

## Permissible buckling loads for profiles [N]:

Buckling length Lk [mm]	MPC 27/18	MPC 28/30	MPC 38/40	MPC 40/60	MPC 40/80	MPC 40/120
200	10,105	20,698	33,744	67,749	86,061	135,498
300	9,403	19,911	33,405	67,749	86,061	135,498
400	8,553	19,069	32,478	66,660	84,785	134,144
500	7,531	18,133	31,508	65,155	82,904	132,242
600	6,416	17,068	30,469	63,593	80,954	130,223
700	5,355	15,861	29,338	61,946	78,904	128,040
800	4,444	14,529	28,095	60,190	76,721	125,636
900	3,705	13,132	26,730	58,302	74,378	122,951
1,000	3,116	11,749	25,245	56,263	71,852	119,914
1,100	2,648	10,451	23,663	54,064	69,128	116,455
1,200	2,273	9,278	22,023	51,706	66,208	112,513
1,300	1,970	8,243	20,374	49,209	63,109	108,052
1,400	1,722	7,343	18,765	46,605	59,869	103,084
1,500	1,517	6,565	17,237	43,942	56,545	97,686
1,600	1,346	5,893	15,813	41,274	53,199	91,997
1,700	1,203	5,312	14,506	38,652	49,897	86,189
1,800	1,080	4,809	13,317	36,121	46,695	80,436
1,900	976	4,370	12,244	33,712	43,636	74,879
2,000	886	3,987	11,278	31,448	40,748	69,614
2,100	807	3,651	10,409	29,336	38,047	64,696
2,200	739	3,355	9,628	27,380	35,539	60,148
2,300	679	3,092	8,925	25,576	33,219	55,968
2,400	626	2,859	8,292	23,916	31,082	52,141
2,500	579	2,651	7,720	22,392	29,115	48,645
2,600	537	2,464	7,203	20,993	27,308	45,454
2,700	499	2,297	6,735	19,709	25,647	42,540
2,800	465	2,145	6,309	18,530	24,121	39,879
2,900	435	2,008	5,921	17,447	22,718	37,446
3,000	407	1,884	5,567	16,451	21,425	35,217
3,100	382	1,771	5,243	15,533	20,234	33,174
3,200	359	1,667	4,946	14,686	19,135	31,297
3,300	339	1,573	4,674	13,904	18,120	29,569
3,400	320	1,486	4,422	13,181	17,180	27,977
3,500	302	1,406	4,191	12,511	16,309	26,507
3,600	286	1,332	3,977	11,890	15,501	25,148
3,700	271	1,264	3,778	11,312	14,750	23,888
3,800	257	1,202	3,594	10,775	14,051	22,719
3,900	245	1,143	3,423	10,274	13,399	21,632
4,000	233	1,089	3,264	9,807	12,791	20,621
4,100	222	1,038	3,116	9,370	12,222	19,678
4,200	212	991	2,977	8,962	11,690	18,797
4,300	202	948	2,847	8,579	11,192	17,974
4,400	193	906	2,726	8,220	10,724	17,203
4,500	185	868	2,612	7,883	10,285	16,480
4,600	177	832	2,505	7,565	9,872	15,801
4,700	170	798	2,405	7,267	9,483	15,163
4,800	163	766	2,310	6,986	9,116	14,563
4,900	157	736	2,221	6,720	8,770	13,998
5,000	151	708	2,137	6,469	8,443	13,464
5,100	145	681	2,058	6,232	8,134	12,961
5,200	139	656	1,983	6,008	7,841	12,485
5,300	134	632	1,912	5,795	7,564	12,034
5,400	129	610	1,844	5,594	7,302	11,608
5,500	125	588	1,780	5,403	7,052	11,203
5,600	121	568	1,720	5,221	6,815	10,819
5,700	116	549	1,662	5,048	6,590	10,455
5,800	112	531	1,608	4,884	6,376	10,109
5,900	109	513	1,556	4,727	6,172	9,779
6,000	105	497	1,506	4,578	5,977	9,466



## MPC-Support channels

hot-dip galvanised

Buckling loads as per DIN EN 1993-1-1 sections 6.2 and 6.3.

The values in the table apply for fully bearing cross-sections and central load transmission!

The potentially lower slenderness parameter for buckling and lateral torsional buckling must be examined separately!

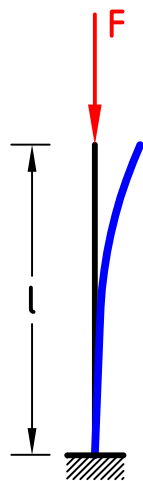
Buckling about the z-axis and the y-axis was considered.

The least favourable buckling load is documented in the table.

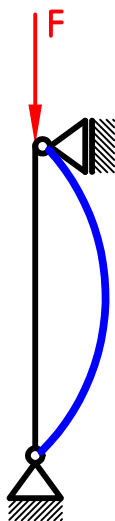
The safety coefficient  $\gamma = 1.54$  takes into account the safety and combination coefficients as well as the safety factor of the material.

Determine the authoritative buckling length  $L_k$  depending on the storage conditions and the rod length  $l$ , as shown in the figure.

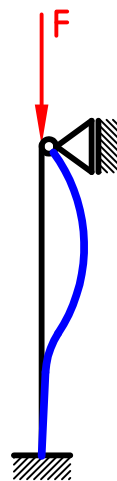
Read off the buckling load  $F$  as  $L_k$  from the table.



$$L_k = 2,0 \times l$$



$$L_k = 1,0 \times l$$



$$L_k = 0,7 \times l$$



$$L_k = 0,5 \times l$$

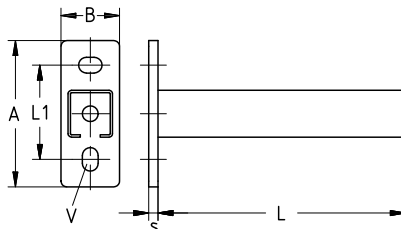


## MPC-Wall hanger brackets

hot-dip galvanised

## Field of application

- Applicable as cantilever support structure for pipeways
- Applicable as cantilever bracket for air ducts and cable trays
- Applicable in combination with MPC-Saddle support and MPC-Channel support brackets as a cross-beam for pipe attachments in shafts and ducts
- Solid wall bracket for valves and equipment
- Profile 38/80 is ideally suitable for double-sided installation of pipe sections due to double channel slots
- Suitable for outdoor use



## Advantages

- The strong base plate ensures a high load carrying capacity
- The vertical and horizontal holes in the base plate allow easy height adjustment of the bracket
- Variety of lengths covers all construction requirements
- Clean-cut appearance by the use of MPC-protection caps

Profile	Length L [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
					A	B	L1	s	V
27/18	300	156731	1	pieces	120	40	80	4	11 x 19
38/40	240	156732			125	50		8	13.5 x 20
	320	156733							
	400	156734							
	480	156735							
	560	156736							
	640	156737							
	800	156738							
	1,040	156739							
40/60	560	156740			165	60	120		
	800	156741							
	1,040	156742							




For further technical information please refer to chapter "Technical information".

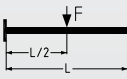
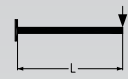
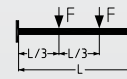
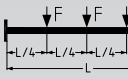
### MPC-Wall hanger brackets

hot-dip galvanised

#### Technical data of brackets:

Profile	Dimensions H x W x D  [mm]	Base plate  Material	Admissible steel stress  $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Support channel  Material	Admissible steel stress  $\sigma_{adm.}$ [N/mm <sup>2</sup> ]
					
27/18	120 x 40 x 4	S355MC	231	DC01	153
38/40	125 x 50 x 8	S235	162	DD11	
40/60	165 x 60 x 8	S355MC	231		

#### Load bearing capacities of brackets for bending around the y-axis:

Profile	Base plate M <sub>max.</sub> [Nmm]	Length L [mm]				
Max. allowable load [N]						
27/18	52,255	300	311	156	156	104
38/40	260,845	240	2,173	1,086	1,086	724
		320	1,630	815	815	543
		400	1,304	652	652	434
		480	1,086	543	543	362
		560	931	465	465	310
		640	815	407	407	271
		800	652	279	326	217
		1,040	501	161	242	156
40/60	514,741	560	1,838	919	919	612
		800	1,286	643	643	428
		1,040	989	494	494	329



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/150$  are not exceeded, taking the deadweight into consideration.

The load-carrying values refer to the console support. Fastening elements such as plugs and screws, must be chosen in accordance with the loads.



## MPC Wall hanger bracket

for the attachment on support channels, hot-dip galvanised

## Field of application

- Wall hanger bracket with solid, rounded-edge base plate for the attachment on support channels
- Solid cantilever construction due to support from diagonal strut

## Advantages

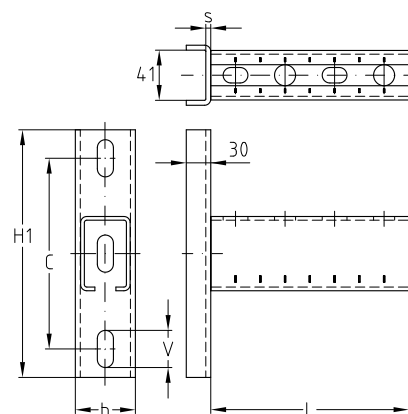
- Clip-over edges of the base plate for good appearance
- Variety of set lengths covers all constructional requirements
- Simple height adjustment when mounted in the channel slot
- Clean-cut appearance by the use of MPC-protection caps



For support channels	Length L [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]				
					H1	b	s	C	V
40/60	800	139505	1	pieces	200	49	4	154	13 x 30



See MPC-Wall hanger bracket profile 40/60 for load-bearing capacities. When mounted in the channel slots, the max. recommended shear and tensile loads for the accessories (e.g. MPC-Hammer head bolts) must be observed.





### MPC-Wall hanger supports

with vibration control, hot-dip galvanised

#### Field of application

- **For the vibration dampened attachment** of equipment such as ventilation and air conditioning devices, pumps, household water tanks, etc. on walls

#### Advantages

- Efficient mounting due to preassembled parts
- MPC-Support channels cut-to length and with holes on the rear side including MPC-Protection caps

- Various bracket lengths available (depending on device type)
- Simple height adjustment of the brackets due to sliding MPC-Hammer head bolts
- Variable adjustment of the mounting spaces on the bracket due to MPC-Rail nuts
- **Average vibration reduction of 17 dB(A) due to DÄMMGULAST® Resilient pads**



#### Features

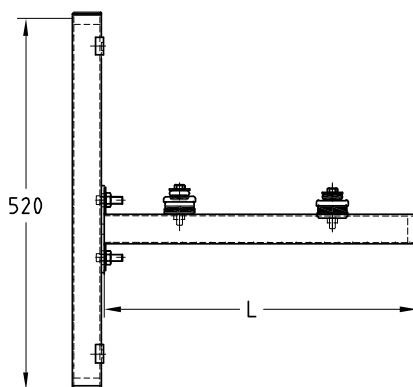


Max. recommended load (set)  
[N]

1,500

Complete kit consists of:

- 2 MPC-Support channels 38/40, length 520 mm
- 2 MPC-Wall hanger brackets 38/40
- 4 DÄMMGULAST® Resilient pads 43 x 11 mm
- 6 MPC-Protection caps for profile 38/40
- 4 MPC-Hammer head bolts M10/30
- 4 DÄMMGULAST® Washers 8.5 x 28 mm
- 4 Washers 8.5 x 28 x 1 mm
- 4 MPC-Rail nuts M8 for profile 38/40
- 4 Hexagon head bolts M8/55
- 4 MPC-Clamp brackets M10 for profile 38/40



Length L [mm]	Part no.	Sales unit	Pack unit
480	113526	1	pieces
560	113529		
640	113532		

## MPC-Diagonal strut

hot-dip galvanised

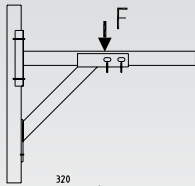
### Field of application

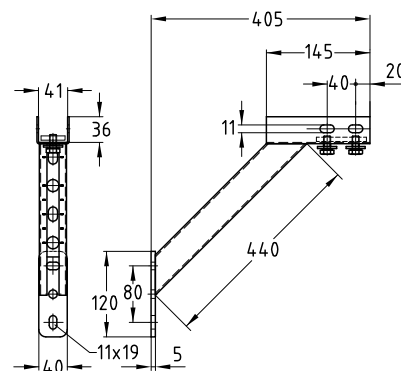
- Diagonal strut for the direct wall-mounting of wall hanger brackets, for channel support and for wall hanger brackets with baseplate
- Suitable for outdoor use

### Advantages

- Quick mounting due to preinstalled double rail nuts
- With clip-over edges for the wall hanger bracket
- Oblong holes at the side allow the positioning of MPC-Support channels 38/40 with slot at the side



	Length L [mm]	Mounting of bracket and diagonal strut in the support channel slot max. recommended load F [N]	Through fitting attachment max. recommended load F [N]
	440	2,500	6,000



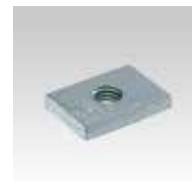
For support channels	Part no.	Sales unit	Pack unit
38/40-40/120	129789	1	pieces



### MPC-Rail nuts

for MPC-Support channels and wall hanger brackets, high-temperature galvanised

For support channels	Thread	Length [mm]	Width [mm]	Height [mm]	Part no.	Sales unit	Pack unit
38/40–40/120	M8	32.8	23	6	<b>153226</b>	100	pieces
	M10	33.0			<b>139500</b>		
	M12				<b>139260</b>		



### MPC-Double rail nut

for MPC-Support channels and wall hanger brackets, high-temperature galvanised

For support channels	Thread	Part no.	Sales unit	Pack unit
38/40–40/120	M10	<b>152171</b>	1	pieces



### MPC-Clamp bracket

for MPC-Support channels and wall hanger brackets, hot-dip galvanised

For support channels	For thread	Part no.	Sales unit	Pack unit
38/40	M10	<b>114444</b>	100	pieces



### MPC-Clamp bracket

heavy-duty version, for MPC-Support channels and wall hanger brackets, to transfer large forces, hot-dip galvanised

For support channels	For thread	Part no.	Sales unit	Pack unit
39/52, 40/60, 40/80, 40/120	M12	<b>114554</b>	25	pieces



### MPC-Protection caps

for MPC-Support channels and wall hanger brackets

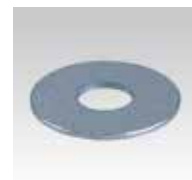
For support channels	Part no.	Sales unit	Pack unit
27/18	106000	100	pieces
28/30	106002		
38/40, 38/80	106006	50	
40/60, 40/120	106008	25	
40/80	106009		



### Washers

for MPC-Support channels, hot-dip galvanised

For thread	Outer diameter [mm]	Thickness [mm]	Part no.	Sales unit	Pack unit
M10	30	2.5	<b>132832</b>	100	pieces



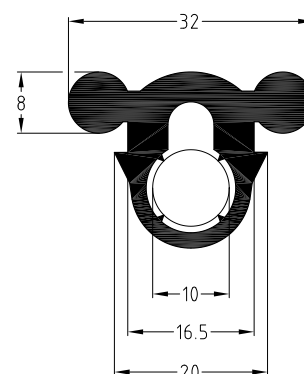
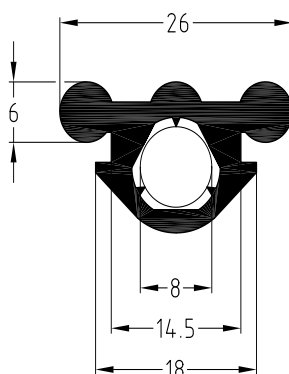
## DÄMMGULAST® Channel sections for MPC-Profiles

### Field of application

- Ideal for the decoupling of traverses for air duct fixtures
- For secure vibration-decoupling of MPC-Support channels

### Advantages

- Easy installation by inserting into MPC-Support channels and/or screwing onto threaded rods
- Prevents structure-borne noise coupling by avoiding contact between the air duct and the threaded rods
- Interlocking profile prevents channel section being pushed out
- Prevents fluttering and other vibration noises in the air ducts
- Small contact surface, large absorption mass



### Features



Design	For support channels	Suitable for	Part no.	Sales unit	Pack unit
<b>DÄMMGULAST® Channel section</b> roll of 30 m	27/18, 28/30	Channels with slot widths of 13–16 mm, M8 threaded rods	<b>107689</b>	1	roll
<b>DÄMMGULAST® Channel sections</b> section of 50 mm	38/24–40/120	Channels with slot widths of 15–18 mm, M8 and M10 threaded rods	<b>107690</b>	300	pieces
<b>DÄMMGULAST® Channel sections</b> section of 100 mm			<b>107691</b>		
			<b>107686</b>	200	



When installing air conditioning and ventilation equipment, MPC-Support channels can be used as load-bearing traverses. Structure-borne vibration coupling bridges resulting from direct metal contact between the air duct and the traverse or threaded rods can be prevented by the use of DÄMMGULAST® Channel section as intermediate layer.

The DÄMMGULAST® Channel section was developed especially for these application areas and provides the optimum solution from a practical installation point of view.

### MPC-Saddle supports

hot-dip galvanised

#### Field of application

- Simple assembly of strong cross-beams using MPC-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- Suitable for outdoor use

#### Advantages

- The vertical and horizontal holes in the base plate enable simple alignment of the MPC-Saddle support
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions



MPC-Saddle support, crosswise



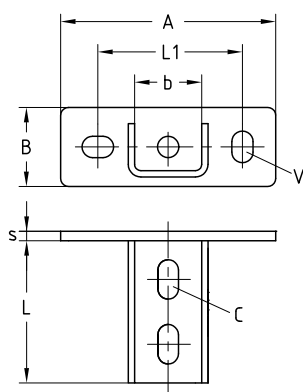
MPC-Saddle support, lengthwise



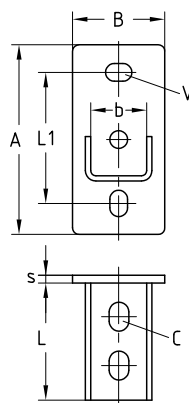
MPC-Saddle support, lengthwise  
pre-assembled with double rail nut



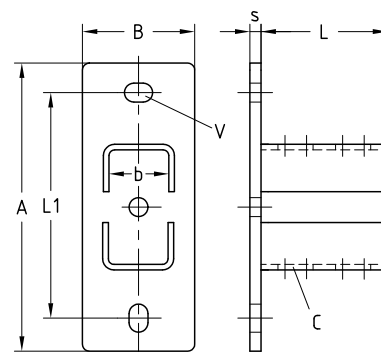
MPC-Saddle support, lengthwise for  
profiles 38/80, 40/80 and 40/120



MPC-Saddle support, crosswise



MPC-Saddle support, lengthwise



MPC-Saddle support, lengthwise for  
profiles 38/80, 40/80 and 40/120

Design	For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]							
					A	B	b	L	L1	s	C	V
Crosswise	38/40, 40/60	156820	25	pieces	136	50	42	90	91.5	6	13 x 25	13.5 x 20
Lengthwise		156819			144	70			100			
	38/80, 40/80	160982	1		205	80			160	8		
	40/120	153774			245				200			



Part no. 160982 and 153774 available upon request.

## MPC-VARIO-Saddle support

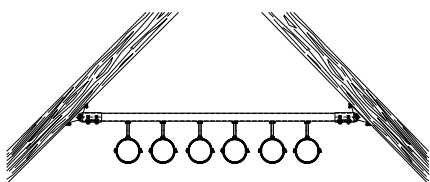
hot-dip galvanised

### Field of application

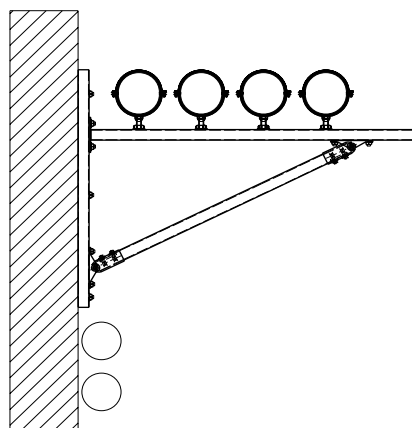
- Ideal for attachment to inclined roof trusses, vaults and in round cable shafts
- Suitable for outdoor use

### Advantages

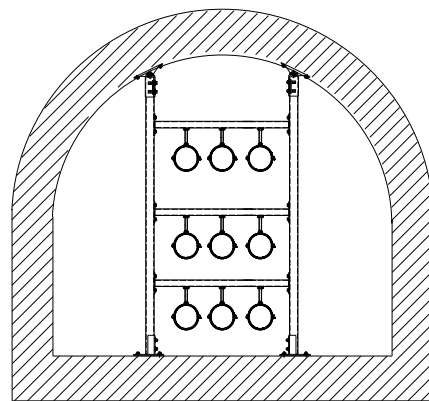
- Variable angle adjustment possible during installation
- Simple and quick installation due to pre-installed double rail nut
- Attachment to the slot of support channels 38/40 possible in all directions



Attachment of a pipe run to an inclined roof truss



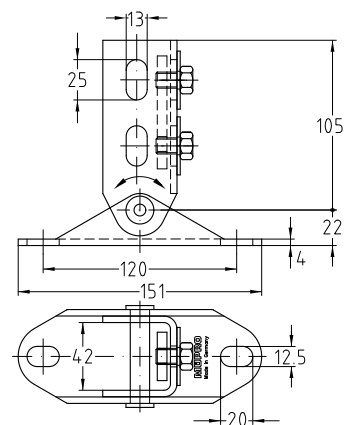
Pipes installed on a MPC-Wall hanger bracket with diagonal strut



Installation of brackets in vaults or round cable ducts and shafts

Completely pre-assembled:

- 1 MPC-VARIO-Saddle support
- 1 Double rail nut
- 2 Hexagonal head bolts M10
- 2 Washers



For support channels	Minimum angle [°]	Part no.	Sales unit	Pack unit
38/40-40/120	20	129647	1	pieces

### MPC-Lateral angles

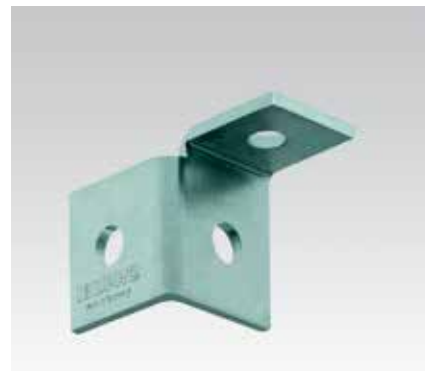
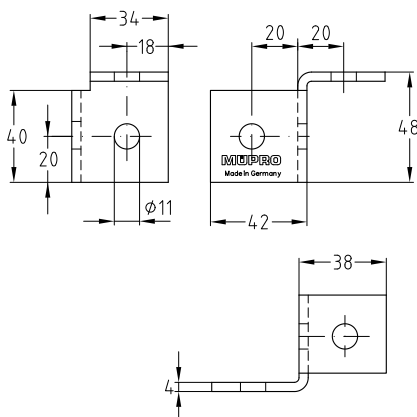
hot-dip galvanised

#### Field of application

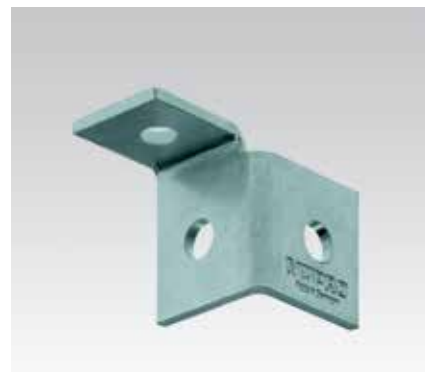
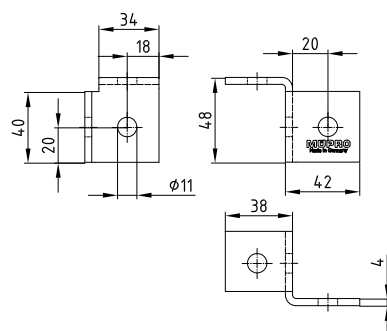
- Connecting elements for the construction of frames, shelves and wall-mounted installations using MPC-Support channels

#### Advantages

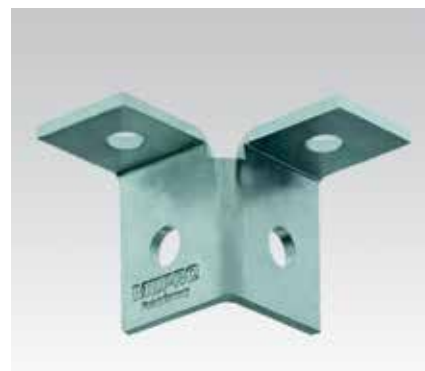
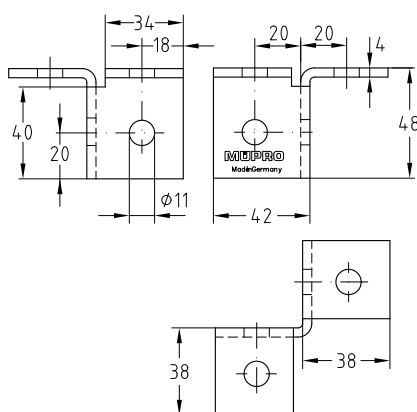
- Creation of solid constructions without welding
- Various mounting options for stable joint and angle connections with MPC-Support channels
- Appropriate combination of elements allows junctions with up to four exit directions
- Great flexibility – a large variety of connections can be made with only a few components
- Quick and simple attachment in combination with MPC-Quick fastener for angle mounting



MPC-Lateral angle, right



MPC-Lateral angle, left



MPC-Lateral angle, double-sided

Alignment	Angle [°]	For support channels	Part no.	Sales unit	Pack unit
Double-sided	90	38/40–40/120	123044	25	pieces
Left			123056		
Right			123064		



Stainless steel version available upon request.



# MPC-Cross channel connectors

hot-dip galvanised

## Field of application

- For cross-connections in pre-wall installations and for shelves made from MPC-Support channels
- Suitable for outdoor use

## Advantages

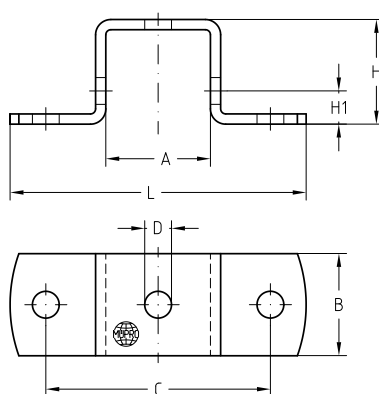
- Easy-to-install connection elements for setting up structures with the correctly measured static loads using MPC-Support channels
- Greater flexibility when setting up structures made from channels
- Multiple punching allows the profile slots to be aligned in 4 directions
- For rotation-resistant attachment to building structure



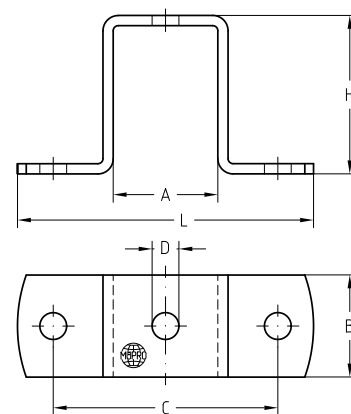
For profile 38/40



For profiles 40/60, 40/80 and 40/120



For profile 38/40



For profiles 40/60, 40/80 and 40/120

For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]						
				A	B	C	D	H	H1	L
38/40	118132	25	pieces	41	40	80	10.5	41	18	110
40/80	118272							82	—	
40/60	118308							62	—	
40/120	118135							122	—	



### MPR-Support channels

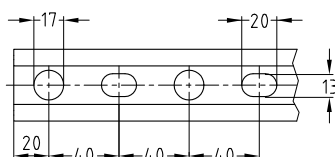
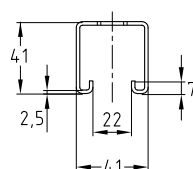
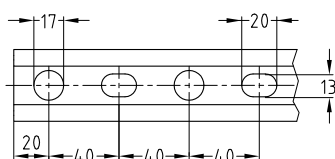
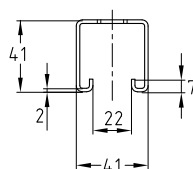
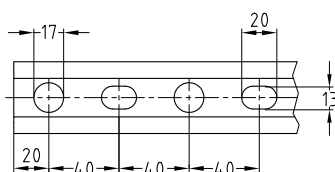
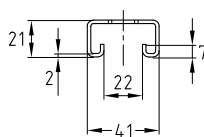
hot-dip galvanised

#### Field of application

- Ideal for pipe installation as support structure for air ducts in interiors and exteriors
- Variety of mounting options e.g. for shelves in combination with extensive range of system components

#### Advantages

- Quick and efficient attachment of pipe sections and multiple pipe-ways
- High bending stiffness due to the cross-section design
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure fixing that is adjustable laterally and vertically
- For setting up structures with correctly measured static loads by means of diverse connection components
- Interlocking rail slot for positive locking of attachments
- Clean-cut appearance by the use of MPR-protection caps



Profile 41/21/2.0



Profile 41/41/2.0



Profile 41/41/2.5

Profile	Length [mm]	Part no.	Sales unit	Pack unit
41/21/2.0	2,000	154173	1	pieces
	6,000	154175		
41/41/2.0	2,000	154176		
	6,000	154178		
41/41/2.5		154181		



## MPR-Support channel

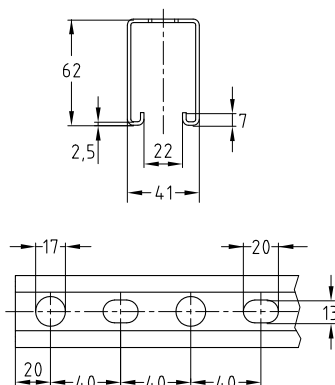
hot-dip galvanised

### Field of application

- Ideal for pipe installation as support structure for air ducts in interiors and exteriors
- Variety of mounting options e.g. for shelves in combination with extensive range of system components

### Advantages

- Quick and efficient attachment of pipe sections and multiple pipe-ways
- High bending stiffness due to the cross-section design
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- For secure fixing that is adjustable laterally and vertically
- For setting up structures with correctly measured static loads by means of diverse connection components
- Interlocking rail slot for positive locking of attachments
- Clean-cut appearance by the use of MPR-protection caps



Profile 41/62/2.5

Profile	Length [mm]	Part no.	Sales unit	Pack unit
41/62/2.5	6,000	154184	1	pieces



### MPR-Support channels

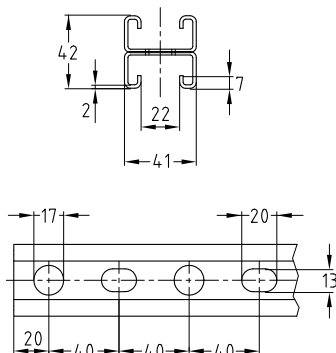
H-Profiles, hot-dip galvanised

#### Field of application

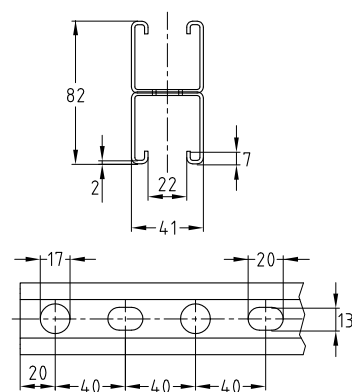
- Ideal for space-saving support of multisection pipeways between ceiling beams
- Ideal for pipe installation as support structure for air ducts in interiors and exteriors
- Variety of mounting options e.g. for shelves in combination with extensive range of system components

#### Advantages

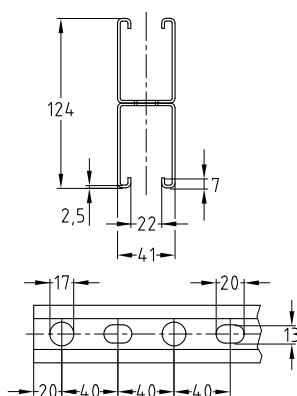
- Quick and efficient attachment of pipe sections and multiple pipe-ways
- Ideal combination of high bending stiffness and ease of installation
- Channel slots on both sides allow simple and quick alignment of all suspended and floor-mounted pipe supports
- Scale marks sideways and on the side with the slot simplify the alignment of the attachment elements during installation and facilitate the measuring and cutting to length of the section on site
- Suitable vibration control elements for all support channels available
- Clean-cut appearance by the use of MPR-Protection caps
- Interlocking rail slot for positive locking of attachment parts



Profile 41/42/2.0



Profile 41/82/2.0




Profile 41/124/2.5

Profile	Length [mm]	Part no.	Sales unit	Pack unit
41/42/2.0	6,640	154185	1	pieces
41/82/2.0		154186		
41/124/2.5		154187		

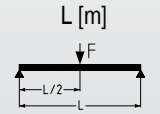
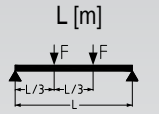



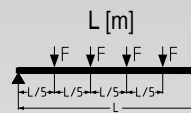
MPR-Support channels  
hot-dip galvanised

## Technical data of profiles:

 Profile	Material	Surface	Admissible steel stress  $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Available threaded plates*	Profile weight  [kg/m]	Profile cross- section  [cm <sup>2</sup> ]	Moment of inertia		Resistance moment	
							$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$W_z$ [cm <sup>3</sup> ]
41/21/2.0	S235	hot-dip galvanised	162	M8, M10, M12, M16	1.45	1.62	0.8894	4.5246	0.839	2.207
41/41/2.0					2.08	2.42	4.9736	7.5692	2.451	3.692
41/41/2.5					2.53	3.08	5.8103	9.0333	2.839	4.406
41/62/2.5					3.38	3.98	17.2090	12.9297	5.671	6.307
41/42/2.0 H-Profile					2.90	3.24	5.2844	9.0492	2.516	4.414
41/82/2.0 H-Profile					4.16	4.83	30.6876	15.1385	7.485	7.385
41/124/2.5 H-Profile					6.76	7.96	111.7528	25.8595	18.025	12.614

## Load bearing capacities of profiles for bending around the y-axis [N]:

Profile	 L [m]						 L [m]					
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
41/21/2.0	1,086	439	186	94	–	–	813	258	109	55	–	–
41/41/2.0	3,178	1,581	1,046	601	106	–	2,379	1,187	643	353	62	–
41/41/2.5	3,681	1,831	1,210	701	121	–	2,755	1,375	750	411	71	–
41/62/2.5	7,357	3,666	2,430	1,808	459	117	5,506	2,752	1,823	1,248	270	68
41/42/2.0 H-Profile	3,066	1,620	1,068	630	95	–	1,533	1,216	679	370	56	–
41/82/2.0 H-Profile	6,562	4,840	3,210	2,389	865	277	3,271	3,261	2,407	1,791	508	162
41/124/2.5 H-Profile	13,613	11,671	7,753	5,786	2,794	1,316	6,806	6,790	5,815	4,337	1,969	772

Profil	 L [m]						 L [m]					
	0.5	1.0	1.5	2.0	4.0	6.0	0.5	1.0	1.5	2.0	4.0	6.0
41/21/2.0	543	185	78	40	–	–	453	145	61	31	–	–
41/41/2.0	1,589	791	461	253	44	–	1,324	659	362	199	35	–
41/41/2.5	1,840	916	538	295	51	–	1,534	763	423	232	40	–
41/62/2.5	3,678	1,833	1,215	896	193	49	3,065	1,527	1,013	703	152	39
41/42/2.0 H-Profile	1,022	810	487	265	40	–	766	675	383	208	32	–
41/82/2.0 H-Profile	2,181	2,174	1,605	1,175	364	116	1,635	1,630	1,337	995	286	91
41/124/2.5 H-Profile	4,538	4,527	3,877	2,893	1,397	554	3,403	3,395	3,231	2,411	1,109	435

\* Please note additional information on the catalog pages of threaded plates/hammer head fasteners.



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/200$  are not exceeded, taking the deadweight into consideration.

### MPR-Support channels

hot-dip galvanised

Permissible buckling loads for profiles [N]:

Buckling length Lk [mm]	MPR 41/21/2.0	MPR 41/41/2.0	MPR 41/41/2.5	MPR 41/62/2.5	MPR 41/42/2.0	MPR 41/82/2.0	MPR 41/124/2.5
200	25,378	39,273	49,092	64,658	52,573	78,466	129,317
300	23,868	38,858	48,434	64,658	51,488	78,466	129,317
400	22,098	37,772	47,023	63,651	49,827	77,628	128,065
500	19,980	36,633	45,537	62,224	48,054	76,510	126,262
600	17,564	35,413	43,935	60,743	46,113	75,321	124,350
700	15,076	34,083	42,179	59,184	43,958	74,032	122,285
800	12,776	32,620	40,241	57,523	41,561	72,610	120,014
900	10,803	31,013	38,108	55,738	38,929	71,016	117,480
1,000	9,173	29,266	35,797	53,811	36,114	69,209	114,618
1,100	7,846	27,407	33,354	51,733	33,212	67,146	111,362
1,200	6,766	25,482	30,854	49,505	30,336	64,793	107,652
1,300	5,884	23,553	28,379	47,143	27,586	62,131	103,454
1,400	5,157	21,675	26,005	44,678	25,032	59,172	98,774
1,500	4,553	19,895	23,781	42,154	22,706	55,971	93,681
1,600	4,048	18,241	21,736	39,620	20,617	52,615	88,300
1,700	3,620	16,724	19,878	37,127	18,755	49,209	82,792
1,800	3,256	15,348	18,205	34,714	17,102	45,855	77,321
1,900	2,944	14,106	16,703	32,416	15,636	42,632	72,022
2,000	2,674	12,989	15,359	30,251	14,336	39,593	66,992
2,100	2,439	11,986	14,156	28,230	13,181	36,764	62,286
2,200	2,234	11,084	13,078	26,356	12,153	34,155	57,927
2,300	2,054	10,273	12,112	24,626	11,236	31,763	53,916
2,400	1,894	9,543	11,243	23,033	10,415	29,577	50,241
2,500	1,752	8,884	10,460	21,569	9,678	27,583	46,881
2,600	1,626	8,289	9,754	20,225	9,014	25,765	43,812
2,700	1,512	7,749	9,114	18,991	8,415	24,107	41,010
2,800	1,411	7,258	8,534	17,857	7,872	22,594	38,448
2,900	1,319	6,812	8,006	16,815	7,380	21,211	36,106
3,000	1,235	6,404	7,525	15,856	6,931	19,946	33,960
3,100	1,160	6,031	7,084	14,973	6,522	18,785	31,992
3,200	1,091	5,689	6,681	14,158	6,148	17,720	30,183
3,300	1,028	5,375	6,311	13,405	5,804	16,740	28,519
3,400	970	5,086	5,970	12,709	5,488	15,837	26,985
3,500	917	4,820	5,656	12,063	5,197	15,004	25,568
3,600	869	4,573	5,366	11,465	4,929	14,233	24,257
3,700	824	4,345	5,097	10,908	4,680	13,519	23,043
3,800	782	4,133	4,848	10,391	4,450	12,857	21,916
3,900	744	3,936	4,617	9,908	4,237	12,241	20,869
4,000	708	3,753	4,401	9,458	4,038	11,668	19,893
4,100	675	3,582	4,201	9,037	3,853	11,134	18,984
4,200	644	3,423	4,013	8,643	3,680	10,635	18,135
4,300	615	3,274	3,838	8,274	3,518	10,169	17,341
4,400	588	3,134	3,674	7,928	3,367	9,732	16,597
4,500	563	3,003	3,520	7,603	3,226	9,323	15,900
4,600	539	2,880	3,376	7,297	3,093	8,939	15,246
4,700	517	2,765	3,240	7,010	2,968	8,577	14,630
4,800	496	2,656	3,113	6,738	2,851	8,238	14,051
4,900	476	2,554	2,992	6,482	2,740	7,918	13,506
5,000	458	2,457	2,879	6,241	2,636	7,616	12,991
5,100	441	2,366	2,772	6,012	2,537	7,331	12,506
5,200	424	2,279	2,670	5,796	2,444	7,061	12,046
5,300	409	2,198	2,574	5,591	2,356	6,806	11,612
5,400	394	2,120	2,484	5,396	2,273	6,565	11,200
5,500	380	2,047	2,397	5,212	2,193	6,336	10,810
5,600	367	1,977	2,316	5,037	2,118	6,119	10,440
5,700	354	1,911	2,238	4,870	2,047	5,913	10,089
5,800	342	1,848	2,164	4,712	1,980	5,717	9,755
5,900	331	1,788	2,094	4,561	1,915	5,530	9,437
6,000	320	1,731	2,027	4,417	1,854	5,353	9,134



## MPR-Support channels

hot-dip galvanised

Buckling loads as per DIN EN 1993-1-1 sections 6.2 and 6.3.

The values in the table apply for fully bearing cross-sections and central load transmission!

The potentially lower slenderness parameter for buckling and lateral torsional buckling must be examined separately!

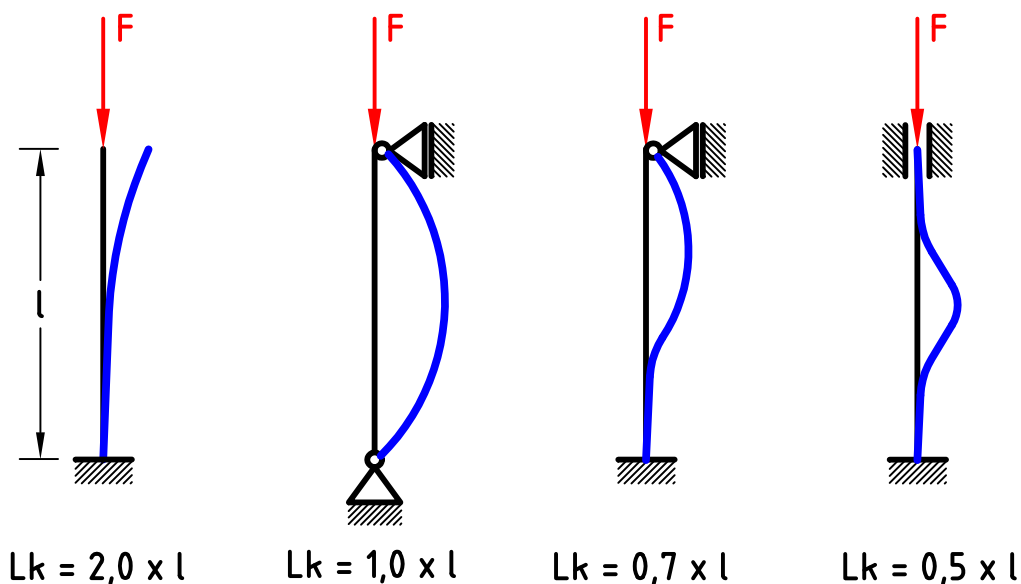
Buckling about the z-axis and the y-axis was considered.

The least favourable buckling load is documented in the table.

The safety coefficient  $\gamma = 1.54$  takes into account the safety and combination coefficients as well as the safety factor of the material.

Determine the authoritative buckling length  $L_k$  depending on the storage conditions and the rod length  $l$ , as shown in the figure.

Read off the buckling load  $F$  as  $L_k$  from the table.

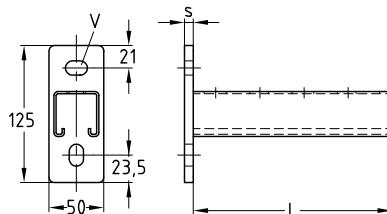


### MPR-Wall hanger brackets

hot-dip galvanised

#### Field of application

- Ideal as cantilever support structure of multisection pipeways
- Applicable as cantilever bracket for air ducts and cable trays
- Applicable in combination with saddle support and channel support brackets as a cross-beam for pipe attachments in shafts and ducts
- Solid wall bracket for valves and equipment
- For indoor and outdoor use



#### Advantages

- The strong base plate ensures a high load carrying capacity
- Elongated- and cross-hole for flexible attachment to the building structure
- Variety of lengths covers all construction requirements
- Clean-cut appearance by the use of MPR-Protection caps


Profile	Length L [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]		
					s	V	
41/21/2.0	160	154211	1	pieces	6	13.5 x 20	
	240	154212					
	320	154213					
	400	154214					
41/41/2.0	160	154215			8		
	240	154216					
	320	154217					
	400	154218					
	480	154219					
	560	154220					
	640	154221					
	720	154222					
	800	154223					
	1,040	154224					



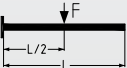

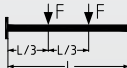

## MPR-Wall hanger brackets

hot-dip galvanised

## Technical data of brackets:

Profile 	Dimensions H x W x D  [mm]	Base plate		Support channel	
		Material	Admissible steel stress  $\sigma_{adm.}$ [N/mm <sup>2</sup> ]	Material	Admissible steel stress  $\sigma_{adm.}$ [N/mm <sup>2</sup> ]
41/21/2.0	125 x 50 x 6	S235	162	S235	162
41/41/2.0	125 x 50 x 8				

## Load bearing capacities of brackets for bending around the y-axis:

Profile	Base plate M <sub>max.</sub> [Nmm]	Length L [mm]				
			Max. allowable load [N]			
41/21/2.0	112,154	160	1,400	700	700	467
		240	931	466	466	311
		320	696	348	348	232
		400	555	231	278	185
41/41/2.0	275,080	160	3,435	1,717	1,717	1,145
		240	2,287	1,144	1,144	762
		320	1,713	856	856	571
		400	1,367	684	684	456
		480	1,136	568	568	379
		560	971	485	485	324
		640	847	423	423	282
		720	749	375	375	250
		800	671	336	336	224
		1,040	508	185	254	169



The determined loads apply for static loads. Calculation based on Eurocode (EC3).

The safety coefficient  $\gamma = 1.54$  takes into account the partial and combination coefficients as well as the safety factor of the material.

For the given values, the permissible steel stress and the maximum permissible deflection  $L/150$  are not exceeded, taking the deadweight into consideration.

The load-carrying values refer to the console support. Fastening elements such as plugs and screws, must be chosen in accordance with the loads.





### MPR-Hammer head fasteners

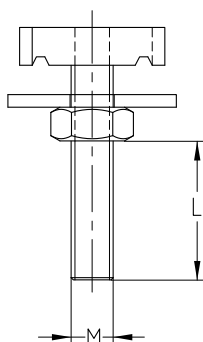
zinc lamella coating

#### Field of application

- For time-saving, efficient attachment of pipe clamps to MPR-Support channels
- For indoor and outdoor use

#### Advantages

- Easy and fast assembly in the rail slot
- Lateral adjustment at any time, allows perfect alignment of the pipeline after installation
- Various lengths and thread diameters can be combined within the same channel
- Interlocking threaded plate for secure positive connection in the rail slot of the MPR-Support channels

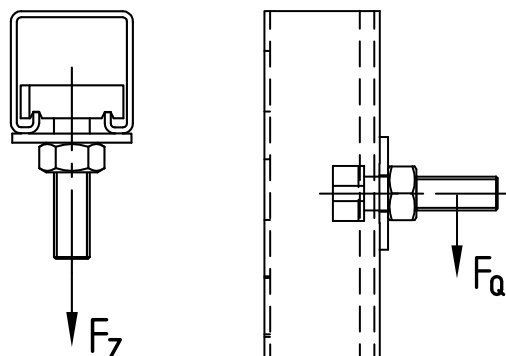


For support channels	Connecting thread M	Length [mm]	Usable thread length L [mm]	Part no.	Sales unit	Pack unit
41/21/2.0, 41/41/2.0, 41/41/2.5, 41/62/2.5, 41/42/2.0, 41/82/2.0, 41/124/2.5	M8	35	10	154193	25	pieces
		40	15	154194		
		50	25	154195		
		80	55	154196		
		100	75	154197		
	M10	35	8	154198		
		40	13	154199		
		55	28	154200		
		60	33	154201		
		80	53	154202		
41/21/2.0, 41/41/2.0, 41/41/2.5, 41/62/2.5, 41/82/2.0, 41/124/2.5	M12	100	73	154203		
		40	9	154204	10	
		55	24	154205		
		60	29	154206		
		80	49	154207		
100	69	154208				
41/41/2.0, 41/41/2.5, 41/62/2.5, 41/82/2.0, 41/124/2.5	M16	65	30	154209		
		100	65	154210		



## MPR-Hammer head fasteners

zinc lamella coating



For support channels Material thickness [mm]	MPR-Hammer head fasteners			
	Connecting thread	Max. recommended tensile load Fz [N]	Max. recommended transverse load Fq [N]	For a tightening torque of [Nm]
2.0	M8	4,500	1,400	9
	M10		1,750	17
	M12			29
	M16			
2.5	M8	5,000	1,400	9
	M10		2,000	17
	M12		2,800	29
	M16			



### MPR-Threaded plates

hot-dip galvanised

#### Field of application

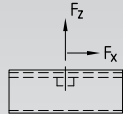
- For fixing of attachment parts in the rail slot of the MPR-Support channels
- For indoor and outdoor use

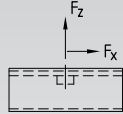
#### Advantages

- Interlocking threaded plate for secure positive connection in the rail slot of the MPR-Support channels



For support channels	Thread	Part no.	Sales unit	Pack unit	Dimensions [mm]		
					l	b	s
41/21/2.0, 41/41/2.0, 41/41/2.5, 41/62/2.5, 41/42/2.0, 41/82/2.0, 41/124/2.5	M8	154189	50	pieces	34.5	19.5	8.0
	M10	154190					
	M12	154191	25				9.0
41/41/2.0, 41/41/2.5, 41/62/2.5, 41/82/2.0, 41/124/2.5	M16	154192	10				12.0

	Max. permissible load values of MPR-Threaded plates (channel 2.0 mm)				
	Transverse load Fx in rail slot direction with threaded pin 4.6 and washer 40 x 3 mm		Transverse load Fx in rail slot direction with hexagon wood screw 8.8 and clamp bracket heavy-duty		Tensile load Fz with threaded pin 4.6 and washer 40 x 3 mm
Size	Tightening torque [Nm]	[N]	Tightening torque [Nm]	[N]	[N]
M8	9	1,400	20	2,100	4,500
M10	17	1,750	30		
M12	29		40		
M16					

	Max. permissible load values of MPR-Threaded plates (channel 2.5 mm)				
	Transverse load Fx in rail slot direction with threaded pin 4.6 and washer 40 x 3 mm		Transverse load Fx in rail slot direction with hexagon wood screw 8.8 and clamp bracket heavy-duty		Tensile load Fz with threaded pin 4.6 and washer 40 x 3 mm
Size	Tightening torque [Nm]	[N]	Tightening torque [Nm]	[N]	[N]
M8	9	1,400	20	2,800	4,500
M10	17	2,000	30	3,150	5,000
M12	29	2,800	40		
M16					

## MPR-Clamp brackets

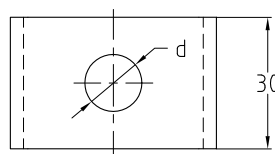
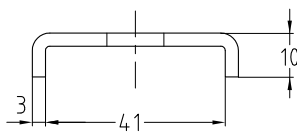
hot-dip galvanised

### Field of application

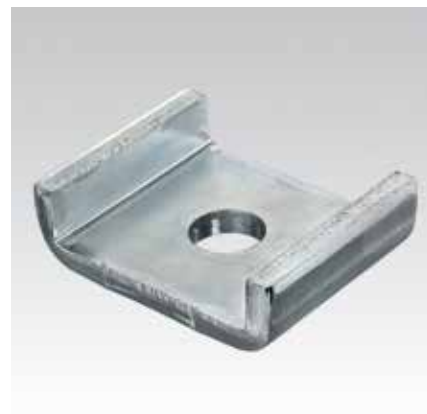
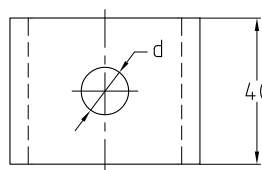
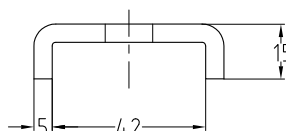
- For safe force transmission when installing MPR-Support channels together with threaded rods

### Advantages

- Two versions available
- Heavy-duty type available for transferring large forces
- Safe, folded edge prevents expansion of the rail slot



Standard version



Heavy-duty version

Design	For support channels	For thread d	Part no.	Sales unit	Pack unit
Standard version	41/21–41/124	M10	154238	50	pieces
		M12	154237		
Heavy-duty version		M8	154234	10	
		M10	154235		
		M12	154803		
		M16	154236		



### MPR-Protection caps

#### Field of application

- Plastic protection cap for mounting on open ends of the MPR-Support channels

#### Advantages

- Clean end of the MPR-Support channels protects from injury
- Weather-resistant plastic material for long service life

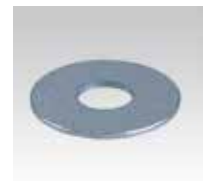


For support channels	Part no.	Sales unit	Pack unit
41/21, 41/42	151076	100	pieces
41/41, 41/82	151077	50	
41/62, 41/124	151078	25	

#### Washers

for MPR-Support channels, mechanically galvanised

For thread	Outer diameter [mm]	Thickness [mm]	Part no.	Sales unit	Pack unit
M8	40	3	154239	100	pieces
M10			154240		
M12			154241		
M16			154242	50	



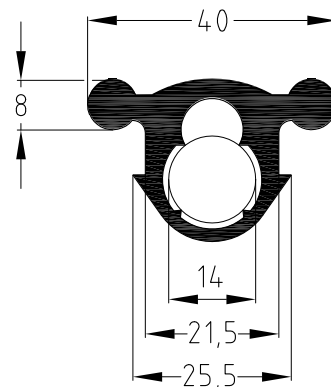
## DÄMMGULAST® Channel sections for MPR-Profiles

### Field of application

- Ideal for the decoupling of traverses for air duct fixtures
- For secure vibration-decoupling of MPR-Support channels

### Advantages

- Easy installation by inserting into MPR-Support channels and/or screwing onto threaded rods
- Prevents structure-borne noise coupling by avoiding contact between the air duct and the threaded rods
- Interlocking profile prevents channel section being pushed out
- Prevents fluttering and other vibration noises in the air ducts
- Small contact surface, large absorption mass



### Features



Design	For support channels	Suitable for	Part no.	Sales unit	Pack unit
<b>DÄMMGULAST® Channel section</b> roll of 20 m	41/21–41/124	Channels with slot widths of 22 mm, M8 and M10 threaded rods	<b>151189</b>	1	roll
<b>DÄMMGULAST® Channel sections</b> section of 50 mm			<b>155366</b>	200	pieces

**!** When installing air conditioning and ventilation equipment, MPR-Support channels can be used as load-bearing traverses. Structure-borne vibration coupling bridges resulting from direct metal contact between the air duct and the traverse or threaded rods can be prevented by the use of DÄMMGULAST® Channel section as intermediate layer.

The DÄMMGULAST® Channel section was developed especially for these application areas and provides the optimum solution from a practical installation point of view.

### MPR-Saddle supports

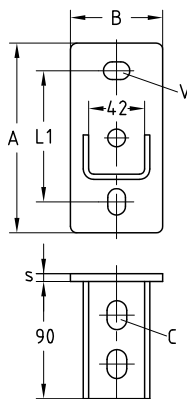
hot-dip galvanised

#### Field of application

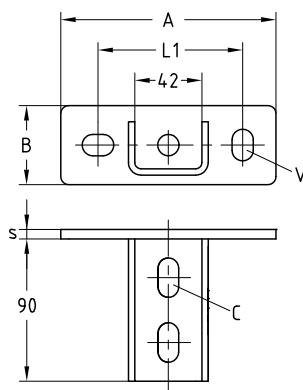
- Simple assembly of strong cross-beams using MPR-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- For indoor and outdoor use

#### Advantages

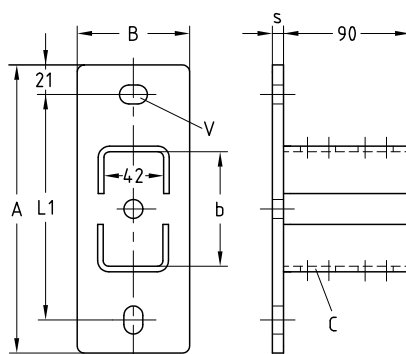
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions
- Type for 41/82 and 41/124 profiles with rotation-free bearing due to clamping on both sides by the MPR-Support channels



MPR-Saddle support, lengthwise



MPR-Saddle support, crosswise



MPR-Saddle support, lengthwise  
for profiles 41/82 and 41/124

Design	For support channel	Part no.	Sales unit	Pack unit	Dimensions [mm]						
					A	B	b	L1	s	C	V
Crosswise	41/21–41/62	156820	25	pieces	136	50	–	91.5	6	13 x 25	13.5 x 20
Lengthwise		156819			144	70		100			
	41/82	159100	1		205	80	83	160	8		
	41/124	159099			245		125	200			



## MPR-VARIO-Saddle support

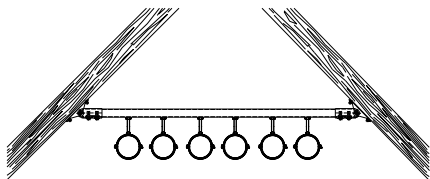
hot-dip galvanised

### Field of application

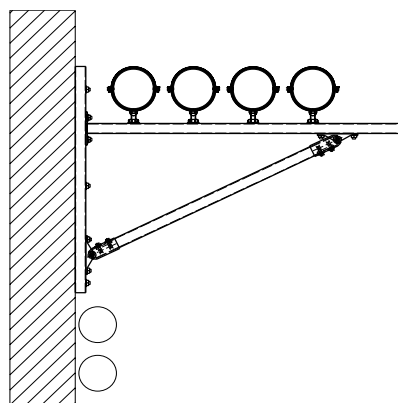
- Ideal for attachment to inclined roof trusses, vaults and in round cable shafts
- Suitable for outdoor use

### Advantages

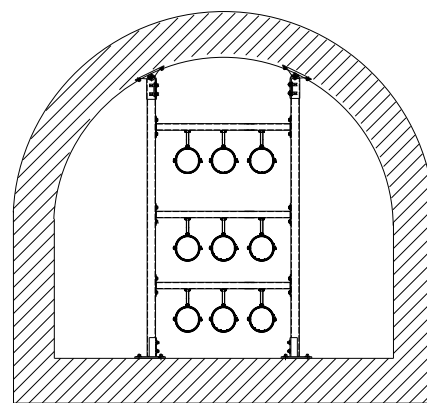
- Variable angle adjustment possible during installation
- Simple and quick installation due to pre-installed screws and MPR-Threaded plate
- Attachment to the slot of support channels 41/41 possible in all directions
- Positive-fit joining due to interlocking MPR-Support channels and MPR-Threaded plates



Attachment of a pipe run to an inclined roof truss



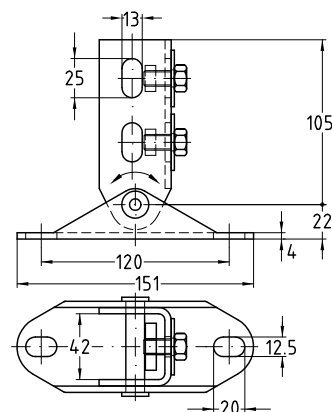
Pipes installed on a wall hanger with diagonal strut



Installation of brackets in vaults or round cable ducts and shafts

Completely pre-assembled:

- 1 MPR-VARIO-Saddle support
- 2 MPR-Threaded plates M10
- 2 Hexagonal head bolts M10
- 2 Washers



For support channels	Minimum angle [°]	Part no.	Sales unit	Pack unit
41/21–41/62	20	160007	1	pieces



### MPR-Cross channel connectors

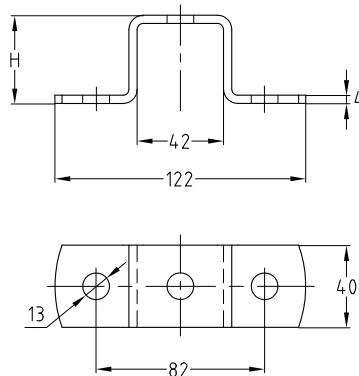
hot-dip galvanised

#### Field of application

- For cross-connections e.g. in shelves made from MPR-Support channels
- Connection of MPR-Support channels to constructions of MPT-Support profiles
- For indoor and outdoor use

#### Advantages

- Easy-to-install connection element for setting up structures with correctly designed static loads using MPR-Support channels
- Greater flexibility when setting up structures made from channels
- For rotation-resistant attachment to building structure



For support channels	Part no.	Sales unit	Pack unit	Dimension H [mm]
41/21	154225	10	pieces	23
41/41, 41/42	154226			43
41/62	154229			64
41/82	154227			84
41/124	154228			126



## MPR-Girder cleats

hot-dip galvanised

### Field of application

- Attachment of MPR-Support channels to steel girders without drilling or welding
- For indoor and outdoor use

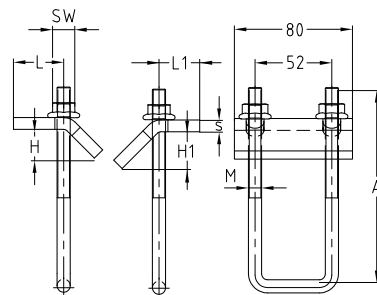
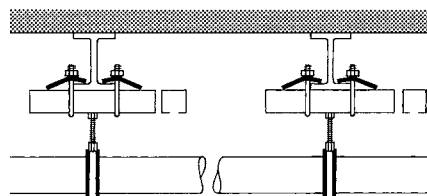
### Advantages

- Ideal solution for attachment of MPR-Support channels to steel girders
- Allows subsequent adjustment of the channels along and across the supporting beam
- Suitable for all flange thicknesses of common support profiles ( $\leq 24.5$  mm)
- Easy to install, pre-assembled kit
- Proper attachment of suspended loads on girders



### Features

For support channels	Thread U-brackets	Max. permitted loading/pair [N] with hammer head fasteners			
		M8	M10	M12	M16
41/21/2.0 41/41/2.0 41/42/2.0	M8	4,500	4,500	4,500	4,500
41/41/2.5	M10		5,000	5,000	5,000
41/21/2.0 41/41/2.0 41/42/2.0			4,500	4,500	4,500
41/41/2.5			5,000	5,000	5,000
41/62/2.5					
41/82/2.0			4,500	4,500	4,500
41/124/2.5			5,000	5,000	5,000



For support channels	Thread	Spanner width [SW]	Part no.	Sales unit	Pack unit	Dimensions [mm]					
						A	H	H1	L	L1	s
41/21, 41/41, 41/42	M8	13	154232	10	pieces	90	18.5	24.5	34	30	6
	M10	15	154230								8
41/62, 41/82			154231			130					
41/124			154233			170					

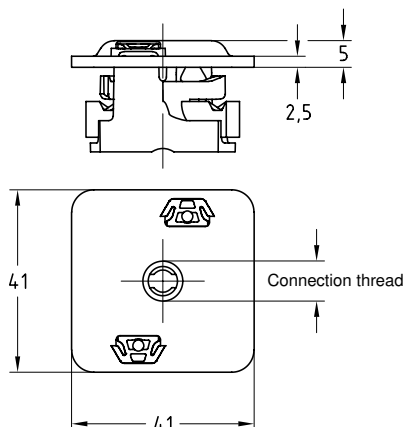
### MPR-Quick fasteners type S+ zinc-nickel

#### Field of application

- For safe and fast connecting of pipe clamps and mounting parts in the rail slot of MPR-Support channels
- For indoor and outdoor use


#### Advantages

- Simply screw into the rail slot – done
- Safely retained after screwing in, alignable until screw is tightened
- Secure interlocking design for a positive connection with the MPR-Support channels
- No shifting even on vertical rail slots

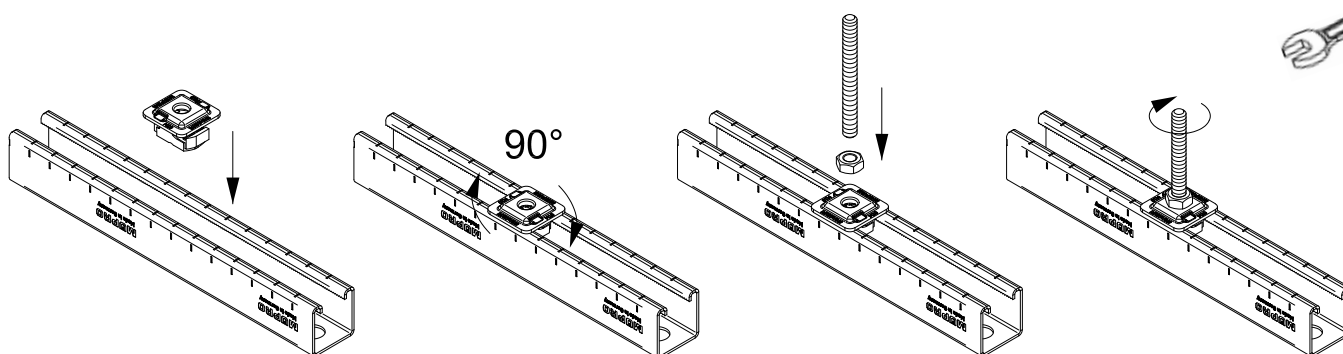


For support channels	Connecting thread	Part no.	Sales unit	Pack unit
41/21–41/124	M8	165904	25	pieces
	M10	165905		
	M12	165906		

#### Features

	Max. recommended load F <sub>1</sub> [N]			Tightening torque [Nm]		
	M8	M10	M12	M8	M10	M12
MPR-Support channels 2.0 mm	4,500	4,500	4,500	9	17	29
MPR-Support channels 2.5 mm		5,000	5,000			

#### Mounting instructions



## MPR-Slide nuts type S+ hot-dip galvanised

### Field of application

- For fast and safe fastening of flush mounting parts such as installation brackets in the rail slot of MPR-Support channels
- For indoor and outdoor use

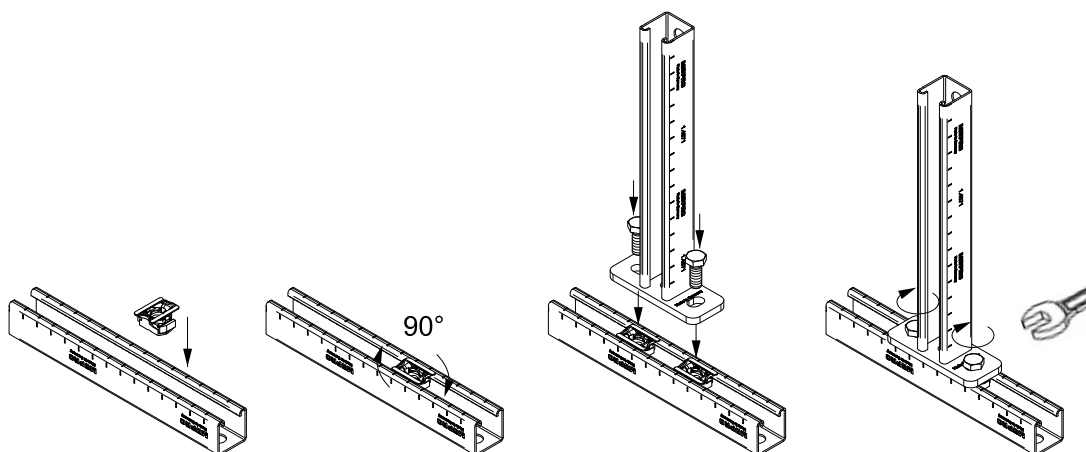
### Advantages

- Simply screw into the rail slot – done
- Safely retained after screwing in, alignable until screw is tightened
- No shifting even on vertical rail slots
- Flush-mounted, tensionally locked connection of accessories to the MPR-Support channels



For support channels	Thread	Part no.	Sales unit	Pack unit
41/21–41/124	M8	166310	25	pieces
	M10	166311		
	M12	166312		

### Mounting instructions



### MPR-Connection lock type S+ zinc-nickel

#### Field of application

- For connecting type S+ mounting parts with MPR-Support channels
- For indoor and outdoor use

#### Advantages

- Time-saving – fast and powerful frictional connection of type S+ mounting parts with MPR-Support channels
- Easy – simply slot into the type S+ mounting part and tighten the connection lock by turning 90°

- Secure interlocking design for a positive connection with the MPR-Support channels
- No wrench or auxiliary tool needed to hold in place
- No confusion – one size fits all type S+ mounting parts

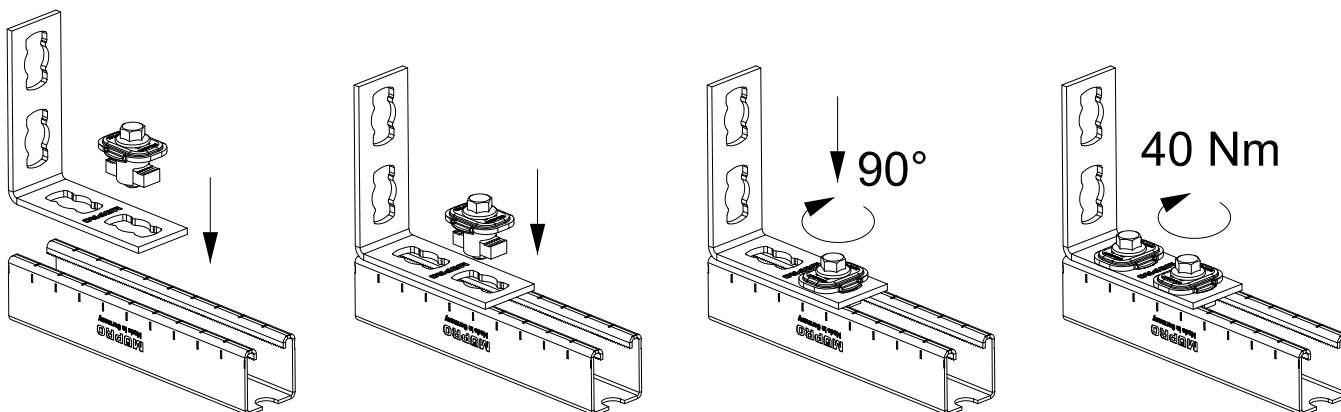


For support channels	Thread	Spanner width [SW]	Part no.	Sales unit	Pack unit
41/21–41/124	M10	17	166348	25	pieces

#### Features

	Max. recommended tensile load [N]	Max. recommended transverse load [N]	Tightening torque [Nm]
MPR-Support channels 2.0 mm	4,500	2,000	40
MPR-Support channels 2.5 mm	5,000		

#### Mounting instructions



## MPR-Diagonal struts type S+

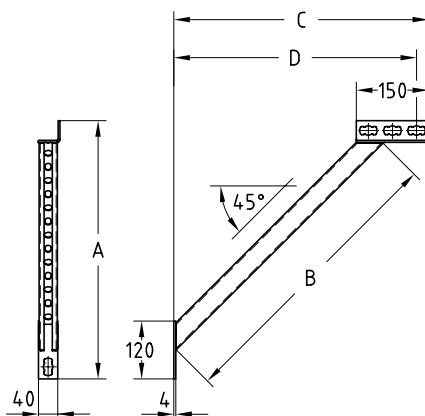
hot-dip galvanised

### Field of application

- Supporting strut for reinforcement of corner joints in structures made of MPR-Support channels and MPR-Connection lock type S+
- For indoor and outdoor use
- Also suitable for lateral support of consoles, e.g. for use with fixed points

### Advantages

- Easily connected with the MPR-Support channels due to installation with the MPR-Connection lock type S+
- Various lengths available for different on-site installation conditions



For support channels	Length [mm]	Part no.	Sales unit	Pack unit	Dimensions [mm]			
					A	B	C	D
41/21–41/124	440	165866	1	pieces	395	440	380	355
	900	165868			741	900	734	709

## MPR-Channel connector type S+

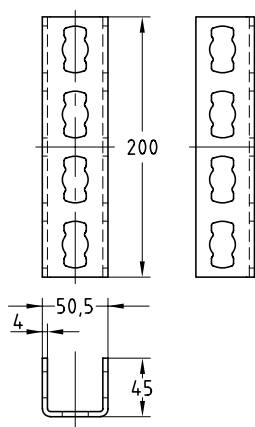
heavy-duty version, hot-dip galvanised

### Field of application

- Fast butt-joining of MPR-Support channels and MPR-Connection lock type S+
- For indoor and outdoor use

### Advantages

- Enables exact alignment of the channels
- Frictional connection via 4 connection locks type S+
- Easy handling thanks to installation with connection lock type S+



For support channels	Part no.	Sales unit	Pack unit
41/41–41/124	165897	1	pieces

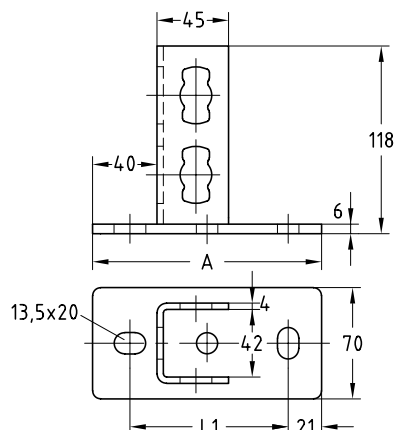
### MPR-Saddle supports type S+ hot-dip galvanised

#### Field of application

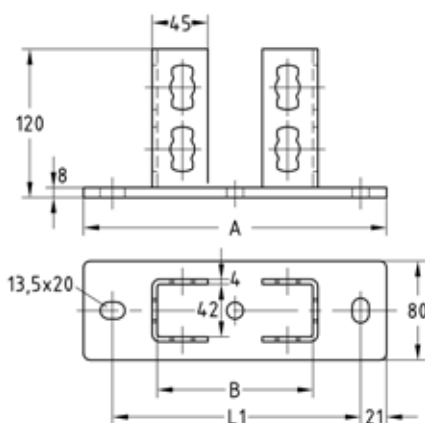
- Simple assembly of strong cross-beams using MPR-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- For indoor and outdoor use

#### Advantages

- Easily connected with the MPR-Support channels due to installation with the MPR-Connection lock type S+
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions
- Type for 41/82 and 41/124 profiles with rotation-free bearing due to clamping on both sides by the MPR-Support channels



MPR-Saddle support type S+ for profiles 41/41 and 41/62



MPR-Saddle support type S+ for profiles 41/82 and 41/124

For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]		
				A	B	L1
41/41, 41/62	165872	1	pieces	144	–	100
41/82	165873			205	83	160
41/124	165874			245	125	200



## MPR-Saddle support crosswise type S+

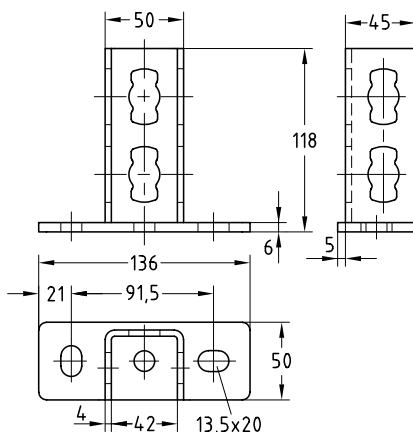
hot-dip galvanised

### Field of application

- Simple assembly of strong cross-beams using MPR-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- For indoor and outdoor use

### Advantages

- Easily connected with the MPR-Support channels due to installation with the MPR-Connection lock type S+
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions especially of support channels 41/41
- Elongated- and cross-holes for direct attachment to the building structure



For support channels	Part no.	Sales unit	Pack unit
41/21-41/124	165875	1	pieces





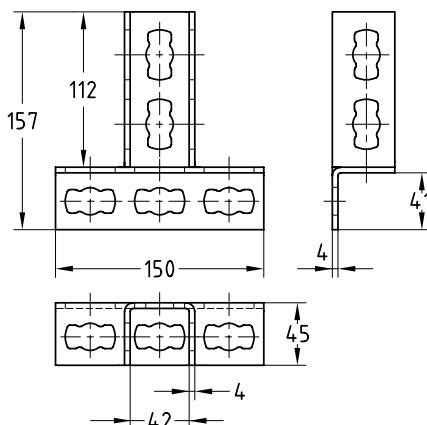
### MPR-Saddle support crosswise type S+ for channel support fitting, hot-dip galvanised

#### Field of application

- Simple assembly of strong cross-beams using MPR-Support channels
- Applicable for cramped installation conditions in shafts and ducts
- For indoor and outdoor use

#### Advantages

- Easily connected with the MPR-Support channels due to installation with the MPR-Connection lock type S+
- Good load transfer due to the high bending stiffness of the saddle connection
- Ideal connecting element for channel constructions especially of support channels 41/41



For support channels	Part no.	Sales unit	Pack unit
41/21-41/124	165871	1	pieces



## MPR-Construction bracket type S+

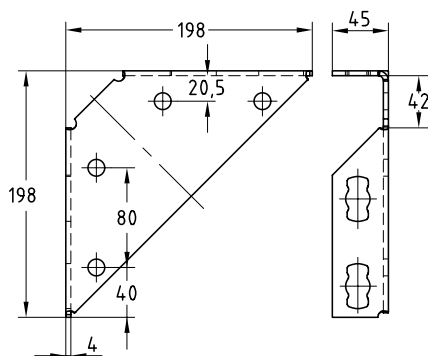
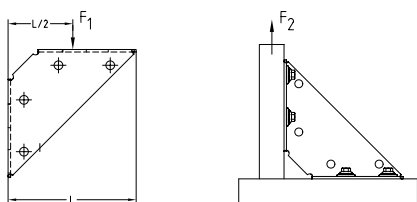
hot-dip galvanised

### Field of application

- Ideal connecting element for the construction of cross-beams, frames and shelving systems when used with MPR-Support channels
- For indoor and outdoor use

### Advantages

- A wide variety of installation options in MPR-Support channels and with the connection lock type S+
- Ensures stable corner joints



### Features

Admissible load $F_1$ [N]	Admissible load $F_2$ (material thickness of support channel 2.0 mm) [N]	Admissible load $F_2$ (material thickness of support channel 2.5 mm) [N]
2,250	4,000	4,000

Size [mm]	Part no.	Sales unit	Pack unit
198 x 198	165914	1	pieces



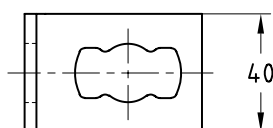
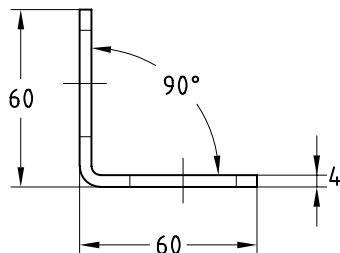
### MPR-Mounting angles 90° type S+ hot-dip galvanised

#### Field of application

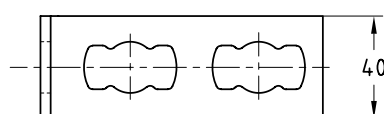
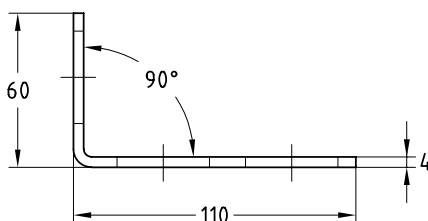
- Solid fixing element for construction of pre-wall installations and shelves as well as for channel constructions for attachments of pipelines and air ducts without welding
- For indoor and outdoor use

#### Advantages

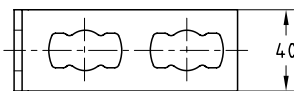
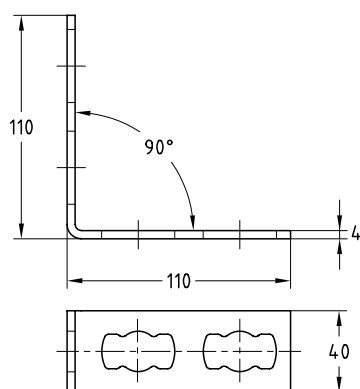
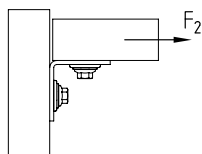
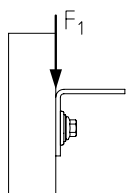
- Fast and simple installation of 90° corner joints with the MPR-Connection lock type S+
- Flexible use due to up to 4 connection locks depending on the design
- Increased load transfer when using 2 connection locks per leg



MPR-Mounting angle 90° 1+1 type S+



MPR-Mounting angle 90° 1+2 type S+



MPR-Mounting angle 90° 2+2 type S+

#### Features

Design	Admissible load F <sub>1</sub> [N]	Admissible load F <sub>2</sub> [N]
1+1	2,000	2,500
1+2		
2+2	4,000	

Design	For support channels	Part no.	Sales unit	Pack unit
1+1	41/21-41/124	165888	10	pieces
1+2		165889		
2+2		165890		

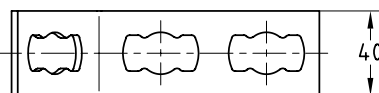
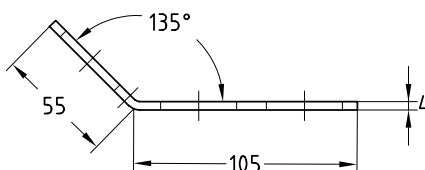
## MPR-Mounting angles 135° type S+ hot-dip galvanised

### Field of application

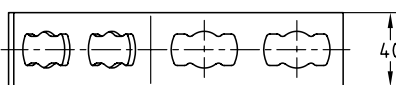
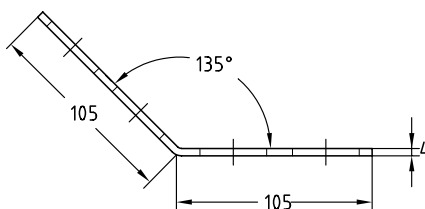
- Solid fixing element for construction of pre-wall installations and shelves as well as for channel constructions for attachments of pipelines and air ducts without welding
- For indoor and outdoor use

### Advantages

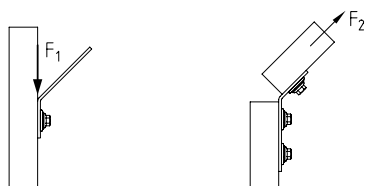
- Fast and simple installation of angled joints with the MPR-Connection lock type S+
- Flexible use due to up to 4 connection locks depending on the design
- Increased load transfer when using 2 connection locks per leg



MPR-Mounting angle 135° 1+2 type S+



MPR-Mounting angle 135° 2+2 type S+



### Features

Design	Admissible load F <sub>1</sub> [N]	Admissible load F <sub>2</sub> [N]
1+2	2,000	1,500
2+2	4,000	3,000

Design	For support channels	Part no.	Sales unit	Pack unit
1+2	41/21-41/124	165891	10	pieces
2+2		165892		

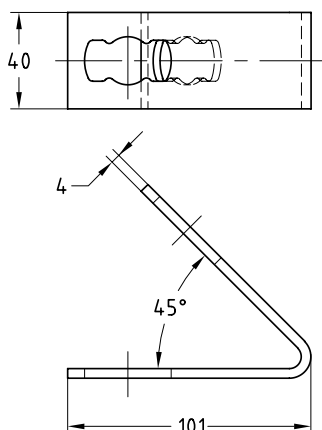
### MPR-Angle connector 45° type S+ hot-dip galvanised

#### Field of application

- Connecting element for on-the-wall installations, shelves and rail constructions, preferably by using the MPR-Support channel 41/41

#### Advantages

- Fast and simple installation of angled joints in combination with the MPR-Connection lock type S+



Design	For support channels	Part no.	Sales unit	Pack unit
1+1	41/21-41/124	165880	10	pieces



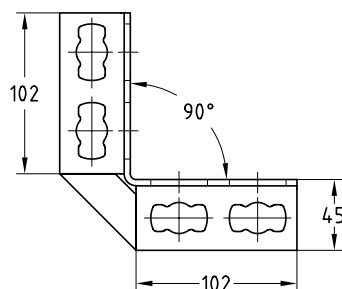
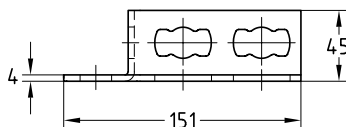
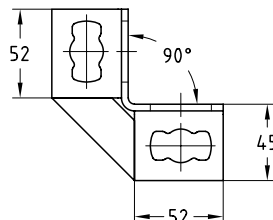
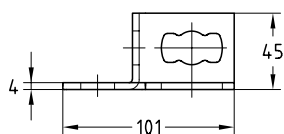
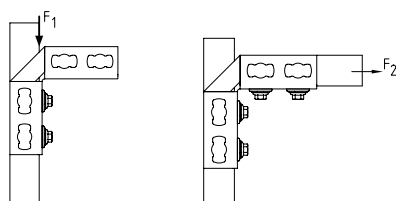
## MPR-Angle connectors 90° type S+ hot-dip galvanised

### Field of application

- Connecting element for on-the-wall installations, shelves and rail constructions, preferably by using the MPR-Support channel 41/41
- For indoor and outdoor use

### Advantages

- Fast and simple installation of angled joints with the MPR-Connection lock type S+
- Flexible use due to up to 4 connection locks depending on the design
- Increased load transfer when using 2 connection locks per leg
- Flexible connections in 2 directions with MPR-Support channels 41/41



MPR-Angle connector 90° 2+2 type S+



MPR-Angle connector 90° 4+4 type S+

### Features

Design	Admissible load F <sub>1</sub> [N]	Admissible load F <sub>2</sub> [N]
2+2	2,000	2,000
4+4	4,000	4,000

Design	For support channels	Part no.	Sales unit	Pack unit
2+2	41/21–41/124	165881	1	pieces
4+4		165882		

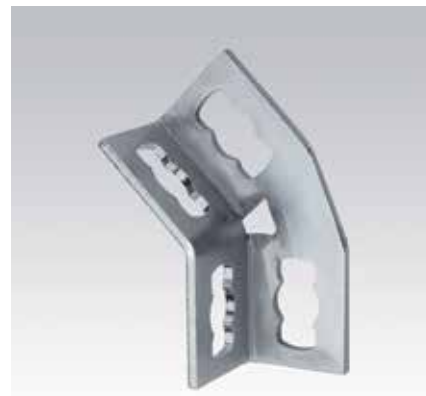
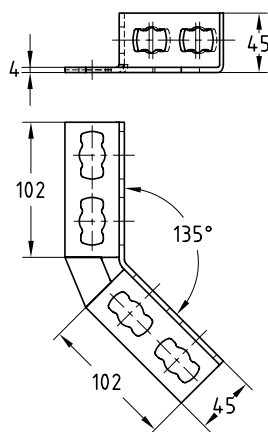
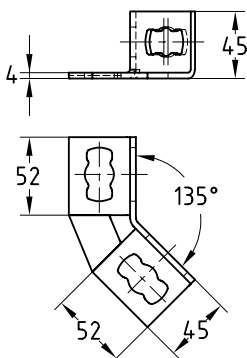
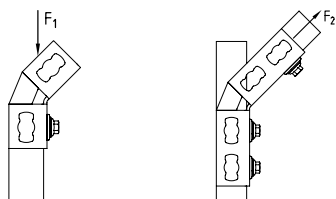
### MPR-Angle connectors 135° type S+ hot-dip galvanised

#### Field of application

- Connecting element for on-the-wall installations, shelves and rail constructions, preferably by using the MPR-Support channel 41/41
- For indoor and outdoor use

#### Advantages

- Fast and simple installation of angled joints with the MPR-Connection lock type S+
- Flexible use due to up to 4 connection locks depending on the design
- Increased load transfer when using 2 connection locks per leg
- Flexible connections in 2 directions with MPR-Support channels 41/41



MPR-Angle connector 135° 2+2  
type S+



MPR-Angle connector 135° 4+4  
type S+

#### Features

Design	Admissible load F <sub>1</sub> [N]	Admissible load F <sub>2</sub> [N]
2+2	2,000	1,500
4+4	4,000	2,500

Design	For support channels	Part no.	Sales unit	Pack unit
2+2	41/21–41/124	165883	1	pieces
4+4		165884		

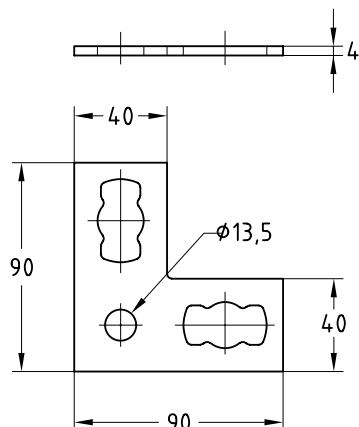
## MPR-Connection plates type S+ hot-dip galvanised

### Field of application

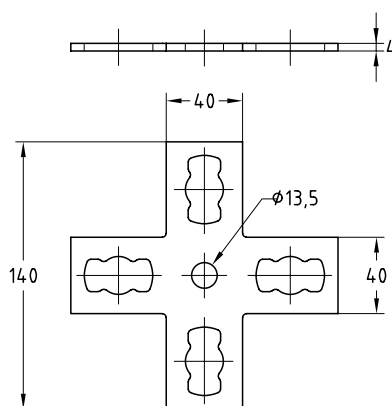
- Strong connection elements for frames and pre-wall installations using the MPR-System components
- For indoor and outdoor use

### Advantages

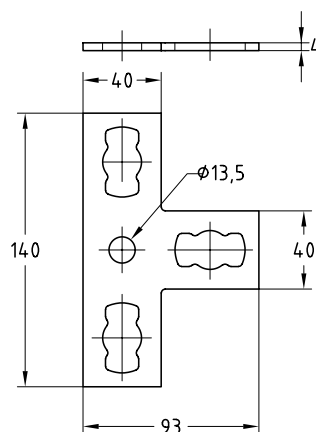
- Simple and quick connection of **angle connections, cross connections and T-connections**
- The mounting plates enable frame construction in one plane in which the channel slots have the same alignment
- Good adaptation to channel widths; the corners remain free in frame constructions
- Quick and simple attachment in combination with the MPR-Connection lock type S+



MPR-Angle plate 90° type S+



MPR-T-connection plate type S+



MPR-Cross connection plate type S+

	For support channels	Part no.	Sales unit	Pack unit
Angle plate 90°	41/21–41/124	165879	10	pieces
T-connection plate		165877		
Cross connection plate		165878		



### MPR-3D-Connectors type S+

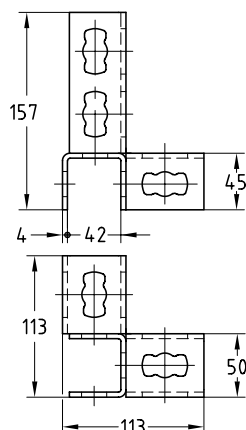
hot-dip galvanised

#### Field of application

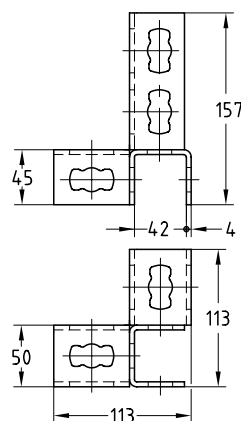
- Fasteners for three-dimensional structures in on-the-wall installations, shelves and rail constructions
- For indoor and outdoor use

#### Advantages

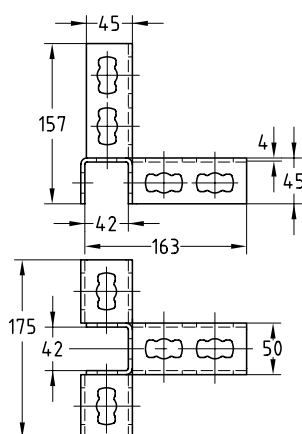
- Fast and simple installation of 3-dimensional connections joints in combination with the MPR-Connection lock type S+
- Flexible arrangement of the rail slot on MPR-Support channels 41/41 with middle or corner connectors type S+
- Versatile design options using three different connector designs



MPR-Corner connector left type S+



MPR-Corner connector right type S+



MPR-Mid connector type S+

	For support channels	Part no.	Sales unit	Pack unit
Corner connector left	41/21-41/124	165885	1	pieces
Corner connector right		165886		
Mid connector		165887		



## MPR-Cross channel connector type S+

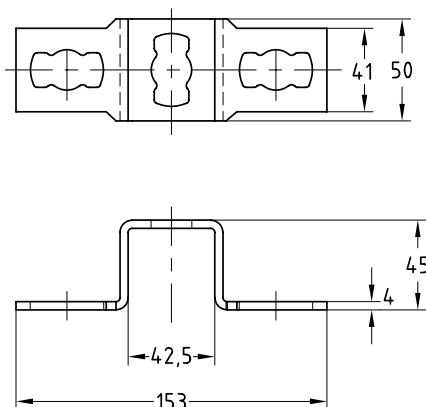
hot-dip galvanised

### Field of application

- For cross connections in on-the-wall installations and shelves made of MPR-Support channels in combination with the MPR-Connection lock type S+
- For indoor and outdoor use

### Advantages

- Easy-to-install connection element for setting up structures with correctly designed static loads using MPR-Support channels
- More flexibility in creating rail constructions in combination with the MPR-Connection lock type S+



For support channels	Part no.	Sales unit	Pack unit
41/41, 41/42	165899	10	pieces



### Channel connector

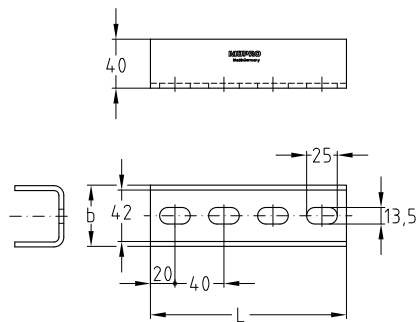
heavy-duty version, hot-dip galvanised

#### Field of application

- Quick butt-joint connection of MPC- and MPR-Support channels
- Suitable for outdoor use

#### Advantages

- Enables exact alignment of the channels
- Four bolts provide a frictional joint
- For highly load-bearing connections:
  - form-locking connection of through fitting attachments by means of threaded pins or hexagon head bolts and hexagonal nuts
  - with 4 oblong holes, adapted to the hole pattern of the MPC-Support channels
- Also available in double length for heavy-duty connections



For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]	
				b	L
38/40-40/120, 41/21-41/124	120140	1	pieces	50	160



## Channel connector

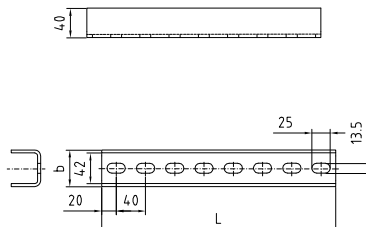
heavy-duty version, double length, hot-dip galvanised

## Field of application

- Channel connector in heavy, stable design for secure connection of MPC- and MPR-Support channels

## Advantages

- Form-locking connection due to max. eightfold screw connection
- Especially long guidance of the connected MPC- and MPR-Support channels ensures a high level of protection against lateral deflection
- Oblong holes in the channel connector compensate tolerances when installing



For support channels	Part no.	Sales unit	Pack unit	Dimensions [mm]	
				b	L
38/40-40/120, 41/21-41/124	142839	1	pieces	50	320



### Reinforcement angle

hot-dip galvanised

#### Field of application

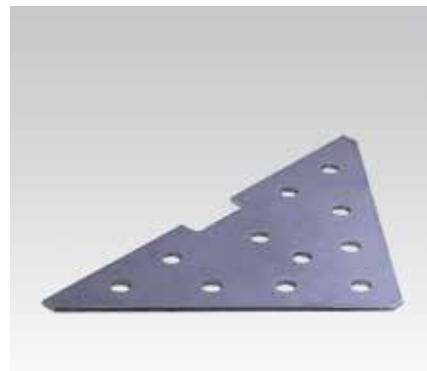
- Support for MPC- and MPR-Wall hanger brackets where transverse forces occur

#### Advantages

- Suitable for wall, ceiling and floor mounting
- Further mounting facilities for angle and joint connection of MPC- and MPR-Support channels

#### Suitable for:

- Support of wall hanger brackets 38/40, 40/60, 41/21, 41/41
- Applicable as angle and joint connection of all MPC- and MPR-Support channels



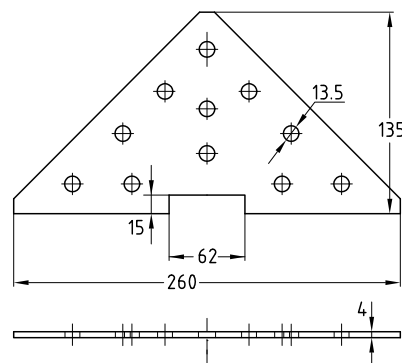
For support channels	Part no.	Sales unit	Pack unit
38/40–40/120, 41/21–41/124	<b>159437</b>	1	pieces

#### Suitable add-on parts for MPC-Support channels 38/40–40/120

	Part no.	Sales unit	Pack unit
<b>Hexagon head bolt,</b> M10 x 20 mm, hot-dip galvanised	<b>105558</b>	100	pieces
<b>MPC-Slide nut,</b> M10, hot-dip galvanised	<b>139500</b>		

#### Suitable add-on parts for MPR-Support channels 41/21–41/124

	Part no.	Sales unit	Pack unit
<b>Hexagon head bolt,</b> M10 x 20 mm, hot-dip galvanised	<b>105558</b>	100	pieces
<b>MPR-Threaded plate,</b> M10, hot-dip galvanised	<b>154190</b>	50	



## Cantilever brackets

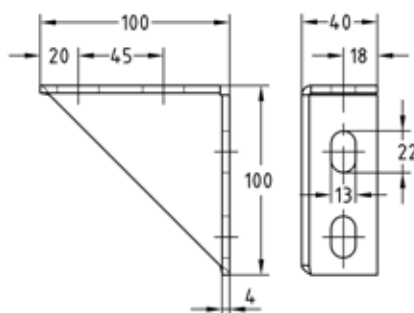
hot-dip galvanised

### Field of application

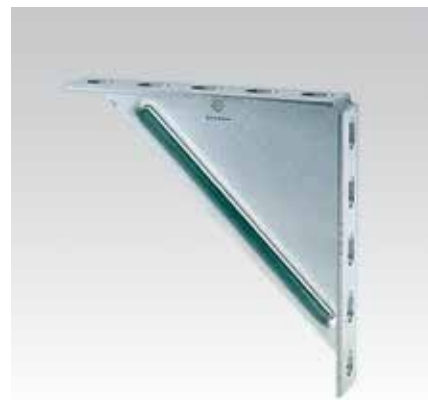
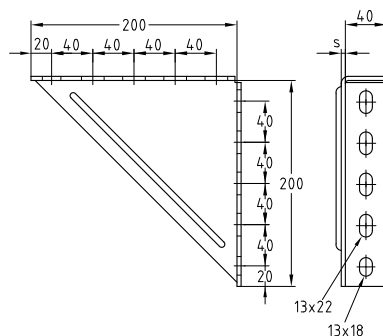
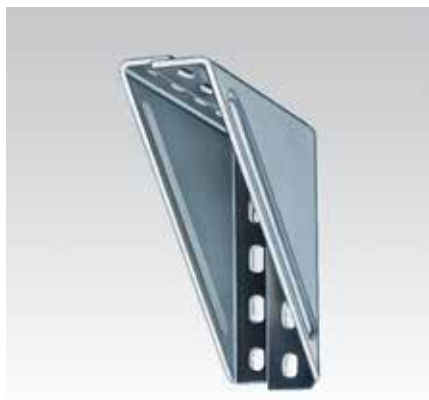
- For attachment to ceiling, wall and floor, free-standing or in a shaft
- Strong support bracket for water meters, distributing batteries, pumps and many other items
- Suitable for outdoor use

### Advantages

- Variety of mounting possibilities when used with MPC- and MPR-Support channels
- Reinforces and increases the load capacity of channel structures and cross-beams
- Even greater strength values can be achieved by bolting two equal-sided cantilever brackets together




Cantilever bracket 100 x 100



Cantilever bracket 200 x 200

Design	Type	For support channels	Size [mm]	Part no.	Sales unit	Pack unit
100 x 100	—	38/40–40/120,	100 x 100 x 4	<b>167127</b>	20	pieces
200 x 200	2	41/21–41/124	200 x 200 x 6	<b>113634</b>	1	

 For further information please refer to chapter "Technical information".

### Mounting angles

hot-dip galvanised

#### Field of application

- Solid fixing element for construction of pre-wall installations and shelves as well as for channel constructions for attachments of pipelines and air ducts without welding
- Also applicable for direct mounting on walls, ceilings or floors
- Suitable for outdoor use

#### Advantages

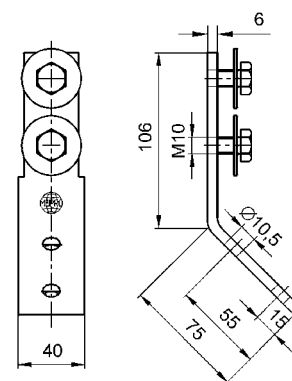
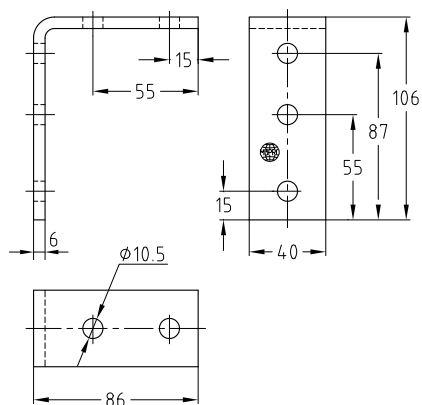
- Versatile in use due to oblong holes e.g. as:
  - Angular support bracket
  - Angular load-bearing bracket
  - Connection element
  - Angular bracket
- Multi-purpose component for professional, practical installation solutions



Mounting angle 90°



MPC-Mounting angle 45°



Angle [°]	Accessories	For support channels	Part no.	Sales unit	Pack unit
45	2 Washers, 2 hexagon head bolts M10	38/40–40/120	118777	25	pieces
90	–	38/40–40/120, 41/21–41/124	118846		



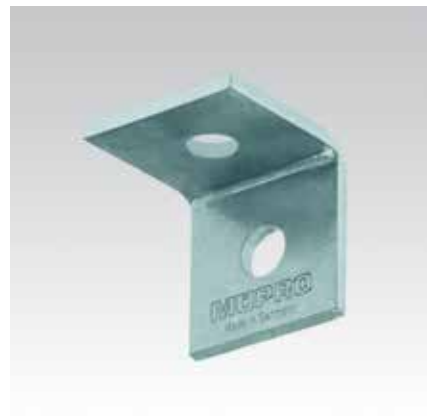
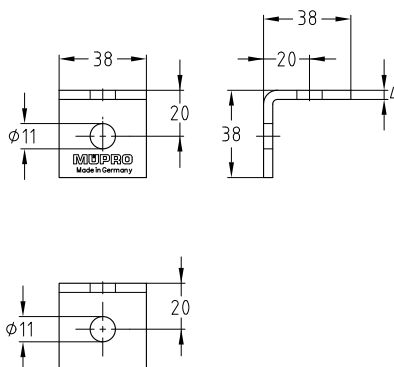
**Mounting angle 90°**  
short, hot-dip galvanised

**Field of application**

- Strong and good value connecting element for the construction of frames, shelves and supports for pre-wall installations
- Suitable for outdoor use

**Advantages**

- Creation of rigid structures without welding
- High flexibility and easy mounting
- Good adjustment to the widths of MPC- and MPR-Support channels



For support channels	Part no.	Sales unit	Pack unit
38/40–40/120, 41/21–41/124	118862	25	pieces





### Angle- and T-connection plates

hot-dip galvanised

#### Field of application

- Strong connection elements for frames and pre-wall installations using the MPC- and MPR-System components
- Suitable for outdoor use

#### Advantages

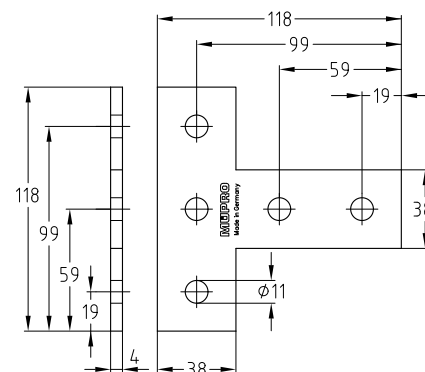
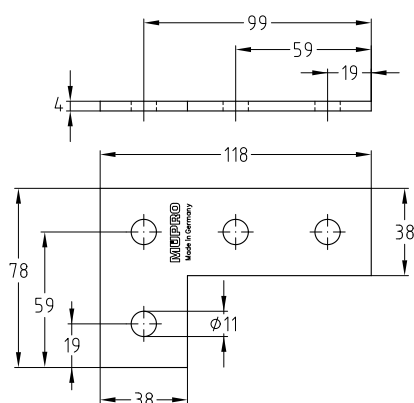
- Simple and quick connection of angles and T-connections
- The mounting plates allow frame construction in one plane, in which the channel slots have the same alignment
- Good adaptation to channel widths; the corners remain free in frame constructions
- Quick and simple attachment in combination with the MPC-Quick fastener for angled mounting
- Hole spacings allow pass-through mounting using the MPC- and MPR-Support channels



Angle plate



T-connection plate



	For support channels	Part no.	Sales unit	Pack unit
Angle plate	38/40-40/120,	127849	25	pieces
T-connection plate	41/21-41/124	130299		



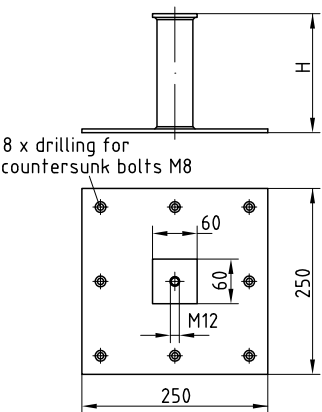
Mounting base  
for flat roofs, hot-dip galvanised

Field of application

- Mounting base for attachments on flat roofs

Advantages

- Stable square base plate for uniform load distribution
- Hot-dip galvanised for a long life cycle in outdoor applications



Height H [mm]	Part no.	Sales unit	Pack unit
150	118721	1	pieces



Further heights available upon request.



### Hexagon head bolts

DIN 933, hot-dip galvanised

Thread	Length [mm]	Part no.	Sales unit	Pack unit
M8	20	105745	100	pieces
	30	105746		
	45	105747		
M10	16	105551		
	20	105558		
	30	105573		
	35	105581		
	55	105599	50	
	60	105604		
	100	105542		
M12	25	105620		
	35	105631		
	40	105636		
	50	105642		
	60	105646		
M16	45	105676	25	
	60	105680		
M20	50	105710		
M24	60	105719		



### Hexagonal nuts

DIN 934, hot-dip galvanised

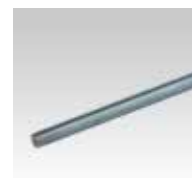
Thread	Part no.	Sales unit	Pack unit
M8	105497	100	pieces
M10	105431		
M12	105445		
M16	105459		
M20	105468	25	
M24	105473		



### Threaded rods

DIN 976, hot-dip galvanised

Thread	Length [mm]	Part no.	Sales unit	Pack unit
M10	1,000	113452	25	pieces
	2,000	113483	10	
M12	1,000	113510	20	
	2,000	147921	1	
M16	1,000	113546	10	
M20		113576	5	



**Threaded pins**

DIN 976, hot-dip galvanised

Connecting thread	Length [mm]	Part no.	Sales unit	Pack unit
M12	100	113879	100	pieces
	150	113912		
	200	113924	50	
	250	113945		
	300	113951		



For threaded pins with left-hand and right-hand thread please refer to chapter „Accessories“.

**Turnbuckles**

DIN 1480, hot-dip galvanised

Connecting thread	Overall length [mm]	Adjustment range [mm]	Part no.	Sales unit	Pack unit
M12	125	80	125010	25	pieces
M16	170	110	125016		

**Washers**

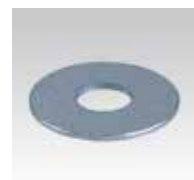
DIN 125, hot-dip galvanised

For thread	Outer diameter [mm]	Thickness [mm]	Part no.	Sales unit	Pack unit
M8	16	1.6	127346	100	pieces
M10	20	2.0	127318		
M12	24	2.5	127325		
M16	30	3.0	127328		

**Washers**

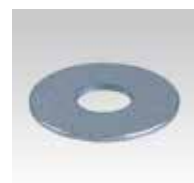
for MPC-Support channels, hot-dip galvanised

For thread	Outer diameter [mm]	Thickness [mm]	Part no.	Sales unit	Pack unit
M10	30	2.5	132832	100	pieces

**Washers**

for MPR-Support channels, mechanically galvanised

For thread	Outer diameter [mm]	Thickness [mm]	Part no.	Sales unit	Pack unit
M8	40	3	154239	100	pieces
M10			154240		
M12			154241	50	
M16			154242		

**Link chain**

DIN 763, hot-dip galvanised

Size [mm]	Length [m]	Part no.	Sales unit	Pack unit
4 x 32	30	112096	1	pieces



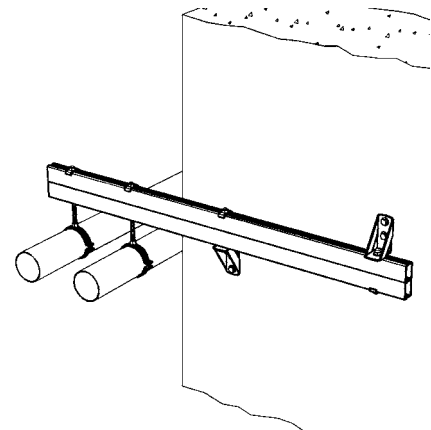
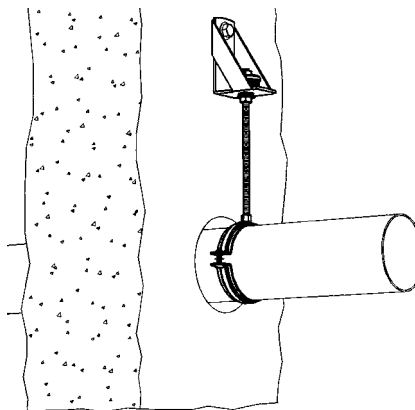
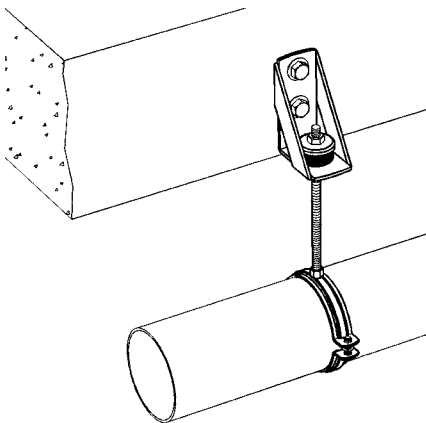
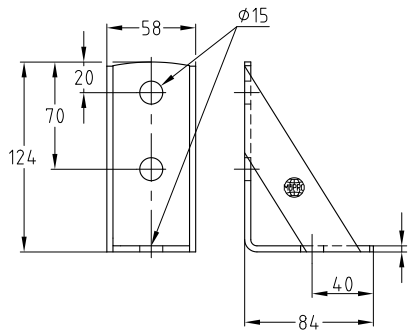
### Supporting angle hot-dip galvanised

#### Field of application

- For lateral suspension of pipelines on reinforced concrete beams
- As substructure for the attachment of fittings, e.g. water meters

#### Advantages

- Angle element for higher requirements for stability of mounting structures
- As bracket for supporting heavy loads close to a wall
- For supporting cross-beams in confined spaces



Max. recommended load [N]	Part no.	Sales unit	Pack unit
1,650	127801	25	pieces



## Trapezoid-sheet hanger

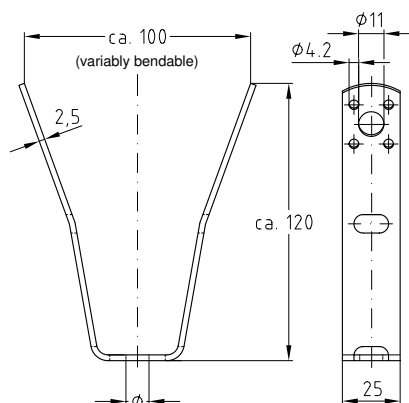
with clearance hole, hot-dip galvanised

### Field of application

- For the professional attachment of installations to trapezoidal sheets

### Advantages

- Attachment using sealing rivets or self-drilling screws to the stays of the corrugations
- Easy to adapt to different trapezoidal sheet sections due to predetermined bending points



### Features

Max. recommended load [N]
1,300



For attachment on trapezoidal sheet metal according to building inspection approval Z-14.1-4 sealing rivets of Ø 4.0 mm AlMg 5 (DIN 1725) or drilling screws of Ø 4.2 mm made of case hardened steel are to be used. The max. permitted load according to the approval depends on thickness of particular trapezoidal sheet metal. Please refer to chapter "Ventilation" for approved drilling screws.

Type	Part no.	Sales unit	Pack unit
M10	130195	100	pieces



Please refer to chapter "Tools" for trapezoid-sheet pliers used for attachment.



### Joint brackets

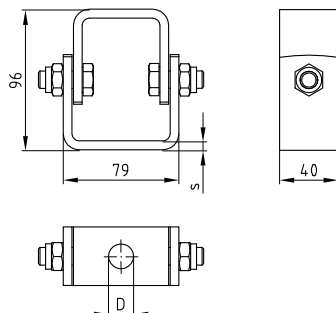
hot-dip galvanised

#### Field of application

- Joint bracket for suspensions and anchorings, e.g. for fixed points or fastenings of bridge drainage systems

#### Advantages

- Large swivel range for a wide variety of installation situations
- Standard compliant hot-dip galvanising for outdoor use
- Additional materials / surfaces available upon request



#### Features

Size	Tensile load at swivel angle 0° [N]	Tensile load at swivel angle 45° [N]	Max. recommended swivel angle [°]
40 x 6	8,000	5,000	90

Size	For thread	Diameter D [mm]	Thickness s [mm]	Part no.	Sales unit	Pack unit
40 x 6 LG 13	M12	13	6	139133	1	pieces
40 x 6 LG 17*	M16	17		139151		



\*Order-related manufacturing, price, and delivery time upon request.



# STATO® Brackets

hot-dip galvanised

## Field of application

- Stable support system with high load-bearing capacity for pipe installations
- Ideal pipe anchor point in combination with STATO® Clamps without lining**
- Ideal as height adjustable subframe for anchor and expansion assemblies
- Ideal as an **anchor point for insulated chilled water pipes in combination with MÜPRO® Wooden blocks and STATO® Clamps**

## Advantages

- Continuously adjustable in height and slope
- As height adjustment for waste water pipes or to compensate for unevennesses
- Can be fitted with up to 3 STATO® Clamps in case of heavy loads
- Especially suitable for heavy pipes with large wall clearances
- Can be used as a bearing block, adjustable in height and slope

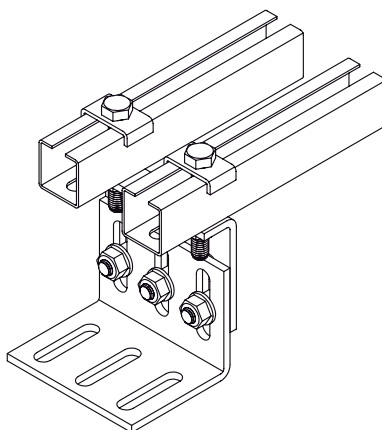
The complete kit consists of:

- 4 STATO® Angle pieces
- 6 Coach bolts M12
- 6 Hex. nuts M12
- 6 Washers for M12

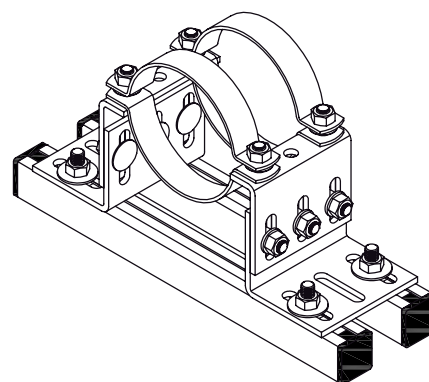
All parts are hot-dip galvanised.



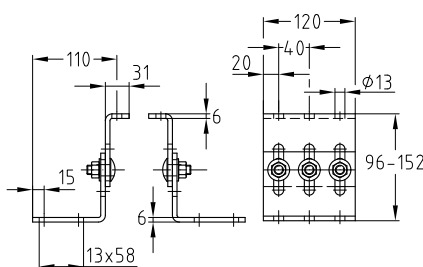
STATO® Clamps with adjustable STATO® Bracket



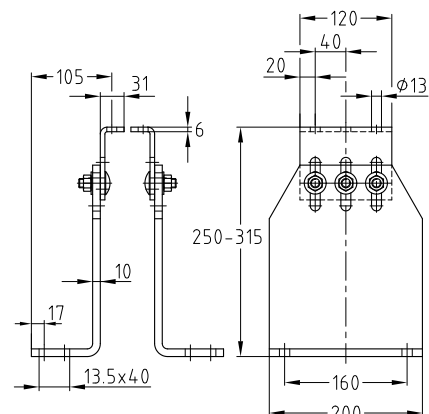
Height adjustable sub-frame for anchor and expansion assemblies



Free slidable elevation



Standard version



Heavy-duty version, larger distance from structure

Design	Overall height [mm]		Adjustment range [mm]	Part no.	Sales unit	Pack unit
	min.	max.				
Standard version	96	152	56	<b>129168</b>	5	pieces
Heavy-duty version	250	315	65	<b>129172</b>	1	

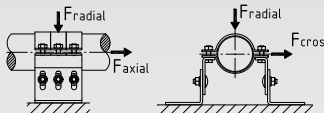
 STATO® Clamps in hot-dip galvanised version upon request.



### STATO® Brackets

hot-dip galvanised

#### Features

Type		Standard version	Heavy-duty version	Tightening torque [Nm] (valid for M12, steel pipes without coating)	
	Max. recommended load [N]	axial	5,500 per clamp	5,500 per clamp	75
		cross	min. overall height		
			8,000	7,000	
			max. overall height		
			6,000	7,000	
		radial	25,000	25,000	

#### VIDEO TIP

 **Installation of anchor points with MÜPRO STATO® brackets:** the video shows the installation options in industrial settings and plant design and explains the individual installation steps.



## Box-section heavy slide guide

hot-dip galvanised

### Field of application

- Suitable for wall fixing with horizontal or vertical pipes
- Attachment of pipes with temperature affected, axial expansion
- Variety of installation possibilities (floor-mount, ceiling-mount, wall-mount, rail-mount, cross stay)
- Expansion point attachment for standing and suspended pipes

### Advantages

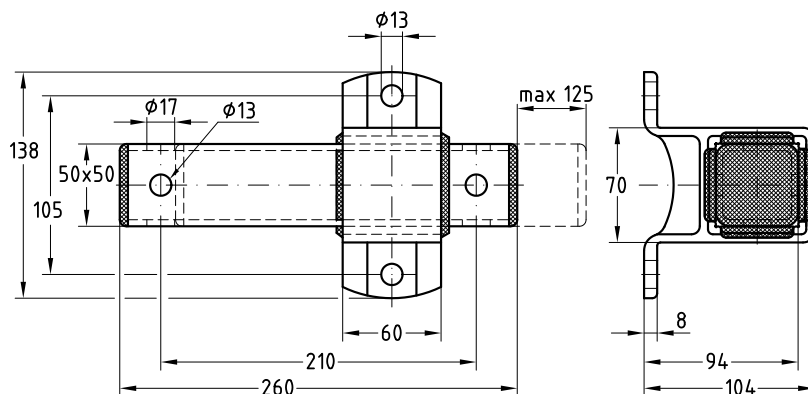
- Smooth-running slide guide for heavy loads
- With long slide travel up to 125 mm for pipelines with large changes in length
- Tilt-proof load distribution in standing and suspended installations
- Variable, height-adjustable pipe clamp attachments using threaded pins
- Two pipe clamps prevent jamming and misalignment
- Connection holes for M12 and M16



### Features



Max. recommended load [N] 7,800



Max. sliding length [mm]	Part no.	Sales unit	Pack unit
125	133184	1	pieces



Also available in stainless steel version upon request.

### Duct fixing angle

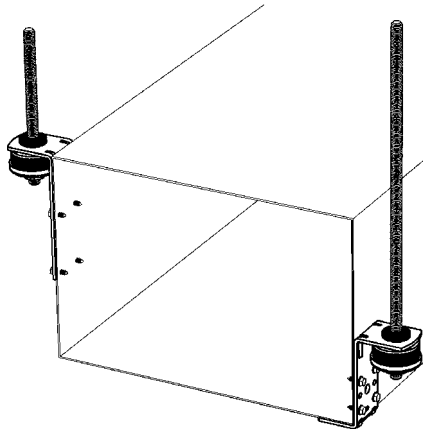
with insulator, hot-dip galvanised

## Field of application

- Easy to install suspension for air ducts

## Advantages

- Incorporated highly-elastic vibration-isolating element
- Excellent alignment and height adjustment via the threaded rods
- Design as angle and twin angle
- Various attachment options to air duct with rivets, self-drilling screws or bolts up to M8 in the oblong hole
- Direct attachment to air duct possible
- Average vibration reduction of 17 dB(A)



## Features

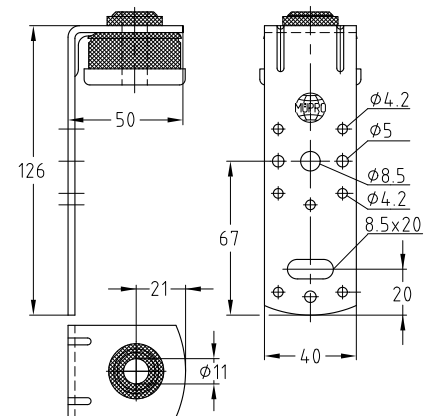


Max. recommended load [N]	800
Average vibration reduction [dB(A)]	17

Type	Part no.	Sales unit	Pack unit
II	116642	25	pieces



Duct fixing angle is also available in other lengths.



### Duct fixing angles Type II





## Anchor plugs

	MÜPRO	MÜPRO
1.	Vibration control	
2.	Fire protection	
3.	Pipe clamps	
4.	Support channels	
5.	Accessories	
6.	Anchor points/ expansion points	
7.	Heavy-duty pipe support	
8.	MPT-Support system	
9.	Ventilation	
10.	Pipe connectors	
11.	Stainless steel	
12.	Hot-dip galvanised	
13.	<b>Anchor plugs</b>	
14.	Nameplates	
15.	Insulation	
16.	Sealing and protection materials	
17.	Tools	
18.	Radiator fastening	
19.	Technical information	

	Steel anchors	13/2		Toggle plugs	13/25
	Setting tools for steel anchors	13/3		Sink fastener Toilet fastener	13/26
	Setting tools for steel anchors with gloves	13/3		Nylon plugs	13/27
	Machine-setting tools for steel anchors	13/3		Ventilated-brick plugs	13/28
	Headed drills with SDS chuck for steel anchors	13/3		Multi-purpose plugs	13/29
	Plug-in setting tools for steel anchors	13/3		Plasterboard plugs	13/30
	Through anchors	13/4–13/5		Nail plugs	13/30
	Heavy-duty anchors BZ	13/6–13/7		Bolt screw plugs	13/31
	Under cut anchors	13/8		MÜPRO-PHONEX® Anchors	13/32
	Setting tools for under cut anchors	13/8		Zykon steel hammer set anchors FZEA	13/33
	Claw anchors®	13/9		Bits for Zykon steel hammer set anchors FZEA	13/34
	Screws for concrete	13/10–13/13		Impact mandrels for Zykon steel hammer set anchors FZEA	13/34
	Nail anchors	13/14–13/15		Chemical reaction anchors VBA	13/35–13/36
	MPC-Mounting anchor with external thread	13/16–13/17		Steel wire brushes for chemical reaction anchors VBA	13/36
	MPC-Headed drill and setting tool	13/16		Injection anchors XV Plus	13/37–13/42
	MPC-Mounting anchor with internal thread	13/18–13/19		Injection anchor XV Plus assortment case	13/43
	MPC-Headed drill and setting tool	13/18		Drill hole cleaning kit	13/44
	Hollow-core slab ceiling anchors	13/20		Cartridge guns	13/44
	Cavity plugs	13/21		Steel wire brushes for injection anchor XV Plus	13/44
	Tension bolts	13/22		Nails for pipe clips	15/11
	Installation pliers	13/22		Setting tool for nails	15/11
	Cavity plugs box	13/23–13/24			

## Anchor plug selection

## Load specifications

Unless otherwise indicated, all load specifications in the MÜPRO product data sheets refer to single anchor plugs under central tensile load.

## Approval

In case the use of plugs, approved by the construction supervisory authorities and/or European technical assessment authority, is required, the installation specifications of the approval must be observed as well.

## Application of anchor plugs

Field of application	Type																	
	Steel anchors	Through anchor	Heavy-duty anchor	Under cut anchor	Claw anchor®	Screws for concrete	Nail anchor	MPC-Mounting anchor	Cavity plug	Hollow-core slab ceiling anchor	Toggle plug	Nylon plug	Ventilated-brick plug	Multi-purpose plug	Nail plug	Bolt screw plug	PHONEX® Anchor	Chemical reaction anchor
Concrete cracked	● <sup>1)</sup>		●		●	●	● <sup>1)</sup>	● <sup>1)</sup>		●		●		●	●	●	●	
Concrete non-cracked	●	●	●		●	●	● <sup>1)</sup>	● <sup>1)</sup>		●		●		●	●	●	●	●
Lime sand brick					●	●						●		●	●	●	●	
Solid brick					●	●						●		●	●	●	●	
Natural stone (hard)	●	●	●			●	●	●		●		●			●	●	●	
Perforated brick					●							●	●	●			●	
Gas concrete				●	●								●	●				
Pumice					●									●				
Plasterboard									●		●			●				
Solid gypsum brick					●							●	●	●	●			
Chipboard									●		●			●				
Wood					●												●	
Trapezoidal sheet ceilings									●		●							
Prestressed concrete hollow core slab ceilings										●								
Vibration control																	●	

● Approved by building supervisory authorities / European Technical Assessment

<sup>1)</sup> Approval only for multiple attachment according to ETAG.



### Steel anchors galvanised

#### Field of application

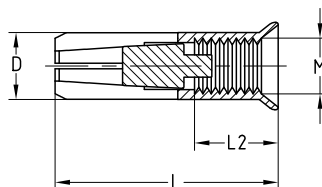
- For anchorages of medium-weight loads in concrete and natural stone (hard) in dry interiors of buildings
- Versatile and suitable for attachment with screws or threaded rods in all plumbing, heating and ventilation installations
- Anchors with a length of 25 mm are admitted as multiple attachment of non-load bearing systems for use in prestressed concrete hollow core slab ceilings

#### Advantages

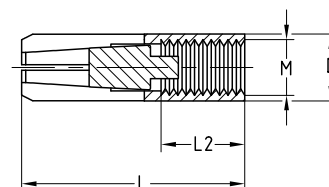
- Secure grip due to controlled splaying as the taper is driven in
- Requires only small drilling depth
- Flush finish with surface of the building material
- Secure expansion force even when the mounting screw is loosened
- European Technical Assessment (ETA) for non-cracked and cracked concrete (reduced loads)
- If used the setting tools for check marking, test loading of the anchor is not required



Steel anchor with collar



Steel anchor



- Efficient and effortless mounting due to headed drill and plug-in setting tool

#### Features




									Multiple attachment of non-load bearing systems ETA assessment		Non-cracked concrete, centrally tensile loaded ETA assessment	
	Connecting thread	Anchor length L [mm]	Part no.	Sales unit	Pack unit	Drill- Ø D [mm]	Usable thread length [mm]	FM	Drilled hole depth h <sub>0</sub> [mm]	Approved load <sup>1)</sup> [kN]	Drilled hole depth h <sub>0</sub> [mm]	Approved load <sup>2)</sup> [kN]
Steel anchor	M6	30	129092	100	pieces	8	13		30	1.2	30	3.3 <sup>3)</sup>
	M8		129093			10				1.7		2.8 <sup>3)</sup>
		40	129088				20		40	2.0	40	3.6
	M10		129089			12	15	●				5.1
	M12	50	129090	50		15	18	●	50	2.4	50	7.1
Steel anchor with collar	M16	65	129091	25	100	20	23	●	65	6.3	65	10.5
	M8	25	167194			10	12		25	1.9	—	—
		30	149067				13		30	1.7	30	2.8 <sup>3)</sup>
		40	150703				20		40	2.0	40	3.6 <sup>3)</sup>
	M10	25	167195			12	12		25	2.1	—	—
		30	149068					30	2.0	30	3.3 <sup>3)</sup>	
		40	149325					40		40	5.1	
	M12	25	167196	50		15	12		25	2.1	—	—
		50	150704					18	●	50	2.4	50

<sup>1)</sup> Use as multiple attachment of non-load-bearing systems according to ETAG 001, part 6. The overall safety coefficient according to ETA is taken into consideration ( $\gamma_M$  und  $\gamma_F$ ). The max. permitted load for each attachment point can be below the permitted load of the anchor, depending on national regulations. The permitted loads for each attachment point are regulated by ETAG 001, part 6 for the different countries. The European Technical Assessment 05/0161 shall be observed for dimensioning.

<sup>2)</sup> The admissible loads apply for single anchors in concrete strength class  $\geq C20/25$  (B25) for axially applied tension without the influence of axial and edge spacings. The safety coefficient according to ETA is included. The European Technical Assessment 05/0160 shall be observed for dimensioning.

<sup>3)</sup> Only for use in statically indeterminate systems.

 For the stainless steel version please refer to chapter „Stainless steel“. For additional characteristic values of plugs, for use in areas with requirements on the duration of fire resistance and for use in prestressed concrete hollow core slab ceilings, please refer to the „Technical information“ chapter.

## Setting tools for steel anchors

	Connecting thread	Part no.	Sales unit	Pack unit
<b>Setting tools, hardened</b>	M6 x 30	123117	1	pieces
	M8 x 25	166897		
	M10 x 25	166898		
<b>Setting tools, for check marking, hardened</b>	M8 x 30	123104		
	M8 x 40	123100		
	M10 x 40	123092		
	M12 x 50	123096		
	M16 x 65	123113		



## Setting tools for steel anchors with gloves, to set control markings


Connecting thread	Part no.	Sales unit	Pack unit
M8 x 25	166899	1	pieces
M8 x 30	151706		
M8 x 40	151707		
M10 x 25	166900		
M10 x 30	149401		
M10 x 40	150682		
M12 x 25	167191		
M12 x 50	151708		
M16 x 65	151709		



## Machine-setting tools for steel anchors to set control markings

Connecting thread	Part no.	Sales unit	Pack unit
M8 x 30	151674	1	pieces
M10 x 30	151676		
M10 x 40	151677		
M12 x 50	151696		



 When inserting the plug with the setting tool the swivel function of the hammer drill must be switched off.

## Headed drills with SDS chuck for steel anchors

Size	For plug	Drill-Ø [mm]	Drilling depth [mm]	Part no.	Sales unit	Pack unit
10 x 25	M8 x 25	10	25	167182	1	pieces
10 x 30	M8 x 30		30	166901		
10 x 40	M8 x 40		40	166902		
12 x 25	M10 x 25	12	25	167183		
12 x 30	M10 x 30		30	166903		
12 x 40	M10 x 40		40	166904		
15 x 25	M12 x 25	15	25	167184		
15 x 50	M12 x 50		50	166905		



## Plug-in setting tools for steel anchors including headed drill with SDS chuck

Size	For plug	Suitable headed drill	Part no.	Sales unit	Pack unit
8 x 25	M8 x 25	10 x 25	167192	1	pieces
8 x 30	M8 x 30	10 x 30	166906		
8 x 40	M8 x 40	10 x 40	166907		
10 x 25	M10 x 25	12 x 25	167193		
10 x 30	M10 x 30	12 x 30	166908		
10 x 40	M10 x 40	12 x 40	166909		





### Through anchors galvanised

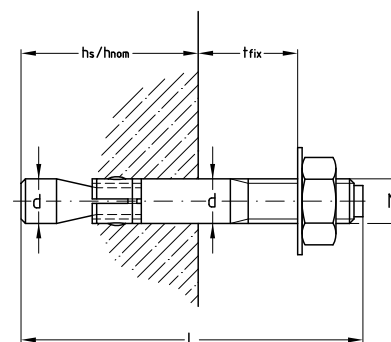
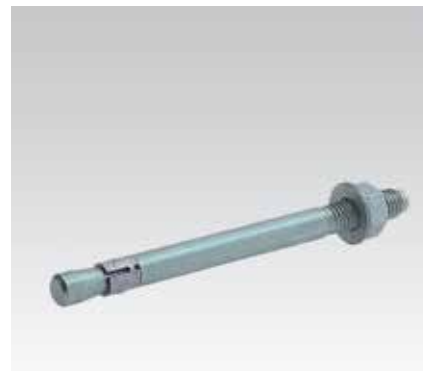
#### Field of application

- For anchorages of medium-weight loads in non-cracked concrete
- Attachment of metal and wood constructions, handrails, shelves and cable ducts
- Also applicable in hard natural stone

- Splaying controlled by the tightening torque
- High security due to increasing splaying with increase in load
- European Technical Assessment (ETA) for non-cracked concrete

#### Advantages

- Quick handling: simply insert and tighten
- Practical through-fitting



#### Features



Type	Connecting thread	Clamping thickness t <sub>fix</sub> [mm]	Overall length L [mm]	Part no.	Sales unit	Pack unit
St 6–10	M6	10	67	129513	100	pieces
St 6–25		25	82	129514		
St 8–10		M8	10	75		
St 8–20	20		85	129517		
St 8–45	45		110	129519		
St 10–10	M10	10	85	129490	50	
St 10–20		20	95	129491		
St 10–50		50	125	129493		
St 12–20	M12	20	115	129499	25	
St 12–30		30	125	129502		
St 12–65		65	160	129505		
St 12–85		85	180	129506		
St 12–105		105	200	129495	20	
St 12–145		145	240	129496	15	
St 12–160		160	255	129497		
St 12–190		190	285	129498		
St 12–230		230	325	129500	10	
St 12–260		260	355	129501		
St 16–30	M16	30	150	129511		
St 16–80		80	200	129512		
St 16–100		100	220	129507		



Please refer to chapter "Stainless steel" for the stainless steel version.

### Through anchors galvanised

			Uncracked concrete with central tensile load ETA assessment		
Type	Drill diameter d [mm]	Drilled hole depth [mm]	Standard anchoring depth $h_{ef}$ [mm]	Setting depth $h_s$ [mm]	Approved load <sup>1)</sup> [kN]
St 6-10	6	55	40	49	4,1
St 6-25					
St 8-10	8	65	44	56	5,7
St 8-20					
St 8-45					
St 10-10	10	70	48	62	7,6
St 10-20					
St 10-50					
St 12-20	12	90	65	82	12,6
St 12-30					
St 12-65					
St 12-85					
St 12-105					
St 12-145					
St 12-160					
St 12-190					
St 12-230					
St 12-260					
St 16-30	16	110	82	102	17,8
St 16-80					
St 16-100					

<sup>1)</sup> The admissible loads apply for single anchors in concrete strength class  $\geq C20/25$  for axially applied tension without the influence of axial and edge spacings. The safety coefficient according to ETA is included. The European Technical Assessment shall be observed for dimensioning.  
Reduced setting depth possible at reduced loads; see please the European Technical Assessment 05/0162



Please refer to chapter "Technical information" for additional characteristic values of plugs.



### Heavy-duty anchors BZ galvanised

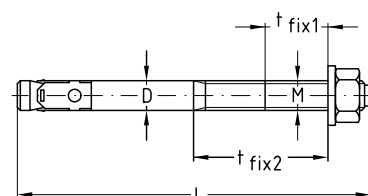
#### Field of application

- For anchorages of medium-weight to heavy loads in cracked and non-cracked concrete
- Attachment of wall hanger brackets, support channels, base plates, constructions made of metal and wood, cable trays, railings, etc.
- Also applicable in hard natural stone

#### Advantages

- Secure anchorage due to slit splaying sleeve with serrations
- Force-controlled splaying from the tightening torque

- Secure splaying due to taper with slide coating
- European Technical Assessment (ETA) for cracked concrete (tensile zone) and non-cracked concrete (compression zone)
- Higher loading possible when used in the compression zone
- Two effective anchorage depths for greater flexibility (maximum anchor length 210 mm)
- Approved for seismic loads, performance categories C1 and C2 (maximum anchor length 210 mm)



#### Standard anchorage depth:

Type	Connecting thread	Clamping thickness $t_{fix1}$ [mm]	Drill hole- $\varnothing$ x depth [mm]	Setting depth $h_{nom}$ [mm]	Anchoring depth $h_{ef}$ [mm]	Seismic	Overall length L [mm]	Part no.	Sales unit	Pack unit
BZ 8-30-41/95	M8	30	8 x 60	52	46	–	95	162169	100	pieces
BZ 8-50-61/115		50					115	162170		
BZ 10-10-30/90	M10	10	10 x 75	68	60	C1/C2	90	162171	50	
BZ 10-30-50/110		30					110	162172		
BZ 10-50-70/130		50					130	162173		
BZ 10-75-95/155		75					155	162174		
BZ 12-15-35/110	M12	15	12 x 90	80	70	–	110	162175	25	
BZ 12-50-70/145		50					145	162176		
BZ 12-65-85/160		65					160	162177		
BZ 12-125/220		125					220	116712		
BZ 16-140/260	M16	140	16 x 110	97	85		260	116737	10	

#### Reduced anchorage depth:





Type	Connecting thread	Clamping thickness $t_{fix2}$ [mm]	Drill hole- $\varnothing$ x depth [mm]	Setting depth $h_{nom\ red}$ [mm]	Anchoring depth $h_{ef\ red}$ [mm]	Overall length L [mm]	Part no.	Sales unit	Pack unit
BZ 8-30-41/95	M8	41	8 x 49	41	35	95	162169	100	pieces
BZ 8-50-61/115		61				115	162170		
BZ 10-10-30/90	M10	30	10 x 55	48	40	90	162171	50	
BZ 10-30-50/110		50				110	162172		
BZ 10-50-70/130		70				130	162173		
BZ 10-75-95/155		95				155	162174		
BZ 12-15-35/110	M12	35	12 x 70	60	50	110	162175	25	
BZ 12-50-70/145		70				145	162176		
BZ 12-65-85/160		85				160	162177		
BZ 12-125/220		–	–	–	–	220	116712		
BZ 16-140/260	M16	–	–	–	–	260	116737	10	



Also available in stainless steel.

## Heavy-duty anchors BZ

galvanised

Features					   		
Type	FM	Standard anchorage depth			Reduced anchorage depth		
		Anchoring depth $h_{ef}$ [mm]	Permissible tensile load <sup>1)</sup> cracked concrete C20/25 [kN]	Permissible tensile load <sup>1)</sup> uncracked concrete C20/25 [kN]	Anchoring depth $h_{ef\ red}$ [mm]	Permissible tensile load <sup>1)</sup> cracked concrete C20/25 [kN]	Permissible tensile load <sup>1)</sup> uncracked concrete C20/25 [kN]
BZ 8-30-41/95		46	2.4	5.7	35	2.4	3.6
BZ 8-50-61/115							
BZ 10-10-30/90	●	60	4.3	7.6	40	3.6	4.3
BZ 10-30-50/110	●						
BZ 10-50-70/130	●						
BZ 10-75-95/155	●						
BZ 12-15-35/110	●	70	7.6	11.9	50	6.1	8.5
BZ 12-50-70/145	●						
BZ 12-65-85/160	●						
BZ 12-125/220	●						
BZ 16-140/260	●	85	11.9	16.7	—	—	—

<sup>1)</sup> The admissible loads apply for single anchors in concrete strength class  $\geq$  C20/25 for axially applied tension without the influence of axial and edge spacings. The safety coefficient according to ETA is included. The European Technical Assessment ETA-05/0158 shall be observed for dimensioning.



Please refer to chapter "Technical information" for additional characteristic values of plugs.

### Under cut anchors galvanised

#### Field of application

- For anchorages in lightweight concrete panels and walls in dry interiors of buildings

#### Advantages

- Anchoring without splaying pressure, immediately loadable
- High load-bearing capacity due to pronounced undercut
- Simple setting by driving in the tapered bolt and the splaying sleeve without pilot drilling
- Approved by the building authorities



Type	Type	Connecting thread	Part no.	Sales unit	Pack unit
With external thread	GBH A M8/20	M8	<b>111264</b>	25	pieces
	GBH A M10/20	M10	<b>111262</b>		
With internal thread	GBH I M8	M8	<b>111270</b>		
	GBH I M10	M10	<b>111266</b>		
	GBH I M12	M12	<b>111268</b>		

#### Features



Connecting thread	Thread length [mm]		Minimum building element thickness [cm]	Admissible loads [kN] (uncracked gas concrete, compression zone)				Admissible loads [kN] (cracked gas concrete, tensile zone)	
	External thread-clamping thickness [mm]	Internal thread screw-in depth [mm]		G2	G4	GB3.3	GB4.4	GB3.3	GB4.4
M8	20	8–13	17.5	0.4	0.8	0.6	0.8	0.6	0.8
M10		10–18		0.6	1.2	0.8	1.2	0.8	1.2
M12	–	12–18							



Please refer to chapter "Technical information" for additional characteristic values of plugs.

#### Setting tools for under cut anchors

	Suitable for	Type	For anchor type	Part no.	Sales unit	Pack unit
Setting tools	Hammer drill with SDS chuck	EWG A 8 x 20	GBH A M8/20	<b>107908</b>	1	pieces
		EWG A 10 x 20	GBH A M10/20	<b>107907</b>		
Manual hammers	Hammer weight ≥ 800 g	HWG A 8 x 20	GBH A M8/20	<b>115373</b>		
		HWG A 10 x 20	GBH A M10/20	<b>115370</b>		
		HWG I 8	GBH I M8	<b>115379</b>		
		HWG I 10/12	GBH I M10 + M12	<b>115376</b>		



## Claw anchors®

in plastic box, galvanised

### Field of application

- For anchorages in aerated and lightweight concrete, pumice masonry, lime sand brick, perforated brick, concrete and solid gypsum brick

### Advantages

- Absolutely secure anchoring of wood screws in masonry due to claw design
- Can be used with bolt screws and shoulder screws as well as with all screws with wood thread
- Predrilling is not necessary if used in aerated concrete
- Easy to insert and precise guidance of the screws due to the preformed thread
- Can be used in accordance with TRGI (Technical Rules for Gas Installations)



Anchor-Ø [mm]	Anchor length [mm]	Screw-Ø [mm]	Part no.	Sales unit	Pack unit	Content [pieces]
6	32	5,5–6,0	113709	1	box	400
8	38	7,0–8,0	113715			300
	60		113718			200
10		9,0–10,0	113703			

Anchor-Ø [mm]	Anchor length [mm]	Drilling depth min. [mm]	Drilled hole-Ø [mm]	
			Gas concrete G2	Gas concrete G4
6	32	40	4.0	4.0
8	38	50	6.0	6.0
10	60	70	8.0	8.0

### Features

Anchor-Ø [mm]	Anchor length [mm]	Load values [N]	
		Gas concrete G2 max. recommended load	Gas concrete G4
6	32	200	475
8	38	500	975
	60	650	1,100
10		1,275	1,575



The respective screw must be selected in its length so that it fully penetrates the anchor and extends at least to their own diameter from the plug tip.

### Screws for concrete MMS-plus

type Multi-Monti®-plus, galvanised

#### Field of application

- For anchorages free of expansion pressure in cracked and non-cracked concrete
- Direct mounting of attachment parts, such as brackets, support channels, base plates, etc.
- Also applicable in lime sand brick, solid brick, clinker and natural stone

#### Advantages

- More than 25 % reduction of assembly time per attachment point
- Versatile use in concrete and other solid building materials
- High security, no splaying effect – thus can be placed close to the edge and to other screws
- High load capacity due to form lock
- Easy to withdraw, facilitates corrections during installation
- No additional mounting or setting tools required
- European Technical Assessment for cracked and uncracked concrete
- Fire protection in concrete
- Suitable for the installation of gas mains according to the TRGI (Technical Rules for Gas Installations)
- Two effective anchorage depths for greater flexibility



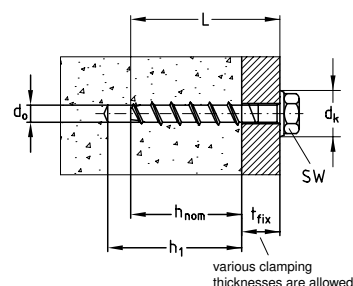
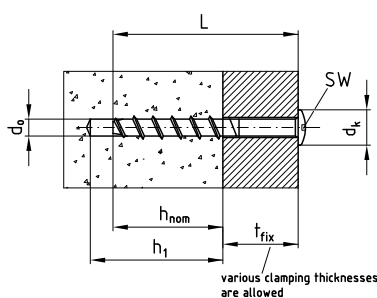
Screw for concrete with panhead (large) type MS



Screw for concrete with panhead (small) type P



Screw for concrete with hexagonal head and pressed washer type SS





Design	Thread-Ø [mm]	Length L [mm]	Washer-Ø dk [mm]	Head-Ø dk [mm]	Part no.	Sales unit	Pack unit
With hexagonal head and pressed washer type SS	7.5	40	14.0	–	166632	100	pieces
		50			166633	50	
		60			166634		
		80			166635		
		100			166636		
	10.0	70	19.0	–	166637	25	
		100			166638		
		120			166639		
With panhead (small) type P	7.5	40	–	14.0	166646	100	
		50			166647		
		60			166648	50	
		40		17.0	166640	100	
With panhead (large) type MS		50			166641		

## Screws for concrete MMS-plus

type Multi-Monti®-plus, galvanised

## Standard anchorage depth:

Features									 Europäische Technische Bewertung	 fire protection certified F90	
Design	Thread-Ø [mm]	Length L [mm]	Spanner width [SW]	Clamping thickness t <sub>fix</sub> [mm]	Head-Ø dk [mm]	Drilled hole-Ø d <sub>0</sub> [mm]	Drilling depth h <sub>1</sub> [mm]	Anchoring depth h <sub>nom</sub> [mm]	Admissible loads [kN] acc. to ETA assessment		
With hexagonal head type SS	7.5	40	10	5	14.0	6	40	35	1.0	2.0	
		50		15			65	55	2.0	4.4	
		60		5							
		80		25							
		100		45							
	10.0	70	13	5	19.0	8	75	65	4.4	7.9	
		100		35							
		120		55							
With panhead (small) type P	7.5	40	T30	5	14.0	6	40	35	1.0	2.0	
		50		15			65	55	2.0	4.4	
		60		5							
With panhead (large) type MS		40		T30	15		17.0	40	35	1.0	2.0
		50									

## Reduced anchorage depth:

Features										
Design	Thread-Ø [mm]	Length L [mm]	Spanner width [SW]	Clamping thickness t <sub>fix</sub> [mm]	Head-Ø dk [mm]	Drilled hole-Ø d <sub>0</sub> [mm]	Drilling depth h <sub>1</sub> [mm]	Anchoring depth h <sub>nom</sub> [mm]	Admissible loads [kN] acc. to ETA assessment	
									cracked concrete <sup>1)</sup>	uncracked concrete <sup>1)</sup>
With hexagonal head type SS	7.5	60	10	25	14.0	6	40	35	1.0	2.0
		80		45						
		100		65						
	10.0	70	13	20	19.0	8	60	50	3.0	5.9
		100		50						
		120		70						
With panhead (small) type P	7.5	60	T30	25	14.0	6	40	35	1.0	2.0

<sup>1)</sup> The admissible loads apply for single anchors, concrete strength class  $\geq C20/25$  (B25), for central load without influence of axial spacing and edge spacing in cracked and uncracked concrete.  
The European Technical Assessment ETA-15/0784 shall be observed for dimensioning.



Please refer to chapter „Technical information“ for further installation parameters.  
For fitting tools please refer to chapter „Tools“.



### Screws for concrete MMS-plus

type Multi-Monti®-plus, galvanised

#### Field of application

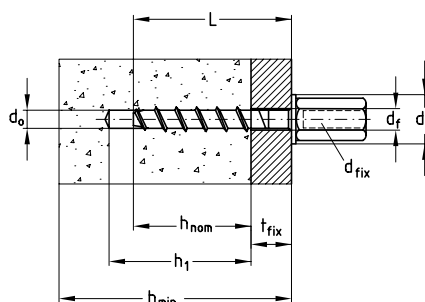
- For anchorages free of expansion pressure in cracked and non-cracked concrete
- Direct mounting of attachment parts, such as brackets, support channels, base plates, etc.
- Also applicable in lime sand brick, solid brick, clinker and natural stone

#### Advantages

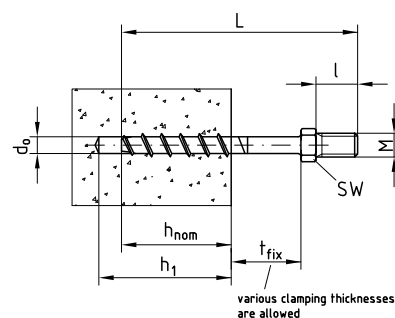
- More than 25 % reduction of assembly time per attachment point
- Versatile use in concrete and other solid building materials
- High security, no splaying effect – thus can be placed close to the edge and to other screws
- High load capacity due to form lock
- Easy to withdraw, facilitates corrections during installation
- No additional mounting or setting tools required
- European Technical Assessment for cracked and uncracked concrete
- Fire protection in concrete
- Suitable for the installation of gas mains according to the TRGI (Technical Rules for Gas Installations)
- Two effective anchorage depths for greater flexibility



Screw for concrete with internal thread anchor type I



Screw for concrete with stud type ST



Design	Thread-Ø [mm]	Length L [mm]	Connecting thread	Thread length l [mm]	Part no.	Sales unit	Pack unit
With stud type ST	7.5	70	M8	14	166642	50	pieces
		80			166643		
		100			166644		
	10.0	75	M10	11	166645	25	
		100			106530	100	
		120			106528		
With internal thread anchor type I	7.5	40	M8/M10	23	166649	40	
		60	M8	12	166650	50	
			M8/M10	23	166651	40	
	10.0	75	M10	13	166652	25	





Articles 106530 and 106528 according to European Technical Assessment ETA-05/0010.

## Screws for concrete MMS-plus

type Multi-Monti®-plus, galvanised

## Standard anchorage depth:

Features										
Design	Thread-Ø [mm]	Length L [mm]	Spanner width [SW]	Clamping thickness t <sub>fix</sub> [mm]	Head-Ø d <sub>k</sub> [mm]	Drilled hole-Ø d <sub>0</sub> [mm]	Drilling depth h <sub>1</sub> [mm]	Anchoring depth h <sub>nom</sub> [mm]	Admissible loads [kN] acc. to ETA assessment	
									cracked concrete <sup>1)</sup>	uncracked concrete <sup>1)</sup>
With stud type ST	7.5	70	10	15	10.0	6	65	55	2.0	4.4
		80		25						
		100		45						
	10.0	75	13	10	13.0	8	75	65	4.4	7.9
		100		35					3.7 <sup>2)</sup>	4.9 <sup>2)</sup>
		120		55						
With internal thread anchor type I	7.5	40		5	14.5	6	40	35	1.0	2.0
		60					65	55	2.0	4.4
	10.0	75	17	10	19.5	8	75	65	4.4	7.9

## Reduced anchorage depth:

Features										
Design	Thread-Ø [mm]	Length L [mm]	Spanner width [SW]	Clamping thickness t <sub>fix</sub> [mm]	Head-Ø d <sub>k</sub> [mm]	Drilled hole-Ø d <sub>0</sub> [mm]	Drilling depth h <sub>1</sub> [mm]	Anchoring depth h <sub>nom</sub> [mm]	Admissible loads [kN] acc. to ETA assessment	
									cracked concrete <sup>1)</sup>	uncracked concrete <sup>1)</sup>
With stud type ST	7.5	70	10	35	10.0	6	40	35	1.0	2.0
		80		45						
		100		65						
	10.0	75	13	25	13.0	8	60	50	3.0	5.9
With internal thread anchor type I	7.5	60				14.5	6	40	35	1.0
	10.0	75	17		19.5	8	60	50	3.0	5.9

<sup>1)</sup> The admissible loads apply for single anchors, concrete strength class  $\geq$  C20/25 (B25), for central load without influence of axial spacing and edge spacing in cracked and uncracked concrete.

The European Technical Assessment ETA-15/0784 shall be observed for dimensioning.

<sup>2)</sup> The admissible loads apply for single anchors, concrete strength class  $\geq$  C20/25 (B25), for central load without influence of axial spacing and edge spacing in cracked and uncracked concrete.

The European Technical Assessment ETA-05/0010 shall be observed for dimensioning.



Please refer to chapter „Technical information“ for further installation parameters.  
For fitting tools please refer to chapter „Tools“.

### Nail anchors galvanised

#### Field of application

- Anchoring in concrete, strength class C12/15 to C50/60
- For the anchoring of roof suspensions, pipelines, cladding, cable channels

#### Advantages

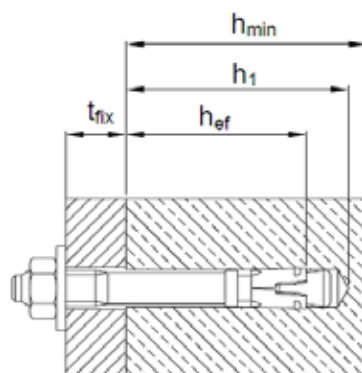
- European technical assessment for multiple fastenings of non-bearing systems in concrete
- Fast, easy assembly: Driving is sufficient
- Reduced anchor plug depth of 25 mm for reduced drilling
- Very small edge and axis spacing
- Three different versions available:
  - Nail head N-K
  - External thread N
  - Combination internal thread N-M



Nail anchor N



Nail anchor N-M



Nail anchor N-K



Type	Head-Ø dk [mm]	Connecting thread	Total length [mm]	Part no.	Sales unit	Pack unit
N-K 6-0-5/39	13	–	39	149287	200	pieces
N-K 6-5-10/44			44	151804		
N-K 6-30-35/69			69	149043		
N-K 6-50-55/89			89	150819	100	
N 6-0-5/44	–	M6	44	151813	200	
N-M 6-25 M8/M10		M8/M10	58	151818	100	
N-M 6-30 M8/M10			63	151819		



Additional dimensions as well as stainless steel plugs available on request.

## Nail anchors

galvanised


Features					 
Type	Drilled hole depth [mm]	Drill-Ø D [mm]	Anchoring depth $h_{ef}$ [mm]	Admissible loads acc. to ETA Assessment [kN]	Clamping thickness $t_{fix}$ [mm]
N-K 6-0-5/39	40	6	30	2,81	0–5
N-K 6-5-10/44					5–10
N-K 6-30-35/69					30–35
N-K 6-50-55/89					50–55
N 6-0-5/44					5
N-M 6-25 M8/M10	35	6	25	2,14 <sup>1)</sup>	–
N-M 6-30 M8/M10	40		30	2,81 <sup>1)</sup>	–

Excerpt from the usage conditions of assessment ETA-11/0240.

Use as a multiple fastening of non-bearing systems in accordance with ETAG 001, part 6 for anchoring in concrete C20/25-C50/60.

Overall safety coefficient factored in according to ETAG 001 ( $\gamma_M$  and  $\gamma_F$ ).

<sup>1)</sup> In the version N-M, verification for the transverse load with lever must be provided with the presence of transverse force.

 Reduced embedment depths with reduced permissible loads as well as anchor plugs in concrete with strength class C12/15 possible. For this purpose, see the anchor characteristics in the chapter "Technical information".



### MPC-Mounting anchor

with external thread, galvanised

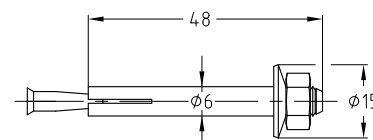
#### Field of application

- Secure and quick mounting of MPC-Support channels and other fastening elements such as wall hanger brackets, wall hanger supports, etc.
- Also applicable in hard natural stone

#### Advantages

- All components are matched to each other to form a system
- Mistakes in mounting are nearly excluded
- Precise drilling depth due to headed drill – drilling only as deep as necessary

- The setting tool and the anchor to be driven-in are simply placed on the headed drill. The headed drill rotates within the setting tool and the MPC-Mounting anchor is driven into the structure by the blows of the hammer drill. This enables quick and efficient work
- European Technical Assessment (ETA)
- Multiple fixing for non-load-bearing systems



1 MPC-Mounting anchor set consists of:  
200 MPC-Mounting anchors  
1 MPC-Headed drill

#### Features



	Drill-Ø D [mm]	Drilling depth [mm]	Admissible load <sup>1)</sup> Multiple anchoring of non-load bearing systems in concrete [kN]	Part no.	Sales unit	Pack unit
MPC-Mounting anchor with external thread M6, galvanised	6	42	1.45	118167	100	pieces
MPC-Mounting anchor set				118170	1	set

<sup>1)</sup> The admissible loads apply for concrete strength class  $\geq C20/25$  for axially applied tension, lateral load and inclined load and only when using the MPC-Headed drill.



Please refer to chapter "Technical information" for additional characteristic values of plugs.

### MPC-Headed drill and MPC-Setting tool

	Drill bit size Ø [mm]	Overall length [mm]	Usable length [mm]	Part no.	Sales unit	Pack unit
MPC-Headed drill	6	120	42	106993	1	pieces
MPC-Setting tool	–	60	–	123084		



### MPC-Mounting anchors with external thread, galvanised



**Drill with the MPC-Headed drill**

Drill until the head is flush with the surface – do not drill through the element to be fixed. Clean out the hole after drilling.



**Drive in the MPC-Mounting anchor**

Stick anchor through the element to be mounted, e.g. MPC-Support channel or other element up to a max. thickness of 4 mm, and drive in with hammer drill or hand hammer and setting tool. **Anchor and hanger must be flush with the surface of the concrete.**

**Attention: Do not dismantle nut and washer during the installation.**



When using support channels a **min.** slot width of 15 mm is required, e.g. MPC-Support channels 27/18 and 28/30.



### MPC-Mounting anchor

with internal thread, galvanised

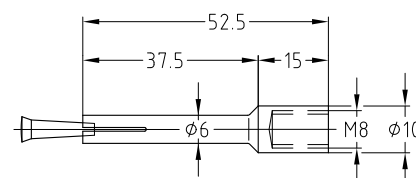
#### Field of application

- For multiple fixings in concrete, single attachments of pipe lines and air ducts, etc.
- Also applicable in hard natural stone
- For the suspension of air ducts by means of threaded rods

#### Advantages

- All components are matched to each other to form a system
- Mistakes in mounting are nearly excluded
- Precise drilling depth due to headed drill – drills only as deep as necessary

- The setting tool and the anchor to be driven-in are simply placed on the headed drill. The headed drill rotates within the setting tool and the MPC-Mounting anchor is driven into the structure by the blows of the hammer drill. This enables quick and efficient work
- European Technical Assessment (ETA)
- Multiple fixing for non-load-bearing systems
- Easy to withdraw, facilitates corrections during installation



#### Features



	Connecting thread	Drill-Ø D [mm]	Drilling depth [mm]	Admissible load <sup>1)</sup> Multiple anchoring of non-load-bearing systems in concrete [kN]	Part no.	Sales unit	Pack unit
<b>MPC-Mounting anchor</b> with internal M8 thread, galvanised	M8	6	42	1.45	<b>118161</b>	100	pieces

<sup>1)</sup> The admissible loads apply for concrete strength class  $\geq C20/25$  for axially applied tension, lateral load and inclined load and only when using the MPC-Headed drill.



Please refer to chapter "Technical information" for additional characteristic values of plugs.

### MPC-Headed drill and MPC-Setting tool

	Drill bit size Ø [mm]	Overall length [mm]	Usable length [mm]	Part no.	Sales unit	Pack unit
<b>MPC-Headed drill</b>	6	120	42	<b>106993</b>	1	pieces
<b>MPC-Setting tool</b>	–	95	–	<b>123088</b>		



## MPC-Mounting anchors

with internal thread, galvanised



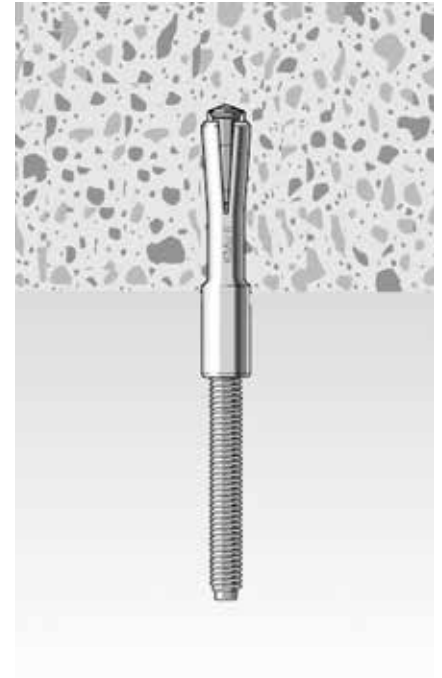
### Drill with the MPC-Headed drill

Drill until the head is flush with the surface – do not drill through the element to be fixed. Clean out the hole after drilling.



### Drive in the MPC-Mounting anchor

Drive in the anchor using a hammer.  
**Anchor must be flush with the surface of the concrete.**



### Attach threaded rod

After having driven in the anchor do not increase the torque on the anchor.





### Hollow-core slab ceiling anchors

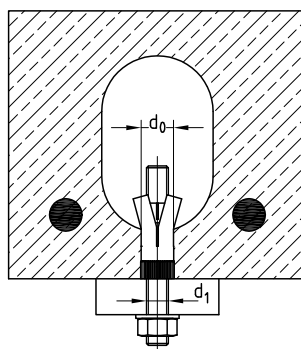
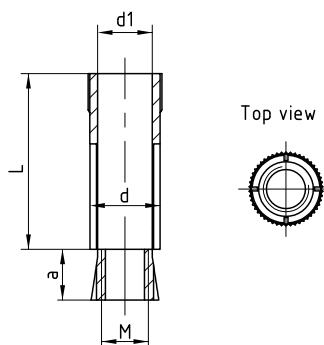
type Easy for anchoring in prestressed concrete hollow-core slab ceilings

#### Field of application

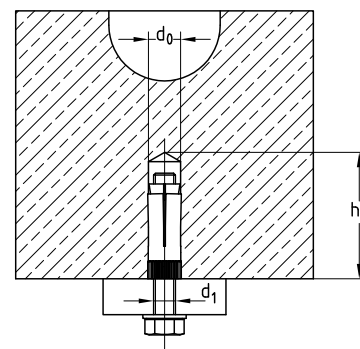
- Special anchor for suspension in prestressed concrete hollow-core slab ceilings

#### Advantages

- Flexible application in combination with threaded rods or hexagon head bolts
- Approved by the building authorities
- Secured function in the hollow core and in the solid material
- Quick and easy to install
- Flush with the surface of the building component
- For material thicknesses of up to 50 mm
- Approved by the VdS (Verband der Schadenversicherer) / Association of Indemnity Insurers



Application of the hollow-core slab ceiling anchor in the hollow core of the prestressed concrete ceiling slab



Application of the hollow-core slab ceiling anchor in the solid material of the prestressed concrete ceiling slab

#### Features

VdS  
G 4070019

APPROVED  
TESTED  
CERTIFIED

fire protection  
certified F90

Connecting thread	Sleeve length L [mm]	Drilled hole- Ø d <sub>0</sub> [mm]	Drilled hole depth h <sub>0</sub> [mm]	Part no.	Sales unit	Pack unit	Max. allowable load <sup>1)</sup> [kN] for material thickness			
							25 [mm]	30 [mm]	40 [mm]	50 [mm]
M8	35	12	55	<b>116773</b>	50	pieces	0.7	0.9	2.0	3.6
M10	40	16	60	<b>116767</b>			0.9	1.2	3.0	
M12	45	18	70	<b>116770</b>			1.0			4.3

<sup>1)</sup> The admissible loads apply for single anchors in prestressed concrete hollow-core slab ceilings of strength class C45/55 for axially applied tension, lateral load and inclined load at any angle without the effect of axial and edge clearances. The safety coefficient according to ETAG is included.  
The construction approval of the building inspectorate DIBt shall be observed for dimensioning.

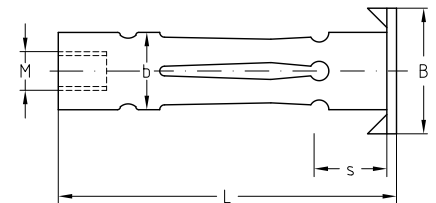
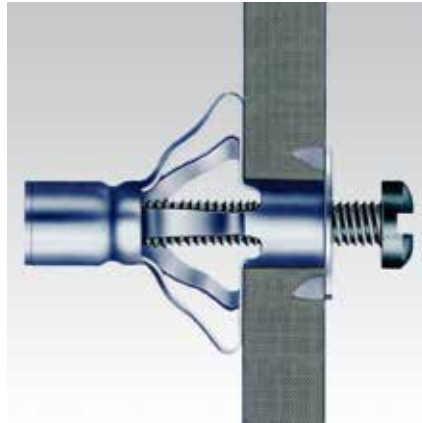
# Cavity plugs galvanised

## Field of application

- For mounting on cavity panels and drywall plasterboards made of gypsum, fiber metal sheets, chipboards and sheet metal

## Advantages


- Ideal solution for attachment to thin-walled panels
- Even all-round splaying ensures load distribution at the attachment point
- Large supporting surface for high loading capacity
- Can also be used in small cavities
- Available in a handy case with fitting tools



Type	Connecting thread	Clamping thickness S [mm]	Drilling hole-Ø b [mm]	Length [mm]	B [mm]	Matching tension bolt	Part no.	Sales unit	Pack unit
4-3-14/32	M4	3-14	8	32	13.0	M4 x 40	116997	100	pieces
4-16-20/45		16-20		45		M4 x 55	117000		
5-6-12/35	M5	6-12	12	35	16.0	M5 x 45	117003		
5-3-16/50		3-16		50		M5 x 60	117009		
5-16-32/60		16-32		60		M5 x 70	117015		
6-1-5/16	M6	1-5		16	17.5	M6 x 25	116994		
6-3-16/50		3-16		50		M6 x 60	117021		
6-16-32/60		16-32		60		M6 x 70	117030		
8-3-16/50	M8	3-16	13	50		M8 x 60	117036		
8-16-32/60		16-32		60		M8 x 75	117042		

## Features

Size	Max. recommended tensile load [N]		
	Plasterboard	Wood panels	Cement fibre slabs
M4	160	210	360
M5	190	260	410
M6	210	290	430
M8		310	460

 For suitable bolts please refer to chapter „Accessories“.

### Tension bolts

for cavity plugs, galvanised

Size	Screw	For type	Part no.	Sales unit	Pack unit
M4 x 40	Oval head	4-3-14/32	<b>128585</b>	1	pieces
M4 x 55		4-16-20/45	<b>128587</b>		
M5 x 45		5-6-12/35	<b>128589</b>		
M5 x 60		5-3-16/50	<b>128591</b>		
M5 x 70		5-16-32/60	<b>128593</b>		
M6 x 60		6-3-16/50	<b>128597</b>		
M6 x 70		6-16-32/60	<b>128599</b>		
M6 x 25	Pozidriv head	6-1-5/16	<b>128595</b>		



### Installation pliers

for cavity plugs including tension bolts M4-M8

Part no.	Sales unit	Pack unit
<b>118922</b>	1	pieces



## Cavity plugs box

### Field of application

- Complete set including installation tools for use on the construction site
- For mounting on cavity panels and drywall plasterboards made of gypsum, fibre metal sheets, chip-boards and sheet metal

### Advantages

- Practical assortment of plugs in a handy craftsman's box
- The cavity plugs are preassembled for quick and easy installation
- Box made of shock-resistant plastic
- Compact box dimensions of 21 x 40 x 30 cm
- Installation pliers, for reliable splaying of the plugs, are included in the box
- 32 parts bit set with all marketable sizes
- Lightweight, comfortable safety glasses
- SDS hammer drill, to the usual high-quality MÜPRO standard



	Clamping thickness S [mm]	Drill-Ø [mm]	Part no.	Sales unit	Pack unit
<b>Box M4-M6</b>			<b>149520</b>	<b>1</b>	<b>Set</b>
100 Cavity plugs type 4-3-14/32, premounted (Oval head screws M4 x 45)	3-14	8			
100 Cavity plugs type 5-3-16/50, premounted (Oval head screws M5 x 70)	3-16	12			
100 Cavity plugs type 6-1-5/16, premounted (Oval head screws M6 x 30)	1-5	12			
100 Cavity plugs type 6-3-16/50, premounted (Oval head screws M6 x 70)	3-16	12			
100 Cavity plugs type 6-16-32/60, premounted (Oval head screws M6 x 80)	16-32	12			
1 Installation plier					
1 ProfiBit-Toolbox					
1 Protective goggles					
1 Hammer drill with nut, SDS 8 x 110/60					
1 Hammer drill with nut, SDS 12 x 160/110					

### Cavity plugs box

	Clamping thickness S [mm]	Drill-Ø [min]	Part no.	Sales unit	Pack unit
<b>Box M8</b>			<b>149523</b>	<b>1</b>	<b>set</b>
100 Cavity plugs type 8-3-16/50, premounted (Hexagon head bolts M8 x 65)	3-16	13			
100 Cavity plugs type 8-16-32/60, premounted (Hexagon head bolts M8 x 75)	16-32	13			
1 Installation plier					
1 ProfiBit-Toolbox					
1 Protective goggles					
2 Hammer drills with nut, SDS 13 x 160/110					
1 Screwdriver bit, SW 13 (Hexagon head bolts)					



### Toggle plugs galvanised

#### Field of application

- For attachment on drywalls and roofs

#### Advantages

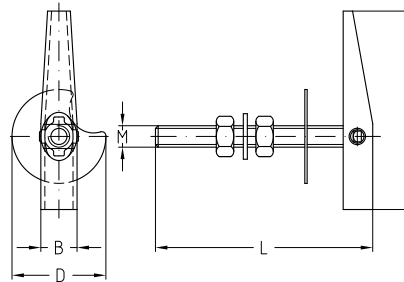
- Ideal for the attachment of supporting structures, e.g. MPC-Support channels, to partition walls, cavity walls, service shafts or trapezoidal metal sheeting
- Very good load distribution due to large supporting surface of the toggle
- Variable due to the adjustable thread length
- The M10/180 design gives very high load-bearing capacity, e.g. for the fixing of washbasins, wall-mounted toilets, boilers and all types of equipment



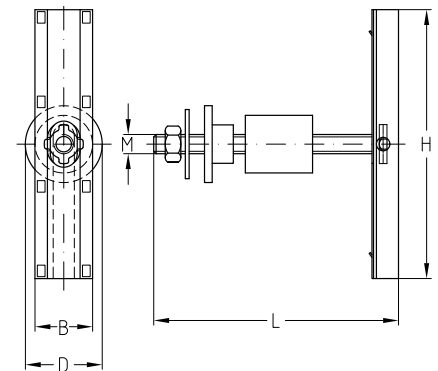
M6 to M8 version



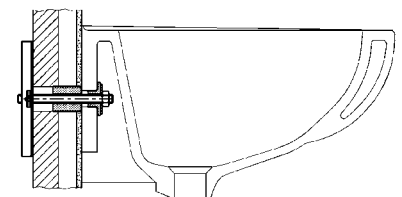
M10 version



M6 to M8 version



M10 version



Sink fixture using a M10 toggle

Size	Connecting thread	Part no.	Sales unit	Pack unit	Max. recommended load [N]	Dimensions [mm]			
						B	D	H	L
M6/100	M6	113112	100	pieces	500	14	30	70	100
M8/70	M8	113118			650	15	36	74	70
M8/100		113115							100
M10/180	M10	113109	50		1,700	30	38	140	180

### Sink fastener

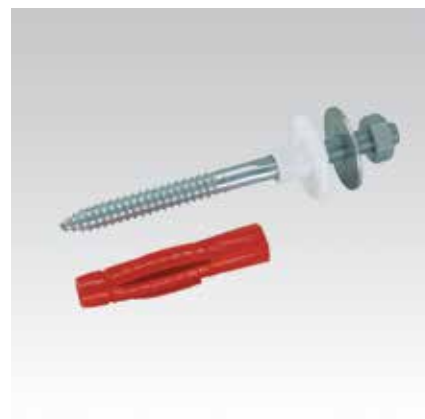
#### Field of application

- Ready to use set for sink fixtures

#### Advantages

- Solid, high load-bearing plugs and screws
- Complete with washer to protect ceramics

1 set consists of:  
 2 Plastic plugs  
 2 Bolt screws M10/140  
 2 Protection washers for ceramics  
 2 Steel nuts  
 2 Washers



Size	Connecting thread	Part no.	Sales unit	Pack unit
M10/140	M10	127579	10	pieces

### Toilet fastener

#### Field of application

- Ready to use set for toilet fixing

#### Advantages

- Solid, high load-bearing plugs and screws
- Complete with washer to protect ceramics

1 set consists of:  
 2 Plastic plugs  
 2 Hexagon wood screws 6 x 85  
 2 Plastic protective rings  
 2 Plastic cover caps



Size	Screw length [mm]	Part no.	Sales unit	Pack unit
6 x 85	85	127592	50	pieces



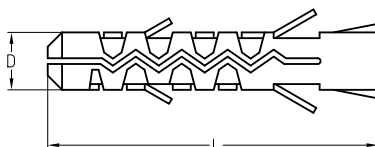
## Nylon plugs

### Field of application

- For anchorages in concrete, lime sand brick, solid brick, natural stone (hard), gypsum full brick

### Advantages

- Excellent screw guidance, no breaking out at the side
- Design prevents premature spalling
- Plugs do not buckle
- Staggered tooth profile provides high extraction force
- High-quality nylon – no recycled material used
- Also available in solid plastic case



Anchor diameter D [mm]	Anchor length L [mm]	Screw-Ø [mm]	Part no.	Sales unit	Pack unit
5	25	2,6–4,0	107366	100	pieces
6	30	3,5–5,0	107367		
	50		107374		
7	35	4,5–5,0	107369		
8	40	4,5–6,0	107370	50	
	65	4,5–8,0	107375		
10	50	6,0–8,0	107359		
12	60	8,0–10,0	107361	25	
14	70	10,0–12,0	107363	20	

### Features

Anchor diameter D [mm]	Load values [N]		
	Concrete B25 max. recommended load	Solid brick max. recommended load	lightweight concrete (gas concrete, aerated concrete, pumice) max. recommended load
5	350	200	40
6	600	400	60
7	700	550	70
8	850	600	90
10	1,400	800	200
12	1,800	1,000	400
14	2,600	1,300	500



Screw type wood-/chipboard screw Ø mm 2.6–4.  
Screw type metric Ø mm M3.

### Nylon plugs

in stackable plastic box with lid

Anchor diameter D [mm]	Anchor length L [mm]	Screw-Ø [mm]	Part no.	Sales unit	Pack unit	Content [pieces]
6	30	3,5–5,0	107368	1	box	5,600
8	40	4,5–6,0	107371			2,800
10	50	6,0–8,0	107360			1,400
12	60	8,0–10,0	107362			700
14	70	10,0–12,0	107364			560





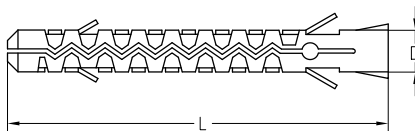
### Ventilated-brick plugs

#### Field of application

- Particularly suitable for anchorages in ventilated bricks and soft building materials (gas concrete, plaster, etc.)

#### Advantages

- Can be used with wood screws, chipboard screws or metric screws
- Design prevents premature splaying when making a through-fitting
- Side barbs prevent the plug rotating in hole when screw is driven in
- The M-ridges keep the screw in the centre



Type	Plug/drill-Ø [mm]	Anchor length L [mm]	Screw-Ø [mm]	Part no.	Sales unit	Pack unit
10/90	10	90	7	<b>114876</b>	100	pieces
10/120		120		<b>114874</b>		
14/90	14	90	10/M10	<b>114883</b>		
14/120		120		<b>114879</b>		

#### Features

Anchor-Ø [mm]	Load values [N]		
	Ventilated brick <sup>1)</sup>	Ventilated lime sand block <sup>1)</sup>	lightweight concrete <sup>1)</sup> (gas concrete, aerated concrete, pumice)
	max. recommended load	max. recommended load	max. recommended load
10	800	800	400
14	1,000	1,000	600

<sup>1)</sup> wood screw with max. diameter



Screw type wood-/chipboard screw Ø mm 10.  
Screw type metric Ø mm M10.



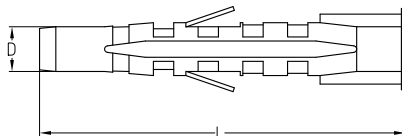
## Multi-purpose plugs

### Field of application

- Suitable for anchorages in concrete, plaster, gas concrete, solid brick, lime sand brick, ventilated brick, plaster board, etc.

### Advantages

- Ideal for bolt screws, shoulder screws and other wood screws
- Pointed end facilitates insertion
- Design prevents premature splaying of the plug during insertion
- Side barbs and pretensioning prevent the plug rotating in hole when screw is driven in
- Secure knotting of the plug in cavity materials
- Collar breaks off itself in case of a through-installation
- Can be used for various of building materials
- Also available in solid plastic case



Plug/drill-Ø [mm]	Anchor length L [mm]	Screw-Ø [mm]	Part no.	Sales unit	Pack unit
6	45	3.0–4.0	119008	100	pieces
8	50	4.5–6.0	119020		
10	60	6.0–8.0	118988		
12	70	8.0–10.0	118996		

### Features

Anchor-Ø [mm]	Load values [N]				
	Concrete B25	Plasterboard <sup>1)</sup>	Perforated block	Chipboard <sup>1)</sup>	lightweight concrete (gas concrete, aerated concrete, pumice)
	max. recommended load	max. recommended load	max. recommended load	max. recommended load	max. recommended load
6	600	150	200	400	50
8	800	180	300	450	100
10	1,200	200	400	600	200
12	1,700	–	600	–	300

<sup>1)</sup> chipboard screw, wood screw with max. diameter



Screw type wood-/chipboard screw Ø mm 3.0–4.0.  
Screw type metric Ø mm M4.

### Multi-purpose plugs

in stackable plastic box with lid

Plug/drill-Ø [mm]	Anchor length L [mm]	Screw-Ø [mm]	Part no.	Sales unit	Pack unit	Content [pieces]
6	45	3.0–4.0	119012	1	box	2,800
8	50	4.5–6.0	119004			1,400
10	60	6.0–8.0	118992			700
12	70	8.0–10.0	119000			560



### Plasterboard plugs for pre-insert mounting

Material	Screw-Ø [mm]	Part no.	Sales unit	Pack unit
Metal	3.9-4.5-M4	112024	100	pieces
Plastic	3.9-4.5	112022	200	



The plasterboard plug can be mounted without pre-drilling.

### Nail plugs

#### Field of application

- Suitable for attachment in concrete, natural stone, plaster, lime sand brick, solid brick, etc.

#### Advantages

- Long spread zone for optimum grip

- Robust design of nail screw and plug withstands high impact forces
- Countersunk design of nail allows surface-flush installation
- Pozidriv nail head allows removal at any time
- Delivery pre-assembled prevents nail loss



Anchor-Ø [mm]	Anchor length L [mm]	Max. useable fixture thickness [mm]	Part no.	Sales unit	Pack unit
6	35	5	119166	100	pieces
	50	20	119170		
	60	30	119174		
	70	40	119178		
8	80		119194		
	100	60	119182		
	120	80	119186		

#### Features

Anchor-Ø [mm]	Load values [N]		
	Concrete 25 max. recommended load	Solid brick max. recommended load	Lime-sand brick max. recommended load
6	300	250	200
8	400	300	250

### Bolt screw plugs in stackable plastic box

#### Field of application

- The lightning-fast insertion of bolt screws into concrete, natural stone, solid brick and sand-lime brick

#### Advantages

- No screwing, simply hammer into the drill hole
- Time-saving due to pre-mounted fitting bolt screw
- Impaction collar to prevent screw being hammered in too deep
- Hexagonal head permits the accurate adjustment of the bolt screw
- Delivered in a stackable plastic box



Plug		Bolt screw			Max. recommended load [N]	Tightening value	Part no.	Sales unit	Pack unit	Content [pieces]
Anchor-Ø [mm]	Anchor length [mm]	Thread	Screw length [mm]	Usable thread length [mm]						
10	50	M8	80	27	430	3,000	129664	1	box	100
			100	40			129661			
			120				129663			



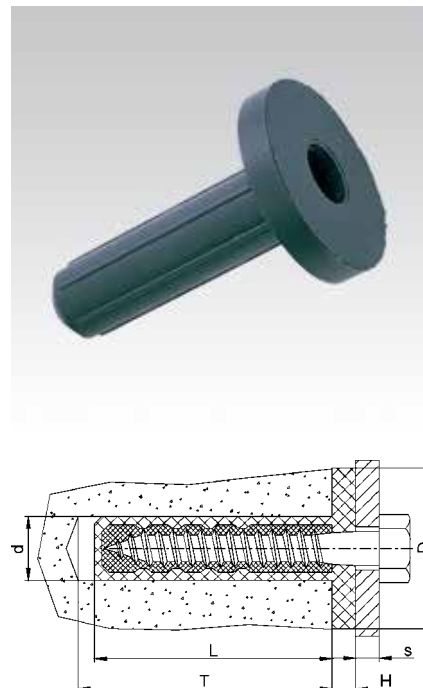
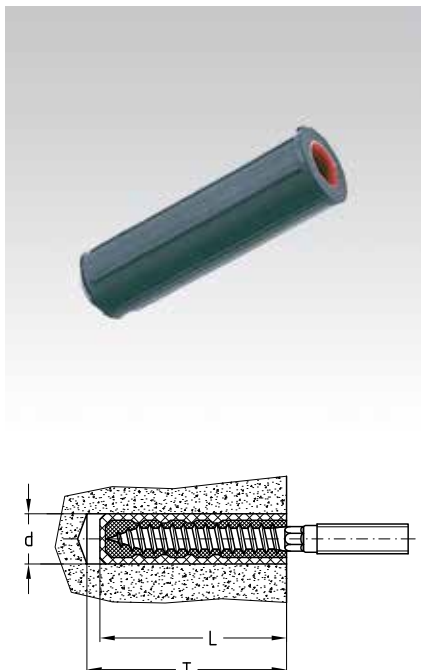
### MÜPRO-PHONEX® Anchors

#### Field of application

- Suitable for structure-borne noise decoupling anchorages in concrete, natural stone, solid brick, lime sand brick, ventilated brick, wood

#### Advantages

- Structure-borne noise isolation already integrated into the anchor
- No additional construction space required for vibration control elements
- Sound level reduction by up to 16 dB(A)
- Suitable for all types of wood screws, e.g. bolt screws and shoulder screws
- The version with vibration collar prevents structure-borne noise transmission even on wall-mounted objects
- Excellent screw guidance, no breaking out at the side
- Suitable for wall-mounted heaters




#### Features



Type	Anchor- $\varnothing$ d [mm]	Anchor length L [mm]	Collar- $\varnothing$ x depth D x H [mm]	Wood screw- $\varnothing$ [mm]	Part no.	Sales unit	Pack unit
With collar	10	30	22 x 5	3.5–5.0	120239	100	pieces
	12	40	30 x 5	4.5–6.0	120243	50	
	14	50	34 x 6	6.0–8.0	120247		
	16	60	42 x 7	8.0–10.0	120251		
	18	70		10.0–12.0	120255		
Without collar	10	30	–	3.5–5.0	120259	100	
	12	40		4.5–6.0	120263	50	
	14	50		6.0–8.0	120268		
	16	60		8.0–10.0	120272		
	18	70		10.0–12.0	120276		

Anchor- $\varnothing$ d [mm]	Drilling depth T [mm]	Screwing depth without collar [mm]	Screwing depth with collar [mm]	Load values <sup>1)</sup> [N]	
				max. recommended tensile load	max. recommended lateral load
10	40	30	34 + S	150	350
12	50	40	45 + S	300	500
14	60	50	55 + S	500	1,000
16	70	60	66 + S	800	1,200
18	80	70	75 + S	1,200	1,400

<sup>1)</sup> Load values apply for concrete strength class  $\geq$  B25 based on max. screw diameter according to table above and use of anchors according to the mounting instructions below (the recommended loads take a safety factor  $v = 5$  into account).

 With all frictional and chemical plug and anchor connections, the load-bearing capability of the plug is influenced decisively by the cleanliness of the drilled hole. Residues such as drill dust reduce the effectiveness of the fixture. For this reason, blow or brush out the hole to free it from dust before inserting the plug (see drill hole cleaning kit).

## Zykon steel hammer-set anchors FZEA

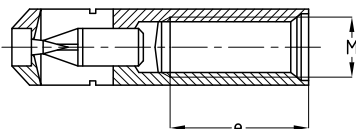
galvanised and stainless steel

### Field of application

- For form-locking anchoring in undercut of cracked and non-cracked concrete
- Also applicable for hard natural stone

### Advantages

- European Technical Assessment for cracked and non-cracked concrete
- Form-locking in the undercut for additional security
- Only low anchoring depth required
- Almost splay-free function permits low axial spacing and edge spacing
- Easy visual inspection of correct anchor set through impact embossing with the setting tool
- Single-stage drilling procedure with simultaneous production of the undercut saves installation time
- Also available in highly corrosion resistant material HCR (1.4529)



### Features

Type	Connecting thread	Part no.		Sales unit	Pack unit	Drill-Ø D [mm]	Anchoring depth hef [mm]	Screw-in depth emin [mm]	Screw-in depth emax [mm]	Admissible load <sup>1)</sup> [kN] cracked concrete	Admissible load <sup>1)</sup> [kN] uncracked concrete
		galva-nised	V4A								
10 x 40 M8	M8	107868	107869	100	pieces	10	40	11	17	1.6	3.6
12 x 40 M10	M10	107871	107870			12		13	19	3.0	
14 x 40 M12	M12	107872	107873	50		14		15	21	3.6	



<sup>1)</sup> The admissible loads apply for single anchors at concrete strength class > C20/25 (B25) for axial tension, without edge banding; that is without axis and edge distance. The European Technical Assessment requirements must be considered for dimensioning.



These products are manufactured upon request. Delivery time depends on clarification of details and order quantity.

### Bits

for Zykon steel hammerset anchors FZEA

#### Field of application

- Special bit for the Zykon steel hammerset anchor FZEA for drilling bores that complies with approval specifications

#### Advantages

- Easy and fast production of a bore with undercut
- Carbide cutting edges for high-performance cutting in a variety of building materials



Type	For hammerset anchor [size]	Drill-Ø D [mm]	Part no.	Sales unit	Pack unit
FZUB 10X40	M8	10	106648	1	pieces
FZUB 12X40	M10	12	106649		
FZUB 14X40	M12	14	106650		

### Impact mandrels

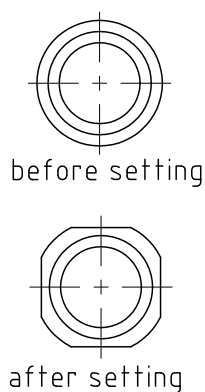
for Zykon steel hammerset anchor FZEA

#### Field of application

- For easy and quick setting of the hammerset anchor FZEA

#### Advantages

- Marks hammerset anchor with four imprints for checking the correct placement



Type	For hammerset anchor [size]	Part no.	Sales unit	Pack unit
FZEB 10 x 40	M8	107556	1	pieces
FZEB 12 x 40	M10	107554		
FZEB 14 x 40	M12	107555		

 These products are manufactured upon request. Delivery time depends on clarification of details and order quantity.

## Chemical reaction anchors VBA

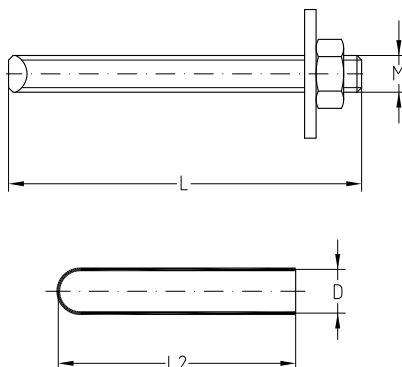
type MKT chemical reaction anchor V

## Field of application

- For splay-free anchoring in uncracked concrete approved

## Advantages

- Safety anchor for transmission of heavy loads
- Splay-free anchoring enables low axial and edge distances when fastening
- European Technical Assessment for anchorings in uncracked concrete
- Can also be used in damp concrete
- Homogenous secure connection between anchor rod and structural element, after hardening
- Anchor rods in other dimensions and stainless steel also available upon request



## Features



	Size	Drill-Ø D [mm]	Ø mortar cartridge D [mm]	Length of mortar cartridge L2 [mm]	Part no.	Sales unit	Pack unit
Mortar cartridge for chemical reaction anchors VBA	M8	10	9	80	135516	10	pieces
	M10	12	11		135517		
	M12	14	13	95	135518		
	M16	18	17		135547		

## Features



	Size	Length L [mm]	Effective anchoring depth [mm]	For mortar cartridge	Part no.	Sales unit	Pack unit
Anchor rods for chemical reaction anchors VBA	M8	110	80	VBA M8	135521	10	pieces
	M10	130	90	VBA M10	135522		
	M12	160	110	VBA M12	135523		
	M16	165	125	VBA M16	135548		

## Features



	Type	Part no.		Permissible tensile load in C20/25 (B25) <sup>1)</sup> [kN]
		of the anchor rod	of the mortar cartridge	
Chemical reaction anchors VBA	M8	135521	135516	7.9
	M10	135522	135517	11.9
	M12	135523	135518	15.9
	M16	135548	135547	19.8

<sup>1)</sup> The admissible loads apply for single anchors in concrete strength class C20/25 (B25) for axial tension without the influence of axial spacing and edge spacing. The safety coefficient according to ETA is included. All the specifications of the European Technical Assessment must be considered for dimensioning.



### Chemical reaction anchors VBA

type MKT chemical reaction anchor V

#### Features



Temperature in bore hole [°C]	Hardening time [min]	
	Dry concrete	Damp concrete
-5	300	600
0		
+5	60	120
+10		
+20	20	40
+30	10	20
+35		



Please refer to chapter "Technical information" for additional characteristic values of plugs.

#### Steel wire brushes

for chemical reaction anchors VBA

Size	Suitable for drilled hole [mm]	Ø Brush [mm]	Part no.	Sales unit	Pack unit
M8	10	11	135571	1	pieces
M10	12	13	135572		
M12	14	16	135573		
M16	18	20	135574		



The load-bearing capability of the plug at all frictional and chemical plug and anchor connections is influenced decisively by the cleanliness of the drilled hole. Residues such as drill dust reduce the effectiveness of the connection. For this reason, blow or brush out the hole with the steel wire brush to free it from dust before inserting the mortar cartridges and anchor rods.



# Injection anchors XV Plus

type MKT injection system VMU Plus, for solid and perforated blocks

## Field of application

- For anchorages free of expansion pressure in solid brick, sand-lime brick, perforated sand-lime brick and vertically perforated brick

## Advantages

- European Technical Assessment for anchorages in solid and perforated blocks
- Styrene-free two-component vinylester mortar
- Applicable in combination with perforated sleeve in perforated blocks
- Approved for customary threaded rods with strength verification (inspection certificate 3.1), available upon request

- Mortar cartridge available in two versions: in double cartridge and for conventional cartridge guns
- Clean working and controlled mixing using the mixer (can also be ordered separately)
- Exact dosing of injection mortar due to graduated scale on the mortar cartridge
- High-quality two-component mortar for many mounting applications
- Highly corrosion resistant anchor rods in stainless steel HCR upon request
- Fire protection certified for anchorages in solid blocks



Injection mortar XV Plus for conventional cartridge guns

## Features



Storage temperature	+5 °C to +25 °C
Storage	at least +5°C cool and dry
Temperature range	–40 °C to +120 °C
Working temperature	+20 °C (optimal)
Usability certification	ETA-13/0909



Injection mortar XV Plus in double cartridge

Temperature in the anchoring foundation [°C]	Processing time [min]	Cartridge temperature while processing [C°]	Hardening time	
			dry anchoring base	damp anchoring base
–10 to –6	90.0	+ 5 to +40	24 h	48 h
–5 to –1			14 h	28 h
0 to +4			7 h	14 h
+5 to +9	45.0		2 h	4 h
+10 to +19	15.0		80 min	160 min
+20 to +29	6.0		45 min	90 min
+30 to +34	4.0		25 min	50 min
+35 to +39	2.0		20 min	40 min
+40	1.5		15 min	30 min
		+15 to +40		



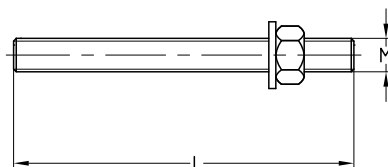
The drilled hole must be made directly before setting the plug and must be cleaned.



Accessories for the cleaning of drilled holes can be found on page 13/44.

	Cartridge filling [ml]	Part no.	Sales unit	Pack unit
Injection mortar XV Plus, with 2 mixer	280	162363	1	pieces
Injection mortar XV Plus, with mixer	345	162364		
Mixer, for 2-component systems (XV Plus and 2K-NE)	–	117460	10	
Mixerextension, for 2-component systems (XV Plus and 2K-NE)		127418	1	

### Anchor rods for injection anchors XV Plus for solid and perforated blocks





Anchor rod for solid and perforated blocks type VMU-A, strength class 5.8

#### Features

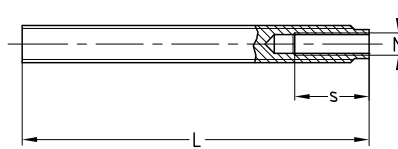


Size	Type	Solid block without perforated sleeve		Solid or perforated block with perforated sleeve		External thread M	Total length L [mm]	Part no.		Sales unit	Pack unit
		Drill hole-Ø x depth [mm]	Clamping thickness t <sub>fix</sub> [mm]	Drill hole-Ø x depth [mm]	Clamping thickness t <sub>fix</sub> [mm]			Galvanised	V4A		
M8 x 100	VMU-A	10 x 80	10	12 x 80	10	M8	100	106277	106276	10	pieces
M8 x 130			40		40		130	106281	106280		
M10 x 110		12 x 90	10	16 x 85	15	M10	110	106253	106252		
M10 x 150			50		55		150	106257	106256		
M10 x 165			65		70		165	106259	106258		
M12 x 135		14 x 90	20	20 x 85	35	M12	135	163163	163165		
M12 x 175			60		75		175	163164	163166		

 Anchor rods in additional dimensions, threaded rods type VM-A with inspection certificate 3.1 according to EN 10204 as well as highly corrosion resistant threaded rods in stainless steel HCR available upon request.

 Please refer to chapter "Technical information" for load values and consumption quantities for mortar when used in solid and perforated blocks.

### Anchor rods with internal thread for injection anchors XV Plus for solid and perforated blocks



Anchor rod for solid and perforated blocks type VMU-IG, strength class 5.8

#### Features



Size	Type	Solid block without perforated sleeve	Solid and perforated block with perforated sleeve	Internal thread M	Screw-in depth s [mm]	Total length L [mm]	Outer diameter [mm]	Part no.		Sales unit	Pack unit
		Drill hole- $\varnothing$ x depth [mm]	Drill hole- $\varnothing$ x depth [mm]					Galvanised	V4A		
M8 x 80	VMU-IG	–	20 x 85	M8	8–20	80	12	167100	167099	10	pieces
M8 x 100		14 x 100	–			100		167102	167101		



Anchor rods in additional dimensions, threaded rods type VM-A with inspection certificate 3.1 according to EN 10204 as well as highly corrosion resistant threaded rods in stainless steel HCR available upon request.

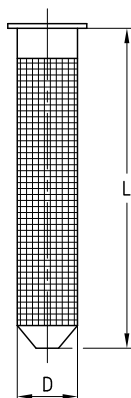



Please refer to chapter "Technical information" for load values and consumption quantities for mortar when used in solid and perforated blocks.





### Perforated sleeves for injection anchors XV Plus

for solid and perforated blocks



Features							
Size [mm]	Drilled hole depth [mm]	Drill hole-Ø D [mm]	Anchor rod	Total length L [mm]	Part no.	Sales unit	Pack unit
12 x 80	80	12	M8	80	167103	10	pieces
16 x 85	85	16	M10		167104		
20 x 85		20	M8 IG M12		167105		

 For combination of anchor rod / perforated sleeve size as well as for further technical data please refer to chapter „Technical information“.

 Further perforated sleeves and anchor rods available upon request.



## Injection anchors XV Plus

type MKT injection system VMU Plus, for concrete

### Field of application

- For anchorages free of expansion pressure in cracked and uncracked concrete

### Advantages

- European Technical Assessment for anchorages in concrete
- Styrene-free two-component vinyl ester mortar
- Approved for customary threaded rods with strength verification (inspection certificate 3.1), available upon request
- Mortar cartridge available in two versions: in double cartridge and for conventional cartridge guns

- Clean working and controlled mixing using the mixer (can also be ordered separately)
- Exact dosing of injection mortar due to graduated scale on the mortar cartridge
- High-quality two-component mortar for many mounting applications
- Highly corrosion resistant anchor rods in stainless steel HCR upon request
- Approved for use in damp concrete and flooded bore holes



Injection mortar XV Plus for conventional cartridge guns

### Features



Storage temperature	+5 °C to +25 °C
Storage	at least +5°C cool and dry
Temperature range	–40 °C to +120 °C
Working temperature	+20 °C (optimal)
Usability certification	ETA-11/0415



Injection mortar XV Plus in double cartridge

Temperature in the anchoring foundation [°C]	Processing time [min]	Cartridge temperature while processing [°C]	Hardening time	
			dry anchoring base	damp anchoring base
–10 to –6	90.0	+ 5 to +40	24 h	48 h
–5 to –1			14 h	28 h
0 to +4			7 h	14 h
+5 to +9	45.0		2 h	4 h
+10 to +19	25.0		80 min	160 min
+20 to +29	15.0		45 min	90 min
+30 to +34	6.0		25 min	50 min
+35 to +39	4.0		20 min	40 min
+40	2.0		15 min	30 min
	1.5	+15 to +40		



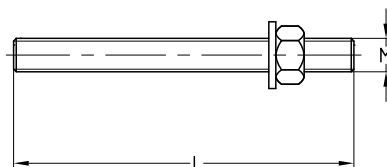
The drilled hole must be made directly before setting the plug and must be cleaned.



Accessories for the cleaning of drilled holes can be found on page 13/44.

	Cartridge filling [ml]	Part no.	Sales unit	Pack unit
Injection mortar XV Plus, with 2 mixer	280	162363	1	pieces
Injection mortar XV Plus, with mixer	345	162364		
Mixer, for 2-component systems (XV Plus and 2K-NE)	–	117460	10	
Mixerextension, for 2-component systems (XV Plus and 2K-NE)	–	127418	1	

### Anchor rods for injection anchor XV Plus for concrete




Anchor rod for concrete type VMU-A,  
strength class 5.8

#### Features



Size	Type	Use in cracked concrete	Use in uncracked concrete	External thread M	Drill hole- $\varnothing$ x depth [mm]	Clamping thickness $t_{fix}$ [mm]	Total length L [mm]	Part no.		Sales unit	Pack unit
								Galvanised	V4A		
M8 x 100	VMU-A	x	x	M8	10 x 80	10	100	106277	106276	10	pieces
M8 x 130		x	x			40	130	106281	106280		
M10 x 110		x	x	M10	12 x 90	10	110	106253	106252		
M10 x 150		x	x			50	150	106257	106256		
M10 x 165		x	x			65	165	106259	106258		
M12 x 135		x	x	M12	14 x 90	20	135	163163	163165		
M12 x 175		x	x			60	175	163164	163166		

 Anchor rods in additional dimensions, threaded rods type VM-A with inspection certificate 3.1 according to EN 10204 as well as highly corrosion resistant threaded rods in stainless steel HCR available upon request.

 Please refer to chapter "Technical information" for additional plug characteristic values.



## Injection anchor XV Plus assortment case

### Field of application

- Complete set for use on construction site
- Splay-free anchoring for solid brick, sand-lime brick, vertically perforated brick, perforated sand-lime brick, hollow block made of lightweight concrete as well as from concrete
- Splay-free anchoring in uncracked concrete
- Also applicable in hard natural stone

### Advantages

- All necessary components in one case; no single parts lying around loose
- Compact case size 450 x 360 x 123 mm
- Practical and robust plastic case for a long service life
- Complete set including cartridge gun, hammer drill and steel wire brush



### 1 set consists of:

- 1 Cartridge gun
- 2 x 345 ml Injection mortar XV Plus
- 5 Mixer
- 10 Perforated sleeves 12 x 80
- 20 Perforated sleeves 16 x 85
- 10 Anchor rods M8 x 10, length 100 mm
- 10 Anchor rods M10 x 50, length 150 mm
- 10 Anchor rods M10 x 65, length 165 mm
- 1 Steel wire brush d = 12 mm
- 1 Steel wire brush d = 16 mm
- 1 Hammer drill Ø 12 mm
- 1 Hammer drill Ø 16 mm

Part no.	Sales unit	Pack unit
117431	1	set



For respective application areas relevant approvals need to be considered. The European Technical Approval needs to be taken into account for usage in non-cracked concrete, as well as the general building authority approvals in case of usage in perforated and full brick.





### Drill hole cleaning kit

#### Field of application

- Combination kit for cleaning of drilled holes

#### Advantages

- Suitable for dry and clamp holes
- Kit is a precondition for achieving the maximum anchor load-bearing capability of both frictional and chemical plug bonds



Part no.	Sales unit	Pack unit
106654	1	set

**!** The load-bearing capability of the plug at all frictional and chemical plug bonds and anchor connections is influenced decisively by the cleanliness of the drilled hole. Residues such as drill dust reduce the effectiveness of the fixture. For this reason, blow or brush out the hole to free it from dust before inserting the plug.

### Further accessories



Cartridge gun



Cartridge gun Profi



Steel wire brush

	Suitable for drilled hole [mm]	Ø brush [mm]	Part no.	Sales unit	Pack unit
Cartridge gun, for injection anchor XV Plus	–	–	130594	1	pieces
Cartridge gun Profi, for injection anchor XV Plus	–	–	130595		
Steel wire brush, for injection anchor XV Plus	10	11	135571		
	12	13	135572		
	14	16	135573		
	16	18	167106		
	20	22	167107		

**!** The load-bearing capability of the plug at all frictional and chemical plug and anchor connections is influenced decisively by the cleanliness of the drilled hole. Residues such as drill dust reduce the effectiveness of the fixture. For this reason, blow or brush out the hole with a brush to free it from dust before inserting the sieve sleeve or the anchor rods.



## Nameplates

	MÜPRO	
1.	<a href="#">Vibration control</a>	
2.	<a href="#">Fire protection</a>	
3.	<a href="#">Pipe clamps</a>	
4.	<a href="#">Support channels</a>	
5.	<a href="#">Accessories</a>	
6.	<a href="#">Anchor points/ expansion points</a>	
7.	<a href="#">Heavy-duty pipe support</a>	
8.	<a href="#">MPT-Support system</a>	
9.	<a href="#">Ventilation</a>	
10.	<a href="#">Pipe connectors</a>	
11.	<a href="#">Stainless steel</a>	
12.	<a href="#">Hot-dip galvanised</a>	
13.	<a href="#">Anchor plugs</a>	
14.	<a href="#">Nameplates</a>	
15.	<a href="#">Insulation</a>	
16.	<a href="#">Sealing and protection materials</a>	
17.	<a href="#">Tools</a>	
18.	<a href="#">Radiator fastening</a>	
19.	<a href="#">Technical information</a>	



Plastic signs

14/1–14/3



Text strips

14/4



Laminated plastic signs

14/5



Mounting bases

14/6–14/7



Universal nameplate supports

14/8



ML-Fastening plates

14/9



ML-Strap clamps

14/10



ML-Clamping bodies

14/11



ML-Clamping straps

14/11



Clamping sets

14/12

### Plastic signs

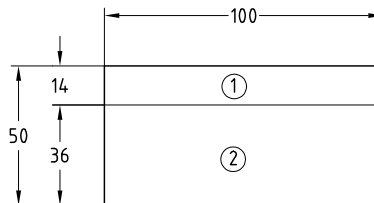
full area print

#### Field of application

- Basic sign for full area printing for identification of pipelines, fittings, etc.

#### Advantages

- Wide range of background colours available for the sign
- Standard sign size 100 x 50 mm suitable for mounting base with protective cover
- Maximum printable area is 100 x 50 mm
- Wear-resistant
- Sign with high-quality waterproof print of company address and/or equipment nameplate texts
- Ideal advertising medium for company address or service telephone number
- Your business card after the installation is completed
- Further colours available upon request
- Also available with self-adhesive reverse side or with drilled holes



Printing of signs



	Colour of the sign	Number of print colours	Part no.	Sales unit	Pack unit
<b>Plastic signs,</b> for all-over printing, printable area: 100 x 50 mm	white	–	<b>119297</b>	100	pieces
	blue		<b>119733</b>		
	red		<b>119781</b>		
	yellow		<b>119745</b>		
	green		<b>119757</b>		
	grey		<b>140566</b>		
<b>Printing of rows of text</b> (Print area 2)	–		<b>107355</b>	1	
<b>Digitisation of design specified by customer</b> (to be ordered one-time only, with first order)			<b>132267</b>		
<b>Printing of plastic signs,</b> with company logo 100 x 14 mm (Print area 1)		1	<b>139987</b>	100	
		2	<b>139988</b>		
		3	<b>139989</b>		
		4	<b>139990</b>		



For a full printed sign as shown in the illustration, the order must include the plastic sign, the printing with company logo and text lines. Please provide always the corresponding part numbers for each of these items.



### Plastic signs for text strips

#### Field of application

- Printed basic sign with pre-mounted plastic text strips for marking of pipelines, fittings etc. in heating, air-conditioning and ventilation control rooms

#### Advantages

- Wide range of background colours available for the sign
- Standard sign size 100 x 50 mm, suitable for mounting base with protective cover
- Company details can be printed on each sign, above the text strips

- Maximum printable area is 100 x 14 mm
- Sign can be fitted with 3 text strips
- Ideal advertising medium for company address or service telephone number
- Your business card after the installation is completed
- If fewer than three lines of print are necessary, blank strips can be inserted to give the sign an uniform appearance
- Further colours available upon request



	Colour of the sign	Number of print colours	Part no.	Sales unit	Pack unit
<b>Plastic signs,</b> for text strips	white	–	119694	100	pieces
	blue		119670		
	red		119686		
	yellow		119679		
	green		119761		
	grey		119769		
<b>Digitisation of design specified by customer</b> (to be ordered one-time only, with first order)	–		132267	1	
<b>Printing of plastic signs,</b> for text strip, with company logo 100 x 14 mm		1	140530	100	
		2	140531		
		3	140532		
		4	140533		



### Plastic signs with pre-mounted text strips

#### Field of application

- Printed basic sign with pre-mounted plastic text strips for marking of pipelines, fittings etc. in heating, air-conditioning and ventilation control rooms

#### Advantages

- Wide range of background colours available for the sign
- Standard sign size 100 x 50 mm, suitable for mounting base with protective cover
- Company details can be printed on each sign, above the text strips
- Maximum printable area is 100 x 14 mm
- Signs are pre-assembled with 3 text strips
- Ideal advertising medium for company address or service telephone number
- Your business card after the installation is completed
- Further colours available upon request



	Colour of the sign	Number of print colours	Part no.	Sales unit	Pack unit
<b>Plastic signs,</b> with pre-mounted text strips	white	–	119968	100	pieces
	blue		119972		
	red		119961		
	yellow		119945		
	green		119949		
	grey		119953		
<b>Printing of plastic signs,</b> with pre-mounted text strips, with company logo 100 x 14 mm	–	1	139991		
		2	139992		
		3	139993		
		4	139994		



## Text strips

### Field of application

- High-quality text strips made of plastic for customising of plastic signs

### Advantages

- Snap fasteners make them quick to install and easy to exchange
- Weatherproof printing or engraving for durable labelling
- Customised labels can be created by writing on blank strips with the writing pen



	Part no.	Sales unit	Pack unit
<b>Text strip</b> , for engraving	<b>140565</b>	100	pieces
<b>Text strip</b> , engraved	<b>121611</b>	1	
<b>Text strip</b> , for printing	<b>114431</b>	100	
<b>Text strip</b> , printed	<b>137965</b>	1	
<b>Writing pen</b> , smudge-proof, for writing on text strips	<b>121326</b>	10	



## Laminated plastic signs

## Field of application

- High quality laminated plastic signs for marking of pipelines, fittings etc. meeting the high resistance requirements of the sign

## Advantages

- Wide range of background colours available for the sign
- Standard sign size 100 x 50 mm suitable for the mounting base with protective cover
- Fire performance corresponds to fire class B2 (DIN 4102)
- Applicable outdoors
- Water resistant
- High resistance to chemicals
- Light-fast
- High-quality surface finish (approx. 500 N/mm<sup>2</sup> micro Vickers hardness)
- High gloss
- Printed according to individually styled specifications
- With engraved text according to customer specifications
- Also available with self-adhesive reverse side or with drilled holes



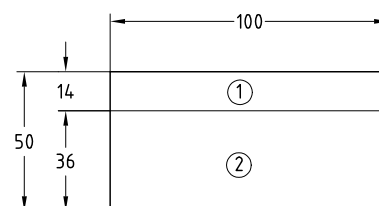
## Terms and texts, engraved

Individual terms and texts can be engraved on the laminated plastic signs according to customer requirements



## Alternatively with full print

Text according to customer specification in combination with individual logo in company's colours is imprinted on the laminated-plastic sign with a robust carrier foil



Printing of signs

## Features

Temperature range	long-term: -40 °C to + 80°C, short-term: up to +180 °C
Standard text height	7 mm (20 characters per line, maximum, and 4 lines, maximum)

	Colour of the sign	Number of print colours	Number of engraved lines	Part no.	Sales unit	Pack unit	
Laminated plastic signs, printable area: 100 x 50 mm	white/black	–	–	119361	100	pieces	
	red/white			119377			
	green/white			119373			
	blue/white			119369			
	yellow/black			119353			
	grey/black			119357			
	black/white			119381			
Printing of rows of text (Print area 2)	–			107355	1		
Digitisation of design specified by customer (to be ordered one-time only, with first order)				132267			
Engraving of lines of writing				1			112841
				2			112843
				3			112845
				4			112847
Printing of laminated plastic signs, with company logo 100 x 14 mm (Print area 1)		1	–	139995	100		
		2		139997			
		3		139998			
		4		139999			



### Mounting bases

#### Field of application

- For attachment of plastic signs and laminated plastic signs on building structure

#### Advantages

- Versatile mounting due to the multi-hole pattern in the mounting base
- Versatile attachment options, e.g.:
  - Can be mounted to any round, oval or rectangular cross-section, regardless of size, by means of universal nameplate support and mounting strap (see pages 14/8 for examples of attachments)

- Can be mounted to the building structure using plugs, threaded pins or bolt screws
- Attachment to MPC-Support channels
- Can be mounted to pipes using pipe clamps
- Adjustment pimples for exact alignment with MPC-Support channels and universal nameplate supports
- Also available with welding pins
- Also available in stainless steel (V2A) for outdoor use with UV-resistant protective cover



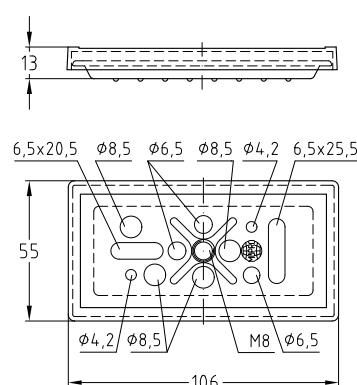
Mounting base with welding pin



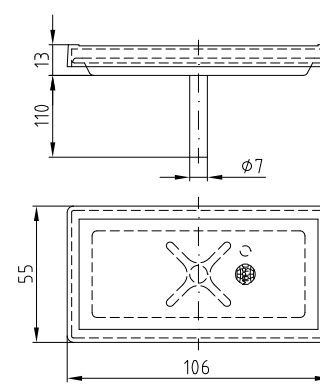
Adjustment pimples on the rear side ensure exact alignment of the linear mounted bases on a MPC-Support channel



Welding pin



Mounting base with threaded connection



Mounting base with welding pin

	Connecting thread	Part no.	Sales unit	Pack unit
Mounting base, with threaded connection, with protective cover, galvanised	M8	112618	50	pieces
Mounting base, with threaded connection, with UV-resistant protective cover, V2A		112620		
Mounting base, with welding pin, 110 mm length, with protective cover	–	112624		
Protective cover, for mounting base		105877		
Protective cover, UV-resistant, for mounting base	M8	162140	100	
Welding pin, 110 mm length		106332		

## Mounting base

fastened with a hook & loop strip

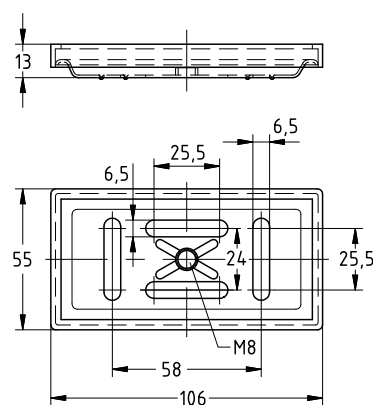
### Field of application

- To clearly label pipes in buildings and industrial situations, when installing piping and equipment
- For attachment of plastic signs and laminated plastic signs on pipe clamps by using hook & loop tape
- For indoor use

### Advantages

- Efficient fastening solution suitable for trade use, providing clear labelling of pipes
- Hook & loop fastening tape for any diameter of pipe and for round, oval or rectangular cross-sections

- Installation is quick and easy as there is no drilling or welding – just cut the hook & loop strip from a roll and, depending on the alignment of the mounting base (horizontal or vertical), thread it through the holes and firmly attach to the pipe
- There are various fixing options due to the range of holes in the mounting base, e.g. it can be mounted directly on the wall, on an installation rail or on a pipe
- Suitable for all pipe materials



Mounting base with threaded connection



Hook & loop strip

	Connecting thread	Part no.	Sales unit	Pack unit
<b>Mounting base</b> , with threaded connection and with protective cover fastened with a hook & loop strip, galvanised	M8	<b>154643</b>	50	pieces
<b>Protective cover</b> , for mounting base	—	<b>105877</b>		
<b>Hook &amp; loop strip</b> , 20 mm width, roll of 25 m		<b>153051</b>	1	roll



## Universal nameplate supports

### Field of application

- Attachment of mounting bases with the plastic or laminated plastic sign and protective cover as well as for mounting of straps on pipe clamps

### Advantages

- Efficient and practical attachment
- Fits all pipe sizes
- No drilling, no welding
- Suitable for all pipe materials
- Attaches directly to the pipe
- Twist-free installation of the mounting base, positionable longitudinally and laterally to the pipe axis
- Clamping strap made of steel band or made of stainless steel
- Temperature resistant up to 140 °C
- Also available with stainless-steel screw (V2A)



Mounting strap



Universal nameplate support



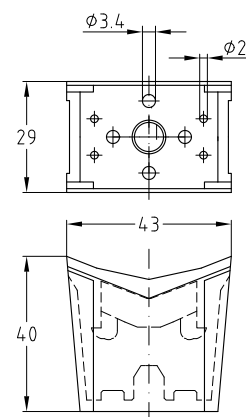
1. Cut the mounting strap from the roll, lay it tightly around the pipe and latch the strap ends onto the two pegs



2. Insert the screw through the mounting base into the hole of the tensioning element and tighten



3. Attach the plastic or laminated plastic sign together with protective cover to the mounting base



	Part no.	Sales unit	Pack unit
Universal nameplate support, complete with screw	130380	50	pieces
Universal nameplate support, complete with stainless steel (V2A) screw	130379		
Mounting strap, 15 metre-roll, nickel plated	124940	1	roll
Mounting strap, 15 metre-roll, stainless steel (V2A)	124922		

## ML-Fastening plates

for pipework signposting according to DIN, hot-dip galvanised

### Field of application

- Ideal attachment of signs for long-distance gas pipelines, local gas distribution pipework, fire-alarm and extinguishing systems, water supply lines and sewage systems, according to DIN

### Advantages

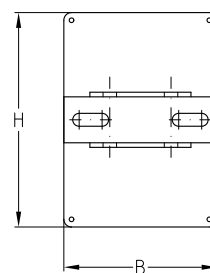
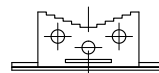
- Variable attachments due to varied hole pattern of the base plate
- Can be adapted to any size of post when combined with the clamping strap
- Includes welded-on ML-clamping body type 701 for M8 clamping set
- Surface is hot-dip galvanised



Installation with ML-Strap clamps



For channels 38/24 to 40/120



Type	Field of application	For DIN	Size B x H [mm]	Part no.	Sales unit	Pack unit
801	Long-distance gas lines, heating systems, water lines, gas lines	4064, 4065, 4067, 4069	100 x 140	<b>106473</b>	1	pieces
802	Long-distance gas lines, water lines, gas lines, fire-fighting systems, waste water lines	4065, 4066, 4067, 4068, 4069	140 x 200	<b>106474</b>		
804	Fire-fighting systems	4066	250 x 200	<b>106476</b>		



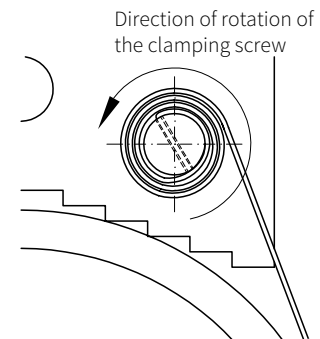
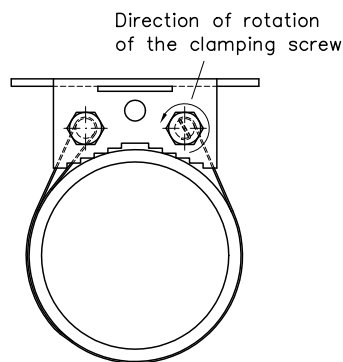
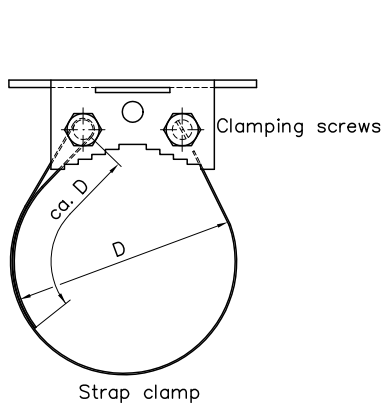
### ML-Strap clamps

#### Field of application

- For attachment of all kinds of signs, e.g. traffic signs, street name signs, signals, posters, timetable display cases etc.

#### Advantages

- Suitable for posts of any shape and size
- Simple, quick and rigid mounting
- Weatherproof
- Can be dismantled at any time and re-used
- High breaking strength up to 1.0 kN



Lay steel strap around the unslotted screw. The length of the shorter end must be roughly equal to a third of the pipe circumference, however 100 mm, at least. Cut long end of the strap to size and cut end to a point. The mounting length depends on the circumference of the mast.

Insert the pointed end of the strap into the slotted screw, then turn the head anti-clockwise. The steel strap wraps around the clamping screw and the strap clamp is tightened.

Strap band must be wrapped around the clamping screw at least 3 times. To prevent loosening, tighten the nut firmly.



ML-Strap clamps include a hot-dip galvanised clamping body with a clamping screw set as well as a mounting strap in galvanised or stainless steel version.



**ML-Clamping body no. 701**

without clamping set and clamping strap, hot-dip galvanised, for ML-Strap clamps

For clamping set	Hole spacing [mm]	Part no.	Sales unit	Pack unit
M8	60–80	124969	100	pieces

**ML-Clamping body no. 702**

without clamping set and clamping strap, hot-dip galvanised, for ML-Strap clamps

For clamping set	Hole spacing [mm]	Part no.	Sales unit	Pack unit
M10	70/100	124975	100	pieces

**ML-Clamping body no. 704**

without clamping set and clamping strap, for welding, raw, for ML-Strap clamps

For clamping set	Part no.	Sales unit	Pack unit
M10	124993	100	pieces

**ML-Clamping straps**

for ML-Strap clamps, in dispenser

Type	Material	Width [mm]	Thickness [mm]	Length [m]	Part no.	Sales unit	Pack unit
No. 706	V2A	29	0.6	25	118398	1	roll
No. 707	galvanised				118402		



### Clamping sets

for ML-Clamping body no. 701

Consisting of:

- 1 Clamp screw M8 with slot
- 1 Clamp screw M8 without slot
- 2 Hexagon nuts M8



	Size	Part no.	Sales unit	Pack unit
<b>Clamping screw no. 708-1</b>	M8 x 45 mm with slot	<b>125034</b>	100	pieces
<b>Clamping screw no. 708-2</b>	M8 x 45 mm without slot	<b>121155</b>		
<b>Hexagon nuts</b>	M8	<b>105498</b>		

### Clamping sets

for ML-Clamping body no. 702

Consisting of:

- 1 Clamp screw M10 with slot
- 1 Clamp screw M10 without slot
- 2 Hexagon nuts M10



	Size	Part no.	Sales unit	Pack unit
<b>Clamping screw no. 709-1</b>	M10 x 45 mm with slot	<b>125037</b>	100	pieces
<b>Clamping screw no. 709-2</b>	M10 x 45 mm without slot	<b>125040</b>		
<b>Hexagon nuts</b>	M10	<b>105433</b>		







## Insulation

	MÜPRO	
1.	Vibration control	
2.	Fire protection	
3.	Pipe clamps	
4.	Support channels	
5.	Accessories	
6.	Anchor points/ expansion points	
7.	Heavy-duty pipe support	
8.	MPT-Support system	
9.	Ventilation	
10.	Pipe connectors	
11.	Stainless steel	
12.	Hot-dip galvanised	
13.	Anchor plugs	
14.	Nameplates	
15.	<b>Insulation</b>	
16.	Sealing and protection materials	
17.	Tools	
18.	Radiator fastening	
19.	Technical information	



	MypoTHERM® PE protection sleeves	15/3		Felt tapes	15/22
	MypoTHERM® Insulation sleeves	15/4		Nealed wire	15/22
	MypoTHERM® Insulation sleeve ECO	15/5		Installation plug set	15/23
	MypoTHERM® Insulating wraps	15/6			
	MypoTHERM® Insulating wrap, self-adhesive	15/7			
	MypoTHERM® Butt joint tape	15/7			
	MypoTHERM® Insulation tubes	15/8			
	Adhesive for MypoTHERM® Insulation tube	15/8			
	MypoTHERM® Insulation tubes, with red protecting film	15/9			
	MypoTHERM® Kompakt floor tube	15/10			
	Pipe clips	15/11			
	Nails	15/11			
	Setting tool	15/11			
	MypoTHERM® Caoutchouc	15/12–15/13			
	MypoTHERM® Caoutchouc in dispenser box	15/14			
	Adhesive for MypoTHERM® Caoutchouc/Caoutchouc Plus	15/14			
	MypoTHERM® Caoutchouc Plus	15/15–15/17			
	MypoTHERM® Caoutchouc for chilled water pipes in dispenser box	15/18			
	MypoTHERM® Caoutchouc tapes	15/19			
	Mineral wool pipe jackets with aluminium facing	15/20–15/21			
	Pure aluminium self-adhesive tapes	15/22			

## Selecting the insulation

### Making the right choice

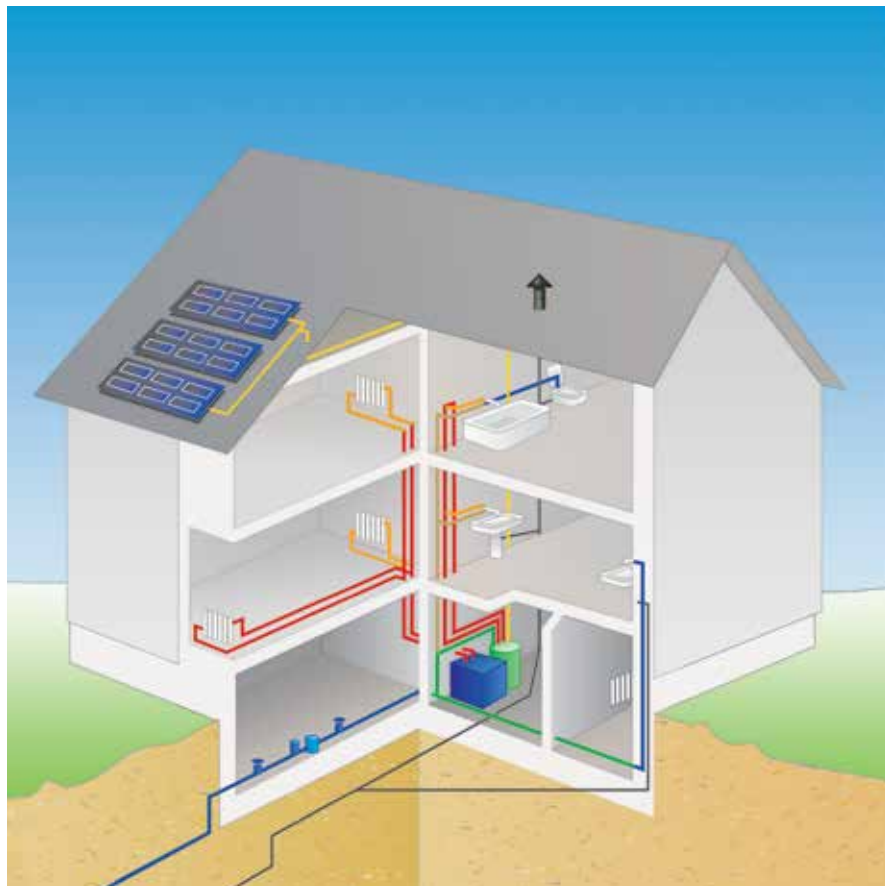
According to the applicable regulations, pipes and fittings for heating systems, service water and drinking water in all buildings have to be equipped with thermal insulation.

In order to avoid heat losses, the **energy saving decree (EnEV)** prescribes the insulation thickness for heating and service water pipes for all heating systems with a nominal thermal rating of more than 4 kW.

For **drinking water pipes, DIN 1988, Part 2** indicates the corresponding insulation thicknesses for the protection of pipes against heating up, water condensation and corrosion.

In addition to thermal insulation, the pipe insulating layer also reduces the radiation of structure-borne noise from the pipework and protects the pipes against acoustic bridges through plaster and mortar.

The assignment of insulation thickness is according to the installation circumstances of the pipes and the relevant regulations is shown in the following overview:



		Heating (according to the EnEV energy saving decree 2009)	Hot water (according to the EnEV energy saving decree 2009)	Cold water (according to DIN 1988, part 2)
Insulation thickness 100 %	MypoTHERM® Insulation tube MypoTHERM® Caoutchouc MypoTHERM® Kompakt floor tube	<ul style="list-style-type: none"> <li>■ In unheated rooms and cellars</li> <li>■ In outer walls</li> <li>■ In parts of buildings next to unheated rooms and soil</li> <li>■ In shafts and channels</li> <li>■ Distribution pipes for supply of several users</li> </ul>	<ul style="list-style-type: none"> <li>■ In unheated rooms and cellars</li> <li>■ In outer walls</li> <li>■ In parts of buildings next to unheated rooms and soil</li> <li>■ In shafts and channels</li> <li>■ Distribution pipes for supply of several users</li> </ul>	–
Insulation thickness 50 %	MypoTHERM® Insulation tube MypoTHERM® Caoutchouc	<ul style="list-style-type: none"> <li>■ In breakthroughs in walls and ceilings, in crossover regions of pipes, at pipe junctions, at central pipe network distributors</li> <li>■ In parts of buildings between heated rooms for several users</li> </ul>	<ul style="list-style-type: none"> <li>■ In breakthroughs in walls and ceilings, in crossover regions of pipes, at pipe junctions, at central pipe network distributors</li> <li>■ In parts of buildings between heated rooms for several users</li> </ul>	

### Selecting the insulation

		Heating (according to the EnEV energy saving decree 2009)	Hot water (according to the EnEV energy saving decree 2009)	Cold water (according to DIN 1988, part 2)
Insulation thickness 13 mm	MypoTHERM® Insulation tube MypoTHERM® Caoutchouc	–	–	In channels, in wall cut-outs, on concrete ceiling next to hot water pipes
Insulation thickness ≥ 9 mm	MypoTHERM® Insulation tube MypoTHERM® Caoutchouc MypoTHERM® Kompakt floor tube	Pipes in floor constructions between heated rooms for various users	Pipes in floor constructions between heated rooms for various users	For free pipe laying in heated rooms
Insulation thickness 4 mm	MypoTHERM® Insulating wrap MypoTHERM® Insulation sleeve MypoTHERM® PE protection sleeve	–	–	<ul style="list-style-type: none"> <li>■ For free pipe laying in unheated rooms</li> <li>■ In channels, in masonry slits on concrete ceilings, not adjacent to hot water supply pipes</li> </ul>
Without requirements*	MypoTHERM® Insulating wrap MypoTHERM® Insulation sleeve MypoTHERM® PE protection sleeve MypoTHERM® Insulation tube MypoTHERM® Caoutchouc MypoTHERM® Floor tube	Pipes that can be closed off in heated rooms or in parts of buildings between heated rooms of an user	Pipes up to an inside diameter of 22 mm without circulation and without trace heating in habitations	–

\* Must be fitted with insulation, although not required by the EnEV, for the following reasons:

Corrosion protection, avoidance of cracking noises, structure-borne vibration in hot water pipes.

**In general, the following applies:** retrofitting obligation for non-insulated, freely accessible pipes in old buildings.

MypoTHERM® Insulating wrap MypoTHERM® Insulation sleeve MypoTHERM® PE protection sleeve	Waste water
MypoTHERM® Caoutchouc for chilled water pipes	Refrigerant pipelines



## MypoTHERM® PE protection sleeves

with vapour and mortar barrier

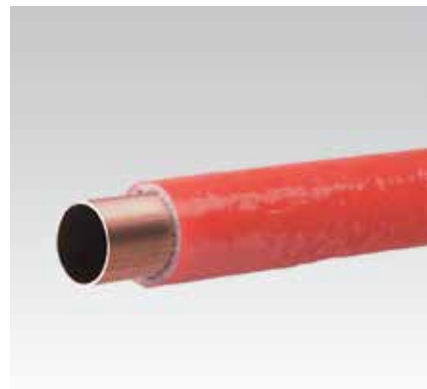
### Field of application

- Use for protection against corrosion and condensation as well as a protection sleeve to avoid plaster and mortar contact when laying pipelines
- For insulating straight or bent pipes prior to their installation

### Advantages

- Fast and cost-effective solution for long pipe sections
- Very good dimensional stability

- Closed-cell polyethylene
- Tear-resistant and high strength due to the durable foil cladding
- Reliable protection against condensation and corrosion
- Inner sliding film guarantees easy pulling onto the pipe and prevents cutting into the insulation material
- Prevents acoustic bridges through plaster and mortar
- Economical due to efficient and low-cost application straight from the roll



### Features

Temperature range	−30 °C to +105 °C
Fire classification (according to DIN 4102)	B2
Thermal conductivity	$\lambda = 0.041 \text{ W/mK}$

Insulation thickness [mm]	Nominal size	For pipe outer diameter [mm]	Suitable up to connector diameter [mm]	Part no.	Sales unit	Pack unit	Contents
4	12 mm	12–15	17	122170	1	sack	20 rolls of 10 m
	3/8"	16–18	21	122189			
	1/2"	20–22	25	122162			
	3/4"	25–28	31	122178			
	1"	32–35	39	122134			10 rolls of 10 m
	1 1/4"	38–43	45	122150			
	1 1/2"	44.5–49	50	122142			
	DN 50	58–63.5	64	122225			
	DN 70	76.1–78	89	122237			
	DN 90	88.9–100	105	122249			
	DN 100	110–114.3	126	122197			



### MypoTHERM® Insulation sleeves

with vapour and mortar barriers

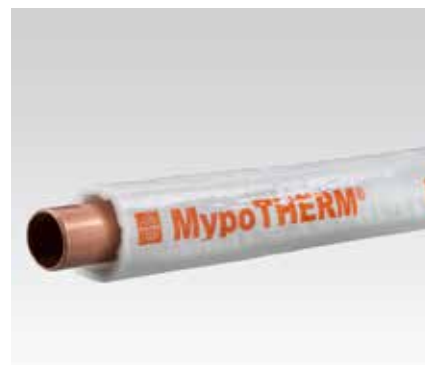
#### Field of application

- Use for protection against corrosion and condensation as well as a protection sleeve to avoid plaster and mortar contact when laying pipelines
- For insulating straight or bent pipes prior to their installation

#### Advantages

- Fast and cost-effective solution for long pipe stretches
- Made from high-quality MÜPRO-GON fibres, without chemical binders

- 100 % synthetic
- No aggressive adhesives used
- Protects pipes against corrosion
- Vapour barrier protects against moisture and aggressive building materials
- Highly durable and tear resistant
- Protects the pipes against acoustic bridges through plaster and mortar
- Easy to fit, even to tight bends, due to the high flexibility of the material
- Flame resistant (fire classification B1 acc. to DIN 4102)



#### Features

Material	Polyester fleece with PE protecting film
Vapour barrier permeability	2 g/m² within 24 h acc. to DIN 53122
Tearing resistance, lengthwise	220 N/5 cm acc. to DIN EN 29073
Tearing resistance, crosswise	300 N/5 cm acc. to DIN EN 29073
Temperature range	−60 °C to +220 °C inside face
Fire classification (according to DIN 4102)	B1
Thermal conductivity	$\lambda = 0.033 \text{ W/mK}$ at +10°C, $\lambda = 0.036 \text{ W/mK}$ at +40°C

Insulation thickness [mm]	Nominal size	For pipe outer diameter [mm]	Suitable up to connector diameter [mm]	Part no.	Sales unit	Pack unit	Contents
4	12 mm	12–15	17	167603	1	sack	20 rolls of 12.5 m
	3/8"	16–18	21	167604			
	1/2"	20–22	25	167605			
	3/4"	25–28	31	167606			
	1"	32–35	39	167607			
	1 1/4"	38–43	45	167608			
	1 1/2"	44.5–49.0	50	167609			
	DN 50	58.0–63.5	64	167610			
	DN 70	76.1–78.0	89	167611			
	DN 90	88.9–100.0	109	167612			4 rolls of 12.5 m
	DN 100	110.0–114.3	126	167613			



Insulation thickness of 9 mm also available upon request.



## MypoTHERM® Insulation sleeve ECO

with vapour barrier

### Field of application

- Protection against corrosion and condensation, use as protection sleeve to avoid contact plaster and mortar with pipelines
- Insulation of straight or bent pipes prior to their installation

### Advantages

- Highly flexible and tearproof, hereby easy and quickly to lay
- Protects pipes against acoustic bridges transferred through plaster and mortar
- 100 % synthetic and recyclable
- Tested for harmful substances in accordance with Eco-Tex Standard 100
- Protects the pipes against corrosion
- Moisture barrier protects against wetness and aggressive building materials
- Fire classification B2, normal flammability according to DIN 4102
- Aging resistant



### Features

Material	Polyester fleece with PE protecting film
Vapour barrier permeability	2 g/m <sup>2</sup> within 24 h acc. to DIN 53122
Tearing resistance, lengthwise	70 N / 5 cm
Tearing resistance, crosswise	100 N / 5 cm
Temperature range	-60 °C to +180 °C inside face
Fire classification (according to DIN 4102)	B2
Thermal conductivity	$\lambda = 0,031 \text{ W/mK}$ at +10 °C, $\lambda = 0,036 \text{ W/mK}$ at +40 °C

Insulation thickness [mm]	Nominal size	For pipe outer diameter [mm]	Suitable up to connector diameter [mm]	Part no.	Sales unit	Pack unit	Contents
4	12 mm	12–15	17	167633	1	sack	20 rolls of 12.5 m
	3/8"	16–18	21	167634			
	1/2"	20–22	25	167635			
	3/4"	27–28	31	167636			
	1"	32–35	39	167637			
	1 1/4"	38–43	45	167638			
	1 1/2"	44.5–49.0	50	167639			
	DN 50	58.0–63.5	64	167640			
	DN 70	76.1–78.0	89	167641			
	DN 90	88.9–100.0	109	167642			4 rolls of 12.5 m
	DN 100	110.0–114.3	126	167643			



## MypoTHERM® Insulating wraps

### Field of application

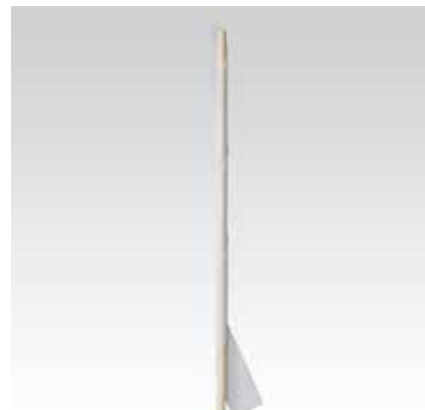
- For insulating before, during and after pipe installation

### Advantages

- Particularly suitable for wrapping to create different insulation thicknesses
- Made from high-quality MÜPRO-GON fibres, without chemical binders
- 100 % synthetic
- No aggressive adhesives used
- Protects pipes against acoustic bridges through plaster and mortar
- Protects the pipework against corrosion
- Noise dampening and reduction of structure-borne vibration transfer on pipes laid in walls and floors



Without vapour barrier




With vapour and mortar barrier

### Table of insulation wrap usage

Pipe dimensions		Required insulation wrap of 70 mm width as per running metre of pipe [m]
Nominal size [inch]	Outer-Ø [mm]	
3/8	17.2	2.0
1/2	21.3	2.2
3/4	26.9	2.8
1	33.7	3.4
1 1/4	42.4	4.2
1 1/2	48.3	4.6
2	60.3	5.8

### Features

Tearing resistance, lengthwise	9,500 N
Tearing resistance, crosswise	8,700 N
Temperature range	-60 °C to +220 °C
Thermal conductivity	$\lambda = 0.036 \text{ W/mK}$

 The above table was calculated on the basis of 50 % overlap of the insulating wrap. Therefore a wrap thickness of 2 mm results in an insulation of 4 mm.

Type	Width [mm]	Insulation thickness [mm]	Part no.	Sales unit	Pack unit	Contents
Without vapour barrier	70	2	167666	1	sack	100 rolls of 5 m
With vapour barrier			167667			

## MypoTHERM® Insulating wrap

with vapour barrier, self-adhesive

### Field of application

- For insulating before, during and after pipe installation

### Advantages

- Particularly suitable for wrapping to create different insulation thicknesses
- Made from high-quality MÜPRO-GON fibres, without chemical binders

- 100 % polyester
- High corrosion protection
- Self-adhesive foil allows easy fixing
- Vapour barrier protects against moisture and aggressive building materials
- Temperature resistant up to +220 °C



Width [mm]	Insulation thickness [mm]	Part no.	Sales unit	Pack unit	Contents
70	2	167665	1	sack	100 rolls of 5 m

## MypoTHERM® Butt joint tape

### Field of application

- Suited to joining the butt joints and seams of pipe insulation sleeves

### Advantages

- Suitable for insulation sleeves with and without vapour barrier
- Self-adhesive
- Made from high-quality MÜPRO-GON fibres, without chemical binders
- 100 % polyester
- High corrosion protection

- Easy to cut
- Vapour barrier protects against moisture and aggressive building materials
- Temperature resistant up to +220 °C



Width [mm]	Insulation thickness [mm]	Part no.	Sales unit	Pack unit	Contents
70	2	167668	1	sack	10 rolls à of 10 m





### MypoTHERM® Insulation tubes

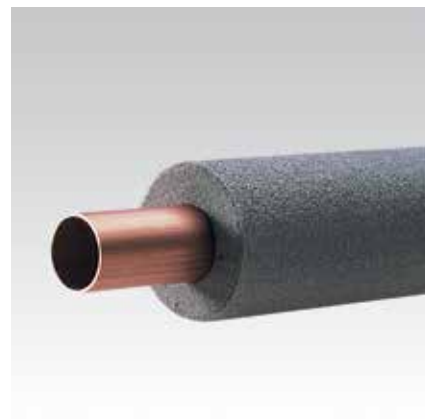
#### Field of application

- Thermal insulation of hot water supply pipes

#### Advantages

- Protects heating pipes and hot water pipes against heat losses
- Insulation thicknesses meet the requirements of the energy saving-decree (EnEV) and DIN 1988, part 2 and 7
- Prevents undesirable condensation on cold water pipes

- Closed-cell polyethylene
- Retains its shape even when cut open
- Resistant to building chemicals
- Easily to cut and handle
- Reduces noise levels
- Protects the pipes against acoustic bridges through plaster and mortar
- Hardly flammable, no flaming droplets, little to no smoke(material class BL-S1-d0)



#### Features



Material	Closed-cell polyethylene
Temperature range	-45 °C to +100 °C
Building material class EN 13501-1	BL-S1-d0
Thermal conductivity	$\lambda_{10} = 0,036 \text{ W/mK}$ , $\lambda_{40} = 0,040 \text{ W/mK}$ , $\lambda_{90} = 0,053 \text{ W/mK}$
Water vapour diffusion resistance	$\mu = 16,000$
EG-certificate of Conformity	BC1-571-4133-0001-01

	Insulation thickness [mm]	Acc. to EnEV 2009	Nominal size [inch]	For pipe outer diameter [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]
<b>MypoTHERM® Insulation tubes</b> for copper, steel and boiler pipes as well as for pipes made of plastic, composite materials and stainless steel  2-metre-long tubular sections	9	Table 1 Appendix 5 Line 7	¼	12-15	112241	1	carton	380
			⅜	16-18	112317			330
			½	20-22	112370			250
			¾	25-28	112422			190
			1	32-35	112468			150
	13	50 %	¼	12-15	112229			256
			⅜	16-18	112307			220
			½	20-22	112360			180
			¾	25-28 Fe	112410			140
			1	32-35	112460			120
	20	50 %	½	20-22	112364			108
			¾	25-28 Cu	112416			96
			1	32-35 Fe	112466			70
			1¼	38-43 Fe	112488			60
			¼	12-15	112235			90
	25	100 %	⅜	16-18	112313			70
			½	20-22	112368			70
			¾	25-28 Fe	112420			66

Fe: Classification according to EnEV only valid for steel pipes.

Cu: Classification according to EnEV for copper pipes.

#### Adhesive for MypoTHERM® Insulation tube

250 ml, with brush

Part no.	Sales unit	Pack unit
113215	1	pieces



## MypoTHERM® Insulation tubes

with red protecting film

## Field of application

- Thermal insulation of hot water supply pipes with high demands on the mechanical strength of the insulation

## Advantages

- Protects heating pipes and hot water pipes against heat losses
- Insulation thicknesses meet the requirements of the energy saving decree (EnEV) for the protection of cold pipes according to DIN 1988, part 2

- Closed-cell polyethylene, stable shape even when cut open
- Easily to cut and handle
- Reduces noise levels
- Red polyethylene vapour barrier
- Protects the pipes against mechanical damage, condensation and corrosion
- Insulation does not contain PVC



## Features



Material	Closed-cell polyethylene
Temperature range	0 °C to +100 °C
Building material class EN 13501	E
Thermal conductivity	$\lambda_{10} = 0,036 \text{ W/mK}$ , $\lambda_{40} = 0,040 \text{ W/mK}$ , $\lambda_{90} = 0,053 \text{ W/mK}$
Water vapour diffusion resistance	$\mu = 16,000$
EG-certificate of Conformity	NMC-0,037

	Insulation thickness [mm]	Acc. to EnEV 2009	Nominal size [inch]	For pipe outer diameter [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]
<b>MypoTHERM® Insulation tubes</b> with red protective film for copper, steel and boiler pipes as well as for pipes made of plastic, composite materials and stainless steel  Insulation thickness 4 mm: Roll of 10 m  Insulation thickness 9–25 mm: 2-metre-long tubular section	4		¼	15	112237	1	carton	200
			⅜	18	112335			180
			½	22	112386			160
			¾	28	112442			140
			1	35	112482			110
	9	Table 1 Appendix 5 Line 7	¼	15	112283			120
			⅜	18	112337			
			½	22	112388			100
			¾	28	112444			90
			1	35	112484			60
	13	50 %	1¼	42	112514			48
			¼	15	112277			100
			⅜	18	112331			96
			½	22	112382			80
			¾	28 Fe	112436			64
	20	50 %	1	35	112476			48
			1¼	42	112506			40
			¾	28 Cu	112438			
			1	35	112478			32
			1¼	42 Fe	112510			24
	25	100 %	¼	15	112279			40
			⅜	18	112333			38
			½	22	112384			36
			¾	28	112440			30
			1	35	112480			26
			1¼	42	112512			24

Fe: Classification according to EnEV only valid for steel pipes.

Cu: Classification according to EnEV for copper pipes.

### MypoTHERM® Kompakt floor tube

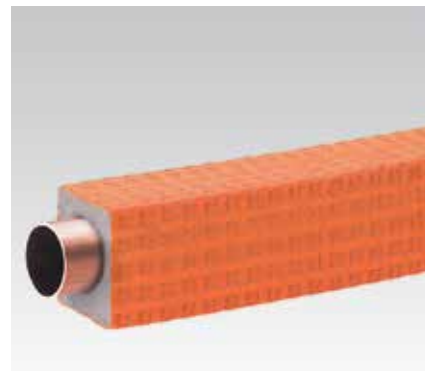
#### Field of application

- For insulation of pipe work for floor-  
ing constructions, e.g. screed

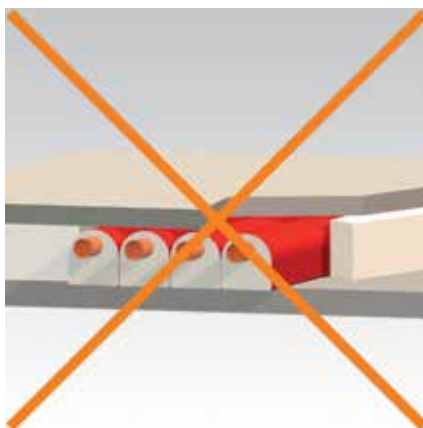
#### Advantages

- Space-saving overall height
- Rectangular pipe insulation made  
of polyethylene
- Meets the requirements of the  
energy saving decree (EnEV)
- Floor/wall insulation with protecting  
film as vapour barrier
- High damping of structure borne  
noise

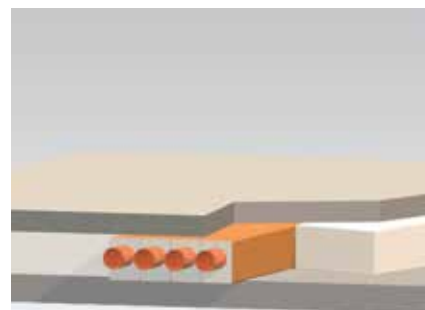
- High vapour diffusion resistance
- Rectangular construction to avoid  
needless spaces within the screed
- Dioxin-free in case of fire
- Non-ageing and non-putrescible



Insulation tube:  
large floor height required



Eccentric floor tube:  
low floor height possible



MypoTHERM® Kompakt floor tube:  
least floor height possible

#### Features



Thermal conductivity	$\lambda_{10} = 0,036 \text{ W/mK}$ , $\lambda_{40} = 0,040 \text{ W/mK}$ , $\lambda_{90} = 0,053 \text{ W/mK}$ , insulation thickness 9 mm $\lambda_{10} = 0,038 \text{ W/mK}$ , $\lambda_{40} = 0,042 \text{ W/mK}$ , $\lambda_{90} = 0,055 \text{ W/mK}$ , insulation thickness 25 mm
Water vapour diffusion resistance	$\mu \geq 16,000$
Temperature range	-45 °C to +100 °C
Footfall acoustic insulation (DIN 4109)	up to dB(A) 32 acc. to Fraunhofer Institut, supplementary sheet 2 acc. to DIN 4109
Building material class EN 13501-1	E
EG-certificate of Conformity	NMC-0038

Insulation thickness (below pipe) [mm]	Iso-type	Acc. to EnEV 2009	For pipe outer-Ø					Overall height [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]	Customization
			Copper Cu		Steel FE		Plastic MSV & PEX						
DN	[mm]		DN	[mm]	DN	[mm]	[mm]						
9	15-9	Appendix 5 Line 7	10	15	8	13.5	—	31.0	140319	1	carton	170	2-metre- long tubular sections
	18-9		15	18	10	17.2	16	34.0	140320			120	
	22-9		20	22	15	21.3	20	38.0	140321			110	
	28-9		25	28	20	26.9	25	46.5	140322			70	
	35-9		32	35	25	33.7	32	52.5	140323			58	
25	15-25	100 %	10	15	8	13.5	—	52.0	140324			100	
	18-25		15	18	10	17.2	16	55.0	140325			84	
	22-25		20	22	15	21.3	20	59.0	140326			72	
	28-25	100 % FE	25	28	20	26.9	25	64.0	140327			58	
38	35-38	100 %	32	35	25	33.7	32	83.0	153857			32	
46	42-46		40	42	32	42.4	40	104.0	170835			20	

**Pipe clips**

for MypoTHERM® Kompakt floor tube, galvanised

Dimensions [mm]			Iso-type	Part no.	Sales unit	Pack unit
B	H	L				
28	30.0	52.4	15-9	142920	100	pieces
31	33.0	55.4	18-9	142921		
35	37.0	59.4	22-9	142922		
45	44.5	69.4	28-9	142923		
51	51.5	75.4	35-9	142924		
31	50.0	55.4	15-25	142925		
38	53.0	62.4	18-25	142926		
39	57.0	63.4	22-25	142927		
49	62.0	73.4	28-25	142928		

**Nails**

for pipe clips, hardened

Shaft length [mm]	Max. thickness of fixing material [mm]	Part no.	
		200 pieces	Carton of 3,000 pieces
14	2	107886	107887
18	6	107890	107891
22	10	107893	107894

**Setting tool**

for nails

Part no.	Sales unit	Pack unit
123137	1	pieces



# MypoTHERM® Caoutchouc

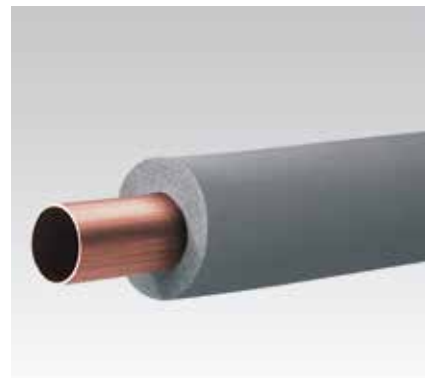
### Field of application

- For insulating pipes in heating systems

## Advantages

- Meets the requirements of the energy saving decree (EnEV) and DIN 1988, part 2 and 7
- Material possesses enormous flexibility and form stability
- Easy to work because of its smooth inner surface, especially in pipe bends and heavily twisted pipes

- Closed-cell structure prevents the absorption of condensate, oil and other aggressive fluids
- Good vibration damping properties prevent transmission of structure borne vibration and reduce flow and pressure noises in the pipe
- Smooth and robust outer skin ensures a long working life
- With general approval from the building inspectorate



## Features



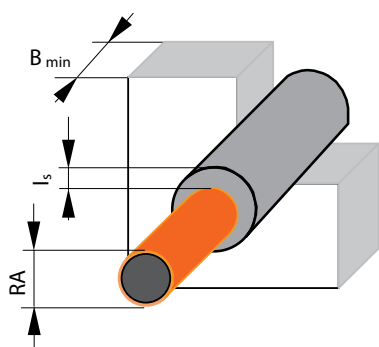
Material	Closed-cell insulation material on a synthetic rubber basis
Colour	grey
Temperature range	to +110 °C
Thermal conductivity	Insulation thickness $\leq 13$ mm: $\lambda = 0,035$ W/mK at +40 °C, Insulation thickness $13 \leq 25$ mm: $\lambda = 0,031$ W/mK at -20 °C, $\lambda = 0,033$ W/mK at 0 °C, $\lambda = 0,035$ W/mK at +20 °C, $\lambda = 0,037$ W/mK at +40 °C, Insulation thickness $> 25$ mm: $\lambda = 0,034$ W/mK at -20 °C, $\lambda = 0,036$ W/mK at 0 °C, $\lambda = 0,038$ W/mK at +20 °C, $\lambda = 0,040$ W/mK at +40 °C
Building material class	B-S3-d0 acc. to EN 13501-1

	Insulation thickness [mm]	Acc. to EnEV 2009	Nominal size [inch]	For pipe outer diameter [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]
<b>MypoTHERM® Caoutchouc</b> for copper, steel and boiler pipes as well as for pipes made of plastic, composite materials and stainless steel  2-metre-long tubular sections	9	Table 1 Appendix 5 Line 7	1	32–35	<b>112458</b>	1	carton	80
			1¼	40–42	<b>112500</b>			70
	10		¼	12–15	<b>167657</b>			150
			⅜	16–18	<b>167658</b>			130
			½	20–22	<b>167659</b>			100
			¾	25–28	<b>167660</b>			80
		¼	12–15	<b>112251</b>	112			
	13	50 %	⅜	16–18	<b>112287</b>			108
			½	20–22	<b>112341</b>			84
			¾	25–28 Fe	<b>112400</b>			72
			1	32–35 Fe	<b>112325</b>			32
	1¼		40–42 Fe	<b>112448</b>	28			
	1½		45–48 Fe	<b>112518</b>	24			
	25–27	100 %	¼	12–15	<b>112263</b>			40
			⅜	16–18	<b>112301</b>			
			½	20–22	<b>112354</b>			36
			¾	25–28 Fe	<b>112404</b>			32
	1		32–35	<b>112452</b>	16			
	1¼		40–42	<b>112494</b>	12			

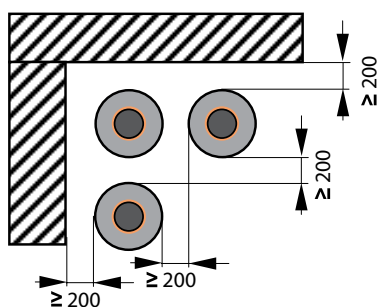
Fe: Classification according to EnEV only valid for steel pipes.

## MypoTHERM® Caoutchouc

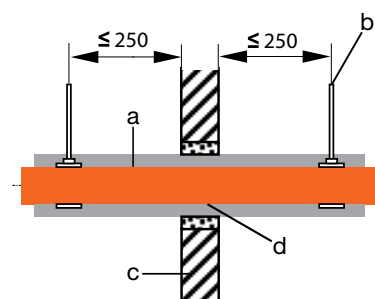
Part no.	Wall thickness B <sub>min</sub> [mm]	Fire resistance duration acc. to DIN 4102-11 for copper pipes	Fire resistance duration acc. to DIN 4102-11 for steel pipes	Ceiling thickness B <sub>min</sub> [mm]	Fire resistance duration acc. to DIN 4102-11 for copper pipes	Fire resistance duration acc. to DIN 4102-11 for steel pipes
112458	≥ 150	R60	R120	≥ 150	R120	R120
112500					R90	R90
167657					R120	R120
167658						
167659						
167660						
112251						
112287						
112341						
112400						
112325						
112448					R90	
112518					R120	
112263						
112301						
112354						
112404						
112452						
112494						



Insulation of entire pipe using  
MypoTHERM® Caoutchouc



Installation situation for the group  
arrangement of pipes



- a) Pipes of steel, stainless steel, copper or cast iron
- b) Pipe clamp with DÄMMGULAST® lining fastened on a threaded rod and metal plug
- c) Walls made of masonry, concrete, reinforced concrete or porous concrete slabs, ceilings of concrete, reinforced concrete or porous concrete
- d) Complete sealing with mortar of mortar groups 2, 2a or 3

### MypoTHERM® Caoutchouc in dispenser box

#### Field of application

- For insulating pipe lines in heating systems

#### Advantages

- Material possesses enormous flexibility and form stability
- Easy to work because of its smooth inner surface, especially in pipe bends and heavily twisted pipes
- Closed-cell structure prevents the absorption of condensate, oil and other aggressive fluids

- Good vibration damping properties prevent transmission of structure-borne vibration and reduce flow and pressure noises in the pipe
- With general approval from the building inspectorate



#### Features



Material	Closed-cell insulation material on a synthetic rubber basis
Colour	grey
Corrosion risk	pH-neutral acc. to DIN 1988/7
Temperature range	to +110 °C
Thermal conductivity	$\lambda = 0,035 \text{ W/mK}$ at +40 °C
Building material class	B-S <sub>3</sub> -d <sub>0</sub> acc. to EN 13501-1

	Insulation thickness [mm]	Nominal size [mm]	For pipe outer diameter [mm]	Part no.	Sales unit	Pack unit	Contents [m/box]
<b>MypoTHERM® Caoutchouc</b> In dispenser box for copper, steel and boiler pipes as well as for pipes made of plastic, composite materials and stainless steel	10	12	13–14	167652	1	carton	40
		15	15–17	167653			35
		18	17–20	167654			30
		22	20–22	167655			25
		28	28–30	167656			20
	13	12	13–14	112221			22
		15	15–17	112253			20
		18	17–20	112319			18
		22	20–22	112374			16
		28	28–30	112426			12

### Adhesive for MypoTHERM® Caoutchouc/Caoutchouc Plus 250 ml, with brush

Part no.	Sales unit	Pack unit
113206	1	pieces





## MypoTHERM® Caoutchouc Plus

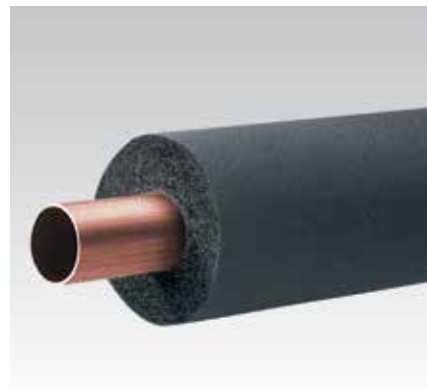
**Field of application**

- For the insulation of refrigerant pipes

**Advantages**

- Material possesses enormous flexibility and form stability
- Easy to work because of its smooth inner surface, especially in pipe bends and heavily twisted pipes

- Low thermal conductivity and highly resistant to water vapour diffusion
- Closed-cell structure prevents the absorption of condensate, oil and other aggressive fluids
- Euro fire class BL-S3-d0, dioxin-free in the event of fire
- Free of formaldehyde

**Features**

Material	Closed-cell insulation material on a synthetic rubber basis
Colour	black
Water vapour diffusion resistance	$\mu > 10,000$ at insulation thickness $\leq 25$ mm $\mu > 7,000$ at insulation thickness $> 25$ mm
Temperature range	$-40$ °C to $+110$ °C
Thermal conductivity	Insulation thickness $\leq 25$ mm: $\lambda = 0,037$ W/mK at $+40$ °C, $\lambda = 0,035$ W/mK at $+20$ °C, $\lambda = 0,033$ W/mK at $0$ °C, $\lambda = 0,031$ W/mK at $-20$ °C, Insulation thickness $> 32$ mm: $\lambda = 0,040$ W/mK at $+40$ °C, $\lambda = 0,038$ W/mK at $+20$ °C, $\lambda = 0,036$ W/mK at $0$ °C, $\lambda = 0,034$ W/mK at $-20$ °C
Building material class	BL-S3-d0 acc. to EN 13501-1
EG-certificate of Conformity	CPD.002.0-1/2012

**For copper pipes**

Insulation layer thickness [mm]	Insulation thickness [mm]	Nominal size [mm]	For pipe outer diameter [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]
ST-1	7	4	6*	137857	1	carton	352
		6	8*	137858			300
		8	10*	137859			266
		10	12*	137860			234
			15*	137861			192
		15	18*	137862			166
		20	22*	137863			132
			25*	137864			108
		25	28*	137865			96
			30*	137866			
		32	35*	137867			70
			38*	137868			
		40	42*	137915			60
							200
ST-2	13	4	6*	136745	1	carton	200
		6	8*	137934			
		8	10	136764			172
		10	12	137935			162
			15	137936			136
		15	18	137937			118



## MypoTHERM® Caoutchouc Plus

### For copper pipes

Insulation layer thickness [mm]	Insulation thickness [mm]	Nominal size [mm]	For pipe outer diameter [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]
ST-2	13	20	22	137938	1	carton	96
			25*	137939			80
		25	28	137940			78
			30*	137941			72
		32	35	136773			60
		40	42	136746			40
ST-4	19	8	10	137992			98
		10	12*	136747			88
			15	137993			78
		15	18	137994			72
		20	22	137995			64
			25*	137996			50
		25	28	137998			48
			30*	138000			40
		32	35	136936			
		40	42	138001			32
ST-5	25	15	18	138024			50
		20	22*	138025			42
		25	28	138027			40
		32	35	138028			24
ST-6	32	15	18	138065			32
		20	22	138066			
		25	28	138067			24
		32	35	138070			22
		40	42	136775			16

\* Delivery time upon request - no storage items

### For steel pipes:

Insulation layer thickness [mm]	Insulation thickness [mm]	Nominal size [inch]	Pipe outside-Ø [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]
ST-1	7	1/8	10,2*	137859	1	carton	266
		1/4	13,5*	137861			192
		3/8	17,2*	137862			166
		1/2	21,3*	137863			132
			25,0*	137864			108
		3/4	26,9*	137865			96
			30,0*	137866			
		1	33,7*	137867			70
			38,0*	137868			
		1 1/4	42,4*	137915			60
			44,5*	137916			56
		1 1/2	48,3*	137917			50
			54,0*	137918			40
			57,0*	137919			
		2	60,3*	137920			36
			63,5*	137921			32
			70,0*	137922			
		2 1/2	76,1*	137923			24
ST-2	13	1/8	10,2	136764			172
		1/4	13,5	137936			136
		3/8	17,2	137937			118



## MypoTHERM® Caoutchouc Plus

## For steel pipes:

Insulation layer thickness [mm]	Insulation thickness [mm]	Nominal size [inch]	Pipe outside-Ø [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]
ST-2	13	½	21,3	137938	1	carton	96
			25,0*	137939			80
		¾	26,9	137940			78
			30,0*	137941			72
		1	33,7	136773			60
		1¼	42,4	136746			40
			44,5*	137942			
		1½	48,3	137943			
			54,0	136699			32
			57,0	137944			
		2	60,3	137945			
			63,5	137946			28
			70,0	137948			
		2½	76,1	137950			
ST-4	19	⅝	10,2	137992			98
		¾	13,5	137993			78
		⅞	17,2	137994			72
		½	21,3	137995			64
			25,0*	137996			50
		¾	26,9	137998			48
			30,0*	138000			40
		1	33,7	136936			
		1¼	42,4	138001			32
			44,5*	138002			28
		1½	48,3	138003			24
			54,0	138004			
			57,0*	138005			20
		2	60,3	138006			
			63,5	138007			18
			70,0	138008			16
ST-5	25	2½	76,1	138009			
		⅞	17,2	138024			50
		½	21,3	138025			42
		¾	26,9	138027			40
			33,7	138028			24
		1½	48,3	138055			18
			54,0	138056			16
		2	60,3	138057			12
			63,5	138058			
			70,0	138059			
ST-6	32	2½	76,1	138060			10
		⅞	17,2	138065			32
		½	21,3	138066			
		¾	26,9	138067			24
		1	33,7	138070			22
		1¼	42,4	136775			16
		1½	48,3	138073			12
		2	60,3	138075			10
			70,0	138078			8
		2½	76,1	138079			

\* Delivery time upon request - no storage items



Information regarding firewall / ceiling lead-through available upon request.



### MypoTHERM® Caoutchouc for chilled water pipes in dispenser box

#### Field of application

- For the insulation of refrigerant pipes

- Space-saving, tidy storage in the dispenser box
- Easy transport in any vehicle
- Box dimensions 50 x 50 x 20 cm

#### Advantages

- Low thermal conductivity and high vapour diffusion resistance
- Rolled as an endless tube, no 2-metre remainders
- Saving working time due to fewer glued joints
- Cutting to length is made easier by measuring scale on the carton



#### Features



Material	Closed-cell insulation material on a synthetic rubber basis
Colour	black
Corrosion risk	pH-neutral acc. to DIN 13468
Temperature range	-40 °C to +110 °C
Water vapour diffusion resistance	$\mu > 10,000$
Building material class	B-S3-d0 acc. to EN 13501-1
EG-certificate of Conformity	CPD.002.0-1/2012

Average temperature [°C]	Thermal conductivity [W/mK]
40	0.037
20	0.035
0	0.033
-20	0.031

	Insulation thickness [mm]	Pipe outer diameter-Ø		Part no.	Sales unit	Pack unit	Contents [m/box]
		[mm]	[inches]				
MypoTHERM® Caoutchouc for chilled water pipes in dispenser box	6	6	¼	112542	1	carton	50
		8	5/16	112554			48
		10	3/8	112212			46
		12	½	112225			40
		15	5/8	112265			38
		18	¾	112327			30
		22	7/8	112378			23
		28	1 ⅛	112432			20
	9	6	¼	112154			40
		8	5/16	112192			37
		10	3/8	111981			34
		12	½	112012			31
		15	5/8	112041			27
		18	¾	112059			23
		22	7/8	112073			19
		28	1 ⅛	112091			14
	13	6	¼	112150			26
		8	5/16	112152			
		10	3/8	111979			23
		12	½	112008			18
		15	5/8	112035			17
		18	¾	112051			15
		22	7/8	112063			14
		28	1 ⅛	112081			10



## MypoTHERM® Caoutchouc tapes

### Field of application

- For insulation of fittings, valves and branch pipes, as well as for additional protection of junctions and seams of caoutchouc tubes

### Advantages

- Easy to work and good fixing due to self adhesive surface
- For insulation after the pipes have been installed
- Flame resistant, self-extinguishing (fire class B1)

- Various thicknesses by wrapping around the pipe
- Design for heating, refrigeration and solar technology available



	Material	Colour	Temperature resistance	Fire classification (acc. to DIN 4102)	Thickness [mm]	Length [m]	Width [mm]	Part no.	Sales unit	Pack unit
<b>MypoTHERM® Caoutchouc tapes</b>	Closed-cell insulation material on a synthetic caoutchouc basis (elastomer)	grey	up to +105 °C	B1	3	15	50	112927	1	roll
<b>MypoTHERM® Caoutchouc tapes for chilled water pipes</b>		black						113133		
<b>MypoTHERM® Solar caoutchouc tapes</b>			up to +150 °C	B2				112979		



### Mineral wool pipe jackets with aluminium facing

#### U-Protect Pipe Section Alu 2

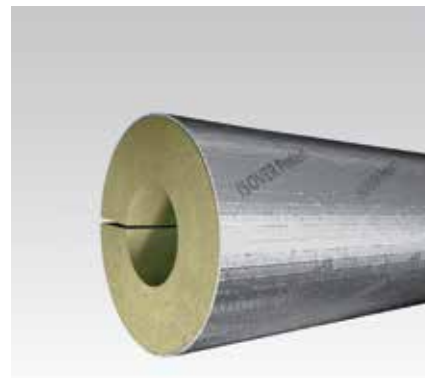
#### Field of application

- For thermal insulation of non-flammable pipes as well as for application areas, where non-flammable building material is required
- For use as pipe partition when routing through solid ceilings, and solid and lightweight partition walls

#### Advantages

- Slit on one side for simple and quick fitting onto the pipe
- No acoustic bridges between pipe and building structure

- Pipe insulation meets the requirements of the energy saving decree (EnEV)
- No change in the insulation material between section insulation and component feed-through
- The 2-in-1 pipe section – heat and fire protection for piping in a single product
- Efficient to use due to low weight



#### Features



Material	Mineral wool pipe jackets with aluminium facing
Effective density	68–88 kg/m³
Thermal conductivity	$\lambda_R = 0,035 \text{ W/mK}$ acc. to EnEV (40 °C)
Fire classification	A2L-s1-d0 acc. to EN 13501
Temperature range	Upper application limit temperature +620 °C max. +100 °C on the facing acc. to EN 14303
Melting point	1,000 °C
Length of jacket section	1.2 meter
General building authority test certificate	No: P-3084/259/12-MPA BS
Working temperature	$\geq +5 \text{ °C}$



Additions to fire behaviour:

Non-flammable acc. to IMO-Resolution MSC.61(67) - (FTP-Code) IMO MSC/Circ.1120.  
Approved for use in shipbuilding acc. to EC type-examination certificate no. 114.504 and  
USCG no. 164.109/EC0736/114.504.

Insulation thickness [mm]	Acc. to EnEV <sup>2)</sup>		Nominal size DN	For pipe outer diameter [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]
	50%	100%						
20		●	12	15	157250	1	carton	57.6
30 <sup>1)</sup>					157263			30.0
20		●	15	18	157251			50.4
30 <sup>1)</sup>					157264			28.8
20		●	20	22	157252			43.2
30					157265			24.0
40					157277			14.4
20	●		25	28	157253			36.0
30		●			157266			19.2
40					157278			
20	●		32	35	157254			30.0
30		●			157267			19.2
40					157279			10.8
50					157288			

<sup>1)</sup> Delivery time available upon request – no storage items. Additional dimensions available on request.

<sup>2)</sup> Required minimum insulation thickness acc. to EnEV for copper pipes acc. to DIN EN 1057 or steel pipes acc. to DIN EN 10255 (middle row). In case of doubt, it has to be checked whether the requirements of EnEV can be fulfilled with the specified insulation thicknesses.

## Mineral wool pipe jackets with aluminium facing

U-Protect Pipe Section Alu 2

Insulation thickness [mm]	Acc. to EnEV <sup>2)</sup>		Nominal size DN	For pipe outer diameter [mm]	Part no.	Sales unit	Pack unit	Contents [m/carton]
	50%	100%						
20	●		40	42	157255	1	carton	24.0
30					157268			14.4
40		●			157280			10.8
50					157289			
20 <sup>1)</sup>				48	157256			19.2
30 <sup>1)</sup>	●				157269			24.0
40					157281			9.6
50		●			157290			10.8
20					157257			28.8
30	●		50	54	157270			19.2
40					157282			10.8
50		●			157291			
20					157258			27.6
30	●		60	60	157271			19.2
40 <sup>1)</sup>					157283			10.8
50					157292			9.6
60		●			157299			4.8
20 <sup>1)</sup>				64	157259			24.0
30 <sup>1)</sup>	●				157272			10.8
40 <sup>1)</sup>					157284			
50 <sup>1)</sup>					157293			9.6
60 <sup>1)</sup>		●			157300			4.8
70 <sup>1)</sup>					157305			
20 <sup>1)</sup>				70	157260			19.2
30 <sup>1)</sup>					157273			14.4
40 <sup>1)</sup>	●				157285			10.8
50 <sup>1)</sup>					157294			9.6
60 <sup>1)</sup>					157301			4.8
70 <sup>1)</sup>		●			157306			
20			65	76	157261			19.2
30					157274			14.4
40	●				157286			10.8
50 <sup>1)</sup>					157295			4.8
60 <sup>1)</sup>					157302			6.0
70		●			157307			4.8
80 <sup>1)</sup>					165523			
20			80	89	157262			16.8
30 <sup>1)</sup>					165734			10.8
60 <sup>1)</sup>					157303			4.8
80 <sup>1)</sup>					165524			3.6
90 <sup>1)</sup>					157308			1.2
100		●			157309			

<sup>1)</sup> Delivery time available upon request – no storage items. Additional dimensions available on request.

<sup>2)</sup> Required minimum insulation thickness acc. to EnEV for copper pipes acc. to DIN EN 1057 or steel pipes acc. to DIN EN 10255 (middle row). In case of doubt, it has to be checked whether the requirements of EnEV can be fulfilled with the specified insulation thicknesses.



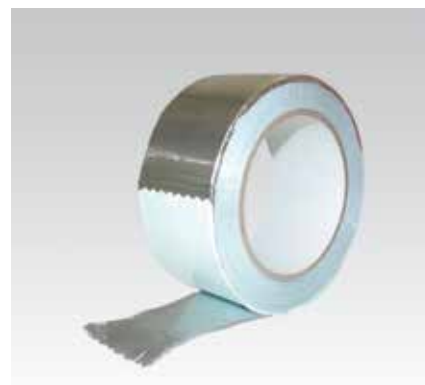
### Pure aluminium self-adhesive tapes

#### Field of application

- For adhesion of butt-joints of mineral wool pipe jackets with aluminium facing

#### Advantages

- Good adhesion on foils and laminations of aluminium
- Good adhesion even at low ambient temperatures up to 0 °C
- Can be taken simply and quickly from the roll



#### Features

Material	Pure aluminium self-adhesive tape
Size	30 µm
Fire classification (according to DIN 4102)	B1
Temperature range	-40 °C to +80 °C up to +100 °C in the short term
Storage	20–25 °C max. 65 % air humidity
Vapour barrier permeability	< 1 g/m <sup>2</sup> in 24 hours
Adhesive force (steel)	8 N/cm
Tearing strength	12 N/cm
Tear expansion	2%

Width [mm]	Length [m]	Part no.	Sales unit	Pack unit
50	100	141537	1	roll
75		113554		

#### Felt tapes self-adhesive

Width [mm]	Thickness [mm]	Length of roll [m]	Part no.	Sales unit	Pack unit
20	3	10	108835	1	roll
24			108837		
30			108839		
40			108840		
70			108841		
100			108834		



#### Nealed wire

on wooden stick, 25 pieces of 100 g

Part no.	Sales unit	Pack unit
106549	1	carton



## Installation plug set for tube insulation

### Field of application

- Plastic installation plugs for simple and quick installation of tube insulation

### Advantages

- Various mounting options, e.g. for foam pipe insulation, PE insulation tube or protection sleeves
- Tapered shaft to compensate for variations in pipe diameter

- The designation of the pipe size is stamped on the side for easy identification and classification of the plugs
- Made of a lightweight, wear-resistant polypropylene material




Size [mm]	Part no.	Sales unit	Pack unit	Contents
15–35	118741	1	set	2 pieces







## Sealing and protection materials

	MÜPRO	
1.	<a href="#">Vibration control</a>	
2.	<a href="#">Fire protection</a>	
3.	<a href="#">Pipe clamps</a>	
4.	<a href="#">Support channels</a>	
5.	<a href="#">Accessories</a>	
6.	<a href="#">Anchor points/ expansion points</a>	
7.	<a href="#">Heavy-duty pipe support</a>	
8.	<a href="#">MPT-Support system</a>	
9.	<a href="#">Ventilation</a>	
10.	<a href="#">Pipe connectors</a>	
11.	<a href="#">Stainless steel</a>	
12.	<a href="#">Hot-dip galvanised</a>	
13.	<a href="#">Anchor plugs</a>	
14.	<a href="#">Nameplates</a>	
15.	<a href="#">Insulation</a>	
16.	<a href="#">Sealing and protection materials</a>	
17.	<a href="#">Tools</a>	
18.	<a href="#">Radiator fastening</a>	
19.	<a href="#">Technical information</a>	



Silicone BB

16/1



Silicone NO

16/2



Acrylic joint sealers A

16/3



PU-Foams

16/4



PU-Cleaner

16/4



Color-Marker

16/5



Cartridge gun

16/5



Zinc spray

16/6



Mounting adhesive tapes

16/6



Textile tapes

16/7



PVC-Self-adhesive tapes

16/8

## Silicone BB

acid reticulating, cartridge à 310 ml

### Field of application

- Suitable for sealing and connections in bathrooms, kitchens, damp rooms, cool rooms and in industrial areas
- Also suitable for sealing building joints and joints around air ducts

### Advantages

- High-quality, ready-to-use sealant for many applications
- Excellent adhesion even on glass, glazed tiles, enamel, porcelain and ceramics
- Excellent temperature resistance
- Remains permanently elastic for joints up to 30 mm
- Acetic acid reticulating
- High UV resistance



### Features

Temperature range	–50 °C to +180 °C
Break expansion	650 % according to DIN 53504
Joint width min./max.	4 mm/25 mm
Painting properties	not to be painted over
Working temperature	+5 °C to +40 °C
Frost resistant (during transport)	till –15 °C
Skin over time (23 °C/55 % relative humidity)	10 min

Colour	Cartridge filling [ml]	Part no.	Sales unit	Pack unit
grey	310	140138	12	pieces
transparent		140139		
white		140140		

 Refer to chapter „Tools“ for cartridge guns.



### Silicone NO

neutrally reticulating, cartridge à 310 ml

#### Field of application

- Connection joints between pre-cast concrete parts and masonry, window connecting joints and facade joints, glass sealant, connection joints of washbasins and shower trays as well as for usage in industrial sector

#### Advantages

- Neutral reticulating, high-quality sealant
- Acid-free, almost odourless
- Fungus-inhibiting additives
- Remains permanently elastic over a wide temperature range
- Excellent adhesion even to galvanised steel, stainless steel, brass and plastics such as PVC, polyester, ABS and polystyrene



#### Features

Temperature range	–50 °C to +120 °C
Break expansion	400 % according to DIN 53504
Joint width min./max.	4 mm/25 mm
Painting properties	not to be painted over
Working temperature	+5 °C to +40 °C
Frost resistant (during transport)	till –15 °C
Skin over time (23 °C/55 % relative humidity)	6 min

Colour	Cartridge filling [ml]	Part no.	Sales unit	Pack unit
grey	310	140134	12	pieces
transparent		140135		
white		140136		



Refer to chapter „Tools“ for cartridge guns.



## Acrylic joint sealers A

cartridge à 310 ml

### Field of application

- For sealing connection joints between wood and metal, concrete and masonry
- For indoor and outdoor use

### Advantages

- Can be painted over
- Not corrosive on metal



### Features

Temperature range	-20 °C to +75 °C
Working temperature	+5 °C to +40 °C
Frost resistant (during transport)	till -15 °C
Skin over time (23 °C/55 % relative humidity)	5 min
Joint movement capability	±12,5 %
Break expansion	300 % according to DIN 53504
Joint width min./max.	4 mm/25 mm

Colour	Filling cartridge [ml]	Part no.	Sales unit	Pack unit
grey	310	140132	12	pieces
white		140133		



### PU-Foams

can à 750 ml

#### Field of application

- For filling of cable bushings, hollow spaces in walls, floors or ceilings, for assembling of joinery as well as for sealing of joints / fugues

#### Advantages

- Environmentally friendly, single-component foam, moisture-curing, CFC-free
- Good adhesion and adhesive strength to all building materials

- Easy to work and quickly hardening
- Low water absorption due to largely closed-cell foam
- Very good thermal insulation
- Fire classification B2 acc. to DIN 4102
- When used with a cartridge gun, the PU-Foam can still be used without any problem after the cartridge has been opened (use PU-Cleaner to clean the nozzle)



#### Features

Temperature range	permanent: -40 °C to +100 °C short-term: -40 °C to +130 °C
Thermal conductivity	0.04 W/mK
Water absorption	0.03 Vol.%
Fire classification (according to DIN 4102)	B2
Application	not sticky after 10 min can be cut after 40 min
Working temperature	+5 °C to +35 °C
Cleaning	remove fresh foam with PU-Cleaner

Type	Contents [ml]	Expanded volume [cm³]	Part no.	Sales unit	Pack unit
PU-Foam	750	approx. 40	140143	12	pieces
PU-Foam for cartridge gun			140141		

### PU-Cleaner

can à 500 ml

#### Field of application

- For the removal of fresh spatters of PU-Foam
- For the cleaning of not-yet-hardened PU-Foam from tools

#### Advantages

- Also suitable for the removal of wax, grease, oil and paint splatterings
- With a combi-adaptor for cleaning the PU cartridge gun



Contents [ml]	Part no.	Sales unit	Pack unit
500	140262	12	pieces



## Color-Marker

marking spray, can à 500 ml

### Field of application

- Universal implementation on asphalt, concrete, wood and soil

### Advantages

- Easy hand operation
- Fast and clean application due to safety twist cap
- Safety catch prevents unintentional spraying
- Dries quickly, does not agglomerate
- High-yield application due to a high proportion of pigment
- Bright colour, highly visible
- Minimum durability: approx. 4 years



Colour	Contents [ml]	Part no.	Sales unit	Pack unit
luminous yellow	500	136321	12	pieces
luminous blue		142855		
luminous red		142856		



Protects from direct sunlight and temperatures exceeding 50 °C.

## Cartridge gun

### Field of application

- For the clean and cost-efficient application of PU-Foam

### Advantages

- Handy, lightweight PU gun
- Adjustment screw on the gun allows accurate foam feed control; no dripping afterwards



Type	Part no.	Sales unit	Pack unit
SPU Eco	130601	1	pieces



### Zinc spray

can à 400 ml

#### Field of application

- Ideal for the patching of zinc coatings
- Suitable as zinc protection for welding points
- Subsequent zinc coating of cutting edges on channels

#### Advantages

- Layer thicknesses of up to 20 µm per working pass gives excellent corrosion protection
- Effective corrosion protection due to over 70 % zinc percentage in a dry film
- Also suitable for coating hot parts up to a temperature of 300 °C



Contents [ml]	Part no.	Sales unit	Pack unit
400	128579	1	pieces

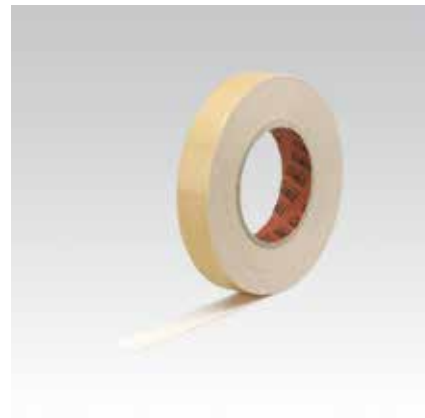
### Mounting adhesive tapes

#### Field of application

- Particularly suited for metals, glass, hard PVC, polycarbonate and ABS

#### Advantages

- Double-sided installation tape for the most rigorous requirements, with outstanding final bonding strength
- Weatherproof
- Plexiglas-compatible
- Resistant to softening agents
- Compatible with mirror lacquer



#### Features

Carrier	PE-Foam
Adhesive	Pure acrylate
Temperature range	-40 °C to +70 °C
Working temperature	+15 °C to +30 °C

Colour	Width [mm]	Length [m]	Thickness [mm]	Part no.	Sales unit	Pack unit
white	19	10	1	118450	1	roll





## Textile tapes

textile reinforced

### Field of application

- Sealing of pipes, fixing of covering materials, general marking works and painting
- For bonding to wood, plaster and masonry
- For connection of junction points

### Advantages

- Can be worked in a supple manner
- High initial adhesive force, even on rough surfaces
- High mechanical strength due to textile reinforcement
- Waterproof due to PE coating
- Easy to tear off



### Features

Temperature range	+66 °C for short periods
Working temperature	not below +5 °C

Colour	Width [mm]	Length [m]	Part no.	Sales unit	Pack unit
grey	48	50	111906	1	roll
red	50		111908		



### PVC-Self-adhesive tapes

#### Field of application

- Versatile – can be used for fixing and insulating

#### Advantages

- Prevents contact corrosion between pipe and clamps without DÄMMGULAST® lining
- Can be used as mounting aid
- Suitable for electrical insulation work
- Fire classification B1 according to DIN 4102, non-flammable and self-extinguishing

- Usable temperature range from –10 °C to +90 °C
- Largely resistant to dilute acids and alkalis



Colour	Width [mm]	Length [m]	Thickness [mm]	Part no.	Sales unit	Pack unit
ivory	19	10	0.15	123464	32	roll
	25			123484	24	
	30			123497	20	
	50			123509	12	
black	19			123476	32	
	30			123505	20	
	50			123517	12	
grey	30			123501	20	
	50			123513	12	
red				123521		





## Tools

	MÜPRO	
1.	<a href="#">Vibration control</a>	
2.	<a href="#">Fire protection</a>	
3.	<a href="#">Pipe clamps</a>	
4.	<a href="#">Support channels</a>	
5.	<a href="#">Accessories</a>	
6.	<a href="#">Anchor points/ expansion points</a>	
7.	<a href="#">Heavy-duty pipe support</a>	
8.	<a href="#">MPT-Support system</a>	
9.	<a href="#">Ventilation</a>	
10.	<a href="#">Pipe connectors</a>	
11.	<a href="#">Stainless steel</a>	
12.	<a href="#">Hot-dip galvanised</a>	
13.	<a href="#">Anchor plugs</a>	
14.	<a href="#">Nameplates</a>	
15.	<a href="#">Insulation</a>	
16.	<a href="#">Sealing and protection materials</a>	
17.	<a href="#">Tools</a>	
18.	<a href="#">Radiator fastening</a>	
19.	<a href="#">Technical information</a>	

	Laser distance meter	17/1		Profi cutter knife	17/19
	Pipe cutters	17/2–17/5		Manual fixing tool	17/19
	Threaded rod cutters	17/6		Allen key	17/19
	Trapezoid-sheet pliers	17/6		Torque wrench	17/20
	Hole punches	17/7		Protective goggles nylon	17/20
	Cartridge guns	17/7		Protective goggles UVEX	17/20
	Ratchet box	17/8		Fine dust masks	17/20
	Socket spanners	17/9		Gloves	17/21
	Hexagon head chucks	17/9		Hand washing paste	17/21
	Quick-change adapters	17/9		Garbage bags	17/21
	Screw-in chucks	17/9		Paper rolls	17/22
	Screwdriver bits	17/10		Plumbers case S	17/22
	ProfiBit-Toolbox	17/11		Polyboxes	17/22
	Hammer drills	17/11–17/15		Rotary stacking container	17/23
	Metal twist drills	17/16		Craftsman boxes	17/23
	Chisel for SDS chucks	17/17			
	Cutting-off and rough scrub wheels	17/18			
	Saw blades	17/18			
	Screwdriver	17/19			
	Wire brush	17/19			
	Universal cutter knife	17/19			

# Laser distance meter

LD 320

## Field of application

- Ideal laser distance meter for indoor use
- Provided with all basic functions (length, area, volume, tracking permanent measure, Pythagoras with two meter points)

## Advantages

- High measurement accuracy, measure up to 60 m with laser precision
- Large figures and backlit display
- Calculates distance values within one second

- Different measure references on the frontside and backside of the housing
- Belt bag for comfortable transportation
- Robust structure with resistant box for challenging use on construction sites
- Simple, self-explanatory handling
- Secure and fast measuring on hard to reach locations



## Features

Measuring accuracy at 10 m	± 1.5 mm
Min. measuring distance	0.05 meter
Max. measuring distance	60 meter
Laser class	635 nm, Class 2
Measuring functions	Single and permanent measurement
Computational functions	Length, area, volume, tracking (permanent measure), Pythagoras with 2 and 3 meter points
Protection class	IP 40
Life cycle of alkaline batteries	Up to 3,000 measurements
Dimensions (LxH)	100 x 54 x 30 mm
Weight	0.100 kg

Type	Scope of supply	Part no.	Sales unit	Pack unit
LD 320	Belt bag, alkaline batteries	142404	1	pieces



## Pipe cutter

MRS 1

### Field of application

- Pipe cutter for plastic and composite pipes

### Advantages

- Quick to adjust to the pipe diameter using the ratchet facility of the spindle
- Quick-opening due to the spring-loaded release function of the spindle
- Precise cut due to the exact pipe guidance
- Integrated pipe deburring

- Rotary, metal grip with large diameter for handy setting
- Robust, support rollers with grooves for cuts close to the flange



Quick adjustment of the spindle



Guide rollers with groove



Integral pipe deburring knife MRS 1

	Suitable for	For pipes [mm]	Part no.	Sales unit	Pack unit
Pipe cutter MRS 1-67	Plastic pipes, composite pipes	6-67	115164	1	pieces
Pipe cutter MRS 1-140		50-140	115167		
Cutting wheels for pipe cutter MRS 1-67		6-67	120590		
Cutting wheels for pipe cutter MRS 1-140		50-140	120587		



# Pipe cutter

MRS 2

## Field of application

- Pipe cutter for plastic and composite pipes

## Advantages

- Handy pistol form
- Low manual force required due to ratchet conversion ratio
- Quick retraction of the cutting blade
- Precise pipe seating for square cut

- Cutting knife guidance on both sides
- Cutting knife easy to replace
- Rugged metal housing for hard use



Ratchet conversion ratio



Quick-retraction head



2 screws for replacing cutting knife

	Suitable for	For pipes [mm]	Part no.	Sales unit	Pack unit
Pipe cutter MRS 2	Plastic pipes, composite pipes	6–35	115161	1	pieces
Cutting blades for pipe cutter MRS 2			120576		



### Pipe cutter

MRS 3

#### Field of application

- Pipe cutter for copper and aluminium pipes

#### Advantages

- Innovative ratchet mechanism
- For cutting pipes in confined spaces – even when the pipe is already fitted
- Feed motion of cutter using the non-slip hand wheel
- Easy-to-replace cutting wheel
- Integrated pipe deburring



Opened pipe cutter



Start of cutting



Ratchet mechanism

	Suitable for	For pipes [mm]	Part no.	Sales unit	Pack unit
Pipe cutter MRS 3–28	Copper pipes, aluminium pipes	8–28	115158	1	pieces
Pipe cutter MRS 3–35		15–35	115155		
Cutting wheels for pipe cutter MRS 3	Stainless steel pipes	–	148363		set
Cutting wheels for pipe cutter MRS 3 Set of 2 pieces	Copper pipes, aluminium pipes		120594		





# Pipe cutter

MRS 4

## Field of application

- Pipe cutter for cutting of copper, aluminium, plastic and thin-walled steel pipes

## Advantages

- Innovative ratchet mechanism
- For cutting pipes in confined spaces – even when the pipe is already fitted
- Easy-to-replace cutting wheel

- Stable design and hardened counterpressure rollers ensure accurate alignment on the pipe and a long service life
- Fast and easy adjustment of the work area by means of a thumb wheel



Pipe cutter MRS 4-10  
with plastic housing



Pipe cutter MRS 4-28  
with plastic housing



Pipe cutter MRS 4-28M  
with metal housing and plastic grip

	Suitable for	For pipes [mm]	Part no.	Sales unit	Pack unit
Pipe cutter MRS 4-10	Copper, aluminium, plastic and thin-walled steel pipes	4-10	155474	1	pieces
Pipe cutter MRS 4-28M		6-28	155477		
Pipe cutter MRS 4-28			155478		
Cutting wheels for MRS 4-10		4-10	155481		
Cutting wheels for MRS 4-28 and MRS 4-28M		6-28	155483		



## Threaded rod cutters

### Field of application

- Very simple cutting of threaded rods on site

### Advantages

- Cuts galvanised threaded rods in the qualities 4.6 and 5.8
- No reworking of the threaded rods necessary
- Clean cut allows the nuts to be screwed on directly
- Cutting without electric power
- Easy to transport



	For threaded rods	Part no.	Sales unit	Pack unit
Threaded rod cutters	M8	113681	1	pieces
	M10	113678		
Cutter inserts	M6	130215		
	M8	130216		
	M10	130214		

## Trapezoid-sheet pliers

### Field of application

- Punching plier for trapezoidal sheets of up to 1.25 mm thickness
- For screwing on trapezoidal sheet hangers
- Jaws open up to 100 mm

### Advantages

- The long handle enables easy punching of holes for subsequent fixing
- Exchangeable punching pliers increase the life cycle of the trapezoid-sheet plier



Trapezoid-sheet pliers L



Trapezoid-sheet pliers

Type	Jaw opening [mm]	Part no.	Sales unit	Pack unit
Trapezoid-sheet pliers	from 78 to 10	130206	1	pieces
Trapezoid-sheet pliers L	from 100 to 10	130208		



## Hole punches for trapezoid-sheet pliers

For type	Trapezoidal sheet thickness [mm]	Diameter [mm]	Part no.	Sales unit	Pack unit
Trapezoid-sheet pliers	1.25	10	<b>114886</b>	1	set
Trapezoid-sheet pliers L	1.20		<b>114889</b>		



Hole punches for trapezoid-sheet pliers L



Hole punches for trapezoid-sheet pliers

## Cartridge gun, HPS 12 suitable for 310-ml cartridges

Type	Part no.	Sales unit	Pack unit
HPS 12	<b>130600</b>	1	pieces



## Cartridge gun, DPS 12 S suitable for 310-ml cartridges

Type	Part no.	Sales unit	Pack unit
DPS 12 S	<b>130598</b>	1	pieces



## Cartridge gun, DPS 14 suitable for 310-ml cartridges

Type	Part no.	Sales unit	Pack unit
DPS 14	<b>130599</b>	1	pieces



## Ratchet box

### Field of application

- For screw-mounting in industrial and handcraft sector

### Advantages

- 96-pieces ratchet box with high-quality chrome-vanadium steel components
- Massive professional ratchet spanner enables tightening with the highest torques
- Ergonomic anti-slip hand grip for a secure hold
- Socket ejection at the touch of a button
- One-finger switchover between tightening and unscrewing
- Comprehensive accessory pack
- Robust and well laid-out plastic case



Scope of supply 1/4"	1 x Reversible ratchet 1 x Universal joint 1 x 100 mm extension with T-adaptor 1 x Screwdriver with socket fitting	1 x Clamping ring holder for bits 1/4" 8 x Socket SW 4–SW 9 8 x Long socket SW 6–SW 13 7 x Socket with Torx E 4–E 11
Scope of supply 1/2"	1 x Reversible ratchet 1 x Universal joint 1 x Clamping ring holder for bits SW 10 1 x 125 mm extension 1 x 250 mm extension with T-adaptor	16 x Socket with hex SW 10–SW 32 5 x Long socket SW 14–SW 22 7 x Socket with Torx E 12–E 24 3 x Torx with internal hole T 50–T 60 2 x Sparking plug socket SW 16 + SW 21
Scope of supply Bits (SW10)	2 x Cross PZ 3 + PZ 4 2 x Cross PH 3 + PH 4 3 x Slot 8–12	2 x Hex 6 + 8 mm 2 x Torx with internal hole T 40 + T 45
Scope of supply Bits (1/4")	2 x Cross PZ 1 + PZ 2 2 x Cross PH 1 + PH 2 1 x Slot 6.5	2 x Hex 4 + 5 mm 6 x Torx T 10–T 30 6 x Torx with internal hole T 10–T 30

Scope of supply	Part no.	Sales unit	Pack unit
96 pieces, carrying case	124505	1	pieces

## Socket spanners

1/2"

Spanner width [SW]	Part no.	Sales unit	Pack unit
8	129572	1	pieces
10	106525		
12	129564		
13	106526		
16	106527		
17	129567		
18	129568		
19	129569		
21	129570		
24	129571		



## Hexagon head chucks

with magnet, for screwing in hexagonal head screws

Spanner width [SW]	Part no.	Sales unit	Pack unit
7	106572	1	pieces
8	106573		
10	106569		
12	106570		
13	106571		



## Hexagon head chucks

for concrete screws

Spanner width [SW]	Connection for	Part no.	Sales unit	Pack unit
10	1/4"-hex	106550	1	pieces
13		106551		



## Quick-change adapter

for screwdriving tools with hexagonal head or socket

Connection for	Part no.	Sales unit	Pack unit
Hexagon 6 mm	120978	1	pieces



## Screw-in chucks

for power driver to tighten bolt screws and shoulder screws

Size	Part no.	Sales unit	Pack unit
M8	107842	1	pieces
M10	107840		



### Screwdriver bits

¼"-hex

Size/length [mm]	Part no.	Sales unit	Pack unit
PZ1/50	121349	1	pieces
PZ2/50	121353		
PZ3/50	121357		



### Pozidriv screwdriver bits

for screws with cross-head

Size	Part no.	Sales unit	Pack unit
1	106584	1	pieces
2	106585		
3	106586		



### Screwdriver bits

for screws with hex socket head

Spanner width [SW]	Part no.	Sales unit	Pack unit
5	106553	1	pieces
6	106552		



### Screwdriver bits "TX"

for screws with TX-drive

Size	Part no.	Sales unit	Pack unit
TX10/25	121365	1	pieces
TX15/25	121373		
TX20/25	121380		
TX27/25	121396		
TX30/25	106581		
TX25/25	106580		
TX40/25	106582	5	
TX10/70	121369	1	
TX15/70	121376		
TX20/70	121384		
TX25/70	121392		
TX30/70	121404		
TX40/70	121412		



### Screwdriver bit

for screws with slotted head

Size [mm]	Part no.	Sales unit	Pack unit
1.0 x 7.0	106554	1	pieces



## ProfiBit-Toolbox

### Field of application

- For various screw application with PH, PZ, flat head Philips, hexagon socket and Torx drive

### Advantages

- 32 pieces set with all common metrics
- Color guidance system with clear bit selection for a quick locating of the suitable bit

- Automatic system bit holder 1/4" including lock and quick release of the bits
- Non-breakable plastic box for storage
- Including belt clip



### Scope of supply

1 x Automatic bit holder 1/4" with lock and quick release of bits  
 1 x Socket adapter 1/4" square drive with 1/4" hexagon socket drive  
 30 x bit, 25 mm length  
 4 x Philips PH1, PH2, PH2, PH3  
 4 x Pozidriv PZ1, PZ2, PZ2, PZ3  
 4 x Flat head 3, 4, 5, 6 mm  
 4 x Hexagonal socket 3, 4, 5, 6 mm  
 7 x Torx T10, T15, T20, T25, T27, T30, T40  
 7 x Torx with inside drilled hole T10, T15, T20, T25, T27, T30, T40

Part no.	Sales unit	Pack unit
142490	1	pieces

## Hammer drill set SDS-plus

with 2-blade technology, 7 pieces

### Field of application

- For fitting in SDS plus chucks
- For rapid drilling in concrete, masonry and natural stone

### Advantages

- Hammer drill set in robust metal case
- SDS hammer drill bits of proven MÜPRO quality
- High-quality hard-metal cutting edges
- Case including sizes 5, 6, 8 x 110 mm and 6, 8, 10, 12 x 160 mm



Drill bit sizes (Ø x overall length in mm)	Part no.	Sales unit	Pack unit
5, 6, 8 x 110 6, 8, 10, 12 x 160	114960	1	set



### Hammer drills SDS-plus with 3-blade technology

#### Field of application

- For fitting in SDS-plus chucks
- For fast drilling in concrete C20/C25, natural stone, lightweight concrete, solid bricks and sand-lime bricks

#### Advantages

- Solid, hard-metal head for robustness and a long service life
- Optimised drill head with 3-blade technology for a clean, fast and constant drilling process
- User-friendly operation is guaranteed thanks to the perfect balance between dust removal and effective power transmission from the hammer drill to the drill bit
- The increased core diameter provides greater resilience and stability and thus extends the service life of the drill bit
- Great drilling results, no snagging in case of reinforcement steel impact, thanks to 3-blade cutting technology and spiral geometry



Drill bit size Ø [mm]	Total length [mm]	Usable length [mm]	Part no.	Sales unit	Pack unit
5	110	50	155760	1	pieces
	160	100	155761		
6	110	50	155762		
	160	100	155763		
	210	150	155764		
	260	200	155765		
8	110	50	155766		
	160	100	155767		
	210	150	155768		
	260	200	155769		
	310	250	155770		
	460	400	155771		
10	160	100	155772		
	210	150	155773		
	260	200	155774		
	310	250	155775		
	460	400	155776		
	460	400	155777		
12	160	100	155778		
	210	150	155779		
	260	200	155780		
	310	250	155781		
	460	400	155996		
	460	400	155997		
14	160	100	155998		
	210	150	155999		
	260	200	156010		
	310	250	156011		
	460	400	156012		
15	210	150	156013		
16	260	200	156014		
	310	250	156015		
	460	400	156016		
	460	400	156017		
18	210	150	156018		
	260	200	156019		
	310	250	156020		
	460	400	156021		
20	260	200	156022		
	310	250	156022		





### Hammer drills SDS-plus with 3-blade technology

	Drill bit size Ø [mm]	Total length [mm]	Usable length [mm]	Part no.	Sales unit	Pack unit	Content [pieces]
Hammer drills SDS-plus, 3-bladed, in plastic box	5	110	50	156023	1	box	12
		160	100	156024			
	6	110	50	156025			
		160	100	156026			
		210	150	156027			
	8	110	50	156028			
		160	100	156029			
		210	150	156030			
		260	200	156031			
	10	160	100	156032			
		210	150	156033			
		260	200	156034			
	12	160	100	156035			
		210	150	156036			
		260	200	156037			
	14	160	100	156038			
		210	150	156039			
		310	250	156040			
	16	260	200	156041			



## Hammer drills SDS-plus with 2-blade technology

### Field of application

- For fitting in SDS-plus chucks
- For rapid drilling in concrete, masonry and natural stone

### Advantages

- SDS hammer drill bits of proven MÜPRO quality
- High-quality hard-metal cutting edges



Drill bit size Ø [mm]	Total length [mm]	Usable length [mm]	Part no.	Sales unit	Pack unit
5	110	55	114845	1	pieces
	160	105	114848		
6	110	55	114851		
	160	105	114854		
	210	155	114857		
7	160	105	114860		
8	110	55	114863		
	160	105	114866		
	210	155	114869		
	260	205	114872		
9	160	105	114875		
10	110	50	114713		
	160	105	114716		
	210	155	114719		
	260	205	114722		
	350	310	133236		
	450	405	114728		
12	160	105	114734		
	210	155	114737		
	260	205	114740		
	460	405	114743		
	600	555	114746		
13	160	105	114749		
	210	155	114752		
	260	205	114755		
14	160	105	114758		
	210	155	114761		
	260	205	114764		
	310	255	114767		
	460	405	114770		
15	160	105	114773		
	260	205	114776		
	450	405	114779		
16	160	105	114782		
	210	155	114785		
	250	205	114788		
	300	255	114791		
	450	405	114794		
	600	555	114797		
18	210	155	114800		
	300	255	114803		
	450	405	114806		

## Hammer drills SDS-plus with 2-blade technology

Drill bit size Ø [mm]	Total length [mm]	Usable length [mm]	Part no.	Sales unit	Pack unit
20	210	155	114809	1	pieces
	310	255	114812		
	450	405	114815		
22			114824		
25	250	205	114830		
	450	405	114833		

## Hammer drills SDS-max with 4-blade technology

### Field of application

- For fitting in SDS plus chucks
- For rapid drilling in concrete, masonry and natural stone

### Advantages

- Four-cutting-edge drill bit for good centring in the drill hole
- Good removal of drill dust due to the generously dimensioned helix
- Minimised friction in the hole due to the optimised helix
- Two secondary cutting edges protect the main cutting edge against contact with steel reinforcements



Four-cutting-edge head



Hammer drills

Drill bit size Ø [mm]	Total length [mm]	Part no.	Sales unit	Pack unit
12	340	114881	1	pieces
14		114884		
16		114890		
18		114893		
20	320	114899		
	520	114901		
22	320	114904		
	520	114907		
24	320	114910		
25	520	114919		
28	370	114922		
	570	114925		
30	370	114928		
	570	114931		
32	370	114935		
	570	114939		
35	370	114942		
	570	114945		
38	370	114948		
	570	114951		
40	370	114954		
	570	114957		



### Metal twist drills HSS

DIN 338, bit with long life cycle, right-hand cutting, for steel and cast steel

Drill bit size Ø [mm]	Total length [mm]	Usable length [mm]	Part no.	Sales unit	Pack unit
2.0	49	24	126354	10	pieces
2.5	57	30	126356		
3.0	61	33	126358		
3.5	70	39	126368		
3.8	75	43	126370		
4.0			126372		
4.1			126374		
4.2			126376		
4.5	80	47	126378		
4.8	86	52	126380		
4.9			126382		
5.0			126390		
5.1			126384		
5.2			126386		
5.5	93	57	126388		
6.0			126394		
6.5	101	63	126392		
7.0	109	69	126396		
7.5			126398		
8.0	117	75	126402		
8.5			126400		
9.0	125	81	126404		
9.5			126406		
10.0	133	87	126334	5	
10.5			126336		
11.0	142	94	126338		
11.5			126340		
12.0	151	101	126342		
12.5			126344		
13.0			126346		
14.0	160	108	126348		
15.0	169	114	126350		
16.0	178	120	126352		



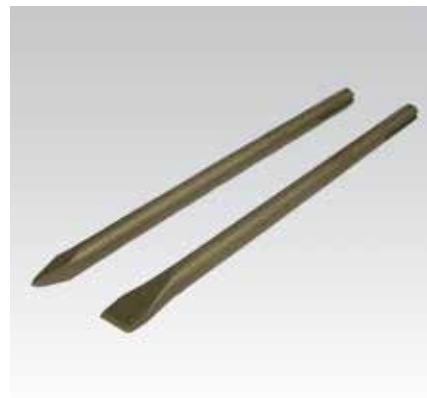
## Chisels for SDS chucks

### Field of application

- For working in concrete, masonry and natural stone

### Advantages

- Chisel made of high-quality heat-treated steel
- Special hardening process for good durability
- Low notch sensitivity



Pointed and flat chisels

Type	Suitable for	Width [mm]	Length [mm]	Part no.	Sales unit	Pack unit
Pointed chisel	SDS plus	–	250	152690	1	pieces
	SDS max		400	126436		
Flat chisel	SDS plus	20	250	152658		
		40		152659		
	SDS max	25	400	108854		



## Cutting-off and rough scrub wheels

### Field of application

- For machining various materials
- Can be used on building site as well as in the factory

- High cutting performance
- Max. peripheral speed 80 m/sec
- Manufactured according to EN 12413

### Advantages

- Long lifetime
- High resistance to fracture and side loading
- Low heating up of the material



Cutting-off disc for metal	Formed steel, cast iron, pipes, steel sheet
Rough grinding disc for metal	Chamfering, rough and smooth grinding of grey cast iron, welding seams, non-alloyed steel, steel castings surfaces
Diamond cutting-off disc	For general masonry work, e.g. B. floor tiles, brickwork, artificial stone slabs

Type	Dimensions [mm]	Type	Suitable for	Part no.	Sales unit	Pack unit	
Cutting-off discs	115 x 1.0 x 22	straight	metal	130221	50	pieces	
	115 x 2.5 x 22	offset		130223	25		
	115 x 2.5 x 22	straight	metal and stone	130226	50		
	125 x 1.0 x 22		metal	130220			25
	125 x 2.5 x 22		offset	130222			25
	180 x 3.0 x 22		straight	130224			
	230 x 3.0 x 22			130225			
Rough grinding discs	115 x 6.0 x 22	offset		122009	10		
	125 x 6.0 x 22			122005			
	230 x 6.0 x 22			122013	25		
Diamond cutting-off discs	230 x 2.1 x 22	straight		stone	107141		1
Cutting-off discs	115 x 1.0 x 22	straight	metal	166541			
value pack with 50 pieces	125 x 1.0 x 22			166542			

### Recipro-saw blades HSS

bi-metallic, hardened teeth

Application	Teeth/inch	Length [mm]	Thickness [mm]	Width [mm]	Part no.	Sales unit	Pack unit
All steel types	24	300	0.6	13	117323	10	pieces



### Recipro-saw blades

bi-metallic, for sheet metal, steel and non-ferrous metals up to 8 mm thickness

Application	Type	Teeth/inch	Length [mm]	Part no.	Sales unit	Pack unit
Steel and non-ferrous metals from 3 to 8 mm	P-04911	14	150	113416	5	pieces
	P-04927		200	113419		
Sheet metal and sectional steel from 1.2–2 mm	P-04896	24	100	113410		
	P-04905		150	113413		
Steel, non-ferrous metals and sections up to 1 mm	P-04955	32		113422		



## Screwdriver

Type	Part no.	Sales unit	Pack unit
With cross-head	121256	1	pieces



## Wire brush

removes rust, fouling and paint residues

Part no.	Sales unit	Pack unit
107325	1	pieces



## Universal cutter knife

	Length [mm]	Blade width [mm]	Part no.	Sales unit	Pack unit
Cutter knife	130	9	107065	1	pieces
Replacement blades 10 pieces box			108012		



## Profi cutter knife

	Length [mm]	Blade width [mm]	Part no.	Sales unit	Pack unit
Cutter knife	100	18	151306	1	pieces
Replacement blades 10 pieces box			150712		



## Manual fixing tool

for screwing of bolt screws, shoulder screws and threaded pins

For thread	Part no.	Sales unit	Pack unit
M10	115361	1	pieces



## Allen key

Spanner width [SW]	Part no.	Sales unit	Pack unit
8	117223	1	pieces



### Torque wrench

Drive [inches]	Workspace [Nm]	Part no.	Sales unit	Pack unit
¼	10–50	150989	1	pieces



### Protective goggles nylon

Part no.	Sales unit	Pack unit
122029	1	pieces



### Protective goggles UVEX

Part no.	Sales unit	Pack unit
149504	1	pieces



### Fine dust mask FFP1, in accordance with EN 149-2001

without breathing valve, protection against solid and aqueous particles up to 4x the MAK value

Part no.	Sales unit	Pack unit
108596	15	pieces



### Fine dust masks FFP2, in accordance with EN 149-2001

Protection against toxic fine dust, smoke and aerosols up to 10x the MAK value

Type	Part no.	Sales unit	Pack unit
Fine dust masks with breathing valve	108598	15	pieces
Protecting mask without breathing valve	119032	50	



### Fine dust masks FFP2, in accordance with EN 149-2001

without breathing valve, protection against solid and aqueous particles up to 10x the MAK value

Part no.	Sales unit	Pack unit
108597	15	pieces





### Disposable gloves

elastic, tear-resistant, interior surface lightly powdered

Part no.	Sales unit	Pack unit
107935	100	pieces



### Work gloves

with rubber pads, cotton/polyester, knitted glove, sure-grip, non-slip

Part no.	Sales unit	Pack unit
106340	12	pair



### Work gloves leather

Part no.	Sales unit	Pack unit
106341	12	pair



### Work gloves

MAXIFLEX Ultimate, breathable and silicone-free

Size	Part no.	Sales unit	Pack unit
8	160455	1	pair
10	151740		
12	154675		



### Hand washing paste

500 ml

Part no.	Sales unit	Pack unit
115438	1	pieces



### Garbage bags

volume approx. 120 litres

Size	Part no.	Sales unit	Pack unit	Contents
45 µm	118982	1	roll	roll with 25 pieces
68 µm	167365			roll with 15 pieces



### Paper rolls, white

extremely absorbent material, tear-resistant, absolutely solvent-resistant, lint-free soft material, 2-ply, perforated, sheet format: L 37 cm x B 32 cm, length approx. 380 m

Part no.	Sales unit	Pack unit
120121	1	pieces



### Plumbers case S

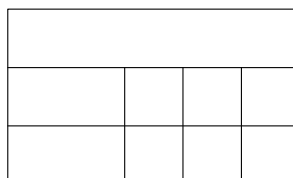
#### Field of application

- For the clearly arranged storage of tools, consumables, auxiliary materials and accessories
- Ideal and safe transport, as well as long-term, packaging

#### Advantages

- Compact case dimensions 100 x 550 x 350 mm
- Robust practical steel case for long service life cycle

- Cup-lock enables easy and quick opening of the case
- 9-compartment insert for easy equipping and overview



Height [mm]	Width [mm]	Depth [mm]	Part no.	Sales unit	Pack unit
100	550	350	118458	1	pieces

### Polyboxes

#### Field of application

- For organised storage of your products

#### Advantages

- Robust, dimensionally stable plastic box for long service life
- Flexible application due to different sizes
- Easy filling and quick emptying

- Stackable – thus space saving
- Even inner walls for easy cleaning
- Obvious identification via label insert strip



Type	Length [mm]	Width [mm]	Height [mm]	Part no.	Sales unit	Pack unit
Large	500/450	300	180	121019	1	pieces
Medium	350/300	200	150	121031		
Small	230/200	140	130	121027		



## Rotary stacking container

### Field of application

- Dimensionally stable and robust plastic container for storage and transport of materials and tools

### Advantages

- Reinforced edge as perimeter carrying grip
- Flexible application
- Easy filling and quick emptying
- Due to 180° rotation, containers are stackable inside each other or on top of each other, thus they save space
- Even inner walls; easy to clean



Height [mm]	Width [mm]	Depth [mm]	Part no.	Sales unit	Pack unit
250	600	400	138605	1	pieces

## Craftsman boxes

### Field of application

- Dimensionally stable and robust plastic box for storage and transport of materials and tools

### Advantages

- The box sizes correspond to euro-pallet sizes and are ideally suited for stacking
- Suitable for roller conveyors
- Flexible application due to removable lid
- Hinged cover with slide closure
- Made of polypropylene; satisfies the requirements of the German Food Law



Box	Height Outside [mm]	Height Inside [mm]	Width Outside [mm]	Width Inside [mm]	Depth Outside [mm]	Depth Inside [mm]	Part no.	Sales unit	Pack unit
5 l	145	133	300	252	300	152	138147	1	box
20 l	210	200	400	356	300	255	138146		





## Radiator fastening

	MÜPRO	
1.	<a href="#">Vibration control</a>	
2.	<a href="#">Fire protection</a>	
3.	<a href="#">Pipe clamps</a>	
4.	<a href="#">Support channels</a>	
5.	<a href="#">Accessories</a>	
6.	<a href="#">Anchor points/ expansion points</a>	
7.	<a href="#">Heavy-duty pipe support</a>	
8.	<a href="#">MPT-Support system</a>	
9.	<a href="#">Ventilation</a>	
10.	<a href="#">Pipe connectors</a>	
11.	<a href="#">Stainless steel</a>	
12.	<a href="#">Hot-dip galvanised</a>	
13.	<a href="#">Anchor plugs</a>	
14.	<a href="#">Nameplates</a>	
15.	<a href="#">Insulation</a>	
16.	<a href="#">Sealing and protection materials</a>	
17.	<a href="#">Tools</a>	
18.	<a href="#">Radiator fastening</a>	
19.	<a href="#">Technical information</a>	



Expander for  
finished floors

18/1



Expander for  
unfinished floors

18/2



Wall hanger brackets for  
radiator without lugs

18/3



Stand bracket set US for  
finished floors

18/4



Stand bracket set UF for  
finished floors, types 20, 22, 33

18/5



Stand bracket set US for  
unfinished floors

18/6



Separate drill-in bracket FF for  
radiators with lugs

18/7



Drill-in bracket FFU2 set for  
radiators without lugs

18/8

## Expander for finished floors

### Field of application

- Can be used for free-standing installation of radiators
- Suitable for indoor installation of radiators directly on the finished floor

### Advantages

- Installation-friendly expander for radiators for fast installation directly on the finished floor
- Installation-friendly, can be assembled without special tools

- Base plate with reinforcing seam for the sturdy fastening on the finished floor
- Infinitely variable ground clearance
- Suitable for radiators with an installation height of up to 900 mm
- Set comprised of two support feet and fastening material
- For radiator mounts fulfilling VDI Directive 6036



Type	Colour	Part no.	Sales unit	Pack unit
58-70	white	149533	1	set
79-91		149534		
85-97		149535		

	Type 58-70	Type 79-91	Type 85-97
APOLLO / IMAS	/	22 / 22DK / 33-3K	/
BAXI	21 / 21H	22 / 22H	/
BIASI	PAP (21)	PAAP (22)	/
BORPAN	/	/	22PKKP / 33PKKP / 20 / 22 / 30 / 33
BRÖTJE	/	/	22 / 33
BRUGMAN	/	20 / 21 / 22 / 33	/
BUDERUS	/	22 / 33	/
CETRA	/	DK (22) / DKEK (33)	/
CONCEPT	/	22 / 33	/
CONCEPT CLASSIC	/	/	22 / 33
COPA	/	/	22 / 33
DEF	/	/	22 / 33
DE'LONGHI	/	/	21 / 22 / 33
DEMIRAD	/	22-DK / 33-DKEK	/
DIANORM	/	/	22 / 33
DIATHERM GALANT	20 / 21	/	22 / 33
DURA / THOR	/	/	22 / 33
ELBA	/	/	PKKP (22) / PKKPKP (33)
EUROTHERM	/	22 / 33	/
FERROLI	/	/	/
FINIMETAL	21VM	/	20S / 22S / 22H / 33S / 33H 22I / 22C / 33I / 33C / 22VM
KERMI	/	21 / 22 / 33	/
HENRAD / STELRAD	20 / 21	22 / 33	/
IMA	/	/	/
KORAD	/	22K/VK/VKS/H, 33K/VK/VKS/H	/
KORADO	/	22 / 33 / 22VKM / 33VKM	/
MANAUT	/	DK (22) / DK-V (22KV) DKEK (33) / DKEK-V (33KV)	/
PURMO	/	21 / 22 / 33	/
RADSON	/	21 / 22 / 33	/
SANICA	/	/	PKKP (22) / PKKPKP (33)
SCHÄFER	/	/	/
SUPERIA	20 / 21	/	22 / 33
THERMOPLUS	/	/	21 / 22 / 33
THERMOTEC	/	20PP / 22-PKKP / 33-PKKPKP	/
THERMRAD	/	22 / 33	/
VOGEL & NOOT	21K-S / 20 / 20VM	/	22K / 33K / 30 / 30VM
QUINN (VEHA)	/	/	22 / 33



### Expander for unfinished floors

#### Field of application

- Can be used for free-standing installation of radiators
- Suitable for indoor installation of radiators directly on the unfinished floor

#### Advantages

- Installation-friendly expander for radiators for fast installation directly on the unfinished floor
- Installation-friendly, can be assembled without special tools

- Base plate with reinforcing seam for the sturdy fastening on the unfinished floor
- Support foot individually adjustable to the screed height
- Infinitely variable ground clearance
- Suitable for radiators with an installation height of up to 900 mm
- Set comprised of two support feet and fastening material
- For radiator mounts fulfilling VDI Directive 6036



Type	Colour	Part no.	Sales unit	Pack unit
58–70	white	<b>149537</b>	1	set
79–91		<b>149538</b>		
85–97		<b>149539</b>		

	Type 58–70	Type 79–91	Type 85–97
APOLLO / IMAS	/	22 / 22DK / 33-3K	/
BAXI	21 / 21H	22 / 22H	/
BIASI	PAP (21)	PAAP (22)	/
BORPAN	/	/	22PKKP / 33PKKP / 20 / 22 / 30 / 33
BRÖTJE	/	/	22 / 33
BRUGMAN	/	20 / 21 / 22 / 33	/
BUDERUS	/	22 / 33	/
CETRA	/	DK (22) / DKEK (33)	/
CONCEPT	/	22 / 33	/
CONCEPT CLASSIC	/	/	22 / 33
COPA	/	/	22 / 33
DEF	/	/	22 / 33
DELONGHI	/	/	21 / 22 / 33
DEMRAID	/	22-DK / 33-DKEK	/
DIANORM	/	/	22 / 33
DIATHERM GALANT	20 / 21	/	22 / 33
DURA / THOR	/	/	22 / 33
ELBA	/	/	PKKP (22) / PKKPKP (33)
EUROTHERM	/	22 / 33	/
FERROLI	/	/	/
FINIMETAL	21VM	/	20S / 22S / 22H / 33S / 33H 22I / 22C / 33I / 33C / 22VM
KERMI	/	21 / 22 / 33	/
HENRAD / STELRAD	20 / 21	22 / 33	/
IMA	/	/	/
KORAD	/	22K/VK/VKS/H, 33K/VK/VKS/H	/
KORADO	/	22 / 33 / 22VKM / 33VKM	/
MANAUT	/	DK (22) / DK-V (22KV) DKEK (33) / DKEK-V (33KV)	/
PURMO	/	21 / 22 / 33	/
RADSON	/	21 / 22 / 33	/
SANICA	/	/	PKKP (22) / PKKPKP (33)
SCHÄFER	/	/	/
SUPERIA	20 / 21	/	22 / 33
THERMOPLUS	/	/	21 / 22 / 33
THERMOTECH	/	20PP / 22-PKKP / 33-PKKPKP	/
THERMRAD	/	22 / 33	/
VOGEL & NOOT	21K-S / 20 / 20VM	/	22K / 33K / 30 / 30VM
QUINN (VEHA)	/	/	22 / 33



### Wall hanger brackets for radiator without lugs, galvanised

#### Field of application

- Top mount for side fastening in the cover sheet on the weld seam

#### Advantages

- Sturdy design of high-quality galvanised steel sheet with all screws, anchor plugs and sound insulation clip
- Safe and easy installation
- Set comprised of: brackets, mounts, screws and anchor plugs



Colour	Part no.	Sales unit	Pack unit
white	149544	1	set





### Stand bracket set US

for finished floors

#### Field of application

- Can be used for free-standing installation of radiators on the finished floor
- Suitable for indoor installation of all multi-row plate radiators

#### Advantages

- Installation-friendly stand brackets for panel radiators for fast installation directly on the finished floor
- Suitable for all radiator brands, for all installation heights, even 900 mm and for the types 20, 21, 22 and 33
- Installation-friendly, can be assembled without special tools
- No disassembly of the side panels required, not fastened on the convector sheet
- Completely pre-assembled for a short installation time
- Base plate with reinforcing seam for the sturdy fastening on the floor
- Set comprised of: stand brackets, screws, anchor plugs, caps and sound insulation clips
- With a large cover collar for installation on the finished floor



Type	Design	Colour	Part no.	Sales unit	Pack unit
Universal	300 mm	white	149542	1	set



### Stand bracket set UF

for finished floors, types 20, 22, 33

#### Field of application

- Can be used for free-standing installation of radiators

#### Advantages

- Installation-friendly stand brackets for panel radiators for fast installation directly on the floor
- Suitable for radiator types 20, 22 and 33 with a plate spacing between 84 and 98 mm
- Base plate with reinforcing seam for the sturdy fastening on the floor

- Infinitely variable ground clearance
- Set comprised of: stand brackets, screws, anchor plugs and caps



Type	Plate spacing [mm]	Colour	Part no.	Sales unit	Pack unit
20, 22, 33	84–98	white	149543	1	set



### Stand bracket set US for unfinished floors

#### Field of application

- Can be used for free-standing installation of radiators
- Suitable for indoor installation of all multi-row plate radiators on unfinished floors

#### Advantages

- Installation-friendly stand brackets for panel radiators for fast installation directly on the unfinished floor
- Suitable for all radiator brands, for all installation heights, even 900 mm and for the types 20, 21, 22 and 33
- Support foot individually adjustable to the screed height
- Installation-friendly, can be assembled without special tools
- No disassembly of the side panels required, not fastened on the convector sheet
- Completely pre-assembled for a short installation time
- Base plate with reinforcing seam for the sturdy fastening on the floor
- Set comprised of: stand brackets, screws, anchor plugs, caps and sound insulation clips
- No cover collar for installation on the unfinished floor



Type	Design	Colour	Part no.	Sales unit	Pack unit
Universal	300 mm	white	149541	1	set



### Separate drill-in bracket FF for radiators with lugs

#### Field of application

- Suitable for safe installation of radiators with lugs

#### Advantages

- Sturdy galvanised metal housing with plastic wedge for safe installation in suitable masonry
- With eccentric heat for subsequent adjustment of the radiator



#### Features

Length [mm]	Load values [N]		Max. wall distance [mm]
	Lime-sand brick, vertically perforated brick, gas concrete, concrete C20/25		
	Cross force F <sub>Q</sub>	Drag force F <sub>Z</sub>	
130	1,000	500	50
160	600		80
200	500		100

Diameter [mm]	Length [mm]	Colour	Part no.	Sales unit	Pack unit
18	130	white	149528	1	pieces
	160		149529		
	200		149530		



### Drill-in bracket FFU2 set

for radiators without lugs

#### Field of application

- Suitable for safe installation of radiators without lugs

#### Advantages

- Combination of drill-in brackets and wall brackets with special lift-out safeguard
- Sturdy galvanised drill-in bracket housing with plastic wedge for safe installation in suitable masonry

- Set comprised of two bottom drill-in brackets on which the radiator rests and two upper brackets which hold the radiator in place



Type	Diameter [mm]	Length [mm]	Colour	Part no.	Sales unit	Pack unit
9	18	160	white	149531	1	set
10				149532		

#### Suitable for radiator

Type	9	10
Radiator	Baxi Copa Demrad Finimetal Henrad Korado Purmo Radson Starpan Stelrad	Dianorm Elba Eurotherm Imas Manaut Schäfer-fix Superia





## Technical information

MÜPRO

1. Vibration control
2. Fire protection
3. Pipe clamps
4. Support channels
5. Accessories
6. Anchor points/  
expansion points
7. Heavy-duty pipe support
8. MPT-Support system
9. Ventilation
10. Pipe connectors
11. Stainless steel
12. Hot-dip galvanised
13. Anchor plugs
14. Nameplates
15. Insulation
16. Sealing and  
protection materials
17. Tools
18. Radiator fastening
19. Technical information

MÜPRO



Pipelines pipe weights and distances between supports	19/1–19/4	Plug characteristic values for steel plugs, galvanised	19/27–19/29
Pipelines linear expansion	19/5	Plug characteristic values for steel plugs, stainless steel	19/30–19/31
Swivel hanger expansion compensation and dislocation	19/6	Plug characteristic values for through anchors, galvanised	19/32
Air ducts reference values for air ducts weights	19/7	Plug characteristic values for through anchors, stainless steel	19/33
Spiral-seam pipes reference values for pipe weights	19/8	Plug characteristic values for heavy-duty anchors BZ, galvanised	19/34–19/35
Cantilever bracket max. load capacities	19/9–19/10	Plug characteristic values for heavy-duty anchors BZ, stainless steel	19/36–19/37
Bracket structures max. load capacities	19/11	Plug characteristic values for gas concrete under cut anchor	19/38–19/40
Construction bracket max. load capacities	19/12	Plug characteristic values for Zykon steel hammer-set anchor FZEA	19/41
MPC-Saddle support	19/13	Plug characteristic values for screws for concrete MMS	19/42
MPC-Channel support bracket	19/13	Plug characteristic values for screws for concrete MMS-plus	19/43
Base plates	19/13	Plug characteristic values for nail anchors N, N-K and N-M	19/44
MPC-Girder cleat	19/14	Plug characteristic values for hollow-core slab ceiling anchor	19/45–19/46
Girder clamp	19/14	Units and conversion factors	19/47–19/50
Supporting angle	19/14		
MPC-VARIO-Saddle support	19/14		
MPC-Quick fastener	19/15		
Threaded rods max. allowable bending load	19/16		
Threaded pipes max. allowable bending load	19/16		
Fasteners with VdS approval	19/17		
Fasteners with FM approval	19/18		
PHONOLYT® Pipe anchor points dB(A) 27 load chart	19/19		
PHONOLYT® Pipe anchor points dB(A) 40 load chart	19/20		
Characteristic values for MPC-Mounting anchors	19/21		
Plug characteristic values for chemical reaction anchor VBA	19/22		
Plug characteristic values for injection anchor XV Plus	19/23–19/26		

### Pipelines

pipe weights and distances between supports

**Maximum recommended fastening distances for pipelines with single bossed clamps and DÄMMGULAST® vibration control lining**

Steel piping DIN EN 10220			Pipe weights			Maximum spacing [m]
DN [NW]	DN [inch]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	Water-filled + insulated [kg/m]	
10	3/8	17.2	0.68	0.83	1.5	1.4
15	1/2	21.3	0.95	1.19	2.0	1.6
20	3/4	26.9	1.40	1.79	2.7	1.9
25	1	33.7	1.99	2.64	3.7	2.2
32	1 1/4	42.4	2.69	3.90	5.2	2.6
40	1 1/2	48.3	2.93	4.39	6.3	2.7
46		51.0	3.10	4.76	6.8	2.8
50		57.0	3.87	5.93	8.1	3.1
50	2	60.3	4.11	6.44	8.8	3.1
57		63.5	4.33	6.95	9.4	3.2
65	2 1/2	76.1	5.24	9.12	12.0	3.6
76		82.5	6.26	10.81	14.7	3.8
80	3	88.9	6.76	12.11	16.3	3.9
94		101.6	8.70	15.70	20.5	4.3
100		108.0	9.27	17.25	22.3	4.4
100	4	114.3	9.83	18.84	24.2	4.6
		127.0	12.13	23.26	29.3	4.9
125		133.0	12.73	25.00	31.4	5.0
125	5	139.7	13.39	27.01	33.8	5.1
		152.4	16.41	32.57	40.0	5.5
150		159.0	17.15	34.82	42.7	5.6
150	6	168.3	18.18	38.11	46.6	5.7
		177.8	21.31	43.43	52.5	6.0
		193.7	25.08	51.35	61.4	6.0
200	8	219.1	31.02	64.78	76.7	6.0
		267.0	40.50	91.34	107.0	6.0
250	10	273.0	41.44	94.70	110.9	6.0

Threaded pipes DIN EN 10255		Pipe weights			Maximum spacing [m]
DN [inch]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	Water-filled + insulated [kg/m]	
1/4	13.5	0.65	0.71	1.3	1.2
3/8	17.2	0.86	0.99	1.7	1.4
1/2	21.3	1.22	1.42	2.2	1.7
3/4	26.9	1.58	1.96	2.8	1.9
1	33.7	2.44	3.03	4.1	2.2
1 1/4	42.4	3.14	4.16	5.4	2.6
1 1/2	48.3	3.61	4.99	6.9	2.8
2	60.3	5.10	7.31	9.6	3.2
2 1/2	76.1	6.52	10.24	13.1	3.7
3	88.9	8.47	13.61	17.8	4.1
4	114.3	12.19	20.90	26.3	4.7
5	139.7	16.13	29.41	36.1	5.3
6	165.1	19.17	38.14	46.4	5.8



Any relevant information from the pipe manufacturer is to be taken into account.



### Pipelines

pipe weights and distances between supports

**Maximum recommended fastening distances for pipelines with single bossed clamps and DÄMMGULAST® vibration control lining**

Copper piping DIN EN 1057 and DIN EN 12449/12451		Pipe weights			Maximum spacing [m]
DN [NW]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	Water-filled + insulated [kg/m]	
10	10	0.25	0.30	0.4	0.6
12	12	0.30	0.39	0.5	1.0
15	15	0.39	0.52	0.8	1.1
18	18	0.47	0.68	1.0	1.3
22	22	0.58	0.90	1.3	1.3
28	28	1.10	1.59	2.4	1.5
35	35	1.39	2.20	3.1	1.6
42	42	1.68	2.88	4.4	1.7
54	54	2.88	4.84	7.3	2.0
64	64	3.43	6.26	9.8	2.0
70	70	3.76	7.19	12.9	2.0
76	76	3.98	7.83	13.5	2.0
80	80	4.31	8.85	14.7	2.0
104	104	5.64	13.50	25.5	2.5
125	125	10.12	21.25	33.5	2.5
131	131	10.62	22.89	35.0	2.5

Cast iron (SML) drainage pipes with graphite in lamella form		Pipe weights		Maximum spacing [m]
DN [NW]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	
50	58	4.3	6.4	1.5–2.0 Manufacturer specifications state that each pipe section must be supported at least twice.
70	78	5.9	9.9	
80	83	6.1	10.6	
100	110	8.4	16.7	
125	135	11.8	24.5	
150	160	14.1	32.2	
200	210	23.1	54.5	
250	274	33.3	87.6	
300	326	43.2	120.6	

Drain pipes GA DIN 19500		Pipe weights		Maximum spacing [m]
DN [NW]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	
50	60	5.30	7.51	0.6
70	80	7.10	11.29	0.8
100	112	10.30	18.80	1.2
125	137	13.70	26.77	1.4
150	162	17.30	35.45	1.6
200	212	32.70	64.12	2.0



Any relevant information from the pipe manufacturer is to be taken into account.

### Pipelines

pipe weights and distances between supports

**Maximum recommended fastening distances for pipelines with single bossed clamps and DÄMMGULAST® vibration control lining**

PE drain pipes (GEBERIT)		Pipe weights		Spacings acc. to manufacturer [m] fastening horizontal/vertical
DN [NW]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	
25	32	0.27	0.81	0.8
32	40	0.35	1.26	0.8
40	50	0.45	1.97	0.8
50	56	0.50	2.47	0.8
70	75	0.68	4.43	0.8
80	90	0.96	6.37	0.9
100	110	1.44	9.52	1.1
125	125	1.86	12.29	1.3
200	200	3.79	31.44	2.0
250	250	5.96	49.12	2.0
300	315	9.44	77.98	2.0

Silent PP drain pipes (GEBERIT)		Pipe weights		Spacings acc. to manufacturer [m]	
DN [NW]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	fastening horizontal	fastening vertical
30	32	0.2	0.8	0.50	1.5
40	40	0.3	1.3	0.60	1.5
50	50	0.3	2.0	0.75	1.5
70	75	0.7	4.5	1.10	2.0
90	90	1.0	6.5	1.35	2.0
100	110	1.4	9.7	1.65	2.0
125	125	1.8	12.5	1.85	2.0
150	160	2.9	20.5	2.40	2.0

Silent db20 drain pipes (GEBERIT)		Pipe weights		Spacings acc. to manufacturer [m]	
DN [NW]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	fastening horizontal	fastening vertical
56	56	0.90	2.83	0.80	1.5
70	75	1.37	4.97	0.80	1.5
90	90	2.48	7.38	0.90	1.5
100	110	3.33	10.87	1.10	1.7
125	135	4.13	16.00	1.40	1.9
150	160	5.80	22.50	1.70	2.4



Any relevant information from the pipe manufacturer is to be taken into account.

### Pipelines

pipe weights and distances between supports

**Maximum recommended fastening distances for pipelines with single bossed clamps and DÄMMGULAST® vibration control lining**

PP drain pipes DIN 8077 (HT pipes)		Pipe weights		Reference values for spacings [m]
DN [NW]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	
40	40	0.23	1.26	0.8
50	50	0.29	1.91	1.0
70	75	0.49	4.37	1.2
100	110	0.97	9.48	1.5
125	125	1.30	12.37	1.6
150	160	2.16	20.34	1.8

Pressure piping of unplasticised PVC DIN 8062		Pipe weights		Reference values for spacings [m]
DN [NW]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	
40	50	0.42	2.12	0.8
50	63	0.56	3.32	1.0
70	75	0.78	4.77	1.2
100	110	1.64	10.24	1.5
125	125	2.13	13.22	1.6
150	160	3.44	21.64	1.8

Pressure pipes: PP pipes DIN 8077 PE pipes DIN 8072		Pipe weights		Reference values for spacings [m]
DN [NW]	Outer Ø [mm]	Empty [kg/m]	Water-filled [kg/m]	
12	16	0.10	0.20	0.6
15	20	0.16	0.30	0.7
20	25	0.25	0.47	0.8
25	32	0.42	0.77	0.8
32	40	0.64	1.21	0.9
40	50	1.01	1.88	1.0
50	63	1.59	2.98	1.2
63	75	2.26	4.23	1.3
80	90	3.25	6.08	1.4
90	110	4.87	9.08	1.6
100	125	6.29	11.73	1.7

**Maximum recommended pipe clamp spacings for composite and plastic pipes**

Outer Ø [mm]	Composite pipes reference values for spacings [m]	VPE (PE-X) pipes DIN 16892 reference values for spacings [m]	PB pipes DIN 16968 reference values for spacings [m]	PVC-C DIN 8080 guidance values for spacings [m]
14	1.2			
16	1.2	0.8	0.5	0.8
18	1.5			
20	1.5	0.9	0.6	0.95
25	1.5	1.0	0.7	1.05
26	1.5			
32	1.5	1.0	0.8	1.2
40	1.5	1.2	1.0	1.3
50	1.5	1.2	1.2	1.5
63	1.5	1.2	1.4	1.7



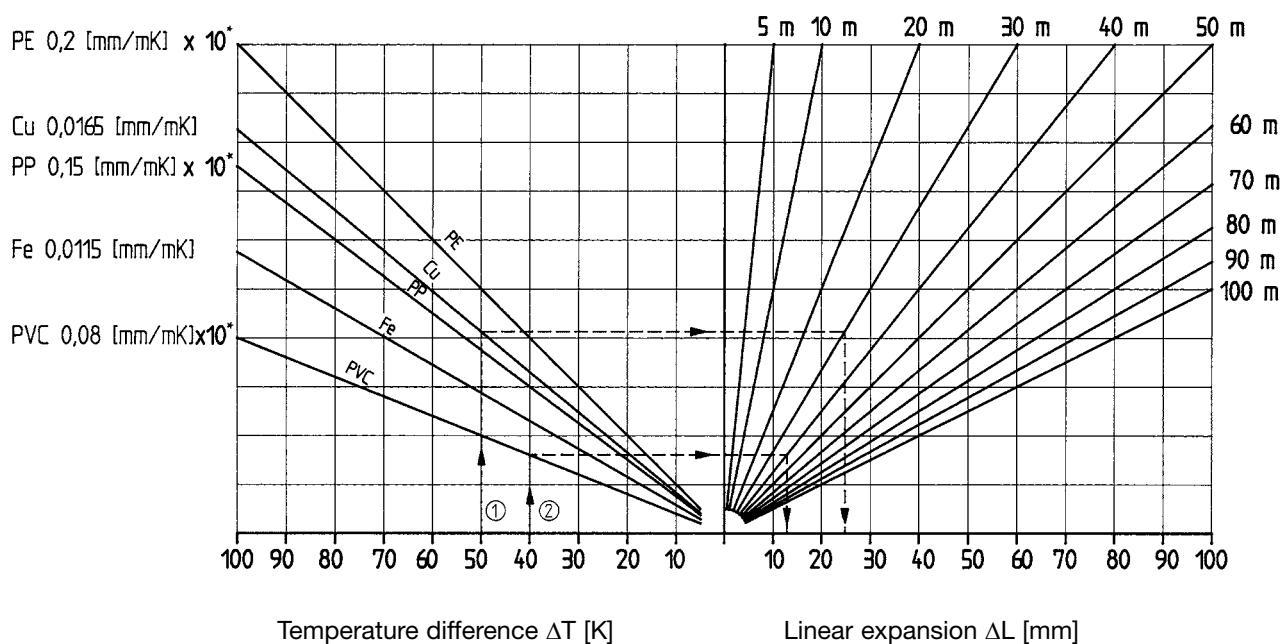
Any relevant information from the pipe manufacturer is to be taken into account.

## Pipelines

linear expansion

### Expansion chart for various pipe types

Metals and plastics contract with cold and expand with heat. This must be taken into account particularly with pipes in heating systems where thermostat control causes continual temperature fluctuations. Appropriate pipe supports, that are able to swing or slide, prevent tensile forces.



- Example:**
- ① Copper pipe, Cu, length of the pipe section 30 m  
Temperature difference  $\Delta T = 50 \text{ K}$   
Linear expansion  $\Delta L = 24.75 \text{ mm}$
  - ② PVC pipe, length of pipe section  $L = 40 \text{ m}$   
Temperature difference  $\Delta T = 40 \text{ K}$   
Linear expansion  $\Delta L = 128 \text{ mm}$



In the case of plastic pipes (PE, PP, PVC) the linear expansion displayed in the chart has to be multiplied by a factor of 10.

#### Linear expansion $\Delta L$ [mm]

Calculation formula for linear expansion

$$\Delta L = L \cdot \Delta T \cdot \alpha$$

[mm] [m] [K] [mm/m K]

$\Delta L$  = linear expansion

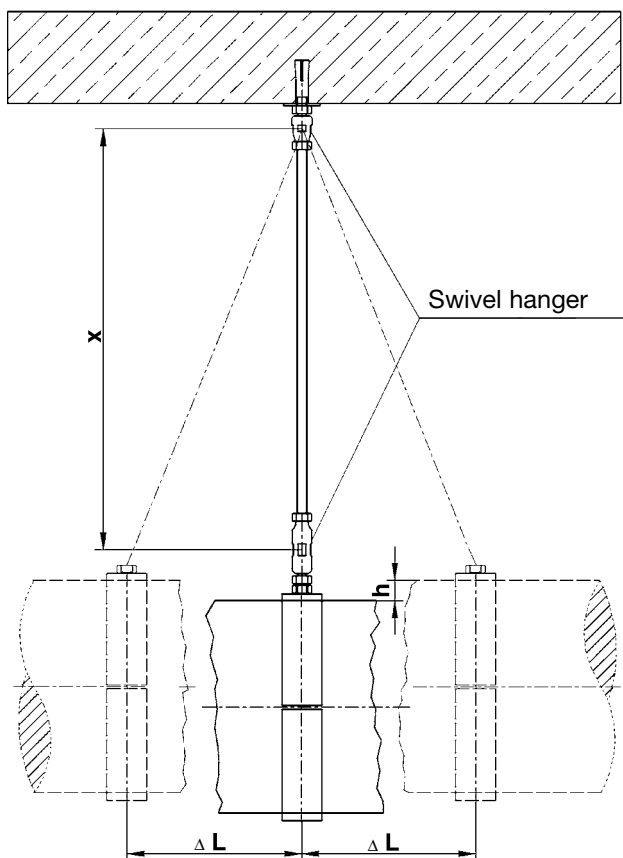
$L$  = length of the pipeline/pipe section

$\Delta T$  = temperature difference

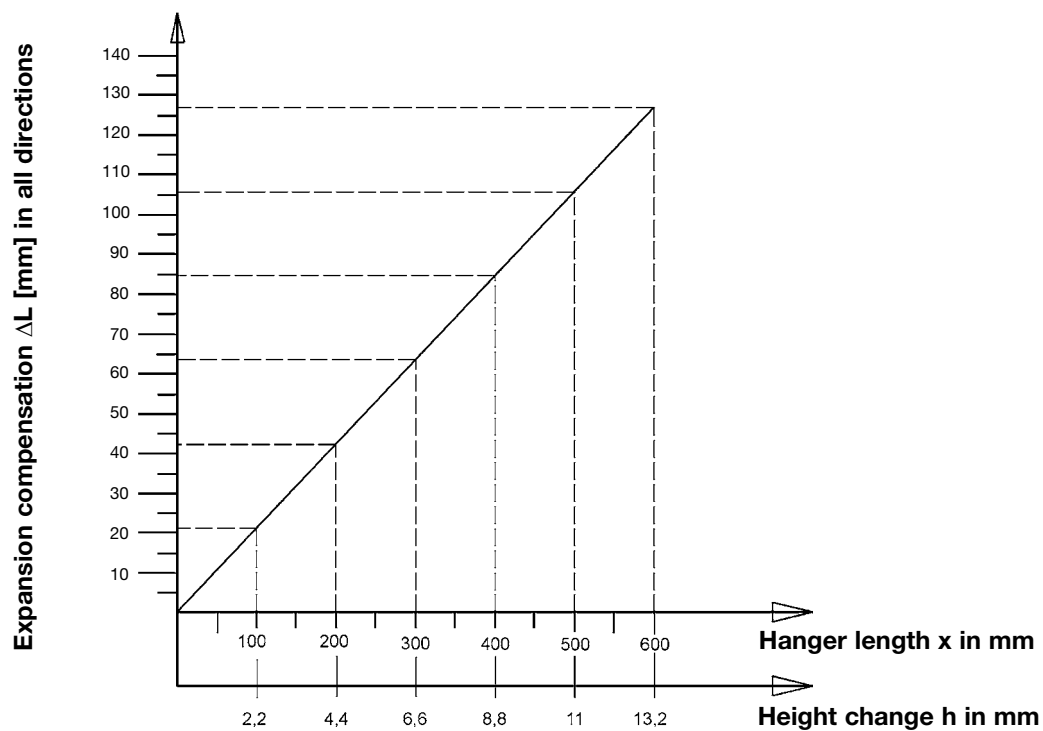
$\alpha$  = linear expansion coefficient

### Swivel hanger

expansion compensation and dislocation



Axial and lateral pipeline expansion or dislocation will cause a height change in suspension hangers. The magnitude of this change can be obtained from the chart below.



### Air ducts

reference values for air duct weights

#### Weights of air ducts in kg/m without insulation

Sheet thickness 0.88 mm						
Duct dimensions width x height in mm						
	280	315	355	400	450	500
280	9.5	10.1	10.7	11.5	12.3	13.2
315		10.6	11.3	12.1	12.9	13.8
355			12.0	12.8	13.6	14.4
400				13.5	14.4	15.2
450					15.2	16.1
500						16.9

Sheet thickness 1.00 mm						
Duct dimensions width x height in mm						
	560	630	710	800	900	1,000
560	21.5	22.8	24.4	26.1	28.0	30.0
630		24.2	25.7	27.5	29.4	31.3
710			27.3	29.0	30.9	32.8
800				30.7	32.6	34.6
900					34.6	36.5
1,000						38.4

Sheet thickness 1.13 mm						
Duct dimensions width x height in mm						
	1,120	1,250	1,400	1,600	1,800	2,000
710	39.7	42.5	45.8	50.1	54.5	58.8
800	41.7	44.5	47.7	52.1	56.4	60.7
900	43.8	46.6	49.9	54.2	58.6	62.9
1,000	46.0	48.8	52.1	56.4	60.7	65.1
1,120	48.6	51.4	54.7	59.0	63.4	67.7
1,250	51.4	54.2	57.5	61.8	66.2	70.5
1,400	54.7	57.5	60.7	65.1	69.4	73.8
1,600	59.0	61.8	65.1	69.4	73.8	78.1
1,800	63.4	66.2	69.4	73.8	78.1	82.4
2,000	67.7	70.5	73.8	78.1	82.4	86.8
2,240	72.9	75.7	79.0	83.3	87.7	92.0
2,500	78.5	81.4	84.6	89.0	93.3	97.6
2,800	85.0	87.9	91.1	95.5	99.8	104.1
3,150	92.6	95.5	98.7	103.1	107.4	111.7

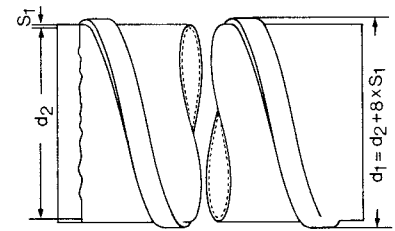
Sheet thickness 1.25 mm						
Duct dimensions width x height in mm						
	2,240	2,500	2,800	3,150	3,350	3,550
710	82.6	89.9	98.3	108.1	113.7	119.3
800	85.1	92.4	100.8	110.6	116.2	121.8
900	87.9	95.2	103.6	113.4	119.0	124.6
1,000	90.7	98.0	106.4	116.2	121.8	127.4
1,120	94.1	101.4	109.8	119.6	125.2	130.8
1,250	97.7	105.0	113.4	123.2	128.8	134.4
1,400	101.9	109.2	117.6	127.4	133.0	138.6
1,600	107.5	114.8	123.2	133.0	138.6	144.2
1,800	113.5	120.4	128.8	138.6	144.2	149.8
2,000	118.7	126.0	134.4	144.2	149.8	155.4
2,240	125.4	132.7	141.1	150.9	156.5	162.1
2,500	132.7	140.0	148.4	158.2	163.8	169.4
2,800	141.1	148.4	156.8	166.6	172.2	177.8
3,150	150.9	158.2	166.6	176.4	182.0	187.6



The above mentioned weights [kg/m] are guide values. The weights may differ depending on the material thickness and the type of flange.

### Spiral-seam pipes

reference values for pipe weights



#### Nominal diameters and dimensions according to DIN 24145

Nominal size [mm]	$d_1$ [mm]	$d_2$ [mm]	Sheet thickness $S_1$ [mm]	Weight [kg/m]
71	74.2	71	0.4	0.77
80	83.2	80	0.4	0.87
90	93.2	90	0.4	0.98
100	104.8	100	0.6	1.69
112	116.8	112	0.6	1.89
125	129.8	125	0.6	2.11
140	144.8	140	0.6	2.36
160	164.8	160	0.6	2.70
180	184.8	180	0.6	3.07
200	204.8	200	0.6	3.38
224	228.8	224	0.6	3.78
250	254.8	250	0.6	4.22
280	284.8	280	0.6	4.73
315	321.4	315	0.8	7.09
355	361.4	355	0.8	7.99
400	406.4	400	0.8	9.00
450	456.4	450	0.8	10.13
500	506.4	500	0.8	11.25
560	566.4	560	0.8	12.60
630	638.0	630	1.0	17.70
710	718.0	710	1.0	19.97
800	808.0	800	1.0	22.50
900	908.0	900	1.0	25.32
1,000	1.009.6	1.000	1.2	34.42
1,120	1.129.6	1.120	1.2	38.55
1,250	1.259.6	1.250	1.2	43.03
1,400	1.412.0	1.400	1.5	55.10
1,600	1.612.0	1.600	1.5	62.90
1,800	1.812.0	1.800	1.5	70.80
2,000	2.012.0	2.000	1.5	78.60

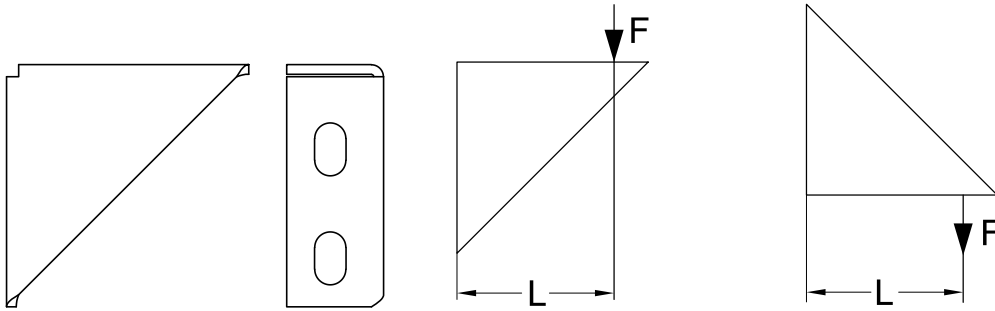
### Cantilever bracket

design 100 x 100, max. load capacities

#### Allowable loading values

(in consideration of fixing screws)

#### Cantilever bracket 100 x 100, equal-sided



Material thickness	L = 85 mm
4 mm	2.2 kN

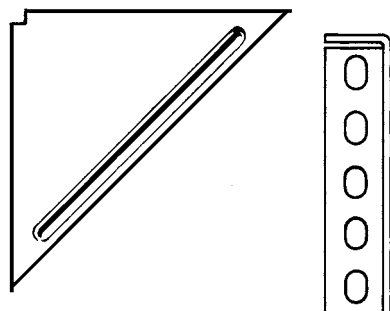


### Cantilever bracket

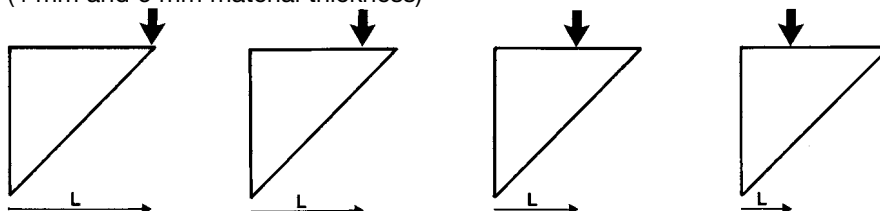
design 200 x 200, max. load capacities

#### Allowable loading values

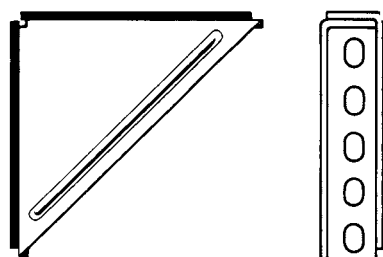
(in consideration of fixing screws)



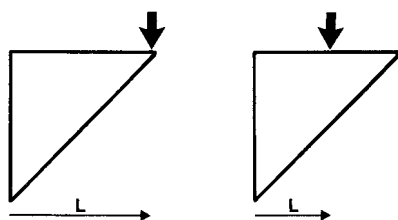
**Cantilever bracket 200 x 200, equal-sided**  
(4 mm and 6 mm material thickness)



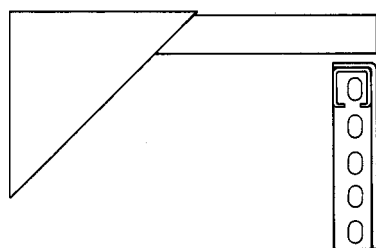
Material thickness	L = 180 mm	L = 140 mm	L = 100 mm	L = 60 mm
4 mm	2.0 kN	3.5 kN	5.0 kN	7.0 kN
6 mm	3.3 kN		6.0 kN	



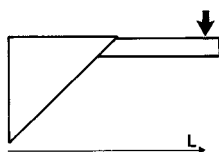
**Cantilever bracket 200 x 200, equal-sided, double**



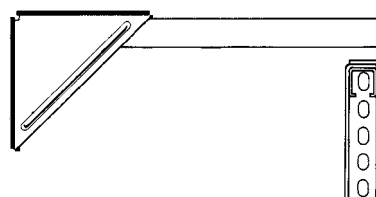
Material thickness	L = 180 mm	L = 100 mm
4 mm	4.4 kN	5.5 kN
6 mm	6.7 kN	7.0 kN



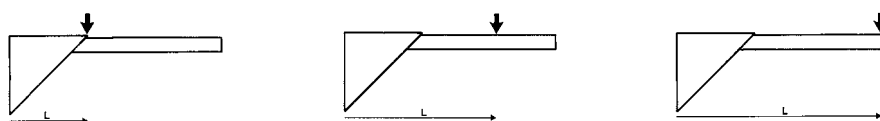
**Cantilever bracket 200 x 200, equal-sided, with a single MPC-Support channel 38/40 section**



Material thickness	L = 330 mm
4 mm	1.35 kN



**Cantilever bracket 200 x 200, equal-sided, double with MPC-Support channel 38/40 section**



Material thickness	L = 180 mm	L = 350 mm	L = 470 mm
4 mm	4.4 kN	1.5 kN	1.2 kN

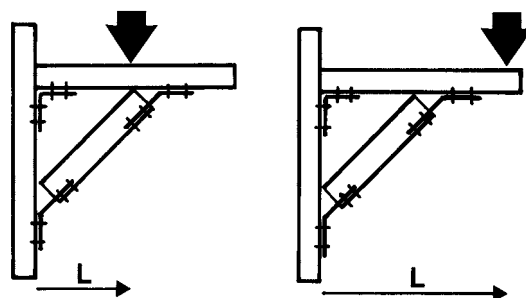
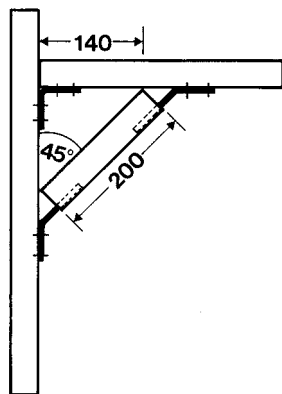
## Bracket structures

max. load capacities

### Allowable loading values

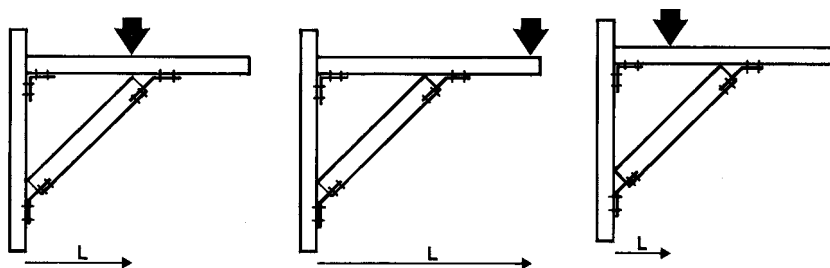
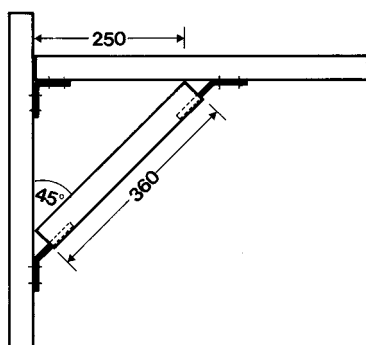
(in consideration of fixing screws)

Bracket structures assembled from MPC-Support channel section 38/40 and mounting angles



L = 140 mm	L = 280 mm
3.9 kN	1.7 kN

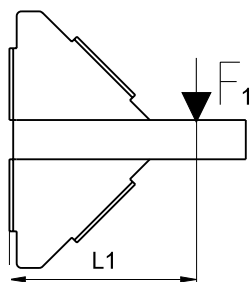
Bracket structures assembled from MPC-Support channel section 38/40 and mounting angles



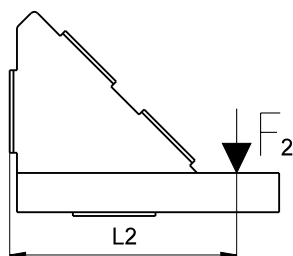
L = 250 mm	L = 470 mm	L = 125 mm
3.9 kN	1.4 kN	2.4 kN

### Construction bracket

max. load capacities



	Size [mm]	L1 [mm]	Max. recommended load F [N]
Type 1	200 x 125 x 4	180	1,500
Type 2	280 x 164 x 4	225	1,000

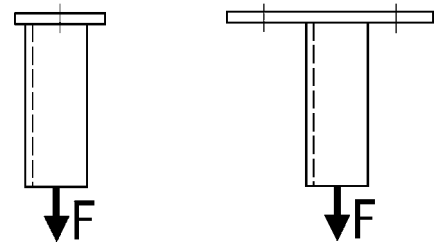


	Size [mm]	L2 [mm]	Max. recommended load F [N]
Type 1	200 x 125 x 4	130	1,000
Type 2	280 x 164 x 4	170	750

### MPC-Saddle support

Max. recommended load F [N]

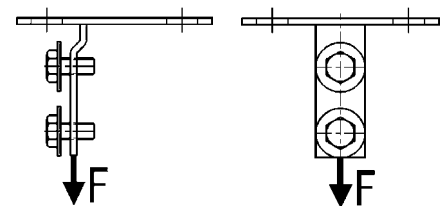
2,000



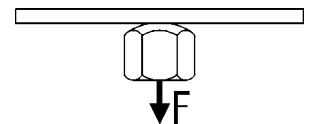
### MPC-Channel support bracket

Max. recommended load F [N]

1,750



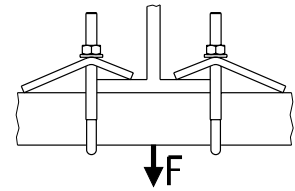
### Base plates



	Size	Dimensions [mm]	Connecting thread	Max. recommended load F [N]
Metric thread	1	80 x 30 x 3	M8	1,900
	1	80 x 30 x 3	M10	2,200
	1	80 x 30 x 3	M12	3,000
	2	120 x 40 x 4	M8	1,900
	2	120 x 40 x 4	M10	2,000
	2	120 x 40 x 4	M12	2,800
	2	120 x 40 x 4	M16	2,800
	1	80 x 30 x 3	M8/M10	2,200
Pipe thread	1	80 x 30 x 3	1/2"	4,600
	2	120 x 40 x 4	1/2"	5,000
	2	120 x 40 x 4	3/4"	5,500
	3	100 x 60 x 4	1/2"	6,300
	3	100 x 60 x 4	3/4"	8,300
	3	100 x 60 x 4	1"	8,300

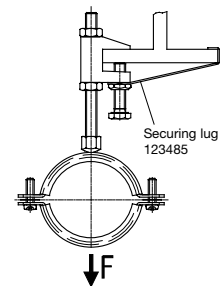
### MPC-Girder cleat

For channel section	Thread	Max. permitted load F/pair [N]
27/18, 28/30	M6	2,800
38/24, 38/48	M8	2,200
38/40	M8	5,000
39/52	M8	6,700
40/60	M8	8,300
38/40, 38/80	M10	5,000
39/52	M10	6,700
40/60, 40/80, 40/120	M10	8,300



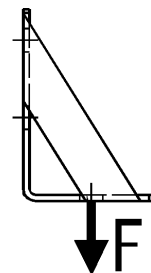
### Girder clamp

For size	Max. allowable load F [N]
M8	1,200
M10	2,500
M12	3,500



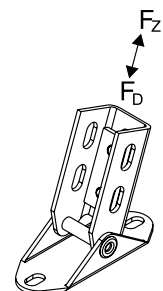
### Supporting angle

	Max. allowable load F [N]
With DÄMMGULAST® Resilient pad	1,000
Without DÄMMGULAST® Resilient pad	5,000

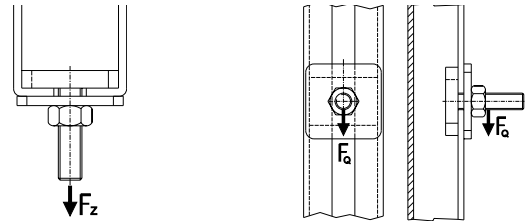


### MPC-VARIO-Saddle support

	Max. allowable load F [N]	
	Directly mounted	Friction fit with double rail nut (tightening torque 50 Nm)
Tensile force $F_z$	7,500	2,500
Compression $F_D$	7,500	2,500



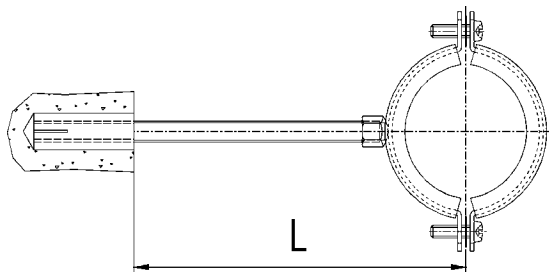
### MPC-Quick fastener



MPC-Support channels	Connection thread	Max, recommended tensile load Fz [N]	Max, recommended transverse load Fa (displacement) [N]	At tightening torque [Nm]
38/40	M8	2,800	1,000	20
38/40	M10	2,800	1,000	25
38/60	M8	3,000	800	25
38/60	M10	3,000	800	30
40/60	M8	4,000		20
40/80	M10	4,000		25
40/120	M8	4,000		20
40/120	M10	4,000		25

### Threaded rods/threaded pipes

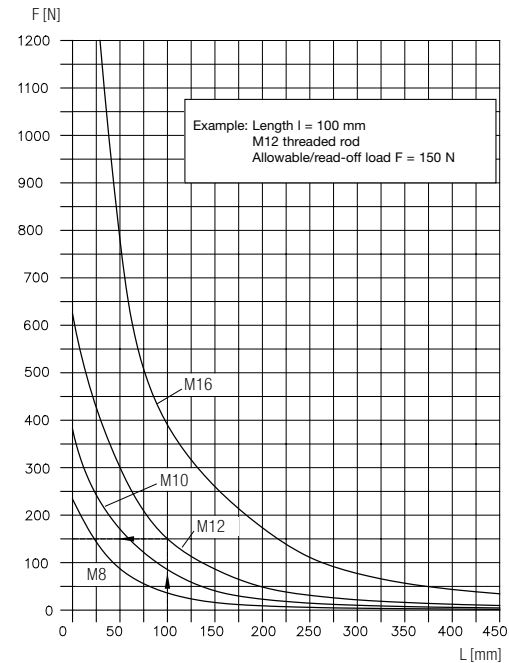
#### Max. allowable bending load for threaded rods



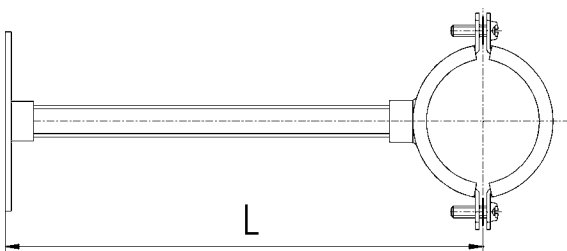
Maximum deflection:  $f_{\max} = L/150$

Admissible stress in steel:  $\sigma_{\text{adm}} = 160 \text{ N/mm}^2$   
(threaded rods)

Connecting thread	Distance L to pipe axis [mm]					
	50	100	150	200	250	300
	Max. allowable bending load F [N]					
M8	85	36	16	9	6	4
M10	171	85	41	23	15	10
M12	301	150	86	49	31	22
M16	782	391	260	174	111	77



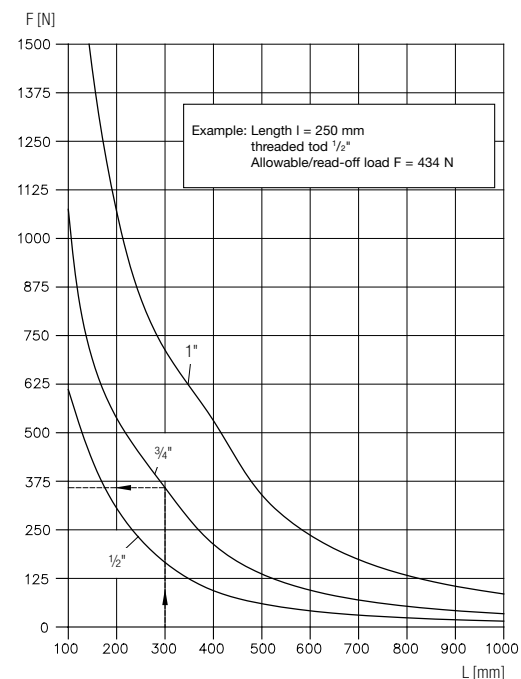
#### Max. allowable bending load for threaded pipes



Maximum deflection:  $f_{\max} = L/150$

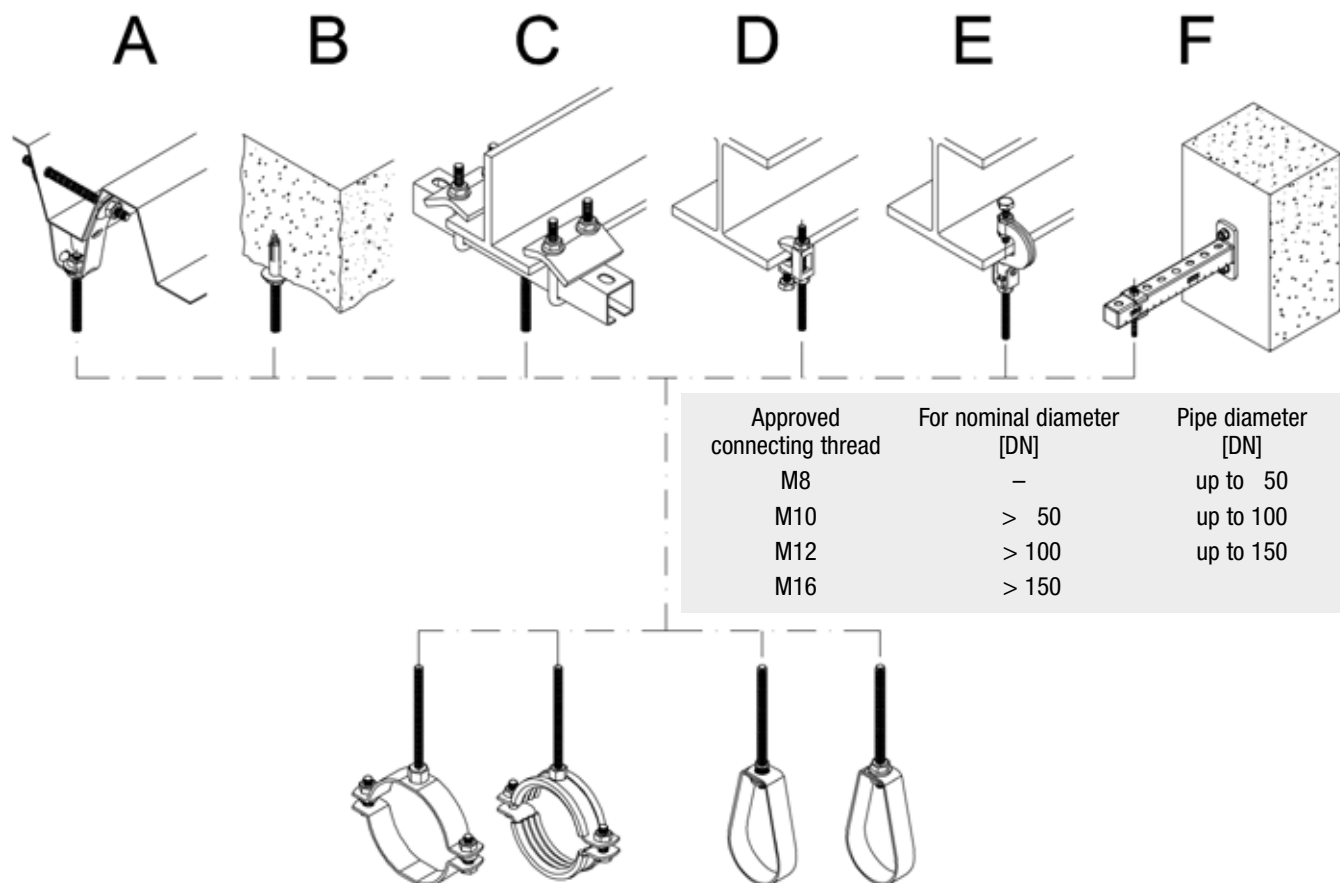
Admissible stress in steel:  $\sigma_{\text{adm}} = 160 \text{ N/mm}^2$   
(threaded rods)

Connecting thread	Distance L to pipe axis [mm]					
	50	100	150	200	250	300
	Max. allowable bending load F [N]					
1/2"	1,223	611	408	306	239	166
3/4"	2,151	1,075	717	538	430	358
1"	4,277	2,139	1,426	1,069	855	777



# Fasteners with VdS approval

## Overview of approved fasteners for sprinkler systems



**!** All MÜPRO components approved by VdS (corresponding approval reports are available) can be combined into the various arrangements shown above.  
Reference to the VdS approval can be found on the respective catalogue pages.

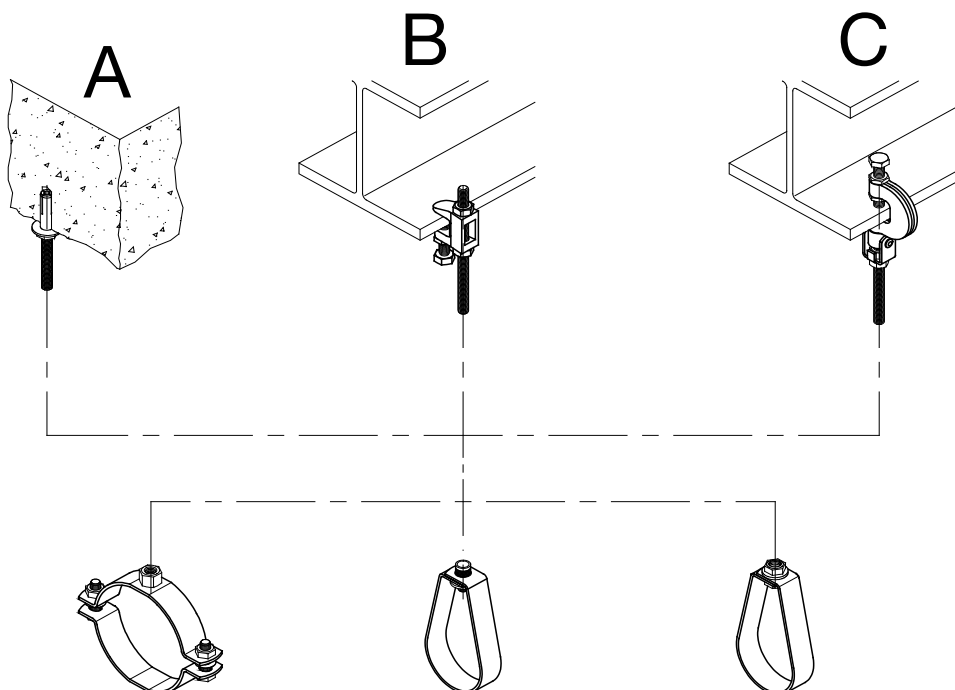
A	B	C	D	E	F
Trapezoidal sheet hanger with welded-on nut and threaded rod M8 for up to DN 50	Through anchor M8, M10	Girder cleat M8 + MPC-Support channel 38/40 + hammer head fastener M8	Girder clamp with M8 or M10 internal thread (for DN 65 and larger with securing lug) + threaded rod M8 or M10	Girder clamp with joint M8 or M10 + threaded rod M8 or M10 (when fastening pipes bigger than DN 65, a safety steel strip must be used)	MPR-Wall hanger bracket 41/41/2.5 or 41/62/2.5 + threaded rod M8, M10 or M12 + MPR-Clamp bracket M8, M10 or M12
Trapezoidal sheet hanger with clearance hole and threaded rod M8 or M10 for up to DN 50	Heavy duty anchor BZ M8, M10, M12 or M16	Girder Cleat M8 or M10 + MPC-Support channel 40/60 + hammer head fastener M8 or hammer-head bolt M8, M10 or M12	Girder clamp with clearance hole for M8, M10 or M12 (for DN 65 and larger with securing lug) + threaded rod M8, M10 or M12		
	Gas concrete under cut anchor porous concrete plug type M8, M10				

Filbow clamp, pear-shaped **DN 25–DN 200**  
or single bossed clamp, heavy-duty type, **DN 10 –DN 150**



### Fasteners with FM approval

#### Overview of approved fasteners for sprinkler systems



#### Single bossed clamp, heavy-duty type without lining

Approved connection thread	For nominal diameter/pipe diameter
M10	3/4"-4"
M12	3/4"-6"

#### Filbow clamp (pear-shaped)

Approved connection thread	For nominal diameter/pipe diameter
M10	3/4"-4" (steel anchor, girder clamp)
M10	3/4"-101.6 mm (girder cleat)
M12	> 4"-6" (= 168.3 mm)



All MÜPRO components approved by FM (Factory Mutual – corresponding approval reports are available) can be combined into the various arrangements shown above.

Reference to the FM approval can be found on the respective catalogue pages.

**A**

**B**

**C**

Steel anchor M10 or M12 threaded rod M10 or M12 **with** filbow clamp, pear-shaped 3/4"-4" **or** single bossed clamp, heavy-duty type without lining, M10 or M12 3/4"-4"

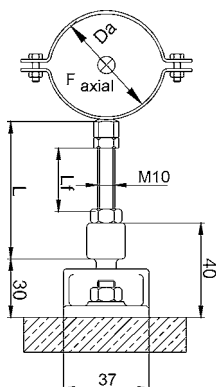
Steel anchor M12 M12 threaded rod **with** filbow clamp, pear-shaped > 4"-168.3 mm **or** single bossed clamp, heavy-duty type without lining, M12 > 4"-6"

Girder clamp with M10 internal thread **or** girder clamp with clearance hole for M10 or M12 threaded rod M10 or M12 **with** filbow clamp, pear-shaped 3/4"-4" **or** single bossed clamp, heavy-duty type without lining, M10 or M12 3/4"-4"

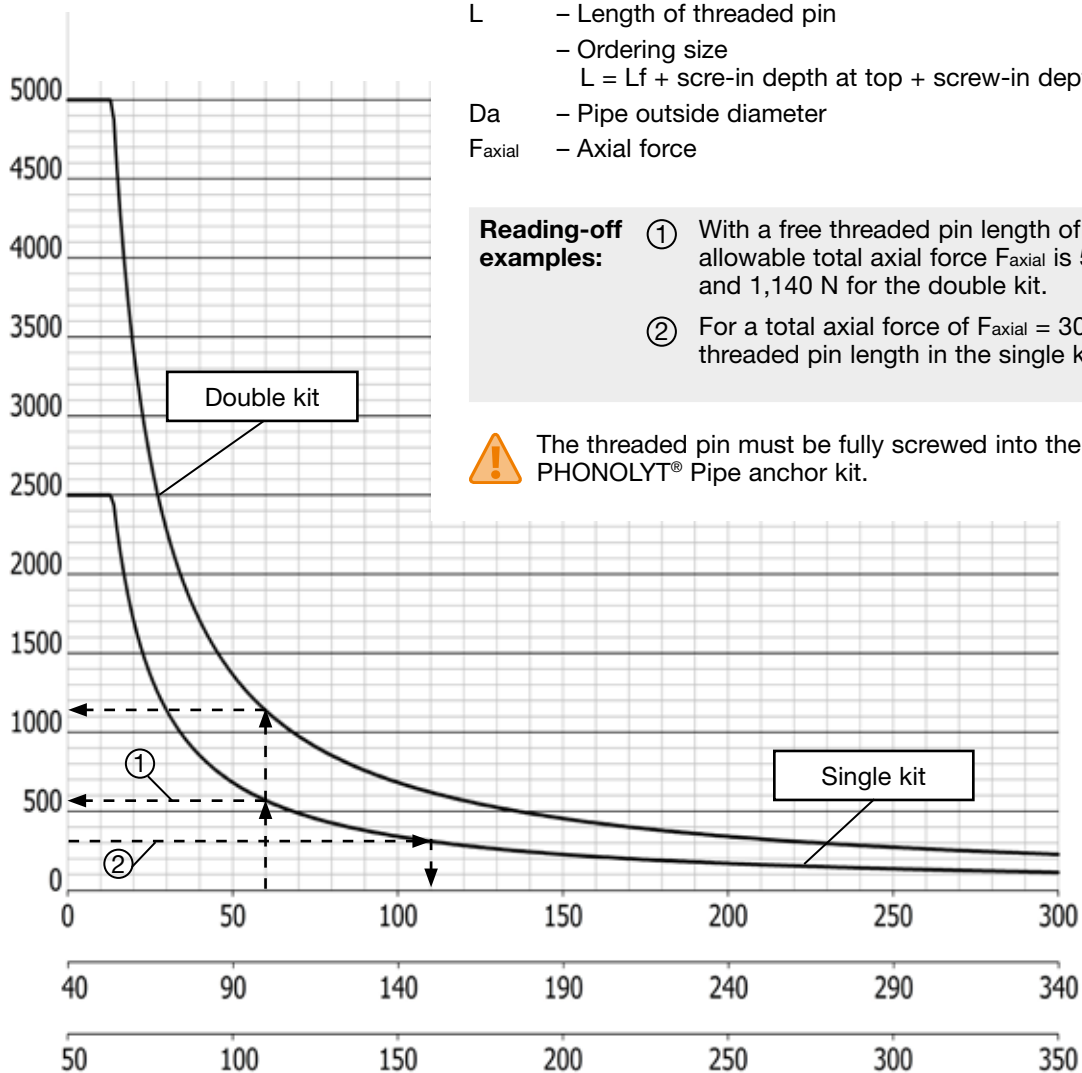
Girder clamp with clearance hole for M12 threaded rod **with** filbow clamp, pear-shaped > 4"-168.3 mm **or** single bossed clamp, heavy-duty type without lining, M12 > 4"-6"

Girder clamp with joint M10 threaded rod M10 **with** filbow clamp, pear-shaped 3/4"-4" **or** single bossed clamp, heavy-duty type without lining M10 3/4"-4"

for PHONOLYT® Pipe anchor points dB(A) 27 with pipe clamps




Technical drawing of a ball bearing assembly. The drawing shows a cross-section of a ball bearing with diameter  $D_a$  and axial force  $F_{axial}$  applied. The assembly is supported by a base with dimensions 30, 37, and 40. The bearing is mounted on a shaft with a thread M10. The distance from the base to the bearing center is  $L$ , and the distance from the base to the bearing outer ring is  $L_f$ .

 $F_{axial} [N]$ 

$L_f$  – Free length of threaded pin  
 $L$  – Length of threaded pin  
 – Ordering size  
 $L = L_f + \text{scre-in depth at top} + \text{screw-in depth at bottom}$   
 $D_a$  – Pipe outside diameter  
 $F_{axial}$  – Axial force

**Reading-off examples:**

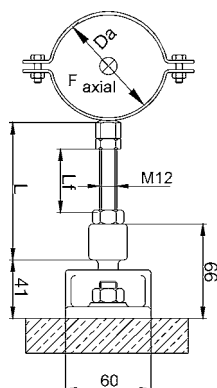
- ① With a free threaded pin length of 60 mm, the maximum allowable total axial force  $F_{\text{axial}}$  is 570 N for the single kit and 1,140 N for the double kit.
- ② For a total axial force of  $F_{\text{axial}} = 300 \text{ N}$ , the max. free threaded pin length in the single kit is 112 mm.

 The threaded pin must be fully screwed into the threaded hole of the PHONOLYT® Pipe anchor kit.

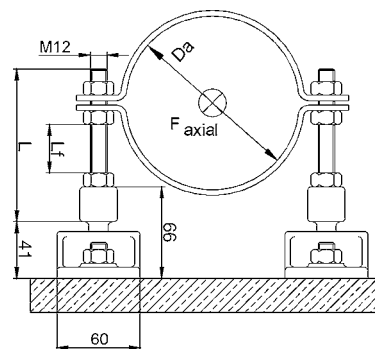
$$f_{\max} = L/150, s_{\text{perm.}} = 160 \text{ N/mm}^2$$

### Load chart

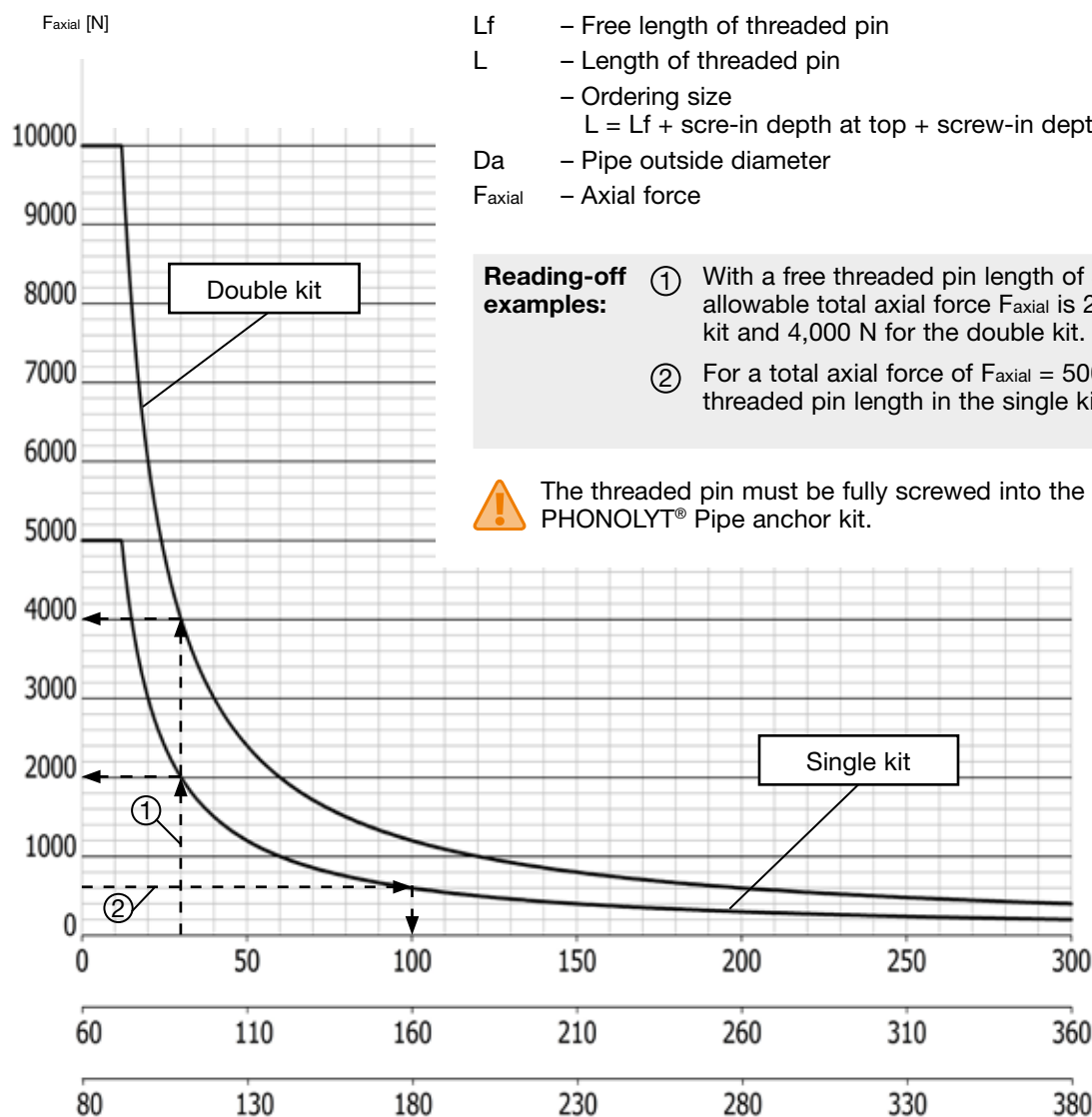
for PHONOLYT® Pipe anchor points dB(A) 40 with pipe clamps



PHONOLYT® Pipe anchor points,  
single kit dB(A) 40.



PHONOLYT® Pipe anchor points,  
double kit dB(A) 40.



- Lf – Free length of threaded pin  
 L – Length of threaded pin  
 – Ordering size  
 $L = L_f + \text{scre-in depth at top} + \text{screw-in depth at bottom}$   
 Da – Pipe outside diameter  
 Faxial – Axial force

#### Reading-off examples:

- ① With a free threaded pin length of 30 mm, the maximum allowable total axial force  $F_{\text{axial}}$  is 2,000 N for the single kit and 4,000 N for the double kit.
- ② For a total axial force of  $F_{\text{axial}} = 500$  N, the max. free threaded pin length in the single kit is 147 mm.



The threaded pin must be fully screwed into the threaded hole of the PHONOLYT® Pipe anchor kit.

Lf [mm] **free** threaded pin length

L [mm] overall threaded pin length

Single kit

L [mm] overall threaded pin length

Double kit

$$f_{\text{max}} = L/150, \text{ Sperrn.} = 160 \text{ N/mm}^2$$



### Characteristic values for MPC-Mounting anchors

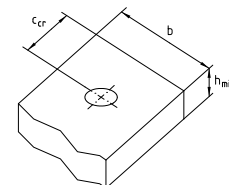
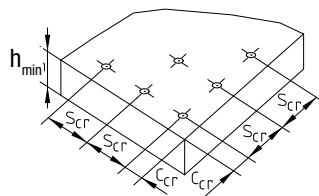
external thread M6 type K6L, internal thread M8 type K6L, galvanised

**Permissible loads, plug characteristic values and component dimensions for multiple anchoring of non-loadbearing elements in concrete, strength class C20/25 to C50/60**

		MPC-Mounting anchor	MPC-Mounting anchor set
Permissible loads*	[kN]	1.45	1.45
Headed drill		MPC-Headed drill SDS 2	MPC-Headed drill SDS 2
Drill diameter	$d_o$ [mm]	6	6
Drilled hole depth	$h_1$ [mm]	42	42
Anchoring depth	$h_{ef}$ [mm]	36	36
Axial spacing $a$ for single plugs	$s_{cr}$ [mm]	$\geq 200$	$\geq 200$
Spacing between two plugs	for plug pairs [mm]	$\geq 60$	$\geq 60$
	for groups of four plugs [mm]	$\geq 100$	$\geq 100$
Edge spacing $a_r$ for single plug	$c_{cr}$ [mm]	$\geq 150$	$\geq 150$
Component thickness $d$	$h_{min}$ [mm]	80	80
Max. length of use	[mm]	4	4
Max. torque	$T_{inst}$ [Nm]	5	5

\* The overall safety coefficient according to ETAG is taken into consideration. ( $\gamma_m$  and  $\gamma_F$ )

### Plug arrangement and component dimensions



**Permissible loads (strength class  $\geq$  C20/25) for use as multiple fastening of non-bearing systems in concrete under fire stress**

Fire resistance class	Anchor size		K6+K6L
R 30	Characteristic resistance	$F_{Rk, fi(30)}$ [kN]	0.60
R 60	Characteristic resistance	$F_{Rk, fi(60)}$ [kN]	0.50
R 90	Characteristic resistance	$F_{Rk, fi(90)}$ [kN]	0.30
R 120	Characteristic resistance	$F_{Rk, fi(120)}$ [kN]	0.20
R 30 up to R120	Axial spacing	$s_{cr} = s_{min}$ [mm]	200
	Edge spacing under fire stress from one side	$c_{cr} = c_{min}$ [mm]	150
	Edge spacing under fire stress from more than one sides	$c_{cr} = c_{min}$ [mm]	300



### Plug characteristic values for chemical reaction anchor VBA

type MKT chemical reaction anchor V for anchoring in non-cracked concrete

**Permissible loads of single plugs in non-cracked concrete, concrete strength class (C20/25 (B25) in accordance with ETA Assessment ETA-05/0231**

			Galvanised, steel 5.8	Galvanised, steel 5.8	Galvanised, steel 5.8	Galvanised, steel 5.8
Plug, thread	Dim.		M8	M10	M12	M16
Permissible tensile load	perm. N	kN	7.9	11.9	15.9	19.8
Permissible transverse load	perm. V	kN	5.1	8.0	12.0	22.3
Permissible bending moment	perm. M	kN	10.9	21.1	37.1	94.9
Effective anchoring depth	$h_{ef}$	mm	80	90	110	125
Characteristic axial spacing	$s_{cr, N}$	mm	240	180	220	250
Characteristic edge spacing	$c_{cr, N}$	mm	120	90	110	125
Minimum axial spacing	$s_{min}$	mm	40	45	55	65
Minimum edge spacing	$c_{min}$	mm	40	45	55	65
Minimum component thickness	$h_{min}$	mm	110	120	140	160

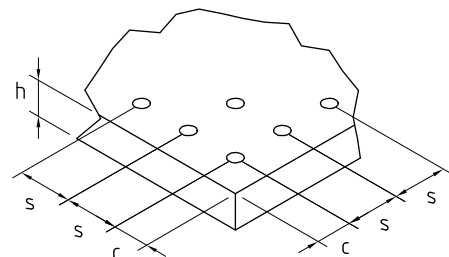
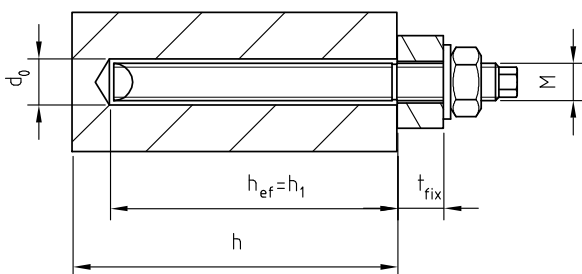
Loads are for single plugs without the effects of axial and edge spacing.

The safety coefficient in accordance with ETAG 001 is included ( $\gamma_M$  and  $\gamma_F$ ).

### Installation and plug characteristic values

	Dim.	M8	M10	M12	M16	
Drilled hole depth	$h_o$	mm	80	90	110	125
Nominal drill diameter	$d_o$	mm	10	12	14	18
Bit cutting diameter	$d_{cut}$	mm	10.5	12.5	14.5	18.5
Torque when anchoring (tightening torque)	$T_{inst}$	Nm	10	20	40	80
Spanner width	SW	mm	13	17	19	24
Spanner width hexagon insert bit	$SW_{HEX}$	mm	5	6	8	12
Clearance hole in the add-on part	$d_f$	mm	9	12	14	18
Brush diameter	D	mm	11	13	16	20

See the European Technical Assessment for additional installation and plug characteristic values.





# Characteristic values for injection anchor XV Plus

Type MKT injection system VMU Plus for perforated blocks with perforated sleeve

**Loads for injection system VMU Plus with anchor rods VMU-A/IG/VM-A, galvanised, A4 and HCR for masonry in accordance with European Technical Assessment ETA-13/0909.**

Characteristic values for perforated blocks with perforated sleeve					M8	M10	M12	IG-M8
Anchor rods: Steel $\geq$ FKL 5.8, A4, HCR $\geq$ FKL 70					12 x 80	16 x 85	20 x 85	20 x 85
Perforated sleeves: VM-SH								
Perforated brick Porotherm Homebric acc. to EN 771-1, bulk density: 0.7 kg/dm <sup>3</sup> , minimum format: 500 x 200 x 299 mm (e.g. Wienerberger)								
Anchoring depth	$h_{ef}$	mm			80	85	85	85
Axial spacing parallel to horizontal joint	$Scr_{  }$	mm			500	500	500	500
Axial spacing vertical to horizontal joint	$Scr_{\perp}$	mm			300	300	300	300
Minimum axial spacing	$S_{min}$	mm			100	100	100	100
Edge spacing	$C_{cr}$	mm			100	100	120	120
Minimum edge spacing	$C_{min}^{1)}$	mm			100	100	120	120
Minimum component thickness (masonry)	$h_{min}$	mm			115	115	115	115
Permissible tensile load	$f_b \geq 4 \text{ N/mm}^2$	perm. N	kN		0.26	0.26	0.26	0.26
for compressive strength	$f_b \geq 6 \text{ N/mm}^2$	perm. N	kN		0.26	0.26	0.26	0.26
	$f_b \geq 10 \text{ N/mm}^2$	perm. N	kN		0.34	0.34	0.34	0.34
Permissible transverse load	$f_b \geq 4 \text{ N/mm}^2$	perm. V	kN		0.57	0.57	0.71	0.71
for compressive strength	$f_b \geq 6 \text{ N/mm}^2$	perm. V	kN		0.71	0.71	0.86	0.86
	$f_b \geq 10 \text{ N/mm}^2$	perm. V	kN		0.86	0.86	1.14	1.14
Vertically perforated brick HLz-16-DF acc. to EN 771-1, bulk density: 0.8 kg/dm <sup>3</sup> , minimum format: 497 x 240 x 238 mm (e.g. Unipor)								
Anchoring depth	$h_{ef}$	mm			80	85	85	85
Axial spacing parallel to horizontal joint	$Scr_{  }$	mm			497	497	497	497
Axial spacing vertical to horizontal joint	$Scr_{\perp}$	mm			238	238	238	238
Minimum axial spacing	$S_{min}$	mm			100	100	100	100
Edge spacing	$C_{cr}$	mm			100	100	120	120
Minimum edge spacing	$C_{min}^{1)}$	mm			100	100	120	120
Minimum component thickness (masonry)	$h_{min}$	mm			115	115	115	115
Permissible tensile load	$f_b \geq 6 \text{ N/mm}^2$	perm. N	kN		0.71	0.71	0.71	0.71
for compressive strength	$f_b \geq 8 \text{ N/mm}^2$	perm. N	kN		0.86	0.86	0.86	0.86
	$f_b \geq 12 \text{ N/mm}^2$	perm. N	kN		1.00	1.00	1.00	1.00
	$f_b \geq 14 \text{ N/mm}^2$	perm. N	kN		1.14	1.14	1.14	1.14
	$f_b \geq 6 \text{ N/mm}^2$	perm. V	kN		0.71	1.29	1.43	1.43
Permissible transverse load	$f_b \geq 8 \text{ N/mm}^2$	perm. V	kN		0.86	1.57	1.71	1.71
for compressive strength	$f_b \geq 12 \text{ N/mm}^2$	perm. V	kN		1.14	1.86	2.00	2.00
	$f_b \geq 14 \text{ N/mm}^2$	perm. V	kN		1.14	1.86	2.00	2.00
Perforated brick Doppio Uni acc. to EN 771-1, bulk density: 0.9 kg/dm <sup>3</sup> , minimum format: 250 x 120 x 120 mm (e.g. Wienerberger)								
Anchoring depth	$h_{ef}$	mm			80	85	85	85
Axial spacing parallel to horizontal joint	$Scr_{  }$	mm			250	250	250	250
Axial spacing vertical to horizontal joint	$Scr_{\perp}$	mm			120	120	120	120
Min. Axial spacing parallel to horizontal joint	$S_{min,  }$	mm			100	100	100	100
Min. Axial spacing vertical to horizontal joint	$S_{min,\perp}$	mm			120	120	120	120
Edge spacing	$C_{cr}$	mm			100	100	120	120
Minimum edge spacing	$C_{min}^{1)}$	mm			60	60	60	60
Minimum component thickness (masonry)	$h_{min}$	mm			115	115	115	115
Permissible tensile load	$f_b \geq 10 \text{ N/mm}^2$	perm. N	kN		0.17	0.17	0.17	0.17
for compressive strength	$f_b \geq 16 \text{ N/mm}^2$	perm. N	kN		0.21	0.21	0.21	0.21
	$f_b \geq 20 \text{ N/mm}^2$	perm. N	kN		0.26	0.26	0.26	0.26
	$f_b \geq 28 \text{ N/mm}^2$	perm. N	kN		0.34	0.34	0.34	0.34
	$f_b \geq 10 \text{ N/mm}^2$	perm. V	kN		0.43	0.43	0.43	0.43
Permissible transverse load	$f_b \geq 16 \text{ N/mm}^2$	perm. V	kN		0.57	0.57	0.57	0.57
for compressive strength	$f_b \geq 20 \text{ N/mm}^2$	perm. V	kN		0.57	0.57	0.57	0.57
	$f_b \geq 28 \text{ N/mm}^2$	perm. V	kN		0.71	0.71	0.71	0.71
Ventilated lime sand block KSL-3DF acc. to EN 771-2, bulk density: 1.4 kg/dm <sup>3</sup> , minimum format: 240 x 175 x 113 mm (e.g. Wemding)								
Anchoring depth	$h_{ef}$	mm			80	85	85	85
Axial spacing parallel to horizontal joint	$Scr_{  }$	mm			240	240	240	240
Axial spacing vertical to horizontal joint	$Scr_{\perp}$	mm			120	120	120	120
Minimum axial spacing	$S_{min}$	mm			120	120	120	120
Edge spacing	$C_{cr}$	mm			100	100	120	120
Minimum edge spacing	$C_{min}$	mm			60	60	60	60
Minimum component thickness (masonry)	$h_{min}$	mm			115	115	115	115
Permissible tensile load	$f_b \geq 8 \text{ N/mm}^2$	perm. N	kN		0.43	0.43	1.29	1.29
for compressive strength	$f_b \geq 12 \text{ N/mm}^2$	perm. N	kN		0.57	0.57	1.71	1.71
	$f_b \geq 14 \text{ N/mm}^2$	perm. N	kN		0.71	0.71	1.86	1.86
Permissible transverse load	$f_b \geq 8 \text{ N/mm}^2$	perm. V	kN		0.71	1.14	1.14	1.14
for compressive strength	$f_b \geq 12 \text{ N/mm}^2$	perm. V	kN		0.86	1.29	1.29	1.29
	$f_b \geq 14 \text{ N/mm}^2$	perm. V	kN		1.00	1.71	1.71	1.71

<sup>1)</sup> For  $V_{Rk,c}$  :  $C_{min}$  according to ETAG 029, annex C.

Permissible loads without the effects of axial and edge spacing to component edges.

Vertical and horizontal joints are mortared. The safety coefficient in accordance with ETAG is included ( $\gamma_M$  and  $\gamma_F$ ).

Temperature range +24 °C/+40 °C – use category dry/dry.



### Characteristic values for injection anchor XV Plus

Type MKT injection system VMU Plus for perforated blocks with perforated sleeve

**Loads for injection system VMU Plus with anchor rods VMU-A/IG/VM-A, galvanised, A4 and HCR for masonry in accordance with European Technical Assessment ETA-13/0909.**

#### Characteristic values for perforated blocks with perforated sleeve

Anchor rods: Steel $\geq$ FKL 5.8, A4, HCR $\geq$ FKL 70	M8	M10	M12	IG-M8
Perforated sleeves: VM-SH	12 x 80	16 x 85	20 x 85	20 x 85

**Ventilated lime sand block KSL-12DF acc. to EN 771-2, bulk density: 1.4 kg/dm<sup>3</sup>, minimum format: 498 x 175 x 238 mm (e.g. Wemding)**

Anchoring depth	$h_{ef}$	mm	80	85	85	85
Axial spacing parallel to horizontal joint	$Scr_{  }$	mm	498	498	498	498
Axial spacing vertical to horizontal joint	$Scr_{\perp}$	mm	238	238	238	238
Minimum axial spacing	$S_{min}$	mm	120	120	120	120
Edge spacing	$C_{cr}$	mm	100	100	120	120
Minimum edge spacing	$C_{min}$	mm	100	100	120	120
Minimum component thickness (masonry)	$h_{min}$	mm	115	115	115	115
Permissible tensile load for compressive strength	$f_b \geq 10 \text{ N/mm}^2$	perm. N	kN	0.17	0.43	0.43
	$f_b \geq 12 \text{ N/mm}^2$	perm. N	kN	0.21	0.43	0.43
	$f_b \geq 16 \text{ N/mm}^2$	perm. N	kN	0.26	0.57	0.57
Permissible transverse load for compressive strength	$f_b \geq 10 \text{ N/mm}^2$	perm. V	kN	0.71	1.57	1.57
	$f_b \geq 12 \text{ N/mm}^2$	perm. V	kN	0.86	1.86	1.86
	$f_b \geq 16 \text{ N/mm}^2$	perm. V	kN	1.00	2.29	2.29

**Perforated block of lightweight concrete Bloc creux B40 acc. to EN 771-3, bulk density: 0.8 kg/dm<sup>3</sup>, minimum format: 494 x 200 x 190 mm (e.g. Sepa)**

Anchoring depth	$h_{ef}$	mm	80	85	85	85
Axial spacing parallel to horizontal joint	$Scr_{  }$	mm	494	494	494	494
Axial spacing vertical to horizontal joint	$Scr_{\perp}$	mm	190	190	190	190
Minimum axial spacing	$S_{min}$	mm	100	100	100	100
Edge spacing	$C_{cr}$	mm	100	100	120	120
Minimum edge spacing	$C_{min}$	mm	100	100	120	120
Minimum component thickness (masonry)	$h_{min}$	mm	115	115	115	115
Permissible tensile load for compressive strength	$f_b \geq 4 \text{ N/mm}^2$	perm. N	kN	0.34	0.34	0.34
Permissible transverse load for compressive strength	$f_b \geq 4 \text{ N/mm}^2$	perm. V	kN	0.86	0.86	0.86

Permissible loads without the effects of axial and edge spacing to component edges.

Vertical and horizontal joints are mortared. The safety coefficient in accordance with ETAG is included ( $\gamma_M$  and  $\gamma_F$ ).

Temperature range +24 °C/+40 °C – use category dry/dry.

### Installation and plug characteristic values

#### Characteristic values for perforated blocks with perforated sleeve

Anchor rods: Steel $\geq$ FKL 5.8, A4, HCR $\geq$ FKL 70			M8	M10	M12	IG-M8
Perforated sleeves: VM-SH			12 x 80	16 x 85	20 x 85	20 x 85
Drilled hole diameter	$d_o$	mm	12	16	20	20
Drilled hole depth	$h_o$	mm	85	90	90	90
Clearance hole in the add-on part	$d_f \leq$	mm	9	12	14	9
Brush diameter	$d_b \geq$	mm	14	18	22	22
Torque when anchoring	$T_{inst,max}$	Nm	2	2	2	2
Amount of mortar per drill hole		ml	11.2	24.9	41.1	41.1
Drill holes per cartridge VMU Plus 280		piece	21	9	5	5
Drill holes per cartridge VMU Plus 345		piece	27	12	7	7
Drilling method			rotary drilling			





### Characteristic values for injection anchor XV Plus

Type MKT injection system VMU Plus for solid blocks without perforated sleeve

**Loads for injection system VMU Plus with anchor rods VMU-A/IG/VM-A, galvanised, A4 and HCR for masonry in accordance with European Technical Assessment ETA-13/0909.**

#### Characteristic values for solid blocks without perforated sleeve<sup>1)</sup>

Anchor rods <sup>1)</sup> : Steel $\geq$ FKL 5.8, A4, HCR $\geq$ FKL 70				M8	M10	M12	IG-M8
<b>Building bricks Mz-DF acc. to EN 771-1, bulk density: 1.6 kg/dm<sup>3</sup>, minimum format: 240 x 115 x 55 mm (e.g. Unipor)</b>							
Anchoring depth	$h_{ef}$	mm		80	90	100	100
Axial spacing	$S_{cr}$	mm		240	270	300	300
Minimum axial spacing	$S_{min}$	mm		120	120	120	120
Edge spacing	$C_{cr}$	mm		120	135	150	150
Minimum edge spacing	$C_{min}$	mm		60	60	60	60
Minimum component thickness (masonry)	$h_{min}$	mm		110	120	130	130
Permissible tensile load for compressive strength	$f_b \geq 10 \text{ N/mm}^2$	perm. N	kN	1.00	1.00	1.14	1.14
	$f_b \geq 20 \text{ N/mm}^2$	perm. N	kN	1.29	1.57	1.71	1.71
	$f_b \geq 28 \text{ N/mm}^2$	perm. N	kN	1.57	1.71	1.94	1.94
Permissible transverse load for compressive strength	$f_b \geq 10 \text{ N/mm}^2$	perm. V	kN	1.00	1.00	1.00	1.00
	$f_b \geq 20 \text{ N/mm}^2$	perm. V	kN	1.43	1.43	1.43	1.43
	$f_b \geq 28 \text{ N/mm}^2$	perm. V	kN	1.57	1.57	1.57	1.57

#### Lime-sand brick KS-NF acc. to EN 771-2, bulk density: 2.0 kg/dm<sup>3</sup>, minimum format: 240 x 115 x 71 mm (e.g. Wemding)

Anchoring depth	$h_{ef}$	mm		80	90	100	100
Axial spacing	$S_{cr}$	mm		240	270	300	300
Minimum axial spacing	$S_{min}$	mm		120	120	120	120
Edge spacing	$C_{cr}$	mm		120	135	150	150
Minimum edge spacing	$C_{min}$	mm		60	60	60	60
Minimum component thickness (masonry)	$h_{min}$	mm		110	120	130	130
Permissible tensile load for compressive strength	$f_b \geq 10 \text{ N/mm}^2$	perm. N	kN	1.29	1.29	1.29	1.29
	$f_b \geq 20 \text{ N/mm}^2$	perm. N	kN	1.71	1.71	1.71	1.71
	$f_b \geq 27 \text{ N/mm}^2$	perm. N	kN	2.00	2.00	2.00	2.00
Permissible transverse load for compressive strength	$f_b \geq 10 \text{ N/mm}^2$	perm. V	kN	0.71	0.86	0.71	0.71
	$f_b \geq 20 \text{ N/mm}^2$	perm. V	kN	1.14	1.29	1.14	1.14
	$f_b \geq 27 \text{ N/mm}^2$	perm. V	kN	1.29	1.57	1.29	1.29

#### Solid block of lightweight concrete LAC acc. to EN 771-3, bulk density: 0.6 kg/dm<sup>3</sup>, minimum format: 300 x 123 x 248 mm (e.g. Bisotherm)

Anchoring depth	$h_{ef}$	mm		80	90	100	100
Axial spacing	$S_{cr}$	mm		240	270	300	300
Minimum axial spacing	$S_{min}$	mm		120	120	120	120
Edge spacing	$C_{cr}$	mm		120	135	150	150
Minimum edge spacing	$C_{min}$	mm		60	60	60	60
Minimum component thickness (masonry)	$h_{min}$	mm		110	120	130	130
Permissible tensile load for compressive strength	$f_b \geq 6 \text{ N/mm}^2$	perm. N	kN	0.86	0.86	1.00	1.00
Permissible transverse load for compressive strength	$f_b \geq 6 \text{ N/mm}^2$	perm. V	kN	0.86	0.86	0.86	0.86

<sup>1)</sup> Anchoring with perforated sleeve is permitted; technical data, see European Technical Assessment ETA-13/0909.

Permissible loads without the effects of axial and edge spacing to component edges.

Vertical and horizontal joints are mortared. The safety coefficient in accordance with ETAG is included ( $\gamma_M$  and  $\gamma_F$ ).

Temperature range +24 °C/+40 °C – use category dry/dry.





### Characteristic values for injection anchor XV Plus

Type MKT injection system VMU Plus solid blocks without perforated sleeve

**Loads for injection system VMU Plus with anchor rods VMU-A/IG/VM-A, galvanised, A4 and HCR for masonry in accordance with European Technical Assessment ETA-13/0909.**

#### Characteristic values for solid blocks without perforated sleeve<sup>1)</sup>

Anchor rods <sup>1)</sup> : Steel $\geq$ FKL 5.8, A4, HCR $\geq$ FKL 70			M8	M10	M12	IG-M8
<b>Aerated concrete AAC6 acc. to EN 771-4, bulk density: 0.6 kg/dm<sup>3</sup>, minimum format: 499 x 240 x 249 mm (e.g. Porit)</b>						
Anchoring depth	$h_{ef}$	mm	80	90	100	100
Axial spacing	$S_{cr}$	mm	240	270	300	300
Minimum axial spacing	$S_{min}$	mm	100	100	100	100
Edge spacing	$C_{cr}$	mm	120	135	150	150
Minimum edge spacing	$C_{min,N}$	mm	75	75	75	75
	$C_{min,v,II}^{2)}$	mm	75	75	75	75
	$C_{min,v,I}^{3)}$	mm	120	135	150	150
Minimum component thickness (masonry)	$h_{min}$	mm	110	120	130	130
Permissible tensile load for compressive strength	$f_b \geq 2 \text{ N/mm}^2$	perm. N	kN	0.89	1.43	1.79
Permissible transverse load for compressive strength	$f_b \geq 2 \text{ N/mm}^2$	perm. V	kN	2.14	3.57	3.57

<sup>1)</sup> Anchoring with perforated sleeve is permitted; technical data, see European Technical Assessment ETA-13/0909.

<sup>2)</sup> Minimum edge spacing  $C_{min,v,II}$  for transverse load parallel to free edge.

<sup>3)</sup> Minimum edge spacing  $C_{min,v,I}$  for transverse load vertical to free edge.

Permissible loads without the effects of axial and edge spacing to component edges.

Vertical and horizontal joints are mortared. The safety coefficient in accordance with ETAG is included ( $\gamma_M$  and  $\gamma_F$ ).

Temperature range +24 °C/+40 °C – use category dry/dry.

### Installation and plug characteristic values

#### Characteristic values for solid blocks without perforated sleeve

Anchor rods <sup>1)</sup> : Steel $\geq$ FKL 5.8, A4, HCR $\geq$ FKL 70			M8	M10	M12	IG-M8
Drilled hole diameter	$d_o$	mm	10	12	14	14
Drilled hole depth	$h_o$	mm	80	90	100	100
Clearance hole in the add-on part	$d_f \leq$	mm	9	12	14	9
Brush diameter	$d_b \geq$	mm	12	14	16	16
Torque when anchoring	$T_{inst,max}$	Nm	2 (14 for building bricks Mz-DF)			
Amount of mortar per drill hole		ml	4.1	6.6	10	10
Drill holes per cartridge VMU Plus 280		piece	58	36	24	24
Drill holes per cartridge VMU Plus 345		piece	74	46	30	30

<sup>1)</sup> Anchoring with perforated sleeve is permitted; technical data, see European Technical Assessment ETA-13/0909.



### Plug characteristic values for steel plugs

with and without collar, galvanised

#### Permissible loads of single plugs in non-cracked concrete, concrete strength class C20/25 B25 in accordance with ETA Assessment

Plug (thread)	Dim.	M6 <sup>1)</sup>	M8 <sup>1)</sup>	M8 x 40	M10	M10 x 30 <sup>1)</sup>	M12	M16
Permissible loads per plug at tensile force	perm. N [kN]	3.3	3.3	3.6	5.1	3.3	7.1	10.5
Permissible loads per plug at transverse force <sup>2)</sup>	perm. V [kN]	2.1	3.9	3.9	4.1	4.0	9.0	16.8
Permissible bending moment <sup>2)</sup>	perm. M [Nm]	3.3	8.1	8.1	15.8	15.8	27.8	71.0
Effective anchoring depth	$h_{ef}$ [mm]	30	30	40	40	30	50	65
Characteristic axial spacing	$s_{cr,N}$ [mm]	90	90	120	120	90	150	195
Characteristic edge spacing	$c_{cr,N}$ [mm]	45	45	60	60	45	75	97.5
Minimum axial spacing	$s_{min}$ [mm]	55	60	80	100	100	120	150
Minimum edge spacing	$c_{min}$ [mm]	95	95	95	135	115	165	200
Minimum component thickness	$h_{min}$ [mm]	100	100	100	120	120	130	160

<sup>1)</sup> Only for application of statically indetermined systems.

<sup>2)</sup> With screw, strength class 5.6

Loads are for single plugs without the effects of axial and edge spacing.

The safety coefficient according to ETAG is included.

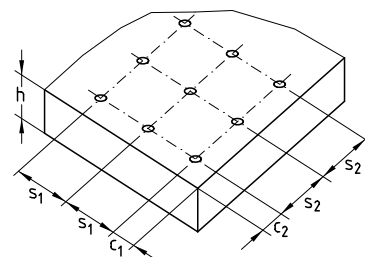
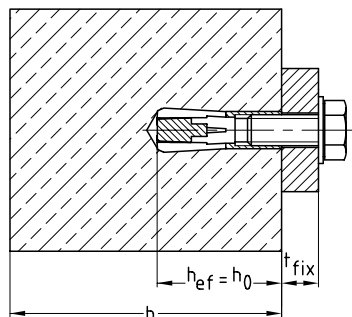
All the specifications in the European Technical Assessment ETA-05/0160 need to be taken into account.

#### Installation and plug characteristic values

Plug (thread)	Dim.	M6	M8	M8 x 40	M10	M10 x 30	M12	M16
Drilled hole depth	$h_1 \geq$ [mm]	30	30	40	40	30	50	65
Nominal drill diameter	$d_0 =$ [mm]	8	10	10	12	12	15	20
Bit cutting diameter	$d_{cut} \leq$ [mm]	8.45	10.45	10.45	12.5	12.5	15.5	20.55
Torque for anchoring	$T_{inst} =$ [Nm]	4	8	8	15	15	35	60
Clearance hole in the add-on part	$d_f \leq$ [mm]	7	9	9	12	12	14	18
Minimum screwing depth	$L_{sd}$ [mm]	7	9	9	11	10	13	18
Maximum screwing depth	$L_{th}$ [mm]	13	13	20	15	12	18	23

See the European Technical Assessment for additional installation and plug characteristic values.

#### Plug arrangement and component dimensions





## Plug characteristic values for steel plugs

with and without collar, galvanised

### Permissible loads for the use of multiple fastening of non-load bearing systems in concrete, strength class C20/25 (B25) in accordance with Assessment ETA-05/0161

Plug (thread)	Dim.	M6 x 30	M8 x 25	M8 x 30	M8 x 40	M10 x 25	M10 x 30	M10 x 40	M12 x 25	M12 x 50	M16 x 65
Permissible tensile load <sup>1)</sup>	perm. N [kN]	1.2	1.9	1.7	2.0	2.1	2.0	2.0	2.1	2.4	6.3
Permissible bending moment <sup>1)</sup>	perm. M [Nm]	2.6	6.4	6.4	6.4	12.8	12.8	12.8	22.2	22.2	56.9
Effective anchoring depth	h <sub>ef</sub> [mm]	30	25	30	40	25	30	40	25	50	65
Characteristic pitch	Scr, N [mm]	130	75	180	210	75	230	170	75	170	400
Characteristic edge clearance	C <sub>cr, N</sub> [mm]	65	38	90	105	38	115	85	38	85	200
Min. pitch	S <sub>min</sub> [mm]	55	50	60	80	60	100	100	100	120	150
Min. edge clearance	C <sub>min</sub> [mm]	95	100	95	95	100	115	135	110	165	200
Min. building element thickness	h <sub>min1</sub> [mm]	100	80	100	100	80	120	120	80	130	160
Standard building element thickness	h <sub>min2</sub> [mm]	100	100	100	100	100	120	120	100	130	160

<sup>1)</sup> With screw, strength class 4.6

### Installation and plug characteristic values

Plug (thread)	Dim.	M6 x 30	M8 x 25	M8 x 30	M8 x 40	M10 x 25	M10 x 30	M10 x 40	M12 x 25	M12 x 50	M16 x 65
Nominal drill diameter	d <sub>0</sub> [mm]	8	10	10	10	12	12	12	15	15	20
Drilled hole depth	h <sub>1</sub> ≥ [mm]	30	25	30	40	25	30	40	25	50	65
Torque for anchoring	T <sub>inst</sub> [Nm]	4	8	8	8	15	15	15	35	35	60
Clearance hole in the add-on part	d <sub>r</sub> [mm]	7	9	9	9	12	12	12	14	14	18
Minimum screwing depth	L <sub>sd</sub> [mm]	7	8	9	9	10	10	11	12	13	18
Maximum screwing depth	L <sub>th</sub> [mm]	13	12	13	20	12	12	15	12	18	23

Use as multiple fastening of non-load bearing systems according to ETAG 001, part 6.

The total safety coefficient ( $\gamma_M$  and  $\gamma_F$ ) in accordance with ETAG is included.

The max. permitted load for each attachment point can be below the permitted load of the anchor, depending on national regulations. The permitted loads for each attachment point are regulated by ETAG 001, part 6 for the different countries.

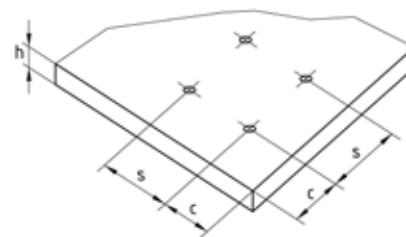
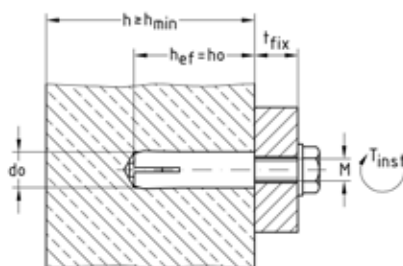
All the specifications in the European Technical Assessment ETA-05/0161 need to be taken into account.

### Loads under fire exposure (C20/25 to C50/60)

Plug (thread)	Dim.	M6 x 30	M8 x 25	M8 x 30	M8 x 40	M10 x 25	M10 x 30	M10 x 40	M12 x 25	M12 x 50	M16 x 65
Permissible loads R30	perm. F [kN]	0.4	0.6	0.9	1.1	0.6	0.9	1.5	0.6	1.5	4.0
Permissible loads R60	perm. F [kN]	0.3	0.6	0.9	0.9	0.6	0.9	1.5	0.6	1.5	4.0
Permissible loads R90	perm. F [kN]	0.3	0.6	0.6	0.6	0.6	0.9	1.1	0.6	1.5	3.0
Permissible loads R120	perm. F [kN]	0.3	0.5	0.5	0.5	0.5	0.7	0.9	0.5	1.2	2.4
Characteristic pitch	Scr, F [mm]	130	100	180	210	100	170	170	100	200	400
Characteristic edge clearance	C <sub>cr, F</sub> [mm]	65	50	90	105	50	85	85	50	100	200

Loads apply for screws, strength class ≥ 4.6.

### Plug arrangement and component dimensions





# Plug characteristic values for steel plugs

with and without collar, galvanised

**Permissible loads for the use of multiple fastening of non-load bearing systems in prestressed concrete hollow core slab ceilings, concrete strength class  $\geq$  C30/37 in accordance with Assessment ETA-05/0161**

Plug (thread)	Dim.	M8 x 25	M10 x 25	M12 x 25
Material thickness	$d_b$ [mm]	35 (30) <sup>1)</sup>	35 (30) <sup>1)</sup>	35 (30) <sup>1)</sup>
Permissible tensile load <sup>2)</sup>	perm. N [kN]	1.9	2.1	2.1
Permissible bending moment <sup>2)</sup>	perm. M [Nm]	6.4	12.8	22.2
Pitch	$S_{cr} = S_{min}$ [mm]	200	200	200
Edge clearance	$C_{cr} = C_{min}$ [mm]	150	150	150

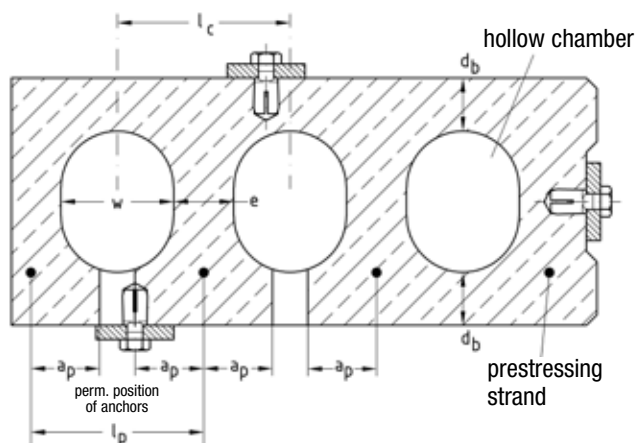
<sup>1)</sup> Drill hole must not cut hollow chamber

<sup>2)</sup> With screw / threaded rod, strength class  $\geq$  4.6

## Installation and plug characteristic values

Plug (thread)	Dim.	M8 x 25	M10 x 25	M12 x 25
Nominal drill diameter	$d_o$ [mm]	10	12	15
Drilled hole depth	$h_o \geq$ [mm]	25	25	25
Clearance hole in the add-on part	$d_r$ [mm]	9	12	14
Torque when anchoring	$T_{inst} \leq$ [Nm]	8	15	35

Permissible anchor positions  
for prestressed concrete hollow core slab ceilings



$$w/e \leq 4.2$$

w = Width of hollow

e = Space between holes

Distance between hollow axes

$$l_c \geq 100 \text{ mm}$$

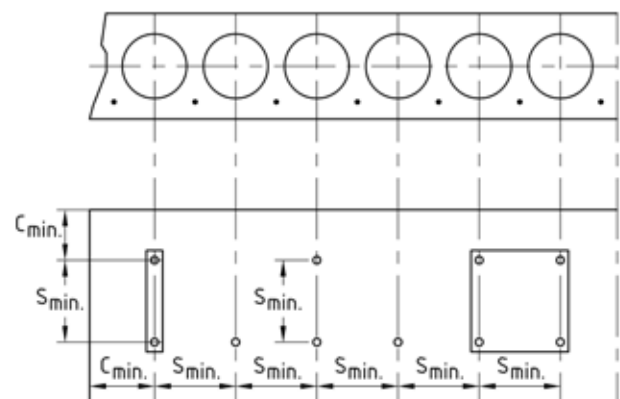
Distance between prestressing strands

$$l_p \geq 100 \text{ mm}$$

Distance between prestressing strand and drill hole

$$a_p \geq 50 \text{ mm}$$

Min. pitch and edge clearance  
for prestressed concrete hollow core slab ceilings



Min. pitch

$$S_{min} \geq 200 \text{ mm}$$

Min. edge clearance

$$C_{min} \geq 150 \text{ mm}$$



### Plug characteristic values for steel plugs

stainless steel

#### Permissible loads of single plugs in non-cracked concrete, concrete strength class C20/25 B25 in accordance with ETA Assessment

Plug (thread)	Dim.	M6 <sup>1)</sup>	M8 <sup>1)</sup>	M10	M12 <sup>2)</sup>	M16 <sup>2)</sup>
Permissible loads per plug at tensile force	perm. N [kN]	3.9	3.9	6.1	8.5	12.6
Permissible loads per plug at transverse force	perm. V [kN]	3.2	4.9	6.1	11.5	19.2
Permissible bending moment	perm. M [Nm]	5.0	11.9	23.8	42.1	106.7
Effective anchoring depth	$h_{ef}$ [mm]	30	30	40	50	65
Characteristic axial spacing	$s_{cr,N}$ [mm]	90	90	120	150	195
Characteristic edge spacing	$c_{cr,N}$ [mm]	45	45	60	75	97.5
Minimum axial spacing	$s_{min}$ [mm]	50	60	100	120	150
Minimum edge spacing	$c_{min}$ [mm]	80	95	135	165	200
Minimum component thickness	$h_{min}$ [mm]	100	100	130	140	160
Minimum screwing depth	$L_{sd}$ [mm]	7	9	11	13	18
Maximum screwing depth	$L_{fh}$ [mm]	13	13	15	18	23

<sup>1)</sup> Only for application of statically indetermined systems.

<sup>2)</sup> Applied to stainless steel A4.

Loads for single plugs without the effects of axial and edge spacing.

The safety coefficient according to ETAG is included.

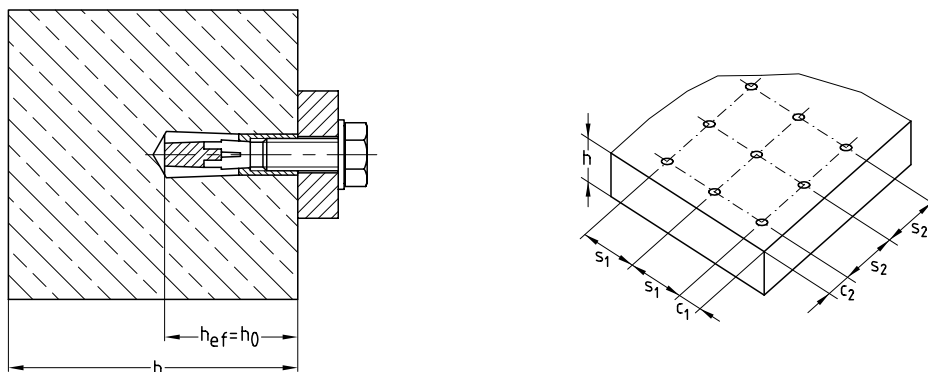
All the specifications in the European Technical Assessment ETA-05/0160 need to be taken into account.

#### Installation and plug characteristic values

Plug (thread)	Dim.	M6	M8	M10	M12	M16
Drilled hole depth	$h_1 \geq$ [mm]	30	30	40	50	65
Nominal drill diameter	$d_0 =$ [mm]	8	10	12	15	20
Bit cutting diameter	$d_{cut} \leq$ [mm]	8.45	10.45	12.5	15.5	20.55
Torque for anchoring	$T_{inst} =$ [Nm]	4	8	15	35	60
Clearance hole in the add-on part	$d_f \leq$ [mm]	7	9	11	13	18

See the European Technical Assessment for additional installation and plug characteristic values.

#### Plug arrangement and component dimensions





# Plug characteristic values for steel plugs

stainless steel

**Permissible loads for the use of multiple fastening of non-load bearing systems in concrete, strength class C20/25 (B25) in accordance with ETA Assessment**

Plug (thread)	Dim.	M6	M8	M10	M12	M16
Permissible loads per plug at tensile force	perm. N [kN]	1.2	1.7	2.0	2.4	6.3
Permissible bending moment	perm. M [Nm]	5.0	11.9	23.8	42.1	106.7
Effective anchoring depth	$h_{ef}$ [mm]	30	30	40	50	65
Characteristic axial spacing	$s_{cr,N}$ [mm]	130	180	170	170	400
Characteristic edge spacing	$c_{cr,N}$ [mm]	65	90	85	85	200
Minimum axial spacing	$s_{min}$ [mm]	50	60	100	120	150
Minimum edge spacing	$c_{min}$ [mm]	80	95	135	165	200
Minimum component thickness	$h_{min}$ [mm]	100	100	130	140	160
Minimum screwing depth	$L_{sd}$ [mm]	7	9	11	13	18
Maximum screwing depth	$L_{th}$ [mm]	13	13	15	18	23

Use as multiple fastening of non-load systems in cracked and non-cracked concrete.

The total safety coefficient ( $\gamma_M$  and  $\gamma_F$ ) in accordance with ETAG is included.

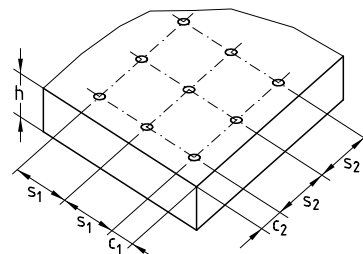
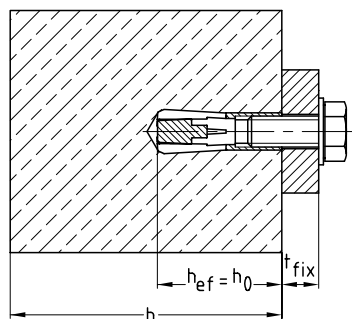
All the specifications in the European Technical Assessment ETA-05/0161 need to be taken into account.

## Installation and plug characteristic values

Plug (thread)	Dim.	M6	M8	M10	M12	M16
Drilled hole depth	$h_1 \geq$ [mm]	30	30	40	50	65
Nominal drill diameter	$d_0 =$ [mm]	8	10	12	15	20
Bit cutting diameter	$d_{cut} \leq$ [mm]	8.45	10.45	12.5	15.5	20.55
Torque for anchoring	$T_{inst} =$ [Nm]	4	8	15	35	60
Clearance hole in the add-on part	$d_r \leq$ [mm]	7	9	12	14	18

See the European Technical Assessment for additional installation and plug characteristic values.

## Plug arrangement and component dimensions





### Anchor characteristic values for through anchors

galvanised

#### Permissible loads of single plugs in non-cracked concrete, concrete strength class C20/25 B25 in accordance with ETA Assessment

Plug (thread)	Dim.	M6	M8	M10	M12	M16
Permissible loads per plug at tensile force	perm. N [kN]	4.1	5.7	7.6	12.6	17.8
Permissible loads per plug at transverse force	perm. V [kN]	2.9	6.3	8.0	14.3	23.6
Permissible bending moment	perm. M [Nm]	5.1	13.1	25.7	44.6	99.9
Effective anchoring depth	$h_{ef}$ [mm]	40	44	48	65	82
Characteristic axial spacing	$s_{cr,N}$ [mm]	120	132	144	195	246
Characteristic edge spacing	$c_{cr,N}$ [mm]	60	66	72	98	123
Minimum axial spacing	$s_{min}$ [mm]	35	40	55	75	90
Minimum edge spacing	$c_{min}$ [mm]	40	45	65	90	105
Minimum component thickness	$h_{min}$ [mm]	100	100	100	130	170

Loads are for single plugs without the effects of axial and edge spacing.

The safety coefficient according to ETAG is included.

All the specifications in the European Technical Assessment (ETA) need to be taken into account when dimensioning.

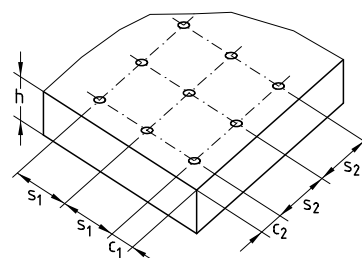
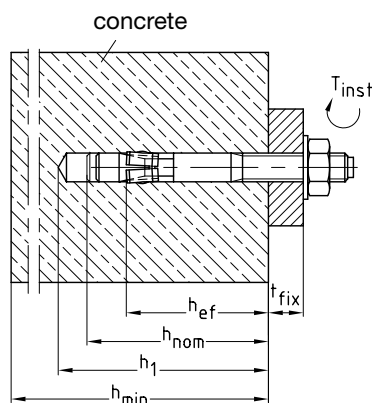
Permissible loads at reduced setting depth available upon request.

#### Installation and plug characteristic values

Plug (thread)	Dim.	M6	M8	M10	M12	M16
Drilled hole depth	$h_1 \geq$ [mm]	55	65	70	90	110
Setting depth	$h_{nom}$ [mm]	49	56	62	82	102
Nominal drill diameter	$d_0 =$ [mm]	6	8	10	12	16
Bit cutting diameter	$d_{cut} \leq$ [mm]	6.40	8.45	10.45	12.50	16.50
Torque for anchoring	$T_{inst} =$ [Nm]	8	15	30	50	100
Clearance hole in the add-on part	$d_r \leq$ [mm]	7	9	12	14	18

See the European Technical Assessment for additional installation and plug characteristic values.

#### Plug arrangement and component dimensions







### Anchor characteristic values for through anchors

stainless steel

#### Permissible loads of single plugs in non-cracked concrete, concrete strength class C20/25 B25 in accordance with ETA Assessment

Plug (thread)	Dim.	M8	M10	M12	M16
Permissible loads per plug at tensile force	perm. N [kN]	5.7	7.6	11.9	17.2
Permissible loads per plug at transverse force	perm. V [kN]	6.9	8.0	15.4	28.6
Permissible bending moment	perm. M [Nm]	13.7	28.0	48.6	113.7
Effective anchoring depth	$h_{ef}$ [mm]	44	48	65	82
Characteristic axial spacing	$s_{cr,N}$ [mm]	132	144	195	240
Characteristic edge spacing	$c_{cr,N}$ [mm]	66	72	97.5	120
Minimum axial spacing	$s_{min}$ [mm]	35	45	60	80
	for $c \geq$ [mm]	65	70	100	120
Minimum edge spacing	$c_{min}$ [mm]	45	55	70	80
	for $s \geq$ [mm]	110	80	100	140
Minimum component thickness	$h_{min}$ [mm]	100	100	130	160

Loads are for single plugs without the effects of axial and edge spacing.

The safety coefficient according to ETAG is included.

All the specifications in the European Technical Assessment (ETA) need to be taken into account when dimensioning.

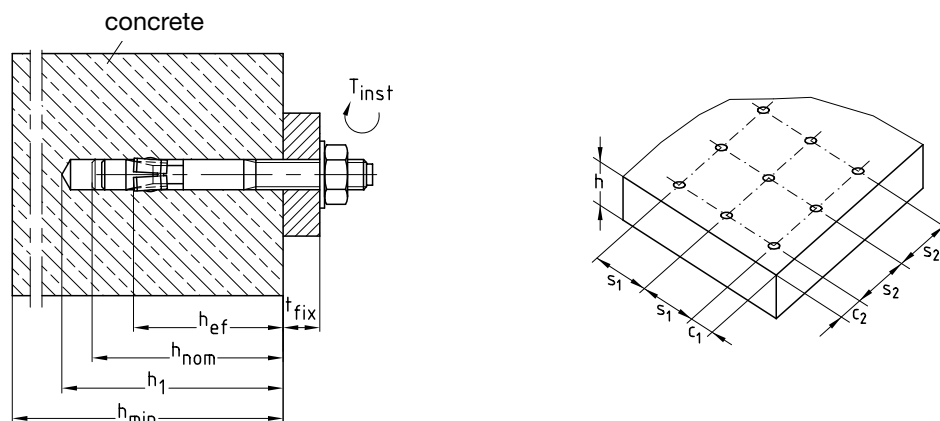
Permissible loads at reduced setting depth available upon request.

#### Installation and plug characteristic values

Plug (thread)	Dim.	M8	M10	M12	M16
Drilled hole depth	$h_1 \geq$ [mm]	65	70	90	110
Setting depth	$h_{nom}$ [mm]	55	60	80	98
Nominal drill diameter	$d_0 =$ [mm]	8	10	12	16
Bit cutting diameter	$d_{cut} \leq$ [mm]	8.45	10.45	12.50	16.50
Torque for anchoring	$T_{inst} =$ [Nm]	15	30	50	100
Clearance hole in the add-on part	$d_r \leq$ [mm]	9	12	14	18

See the European Technical Assessment for additional installation and plug characteristic values.

#### Plug arrangement and component dimensions







### Plug characteristic values for heavy-duty anchors BZ galvanised

#### Permissible loads of single plugs in non-cracked concrete, concrete strength class C20/25 B25 in accordance with ETA Assessment

Plug (thread)	Dim.	Standard anchorage depth				Reduced anchorage depth			
		M8	M10	M12	M16	M8	M10	M12	M16
Permissible loads per plug at tensile force	perm. N [kN]	5.7	7.6	11.9	16.7	3.6	4.3	8.5	12.6
Permissible loads per plug at transverse force	perm. V [kN]	7.0	11.5	17.1	31.4	7.0	11.5	17.1	30.2
Permissible bending moment	perm. M [Nm]	13.1	26.9	46.9	123.4	13.1	26.9	46.9	123.4
Anchorage depth	h <sub>ef</sub> /h <sub>ef red</sub> [mm]	46	60	70	85	35	40	50	65
Characteristic axial spacing	S <sub>cr,N</sub> [mm]	138	180	210	255	105	120	150	195
Characteristic edge spacing	C <sub>cr,N</sub> [mm]	69	90	105	127.5	52.5	60	75	97.5
Standard thickness of concrete slab	h <sub>min 1</sub> [mm]	100	120	140	170	–	–	–	–
Minimum spacing/for edge distance <sup>1)</sup>	S <sub>min/c</sub> [mm]	40/80	45/70	60/120	65/120	–	–	–	–
Minimum edge distance/for spacing <sup>2)</sup>	C <sub>min/s</sub> [mm]	50/100	50/100	75/150	80/150	–	–	–	–
Minimum thickness of concrete slab	h <sub>min</sub> [mm]	80	100	120	140	80	80	100	140
Minimum spacing/for edge distance <sup>1)</sup>	S <sub>min/c</sub> [mm]	40/80	60/140	60/120	80/180	50/60	50/100	50/160	65/170
Minimum edge distance/for spacing <sup>2)</sup>	C <sub>min/s</sub> [mm]	50/100	90/140	75/150	90/200	40/185	65/180	100/185	170/65

Loads are for single plugs without the effects of axial and edge spacing.

The safety coefficient according to ETAG is included.

All the specifications in the European Technical Assessment (ETA) must be taken into consideration when dimensioning.

<sup>1)</sup> In order to anchor the minimum spacing “s” an edge spacing of “e” must be maintained, reduce permissible loads!

<sup>2)</sup> In order to anchor the minimum spacing “e” an axial spacing of “s” must be maintained, reduce permissible loads!

#### Permissible loads of single plugs in cracked concrete, concrete strength class C20/25 (B25) in accordance with ETA Assessment

Plug (thread)	Dim.	Standard anchorage depth				Reduced anchorage depth			
		M8	M10	M12	M16	M8	M10	M12	M16
Permissible loads per plug at tensile force	perm. N [kN]	2.4	4.3	7.6	11.9	2.4	3.6	6.1	9.0
Permissible loads per plug at transverse force	perm. V [kN]	7.0	11.5	17.1	31.4	7.0	10.4	14.5	21.6
Permissible bending moment	perm. M [Nm]	13.1	26.9	46.9	123.4	13.1	26.9	46.9	123.4
Anchorage depth	h <sub>ef</sub> /h <sub>ef red</sub> [mm]	46	60	70	85	35	40	50	65
Characteristic axial spacing	S <sub>cr,N</sub> [mm]	138	180	210	255	105	120	150	195
Characteristic edge spacing	C <sub>cr,N</sub> [mm]	69	90	105	127.5	52.5	60	75	97.5
Standard thickness of concrete slab	h <sub>min 1</sub> [mm]	100	120	140	170	–	–	–	–
Minimum spacing/for edge distance <sup>1)</sup>	S <sub>min/c</sub> [mm]	40/70	45/70	60/100	60/100	–	–	–	–
Minimum edge distance/for spacing <sup>2)</sup>	C <sub>min/s</sub> [mm]	40/80	45/90	60/140	60/180	–	–	–	–
Minimum thickness of concrete slab	h <sub>min</sub> [mm]	80	100	120	140	80	80	100	140
Minimum spacing/for edge distance <sup>1)</sup>	S <sub>min/c</sub> [mm]	40/70	45/90	60/100	70/160	50/60	50/100	50/160	65/170
Minimum edge distance/for spacing <sup>2)</sup>	C <sub>min/s</sub> [mm]	40/80	50/115	60/140	80/180	40/185	65/180	65/250	100/250

Loads are for single plugs without the effects of axial and edge spacing.

The safety coefficient according to ETAG is included.

All the specifications in the European Technical Assessment (ETA) must be taken into account when dimensioning.

<sup>1)</sup> In order to anchor the minimum spacing “s” an edge spacing of “e” must be maintained, reduce permissible loads!

<sup>2)</sup> In order to anchor the minimum spacing “e” an axial spacing of “s” must be maintained, reduce permissible loads!



# Plug characteristic values for heavy-duty anchors BZ

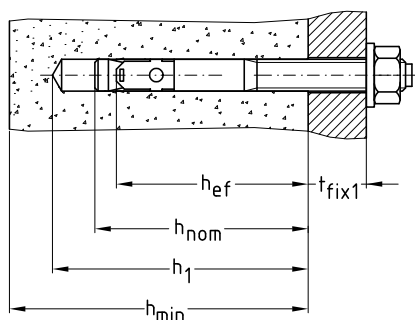
galvanised

## Installation and plug characteristic values

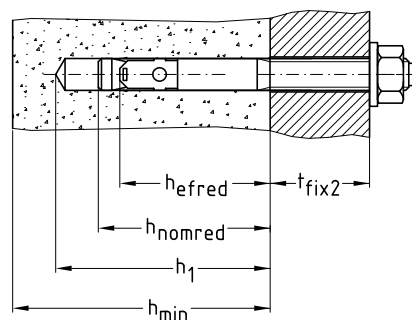
Plug (thread)	Dim.	Standard anchorage depth				Reduced anchorage depth			
		M8	M10	M12	M16	M8	M10	M12	M16
Nominal drill diameter	$d_0 = [\text{mm}]$	8	10	12	16	8	10	12	16
Clearance hole in the add-on part	$d_r \leq [\text{mm}]$	9	12	14	18	9	12	14	18
Drilled hole depth	$h_1 \geq [\text{mm}]$	60	75	90	110	49	55	70	90
Torque for anchoring	$T_{\text{inst}} = [\text{Nm}]$	20	25	45	90	20	25	45	90
Spanner width	$SW = [\text{mm}]$	13	17	19	24	13	17	19	24

See the European Technical Assessment ETA-05/0158 for additional installation and plug characteristic values.

## Plug arrangement and component dimensions



Standard anchorage depth



Reduced anchorage depth

## Permissible tensile loads under fire stress in accordance with DIN 4102-2 in cracked and non-cracked concrete according to ETA Assessment

Plug (thread)	Dim.	M8	M10	M12	M16
Fire resistance class					
R 30	$F_{RK, fi}^{1)} [\text{kN}]$	1.4	2.2	3.2	6.0
R 60	$F_{RK, fi}^{1)} [\text{kN}]$	1.1	1.8	2.8	5.2
R 90	$F_{RK, fi}^{1)} [\text{kN}]$	0.8	1.4	2.4	4.4
R 120	$F_{RK, fi}^{1)} [\text{kN}]$	0.7	1.2	2.2	4.0

<sup>1)</sup> If there are no applicable national regulations, a partial safety coefficient for the load capacity under fire stress of  $\gamma_{M,fi} = 1.0$  is recommended.

All the specifications in the European Technical Assessment (ETA) must be taken into account when dimensioning. See European Technical Assessment ETA-05/0158 for additional installation and anchor characteristic values.



### Plug characteristic values for heavy-duty anchor BZ

stainless steel

#### Permissible loads of single plugs in non-cracked concrete, concrete strength class C20/25 B25 in accordance with ETA Assessment

Plug (thread)	Dim.	Standard anchorage depth			Reduced anchorage depth		
		M8	M10	M12	M8	M10	M12
Permissible loads per plug at tensile force	perm. N [kN]	5.7	7.6	11.9	3.6	4.3	8.5
Permissible loads per plug at transverse force	perm. V [kN]	7.4	11.4	17.1	7.4	11.4	17.1
Permissible bending moment	perm. M [Nm]	14.9	29.7	52.6	14.9	29.7	–
Anchorage depth	h <sub>ef</sub> /h <sub>ef red</sub> [mm]	46	60	70	35	40	50
Characteristic axial spacing	S <sub>cr,N</sub> [mm]	138	180	210	105	120	150
Characteristic edge spacing	C <sub>cr,N</sub> [mm]	69	90	105	52.5	60	75
Standard thickness of concrete slab	h <sub>min 1</sub> [mm]	100	120	140	–	–	–
Minimum spacing/for edge distance <sup>1)</sup>	S <sub>min/c</sub> [mm]	40/80	50/75	60/120	–	–	–
Minimum edge distance/for spacing <sup>2)</sup>	C <sub>min/s</sub> [mm]	50/100	60/120	75/150	–	–	–
Minimum thickness of concrete slab	h <sub>min</sub> [mm]	80	100	120	80	80	100
Minimum spacing/for edge distance <sup>1)</sup>	S <sub>min/c</sub> [mm]	40/80	60/140	60/120	50/160	50/100	50/160
Minimum edge distance/for spacing <sup>2)</sup>	C <sub>min/s</sub> [mm]	50/100	90/140	75/150	40/185	65/180	100/185

Loads are for single plugs without the effects of axial and edge spacing.

The safety coefficient according to ETAG is included.

All the specifications in the European Technical Assessment (ETA) must be taken into consideration when dimensioning.

<sup>1)</sup> In order to anchor the minimum spacing “s” an edge spacing of “e” must be maintained, reduce permissible loads!

<sup>2)</sup> In order to anchor the minimum spacing “e” an axial spacing of “s” must be maintained, reduce permissible loads!

#### Permissible loads of single plugs in cracked concrete, concrete strength class C20/25 (B25) in accordance with ETA Assessment

Plug (thread)	Dim.	Standard anchorage depth			Reduced anchorage depth		
		M8	M10	M12	M8	M10	M12
Permissible loads per plug at tensile force	perm. N [kN]	2.4	4.3	7.6	2.4	3.6	6.1
Permissible loads per plug at transverse force	perm. V [kN]	7.4	11.4	17.1	7.4	10.4	14.5
Permissible bending moment	perm. M [Nm]	14.9	29.7	52.6	14.9	29.7	–
Anchorage depth	h <sub>ef</sub> /h <sub>ef red</sub> [mm]	46	60	70	35	40	50
Characteristic axial spacing	S <sub>cr,N</sub> [mm]	138	180	210	105	120	150
Characteristic edge spacing	C <sub>cr,N</sub> [mm]	69	90	105	52.5	60	75
Standard thickness of concrete slab	h <sub>min 1</sub> [mm]	100	120	140	–	–	–
Minimum spacing/for edge distance <sup>1)</sup>	S <sub>min/c</sub> [mm]	40/70	50/75	60/100	–	–	–
Minimum edge distance/for spacing <sup>2)</sup>	C <sub>min/s</sub> [mm]	40/80	55/90	60/140	–	–	–
Minimum thickness of concrete slab	h <sub>min</sub> [mm]	80	100	120	80	80	100
Minimum spacing/for edge distance <sup>1)</sup>	S <sub>min/c</sub> [mm]	40/70	45/90	60/100	50/60	50/100	50/160
Minimum edge distance/for spacing <sup>2)</sup>	C <sub>min/s</sub> [mm]	40/80	50/115	60/140	40/185	65/180	65/250

Loads are for single plugs without the effects of axial and edge spacing.

The safety coefficient according to ETAG is included.

All the specifications in the European Technical Assessment (ETA) must be taken into account when dimensioning.

<sup>1)</sup> In order to anchor the minimum spacing “s” an edge spacing of “e” must be maintained, reduce permissible loads!

<sup>2)</sup> In order to anchor the minimum spacing “e” an axial spacing of “s” must be maintained, reduce permissible loads!



# Plug characteristic values for heavy-duty anchors BZ

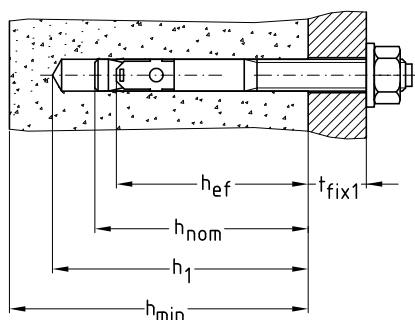
stainless steel

## Installation and plug characteristic values

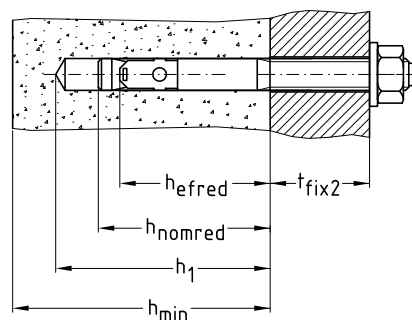
Plug (thread)	Dim.	Standard anchorage depth			Reduced anchorage depth		
		M8	M10	M12	M8	M10	M12
Nominal drill diameter	$d_0 = [\text{mm}]$	8	10	12	8	10	12
Clearance hole in the add-on part	$d_r \leq [\text{mm}]$	9	12	14	9	12	14
Drilled hole depth	$h_1 \geq [\text{mm}]$	60	75	90	49	55	70
Torque for anchoring	$T_{\text{inst}} = [\text{Nm}]$	20	35	50	20	35	50
Spanner width	$SW = [\text{mm}]$	13	17	19	13	17	19

See the European Technical Assessment for additional installation and plug characteristic values.

## Plug arrangement and component dimensions



Standard anchorage depth



Reduced anchorage depth

## Permissible tensile loads under fire stress in accordance with DIN 4102-2 in cracked and non-cracked concrete acc. to ETA Assessment

Plug (thread)	Dim.	M8	M10	M12
Fire resistance class				
R 30	$F_{RK, fi}^{1)} [\text{kN}]$	1.3	2.3	4.0
R 60	$F_{RK, fi}^{1)} [\text{kN}]$	1.3	2.3	4.0
R 90	$F_{RK, fi}^{1)} [\text{kN}]$	1.3	2.3	4.0
R 120	$F_{RK, fi}^{1)} [\text{kN}]$	1.0	1.8	3.2

<sup>1)</sup> If there are no applicable national regulations, a partial safety coefficient for the load capacity under fire stress of  $\gamma_{M,fi} = 1.0$  is recommended.

All the specifications in the European Technical Assessment (ETA) must be taken into account when dimensioning. See European Technical Assessment ETA-05/0158 for additional installation and anchor characteristic values.



# Plug characteristic values for gas concrete under cut anchor

according to building inspection approval

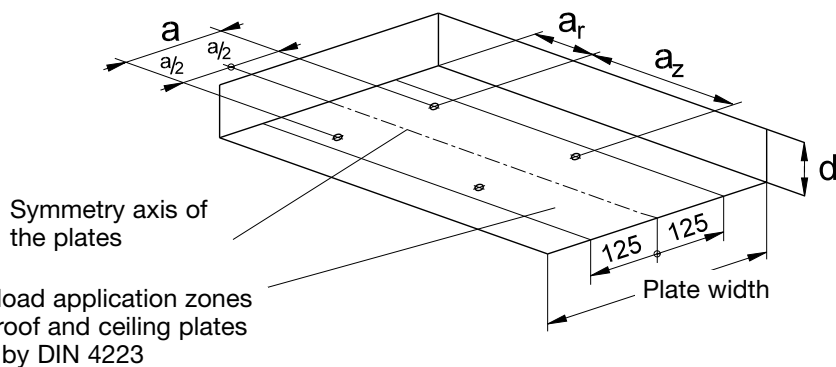
## Cracked aerated concrete

Permissible load (perm. F) of plug<sup>1)</sup> for central load, transverse load and inclined load at each angle

Plug types		GBH A M8/20 and GBH I M8	GBH A M10 GBH I M10 and M12
Single plug	perm. F = [kN]		
	GB 3.3	0.6	0.8
	GB 4.4	0.8	1.2
Plug pairs	Axial spacing	a ≥ [cm]	10.0
	perm. F per plug pair [kN]		
	GB 3.3	0.6	0.8
	GB 4.4	0.8	1.2
	Axial spacing	a ≥ [cm]	20.0
	perm. F per plug pair [kN]		
	GB 3.3	0.8	1.1
	GB 4.4	1.1	1.7

<sup>1)</sup> The shear stress in the roof and ceiling panels determined by the plug load should not exceed the value 0.4 x perm. "t" as specified in accordance with DIN 4223, see approval.

## Plug arrangement and component dimensions



Plug types		GBH A and GBH I
Edge spacing to the edge of the component and to butt joints	$a_r \geq [\text{cm}]$	15
Edge spacing to bed joints	$a_{rL} \geq [\text{mm}]$	5
Minimum intermediate spacing between plug groups	$a_z \geq [\text{mm}]$	60
Axial spacing within plug pairs <sup>2)</sup>	$a \geq [\text{mm}]$	10/20
Minimum component thickness	$d = [\text{mm}]$	17.5

Plug type/threaded bolt	M8	M10	M12
Torque when fastening MD [Nm]	5	8	8

<sup>2)</sup> See the table above for associated load values.



# Plug characteristic values for gas concrete under cut anchor

according to building inspection approval

## Non-cracked aerated concrete

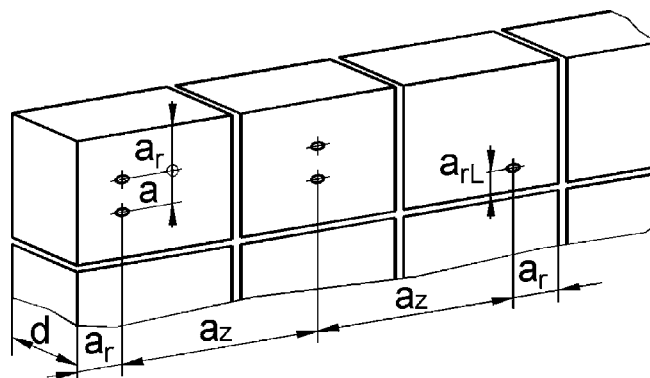
Permissible load (perm. F) of plug<sup>1)</sup> for central load transverse load and inclined load at each angle

Plug types			GBH A M8/20 and GBH I M8	GBH A M10 GBH I M10 and M12
Single plug		perm. F = [kN] <sup>2)</sup>		
		G 2	0.4	0.6
		≥ G 4	0.8	1.2
	Wall panels	GB 3.3	0.6	0.8
		GB 4.4	0.8	1.2
Plug pairs	Axial spacing	a ≥ [cm]	10.0	10.0
		perm. F per plug pair [kN]		
		G 2	0.4	0.6
		≥ G 4	0.8	1.2
	Wall panels	GB 3.3	0.6	0.8
		GB 4.4	0.8	1.2
	Axial spacing	a ≥ [cm]	20.0	20.0
		perm. F per plug pair [kN]		
		G 2	0.6	0.8
		≥ G 4	1.1	1.7
Wall panels		GB 3.3	0.8	1.1
		GB 4.4	1.1	1.7

<sup>1)</sup> Anchoring of the plugs is only permissible in non-plastered and non-coated masonry walls.

<sup>2)</sup> For masonry consisting of small-format aerated concrete blocks and lightweight masonry mortar, for single plugs and plug pairs the permissible load (perm. F) must be reduced using the factor 0.6 if there is tensile stress.

## Plug arrangement and component dimensions



Plug types		GBH A and GBH I		
Edge spacing to the edge of the component and to butt joints	$a_r \geq [\text{cm}]$	15		
Edge spacing to bed joints	$a_{rL} \geq [\text{mm}]$	5		
Minimum intermediate spacing between plug groups	$a_z \geq [\text{mm}]$	60		
Axial spacing within plug pairs <sup>3)</sup>	$a \geq [\text{mm}]$	10/20		
Minimum component thickness	$d \geq [\text{mm}]$	17.5		

Plug type/threaded bolt		M8	M10	M12
Torque when fastening	$M_D [\text{Nm}]$	5	8	8

<sup>3)</sup> See the table above for associated load values.



### Plug characteristic values for gas concrete under cut anchor

Permissible loads under fire stress in accordance with DIN 4102-2 in aerated concrete, strength class  $\geq$  P 3.3 in the intermediate area of lightweight ceiling cladding and false ceilings in accordance with DIN 18168

Plug (size)		Dim.	M8	M10	M8	M10	M12
Fire resistance class	For all load directions		GBH A	GBH A	GBH I	GBH I	GBH I
R 30	Permissible load	$F_{perm}$ [kN]	0.45	0.80	0.45	0.80	0.80
R 60	Permissible load	$F_{perm}$ [kN]	0.45	0.80	0.45	0.80	0.80
R 90	Permissible load	$F_{perm}$ [kN]	0.45	0.80	0.45	0.80	0.80
R 120	Permissible load	$F_{perm}$ [kN]	0.35	0.75	0.35	0.75	0.75
R 30 to 120	Minimum component thickness	$h_{min} \geq$ [mm]	175	175	175	175	175
	Minimum intermediate spacing	$a_{min} \geq$ [mm]	600	200	600	600	600
	Minimum axial spacing	$s_{min} \geq$ [mm]	100	100	100	100	100
	Minimum edge spacing	$c_{min} \geq$ [mm]	150	150	150	150	150

All information specified in the DIBt general technical approval must be taken into consideration for dimensioning. See general technical approval Z-21.1-1525 for additional installation and plug characteristic values.



## Plug characteristic values for Zykon steel hammer-set anchor FZEA

Permissible loads, plug characteristic values and component dimensions of a plug for central load, transverse load, and inclined load at any angle in concrete, strength class > C20/25 (B25) as specified by DIBt approval

Plug	Dim.		FZEA 10 x 40 M8	FZEA 12 x 40 M10	FZEA 14 x 40 M12
Approved load <sup>1)</sup>	kN	$F_{perm}$	1.5	1.5	1.5
Permissible bending moment (screw steel 5.6)	Nm	$M_b$	8.0	16	28.1
Permissible bending moment (screw steel 8.8)	Nm	$M_b$	17.1	29.6	24.1
Permissible bending moment (screw A4-70)	Nm	$M_b$	12.1	24.1	42.1
Anchoring depth	mm	$h_v$	40	40	40
Axial spacing <sup>2)</sup>	mm	$a >$	160	160	160
Edge spacing <sup>2)</sup>	mm	$a_r >$	100	100	100
Intermediate spacing (min)	mm	$a_z$	240	240	240
Component width <sup>2)</sup>	mm	$B >$	200	200	200
Minimum component thickness	mm	$h_{min}$	100	100	100

<sup>1)</sup> Values apply for cracked and non-cracked concrete for single plugs; for plug groups the verification in Appendix 6, Table 7 of the approval document must be complied with.

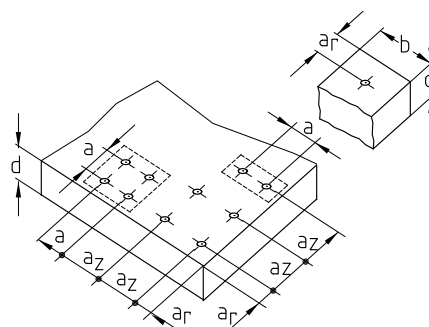
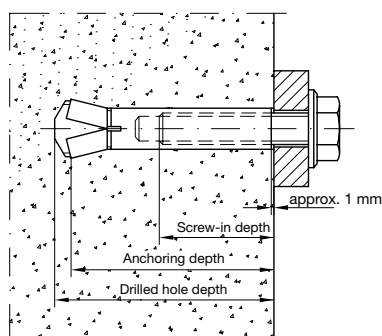
<sup>2)</sup> The spacing specified above  $a$  or  $a_r$  and the component width  $B$  can be underranged to a minimum value of  $\min a = 50 \text{ mm}$  or  $a_r = 50 \text{ mm}$  and  $\min B = a_r$ , if the permissible loads as specified in Appendix 7 of the approval document are reduced. Loads for single plugs without influence of axial spacing and edge spacing.

### Installation and plug characteristic values

Plug	Dim.		FZEA 10 x 40 M8	FZEA 12 x 40 M10	FZEA 14 x 40 M12
Clearance hole in the component that will be connected	mm	$d <$	9	11	13.5
Connection thread		$M$	M8	M10	M12
Screw-in depth (min)	mm	$e_{min}$	11	13	15
Screw-in depth (max)	mm	$e_{max}$	17	19	21
Drilled hole depth	mm	$t <$	43	43	43
Torque for mounting and checking the anchoring	Nm	$T_{inst}$	8.5	15	30

See the European Technical Assessment DIBt for additional installation and plug characteristic values.

### Plug arrangement and component dimensions







### Plug characteristic values for screws for concrete

type Multi-Monti® MMS for fastenings in concrete, galvanised

#### Permissible loads of single plugs in cracked and non-cracked concrete, concrete strength class C20/25 (B25) in accordance with European Technical Assessment ETA-05/0010

Characteristic values	Dim.	Screw for concrete with stud	
Size		10.0	
Length	L [mm]	100	120
Connection thread		M10	M10
Permissible tensile load of cracked concrete	N <sub>perm</sub> [kN]	3.7	3.7
Permissible tensile load of non-cracked concrete	N <sub>perm</sub> [kN]	4.9	4.9
Permissible transverse load of cracked concrete	V <sub>perm</sub> [kN]	7.9	7.9
Permissible transverse load of non-cracked concrete	V <sub>perm</sub> [kN]	7.9	7.9
Permissible bending moment	M <sub>perm</sub> [kN]	18.7	18.7
Total anchoring depth	h <sub>nom</sub> [mm]	65	65
Effective anchoring depth (mathematical)	h <sub>ef</sub> [mm]	47.5	47.5
Minimum axial spacing	s <sub>min</sub> [mm]	50	50
Minimum edge spacing	c <sub>min</sub> [mm]	50	50
Component width	h <sub>min</sub> [mm]	115	115

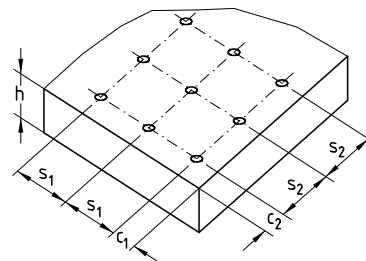
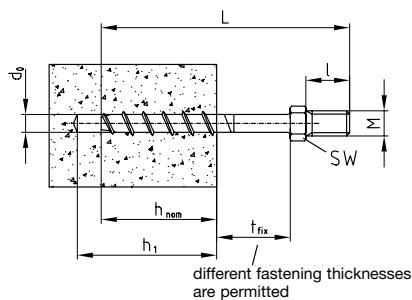
#### Installation and plug characteristic values

Size		10.0	
Drilled hole depth	h <sub>o</sub> [mm]	75	75
Nominal drill diameter	d <sub>o</sub> [mm]	8	8
Recommended torque for anchoring	T <sub>inst</sub> [Nm]	40	40
Spanner width	SW [mm]	13	13
Clearance hole in the add-on part	d <sub>f</sub> [mm]	–	–

Loads are for single plugs without the effects of axial and edge spacing.

See the European Technical Assessment ETA-05/0010 for additional installation and plug characteristic values.

Partial safety coefficient  $\gamma = 1.35$





## Plug characteristic values for screws for concrete

type Multi-Monti®-plus MMS for fastenings in concrete, galvanised

**Permissible loads of single plugs in cracked and non-cracked concrete, concrete strength class C20/25 (B25) in accordance with European Technical Assessment ETA-15/0784**

Characteristic values	Dim.				
Size		7.5		10.0	
Anchoring depth	$h_{nom}$ [mm]	35	55	50	65
Permissible tensile load of cracked concrete	$N_{perm}$ [kN]	1.0	2.0	3.0	4.4
Permissible tensile load of non-cracked concrete	$N_{perm}$ [kN]	2.0	4.4	5.9	7.9
Permissible transverse load of cracked concrete	$V_{perm}$ [kN]	2.4	3.6	3.8	6.3
Permissible transverse load of non-cracked concrete	$V_{perm}$ [kN]	3.4	3.6	5.4	8.1
Permissible bending moment	$M_{perm}$ [kN]	8.4	8.4	20.4	20.4
Effective anchoring depth (mathematical)	$h_{ef}$ [mm]	26	43	36	50
Total anchoring depth	$h_{nom}$ [mm]	35	55	50	65
Minimum axial spacing	$s_{min}$ [mm]	40	40	40	50
Minimum edge spacing	$c_{min}$ [mm]	40	40	40	50
Component width	$h_{min}$ [mm]	100	100	100	115

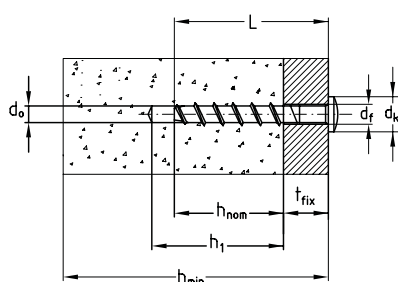
### Installation and plug characteristic values

Size		7.5		10.0	
Drilled hole depth	$h_o$ [mm]	40	65	60	75
Nominal drill diameter	$d_o$ [mm]	6.0	6.0	8.0	8.0
Recommended torque for anchoring	$T_{inst}$ [Nm]	20	20	40	40
Clearance hole in the add-on part	$d_f$ [mm]	9	9	12	12

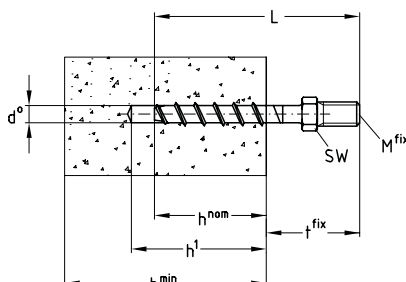
Loads are for single plugs without the effects of axial and edge spacing.

See the European Technical Assessment ETA-15/0784 for additional installation and plug characteristic values.

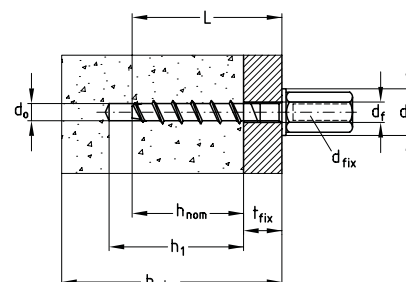
Partial safety coefficient  $\gamma = 1.35$



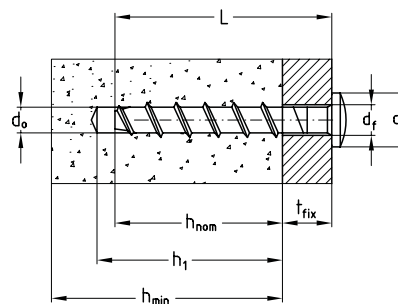
Type P



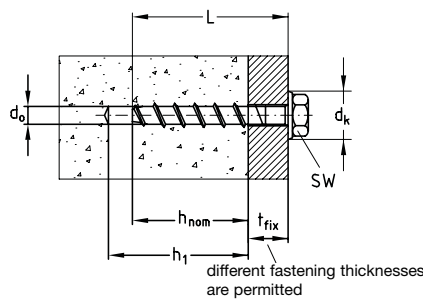
Type ST



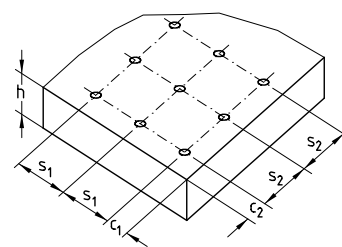
Type I



Type MS



Type SS





## Plug characteristic values for nail anchors N, N-K and N-M

for anchoring in concrete

### Permissible loads, plug characteristic values and component dimensions for multiple anchoring of non-loadbearing elements in concrete, strength class C12/15–C50/60

Nail anchor steel, galvanised	Dim.	N		N-K		N-M	
Anchoring depth	$h_{ef}$ [mm]	25	30	25	30	25	30
Permissible loads (Drawing 1) C12/15	perm. F [kN]	1.43	1.90	1.43	1.90	1.43 <sup>1)</sup>	1.90 <sup>1)</sup>
C20/25–C50/60	perm. F [kN]	2.14	2.81	2.14	2.81	2.14 <sup>1)</sup>	2.81 <sup>1)</sup>
Permissible loads (Drawing 2) C12/15	perm. F [kN]	0.71	0.95	0.71	0.95	0.71 <sup>1)</sup>	0.95 <sup>1)</sup>
C20/25–C50/60	perm. F [kN]	0.95	1.19	0.95	1.19	0.95 <sup>1)</sup>	1.19 <sup>1)</sup>
Permissible bending moment	perm. M [Nm]	5.3	5.3	7.3	7.3	7.3	7.3
Minimum component thickness	$h_{min}$ [mm]	80	80	80	80	80	80

Excerpt from the usage conditions of assessment ETA-11/0240.

Use as a multiple fastening of non-bearing systems in accordance with ETAG 001, part 6 for anchoring in concrete C12/15–C50/60.

Overall safety coefficient factored in according to ETAG 001 ( $\gamma_M$  and  $\gamma_F$ ).

<sup>1)</sup> In the version N-M, verification for the transverse load with lever must be provided with the presence of transverse force.

### Installation and plug characteristic values

Nail anchor steel, galvanised	Dim.	N		N-K		N-M	
Anchoring depth	$h_{ef}$ [mm]	25	30	25	30	25	30
Drilled hole diameter	$d_o$ [mm]	6	6	6	6	6	6
Clearance hole in the add-on part	$d_r \leq$ [mm]	7	7	7	7	7	7
Nail head diameter		–	–	13	13	–	–
Drilled hole depth	$h_1$ [mm]	35	40	35	40	35	40
Torque when anchoring	$\leq T_{inst}$ [Nm]	4	4	–	–	–	–
Threaded sleeve length		–	–	–	–	25	25
M8/M10 threaded sleeve width across		–	–	–	–	SW 13	SW 13
M10 thread usable length		–	–	–	–	10	10
M8 thread usable length		–	–	–	–	7	7

Excerpt from the usage conditions of assessment ETA-11/0240.

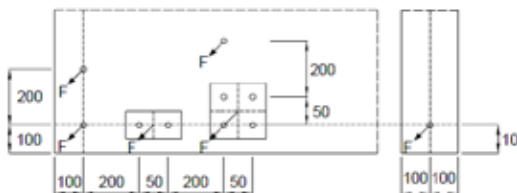
Use as a multiple fastening of non-bearing systems in accordance with ETAG 001, part 6 for anchoring in concrete C12/15–C50/60.

Overall safety coefficient factored in according to ETAG 001 ( $\gamma_M$  and  $\gamma_F$ ).

<sup>1)</sup> In the version N-M, verification for the transverse load with lever must be provided with the presence of transverse force.

### Corresponding axis and edge distances

Drawing 1)  
Maximum bearing capacity



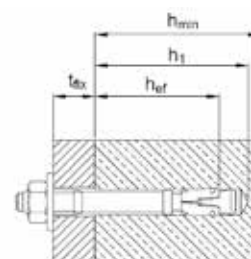
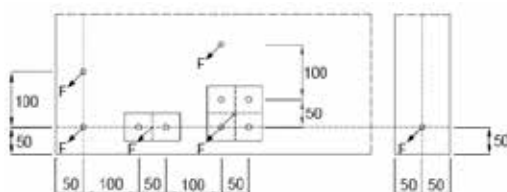
The permissible resistance F applies for a fastening point.

A fastening point can be:

- A single anchor,
- A pair of anchors with spacing  $s > 50$  mm or
- A group of four with  $s > 50$  mm.

If the axis spacing of the anchors in one fastening point is greater than or equal to the corresponding axis spacing between the fastening points, the characteristic resistances apply for each individual anchor.

Drawing 2)  
Reduced loads with minimal axis and edge spacing





### Plug characteristic values for hollow-core slab ceiling anchor

type Easy for anchoring in prestressed concrete hollow-core slab ceilings

**Approved loadings of single plugs [kN] for axially applied tension, lateral load and inclined load at any angle in prestressed concrete hollow-core slab ceilings of strength class  $\geq$  C45/55**

Size	Dim.	M8				M10				M12			
Material thickness	mm	25	30	40	50	25	30	40	50	25	30	40	50

#### Loads and characteristic values for single anchor

Recommended load for $c \geq c_r$	F	kN	0.70	0.90	2.00	3.60	0.90	1.20	3.00	3.60	1.00	1.20	3.00	4.30
Recommended load <sup>1)</sup> for $c_{min}$	F <sup>1)</sup>	kN	0.35	0.80	1.80	3.00	0.80	1.00	2.70	3.00	0.80	1.00	2.70	3.60
Axial distance to the tensioning wire	CSP	mm	50											
Characteristic edge clearance	Ccr1,2	mm	150											
Characteristic pitch	Scr1,2	mm	300											
Min. edge clearance	Cmin1,2	mm	100											
Min. pitch	Smin	mm	70	80	100	100	70	80	100	100	70	80	100	100

#### Allowable bending moments

Size	Dim.	M8	M10	M12
Threaded rod/bolt, steel 5.8	Nm	10.7	21.4	37.4
Threaded rod/bolt, steel 8.8	Nm	17.1	34.2	59.8

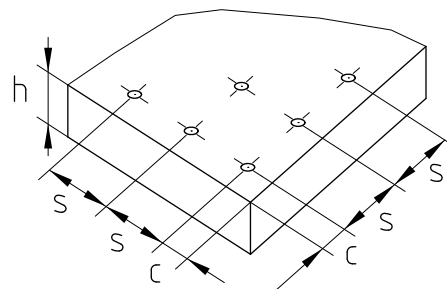
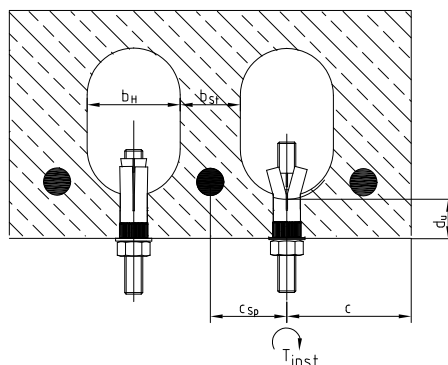
#### Mounting data

Sleeve length	L	mm	35	40	45
Reqd. steel strength of bolts/threaded rods			5.6		
Drill hole diameter	d <sub>0</sub>	mm	12	16	18
Drill hole depth	h <sub>0</sub>	mm	55	60	70
Bolt length	min l <sub>s</sub>	mm	47 + t <sub>fix</sub>	55 + t <sub>fix</sub>	61 + t <sub>fix</sub>
Length of threaded bolt	min l <sub>b</sub>	mm	53 + t <sub>fix</sub>	63 + t <sub>fix</sub>	71 + t <sub>fix</sub>
Clearance hole in the add-on part	d <sub>f</sub>	mm	9	12	14
Torque when anchoring (tightening torque)	T <sub>inst</sub>	Nm	20	30	40

<sup>1)</sup> For edge clearances  $c_{min} < c < c_r$ , the recommended loads can be determined by linear interpolation. Loads are for single anchors without effects of pitch distance and edge clearances.

The safety coefficient according to ETAG is included.

The construction approval of the building inspectorate. DIBt shall be observed for all information relating to dimensioning.





### Plug characteristic values for hollow-core slab ceiling anchor

type Easy for anchoring in prestressed concrete hollow-core slab ceilings

**Approved loads (allowable F) in [kN] under fire exposure for axially applied tension, lateral load and inclined load at each angle in prestressed concrete hollow-core slab ceilings of strength class  $\geq$  C45/55**

Size	Dim.	M8	M10		M12	
Material thickness	mm	30	30	40	30	40

#### Loads and characteristic values for single anchor

Fire resistance duration	min.							
	30	all. F	kN	0.9	1.2	1.5	1.2	1.5
	60	all. F	kN	0.9	1.2	1.5	1.2	1.5
	90	all. F	kN	0.7	1.2	1.2	1.2	1.5
	120	all. F	kN	0.4	1.0	1.0	1.2	1.2
Axial distance to tensioning wire		CSP	mm	50				
Characteristic edge clearance		Ccr	mm	150				
Characteristic pitch		Ccr	mm	300				
Min. edge clearance		Cmin	mm	150				



The construction approval of the building inspectorate DIBt shall be observed for all information relating to dimensioning. For fire resistance duration requirements, the threaded rods, nuts and bolts that are used in combination with the anchor must be of property class 5.8 in accordance with EN ISO 898-1.

### Units and conversion factors

#### SI units (international system of units)

As specified in the German law concerning legal units of measurement of 07/02/1969 and the implementing ordinance of 06/26/1970 in official as well as commercial transactions, only the SI units should be used. The basic units, derived units and the definition of the international basic units are specified in DIN 1301 Part 1 (October 2010).

SI basic unit			
Basic value	Symbol	SI basic unit	
Length	l	Metre	m
Mass	m	Kilogram	kg
Time	t	Second	s
Electric current strength	I	Ampere	A
Thermodynamic temperature	T	Kelvin	K

#### Overview of the most important legal units

Size	Symbol	Legal units			Conversion
		Unit name	Symbol		
			SI	Other	
Area	A	Square metre	m <sup>2</sup>	a ha	1 a = 100 m <sup>2</sup> 1 ha = 10000 m <sup>2</sup>
Cross section		Ar Hectare			
Volume		V			
Nominal volume	V <sub>n</sub>	Litre			
Density	ρ	Kilogram	kg/m <sup>3</sup>		
Standard density	ρ <sub>n</sub>	Divided by cubic metre			
Force	F	Newton	N		$1\text{ N} = \frac{1}{9.81}\text{ kp} = 0.102\text{ kp},$ $1\text{ kp} = 9.81\text{ N} = 9.81\text{ kg}\frac{\text{m}}{\text{s}^2}$
Velocity	v	Metres divided by seconds	m/s		
Frequency	f	Hertz	Hz		1 Hz = 1/s
Volume flow	V̇	Cubic metres divided by seconds	m <sup>3</sup> /s	l/s l/min m <sup>3</sup> /h	1 l/s = 1 dm <sup>3</sup> /s = 0.001 m <sup>3</sup> /s 1 l/s = 60 l/min 1 l/s = 3.6 m <sup>3</sup> /h
Standard volume flow	V̇ <sub>n</sub>	Litres divided by seconds			
Setting value	V̇ <sub>E</sub>	Litres divided by minutes			
Connected load	V̇ <sub>A</sub>	Cubic metres divided by hour			
Pressure	p	Newton divided by square metres	N/m <sup>2</sup> ,	bar mbar	1 Pa = 1 N/m <sup>2</sup>
Absolute pressure	p <sub>abs</sub>	Pascal	Pa		$= 1\frac{\text{kgm}}{\text{s}^2}\frac{1}{\text{m}^2} = 1\frac{\text{kgm}^2}{\text{s}^2\text{m}}$
Atmospheric pressure	p <sub>atm</sub>	Bar			1 bar = 100 000 Pa = N/cm <sup>2</sup>
Excess pressure	p <sub>ü</sub>	Millibar			1 bar = 1000 mbar
Underpressure	p <sub>u</sub>				
Pressure differential	Δp				
Nominal pressure	p <sub>n</sub>				
Energy, work	W	Joule	J	kJ MJ Ws kWh	1 J = 1 Nm = 1 Ws
Heat quantity	Q				$= 1\frac{\text{kgm}^2}{\text{s}^2}\text{m} = 1\frac{\text{kgm}^2}{\text{s}^2}$
		Kilojoule			1 kJ = 1000 J
		Megajoule			1 MJ = 10 <sup>6</sup> J
		Watt second			
		Kilowatt hour			1 kWh = 3.6 MJ

### Units and conversion factors

Size	Symbol	Legal units			Conversion
		Unit name	Symbol		
			SI	Other	
Power	P	Watt	W		1 W 1 J/s = 1 Nm/s $= 1 \frac{\text{kg m}}{\text{s}^2} \text{m} \frac{1}{\text{s}}$ $= 1 \frac{\text{kg m}^2}{\text{s}^3}$
Energy flux	$\dot{Q}, \Phi$	Kilowatt		kW	1 kW = 1,000 W
Heat flux	$\dot{Q}_B, \Phi_B$	Megawatt		MW	1 MW = 10 <sup>6</sup> W
Heat load	$\dot{Q}_{NB}, \Phi_{NB}$				
Nominal heat load	$\dot{Q}_L, \Phi_L$				
Heat output	$\dot{Q}_{NL}, \Phi_{NL}$				
Nominal heat output					
Efficiency	η				
Calorific value		Joule			
(Nominal calorific value)	H <sub>0,n</sub>	Divided by cubic metre	J/m <sup>3</sup>		1 J/m <sup>3</sup> = 1 Ws/m <sup>3</sup>
Thermal value	H <sub>u</sub> , H <sub>uB</sub>	Megajoule			1 MJ/m <sup>3</sup> = 106 J/m <sup>3</sup>
Net heating value		Divided by cubic metre		MJ/m <sup>2</sup>	1kcal/m <sup>3</sup> = 4.1868 · 10 <sup>-3</sup> MJ/m <sup>3</sup>
Temperature	T	Kelvin	K		1 K = 1 °C
	t, θ	Degrees Celsius		°C	T = t + 273.15 K
Nominal temperature	T <sub>n</sub> , t <sub>n</sub> , θ <sub>n</sub>				
Temperature differential	Δ T	Kelvin	K		
	δ τ	Degrees Celsius		°C	

### Decimal multiples and decimal parts of units

Greater or smaller units can be formed through prefixes.

#### Multiple

Prefix	Symbol	Factor
Deca	da	10 = 10 <sup>1</sup>
Hecto	h	100 = 10 <sup>2</sup>
Kilo	k	1,000 = 10 <sup>3</sup>
Mega	M	1,000,000 = 10 <sup>6</sup>
Giga	G	1,000,000,000 = 10 <sup>9</sup>
Tera	T	1,000,000,000,000 = 10 <sup>12</sup>

#### Parts

Prefix	Symbol	Factor
Deci	d	0.1 = 10 <sup>-1</sup>
Centi	c	0.01 = 10 <sup>-2</sup>
Milli	m	0.001 = 10 <sup>-3</sup>
Micro	μ	0.000 001 = 10 <sup>-6</sup>
Nano	n	0.000 000 001 = 10 <sup>-9</sup>
Pico	p	0.000 000 000 001 = 10 <sup>-12</sup>
Femto	f	= 10 <sup>-15</sup>
Atto	a	= 10 <sup>-18</sup>

### Units and conversion factors

#### Dimensions and conversion factors for lengths, areas, volumes and weights

##### Lengths

Unit	m	dm	cm	mm
1 metre [m]	1	10	100	1,000
1 decimetre [dm]	0.1	1	10	100
1 centimetre [cm]	0.01	0.1	1	10
1 millimetre [mm]	0.001	0.01	0.1	1

##### Areas

Unit	m <sup>2</sup>	dm <sup>2</sup>	cm <sup>2</sup>	mm <sup>2</sup>
1 square metre [m <sup>2</sup> ]	1	100	10,000	1,000,000
1 square decimetre [dm <sup>2</sup> ]	0.01	1	100	10,000
1 square centimetre [cm <sup>2</sup> ]	0.000 1	0.01	1	100
1 square millimetre [mm <sup>2</sup> ]	0.000 001	0.000 1	0.01	1

1 km<sup>2</sup> = 100 ha = 10,000 a = 1,000,000 m<sup>2</sup>

1 ha = 100 a = 10,000 m<sup>2</sup>; 1 a = 100 m<sup>2</sup>

##### Volume

Unit	m <sup>3</sup>	dm <sup>3</sup>	cm <sup>3</sup>	mm <sup>3</sup>
1 square metre [m <sup>3</sup> ]	1	1,000	1,000,000	10 <sup>9</sup>
1 cubic decimetre [dm <sup>3</sup> ]	0.001	1	1,000	1,000,000
1 cubic centimetre [cm <sup>3</sup> ]	0.000 001	0.001	1	1,000
1 cubic millimetre [mm <sup>3</sup> ]	10 <sup>-9</sup>	0.000 001	0.001	1
	m <sup>3</sup>	hl	l	dl
1 square metre [m <sup>3</sup> ]	1	10	1,000	10,000
1 hectolitre [hl]	0.1	1	100	1,000
1 litre [l]	0.001	0.01	1	10
1 decilitre [dl]	0.000 1	0.001	0.1	1

##### Mass (weight)

Unit	t	kg	g	mg
1 ton [t]	1	1,000	1,000,000	10 <sup>9</sup>
1 kilogramme [kg]	0.001	1	1,000	1,000,000
1 gram [g]	0.000 001	0.001	1	1,000
1 milligramme [mg]	10 <sup>-9</sup>	0.000 001	0.001	1

##### Volume flow

Unit	l/s	l/min	l/h
m <sup>3</sup> /s	1,000	60,000	3.6 · 10 <sup>6</sup>
m <sup>3</sup> /min	16.67	1,000	60,000
m <sup>3</sup> /h	0.278	16.67	1,000



### Units and conversion factors

#### Pressure

Pressure	N/m <sup>2</sup> = Pa	bar	mbar = hPa	mm WS	kp/cm <sup>2</sup> = at	Torr	atm
1 N/m <sup>2</sup> = 1 Pa =	1	10 <sup>-5</sup> 0.00001	10 <sup>-2</sup> 0.01	0.102	1.02 x 10 <sup>-5</sup> 0.0000102	7.5 x 10 <sup>-3</sup> 0.0075	9.87 x 10 <sup>-4</sup> 0.00000987
1 bar =	10 <sup>5</sup> 100,000	1	10 <sup>3</sup> 1,000	1.02 x 10 <sup>-4</sup> 10,200	1.020	7.5 x 10 <sup>2</sup> 750	0.987
1 mbar = 1 hPa =	10 <sup>2</sup> 100	10 <sup>3</sup> 0.001	1	10.20	1.02 x 10 <sup>-3</sup> 0.00102	0.750	9.87 x 10 <sup>-4</sup> 0.000987
1 mm WS =	9.81	9.81 x 10 <sup>-5</sup> 0.0000981	9.81 x 10 <sup>-2</sup> 0.0981	1	10 <sup>-4</sup> 0.0001	7.355 x 10 <sup>-2</sup> 0.07355	9.68 x 10 <sup>-5</sup> 0.0000968
1 kp/cm <sup>2</sup> = 1 at =	9.81 x 10 <sup>4</sup> 98,100	0.981	9.81 x 10 <sup>2</sup> 981	10 <sup>4</sup> 10,000	1	7.355 x 10 <sup>2</sup> 735.5	0.986
1 torr =	1.333 x 10 <sup>2</sup> 133.3	1.333 x 10 <sup>-3</sup> 0.001333	1.333	13.6	1.36 x 10 <sup>-3</sup> 0.00136	1	1.32 x 10 <sup>-3</sup> 0.00132
1 atm =	1.013 x 10 <sup>5</sup>	1.013	1.013 x 10 <sup>3</sup> 1,013	1.033 x 10 <sup>4</sup> 10,330	1.033	7.6 x 10 <sup>2</sup> 760	1

The following can be calculated with sufficient precision: 1 mbar = 10 mm WS.

#### Thermal output (power, energy flux, heat flux)

Heat quantity	kWh	MJ	J = Ws	cal	kcal	Mcal
1 KW =	1	3.6	3.6 x 10 <sup>6</sup> 3,600,000	8.6 x 10 <sup>5</sup> 860,000	8.6 x 10 <sup>2</sup> 860	0.860
1 MJ =	0.2778	1	10 <sup>6</sup> 1,000,000	2.388 x 10 <sup>5</sup> 238,800	2.388 x 10 <sup>2</sup> 238.8	0.2388
1 J = 1 Ws =	2.778 x 10 <sup>-7</sup> 0.0000002778	10 <sup>-6</sup> 0.000001	1	0.2388	2.388 x 10 <sup>-4</sup> 0.0002388	2.388 x 10 <sup>-7</sup> 0.0000002388
1 cal =	1.163 x 10 <sup>-4</sup> 0.000001163	4.1868 x 10 <sup>-3</sup> 0.0041868	4.1868	1	10 <sup>-3</sup> 0.001	10 <sup>-5</sup> 0.000001
1 kcal =	1.163 x 10 <sup>-3</sup> 0.001163	4.1868 x 10 <sup>-6</sup> 0.0000041868	4.1868 x 10 <sup>3</sup> 4186.8	10 <sup>3</sup> 1,000	1	10 <sup>-3</sup> 0.001
1 Mcal =	1.163	4.1868	4.1868 x 10 <sup>6</sup> 4,186,800	10 <sup>6</sup> 1,000,000	10 <sup>3</sup> 1,000	1

#### Thermal output (power, energy flux, heat flux)

Heat quantity	kW	J/s = W	MJ/h	kcal/min	kcal/h
1 KW =	1	10 <sup>3</sup> 1,000	3.6	14.33	8.6 x 10 <sup>2</sup> 860
1 J/s = 1 Ws =	10 <sup>-3</sup> 0.001	1	3.6 x 10 <sup>-3</sup> 0.0036	1.433 x 10 <sup>-2</sup> 0.01433	0.860
1 MJ/h =	0.2778	2.778 x 10 <sup>2</sup> 277.8	1	3.98	2.388 x 10 <sup>2</sup> 238.8
1 kcal/min =	6.9768 x 10 <sup>-2</sup> 0.069768	69.768	0.2512	1	60
1 kcal/h =	1.163 x 10 <sup>-3</sup> 0.001163	1.163	4.1868 x 10 <sup>-3</sup> 0.0041868	1.667 x 10 <sup>-2</sup> 0.01667	1

## LIST OF REFERENCES

### Australia

Victorian Railway, Melbourne  
Launceton Hospital, Launceton  
Government Building, Perth  
Curtin University, Perth

### Austria

Federal Railways, Head-Office Vienna  
UNO-City, Vienna  
Reconstruction of University, Salzburg  
Technical University, Vienna  
University, Innsbruck  
University of Economy, Vienna  
Multistoried building Neue Donau, Vienna  
IZD-Tower, Vienna  
Gasometer, Vienna  
Office building McHenry, Vienna  
Europlaza, Vienna  
Campus 21, Brunn am Gebirge  
Airport Vienna-Schwechat  
Thermenhotel, Loipersdorf  
Thermenhotel, Bad Tatzmannsdorf

### Bahrain

Salmania Medical Center, Manama  
Airport, Al Muharraq  
Ministry Buildings, Manama  
Bank of Bahrain and Kuwait, Manama  
Museum Jiddah Island  
Bahrain Specialist Hospital

### Belgium

Palais de Congres, Bruxelles  
University, Leuven

### Cyprus

Elma House, Nicosia  
Popular Bank Building, Nicosia  
Hotel Marathon, Limassol

### Czech Republik

Matoni Drink Water Plant, Karlovy Vary  
Skoda Auto, Mladá Boleslav  
Airport, Prague - Ruzyně  
Kaufland Centralstore, Pague-Modletice  
Philips Hranice na Morave  
Infineon, Trutnov  
Siemens, Frenštát pod Radhoštěm  
Schowa-Aluminium, Kladno  
Valeo, Žebrák  
Tesco, Havířov  
Schwarze Wiese, Ostrava

### Denmark

T.V. Station, Odense  
IBM Headquarters, Kopenhagen  
University, Aalborg

### Egypt

Nasser Institute, Cairo  
Metro, Cairo

### Finnland

Airport, Helsinki  
Metro, Helsinki  
Concert Hall, Kuopio  
Shopping Centre, Tampere

### France

Eiffel Tower, Paris  
Louvre, Paris  
Centre Culturel Pompidou, Paris  
Euro-Disneyland, Marne la Vallée  
Bastille Opera, Paris  
University Hospitals, Strasbourg  
Technology Centre Renault, Guyancourt

Japanese Embassy, Paris  
Museum La Villette, Paris  
Banque de France, Paris  
Europaen Parliament, Strasbourg  
European Hospital G. Pompidou  
Cité de L'Europe, Calais  
Alcatel Câbles de Lyon, Lens  
Railway Station TGV Nord, Saint Denis  
Parfums Christian Dior, Orléans  
Moët et Chandon, Epernay  
Cuverie Piper Heidsieck Reims  
Piscine Sea Club, Monaco  
Hotel Le Méridien, Paris Montparnasse  
Prison d'Elsau, Strasbourg  
Citroën Car Factory, Rennes  
Musée de la Mer, Biarritz  
Rhône Poulenc, Aubervilliers  
L'Oréal, Aulnay/Bois  
CERN Nuclear Power Plant, Genève  
Hôpital Bouillante, Guadeloupe  
Coca-Cola, Dunkerque

### Germany

Radio Tower, Frankfurt  
Dresdner Bank AG, Frankfurt  
Bank für Gemeinwirtschaft AG, Frankfurt  
Alte Oper (reconstruction), Frankfurt  
Staatstheater Wiesbaden, Wiesbaden  
Cargo Plant Airport, Frankfurt  
Deutsche Börse, Frankfurt  
Deutsche Bundesbank, Frankfurt  
Hessischer Rundfunk Radiostation, Frankfurt  
European Patent Office, Munich  
Bayrische Hypo-Bank AG, H.-O. Munich  
Congress-Centrum, Berlin  
IKEA, Düsseldorf  
Hotel Kempinski Frankfurt, Gravenbruch  
Hotel Maritim, Gelsenkirchen, Kiel, Lübeck  
Hospital Münster  
Hospital Augsburg  
Lufthansa AG, Head-Office, Cologne  
Maintenance Hall, Flughafen, Cologne-Wahn  
Administration Office, Airport Tegel, Berlin  
Broadcasting Corporation Hessen, Kassel  
Sheraton-Hotel, Frankfurt  
Radio Tower „Colonius“, Cologne  
Reconstruction Land Parliament, Düsseldorf  
Steigenberger-Hotel, Berlin  
Interconti-Hotel, Berlin  
Hospital Neukölln, Berlin  
Humboldt-Hospital, Berlin  
Schering AG, Berlin  
Adlon-Hotel, Berlin  
RTL Television Studio, Cologne  
Test-Centre Ford-plant, Cologne  
Daimler-Benz Administration Office, Stuttgart  
Daimler-Benz Development Centre, Sindelfingen  
Sevage Works (reconstruction), Heilbronn  
VW factory, Mosel  
Opera Building, Chemnitz  
Heating Power Station University, Konstanz

### Great Britain

BBC, London  
Lloyds, London  
The Cascades, London  
Tennis Court No.1, Wimbledon  
Moorfields Eye Hospital, London  
Marks and Spencers Supermarkets, several locations in GB

### Greece

IKEA, Athens  
Metro, Athens  
Music Hall, Athens  
University Hospital and Research Centre, Heraklion  
Hellenic Refinery, Aspropyros  
Hospitals of Jannina, Heraklion, Athens, Xanthi  
Dairy Plants Delta, Ebga, Fage

### Hungary

US-Embassy, Budapest  
Penta Hotel, Budapest  
Ministry of Finance, Budapest  
Szabadság Hotel, Budapest  
Opel construction plant, Szentgotthárd  
Korona Hotel, Budapest  
Tesco Supermarket, Szekszárd, Budapest, Siofok,  
Flextronics, Zalaegerszeg  
OBI Center, Miskolc  
OBI Center, Eger  
Industrial hall, Kunszentmárton  
Montragon industrial hall, Budapest

### Iceland

Hotel Saga, Reykjavik  
Airport, Keflavik Hospital, Reykjavik  
Kringlan Centre, Reykjavik

### Ireland

Coca Cola Factory, Droghenda  
Wheatfield Prison, Clondalkin  
Newport Chemicals, Baldoye  
Trinity University, Dublin  
Wyeths Medical, Newbridge  
Intel Corporation, Leixlip

### Italy

Ministry of Post and Telegraph, Rome  
IBM Italia, Milan  
Linate Airport, Milan  
Boehringer Chemicals, Monza

### Jordan

Royal Hospital, Amman  
Television Studios, Amman

### Lebanon

Airport, Beirut  
Chronic Care Center, Hazmieh  
Fagra Project, Beirut  
Gardenia Building, Beirut  
Meridien Hotel, Beirut  
University, Beirut  
St. Joseph Hospital Beirut, Lebanon  
Government University Hospital, Beirut  
Beirut Municipality Stadium, Beirut  
Hotel Dieu de France, Beirut  
Cap Sur Ville, Beirut  
Casino du Liban, Beirut  
Arabien Gulf Oil, Head-Office Tripoli  
Hospitals, Tripoli

### Luxembourg

Hotel Intercontinental, Luxembourg  
European Parliament, Luxembourg  
European Court of Justice,  
Luxembourg  
Good Year S.A., Colmar-Berg  
Centre de Congres, Luxembourg  
Spa Rooms and Casino Mondorf,  
Luxembourg  
Hôpital Kirchberg,  
Luxembourg-Kirchberg  
Hôpital St. Louis, Ettelbrück  
State Street Bank, Kirchberg  
Chambre de Commerce, Kirchberg  
Codic Bank, Kirchberg

### Netherlands

Stopera, Amsterdam  
University Maastricht  
KLM, Amsterdam  
Arena Stadion Amsterdam  
Parkstad Stadion, Kerkrade  
Philips High Tech Campus, Eindhoven  
Luchthaven Schiphol, Amsterdam  
Ziekenhuis Gelderse Vallei, Ede  
Academisch Medisch Centrum,  
Amsterdam  
Global Switch Amsterdam  
Villa Arena Amsterdam  
ASLM Veldhoven  
De Zilveren Toren, Den Haag  
Rijnstate Ziekenhuis Arnhem  
Interpolis Tilburg  
Feyenoord Stadion Rotterdam  
Mondriaan Toren, Amsterdam  
Ovale Toren Amsterdam  
Technische Universiteit, Delft  
World Trade Center Rotterdam,  
Amsterdam  
Gelredome Arnhem  
Cisco Amsterdam

### Norway

Storting (Houses of Parliament), Oslo  
National Bank, Oslo  
Central Hospital, Kristiansand  
Mineral Oil Authorities, Stavanger

### Oman

Sultan Qaboos Mosque, Muscat  
Hospital, Nizwa  
Oman Aviation Catering Center, Muscat  
New Guest Palace, Barkah  
Health Centre, Dibba  
Oman Medical Collage Building, Muscat  
Youth Centres, Ibri, Sur  
Qalhat Housing Complex, Sur  
New Dining Hall, Sultan Qaboos  
University, Muscat  
Hotel Development, Ghubra  
Khoula Hospital, Muscat

### Poland

Hochland dairy, Katy Wroclawskie  
Proctor & Gamble, Warsaw  
Brewery Lech, Poznan  
Opel production plant, Gliwice  
Volkswagen, Polkowice  
Volkswagen, Poznan  
Metropolitan Centre, Warsaw

### Portugal

US-Embassy, Lisbon  
Auto-Europa (Ford/Volkswagen),  
Palmela  
Hospitals, Lisbon  
Portugal Bank, Carregado

Republic of Korea Marriott Hotel, Seoul  
Samsung Dokok Tower Palace, Seoul  
Inchon International Airport

### Romania

Eurocenter, Bucharest  
Hotel National, Bucharest  
Bank Ion Tiriach, Bucharest  
Commercial Romanian Bank, Bucharest  
Astra Company Head-Off., Bucharest  
Toma Caragiu Theatre, Bucharest  
Romanian Chamber of Commerce,  
Bucharest  
Holiday Inn, Otopeni  
Romanian Peasant Museum, Bucharest  
Romtelecom Headquarter, Bucharest  
Romanian Data Soft Co., Bucharest

### Russia

Petrowski-Passage, Moscow  
Hospitals, Moscow  
Duma Parliament Building, Moscow  
Borisow Housing Program, Borisow  
Krasnodar Housing Program, Krasnodar  
Hotel Cosmos, Moscow  
Gazprom Administrative Centre,  
Moscow  
Michelin Warehouse, Davidovo  
Mayor Office, Moscow  
Philip Morris Cigarettes Plant,  
St. Petersburg  
METRO Hypermarkets,  
several locations in Moscow  
City Star Shopping & Entertainment  
Complex, Moscow  
Oncological Hospital, Moscow  
Business & Trading Centre  
Rublyovskoye sh., Moscow  
Bottle Factory, Gorokhovets  
Pokrovsky Hills Villas, Moscow  
Crédit Lyonnais, St Petersburg  
Conversbank, Moscow

### South Africa

Prisons, Kokstad (Natal), Pietermaritz-  
burg (Natal), Umtata (Eastern Cape),  
Louis Trichard (North West), Diep-  
kloof (Gauteng), Leeukop (Gauteng)  
Ceasars Casino (Gauteng)  
Gloden Horse Shoe Casino,  
Pietermaritzburg  
Flamingo Casino, Kimberly  
La-Lucia Mall, Natal  
Durban International Airport  
Acedemic Hospital, Cato Manor (Natal)  
Umtata Hospital, Umtata Unitas  
Hospital (Gauteng)  
Bedford Hospital (Eastern Cape)  
St Barnabas Hospital (Eastern Cape)  
Unilever Head Office, Umhlanga  
Rocks (Natal)  
Japanees Embassy  
Werkmas Office Block (Gauteng)  
Heretige Site (Gauteng)  
MTN Office, Cape Town  
Cape Technicon, Cape Town  
Health & Raquet, Bloemfontein  
Standard Bank, Bloemfontein

### Saudi Arabia

University, Riyadh  
King Khaled Airport, Riyadh  
Al Ali Hospital, Riyadh

### Slovenia

Remats Recycling Plant, Ljubljana  
Lek pharmaceutic industry, Ljubljana  
Intercity shopping, Maribor  
Renault-Revoz motorcar factory,  
Novo mesto  
LECLERC Supermarket, Ljubljana  
Gorenje production plant, Velenje  
Nuclear power plant, Krško  
OBI Centres, Maribor, Ljubljana  
Merkator, Ljubljana, Maribor, Koper  
Super Nova, Koper  
Merkur, Kranj, Celje, Ljubljana, Maribor  
Hotel Sion, Ljubljana  
Electric Power Plant, Šoštanj  
Interspar, Celje  
Electric Power Plant, Brestanica  
Unitech Ljubljana  
BSH, Nazarje  
Brewery Union, Brewery Laško  
Krka, Novo Mesto

### Spain

Insalud Hospital, Madrid  
Banco de España, Gran Canaria  
Hospital, Gran Canaria  
Hotel Europa, Tenerife  
Iberotel, Lanzarote  
Mercamadrid, Madrid  
Fabrica Tafime, Madrid  
Fabrica Rockwool, Pamplona  
Centro Comercial Diagonal Mar,  
Barcelona  
Hipercor Supermarkets, Barcelona,  
Las Palmas, Tenerife, Alcalá,  
Cádiz Hotel AC, Madrid  
Fabrica Ford, Valencia  
Fabrica Seat, Barcelona  
Fabrica Mercedes, Vitoria  
Corte Ingles Hypermarket, Barcelona

### Sweden

Vasa-Terminals, Stockholm  
Volvo Head-Office, Göteborg  
Globen, Stockholm

### Switzerland

Television Studios, Zurich  
University Hospital, Zurich  
Swiss Technical University, Zurich

### United Arab Emirates

International Airports, Dubai, Abu Dhabi  
Shaikh Ahmed Bin Maktoum Palace,  
Dubai  
Park Plaza Hotel and Towers, Dubai  
Grand Hyatt Hotel, Dubai  
Royal Mirage Beach Resort Phase II,  
Dubai  
Al Raha Beach Resort, Dubai  
Madinat Jumeirah Port Al Salaam,  
Dubai  
Sheraton Plaza Hotel & Towers, Dubai  
Ministry of Education, Dubai  
Dubai Marina Port of Entry Hotels &  
Towers, Dubai

