





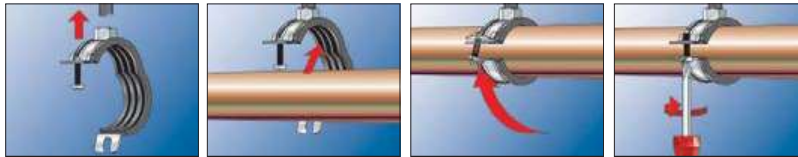
PROPERTIES

- **Material:** Steel DD11 (material no. 1.0332 acc. to DIN EN 10111/ASTM A569)
- **Zinc plating:** Electro zinc plated 5 - 9 μm
- **Standard:** comply with ASTM B633 SC1
Also available in SC3 on special request.
- **Connecting nut:** resistance welded, M8, SW 13
- **Locking screw:** Flat head screw with combination recessed head
- **Material sound insulation insert:** EPDM; chlorine-free; silicone-free
- **Sound insulation:** for DIN 4109
- **Temperature range:** -40 °C to +100 °C
- **Hardness:** 45 \pm 5° Shore A
- **Fire behaviour:** DIN 4102: Class B2

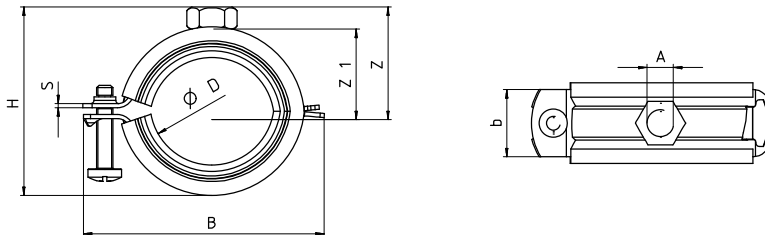
ADVANTAGES/BENEFITS

- The floating single screw allows for simple, one-handed installation
- The safety latch fastening guarantees secure pipe installation without the clamp springing open.
- The compact construction of the pipe clamp allows for simple post-installation insulation.
- The screw's design stops it falling out during installation

INSTALLATION



TECHNICAL DATA



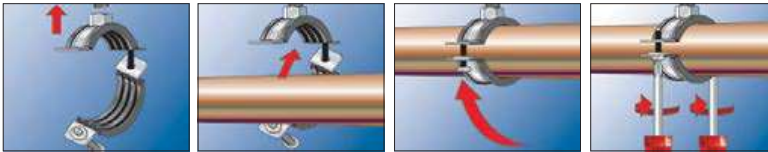
Item	Art.-NO.	Thread A	Size (inch)	Clamping range D (mm)	Width B (mm)	Height H (mm)	b x s (mm)	Height Z (mm)	Locking Screw	Recommended load N_{rec} (kN)	Design load N_d (kN)	Sales unit (pcs)
FGRS 8 - 11	537212	M 8	-	8 - 11	45	29	20 x 1.25	17	M 5	0.80	1.12	100
FGRS 12 - 14	079420	M 8	1/4"	12 - 14	48	31	20 x 1.25	21	M 5	0.80	1.12	100
FGRS 15 - 19	079421	M 8	3/8"	15 - 19	52	36	20 x 1.25	14	M 5	0.80	1.12	100
FGRS 20 - 24	079422	M 8	1/2"	20 - 24	58	41	20 x 1.25	26	M 5	0.80	1.12	100
FGRS 25 - 30	079423	M 8	3/4"	25 - 30	63	47	20 x 1.25	28	M 5	0.80	1.12	100
FGRS 32 - 37	079424	M 8	1"	32 - 37	72	54	20 x 1.25	32	M 5	0.80	1.12	100
FGRS 40 - 44	079425	M 8	1 1/4"	40 - 44	79	61	20 x 1.5	37	M 5	0.90	1.26	50
FGRS 45 - 50	079426	M 8	1 1/2"	45 - 50	88	67	20 x 1.5	42	M 5	0.90	1.26	50
FGRS 50 - 55	079427	M 8	-	50 - 55	94	72	20 x 1.5	45	M 5	0.90	1.26	50
FGRS 56 - 63	079428	M 8	2"	56 - 63	99	80	20 x 1.5	46	M 5	0.90	1.26	50



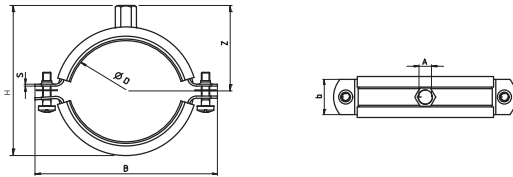
ADVANTAGES/BENEFITS

- The fire test report guarantees independently tested functional safety
- The combination nut with thread M8/M10 allows for optimised mounting choices
- The sound insulation insert offers noise protection and prevents contact corrosion

INSTALLATION



TECHNICAL DATA



PROPERTIES

- **Material:** Steel DD11 (material no.1.0330) acc. to DIN EN 10 130/ASTM A569
- **Zinc plating:** Electro zinc plated 5 - 9 µm
- **HDG. Zinclamella** acc to DIN EN ISO 10683 / 13858 min 15 µm
- **Standard:** Comply with ASTM B633 SC1, also available in SC 3 on special request.
- **Material:** Stainless steel (material no. 1.4401) of the corrosion resistance class III, e.g. A4
- **Sound insulation insert:** Material-SBR/ EPDM chlorine-free & silicone-free
- **Sound insulation:** According to DIN 4109
- **Temperature range:** -40° C to 100°+ C
- **Hardness:** 55 ± 5° Shore A
- **Fire behaviour:** DIN 4102: Class B2

APPROVALS



Item	Art.-NO. G.I.	Art.-NO. HDG.	Thread A	Size (inch)	Clamping range D (mm)	Width B (mm)	Height H (mm)	b x s (mm)	height Z (mm)	Recommended load N _{rec} (kN)	Design load N _d (kN)	Sales unit (pcs)
FRS 12 - 15 M8/M10	510969	537981	M 8/M 10	1/4"	12 - 15	55	39	20 x 1.25	31	1.00	1.40	100
FRS 15 - 19 M8/M10	042535	537982	M 8/M 10	3/8"	15 - 19	59	43	20 x 1.25	29	1.00	1.40	100
FRS 20 - 24 M8/M10	042536	537983	M 8/M 10	1/2"	20 - 24	65	48	20 x 1.25	32	1.00	1.40	100
FRS 25 - 30 M8/M10	042537	537984	M 8/M 10	3/4"	25 - 30	72	54	20 x 1.25	35	1.00	1.40	100
FRS 32 - 37 M8/M10	042538	537985	M 8/M 10	1"	32 - 37	77	61	20 x 1.25	38	1.00	1.40	100
FRS 40 - 45 M8/M10	042554	537986	M 8/M 10	1 1/4"	40 - 45	89	69	20 x 1.25	42	1.00	1.40	50
FRS 48 - 54 M8/M10	510970	537987	M 8/M 10	1 1/2"	48 - 54	99	78	20 x 1.25	46	1.00	1.40	50
FRS 55 - 61 M8/M10	042555	537988	M 8/M 10	2"	55 - 61	105	85	20 x 1.25	50	1.00	1.40	50
FRS 63 - 67 M8/M10	091488	537989	M 8/M 10	-	63 - 67	110	91	20 x 1.25	53	1.00	1.40	50
FRS 72 - 80 M8/M10	091489	537990	M 8/M 10	2 1/2"	72 - 80	125	104	20 x 2.00	60	1.50	2.10	25
FRS 87 - 92 M8/M10	091505	537991	M 8/M 10	3"	87 - 92	137	116	20 x 2.00	66	1.50	2.10	25
FRS 108 - 116 M8/M10	091506	537992	M 8/M 10	4"	108 - 116	164	140	25 x 2.00	78	2.00	2.80	20
FRS 121 - 128 M8/M10	079456	537993	M 8/M 10	-	121 - 128	176	152	25 x 2.50	84	2.50	3.50	10
FRS 133 - 141 M8/M10	079457	537994	M 8/M 10	5"	133 - 141	187	165	25 x 2.50	90	2.50	3.50	10
FRS 159 - 165 M8/M10	079458	537995	M 8/M 10	-	159 - 165	211	198	25 x 2.50	102	2.50	3.50	8
FRS 165 - 168 M8/M10	079459	537996	M 8/M 10	6"	165 - 168	225	192	25 x 2.50	104	2.50	3.50	8
FRS 3/8" A4	064864	-	M 8	3/8"	15 - 19	62	40	20 x 1.20	23	1.00	1.40	100
FRS 1/2" A4	064865	-	M 8	1/2"	20 - 24	68	45	20 x 1.20	26	1.00	1.40	100
FRS 3/4" A4	064866	-	M 8	3/4"	25 - 30	75	52	20 x 1.20	29	1.00	1.40	100
FRS 1" A4	064868	-	M 8	1"	31 - 38	80	60	20 x 1.20	32	1.00	1.40	100
FRS 1 1/4" A4	064869	-	M 8	1 1/4"	40 - 46	90	67	20 x 1.20	37	1.00	1.40	50
FRS 1 1/2" A4	064870	-	M 8	1 1/2"	48 - 54	97	75	20 x 1.20	41	1.00	1.40	50
FRS 54 - 58 A4	064873 ¹⁾	-	M 8	-	54 - 59	104	80	20 x 1.20	44	1.00	1.40	50
FRS 2" A40	064874	-	M 8	2"	60 - 64	110	85	20 x 1.20	46	1.00	1.40	50
FRS 67 - 71 A4	064875 ¹⁾	-	M 8	-	67 - 71	119	92	25 x 1.20	49	1.00	1.40	25
FRS 2 1/2" A4	064879	-	M 10	2 1/2"	72 - 78	130	99	25 x 1.50	53	1.30	1.82	25
FRS 81 - 86 A4	064892 ¹⁾	-	M 10	-	81 - 86	132	107	25 x 1.50	58	1.30	1.82	25
FRS 3" A4	064893 ¹⁾	-	M 10	3"	87 - 92	144	113	25 x 1.50	60	1.30	1.82	25
FRS 95 - 103 A4	064894 ¹⁾	-	M 10	-	95 - 103	156	124	25 x 1.50	66	1.30	1.82	25
FRS 4" A4	064898	-	M 10	4"	102 - 116	172	138	25 x 2.00	73	2.00	2.80	20
FRS 121 - 127 A4	064899 ¹⁾	-	M 10	-	121 - 127	192	149	25 x 2.00	79	2.00	2.80	10
FRS 133 - 141 A4	064901 ¹⁾	-	M 10	5"	133 - 141	198	163	25 x 2.00	86	2.00	2.80	10
FRS 159 - 168 A4	064903	-	M 10	6"	159 - 168	218	191	25 x 2.00	100	2.00	2.80	8

(1) Delivery time on request.



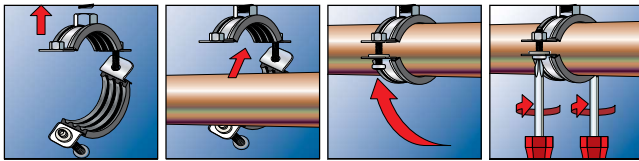
PROPERTIES

- **Material:** Steel
- **Zinc plating:** Electro zinc plated 5 - 9 µm
- **Standard:** Comply with ASTM B633 SC1, available in SC3 on special request. Also available in dacromet finish 8.6 mm for more details check annex (B)
- **Connecting nut:** Resistance welded, M8, SW 13
- **Locking screw:** Flat head screw with combination recessed head
- **Sound Insulation inserts:** Material EPDM chlorine-free & silicone-free
- **Sound insulation:** acc. to DIN 4109
- **Temperature range:** -40° C to +100° C
- **Hardness:** 60 ± 5° Shore
- Comply with MSS SP 69/MSS SP 58 Type 12

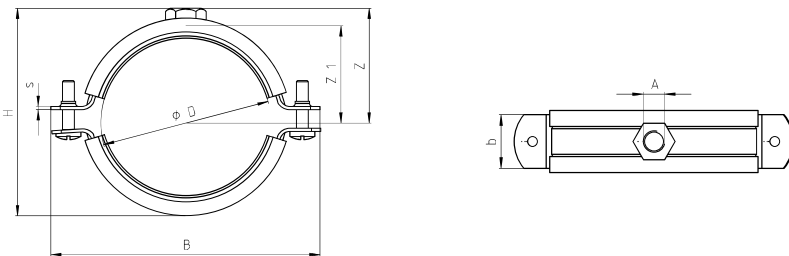
ADVANTAGES/BENEFITS

- Simple installation due to large opening angle.
- Locking screw secured against loss.
- Combination connecting thread for cost-effective warehousing and flexibility at the construction site.
- Can be used with PVC, HDPE and PPR pipes

INSTALLATION



TECHNICAL DATA



Item	Art.-NO. G.I.	Art No. Dacromet	Qty. per box pcs.	Size (inch)	Clamping range D (mm)	s x b (mm)	Screw M	Thread diameter A (mm)	Recommended load N _{rec} (kN)	Design load N _d (kN)
FRSR 11-14 M8 / M10	534133	560283	100	1/4"	11 - 14	1.2 x 20	M5 x 16	M8 + M10	0.85	1.19
FRSR 15-19M8 / M10	534134	560284	100	3/8"	15 - 19	1.2 x 20	M5 x 16	M8 + M10	0.85	1.19
FRSR 20-25 M8 / M10	534135	560285	100	1/2"	20 - 25	1.2 x 20	M5 x 16	M8 + M10	0.85	1.19
FRSR 26-30 M8 / M10	534136	560286	100	3/4"	26 - 30	1.2 x 20	M5 x 16	M8 + M10	0.85	1.19
FRSR 32-36 M8 / M10	534137	560287	100	1"	32 - 36	1.2 x 20	M5 x 16	M8 + M10	0.85	1.19
FRSR 38-43 M8 / M10	534138	560288	50	1-1/4"	38 - 43	1.2 x 20	M5 x 20	M8 + M10	0.85	1.19
FRSR 47-51 M8 / M10	534139	560289	50	1-1/2"	47 - 51	1.2 x 20	M5 x 20	M8 + M10	0.85	1.19
FRSR 53-58 M8 / M10	534140	560290	50	-	53 - 58	1.2 x 20	M5 x 20	M8 + M10	0.85	1.19
FRSR 60-64 M8 / M10	534141	560291	50	2"	60 - 64	1.2 x 20	M5 x 20	M8 + M10	0.85	1.19
FRSR 63-67 M8 / M10	534142	560292	25	-	63 - 67	1.2 x 20	M5 x 20	M8 + M10	0.85	1.19
FRSR 68-72 M8 / M10	534143	560294	25	-	68 - 72	1.5 x 20	M6 x 20	M8 + M10	0.85	1.19
FRSR 75-80 M8 / M10	534144	560295	25	2-1/2"	75 - 80	1.5 x 20	M6 x 20	M8 + M10	0.85	1.19
FRSR 81-86 M8 / M10	534145	560296	25	-	81 - 86	1.5 x 20	M6 x 20	M8 + M10	1.60	2.24
FRSR 87-92 M8 / M10	534146	560297	25	3"	87 - 92	1.5 x 20	M6 x 20	M8 + M10	1.60	2.24
FRSR 99-105 M8 / M10	534147	560298	20	3-1/2"	99 - 105	2.0 x 20	M6 x 20	M8 + M10	1.60	2.24
FRSR 107-112 M8 / M10	534148	560299	20	-	107 - 112	2.0 x 20	M6 x 20	M8 + M10	1.60	2.24
FRSR 113-118 M8 / M10	534149	560300	10	4"	113 - 118	2.0 x 20	M6 x 20	M8 + M10	2.20	3.08
FRSR 125-130 M8 / M10	534150	560301	10	-	125 - 130	2.0 x 20	M6 x 20	M8 + M10	2.20	3.08
FRSR 138-142 M8 / M10	534151	560303	10	5"	138 - 142	2.0 x 20	M6 x 20	M8 + M10	2.20	3.08
FRSR 159-166 M8 / M10	534152	560305	8	6"	159 - 166	2.0 x 20	M6 x 20	M8 + M10	2.20	3.08
FRSR 200-212 M8 / M10	534153	-	8	-	200 - 212	2.0 x 20	M6 x 20	M8 + M10	2.50	3.50
FRSR 215-220 M8 / M10	534154	-	8	8"	215 - 220	2.0 x 20	M6 x 20	M8 + M10	2.50	3.50



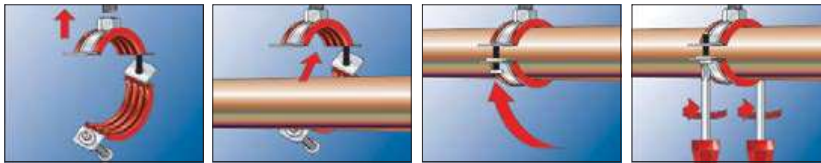
PROPERTIES

- **Material:** Steel DD11 (material no. 1.0332 acc. to DIN EN 10111)
- **Zinc plating:** Electro zinc plated 5 - 9 µm
- **Connecting nut:** (up to FRSH 59-63) resistance welded, M8 and M8/M10 SW 13, M10 SW 17
- **Locking screw:** Flat head screw with combination recessed head
- **Material Sound insulation insert:** Silicone
- **Sound insulation:** for DIN 4109
- **Temperature range:** -40 °C to +220 °C
- **Hardness:** 60 ± 5° Shore A
- **Fire behaviour:** DIN 4102: Class B2

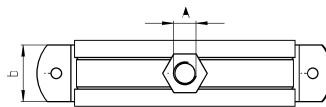
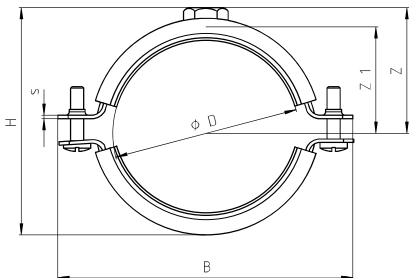
ADVANTAGES/BENEFITS

- The special silicone sound insulation insert allows for use with average temperatures of up to +220°C
- The two screws allow for easy adjustment to suit the outer pipe diameter
- The screws' safety feature ensures trouble-free installation

INSTALLATION



TECHNICAL DATA



Item	Art.-NO.	Thread A	Size (inch)	Clamping range D (mm)	Width B B (mm)	Height H H (mm)	b x s (mm)	Hight Z Z (mm)	Locking Screw	Recommended load N _{rec} (kN)	Design load N _d (kN)	Sales unit (pcs)
FRSH 15 - 19	063490	M 8	3/8"	15-19	62	41	20 x 1.25	24	M 5	1.00	1.40	100
FRSH 20 - 24	063492	M 8	1/2"	20-24	68	46	20 x 1.25	26	M 5	1.00	1.40	100
FRSH 25 - 30	063494	M 8	3/4"	25-30	75	52	20 x 1.25	29	M 5	1.00	1.40	100
FRSH 32 - 37	063495	M 8	1"	32-37	80	59	20 x 1.25	33	M 5	1.00	1.40	100
FRSH 40 - 45	063498	M 8	1-1/4"	40-45	90	67	20 x 1.25	37	M 5	1.00	1.40	50
FRSH 48 - 53	063499	M 8	1-1/2"	48-53	97	75	20 x 1.25	41	M 5	1.00	1.40	50
FRSH 54 - 59	063500 ⁽¹⁾	M 8	-	54-49	104	81	20 x 1.25	44	M 5	1.00	1.40	50
FRSH 60 - 64	063502	M 8	2"	60-64	110	86	20 x 1.25	46	M 5	1.00	1.40	50
FRSH 68 - 73	063504 ⁽¹⁾	M 10	-	68-73	122	95	25 x 1.5	51	M 6	1.30	1.82	25
FRSH 72 - 78	063505	M 10	2-1/2"	72-78	130	100	25 x 1.5	55	M 6	1.30	1.82	25
FRSH 80 - 86	063511 ⁽¹⁾	M 10	-	80-86	130	108	25 x 1.5	58	M 6	1.30	1.82	25
FRSH 89 - 92	063513 ⁽¹⁾	M 10	3"	87-92	141	114	25 x 1.5	61	M 6	1.30	1.82	25
FRSH 95 - 103	063518 ⁽¹⁾	M 10	-	95-103	156	125	25 x 1.5	67	M 6	1.30	1.82	25
FRSH 102 - 116	063520	M 10	4"	102-116	172	140	25 x 2.0	74	M 6	2.00	2.80	20
FRSH 133 - 141	063537 ⁽¹⁾	M 8/M 10	5"	133-141	198	174	25 x 2.5	95	M 8	2.00	2.80	10
FRSH 159 - 168	091507 ⁽¹⁾	M 8/M 10	-	159-168	226	201	25 x 2.5	109	M 8	2.00	2.80	8

(1) Delivery time on request.



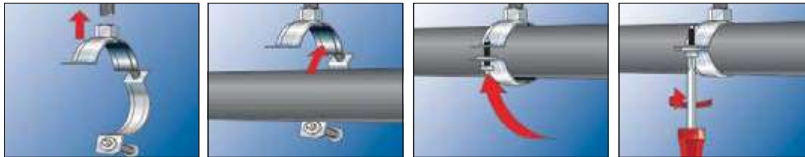
PROPERTIES

- **Material:** Steel
- **Zinc plating:** Electro zinc plated 5 - 9 µm
- **Standard:** comply with ASTM B633 SC1
Also available in SC3 on special request.
Also available in dacromet finish 8.6 mm for more detail check annex (B)
- **Connecting nut:** resistance welded, M8, SW 13
- **Locking screw:** flat head screw with combination recessed head
- **Hardness:** 60 ± 5° Shore

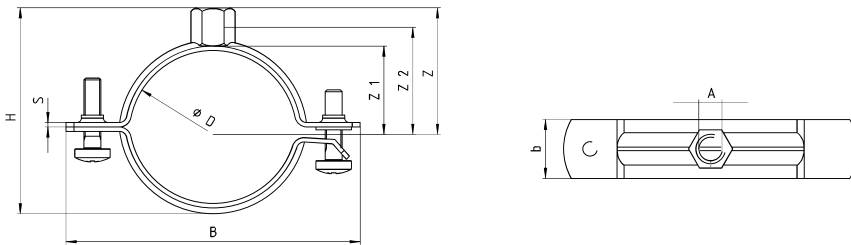
ADVANTAGES/BENEFITS

- Simple installation due to large opening angle.
- Locking screw secured against loss.
- Combination connecting thread for cost-effective warehousing and flexibility at the construction site.
- To be used with rubber support inserts for Chilled Water Pipes (CHWP).

INSTALLATION



TECHNICAL DATA



Item	Art.-NO.	Size (inch)	Clamping range D (mm)	s x b (mm)	Screw M	Thread diameter A (mm)	Recommended load N _{rec} (kN)	Design load N _d (kN)	Sales unit (pcs.)
FRSR-N 11-14 M8 / M10	549800	1/4"	11-14	1.2 x 20	M5 x 16	M8+M10	0.85	1.19	100
FRSR-N 15-19 M8 / M10	549801	3/8"	15-19	1.2 x 20	M5 x 16	M8+M10	0.85	1.19	100
FRSR-N 20-25 M8 / M10	549802	1/2"	20-25	1.2 x 20	M5 x 16	M8+M10	0.85	1.19	100
FRSR-N 26-30 M8 / M10	549803	3/4"	26-30	1.2 x 20	M5 x 16	M8+M10	0.85	1.19	100
FRSR-N 32-36 M8 / M10	549804	1"	32-36	1.2 x 20	M5 x 16	M8+M10	0.85	1.19	100
FRSR-N 38-43 M8 / M10	549805	1-1/4"	38-43	1.2 x 20	M5 x 20	M8+M10	0.85	1.19	50
FRSR-N 47-51 M8 / M10	549806	1-1/2"	47-51	1.2 x 20	M5 x 20	M8+M10	0.85	1.19	50
FRSR-N 53-58 M8 / M10	549807	-	53-58	1.2 x 20	M5 x 20	M8+M10	0.85	1.19	50
FRSR-N 60-64 M8 / M10	549808	2"	60-64	1.2 x 20	M5 x 20	M8+M10	0.85	1.19	50
FRSR-N 63-67 M8 / M10	549809	65	63-67	1.2 x 20	M5 x 20	M8+M10	0.85	1.19	25
FRSR-N 68-72 M8 / M10	549810	-	68-72	1.5 x 20	M6 x 20	M8+M10	0.85	1.19	25
FRSR-N 75-80 M8 / M10	549811	2-1/2"	75-80	1.5 x 20	M6 x 20	M8+M10	0.85	1.19	25
FRSR-N 81-86 M8 / M10	549812	-	81-86	1.5 x 20	M6 x 20	M8+M10	1.60	2.24	25
FRSR-N 87-92 M8 / M10	549813	3"	87-92	1.5 x 20	M6 x 20	M8+M10	1.60	2.24	25
FRSR-N 99-105 M8 / M10	549814	3-1/2"	99-105	2.0 x 20	M6 x 20	M8+M10	1.60	2.24	20
FRSR-N 107-112 M8 / M10	549815	-	107-112	2.0 x 20	M6 x 20	M8+M10	1.60	2.24	20
FRSR-N 113-118 M8 / M10	549816	4"	113-118	2.0 x 20	M6 x 20	M8+M10	2.20	3.08	10
FRSR-N 125-130 M8 / M10	549817	-	125-130	2.0 x 20	M6 x 20	M8+M10	2.20	3.08	10
FRSR-N 138-142 M8 / M10	549818	5"	138-142	2.0 x 20	M6 x 20	M8+M10	2.20	3.08	10
FRSR-N 159-166 M8 / M10	549819	6"	159-166	2.0 x 20	M6 x 20	M8+M10	2.20	3.08	8
FRSR-N 200-212 M8 / M10	549820	-	200-212	2.0 x 20	M6 x 20	M8+M10	2.50	3.50	8
FRSR-N 215-220 M8 / M10	549821	8"	215-220	2.0 x 20	M6 x 20	M8+M10	2.50	3.50	8



PROPERTIES

- **Material:** Steel DD11 (material no. 1.0332 acc. to DIN EN 10111)
- **Zinc plating:** Electro zinc plated 5 - 9 µm
- **Standard:** comply with ASTM B633 SC1
- **Connecting nut:** resistance welded, M8 and M8/M10 SW 13, M10/M12 SW 17
- **Locking screw:** Flat head screw with combination recessed head

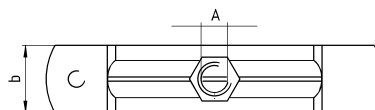
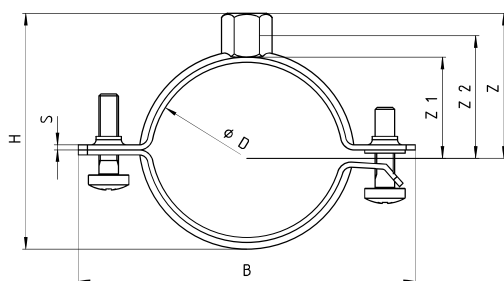
ADVANTAGES/BENEFITS

- The FRSN without the sound insulation insert is ideal for use in industrial applications and plastic pipes
- The combination connecting nut with thread M8/M10 allows for optimised mounting choices
- The two screws allow for ideal adaptation to suit the outer pipe diameter
- The screws' safety feature ensures trouble-free installation

INSTALLATION



TECHNICAL DATA



Item	Art.-NO.	Thread A	Size (inch)	Clamping range D (mm)	Width B B (mm)	Height H H (mm)	b x s (mm)	Hight Z Z (mm)	Locking Screw	Recommended load N _{rec} (kN)	Design load N _d (kN)	Sales unit (pcs)
FRSN 15 - 19 M8/M10	049459	M 8/M 10	3/8"	15-19	56	37	20 x 1,5	27	M 6	1,50	2,10	100
FRSN 21 - 23 M8/M10	049789	M 8/M 10	1/2"	21-23	60	41	20 x 1,5	28	M 6	1,50	2,10	100
FRSN 25 - 28 M8/M10	049790	M 8/M 10	3/4"	25-28	67	46	20 x 1,5	30	M 6	1,50	2,10	100
FRSN 32 - 36 M8/M10	049793	M 8/M 10	1"	32-36	74	54	20 x 1,5	34	M 6	1,50	2,10	100
FRSN 38 - 43 M8/M10	049794	M 8/M 10	1-1/4"	38-43	78	61	20 x 1,5	38	M 6	1,50	2,10	50
FRSN 44 - 49 M8/M10	049902	M 8/M 10	1-1/2"	44-49	88	67	20 x 1,5	41	M 6	1,50	2,10	50
FRSN 50 - 56 M8/M10	049922	M 8/M 10	-	50-56	92	74	20 x 1,5	43	M 6	1,50	2,10	50
FRSN 57 - 61 M8/M10	049944	M 8/M 10	2"	57-61	98	79	20 x 1,5	47	M 6	1,50	2,10	50
FRSN 63 - 70 M8/M10	049945	M 8/M 10	-	63-70	105	88	20 x 1,5	54	M 6	1,50	2,10	50
FRSN 70 - 77 M8/M10	049947	M 8/M 10	2-1/2"	70-77	112	95	20 x 1,5	55	M 6	1,50	2,10	25
FRSN 80 - 83 M8/M10	049948	M 8/M 10	-	80-83	116	101	20 x 1,5	58	M 6	1,50	2,10	25
FRSN 83 - 91 M8/M10	049979	M 8/M 10	3"	83-91	128	111	20 x 2,0	63	M 6	2,50	3,50	25
FRSN 100 - 106 M8/M10	050006	M 8/M 10	-	100-106	143	126	20 x 2,0	70	M 6	2,50	3,50	25
FRSN 108 - 114 M8/M10	050008	M 8/M 10	4"	108-114	156	134	20 x 2,0	75	M 6	2,50	3,50	25
FRSN 118 - 122 M8/M10	500744	M 8/M 10	-	118-122	160	142	20 x 2,0	78	M 6	2,50	3,50	25
FRSN 123 - 128 M8/M10	050009	M 8/M 10	-	123-128	173	149	25 x 2,5	82	M 6	2,50	3,50	25
FRSN 131 - 136 M8/M10	050010	M 8/M 10	-	131-136	176	157	25 x 2,5	86	M 6	2,50	3,50	25
FRSN 137 - 146 M8/M10	050023	M 8/M 10	5"	137-146	180	167	25 x 2,5	91	M 6	2,50	3,50	25
FRSN 146 - 156 M8/M10	500746	M 8/M 10	-	146-156	195	177	25 x 2,5	96	M 6	2,50	3,50	25
FRSN 159 - 165 M10/M12	500747	M 10/M 12	-	159-165	203	191	25 x 2,5	106	M 6	2,50	3,50	25
FRSN 166 - 175 M10/M12	500748 ⁽¹⁾	M 10/M 12	-	166-175	211	201	25 x 2,5	110	M 8	2,50	3,50	20
FRSN 200 - 206 M10/M12	500751 ⁽¹⁾	M 10/M 12	-	200-206	248	232	25 x 2,5	126	M 8	2,50	3,50	10
FRSN 210 - 219 M10/M12	500752 ⁽¹⁾	M 10/M 12	8"	210-219	261	245	25 x 2,5	133	M 8	2,50	3,50	10

(1) The band of the clamp is perforated from Ø 165 and connected with locking screw and nut.



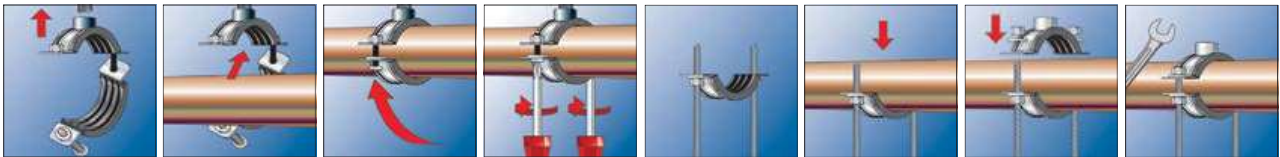
PROPERTIES

- **Material:** Steel DD11 (material no. 1.0332 acc. to DIN EN 10111)
- **Zinc plating:** Electro zinc plated 5 - 9 µm
Also available in HDG on request.
- **Connecting nut:** M 10/M 12 = SW 17, M 12/ M 16 = SW 22, M 16 = SW 24
- **Material sound insulation insert:** EPDM; chlorine-free; silicone-free
- **Temperature range:** -50 °C to +110 °C
- **Hardness:** 45 ± 5° Shore A
- **Fire behaviour:** DIN 4102: Class B2

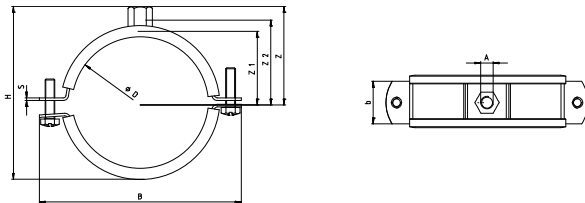
ADVANTAGES/BENEFITS

- High tested loads guarantees safe functioning of the FRSM
- The combination connecting nut with thread M10/M12, M12/M16 or M16 allows for optimised mounting choices
- From Ø 124 mm it is possible to install with 2 threaded rods, e.g. for the fixing of cast iron roof drainage pipes
- The two screws allow for easy adjustment to suit the outer pipe diameter
- The screws' safety features ensures trouble-free installation

INSTALLATION



TECHNICAL DATA



Item	Art.-NO.	Thread A	Size (inch)	Clamping range D (mm)	Width B (mm)	Height H (mm)	b x s (mm)	Height Z (mm)	Locking Screw	Recommended load N _{rec} (kN)	Design load N _d (kN)	Sales unit (pcs)
FRSM 1/2" M10/M12	504589	M 10/M 12	1/2"	19-23	76	57	25 x 2.5	39	M 6	2.50	3.50	50
FRSM 3/4" M10/M12	504590	M 10/M 12	3/4"	24-29	80	63	25 x 2.5	42	M 6	2.50	3.50	50
FRSM 1" M10/M12	504591	M 10/M 12	1"	33-36	89	70	25 x 2.5	45	M 6	2.50	3.50	50
FRSM 1 1/4" M10/M12	504592	M 10/M 12	1-1/4"	40-45	98	79	25 x 2.5	50	M 6	2.50	3.50	20
FRSM 1 1/2" M10/M12	093700	M 10/M 12	1-1/2"	47-52	105	86	25 x 2.5	53	M 6	2.50	3.50	20
FRSM 53 - 58 M10/M12	093701	M 10/M 12	-	53-58	111	91	25 x 2.5	55	M 6	2.50	3.50	20
FRSM 2" M10/M12	093702	M 10/M 12	2"	60-65	118	99	25 x 2.5	60	M 6	2.50	3.50	20
FRSM 2 1/2" M10/M12	093703	M 10/M 12	2-1/2"	73-78	136	113	30 x 3.0	67	M 8	3.00	4.20	20
FRSM 79 - 85 M10/M12	504593	M 10/M 12	-	79-85	144	120	30 x 3.0	70	M 8	3.00	4.20	20
FRSM 3" M10/M12	093704	M 10/M 12	3"	88-93	152	129	30 x 3.0	75	M 8	3.00	4.20	20
FRSM 102 M10/M12	093705	M 10/M 12	-	100-106	166	142	30 x 3.0	81	M 8	3.00	4.20	20
FRSM 4" M10/M12	093707	M 10/M 12	4"	108-116	175	152	30 x 3.0	86	M 8	3.00	4.20	20
FRSM 124 - 129 M10/M12	093709 ¹⁾	M 10/M 12	-	124-129	194	165	30 x 3.0	92	M 8	3.00	4.20	20
FRSM 133 M10/M12	093710 ¹⁾	M 10/M 12	-	131-137	202	173	30 x 3.0	97	M 8	3.00	4.20	20
FRSM 5" M10/M12	093711 ¹⁾	M 10/M 12	5"	138-145	210	180	30 x 3.0	100	M 8	3.00	4.20	20
FRSM 160 M10/M12	093712 ¹⁾	M 10/M 12	-	156-162	227	198	30 x 3.0	109	M 8	3.00	4.20	20
FRSM 6" M10/M12	093713 ¹⁾	M 10/M 12	6"	165-171	255	207	30 x 3.0	114	M 8	3.00	4.20	20
FRSM 7" M10/M12	093714 ¹⁾	M 10/M 12	7"	188-194	278	230	30 x 3.0	125	M 8	3.00	4.20	10
FRSM 200 M10/M12	093715 ¹⁾	M 10/M 12	-	196-203	287	239	30 x 3.0	130	M 8	3.00	4.20	10
FRSM 212 M12/M16	505453 ¹⁾	M 12/M 16	-	205-214	289	264	40 x 4.0	147	M 12	5.00	7.00	10
FRSM 8" M12/M16	505454 ¹⁾	M 12/M 16	8"	219-225	300	272	40 x 4.0	152	M 12	5.00	7.00	10
FRSM 250 M12/M16	505455 ¹⁾	M 12/M 16	-	244-250	325	300	40 x 4.0	165	M 12	5.00	7.00	10
FRSM 10" M12/M16	505456 ¹⁾	M 12/M 16	10"	267-273	348	323	40 x 4.0	177	M 12	5.00	7.00	10
FRSM 300 M12/M16	505457 ¹⁾	M 12/M 16	-	297-304	379	354	40 x 4.0	192	M 12	5.00	7.00	10
FRSM 12" M12/M16	505458 ¹⁾	M 12/M 16	12"	320-328	403	378	40 x 4.0	204	M 12	5.00	7.00	10
FRSM 348 - 356 M16	504594 ¹⁾	M 16	-	348-356	480	403	50 x 5.0	213	M 16	8.00	11.20	1
FRSM 364 - 372 M16	504595 ¹⁾	M 16	-	364-372	496	419	50 x 5.0	221	M 16	8.00	11.20	1
FRSM 400 - 409 M16	504596 ¹⁾	M 16	-	400-409	533	456	50 x 5.0	240	M 16	8.00	11.20	1
FRSM 454 - 462 M16	504597 ¹⁾	M 16	-	454-462	586	509	50 x 5.0	266	M 16	8.00	11.20	1
FRSM 500 - 508 M16	504598 ¹⁾	M 16	-	500-508	632	555	50 x 5.0	290	M 16	8.00	11.20	1

(1) The bond of the clamp is perforated from Ø 124 and connected with locking screw and nut.



PROPERTIES

- **Material:** Carbon Steel Q 235
- **Zinc plating:** Electro zinc plated 5 - 9 µm
- **Standard:** comply with ASTM B633 SC1
Also available in SC3 on special request.
- Comply with MSS SP 69/MSS SP 58
Type 7

ADVANTAGES/BENEFITS

- The FM-approval guarantees independently tested safety for the use in sprinkler systems.
- The sprinkler loop with clearance hole for easy fixing with threaded rod and nut.
- The UL approval guarantees the use in firefighting and sprinkler applications
- Easy to install without tools

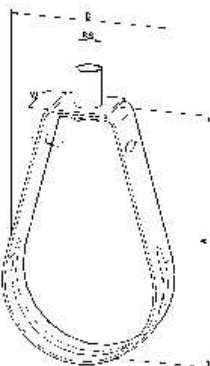
APPROVALS



INSTALLATION



TECHNICAL DATA



Item	Art.-NO.	Clamping range D (mm)	Rod size RS (mm)	Height A (mm)	Max. rec. load P (kN)	Width		Thickness		Sale unit (pcs.)
						W (mm)	T (mm)			
FRSP C 1/2"	516662	19-23	M 10	72	1.3	16	1.2	100		
FRSP C 3/4"	516663	25-29	M 10	78	1.3	16	1.2	100		
FRSP C 1"	516664	33-36	M 10	86	1.3	16	1.2	100		
FRSP C 1-1/4"	516665	40-45	M 10	94	1.3	16	1.2	100		
FRSP C 1-1/2"	516666	47-52	M 10	99	1.3	16	1.2	100		
FRSP C 2"	516667	60-65	M 10	109	1.3	16	1.2	100		
FRSP C 2-1/2"	516668	73-78	M 10	141	4.5	19	2.2	60		
FRSP C 3"	516669	88-93	M 10	162	4.5	19	2.2	60		
FRSP C 4"	516670	110-116	M 10	195	5.0	19	2.2	24		
FRSP C 5"	532356	138-145	M 12	226	5.0	19	2.5	24		
FRSP C 6"	516671	165-171	M 12	267	5.6	19	3.0	24		
FRSP C 8"	516672	217-221	M 12	316	5.6	19	3.0	12		



Heavy pipe suspended support

PROPERTIES

- **Material:** Carbon Steel Q 235
- **Zinc plating:** Electro zinc plated 5 - 9 µm
- **Standard:** comply with ASTM B633 SC1
Also available in SC3 on special request.
- Comply with MSS SP 69/MSS SP 58 Type-1
- Sizes for Chilled Water Pipes (CHWP) available on request.

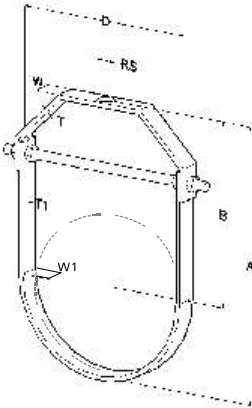
ADVANTAGES/BENEFITS

- Heavy duty Clevis Hanger.
- Designer for chilled water pipe work and fire fighting systems.
- Design allows vertical adjustment of pipe after installation.
- Nuts above Clevis must be tightened securely to ensure proper hanger performance.

APPROVALS



TECHNICAL DATA



Item	Art.-NO.	Clamping range D (mm)	Rod size RS (mm)	Height A (mm)	Distance center to top B (mm)	Max. rec. load (kN)	W (mm)	T (mm)	W-1 (mm)	T-1 (mm)	Sales unit (pcs.)
FCH 1/2"	532187	19-23	M 10	51.0	37.6	2.7	19	2.5	19	2.0	150
FCH 3/4"	532190	25-29	M 10	58.4	42.3	2.7	19	2.5	19	2.0	120
FCH 1"	532195	33-36	M 10	70.0	50.5	2.7	19	2.5	19	2.0	120
FCH 1-1/4"	532197	40-45	M 10	84.0	59.9	2.7	25	2.5	25	2.0	56
FCH 1-1/2"	532198	47-52	M 10	100.0	72.9	2.7	25	2.5	25	2.0	56
FCH 2"	516695	60-65	M 10	114.3	81.2	2.7	25	3.0	25	2.0	56
FCH 2-1/2"	516696	71-75	M 12	132.7	92.7	5.0	30	3.0	30	2.5	60
FCH 3"	516697	87-92	M 12	152.6	104.4	5.0	30	3.5	30	2.5	48
FCH 4"	516699	110-116	M 16	192.0	130.4	5.0	30	5.0	30	3.0	24
FCH 5"	516700	138-145	M 16	237.8	161.4	6.4	30	6.0	30	4.0	24
FCH 6"	516701	165-171	M 20	272.3	181.2	8.6	38	8.0	38	5.0	12
FCH 8"	516702	217-221	M 20	333.4	216.4	8.9	38	9.0	38	5.0	6
* FCH 10"	516703	271-275	M 20	400.0	254.5	16.0	50	9.0	50	6.0	2
* FCH 12"	516704	321-326	M 20	479.1	308.2	16.9	50	9.0	50	6.0	2

(1) * 516703, 516704 approvals not available



Riser pipe

PROPERTIES

- **Material:** Carbon Steel Q 235
- **Zinc plating:** Electro zinc plated 5 - 9 µm
- **Standard:** comply with ASTM B633 SC1
Also available in SC3 on special request.
Comply with MSS SP 69/MSS SP 58 Type-42

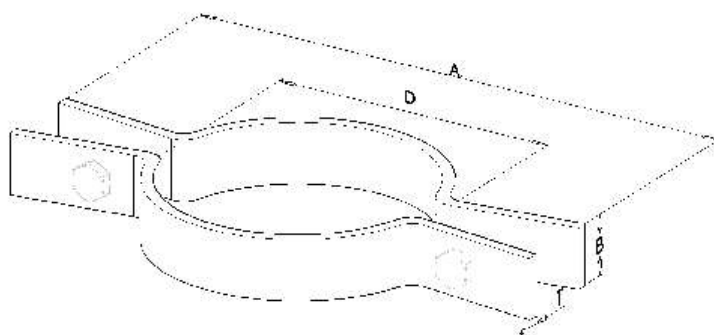
ADVANTAGES/BENEFITS

- Riser clamps are used for support of vertical piping by friction, no welding required on pipe.
- The UL approval guarantees tested safety for fire fighting riser pipes.

APPROVALS



TECHNICAL DATA



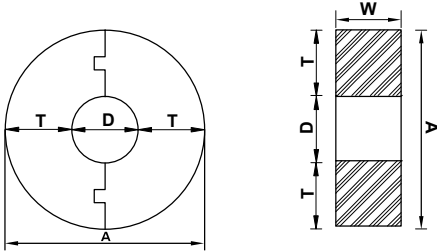
Item	Art.-NO.	Clamping range	Bolt size (mm)	Width	Bolt diameter		Max. rec. load (kN)	T (mm)	Torque (N.m)	Sales unit (pcs.)
		D (mm)		A (mm)	B (mm)					
RCWR 1/2"	516673	19-23	M 10	215.0	25	25	1.0	5.0	41	35
RCWR 3/4"	516674	24-28	M 10	228.5	25	25	1.0	5.0	41	30
RCWR 1"	516675	31-35	M 10	229.5	25	25	1.0	5.0	31	25
RCWR 1-1/4"	516676	40-44	M 10	240.5	25	25	1.1	5.0	31	25
RCWR 1-1/2"	516677	46-50	M 10	251.0	25	25	1.1	3.0	31	25
RCWR 2"	516678	56-61	M 10	261.6	30	30	1.3	5.0	31	25
RCWR 2-1/2"	532380	75-80	M 10	281.3	30	30	1.8	5.0	31	25
RCWR 3"	516679	88-93	M 10	298.5	30	30	2.2	5.0	45	20
RCWR 4"	516680	108-115	M 12	328.6	38	38	3.3	6.0	75	12
RCWR 5"	516681	133-140	M 12	362.0	38	38	6.7	6.0	75	12
RCWR 6"	516682	167-172	M 12	393.7	50	50	7.1	6.0	75	8
RCWR 8"	516683	219-225	M 16	463.5	50	50	11.1	9.5	129	4



PROPERTIES

- Density: 1268 kg/m³
- Thermal conductivity: 0.219 W/m.k
- Temperature range: from 0° to 50° C
- BS-3974-1 : 1974

TECHNICAL DATA



8

Installation Systems

Si.No.	Nom. Pipe size Schedule 40		Pipe O.D. D (mm)	T = 3/4" (19mm)				T = 1" (25mm)				T = 1 1/4" (32mm)				T = 1 1/2" (38mm)			
				Art.No.	Sales unit (pcs.)	W (mm)	A (mm)	Art.No.	Sales unit (pcs.)	W (mm)	A (mm)	Art.No.	Sales unit (pcs.)	W (mm)	A (mm)	Art.No.	Sales unit (pcs.)	W (mm)	A (mm)
1.	1/2"	15	21.3	549822	250	25	59	532357	180	25	71	549842	108	25	85	532833	120	25	97
2.	3/4"	20	26.7	549823	184	25	65	532358	160	25	77	549843	108	25	91	532834	90	25	103
3.	1"	25	33.4	549824	160	25	71	532359	120	25	83	549844	90	25	97	532835	60	25	109
4.	1-1/4"	32	42.1	549825	126	25	80	532360	100	25	92	549845	62	25	106	532836	50	25	118
5.	1-1/2"	40	48.2	549826	108	25	86	532361	90	25	98	549846	62	25	112	532837	50	25	124
6.	2"	50	60.3	549827	90	25	98	532362	60	25	110	549847	56	25	124	532838	40	25	136
7.	2-1/2"	65	73.0	549828	44	38	111	532363	35	38	123	549848	28	38	137	532839	28	38	149
8.	3"	80	89.9	549829	36	38	127	532364	28	38	139	549849	15	38	153	532840	13	38	165
9.	3-1/2"	90	102.6	549830	32	38	140	532365	28	38	152	549850	13	38	166	532841	13	38	178
10.	4"	100	114.3	549831	28	38	152	532366	24	38	164	549851	13	38	178	532842	13	38	190
11.	5"	125	141.3	549832	13	38	179	532367	13	38	191	549852	11	38	205	532843	11	38	217
12.	6"	150	168.3	549833	9	50	206	532369	7	50	218	549853	7	50	232	532844	7	50	244
13.	8"	200	219.1	549834	5	50	257	532370	5	50	269	549854	5	50	283	532845	5	50	295
14.	10"	250	273.0	549835	5	50	311	532371	5	50	323	549855	5	50	337	532846	5	50	349
15.	12"	300	324.8	549836	5	50	362	532373	5	50	374	549856	5	50	388	532847	5	50	400
16.	14"	350	356.6	549837	5	50	394	532374	5	50	406	549857	5	50	420	532848	5	50	432
17.	16"	400	406.4	549838	1	50	444	532375	1	50	456	549858	1	50	470	532849	1	50	482
18.	18"	450	457.2	549839	1	50	495	532376	1	50	507	549859	1	50	521	532850	1	50	533
19.	20"	500	508.0	549840	1	50	546	532377	1	50	558	549860	1	50	572	532851	1	50	584
20.	24"	600	610.6	549841	1	50	648	532378	1	50	660	549861	1	50	674	532852	1	50	686

Si.No.	Nom. Pipe size Schedule 40		Pipe O.D. D (mm)	T = 2" (50mm)				T = 2 1/2" (65mm)				T = 3" (75mm)			
				Art.No.	Sales unit (pcs.)	W (mm)	A (mm)	Art.No.	Sales unit (pcs.)	W (mm)	A (mm)	Art.No.	Sales unit (pcs.)	W (mm)	A (mm)
1.	1/2"	15	21.3	532853	64	25	121	533385	40	25	151	533405	20	25	171
2.	3/4"	20	26.7	532854	50	25	127	533386	40	25	157	533406	20	25	177
3.	1"	25	33.4	532855	40	25	133	533387	20	25	163	533407	20	25	183
4.	1-1/4"	32	42.1	532856	40	25	142	533388	18	25	172	533408	20	25	192
5.	1-1/2"	40	48.2	532857	40	25	148	533389	18	25	178	533409	18	25	198
6.	2"	50	60.3	532858	40	25	160	533390	18	25	190	533410	12	25	210
7.	2-1/2"	65	73.0	532859	16	38	173	533391	13	38	203	533411	11	38	223
8.	3"	80	89.9	532860	13	38	189	533392	11	38	219	533412	9	38	239
9.	3-1/2"	90	102.6	532861	13	38	202	533393	9	38	232	533413	9	38	252
10.	4"	100	114.3	532862	12	38	214	533394	9	38	244	533414	9	38	264
11.	5"	125	141.3	532863	10	38	241	533395	7	38	271	533415	7	38	291
12.	6"	150	168.3	532864	7	50	268	533396	5	50	298	533416	5	50	318
13.	8"	200	219.1	532865	5	50	319	533397	5	50	349	533417	5	50	369
14.	10"	250	273.0	532866	5	50	373	533398	5	50	403	533418	5	50	423
15.	12"	300	324.8	532867	5	50	424	533399	5	50	454	533419	5	50	474
16.	14"	350	356.6	532868	5	50	456	533400	1	50	486	533420	1	50	506
17.	16"	400	406.4	532869	1	50	506	533401	1	50	536	533421	1	50	556
18.	18"	450	457.2	532870	1	50	557	533402	1	50	587	533422	1	50	607
19.	20"	500	508.0	532871	1	50	608	533403	1	50	638	533423	1	50	658
20.	24"	600	610.6	532872	1	50	710	533404	1	50	740	533424	1	50	760



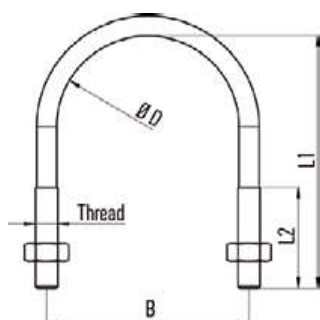
PROPERTIES

- **Material:** Steel with min. tensile strength of 360 N/mm²
- **Zinc plating:** Electro zinc plated, ≥ 5 µm
Also available with Rubber lining.

ADVANTAGES/BENEFITS

- Good for use as a guide mounting.
- The U-Bolt's two screws allow for ideal adaptation to suit the outer pipe diameter.

TECHNICAL DATA



Item	Art.-NO.	Qty. per box (pcs.)	Outer carton (pcs)	Thread M	Size (inch)	Width	Length	Length
						B (mm)	L ₁ (mm)	L ₂ (mm)
ETR 8 - 13	024415	10	100	M 6	1/4"	20	30	18
ETR 12 - 17	024416	10	100	M 6	3/8"	24	35	18
ETR 15 - 21	024417	10	100	M 6	1/2"	28	40	22
ETR 20 - 27	024418	10	50	M 8	3/4"	36	50	30
ETR 26 - 34	024419	10	50	M 8	1"	43	55	30
ETR 33 - 42	024420	10	50	M 8	1-1/4"	51	68	35
ETR 40 - 49	024421	10	50	M 8	1-1/2"	58	70	35
ETR 50 - 60	024422	10	50	M 8	2"	69	80	35
ETR 60 - 70	024423	10	50	M 10	-	82	100	38
ETR 66 - 76	024424	10	50	M 10	2-1/2"	88	110	45
ETR 70 - 82	024425	10	50	M 10	-	94	115	45
ETR 80 - 90	024426	10	50	M 10	3"	102	115	45
ETR 90 - 102	024427	5	50	M 12	3-1/2"	116	145	50
ETR 100 - 108	024428	5	50	M 12	-	122	150	50
ETR 102 - 114	024429	5	50	M 12	4"	128	156	55
ETR 121 - 127	024430	5	50	M 12	-	141	170	55
ETR 126 - 133	024431	5	50	M 12	-	147	180	65
ETR 131 - 140	024432	5	25	M 14	5"	156	185	65
ETR 143 - 153 ¹⁾	024433	5	25	M 14	-	169	193	65
ETR 150 - 159	024434	5	25	M 14	-	175	200	65
ETR 168	024435	5	25	M 14	6"	184	210	65
ETR 193.7	024436	5	25	M 14	-	209	232	65
ETR 219	024437	5	25	M 14	8"	236	270	65

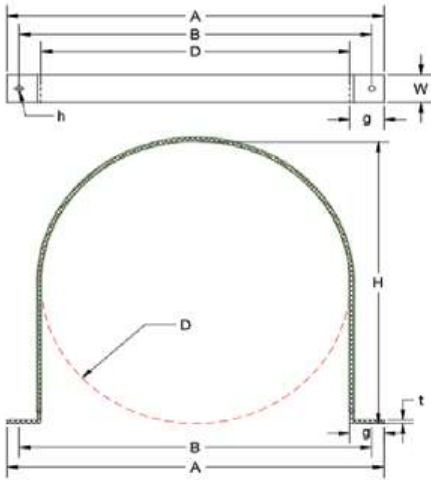
¹⁾ Delivery time on request.



PROPERTIES

- **Material:** Carbon steel Q235
- **Finish Electro Galvanized:** ASTM B 633 standard SC3 12 µm
- **Finish HDG:** 40 µm
- **Rubber specifications:**
 - A - EPDM
 - B - Temperature Resistance (-20 To 110 degree)
 - C - Noise reduction rating Up to 18dB
 - D - Color = Black
 - E - Thick = 1.5 mm

TECHNICAL DATA



8

Installation Systems

Item	Art.-NO.	D (mm)	A (mm)	B (mm)	H (mm)	t (mm)	W (mm)	h (mm)	Bolt	g (mm)
RL U-STRAP 20	542513	20	80	56	20	2	30	10	8	30
RL U-STRAP 25	542514	25	85	61	25	2	30	10	8	30
RL U-STRAP 32	542515	32	92	68	32	2	30	10	8	30
RL U-STRAP 36	542516	36	96	72	36	2	30	10	8	30
RL U-STRAP 40	542517	40	100	76	40	2	30	10	8	30
RL U-STRAP 43	542518	43	103	79	43	2	30	10	8	30
RL U-STRAP 50	542519	50	110	86	50	2	30	10	8	30
RL U-STRAP 56	542520	56	116	92	56	2	30	10	8	30
RL U-STRAP 63	542522	63	123	99	63	2	30	10	8	30
RL U-STRAP 75	542523	75	135	111	75	2	30	10	8	30
RL U-STRAP 82	542524	82	142	118	82	2	30	10	8	30
RL U-STRAP 90	542525	90	150	126	90	2	30	10	8	30
RL U-STRAP 110	542526	110	180	150	110	2	30	12	10	35
RL U-STRAP 160	542527	160	230	200	160	2	30	12	10	35
RL U-STRAP 200	542528	200	270	240	200	2	30	12	10	35
RL U-STRAP 250	542529	250	320	290	250	2	30	12	10	35
RL U-STRAP 315	542530	315	385	355	315	2	30	12	10	35
RL U-STRAP 400	542531	400	470	440	400	2	30	12	10	35

¹⁾ Delivery time on request.

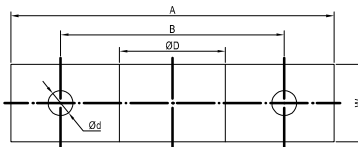
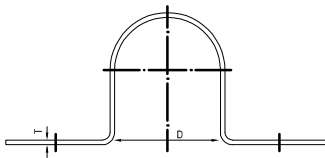


Suspended pipe support

PROPERTIES

- **Material:** Carbon Steel Q 235
- **Zinc plating:** Electro zinc plated 5 - 9 µm
- **Standard:** comply with ASTM B633 SC1
- Available in SC3 on special request.
- Available in Hot Dipped Galvanized approx. 40 µm

TECHNICAL DATA



S.No.	Art. No.	D (mm)	A (mm)	B (mm)	t x w (mm)	Bolt size (mm)	Sales unit (pcs.)
1.	541787	21	81	54	2 x 25	8	100
2.	541788	27	87	60	2 x 25	8	100
3.	541789	33	93	66	2 x 25	8	100
4.	516708	42	102	75	2 x 25	8	100
5.	516709	48	108	81	2 x 25	8	100
6.	541790	59	119	92	2 x 25	8	100
7.	541791	65	125	98	2 x 25	8	100
8.	535020	72	132	105	2 x 25	8	50
9.	516711	76	172	136	2 x 25	10	50
10.	541792	80	176	140	2 x 25	10	50
11.	541793	84	180	144	2 x 25	10	30
12.	541795	86	182	146	2 x 25	10	30
13.	541796	89	185	149	2 x 25	10	-
14.	541797	92	188	152	2 x 25	10	-
15.	535022	98	194	158	2 x 25	10	30
16.	541798	102	198	162	3 x 25	10	30
17.	541799	106	202	166	3 x 25	10	30
18.	541800	110	206	170	3 x 25	10	30
19.	541801	114	210	174	3 x 25	10	30
20.	541802	118	214	178	3 x 25	10	30
21.	541803	122	218	182	3 x 25	10	-
22.	532394	126	222	186	3 x 25	10	30
23.	541804	134	230	194	3 x 25	10	20
24.	541806	138	234	198	3 x 25	10	-
25.	541807	141	237	201	3 x 25	10	20
26.	532395	148	244	208	3 x 25	10	20
27.	541808	152	248	212	3 x 25	10	-
28.	541809	156	252	216	3 x 25	10	20
29.	541810	160	256	220	3 x 25	10	-
30.	541811	164	260	224	3 x 25	10	10
31.	532397	168	264	228	3 x 25	10	10
32.	535027	172	268	232	3 x 25	10	10
33.	541812	177	273	237	3 x 25	10	-
34.	532398	179	275	239	3 x 25	10	10
35.	541813	183	279	243	3 x 38	10	10
36.	541814	188	284	248	3 x 38	10	-
37.	541815	191	287	251	3 x 38	10	10
38.	541816	198	294	258	3 x 38	10	-
39.	541817	202	298	262	3 x 38	10	10
40.	532400	205	301	265	3 x 38	10	10
41.	541818	210	306	270	3 x 38	10	5
42.	541819	214	310	274	3 x 38	10	-
43.	541820	218	314	278	3 x 38	10	5
44.	535032	223	319	283	3 x 38	10	5
45.	541821	232	328	292	3 x 38	10	5
46.	541822	238	334	298	3 x 38	10	-
47.	532403	241	337	301	3 x 38	10	5
48.	541823	244	356	314	3 x 38	12	5
49.	541824	251	363	321	3 x 38	12	5
50.	535034	257	369	327	3 x 38	12	5

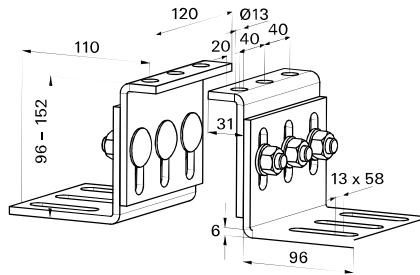
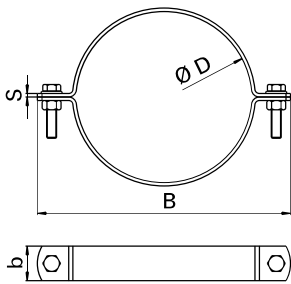
S.No.	Art. No.	D (mm)	A (mm)	B (mm)	t x w (mm)	Bolt size (mm)	Sales unit (pcs.)
51.	541825	264	376	334	3 x 38	12	5
52.	541826	268	380	338	3 x 38	12	5
53.	541827	272	384	342	3 x 38	12	5
54.	535123	283	395	353	3 x 38	12	5
55.	535125	291	403	361	3 x 38	12	5
56.	532406	295	407	365	3 x 38	12	3
57.	541828	298	410	368	3 x 38	12	-
58.	541829	311	423	381	3 x 38	12	3
59.	541830	318	430	388	3 x 38	12	3
60.	532816	323	435	393	3 x 38	12	3
61.	535128	337	449	407	4 x 50	12	3
62.	541831	349	461	419	4 x 50	12	3
63.	541832	355	467	425	4 x 50	12	3
64.	541833	361	473	431	4 x 50	12	3
65.	535131	369	481	439	4 x 50	12	3
66.	541834	373	485	443	4 x 50	12	3
67.	541835	387	499	457	4 x 50	12	3
68.	535133	393	505	463	4 x 50	12	3
69.	541836	399	511	469	4 x 50	12	3
70.	541837	403	515	473	4 x 50	12	-
71.	541838	405	517	475	4 x 50	12	3
72.	541839	419	531	489	4 x 50	12	3
73.	541840	423	535	493	4 x 50	12	-
74.	541841	431	543	501	4 x 50	12	3
75.	541842	444	556	514	4 x 50	12	3
76.	541843	453	565	523	4 x 50	12	-
77.	532821	456	568	526	4 x 50	12	3
78.	541844	470	582	540	4 x 50	12	3
79.	541845	473	585	543	4 x 50	12	-
80.	541846	483	595	553	4 x 50	12	3
81.	541847	495	607	565	4 x 50	12	3
82.	541848	506	618	576	4 x 50	12	3
83.	541849	521	633	591	4 x 50	12	3
84.	532824	533	645	603	4 x 50	12	3
85.	541850	536	648	606	4 x 50	12	-
86.	535142	546	658	616	4 x 50	12	2
87.	541851	566	678	636	4 x 50	12	2
88.	535143	572	684	642	4 x 50	12	2
89.	541852	584	696	654	4 x 50	12	2
90.	541853	587	699	657	4 x 50	12	-
91.	541854	608	720	678	4 x 50	12	2
92.	535144	638	750	708	4 x 50	12	2
93.	541855	647	759	717	4 x 50	12	2
94.	532828	658	770	728	4 x 50	12	2
95.	541856	673	785	743	4 x 50	12	2
96.	541857	685	797	755	4 x 50	12	2
97.	541858	709	821	779	4 x 50	12	2
98.	541859	739	851	809	4 x 50	12	2
99.	541860	759	871	829	4 x 50	12	2



PROPERTIES

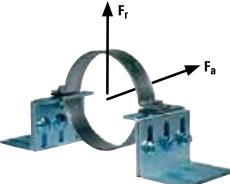
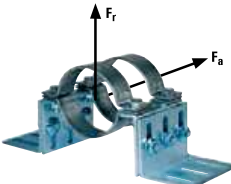
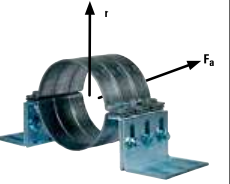
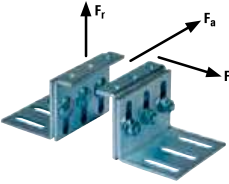
- **FFPS:** S185-Z-150 NA-AK (Material no. 1.0035) acc. to DIN EN 10035
- **FFPK:** S234 JR (Material No. 1.0037) acc. to DIN EN 10025
- **Zinc plating:** Electro zinc plated, min 5µm Available on HDG on special request.
- **Fixpoint clamp:** Prevent unwanted movement of the pipe
- **Fixpoint clamp:** Ensure expansion in the desired direction.
- **Loads applicable:** For steel pipes

TECHNICAL DATA



Item	Art.-NO.	Clamping range	Reqd. torque with Gr 8.8 M 12 bolt (Nim.)	Size (inch)	Width B (mm)	Locking screw	b x s (mm)	Sales unit (pcs.)
		D (mm)						
FFPS								
FFPS 2"	48510	56-61	80	2"	137	M 12	40 x 4	1
FFPS 2 1/2"	48511	75-80	80	2 1/2"	156	M 12	40 x 4	1
FFPS 3"	48512	88-93	80	3"	170	M 12	40 x 4	1
FFPS 4"	48513	108-115	80	4"	191	M 12	40 x 4	1
FFPS 5"	48660	133-140	80	5"	217	M 12	40 x 4	1
FFPS 159 - 166	48662	159-166	80	159 - 166	243	M 12	40 x 4	1
FFPS 6"	48663	167-172	80	6"	250	M 12	40 x 4	1
FFPS 8"	48664	219-225	80	8"	303	M 12	40 x 4	1
FFPS 10"	48665	267-274	80	10"	351	M 12	40 x 4	1
FFPK	48666	-	-	-	-	-	-	1

LOADS

Type				
Load for Zinc Plated Clamp	Fixpoint 1 clamp Max. recom. load axial $F_a = 5500$ N radial $F_r = 4660$ N	Fixpoint 2 clamps Max. recom. load axial $F_a = 11000$ N radial $F_r = 9320$ N	Fixpoint 3 clamps Max. recom. load axial $F_a = 16500$ N radial $F_r = 13980$ N	FFPK Saddle max. recom. loads radial $F_r = 42000$ N lateral $F_l = 17500$ N
Load for HDG Clamp	Fixpoint 1 clamp Max. recom. load axial $F_a = 4125$ N radial $F_r = 4660$ N	Fixpoint 2 clamps Max. recom. load axial $F_a = 8250$ N radial $F_r = 9320$ N	Fixpoint 3 clamps Max. recom. load axial $F_a = 12375$ N radial $F_r = 13980$ N	FFPK Saddle max. recom. loads radial $F_r = 42000$ N lateral $F_l = 17500$ N



GL



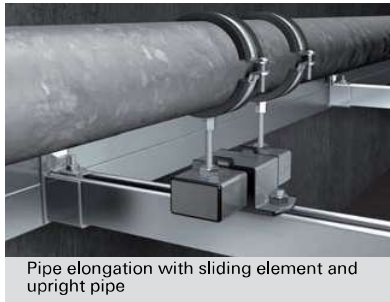
FSC1



SBS



Sliding element on console



Pipe elongation with sliding element and upright pipe

PROPERTIES - GL

- **Material:** Steel S235 JR (material no. 1.0037) acc. to DIN EN10025
- **Zinc plating:** Electro zinc plated, min. 8 µm
- **Material sliding strips:** Nylon 6.6
- **Adhesion friction factor:** 0,27 - 0,3
- **Sliding friction facto:** 0.13 - 0.17
- **Thermal load capacity:** up tp + 130 °C

PROPERTIES - FSC1

- **Material:** Steel DD 11 (material no. 1.0332) acc. to DIN EN 10111.
- **Zinc plating:** Electro zinc plated, min. 5 µm
- **Temperature range:** -30 °C to +120 °C

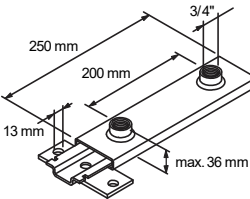
PROPERTIES - SBS

- **Material:** Steel DD 11 (material no. 1.0332) acc. to DIN EN 10111 / PA
- **Zinc plating:** Electro zinc plated, min. 5 µm
- **Adhesion friction factor:** 0.25 - 0.30
- **Sliding friction facto:** 0.16 - 0.18
- **Temperature range:** -40 °C to +100 °C

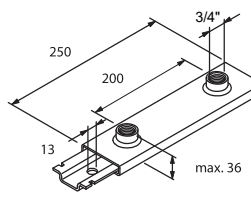
APPROVALS - SBS



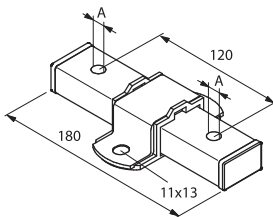
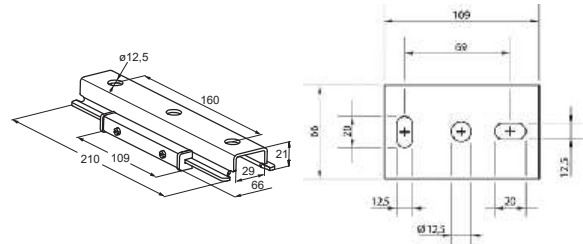
TECHNICAL DATA



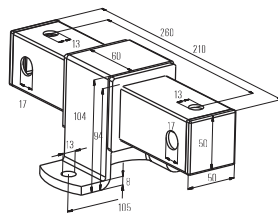
GLL 3/4"



GL 3/4"



SBS



SBS 12/16

Item	Art.-NO.	Sales unit	
		(pcs)	
GLL 3/4"	064038	5	
GL 3/4"	064041	5	
FSC 1	507866	12	

Item	Art.-NO.	Thread		Sales unit	
		A		(pcs)	
SBS M 8	079685	M 8		8	
SBS M 10	079686	M 10		8	
SBS 12 / 16	047726	M 12 / 16		1	

Item	Art.-NO.	Recommended suspended		Design suspended		Recommended vertical		Design vertical	
		N _{rec}	N _d	N _{rec}	N _d	N _{rec}	N _d	N _{rec}	N _d
GLL 3/4"	064038	3,50	4,90	4,00	5,56	4,00	5,56	4,00	5,56
GL 3/4"	064041	3,50	4,90	4,00	5,56	4,00	5,56	4,00	5,56
FSC 1	507866	1,30	1,82	1,00	1,40	1,00	1,40	1,00	1,40
SBS M 8	079685	1,50	2,10	1,50	2,10	1,50	2,10	1,50	2,10
SBS M 10	079686	1,50	2,10	1,50	2,10	1,50	2,10	1,50	2,10
SBS 12 / 16	047726	7,80	10,92	7,80	10,92	7,80	10,92	7,80	10,92



SB



PDH



Channel with sliding element



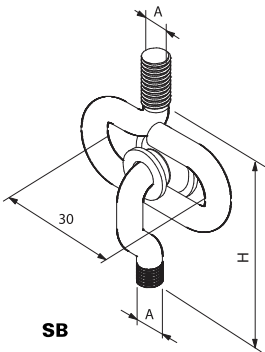
Double pendulum hanger

PROPERTIES

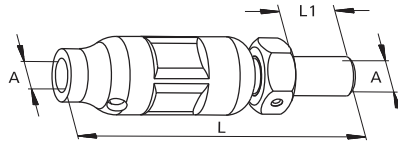
- **Material:** Steel DD11 (material no. 1.0332) acc. to DIN EN 10111
- **Zinc plating:** Electro zinc plated, min. 3 µm
Electro zinc plated, min. 5 µm

8

TECHNICAL DATA



SB



PDH

Item	Art.-NO.	Thread A1	Height H (mm)	Sales unit (pcs)
SB M 8	079680	M 8	75	25
SB M 10	079681	M 10	90	25

Item	Art.-NO.	Thread A1	Lenght L (mm)	Lenght L1 (mm)	Sales unit (pcs)
PDH K M 8	068267	M 8	50	18	50
PDH K M 10	068269	M 10	54	18	50
PDH M 8	079676	M 8	76	18	50
PDH M 10	079677	M 10	80	18	50
PDH M 12	064037	M 12	90	20	25

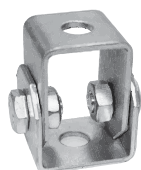
Item	Art.-NO.	Recommended load	
		N _{rec} (kN)	N _d (kN)
SB M 8	079680	0.40	0.56
SB M 10	079681	0.65	0.91
PDH K M 8	068267	2.40	3.36
PDH K M 10	068269	3.00	4.20
PDH M 8	079676	2.40	3.36
PDH M 10	079677	3.00	4.20
PDH M 12	064037	3.50	4.90



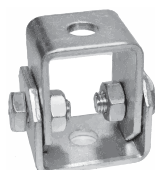
Height adjustable pipe installation

PROPERTIES

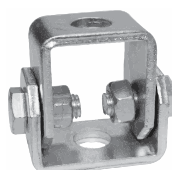
- **Material:** Steel DD11 (material no. 1.0332) acc. to DIN EN 10111
- **Zinc plating:** Electro zinc plated, min. 5 µm
- **Zinc plating:** Hot-dip galvanized, approx. 45 µm



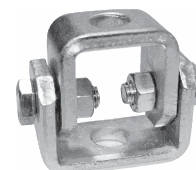
SWIVEL Type 10-3



SWIVEL Type 12-4

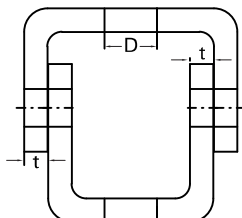


SWIVEL Type 16-5



SWIVEL Type 16-8

TECHNICAL DATA



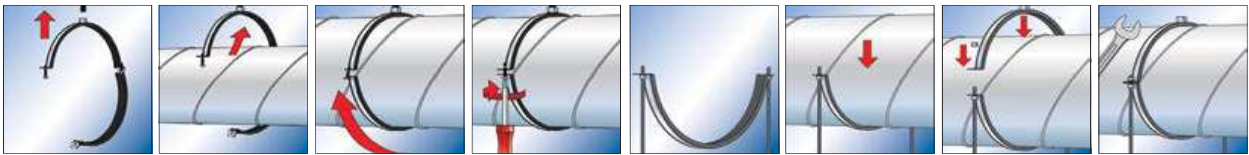
Item	Finish	Art.No.	Thickness mm	D mm	Width mm	Recommendation				Pack size
						Tensile Load N	Max. Inclination	Rotation	Torque Nm	
SWIVEL Type 10-3	G.I	548734	3	13	35	2750	60°	90°	40	50
SWIVEL Type 12-4	G.I	548735	4	13	35	4300	60°	90°	40	50
SWIVEL Type 16-5	G.I	548736	5	18	35	5800	60°	90°	40	25
SWIVEL Type 16-8	G.I	548737	8	18	40	10000	60°	90°	40	25
SWIVEL Type 10-3	HDG	548738	3	13	35	2750	60°	90°	40	50
SWIVEL Type 12-4	HDG	548739	4	13	35	4300	60°	90°	40	50
SWIVEL Type 16-5	HDG	548740	5	18	35	5800	60°	90°	40	25
SWIVEL Type 16-8	HDG	548741	8	18	40	10000	60°	90°	40	25



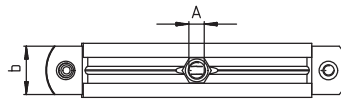
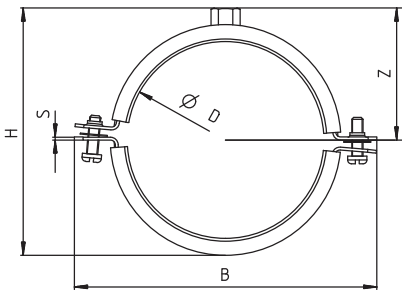
PROPERTIES

- **Material:** Steel DX5 1D+Z 275 MA-C (material no. 1.0226+Z) acc. to DIN EN 10327
- **Zinc plating:** sendzimir-galvanised, app. 15 µm
- **Connecting nut:** resistance welded domed nut, M8 / M 10, SW 13
- **Locking screw:** Oval head screw with combination recessed head.
- **Material sound insulation insert:** SBR/EPDM; chlorine-free; silicone-free
- **Sound insulation:** For DIN 4109
- **Temperature range:** 50 °C to +100 °C
- **Hardness:** 45 ± 5 °C Shor A
- **Fire behaviour:** DIN 4102: Class B2

INSTALLATION



TECHNICAL DATA



Item	Art.-NO.	Thread A	Clamping range D (mm)	Height H H (mm)	Width B B (mm)	b x s (mm)	Height Z Z (mm)	Locking Screw	Recommended load N _{rec} (kN)	Design load N _d (kN)	Sales unit (pcs)
LGS 80	079491	M 8/M 10	80	110	134	25 x 1.25	62	M 6	0.6	0.84	25
LGS 90	079492	M 8/M 10	90	120	144	25 x 1.25	67	M 6	0.6	0.84	25
LGS 100	079493	M 8/M 10	100	131	155	25 x 1.25	72	M 6	0.6	0.84	20
LGS 112	079494	M 8/M 10	112	143	167	25 x 1.25	78	M 6	0.6	0.84	20
LGS 125	079495	M 8/M 10	125	156	180	25 x 1.25	85	M 6	0.6	0.84	10
LGS 140	079496	M 8/M 10	140	171	195	25 x 1.25	92	M 6	0.6	0.84	10
LGS 150	079497	M 8/M 10	150	181	205	25 x 1.25	97	M 6	0.6	0.84	10
LGS 160	079498	M 8/M 10	160	191	215	25 x 1.25	102	M 6	0.6	0.84	10
LGS 180	079499	M 8/M 10	180	211	235	25 x 1.25	112	M 6	0.6	0.84	10
LGS 200	079500	M 8/M 10	200	231	255	25 x 1.25	122	M 6	0.6	0.84	15
LGS 224	079501	M 8/M 10	224	255	279	25 x 1.5	134	M 6	0.6	0.84	15
LGS 250	079502	M 8/M 10	250	281	305	25 x 1.5	147	M 6	0.6	0.84	10
LGS 280	079503	M 8/M 10	280	311	335	25 x 1.5	162	M 6	0.6	0.84	10
LGS 300	079504	M 8/M 10	300	331	356	25 x 1.5	172	M 6	0.6	0.84	10
LGS 315	079505	M 8/M 10	315	347	371	25 x 1.5	180	M 6	0.6	0.84	10
LGS 355	079506	M 8/M 10	355	387	411	25 x 1.5	200	M 6	0.6	0.84	10
LGS 400	079507	M 8/M 10	400	431	356	25 x 1.5	222	M 6	0.6	0.84	10
LGS 450	024637 ⁽¹⁾	M 8/M 10	450	485	524	25 x 2.5	247	M 10	0.8	1.12	1
LGS 500	024638 ⁽¹⁾	M 8/M 10	500	535	574	25 x 2.5	272	M 10	0.8	1.12	1
LGS 560	024639 ⁽¹⁾	M 8/M 10	560	595	634	25 x 2.5	302	M 10	0.8	1.12	1
LGS 600	024640 ⁽¹⁾	M 8/M 10	600	635	674	25 x 2.5	322	M 10	0.8	1.12	1
LGS 630	024641 ⁽¹⁾	M 8/M 10	630	665	705	25 x 3.0	338	M 10	0.8	1.12	1
LGS 710	024642 ⁽¹⁾	M 8/M 10	710	745	785	25 x 3.0	378	M 10	0.8	1.12	1
LGS 800	024643 ⁽¹⁾	M 8/M 10	800	835	875	25 x 3.0	423	M 10	0.8	1.12	1
LGS 900	024644 ⁽¹⁾	M 8/M 10	900	935	975	25 x 3.0	473	M 10	0.8	1.12	1
LGS 1000	024645 ⁽¹⁾	M 8/M 10	1000	1035	1075	25 x 3.0	523	M 10	0.8	1.12	1
LGS 1120	024646 ⁽¹⁾	M 8/M 10	1120	1155	1195	25 x 3.0	583	M 10	0.8	1.12	1
LGS 1250	024647 ⁽¹⁾	M 8/M 10	1250	1285	1326	25 x 3.0	648	M 10	0.8	1.12	1

(1) The installation with two threaded rods allows to double the given recommended loads.

GWB



LPV LPK



PROPERTIES

- **Material:** Polypropylene (GWB)
Steel DX5 1D+Z (material no. 1.0226)
acc. to DIN EN 10327
- **Zinc plating:** Electro zinc plated, min. 7 µm
Protective coating LBK: PE

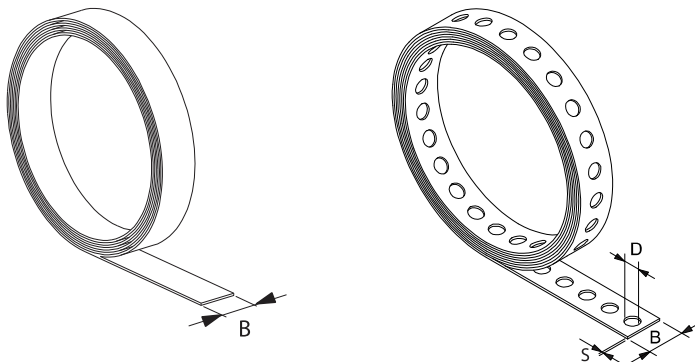
ADVANTAGES

- The perforated tapes' material thicknesses and plastic covering allows the tapes to be easily cut to size using metal shears.
- The perforated tapes' hole geometry enables concrete fixing using the impact nail
- Pipe fastening using textile tape allows for cheap and simple installation
- The textile tape roll allows the correct tape length to be chosen to suit the diameter in question
- Hangings with textile tape are a fast solution for temporary fixings

INSTALLATION



TECHNICAL DATA



Item	Art.-NO.	Total length l (mm)	Width B B (mm)	Thickness S (mm)	Sales unit (pcs)
GWB	020959	10,000	15	1,1	10

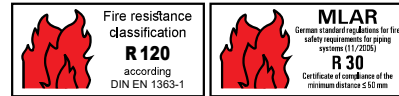
Item	Art.-NO.	Total length l (mm)	Width B B (mm)	Thickness S (mm)	Eye Ø D (mm)	Sales unit (pcs)
LBV 12	079549	10,000	12	0,75	6,0	10
LBV 17	079550	10,000	17	0,75	6,5	10
LBV 25	079551	10,000	25	0,88	8,5	8
LBK 14	079553	10,000	14	2,60	5,0	10
LBK 19	079554	10,000	19	2,40	6,5	8
LBK 27	079555	10,000	27	2,40	8,5	5



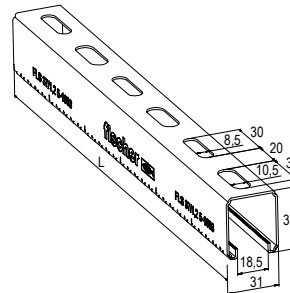
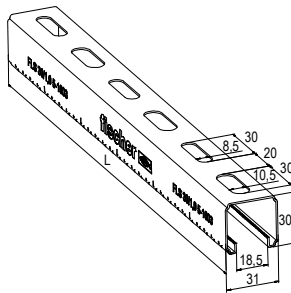
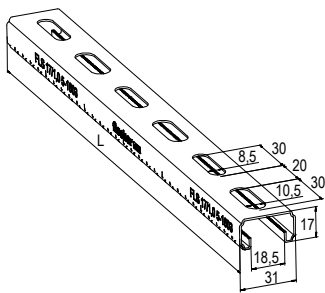
PROPERTIES

- **Material:** Steel S-250-GD (material no.: 1.0242) acc. to DIN EN 10346
- **Zinc plating:** Sendzimir-galvanised, app. 20 µm

APPROVALS



TECHNICAL DATA



Item	Art.-NO.	Fire test report	Thickness S (mm)	Length l (mm)	Sales Unit (pcs.)
FLS 17/1.0 - 2 m	538753	-	1.0	2000	10
FLS 17/1.0 - 3 m	538754	-	1.0	3000	8
FLS 30/1.0 - 2 m	538755	-	1.0	2000	10
FLS 30/1.0 - 3 m	538756	-	1.0	3000	8
FLS 37/1.2 - 2 m	538757	X	1.2	2000	10
FLS 37/1.2 - 3 m	538758	X	1.2	3000	8
FLS 37/1.2 - 6 m	538759	X	1.2	6000	1

LOADS

Item	Art.-NO.	Weight (kg/m)	Profile cross section (cm ²)	Moment of inertia I _y (cm ⁴)	Moment of inertia I _z (cm ⁴)	Section modulus W _y (cm ³)	Section modulus W _z (cm ³)	Max. design static load for 1m length F _{design} (kN)
FLS 17/1.0 - 2 m	538753	0.58	0.72	0.25	0.91	0.26	0.59	0.13
FLS 17/1.0 - 3 m	538754	0.58	0.72	0.25	0.91	0.26	0.59	0.13
FLS 30/1.0 - 2 m	538755	0.78	0.98	1.02	1.46	0.64	0.94	0.48
FLS 30/1.0 - 3 m	538756	0.78	0.98	1.02	1.46	0.64	0.94	0.48
FLS 37/1.2 - 2 m	538757	1.06	1.33	2.03	2.01	1.04	1.29	0.97
FLS 37/1.2 - 3 m	538758	1.06	1.33	2.03	2.01	1.04	1.29	0.97
FLS 37/1.2 - 6 m	538759	1.06	1.33	2.03	2.01	1.04	1.29	0.97

(1) Maximum permissible deflection under load = L/200
 (2) Load safety factor 1.4 is included
 (3) For more load information, refer Design Curves section under Annexure - C.



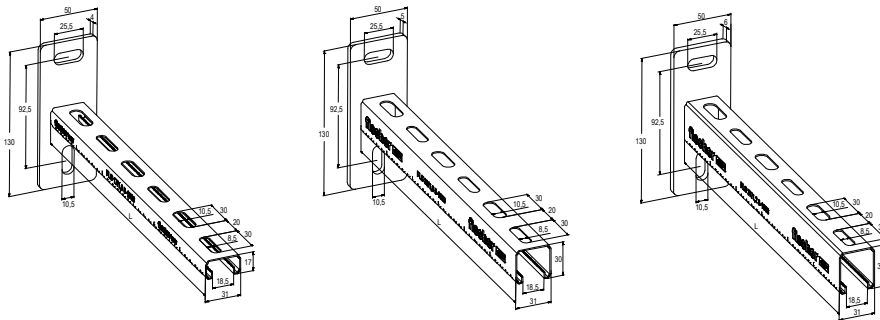
PROPERTIES

- **Material Base plate:** Steel E295 (material no.: 1.0050) acc. to DIN EN 10025-2
- **Material Channel:** Steel S2 15 G (material no.: 10116 G) acc. to DIN 1623
- **Zinc plating:** Electro zinc-plated, min. 13 µm

APPROVALS

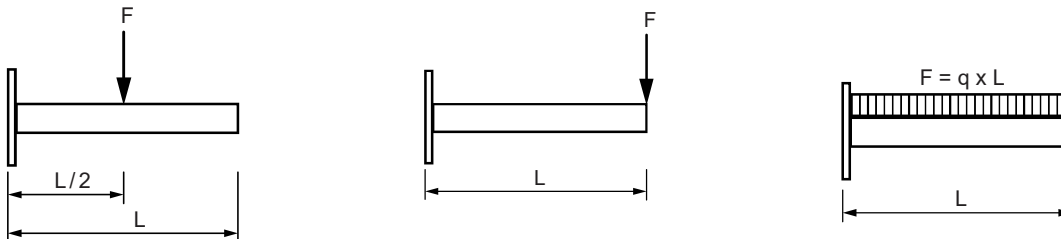


TECHNICAL DATA



Item	Art.-NO.	Profile	Length l (mm)	Sales Unit (pcs.)
ALK 17-200	538738	17/1.0	200	10
ALK 17-300	538739	17/1.0	300	10
ALK 30-200	538740	30/1.0	200	10
ALK 30-300	538741	30/1.0	300	10
ALK 30-450	538742	30/1.0	450	10
ALK 37-300	538743	37/1.2	300	10
ALK 37-450	538744	37/1.2	450	10
ALK 37-600	538745	37/1.2	600	5

LOADS



Item	Art.-NO.	Max. recommended static load	Max. recommended static load	Max. recommended static load
		Load case 1	Load case 2	Load case 3
		F_{rec} (kN)	F_{rec} (kN)	F_{rec} (kN)
ALK 17-200	538738	0.49	0.24	0.49
ALK 17-300	538739	0.33	0.12	0.31
ALK 30-200	538740	1.18	0.59	1.18
ALK 30-300	538741	0.79	0.39	0.79
ALK 30-450	538742	0.53	0.27	0.53
ALK 37-300	538743	1.27	0.64	1.27
ALK 37-450	538744	0.86	0.41	0.86
ALK 37-600	538745	0.63	0.24	0.63



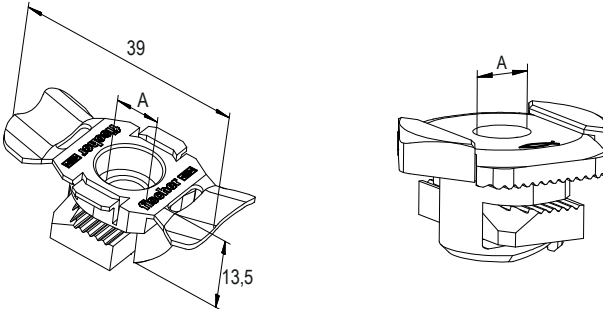
PROPERTIES

- **Material channel nut:** Steel S420MC (material no.: 1.0980) acc. DIN EN 10149-2
- **Material plastic cage:** Polypropylene PP, item number 11400, Color black
- **Zinc plating:** Electro zinc-plated, min. 5 µm acc. DIN EN ISO 4042

APPROVALS

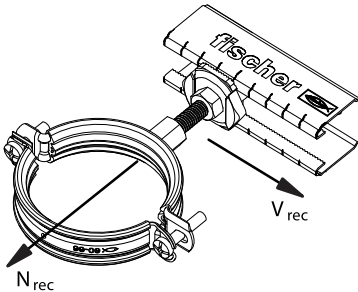


TECHNICAL DATA

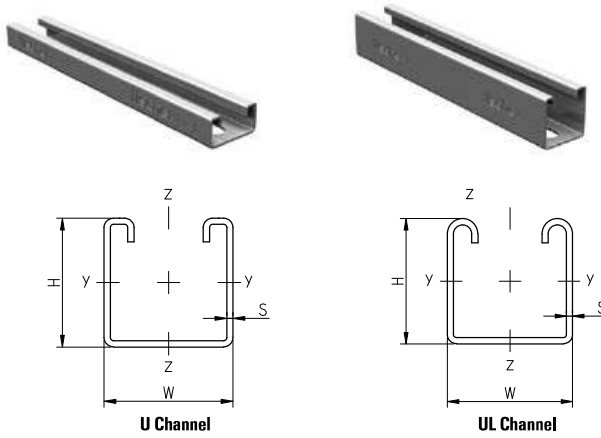


Item	Art.-NO.	Thread	Sales unit (pcs.)
FSM Clix P 6	538643	M 6	50
FSM Clix P 8	538647	M 8	50
FSM Clix P 10	538649	M 10	50
FSM Clix M 6	538650	M 6	50
FSM Clix M 8	538651	M 8	50
FSM Clix M 10	538652	M 10	50

LOADS



Item	Art.-NO.	Max. recommended tensile load for FLS 17/1.0 and FLS 30/1.0 N_{rec} (kN)	Max. recommended tensile load for FLS 37/1.2 R_{rec} (kN)	Max. recommended shear load V_{rec} (kN)	Tightening torque T_{rec} (Nm)
FSM Clix P 6	538643	1.5	2.0	1.0	10
FSM Clix P 8	538647	1.5	2.0	1.0	10
FSM Clix P 10	538649	1.5	2.0	1.0	10
FSM Clix M 6	538650	1.5	2.0	1.0	8
FSM Clix M 8	538651	1.5	2.0	1.0	8
FSM Clix M 10	538652	1.5	2.0	1.0	8

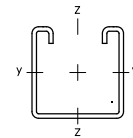


PROPERTIES

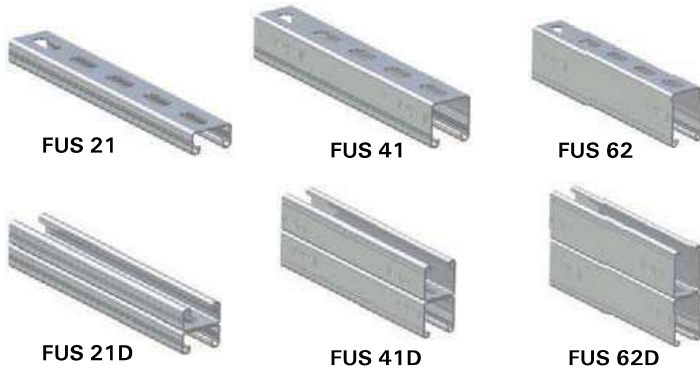
- **Material U Channel:** Steel S250 GD-C (material no. 1.0242+Z) acc. to DIN EN 1.0346
- **Material UL Channel:** ASTM A653 - CS type A, min. yeild = 275 MPa
- **Zinc plating U Channel:** Sendzimir zinc plated, approx. 20 µm
- **Zinc plating UL Channel:** Z180 min. 12 µm
- **HDG:** Hot-dip galvanized, approx. 45 µm acc. to DIN EN ISO 1461

Item	Art-No.	Min order qty (pcs.)	Thickness S (mm)	Size W x H (mm)	Length l (M)	Coating
U Channel 21/1.5 - 3M	545479	1	1.5	41 x 21	3	Pre-Galvanized
U Channel 21/2.0 - 3M	545483	1	2.0	41 x 21	3	Pre-Galvanized
U Channel 21/2.5 - 3M	545487	1	2.5	41 x 21	3	Pre-Galvanized
U Channel 21/1.5 - 6M	545480	1	1.5	41 x 21	6	Pre-Galvanized
U Channel 21/2.0 - 6M	545484	1	2.0	41 x 21	6	Pre-Galvanized
U Channel 21/2.5 - 6M	545488	1	2.5	41 x 21	6	Pre-Galvanized
U Channel 41/1.5 - 3M	545481	1	1.5	41 x 41	3	Pre-Galvanized
U Channel 41/2.0 - 3M	545485	1	2.0	41 x 41	3	Pre-Galvanized
U Channel 41/2.5 - 3M	545489	1	2.5	41 x 41	3	Pre-Galvanized
U Channel 41/1.5 - 6M	545482	1	1.5	41 x 41	6	Pre-Galvanized
U Channel 41/2.0 - 6M	545486	1	2.0	41 x 41	6	Pre-Galvanized
U Channel 41/2.5 - 6M	545490	1	2.5	41 x 41	6	Pre-Galvanized
U Channel 62/2.5 - 6M	545491	1	2.5	41 x 62	6	Pre-Galvanized
U Channel 21/2.0 - 3M HDG	545499	1	2.0	41 x 21	3	Hot Dipped Galvanized
U Channel 21/2.0 - 6M HDG	545500	1	2.0	41 x 21	6	Hot Dipped Galvanized
U Channel 41/2.0 - 3M HDG	545501	1	2.0	41 x 41	3	Hot Dipped Galvanized
U Channel 41/2.0 - 6M HDG	545502	1	2.0	41 x 41	6	Hot Dipped Galvanized
U Channel 41/2.5 - 3M HDG	545503	1	2.5	41 x 41	3	Hot Dipped Galvanized
U Channel 41/2.5 - 6M HDG	545504	1	2.5	41 x 41	6	Hot Dipped Galvanized
U Channel 62/2.5 - 6M HDG	545505	1	2.5	41 x 62	6	Hot Dipped Galvanized
U Channel 21/1.5 - 3M HDG	545514	1	1.5	41 x 21	3	Hot Dipped Galvanized
U Channel 41/1.5 - 3M HDG	545515	1	1.5	41 x 41	3	Hot Dipped Galvanized
UL Channel 41 x 21 x 1.5 - GI	545820	1	1.5	41 x 21	3	Pre-Galvanized
UL Channel 41 x 21 x 2 - GI	545811	1	2.0	41 x 21	3	Pre-Galvanized
UL Channel 41 x 41 x 1.5 - GI	545822	1	1.5	41 x 41	3	Pre-Galvanized
UL Channel 41 x 41 x 2 - GI	545815	1	2.0	41 x 41	3	Pre-Galvanized
UL Channel 41 x 21 x 1.5 - HDG	545823	1	1.5	41 x 21	3	Hot Dipped Galvanized
UL Channel 41 x 21 x 2 - HDG	545817	1	2.0	41 x 21	3	Hot Dipped Galvanized
UL Channel 41 x 41 x 1.5 - HDG	545824	1	1.5	41 x 41	3	Hot Dipped Galvanized
UL Channel 41 x 41 x 2 - HDG	545819	1	2.0	41 x 41	3	Hot Dipped Galvanized

LOADS



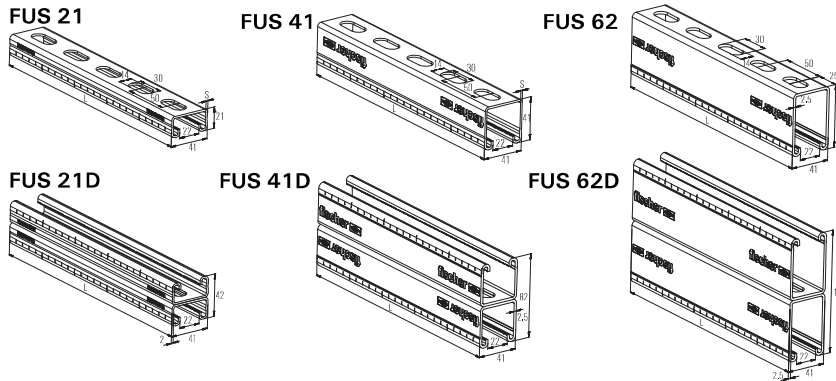
Profile	Profile weight kg/m	Profile cross section mm ²	Moment of inertia		Section modulus	
			I _y mm ⁴	I _z mm ⁴	W _y mm ³	W _z mm ³
U 41X21X1.5	1.15	126	7800	37000	720	1800
U 41X21X2.0	1.45	168	9700	46600	890	2270
U 41X21X2.5	1.78	199	10300	52800	930	2580
U 41X41X1.5	1.65	186	44600	62000	2120	3000
U 41X41X2.0	2.09	248	53300	76900	2580	3750
U 41X41X2.5	2.61	300	60000	89900	2850	4380
U 41X62X2.5	3.33	405	177000	129000	5620	6290
UL 41X21X1.5	0.98	126	7465	33547	626	1636
UL 41X21X2	1.31	168	9503	42901	779	2092
UL 41X41X1.5	1.45	186	39923	56963	1791	2778
UL 41X41X2	1.93	248	52135	73344	2296	3577
UL HDG 41X21X1.5	0.98	126	7465	33547	626	1636
UL HDG 41X21X2	1.31	168	9503	42901	779	2092
UL HDG 41X41X1.5	1.45	186	39923	56963	1791	2778
UL HDG 41X41X2	1.93	248	52135	73344	2296	3577



PROPERTIES

- **Material:** Steel S250 GD-C (material no. +1.0242Z) acc. to DIN EN 1.0346
- **Zinc plating:** Sendzimir zinc plated, approx. 20 µm
- **Material HDG:** Steel S235 JR (material no. 1.0037) acc. to EN 10025
- **HDG:** Coating thickness, minimum 45 µm; Average coating 55 µm acc. to DIN EN ISO 1461
- **Material SS A2:** Steel 304, NO.1.4301 acc DIN EN 0088-1
- **Material SS A4:** Steel 316, NO.1.4401 acc DIN EN 10088-1

TECHNICAL DATA



APPROVALS



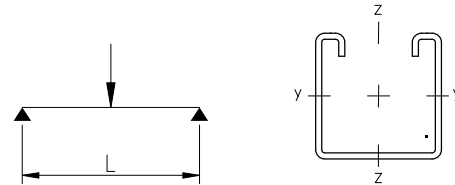
8

Installation Systems

Item	G.I. Art.-NO.	HDG Art.-NO.	SS-A2 Art.-NO.	SS-A4 Art.-NO.	Qty. per box (pcs.)	Length		Thickness S (mm)
						L (m)	S (mm)	
FUS 21/1.5 - 2 m	545117	-	-	-	1	2	1.5	
FUS 21/1.5 - 3 m	545118	545128	-	-	1	3	1.5	
FUS 21/1.5 - 6 m	545119	-	-	-	1	6	1.5	
FUS 21/2.0 - 2 m	40391	-	504466	504472	1	2	2.0	
FUS 21/2.0 - 3 m	97660	537653	-	-	1	3	2.0	
FUS 21/2.0 - 6 m	97661	-	542735	542738	1	6	2.0	
FUS 21/2.5 - 2 m	92867	-	-	-	1	2	2.5	
FUS 21/2.5 - 3 m	77349	-	-	-	1	3	2.5	
FUS 21/2.5 - 6 m	77541	-	-	-	1	6	2.5	
FUS 21D/2.0 - 3 m	504458	537659	-	-	1	3	2.0	
FUS 21D/2.0 - 6 m	535531	537661	-	-	1	6	2.0	
FUS 41/1.5 - 2 m	545120	-	-	-	1	2	1.5	
FUS 41/1.5 - 3 m	545126	545129	-	-	1	3	1.5	

Item	G.I. Art.-NO.	HDG Art.-NO.	SS-A2 Art.-NO.	SS-A4 Art.-NO.	Qty. per box (pcs.)	Length		Thickness S (mm)
						L (m)	S (mm)	
FUS 41/1.5 - 6 m	545127	-	-	-	1	6	1.5	
FUS 41/2.0 - 2 m	40390	-	504468	504474	1	2	2.0	
FUS 41/2.0 - 3 m	97658	517426	-	-	1	3	2.0	
FUS 41/2.0 - 6 m	97659	537656	542736	540498	1	6	2.0	
FUS 41/2.5 - 2 m	92295	-	504470	504475	1	2	2.5	
FUS 41/2.5 - 3 m	77347	-	-	-	1	3	2.5	
FUS 41/2.5 - 6 m	77537	537658	540495	540499	1	6	2.5	
FUS 41D/2.0 - 6 m	540493	-	-	-	1	6	2.0	
FUS 41D/2.5 - 6 m	504459	537662	-	-	1	6	2.5	
FUS 62/2.5 - 3 m	-	517427	-	-	1	3	2.5	
FUS 62/2.5 - 6 m	504457	517428	-	-	1	6	2.5	
FUS 62D/2.5 - 6 m	504460	537663	-	-	1	6	2.5	

LOADS



Item	Weight W (kg/m)	Area A (mm²)	Moment of inertia I _y (mm⁴)	Moment of inertia I _z (mm⁴)	Section modulus W _y (mm³)	Section modulus W _z (mm³)	Max. design static load				
							Length = .5 M				
							F _{design} (N)	F _{design} (N)	F _{design} (N)	F _{design} (N)	F _{design} (N)
FUS 21/1.5	1.20	135	8000	36900	758	1800	1289	384	171	96	43
FUS 21/2.0	1.44	172	9700	46600	890	2270	1529	466	207	116	52
FUS 21/2.5	1.67	199	10300	52800	930	2580	1598	494	220	124	55
FUS 41/1.5	1.80	195	42600	60300	2070	2940	3557	1779	909	511	227
FUS 41/2	2.06	252	53300	76900	2580	3750	4433	2217	1137	640	284
FUS 41/2.5	2.45	300	60000	89900	2850	4380	4897	2449	1280	720	320
FUS 62/2.5	3.27	405	177000	129000	5620	6290	9657	4829	3219	2124	944
FUS 21D/2	2.87	344	54900	93100	2610	4540	4485	2243	1171	659	293
FUS 41D/2.5	4.89	600	350100	179000	8760	8780	15053	7527	5018	3763	1867
FUS 62D/2.5	6.55	809	1110000	258000	17900	12580	30759	15380	10253	7690	5127

(1) Maximum permissible deflection under load = L/200

(2) Load safety factor 1.4 is included



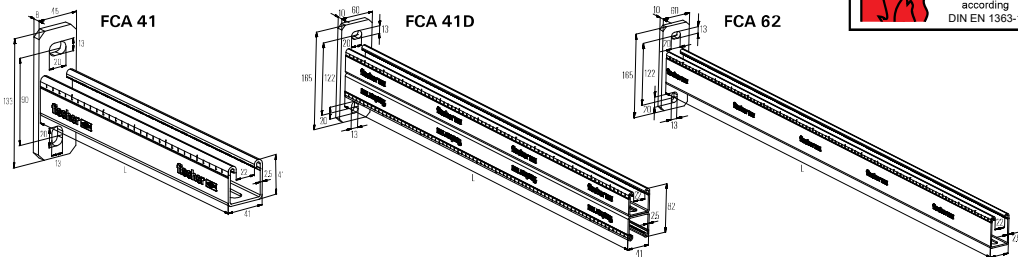
PROPERTIES

- **Material:** Base plate: Steel (material no. 1.0330), DCO1 acc. DIN EN 10139, Channel: Steel S235 JR acc. DIN EN 10025, material no. 10037
- **Zinc plating:** Electro zinc plated, min. 13 µm
- **Material HDG:** Steel S235 JR (material no. 1.0045) acc. to EN 10027-2
- **HDG:** Coating thickness, minimum 45 µm; mean coating 55 µm acc. to DIN EN ISO 1461
- **Material SS A4:** NO 1.4401 acc DIN EN 10088-1

APPROVALS



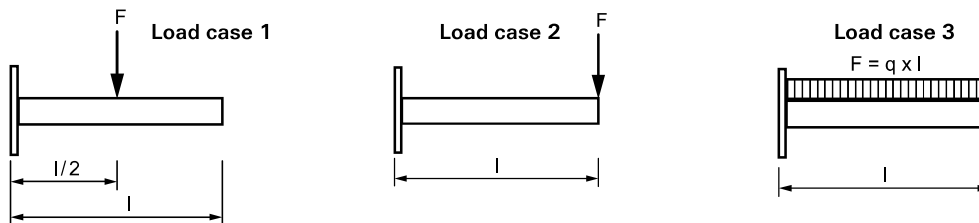
TECHNICAL DATA



Item	Art.-NO.	Qty. per box (pcs.)	Profile	Length l mm
FCA 21 - 200	537207	1	21/2	200
FCA 21 - 300	537208	1	21/2	300
FCA 21 - 450	537209	1	21/2	450
FCA 41 - 300	077359	1	41/2,5	300
FCA 41 - 450	077361	1	41/2,5	450
FCA 41 - 600	077363	1	41/2,5	600
FCA 41 - 750	077365	1	41/2,5	750
FCA 62 - 1000	504315	1	62/2,5	1000
FCA 21D - 300	536978	1	21D/2	300
FCA 21D - 450	536979	1	21D/2	450
FCA 21D - 600	536980	1	21D/2	600
FCA 21D - 750	504317	1	41D/2,5	750
FCA 41D - 1000	504319	1	41D/2,5	1000

Item	Art.-NO.	Qty. per box (pcs.)	Profile	Length l mm
FCA 41 - 300 hdg	517411	1	41/2,5	300
FCA 41 - 450 hdg	517412	1	41/2,5	450
FCA 41 - 600 hdg	517413	1	41/2,5	600
FCA 41 - 750 hdg	517414	1	41/2,5	750
FCA 62 - 1000 hdg	517415	1	62/2,5	1000
FCA 41D - 750 hdg	517416	1	41D/2,5	750
FCA 41D - 1000 hdg	517417	1	41D/2,5	1000
FCA 41 A4 - 300	505487	1	41/2	300
FCA 41 A4 - 450	505488	1	41/2	450
FCA 41 A4 - 600	505489	1	41/2	600

LOADS



Item	Max. recommended static load load case 1 F_{rec} [kN]	Max. recommended static load load case 2 F_{rec} [kN]	Max. recommended static load load case 3 F_{rec} [kN]
FCA 21 - 200	1.43	0.72	1.43
FCA 21 - 300	0.95	0.45	0.95
FCA 21 - 450	0.65	0.21	0.65
FCA 41 - 300	1.80	0.90	1.80
FCA 41 - 450	1.20	0.60	1.20
FCA 41 - 600	0.90	0.45	0.90
FCA 41 - 750	0.72	0.36	0.72

Item	Max. recommended static load load case 1 F_{rec} [kN]	Max. recommended static load load case 2 F_{rec} [kN]	Max. recommended static load load case 3 F_{rec} [kN]
FCA 62 - 1000	1.25	0.62	1.25
FCA 21D - 300	1.83	0.92	1.83
FCA 21D - 450	1.24	0.62	1.24
FCA 21D - 600	0.92	0.46	0.92
FCA 21D - 750	2.50	1.25	2.50
FCA 41D - 1000	1.90	0.93	1.90

(1) Maximum permissible deflection under load = $L/180$
 (2) load safety factor 1.4 is included

Channel connector for easy preparation of double channels



FUS double channel with channel connector

PROPERTIES

- **Material base plate:** JIS G3131-SPHE (similar to DD13 according to DIN EN 10111, material no.: 1.0335)
- **Material screw:** steel grade 8.8
- **Zinc plating:** electro zinc-plated, min. 5 µm

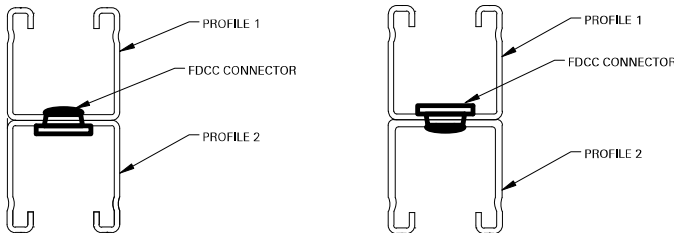
ADVANTAGES / BENEFITS

- Easy connection of single channels back to back to built double channels.
- Simple solution to create individual double channels on job site.
- For dry inside environment.
- Suitable for channels such as FUS with thickness 2.0 and 2.5 mm.

TECHNICAL DATA

Item	Art.-No.	Thread	Drive	Tightening torque	Sales unit
		A		T_{inst} [Nm]	[pcs]
FDCC	546148	M 10	Hexagon socket 5 mm	25	100

TECHNICAL DATA - Connection between two channels



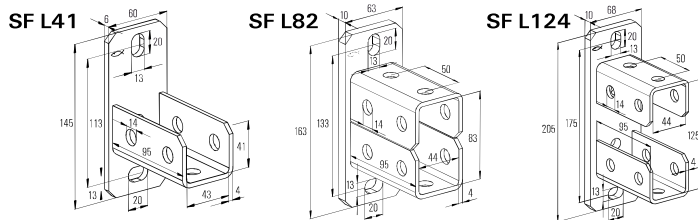
Profile 1 Top	Profile 2 Bottom	Weight kg/m	Area mm ²	Moment of inertia		Section modulus		FDCC spacing mm
				I_y mm ⁴	I_z mm ⁴	W_y mm ³	W_z mm ³	
FUS 21/2	FUS 21/2	2.88	344.00	60262	93200	2870	4546	250
FUS 21/2	FUS 21/2.5	3.11	371.00	64548	99400	2949	4849	250
FUS 21/2	FUS 41/2	3.50	424.00	164807	123500	4973	6024	250
FUS 21/2	FUS 41/2.5	3.89	472.00	181307	136500	5739	6659	250
FUS 21/2	FUS 62/2.5	4.71	577.00	403674	175600	9357	8566	200
FUS 21/2.5	FUS 21/2	3.11	371.00	64548	99400	2949	4849	250
FUS 21/2.5	FUS 21/2.5	3.34	398.00	69419	105600	3306	5151	250
FUS 21/2.5	FUS 41/2	3.73	451.00	175578	129700	5112	6327	250
FUS 21/2.5	FUS 41/2.5	4.12	499.00	193792	142700	5916	6961	250
FUS 21/2.5	FUS 62/2.5	4.94	604.00	429112	181800	9636	8868	200
FUS 41/2	FUS 21/2	3.50	424.00	164807	123500	4973	6024	250
FUS 41/2	FUS 21/2.5	3.73	451.00	175578	129700	5112	6327	250
FUS 41/2	FUS 41/2	4.12	504.00	321703	153800	7846	7502	250
FUS 41/2	FUS 41/2.5	4.51	552.00	351584	166800	8174	8137	250
FUS 41/2	FUS 62/2.5	5.33	657.00	652831	205900	12437	10044	200
FUS 41/2.5	FUS 21/2	3.89	472.00	181307	136500	5739	6659	250
FUS 41/2.5	FUS 21/2.5	4.12	499.00	193792	142700	5916	6961	250
FUS 41/2.5	FUS 41/2	4.51	552.00	351584	166800	8174	8137	250
FUS 41/2.5	FUS 41/2.5	4.90	600.00	385928	179800	9413	8771	250
FUS 41/2.5	FUS 62/2.5	5.72	705.00	712869	218900	13484	10678	200
FUS 62/2.5	FUS 21/2	4.71	577.00	403674	175600	9357	8566	200
FUS 62/2.5	FUS 21/2.5	4.94	604.00	429112	181800	9636	8868	200
FUS 62/2.5	FUS 41/2	5.33	657.00	652831	205900	12437	10044	200
FUS 62/2.5	FUS 41/2.5	5.72	705.00	712869	218900	13484	10678	200
FUS 62/2.5	FUS 62/2.5	6.54	810.00	1157450	258000	18669	12585	200



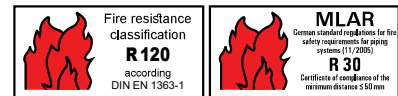
PROPERTIES

- **Material:** Base plate: DC01 (steel 1.0330) acc. DIN EN 10139, Channel: S235JR (material no. 1.0037) acc. to DIN EN 10025
- **Zinc plating:** Electro zinc plated, min. 8 µm
- **Material:** Base plate: Steel DC01 (material no. 1.0330) acc. to DIN EN 10139, U profile: S235 JR (material no. 1.0037) acc. to DIN EN 10025
- **Zinc plating HDG:** Hot-dip galvanized, approx 45 µm acc. to DIN EN ISO 1461
- **Material A4:** Stainless steel of corrosion resistance class III, e.g. A4

TECHNICAL DATA



APPROVALS



Item	Art.-NO.	Qty. per box (pcs.)	For profile FUS
SF L 41	504355	10	21; 41; 21D; 62
SF L 82	504357	5	41D
SF L 124	504358	5	62D
SF L 41 hdg.	517421	10	21; 41; 21D; 62
SF L 82 hdg.	538125	5	41D
SF L 124 hdg.	538126	5	62D
SF L 41 A4	504522	10	FUS 21 + FUS 41

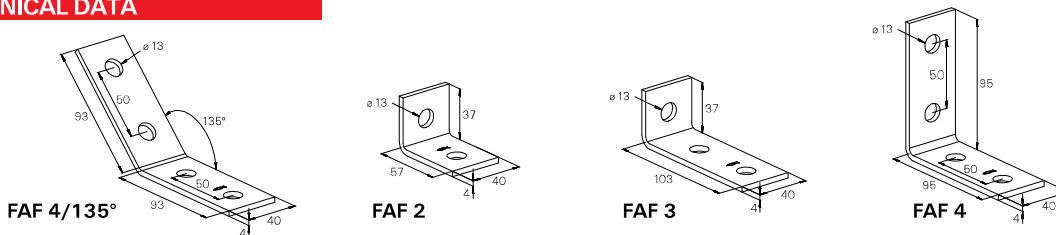
Angle fittings FAF



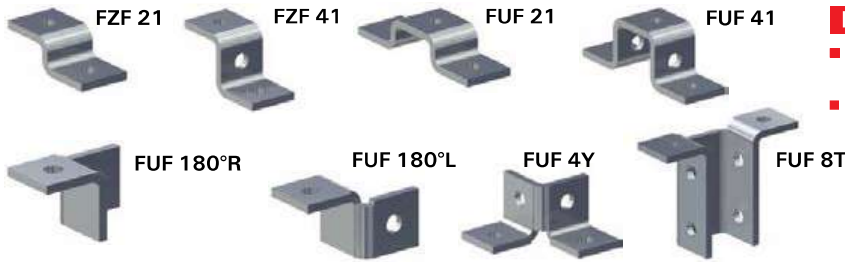
PROPERTIES

- **Material:** Steel DD11 (material no. 1.0332) acc. to DIN EN 10111
- **Zinc plating:** Electro zinc plated, min. 5 µm
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4

TECHNICAL DATA



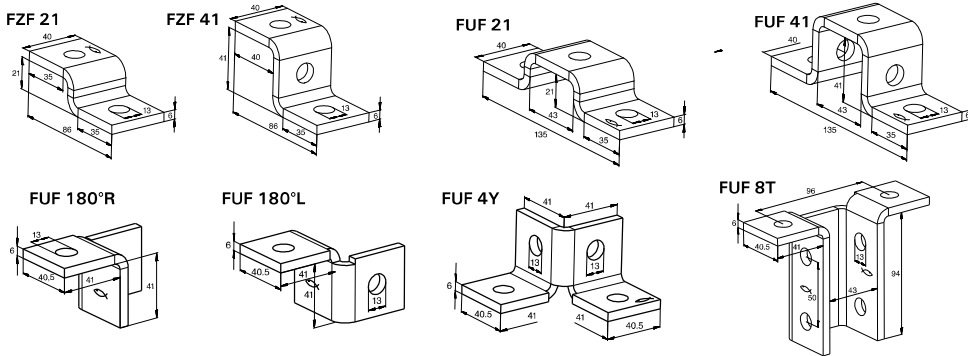
Item	Art.No.	Qty. per box (pcs.)
FAF 2 - angle fittings	547502	25
FAF 3 - angle fittings	547503	25
FAF 4 - angle fittings	547504	25
FAF 4/135° - angle fittings	547505	25
FAF 2 A4	547512	25
FAF 4 A4	547513	25
FAF 4/135° A4	547514	25
FAF 4/135° - angle fittings hdg	547511	25
FAF 2 - angle fittings hdg	547508	25
FAF 3 - angle fittings hdg	547509	25
FAF 4 - angle fittings hdg	547510	25



PROPERTIES

- **Material:** Steel DD11 (material no. 1.0332) acc. to DINEN10111
- **Zinc plating:** Electro zinc plated, min. 5 µm

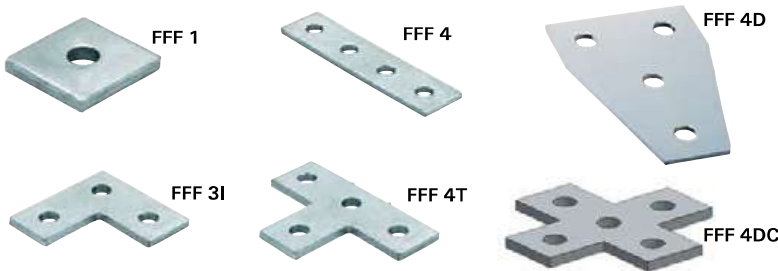
TECHNICAL DATA



Item	Art.No.	Qty. per box (pcs.)
FZF 21	504375	25
FZF 41	504515	25
FUF 21	504376	25
FUF 41	504377	25
FUF 4Y	504378	20
FUF 180°L	504379	20
FUF 180°R	504383	20

Type	Art.No.	Qty. per box (pcs.)
FUF 8T	504387	10
FZF 21 hdg	537588	25
FZF 41 hdg	537589	25
FUF 4Y hdg	537585	20
FUF 180°L hdg	537586	20
FUF 180°R hdg	537587	20
FUF 8T hdg	537590	10

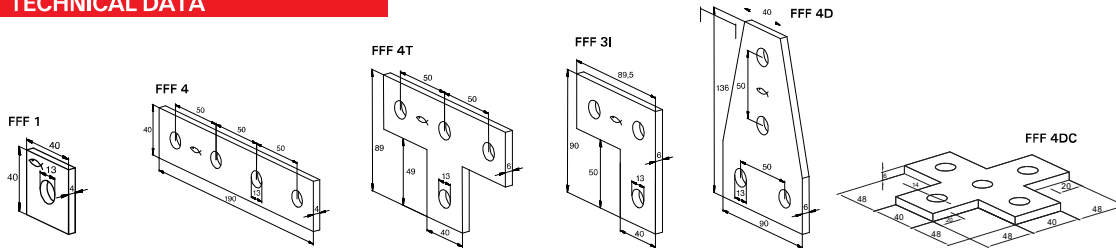
Flat fittings FFF



PROPERTIES

- **Material:** Steel DD11 (material no. 1.0332) acc. to DINEN10111
- **Zinc plating:** Electro zinc plated, min. 5 µm

TECHNICAL DATA



Item	Art.No.	Qty. per box (pcs.)
FFF 1 - Flat fitting	547500	25
FFF 3 L - Flat fitting	504498	25
FFF 4 - Flat fitting	547501	25
FFF 4 T - Flat fitting	504500	25
FFF 4 D - Flat fitting	504368	25

Item	Art.No.	Qty. per box (pcs.)
FFF 1 hdg	547506	25
FFF 3 L hdg	537581	25
FFF 4 hdg	547507	25
FFF 4 T hdg	537583	25
FFF 4 D hdg	537584	25



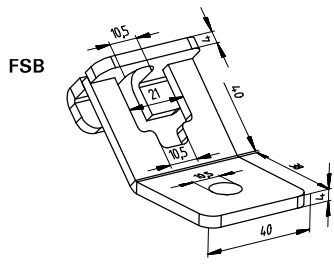
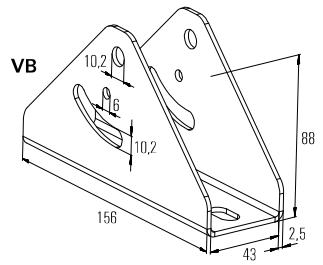
PROPERTIES

- **Material:** Steel DD11 (material no. 1.0332) acc. to DIN EN10111
- **Zinc plating:** Electro zinc plated, min. 5 µm

PROPERTIES

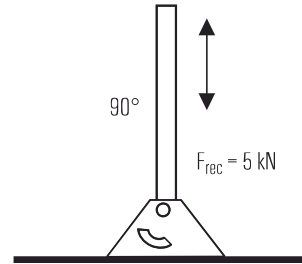
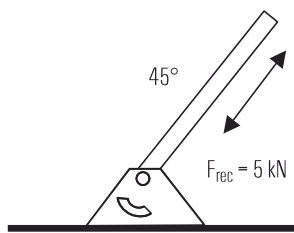
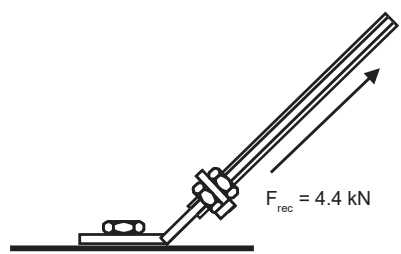
- **Material:** Steel DD11 (material no. 1.0332) acc. to DINEN10111
- **Zinc plating:** Electro zinc plated, min. 5 µm

TECHNICAL DATA

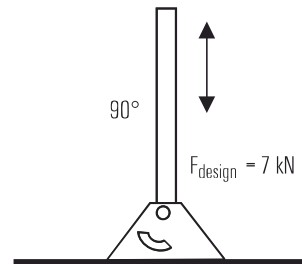
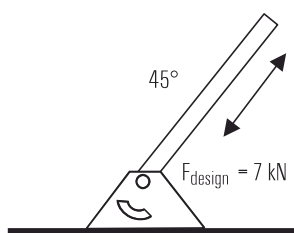
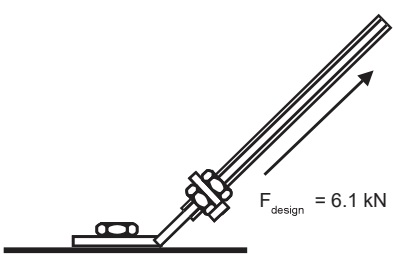


Type	Art.No.	Qty. per box (pcs.)
FSB 45°	71269	20
VB	04850	4
FSB 45° hdg	538120	20
VB hdg	071750	4

LOADS



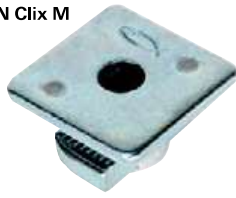
* load safety factor 1,4 is included



FCN Clix P



FCN Clix M



FCN

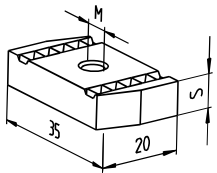


FCN-L

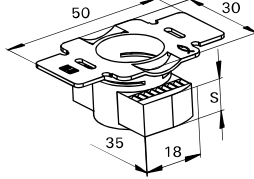


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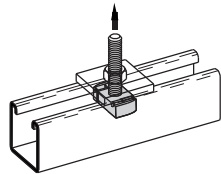
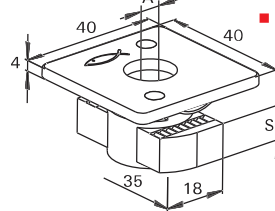
FCN



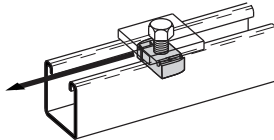
FCN Clix P



FCN Clix M



Spring nut tensile resistance



Spring nut shear resistance

PROPERTIES

- **Material 1:** Steel S235 JR (material no. 1.0037) acc. DIN EN 10025, plastic nylon PA6
- **Zinc plating:** Electro zinc plated, min. 5 µm
- **Material 2 HDG:** Steel S235 JR (material no.1.0037) acc. to DIN EN 10025
- **Zinc plating HDG:** Hot-dip galvanized, approx 40 µm acc. to DIN EN ISO 1461
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4
- **Plastic:** Nylon PA 6
- **Material:** ISO 898-1, DIN 975 & 976 (Steel: 4.8 & 8.8)
- **Finish FCN-L:** Electro galvanized (as per ASTM B633), Electro Galvanized (as per ASTM B633),
- **Material SS316:** DIN EN ISO 3506-1

Item	Art.-NO.	Qty. per box (pcs.)	Thread M	Thickness S (mm)	Max. tension load for FUS 2.0 mm		Max. tension load for FUS 2.5 mm		Max. shear load		Tightening torque for screw grade ≥ 8.8 (Nm)
					Nrec (kN)	Ndesign (kN)	Nrec (kN)	Ndesign (kN)	Vrec (kN)	Vdesign (kN)	
FCN Clix P 6	504326	100	M 6	6.0	3.0	4.2	3.0	4.2	1.0	1.4	10
FCN Clix P 8	504327	100	M 8	6.0	4.0	5.6	4.0	5.6	2.0	2.8	20
FCN Clix P 10	504329	100	M 10	8.0	5.0	7.0	8.0	11.2	2.5	3.5	40
FCN Clix P 12	504331	100	M 12	9.5	5.0	7.0	8.0	11.2	3.0	4.2	50
FCN Clix M 6	504344	100	M 6	6.0	3.0	4.2	3.0	4.2	1.0	1.4	10
FCN Clix M 8	504345	100	M 8	6.0	4.0	5.6	4.0	5.6	2.0	2.8	20
FCN Clix M 10	504346	100	M 10	8.0	5.0	7.0	8.0	11.2	2.5	3.5	40
FCN Clix M 12	504347	100	M 12	9.5	5.0	7.0	8.0	11.2	3.0	4.2	50
FCN Clix P 8 HDG	538106	100	M 8	6.0	4.0	5.6	4.0	5.6	1.0	1.4	20
FCN Clix P 10 HDG	538107	100	M 10	8.0	5.0	7.0	8.0	11.2	1.5	2.1	40
FCN Clix P 12 HDG	517420	100	M 12	9.5	5.0	7.0	8.0	11.2	1.5	2.1	50
FCN Clix M 8 HDG	538108	100	M 8	6.0	4.0	5.6	4.0	5.6	1.0	1.4	20
FCN Clix M 10 HDG	538109	100	M 10	8.0	5.0	7.0	8.0	11.2	1.5	2.1	40
FCN Clix M 12 HDG	538110	100	M 12	9.5	5.0	7.0	8.0	11.2	1.5	2.1	50
FCN Clix P 8 A4	504436	100	M 8	6.0	4.0	5.6	4.0	5.6	2.0	2.8	20
FCN Clix P 10 A4	504437	100	M 10	8.0	5.0	7.0	8.0	11.2	2.5	3.5	40
FCN Clix P 12 A4	504439	100	M 12	9.5	5.0	7.0	8.0	11.2	3.0	4.2	50
FCN Clix M 8 A4	504440	100	M 8	6.0	4.0	5.6	4.0	5.6	2.0	2.8	20
FCN Clix M 10 A4	504447	100	M 10	8.0	5.0	7.0	8.0	11.2	2.5	3.5	40
FCN 6	77405	100	M 6	6.0	3.0	4.2	3.0	4.2	1.0	1.4	10
FCN 8	77407	100	M 8	6.0	4.0	5.6	4.0	5.6	2.0	2.8	20
FCN 10	77409	100	M 10	8.0	5.0	7.0	8.0	11.2	2.5	3.5	40
FCN 12	77411	100	M 12	9.0	5.0	7.0	8.0	11.2	2.5	3.5	50

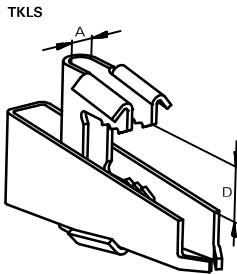
Item	Art.-NO. GI	Art.-NO. HDG	Art.-NO. SS316	Spring length (mm)	Thread D	Max. tension load for FUS 2.0 mm		Max. tension load for FUS 2.5 mm		Max. shear load		Tightening torque for screw grade ≥ 8.8 (Nm)
						Nrec (kN)	Ndesign (kN)	Nrec (kN)	Ndesign (kN)	Vrec (kN)	Vdesign (kN)	
FCN-L6	516750	516765	516774	6.0	M 6	3.0	4.2	3.0	4.2	1.0	1.4	10
FCN-L8	516751	516766	516775	6.0	M 8	4.0	5.6	4.0	5.6	2.0	2.8	20
FCN-L10	516752	516767	516776	8.0	M 10	5.0	7.0	8.0	11.2	2.5	3.5	40
FCN-L12	516753	516768	-	9.0	M 12	5.0	7.0	8.0	11.2	2.5	3.5	50
FCN-L12	-	-	516777	9.2	M 12	5.0	7.0	8.0	11.2	2.5	3.5	50
FCN-L12	-	516769	-	1.02	M 12	5.0	7.0	8.0	11.2	2.5	3.5	50



PROPERTIES

- **Material TKLS:** Steel HX420LAD+ZAD, material no. 1.0935, DIN EN 10346
- **Zinc plating:** Electro zinc plated, min. 7 µm
- **Material SS-TKLS:** Steel DX51D acc. to EN 10214, Material no.1.0226
- **Zinc plating:** Electro zinc plated, min. 5 µm

TECHNICAL DATA



APPROVALS



Item	Art.-NO.	Hole diameter A (mm)	Clamping range D (mm)	Sales unit (pcs.)
TKLS Ø 9	531134	9	8-20	25
TKLS Ø 11	531136	11	8-20	25
TKLS Ø 13	531137	13	8-20	25
TKLS Ø 17	531138	17	11-26	16
SS-TKL M10/M12	048154	-	-	25

LOADS

Item	Art.-NO.	Recommended load N _{rec} (kN)	Design load N _d (kN)	Recommended, pipe-Ø acc. VDS CEA 4001
TKLS Ø 9	531134	2.00	2.80	> DN 50
TKLS Ø 11T	531136	3.50	4.90	> DN 50 ≤ DN 100
KLS Ø 13T	531137	5.00	7.00	> DN 100 ≤ DN 200
KLS Ø 17	531138	10.00	14.00	> DN 200 ≤ DN 250

Channel washer HK 41

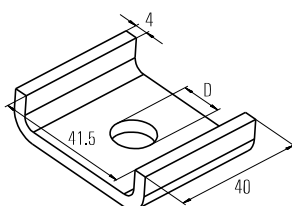


HK 41

PROPERTIES

- **Material:** Steel S235 JR (material no. 1.0037) acc. to DIN EN10025
- **Zinc plating:** Electro zinc plated, min. 8 µm
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4

TECHNICAL DATA



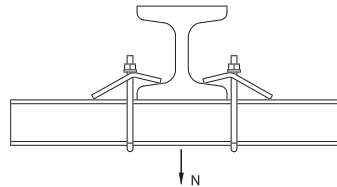
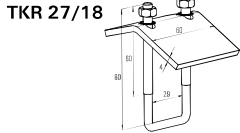
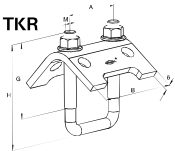
Item	Art.-NO.	Qty. per box (pcs.)	D (mm)
HK 41 8.5	547492	50	8.5
HK 41 10.5	547493	50	10.5
HK 41 12.5	547494	50	12.5
HK 41 12.5 - A4	547497	50	12.5
HK 41 10.5 hdg	547496	50	10.5
HK 41 12.5 hdg	547495	50	12.5



PROPERTIES

- **Material:** Plate / U-bolt pipe hanger: Steel S235 JR (material no. 1.0037) acc. DINEN10025 Hexagon nut: Steel acc. ISO 898-2 resistance min. 4
- **Zinc plating:** Electro zinc plated, min. 5 µm
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4

TECHNICAL DATA



Item	Art.-NO.	Qty. per box (pcs.)	For profile	Width B (mm)	Height H (mm)	Height g (mm)	Thread M (mm)	Width A (mm)	Max. load(tension)	
									Nrecom (kN)	Ndesign (kN)
TKR 21 - 41	504363	20	MS 38/40 - FUS 21/41/21D	79	97	48	8	52	5.0	7.0
TKR 82	504366	20	MS 40/60 - FUS 62/41D	79	137	80	10	54	10.0	14.0
TKR 124	504367	10	MS 40/120 - FUS 62D	79	179	80	10	54	10.0	14.0
TKR 21 - 41 A4	504476	20	FUS 21 - FUS 41	-	-	-	-	-	5.0	7.0
TKR 21 - 41 HDG	538122	20	MS 38/40 - FUS 21/41/21D	79	97	48	8	52	5.0	7.0
TKR 82 HDG	538123	20	MS 40/60 - FUS 62/41D	79	137	80	10	54	10.0	14.0
TKR 124 HDG	538124	10	MS 40/120 - FUS 62D	79	179	80	10	54	10.0	14.0

Clamp hanger TKL



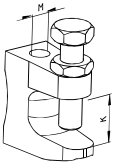
PROPERTIES

- **Material TKL:** TKL: Malleable cast iron EN-GJMB-350-10 acc. to DIN 1562 Bolt: Steel 8.8 acc. ISO 4017 Nut: Steel acc. ISO 4035, resistance min. 4
- **Material SS-TKL:** Steel DX51D acc. to EN 10214, material no. 1.0226
- **Zinc plating:** Electro zinc plated, min. 5 µm

APPROVALS

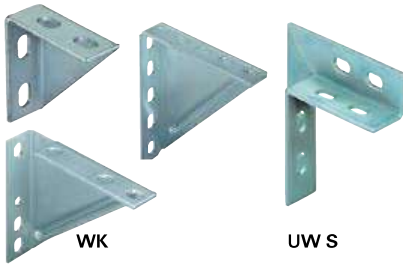


TECHNICAL DATA



Item	Art.-NO.	Qty. per box (pcs.)	Clamping range K (mm)	EYE Ø D	Stamp on item	Max. load(tension)	
						Nrecom (kN)	Ndesign (kN)
TKL L M8	064055	50	0-18	M 8	TK M 8	1.2	1.6
TKL M8	079687	50	0-23	M 8	TK 10	2.5	3.5
TKL Ø 9	077605	50	0-18	9	TK N 8	1.2	1.6
TKL M10	079688	50	0-20	M 10	TK N 10	2.5	3.5
TKL Ø 11	079689	50	0-20	11	TK N 10	2.5	3.5
TKL M12	020949	50	0-26	M 12	TK 12	3.5	4.9
TKL Ø 13	043275	50	0-26	13	TK 12	3.5	4.9
SS-TKL M10/M12	048154	25	-	10/12	SS-TKR	-	-

* SS-TKL M 10/M 12 only require in case design according to VdS approval



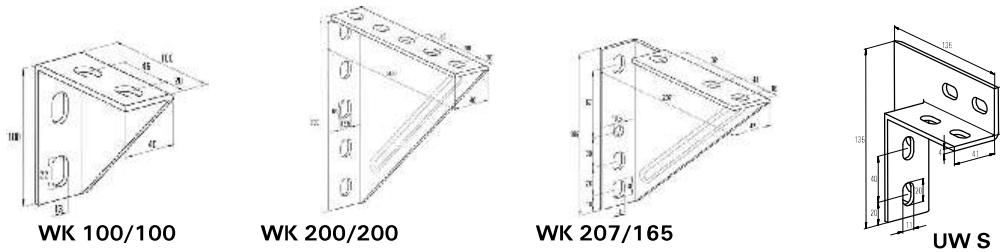
PROPERTIES - WK

- Material: Steel DD11 (material no. 1.0332) acc. to DIN EN10111
- Zinc plating: Electro zinc plated, min. 5 µm

PROPERTIES - UW S

- Material: Steel DD11 (material no. 1.0332) acc. to DIN EN10111
- Zinc plating: Electro zinc plated, min. 5 µm

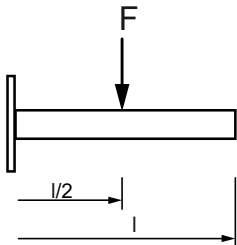
TECHNICAL DATA



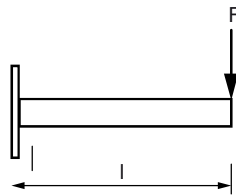
Item	Art.-NO.	Qty. per box (pcs.)
WK 100/100	063559	5
WK 200/200	079570	5
WK 207/165	079571	6
UW S	49479	4
UW S HDG	538115	10

LOADS

LOAD CASE 1



LOAD CASE 2

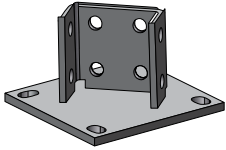


Item	Art.-NO.	Max. static load case1		Max. static load case2	
		F _{recom.} (kN)	F _{design} (kN)	F _{recom.} (kN)	F _{design} (kN)
WK 100/100	063559	-	-	4,0	5,6
WK 200/200	079570	4,0	5,6	1,8	2,5
WK 207/165	079571	-	-	1,8	2,5

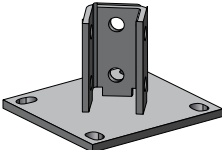
LOADS - UW S

support on both sides		F _{rec}	F _{rec}		support on both sides		F _{design}	F _{design}	
Connector	Channel	Double (kN)	Single (kN)	Torque (Nm)	Connector	Channel	Double (kN)	Single (kN)	Torque (Nm)
FCN P M 10	41/21-2	5	2,5	40	FCN P M 10	41/21-2	7	3,5	40
	41/21-2.5	5	2,5	40		41/21-2.5	7	3,5	40
	41/41-2	5	2,5	40		41/41-2	7	3,5	40
	41/41-2.5	5	2,5	40		41/41-2.5	7	3,5	40
	41/62-2.5	5	2,5	40		41/62-2.5	7	3,5	40

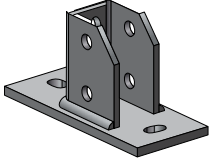
* load safety factor 1.4 is included



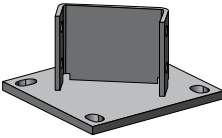
FBP 41D



FBP 41H



FBP 41N

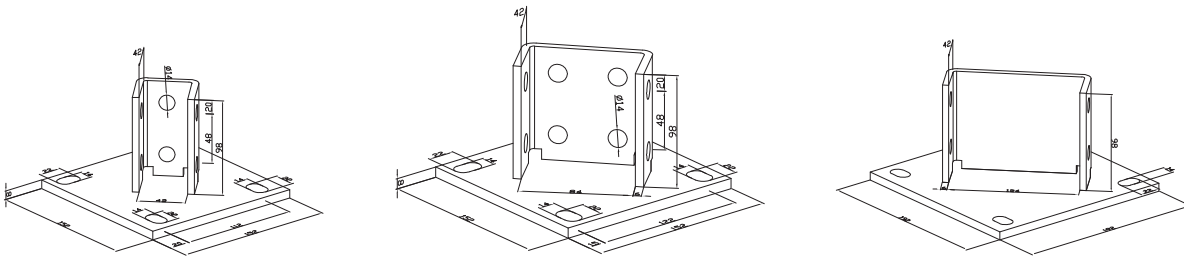


FBP 62D

PROPERTIES

- **Material:** Q235 high-quality carbon steel, profile thickness 8mm
- **Surface treatment:** Galvanized, min zinc layer is 5 µm thick
Hot dip galvanized, min zinc layer is 45 µm thick
Epoxy coated, min coating is 60 µm thick

TECHNICAL DATA



Item	Art.-NO.			Qty. per box (pcs.)
	HDG	Gal.	Epoxy	
FBP 41H	550450	550454	550458	4
FBP 41D	550451	550455	550459	4
FBP 41N	550467	550469	550602	6
FBP 62D	550453	550457	550461	4

Cover cap FEC



FEC 21 B



FEC 41 B



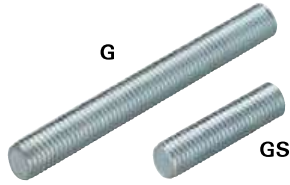
FEC 62 B

PROPERTIES

- **Material:** Polyethylene, black

TECHNICAL DATA

Item	Art.-NO.	Qty. per box	Fits to
		(pcs.)	
FEC 21 B	077357	100	FUS 21, FUS 21 D
FEC 41 B	077355	100	FUS 41, FUS 41 D
FEC 62 B	505551	100	FUS 62, FUS 62 D
FEC 21	545930	200	FUS 21, FUS 21 D
FEC 41	545929	200	FUS 41, FUS 41 D



PROPERTIES THREADED ROD G

- Material (G 6 – G 24): DIN 976 Steel 4.8 acc. to DIN EN ISO 898-1
- Material (G 1/2" – G 3/4"): Steel S235 JR (material no. 1.0037) acc. to DIN EN 10025
- Zinc plating: Electro zinc plated, 5 - 8 µm

PROPERTIES THREADED STUD GS

- Material: DIN 976 Steel 4.6 acc. to DIN EN ISO 898-1
- Zinc plating: Electro zinc plated, 3 - 8 µm

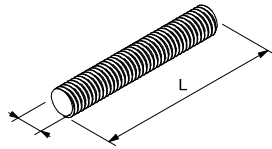
PROPERTIES THREADED STUD GS A4

- Material A4: Stainless steel of the corrosion resistance class III, e.g. A4

PROPERTIES THREADED ROD G A2/A4

- Material A2: Stainless steel of the corrosion resistance class II, e.g. A2
- Material A4: Stainless steel of the corrosion resistance class III, e.g. A4

TECHNICAL DATA



Item	Art.-NO.	Qty. per box (pcs.)	Length L (mm)	Thread M
Threaded rod G				
G 6	020956	50	1000	M 6
G 8	079740	25	1000	M 8
G 10	079744	25	1000	M 10
G 12	020957	20	1000	M 12
G 16	020958	10	1000	M 16
G 20	557295	5	1000	M 20
G 24	557270	5	1000	M 24
G 8/2	079741	25	2000	M 8
G 10/2	079745	25	2000	M 10
G 12/2	579746	25	2000	M 12
G 10/3	557092	5	3000	M 10
G 12/3	064056	5	3000	M 12
G 1/2"	064093	10	2000	1/2"
G 3/4"	077580	5	2000	3/4"
Stainless Steel A2				
G 8 A2	77644	5	1000	M 8
G 10 A2	65173	5	1000	M 10
Stainless Steel A4				
G 8 A4	77645	5	1000	M 8
G 10 A4	65174	5	1000	M 10
Threaded stud GS A4				
GS 8/40 A4	505536	100	40	M 8
GS 8/60 A4	505537	100	60	M 8
GS 10/40 A4	505538	100	40	M 10
GS 10/60 A4	505539	100	60	M 10

Type	Art.-NO.	Qty. per box (pcs.)	Length L (mm)	Thread M
Threaded stud GS				
GS 8/25	079750	100	25	M 8
GS 8/40	079751	100	40	M 8
GS 8/50	079752	100	50	M 8
GS 8/60	079753	100	60	M 8
GS 8/70	079754	100	70	M 8
GS 8/80	079755	100	80	M 8
GS 8/100	079757	100	100	M 8
GS 8/150	079758	50	150	M 8
GS 8/200	079759	50	200	M 8
GS 10/25	079765	100	25	M 10
GS 10/40	079766	100	40	M 10
GS 10/60	079767	100	60	M 10
GS 10/80	079768	100	80	M 10
GS 10/100	079769	100	100	M 10
GS 10/120	079770	50	120	M 10
GS 10/150	079771	50	150	M 10
GS 10/200	079772	50	200	M 10
GS 12/40	091442	100	40	M 12
GS 12/60	091443	100	60	M 12
GS 12/80	091444	100	80	M 12
GS 12/100	091461	100	100	M 12
GS 12/120	091462	50	120	M 12
GS 12/150	091463	50	150	M 12
GS 12/200	091464	50	200	M 12
-	-	-	-	-

LOADS

Technical Data - Threaded Rod GS

Item	Weight (kg/m ³)	Stressed area (mm ²)	Moment of inertia (mm ⁴)	Section modulus (mm ³)	Permissible tensile force (kN)
GS 8	0.39	37	201	50	5.3
GS 10	0.61	58	491	98	8.4
GS 12	0.88	84	1018	170	12.1

(1) - Yield strength = 240 Mpa (2) - Material safety factor = 1.2 & Load safety factor 1.4 are included

Technical Data - Threaded Rod G

Item	Weight (kg/m ³)	Stressed area (mm ²)	Moment of inertia (mm ⁴)	Section modulus (mm ³)	Permissible tensile force (kN)
G 6	0.22	20	64	21	3.9
G 8	0.39	37	201	50	7.0
G 10	0.61	58	491	98	11.1
G 12	0.88	84	1018	170	16.2
G 14	1.20	115	1885	269	22.2
G 16	1.57	157	3216	402	30.1
G 18	1.99	192	5152	572	37.0
G 20	2.45	245	7853	785	47.0
G 22	2.97	303	11497	1045	58.3
G 24	3.53	353	16283	1357	67.7

(1) - Yield strength = 320 Mpa (2) - Material safety factor = 1.2 & Load safety factor 1.4 are included



TRS

PROPERTIES

- **Material SS316:** DIN EN ISO 3506-1
- **Material:** ISO 898-1, DIN 975 & 976 (Steel Grades: 8.8 & Steel: 4.8)
- **Finish:** Electro Galvanized 5 µm (as per ASTM B633), Hot Dip Galvanized (as per ASTM A153)
- **Steel Grade 8.8**
Yield strength 640 MPa, Tensile strength 800 MPa
- **Steel Grade 4.8**
Yield strength 320 MPa, Tensile strength 400 MPa
- Material safety factor = 1.2 & Load safety factor 1.4 are included
- Vickers hardness, HV between (250 and 320 ≤ 16 mm) & Between (255 & 335 > 16 mm)

TECHNICAL DATA

Item	Art.-NO.	Art.-NO.	Art.-NO.	Art.-NO.	Art.-NO.	Length	Thread
	GI 4.8	HDG 4.8	SS 316	GI 8.8	HDG 8.8		
TRS 6x1 mtr	516559	-	-	-	-	1000	M 6
TRS 8x1 mtr	516560	-	-	-	-	1000	M 8
TRS 10x1 mtr	516561	-	-	-	-	1000	M 10
TRS 12x1 mtr	516562	-	-	-	-	1000	M 12
TRS 16x1 mtr	516581	-	-	-	-	1000	M 16
TRS 20x1 mtr	516564	-	-	-	-	1000	M 20
TRS 24x1 mtr	516565	-	-	-	-	1000	M 24
TRS 6x2 mtr	545025	543680	543707	543687	543697	2000	M 6
TRS 8x2 mtr	545026	543681	543708	543688	543698	2000	M 8
TRS 10x2 mtr	545027	543682	543709	543689	543699	2000	M 10
TRS 12x2 mtr	545028	543683	543710	543690	543700	2000	M 12
TRS 16x2 mtr	545029	543684	543711	543691	543701	2000	M 16
TRS 20x2 mtr	545031	543685	543712	543692	543702	2000	M 20
TRS 24x2 mtr	545032	543686	543713	543693	543703	2000	M 24
TRS 27x2 mtr	-	-	543714	543694	543704	2000	M 27
TRS 30x2 mtr	-	-	543715	543695	543705	2000	M 30
TRS 33x2 mtr	-	-	543716	543696	543706	2000	M 33
TRS 6x3 mtr	545033	545042	-	-	-	3000	M 6
TRS 8x3 mtr	545034	545043	-	-	-	3000	M 8
TRS 10x3 mtr	545035	545044	-	-	-	3000	M 10
TRS 12x3 mtr	545036	545045	-	-	-	3000	M 12
TRS 16x3 mtr	545037	545046	-	-	-	3000	M 16
TRS 20x3 mtr	545038	545047	-	-	-	3000	M 20
TRS 24x3 mtr	545041	545048	-	-	-	3000	M 24

CHARACTERISTICS

Item	Pitch mm	Stressed Diameter mm	Weight kg/m ¹	Stressed Area mm ²	Moment of Inertia mm ⁴	Section Modulus mm ³	Grade 4.8		Grade 8.8	
							Permissible Tensile Force (KN)	Permissible Shear Force (KN)	Permissible Tensile Force (KN)	Permissible Shear Force (KN)
TRS 6	1.00	5.00	0.22	20	31	10	3.8	2.3	7.7	4.6
TRS 8	1.25	6.75	0.39	37	102	25	7.4	4.4	14.1	8.4
TRS 10	1.50	8.50	0.61	58	256	51	11.6	7.0	22.3	13.4
TRS 12	1.75	10.25	0.88	84	542	90	16.8	10.0	32.4	19.4
TRS 14	2.00	12.00	1.20	115	1018	145	23.0	13.8	44.3	26.6
TRS 16	2.00	14.00	1.57	157	1885	236	31.4	18.8	60.2	36.1
TRS 18	2.50	15.50	1.99	192	2833	315	38.4	23.0	73.9	44.3
TRS 20	2.50	17.50	2.45	245	4603	460	49.0	29.4	94.0	56.4
TRS 22	2.50	19.50	2.97	303	7096	645	60.6	36.4	116.5	69.9
TRS 24	3.00	21.00	3.55	353	9547	795	70.6	42.4	135.4	81.2
TRS 27	3.00	24.00	4.49	459	16286	1206	91.8	55.1	172.0	103.0
TRS 30	3.50	26.50	5.55	561	24208	1613	112.2	67.3	214.0	127.0
TRS 33	3.50	29.50	6.71	694	37176	2253	138.8	83.3	259.0	154.0
TRS 36	4.00	32.00	7.99	817	51472	2859	163.4	98.0	309.0	183.0



TRSL

PROPERTIES

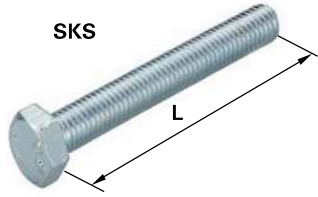
- **Material SS316:** DIN EN ISO 3506-1
- **Material:** ISO 898-1, DIN 975 & 976 (Steel Grades: 8.8 & Steel: 4.8)
- **Finish:** Electro Galvanized 5 µm (as per ASTM B633), Hot Dip Galvanized (as per ASTM A153)
- **Steel Grade 8.8**
Yield strength 640 MPa, Tensile strength 800 MPa
- **Steel Grade 4.8**
Yield strength 320 MPa, Tensile strength 400 MPa
- Material safety factor = 1.2 & Load safety factor 1.4 are included
- Vickers hardness, HV between (250 and 320 ≤ 16 mm) & Between (255 & 335 > 16 mm)

TECHNICAL DATA

Item	Art.-NO.			Length	Thread
	GI 4.8	HDG 4.8	SS 316		
TRSL 6x2 mtr	545025	516576	516584	2000	M 6
TRSL 8x2 mtr	545026	516578	516585	2000	M 8
TRSL 10x2 mtr	545027	516579	516586	2000	M 10
TRSL 12x2 mtr	545028	516580	516587	2000	M 12
TRSL 16x2 mtr	545029	516582	516647	2000	M 16
TRSL 20x2 mtr	545031	-	-	2000	M 20
TRSL 24x2 mtr	545032	-	-	2000	M 24
TRSL 27x2 mtr	-	-	-	2000	M 27
TRSL 30x2 mtr	-	-	-	2000	M 30
TRSL 33x2 mtr	-	-	-	2000	M 33
TRSL 36x2 mtr	-	-	-	2000	M 36
TRSL 6x3 mtr	545033	-	-	3000	M 6
TRSL 8x3 mtr	545034	516583	516589	3000	M 8
TRSL 10x3 mtr	545035	516557	516590	3000	M 10
TRSL 12x3 mtr	545036	516558	516591	3000	M 12
TRSL 16x3 mtr	545037	-	-	3000	M 16
TRSL 20x3 mtr	545038	-	-	3000	M 20
TRSL 24x3 mtr	545041	-	-	3000	M 24

CHARACTERISTICS

Item	Pitch mm	Stressed Diameter mm	Weight kg/m ¹	Stressed Area mm ²	Moment of Inertia mm ⁴	Section Modulus mm ³	Grade 4.8	
							Permissible Tensile Force (KN)	Permissible Shear Force (KN)
TRSL 6	1.00	5.00	0.22	20	31	10	3.8	2.3
TRSL 8	1.25	6.75	0.39	37	102	25	7.4	4.4
TRSL 10	1.50	8.50	0.61	58	256	51	11.6	7.0
TRSL 12	1.75	10.25	0.88	84	542	90	16.8	10.0
TRSL 14	2.00	12.00	1.20	115	1018	145	23.0	13.8
TRSL 16	2.00	14.00	1.57	157	1885	236	31.4	18.8
TRSL 18	2.50	15.50	1.99	192	2833	315	38.4	23.0
TRSL 20	2.50	17.50	2.45	245	4603	460	49.0	29.4
TRSL 22	2.50	19.50	2.97	303	7096	645	60.6	36.4
TRSL 24	3.00	21.00	3.55	353	9547	795	70.6	42.4
TRSL 27	3.00	24.00	4.49	459	16286	1206	91.8	55.1
TRSL 30	3.50	26.50	5.55	561	24208	1613	112.2	67.3
TRSL 33	3.50	29.50	6.71	694	37176	2253	138.8	83.3
TRSL 36	4.00	32.00	7.99	817	51472	2859	163.4	98.0



PROPERTIES

- **Zinc plating:** Electro zinc plated, 3 – 8 µm acc. DIN-EN-ISO 4017, steel 8.8
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4

TECHNICAL DATA

Item	Art.-NO.	Qty. per box (pcs.)	Length L (mm)	Thread D	Width across nut SW
SKS 6 x 20	079711	100	20	M 6	10
SKS 8 x 16	079415	100	16	M 8	13
SKS 8 x 30	079713	100	30	M 8	13
SKS 8 x 45	079714	100	45	M 8	13
SKS 8 x 55	079715	100	55	M 8	13
SKS 8 x 100	079827	100	100	M 8	13
SKS 10 x 20	079416	100	20	M 10	17
SKS 10 x 30	079417	100	30	M 10	17
SKS 10 x 55	079721	100	55	M 10	17
SKS 10 x 85	505552	100	85	M 10	17
SKS 12 x 20	077610	100	20	M 12	19
SKS 12 x 55	077611	100	55	M 12	19
SKS 12 x 85	505553	100	85	M 12	19
Stainless steel A4					
SKS M 10 x 30 A4	505547	100	-	M 10	17
SKS M 12 x 30 A4	505548	100	-	M 12	19

Hexagonal Bolt SKSL



PROPERTIES

- **Material:** DIN 933 (Steel: 8.8)
- **Finish:** Electro Galvanized (as per ASTM B633), Hot Dip Galvanized (as per ASTM A153)
- **Material SS316:** DIN EN ISO 3506-1

TECHNICAL DATA

Item	Art.-NO. GI 8.8	Art.-NO. HDG 8.8	Art.-NO. SS 316	Length L (mm)	Thread D	Item	Art.-NO. GI 8.8	Art.-NO. HDG 8.8	Art.-NO. SS 316	Length L (mm)	Thread D
SKSL M 6x16	516755	-	-	16	M 6	SKSL M 12x25	516786	-	-	25	M 12
SKSL M 6x20	-	516797	-	20	M 6	SKSL M 12x30	-	516595	-	30	M 12
SKSL M 6x25	516756	516798	516606	25	M 6	SKSL M 12x35	516787	-	-	35	M 12
SKSL M 6x40	516757	-	-	40	M 6	SKSL M 12x40	516788	-	516615	40	M 12
SKSL M 6x50	-	-	516607	50	M 6	SKSL M 12x50	516789	-	516616	50	M 12
SKSL M 8x16	516758	-	-	16	M 8	SKSL M 12x55	-	516596	516617	55	M 12
SKSL M 8x20	516759	516799	-	20	M 8	SKSL M 12x60	516790	-	516618	60	M 12
SKSL M 8x25	516761	-	-	25	M 8	SKSL M12X75	-	-	516619	75	M 12
SKSL M 8x30	516763	-	-	35	M 8	SKSL M12X100	-	-	516620	100	M 12
SKSL M 8x35	516762	516800	-	30	M 8	SKSL M12X110	-	-	516621	110	M 12
SKSL M 8x45	516764	-	-	45	M 8	SKSL M12x120	-	-	516622	120	M 12
SKSL M 8x55	516778	-	-	55	M 8	SKSL M 16x30	516791	-	-	30	M 16
SKSL M 8x80	-	516552	-	80	M 8	SKSL M 16x35	516792	-	-	35	M 16
SKSL M 10x16	516779	-	-	16	M 10	SKSL M 16x40	516793	-	-	40	M 16
SKSL M 10x20	516780	516553	-	20	M 10	SKSL M 16x50	516794	-	-	50	M 16
SKSL M 10x25	516781	516554	516608	25	M 10	SKSL M 16x55	-	516597	-	55	M 16
SKSL M 10x30	516782	516555	-	30	M 10	SKSL M 16x70	516795	-	-	70	M 16
SKSL M 10x35	516783	-	-	35	M 10	SKSL M 16x80	-	516598	516623	80	M 16
SKSL M 10x40	-	516556	-	40	M 10	SKSL M 16x100	-	516599	516624	100	M 16
SKSL M 10x50	-	516592	516609	50	M 10	SKSL M 20x40	516796	-	-	40	M 20
SKSL M 10x55	516784	-	-	55	M 10	SKSL M 20x90	-	516600	-	90	M 20
SKSL M 10x60	-	516593	516610	60	M 10	SKSL M 20X125	-	516601	516625	125	M 20
SKSL M 10x70	-	-	516611	70	M 10	SKSL M 20X130	-	516602	-	130	M 20
SKSL M 10x90	-	-	516612	90	M 10	SKSL M 22X80	-	-	516626	80	M 22
SKSL M 10x100	-	516594	-	100	M 10	SKSL M 22X100	-	516603	-	100	M 22
SKSL M 10x110	-	-	516613	110	M 10	SKSL M 24X150	-	516604	516627	150	M 24
SKSL M 10x120	-	-	516614	120	M 10	SKSL M 24X180	-	516605	-	180	M 24
SKSL M 12x20	516785	-	-	20	M 12	-	-	-	-	-	-



PROPERTIES

- **Material SS316:** DIN EN ISO 3506-1
- **Material:** ISO 898-1, DIN 975 & 976 (Steel: 8.8)
- **Finish:** Electro Galvanized (as per ASTM B633), Hot Dip Galvanized (as per ASTM A153)
- Minimum yield strength 640 MPa (N/mm²),
- Minimum tensile strength 800 MPa (N/mm²)
- Material safety factor = 1.2 & Load safety factor 1.4 are included
- Vickers hardness, HV between (250 and 320 ≤ 16 mm) & Between (255 & 335 > 16 mm)

TECHNICAL DATA

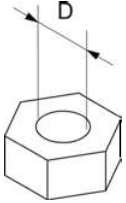
Item	Art.-NO. GI 8.8	Art.-NO. HDG 8.8	Art.-NO. SS 316	Length L (mm)	Thread M
M 8 x 80	-	-	516659	80	M 8
M 8 x 110	-	-	516660	110	M 8
M 8 x 150	-	516649	516661	150	M 8
M 10 x 100	-	-	516634	100	M 10
M 10 x 120	-	-	516635	120	M 10
M 10 x 140	-	516650	-	140	M 10
M 10 x 150	-	-	516636	150	M 10
M 10 x 190	-	516651	516637	190	M 10
M 12 x 120	-	-	516638	120	M 12
M 12 x 150	-	516652	516639	150	M 12
M 12 x 200	-	516653	516640	200	M 12
M 16 x 60	516628	-	-	60	M 16
M 16 x 80	516629	-	-	80	M 16
M 16 x 100	516630	-	-	100	M 16
M 16 x 150	516631	-	516641	150	M 16
M 16 x 200	-	516654	516642	200	M 16
M 16 x 300	-	516655	516643	300	M 16
M 16 x 380	-	-	516644	380	M 16
M 20 x 180	-	-	516645	180	M 20
M 20 x 260	-	516656	505536	260	M 20
M 20 x 350	-	-	505537	350	M 20
M 20 x 380	516633	516657	-	380	M 20
M 20 x 450	-	-	505538	450	M 20
M 24 x 300	516648	516658	505539	300	M 20
M 24 x 450	-	-	516646	450	M 24

Item	Pitch mm	Stressed Diameter mm	Weight kg/m ¹	Stressed Area mm ²	Moment of Inertia mm ⁴	Section Modulus mm ³	Permissible Tensile Force (KN)	Permissible Shear Force (KN)
M 6	1.00	5.00	0.22	20	31	10	7.7	4.6
M 8	1.25	6.75	0.39	37	102	25	14.1	8.4
M 10	1.50	8.50	0.61	58	256	51	22.3	13.4
M 12	1.75	10.25	0.88	84	542	90	32.4	19.4
M 14	2.00	12.00	1.20	115	1018	145	44.3	26.6
M 16	2.00	14.00	1.57	157	1885	236	60.2	36.1
M 18	2.50	15.50	1.99	192	2833	315	73.9	44.3
M 20	2.50	17.50	2.45	245	4603	460	94.0	56.4
M 22	2.50	19.50	2.97	303	7096	645	116.5	69.9
M 24	3.00	21.00	3.53	353	9545	795	135.4	81.2



MU

TECHNICAL DATA



PROPERTIES

- **Material:** acc. DIN EN 20898-2; min. strength category 04
- **Zinc plating:** Electro zinc plated, min. 5 µm
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4

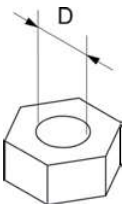
Item	Art.-NO.	Qty. per box (pcs.)	Thread D	Width across nut SW
MU M 6	079733	100	M 6	10
MU M 8	079734	100	M 8	13
MU M 10	079735	100	M 10	17
MU M 12	024650	100	M 12	19
MU M 16	55727	50	M 16	24
Stainless steel A4				
MU M 8 A4	77642	100	M 8	13
MU M 10 A4	77641	100	M 10	17

Hexagonal nut HN



HN

TECHNICAL DATA



PROPERTIES

- **Material:** DIN 439
- **Finish:** Electro Galvanized (as per ASTM B633), Hot Dip Galvanized (as per ASTM A153)
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4

Item	Art.-NO. GI	Art.-NO. HDG	Art.-NO. SS316	Thread D (mm)
HN M6	516801	516806	516811	M 6
HN M8	516802	516807	516812	M 8
HN M10	516803	516808	516813	M 10
HN M12	516804	516809	516814	M 12
HN M16	516805	516810	516815	M 16
HN M20	516739	516741	516743	M 20
HN M24	516740	516742	516744	M 24



U

PROPERTIES

- **Material:** Steel DD11 (material no. 1,0139) acc. to DIN EN 10111
- **Zinc plating:** Electro zinc plated, min. 3 µm
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4

TECHNICAL DATA

Item	Art.-NO.	Qty. per box (pcs.)	Thickness S (mm)	External Ø A (mm)	Hole Ø (mm)
U 6 x 24	020939	200	2.0	24	6.4
U 8 x 17	091477	100	1.6	17	8.4
U 8 x 28	079725	100	2.0	28	8.4
U 8 x 40	079729	100	3.0	40	8.4
U 10 x 21	091478	100	2.0	21	10.5
U 10 x 28	079726	100	2.0	28	10.5
U 10 x 40	079730	100	3.0	40	13.0
U 12 x 24	557301	100	2.5	24	13.0
U 12 x 40	024649	100	3.0	40	16.5
U 16 x 30	557303	50	3.0	30	16.5
U 8 x 28 A4	505542	100	2.0	28	8.4
U 8 x 40 A4	505543	100	3.0	40	8.4
U 10 x 28 A4	505544	100	2.0	30	10.5
U 10 x 40 A4	505545	100	3.0	40	10.5
U 12 x 24 A4	505546	100	2.0	24	12.5

Washer MW



MW

PROPERTIES

- **Material:** DIN 125
- **Finish:** Electro Galvanized (as per ASTM B633), Hot Dip Galvanized (as per ASTM A153)
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4

TECHNICAL DATA

Item	Art.-NO. GI	Art.-NO. HDG	Art.-NO. SS316	Thread D (mm)
MW M6x12	516816	516832	516824	M 6
MW M8x16	516817	516833	516825	M 8
MW M8x30	516818	516834	516826	M 8
MW M8x40	516819	516835	516827	M 8
MW M10x20	516820	516836	516828	M 10
MW M10x30	516821	516837	516829	M 10
MW M10x40	516822	516838	516830	M 10
MW M12x24	516823	516839	516831	M 12
MW M16x30	516770	516745	516748	M 16
MW M16x40	516771	-	-	M 16
MW M20x37	516772	516746	516749	M 20
MW M24x44	516773	516747	516760	M 24

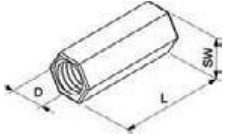


VM

PROPERTIES

- **Material:** SAE 1008 (material no. 1.0213) acc. to DIN EN 10263-2
- **Zinc plating:** Electro zinc plated, 3-8 µm
- **Material A4:** Stainless steel of the corrosion resistance class III, e.g. A4

TECHNICAL DATA



Item	Art.-NO.	Qty. per box (pcs.)	Length L (mm)	Thread D	Width across nut SW
VM M 6	014319	100	25	M 6	10
VM M 8	079690	100	30	M 8	11
VM M 10	079691	100	30	M 10	13
VM M 12	020971	100	40	M 12	17
VM M 12S*	077623	100	30	M 12	17
VM M 16	508833	50	40	M 16	24
VM M 8 A4	505540	100	30	M 8	11
VM M 10 A4	505541	100	30	M 10	13

Reduction piece RD, RDM & GRD



RD



RDM

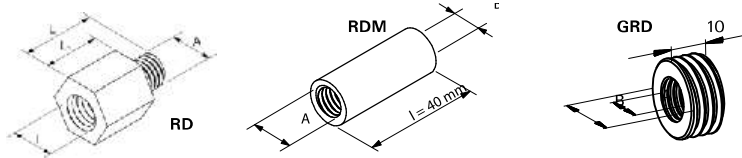


GRD

PROPERTIES

- **RD Material:** 9SMnPb28k (material no. 1.0718) acc. to DIN EN 10087
- **RDM & GRD Material:** 11SMnPb30 (material no. 1.0277) acc. to DIN EN 10277
- **Zinc plating:** Electro zinc plated, 3-8 µm

TECHNICAL DATA



Item	Art.-NO.	Qty. per box (pcs.)	Internal thread I	External thread A	Length L1 (mm)	Length L (mm)	Width across nut SW
RD M 6 / M 8	079694	100	M 6	M 8	12	20	9
RD M 8 / M 6	020936	100	M 8	M 6	12	19	11
RD M 10 / M 8	079692	50	M 10	M 8	15	23	13
RD M 12 / M 10	079693	100	M 12	M 10	15	25	17
RD M 12 / M 16	504397	50	M 12	M 16	18	32	19
RD M 16 / M 12	504399	50	M 16	M 12	22	32	24
RD 1/2" / M 10	079695	100	1/2"	M 10	19	29	24

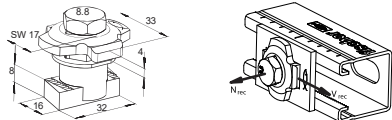
Item	Art.-NO.	Qty. per box (pcs.)	Thread A	Length B
RDM M 10 / M 8	079413	50	M 10	M 8
RDM M 12 / M 10	079414	100	M 12	M 10
GRD 1/2" / M 10	077609	100	M 10	1/2"
GRD 1/2" / M 12	077608	100	M 12	1/2"
GRD 3/4" / M 10	077607	100	M 10	3/4"
GRD 3/4" / M 12	077606	100	M 12	3/4"



PROPERTIES

- **Material Cap:** Steel DD 11 (material no.1.0332) acc. to DIN EN 10111
- **Material Sliding nut:** Steel S420MC, EN 10149-2
- **Material Hexagon nut:** 8.8 M 1028, DIN 933
- **Material Plastic parts:** Polypropylene
- **Zinc plating:** Electro zinc plated acc. to DIN 50979, min. 8 µm

TECHNICAL DATA



Item	Art.-NO.	Thread A	Sales unit (pcs.)
PFCN 41	533739	M 10	50

LOADS

Item	Art.-NO.	Max. recommended tension load for FUS 2.0mm Nrec (kN)	Max. recommended tension load for FUS 2.5mm Nrec (kN)	Max. recommended Shear load Vrec (kN)	Tightening torque for screw grade ≥ 8.8 Tinst (kN)
PFCN 41	533739	5,0	7,0	3,5	40

(1) Load values are based on the PFCN 41 push-through connector.

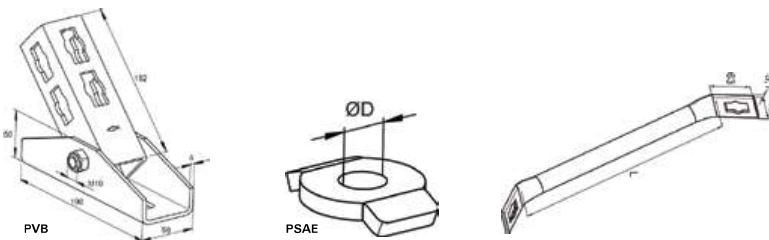
Push-through bracket PVB / PSAE



PROPERTIES

- **Material PVB:** Steel DD 11 (material no. 1.0332) acc. to DIN EN 10111
- **Material PSAE:** Steel DD 11 (material no. 1.0332) acc. to DIN EN 10111
- **Zinc plating PVB:** Electro zinc-plated acc. to DIN 50979, min. 8 µm
- **Zinc plating PSAE:** Electro zinc-plated acc. to DIN 50979, min. 8 µm

TECHNICAL DATA



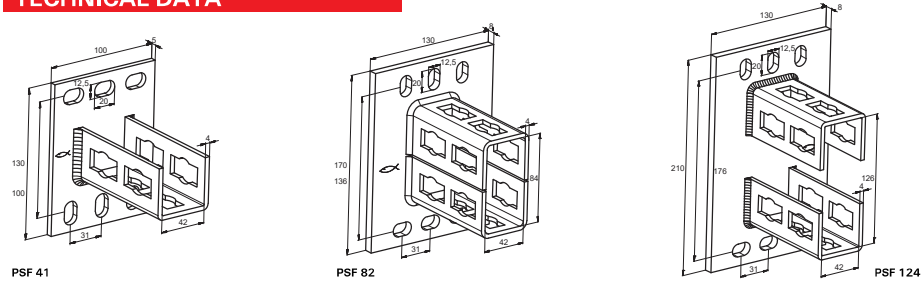
Item	Art.-NO.	Length l (mm)	Sales Unit (pcs.)
PVB	534960	-	5
PSAE 300 Brace element	535269	300	10
PSAE 500 Brace element	535270	500	10
PU 10,5 Washer	535271	-	50
PU 12,5 Washer	535272	-	50



PROPERTIES

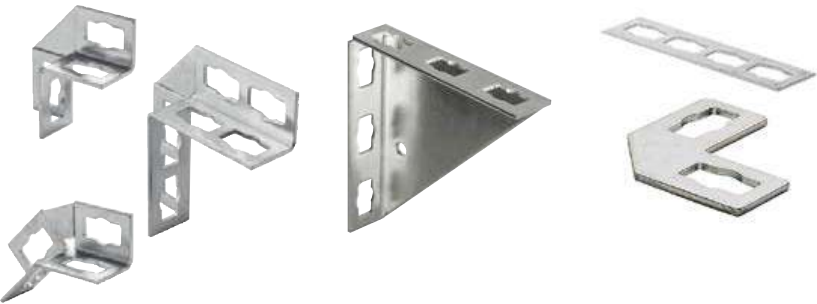
- **Material:** Steel DD 11 (material no. 1.0332) acc. to DIN EN 10111
- **Zinc plating:** Electro zinc plated acc. to DIN 50979, min. 8 µm

TECHNICAL DATA



Item	Art.-NO.	For profile	Sales unit (pcs.)
PSF 41	533740	210, 41, 62	10
PSF 82	533741	41 D	5
PSF 124	533742	62 D	5

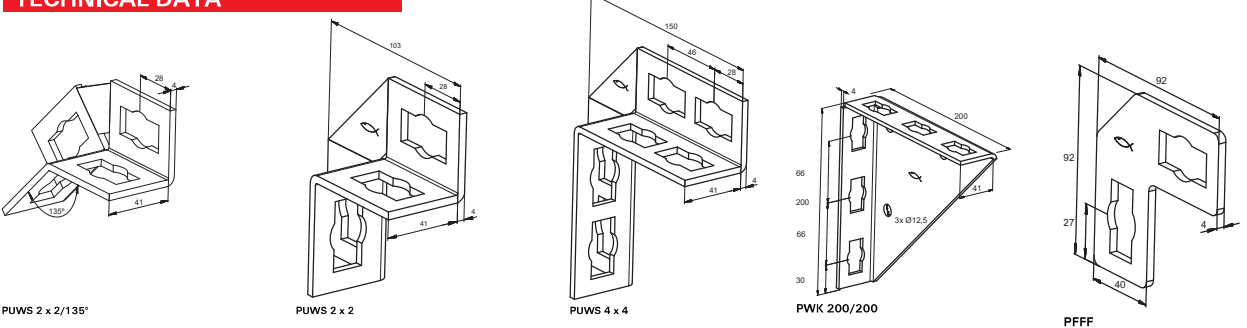
Push-through bracket



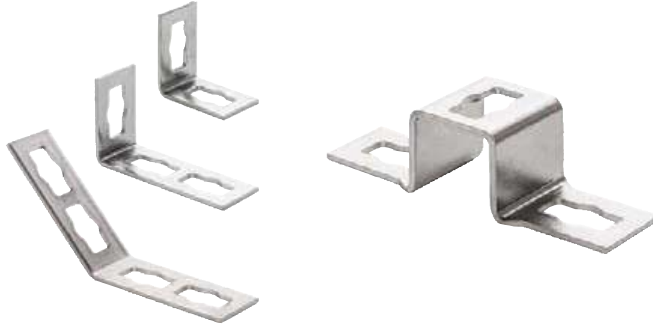
PROPERTIES

- **Material:** Steel DD 11 (material no. 1.0332) acc. to DIN EN 10111
- **Zinc plating:** Electro zinc plated acc. to DIN 50979, min. 8 µm

TECHNICAL DATA



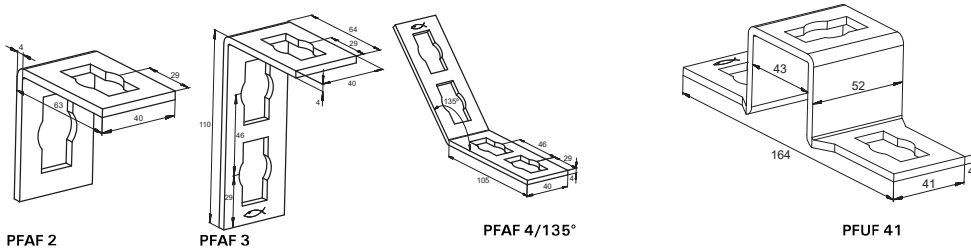
Item	Art.-NO.	Sales unit (pcs.)
PUWS 2 x 2 / 135°	533731	10
PUWS 2 x 2	533733	10
PUWS 4 x 4	533734	8
PWK 200/200	533744	15
PFFF 2L	533745	20
PFFF 4L	535268	25



PROPERTIES

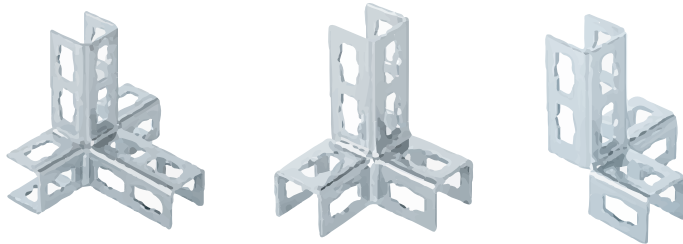
- **Material:** Steel DD 11 (material no. 1.0332) acc. to DIN EN 10111
- **Zinc plating:** Electro zinc-plated acc. to DIN 50979, min. 8 µm

TECHNICAL DATA



Item	Art.-NO.	Sales unit (pcs.)
PFAF 2	533735	25
PFAF 3	533736	25
PFAF 4/135°	533737	20
PFUF 41	533738	25

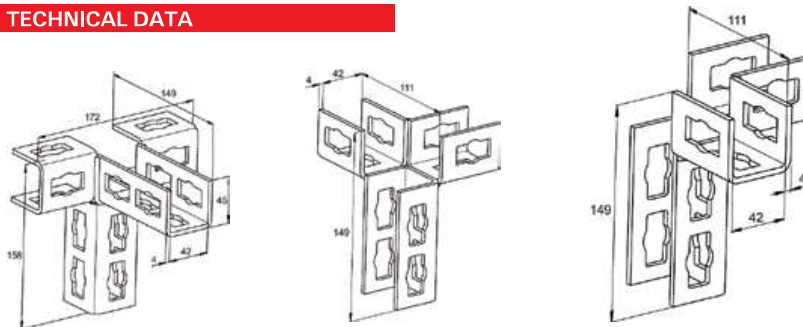
Push-through brackets PFUF D



PROPERTIES

- **Material:** Steel DD 11 (material no. 1.0332) acc. to DIN EN 10111
- **Zinc plating:** Electro zinc-plated acc. to DIN 50979, min. 8 µm

TECHNICAL DATA



Item	Art.-NO.	Sales unit (pcs.)
PFUF 4D	535275	10
PFUF 3D	535274	10
RPFUF 3DL	535273	10

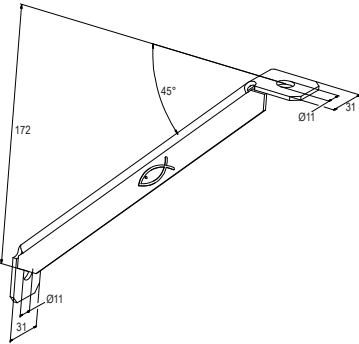


Angle brace

PROPERTIES

- **Material:** Steel S235 JR (material no.: 1.0037) acc. to DIN EN 10025
- **Zinc plating:** Electro zinc-plated, min. 20 µm acc. DIN EN ISO 4042

TECHNICAL DATA



Item	Art.-NO.	Eye Ø D (mm)	Sales unit (pcs.)
WS 31-45°	538749	11	10

Channel connector SV 31

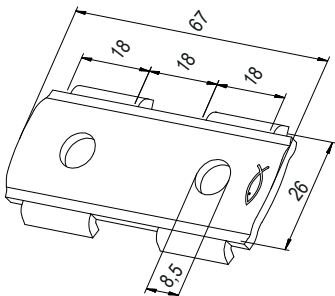


Channel Connection

PROPERTIES

- **Material:** Steel S235 JR+CR (material no.: 1.0037) acc. to DIN EN 1652
- **Zinc plating:** Electro zinc-plated, min. 5 µm acc. DIN EN ISO 4042

TECHNICAL DATA



Item	Art.-NO.	Hole diameter D (mm)	Sales unit (pcs.)
SV 31	538641	8.5	25



PROPERTIES

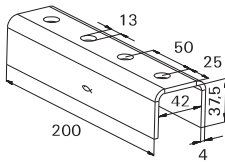
- **Material FUF OC:** Steel S235 JR (material no. 1.0037) acc. to DIN EN 10025
- **Zinc plating FUF OC:** Electro zinc plated, min. 5 µm
- **Material PFUF OC:** Steel DD11 (material no. 1.0332) acc. to DIN EN 10111
- **Zinc plating PFUF OC:** Electro zinc plated acc. DIN 50979, min. 8 µm

ADVANTAGES/BENEFITS

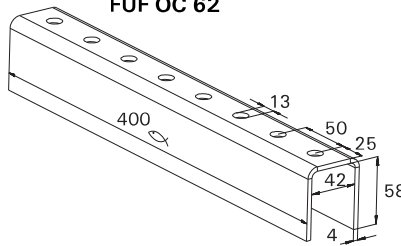
- The FUF OC connector in combination with FCN Clix P allows a simple and time-saving installation.
- The PFUF OC connector in combination with PFCN allows a simple and time-saving installation.

TECHNICAL DATA

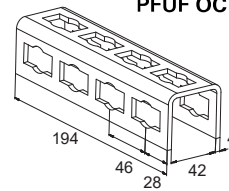
FUF OC 41



FUF OC 62



PFUF OC



Item	Art.-NO.	Length l (mm)	Sales Unit (pcs.)
FUF OC 41	504517	200	20
FUF OC 62	504518	400	10
PFUF OC	533743	194	6

Item	Art.-NO.	Length l (mm)	Sales Unit (pcs.)
FUF OC 41 HDG	517415	200	20
FUF OC 62 HDG	537591	400	10
PFUF OC HDG	542719	194	6

Channel washer HK 31



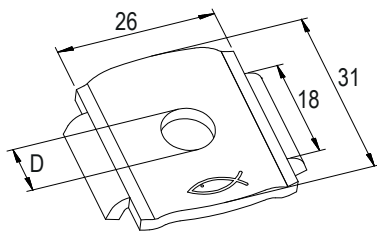
PROPERTIES

- **Material:** Steel S235 JR+CR (material no.: 1.0037) acc. to DIN EN 1652
- **Zinc plating:** Electro zinc-plated, min. 5 µm acc. DIN EN ISO 4042

APPROVALS



TECHNICAL DATA



Item	Art.-NO.	Hole diameter D (mm)	Sales unit (pcs.)
HK 31 8.5	538663	8.5	50
HK 31 10.5	538664	10.5	50



Repair of damaged hot-dip galvanised areas

APPLICATIONS

- Repairing damaged zinc coatings
- Sheet metal coverings
- Metal constructions
- Guard rails
- Climate control and ventilation technology
- For post-galvanising and repairing damaged areas of galvanised parts drilling and cutting points and welded joints

ADVANTAGES

- Zinc Alu Spray represents a subtle repair to damaged hot-dip galvanised areas thanks to its colour matching with the hot-dip galvanisation.
- Excellent holding properties on blank metal, it guarantees a lasting connection to the base material.
- The fast-drying Zinc Alu Spray guarantees good, weatherproof corrosion protection and, as such, is suitable for use both indoors and out.

APPLICATION MATERIALS

- All iron and steel surfaces
- Hot-dip galvanised surfaces following drilling ironwork or welding
- Non-ferrous heavy metal

TECHNICAL DATA

Item	Art.-NO.	Qty. per box (pcs.)	Contents (ml)
FTC-ZA (EN/FR/ES/PT)	509241	12	400

8

Installation Systems

Anti-corrosion spray - Zinc Spray Bright Grade



Welding joints, drill points & cut edges

APPLICATIONS

- For all metals that need corrosion protection.
- Conductive interlayer for spot welding.
- For HVAC systems.
- For post-galvanising and repairing damaged areas of galvanised parts.
- For the coating of drilling and cutting points as well as welded joints.

ADVANTAGES

- In the salt spray test in line with DIN EN ISO 9227, coated metal parts displayed no corrosion, even after 300 hours.
- The color "bright grade" has been perfectly adapted to that of hot-dip galvanisation. This acts as an optical color compensator.
- The innovative metal flakes form a highly resistant protective layer, even against extreme weather influences guaranteeing long lasting protection.
- Thanks to the excellent holding properties on blank metal, it guarantees a lasting connection to the base material.

APPLICATION MATERIALS

- All iron and steel surfaces
- Hot-dip galvanised surfaces following drilling ironwork or welding
- Non-ferrous heavy metal
- Blank laminations

TECHNICAL DATA

Item	Art.-NO.	Qty. per box (pcs.)	Contents (ml)
FTC-ZB (EN/FR/ES/PT)	537223	12	400