



Полный каталог продукции VETTER
2019 года
на английском языке



Verwaltungsgebäude Administrative Building Bâtiment administratif Administración



Fabrikation, Lager und Training Center Production, warehouse and training center Fabrication, magasin et centre de formation Fabricación, almacén y centro de formación



Content

All Catalogues

201 Pipe laying rollers pipe mounting devices	- Page 3/18
202 Cable laying rollers and cable laying devices	- Page 19/52
211 Mini conduit rods and cord blowing equipment	- Page 53/61
220 Conduit rods and duct and cable locating devices	- Page 62/76
230 Blower units for winch ropes Cable lubricants	- Page 77/87
240 Pipe and duct plugs for energy and fibre optic cables	- Page 88/95
243 Cable pulling grips Hose securing grips	- Page 96/112
278 Cable laying equipment and machines for cable trays	- Page 113/123
290 Cable laying and mounting devices 110-550 kV cables	- Page 124/140
310 Drum lifting jacks Drum shafts Drum loading traverses	- Page 141/154
322 Cable winding and length measuring devices	- Page 155/190
342 Cable drum transport devices	- Page 191/201
410 Fibre optic cable blowing-in devices	- Page 202/218
420 Mini and micro cable blowing-in devices	- Page 219/249
430 Blowing-in and pulling units for subducts	- Page 250/270
440 Cable pulling capstan winches Cable feeders	- Page 271/291
500 Overhead line stringing equipment and machines	- Page 292/321
900 Spare parts to cable laying and overhead line equipment	- Page 322/333

Ваш поставщик:

ООО "КОМПАНИЯ ОПТУЛС"

Москва, ул.Иловайская, д.3

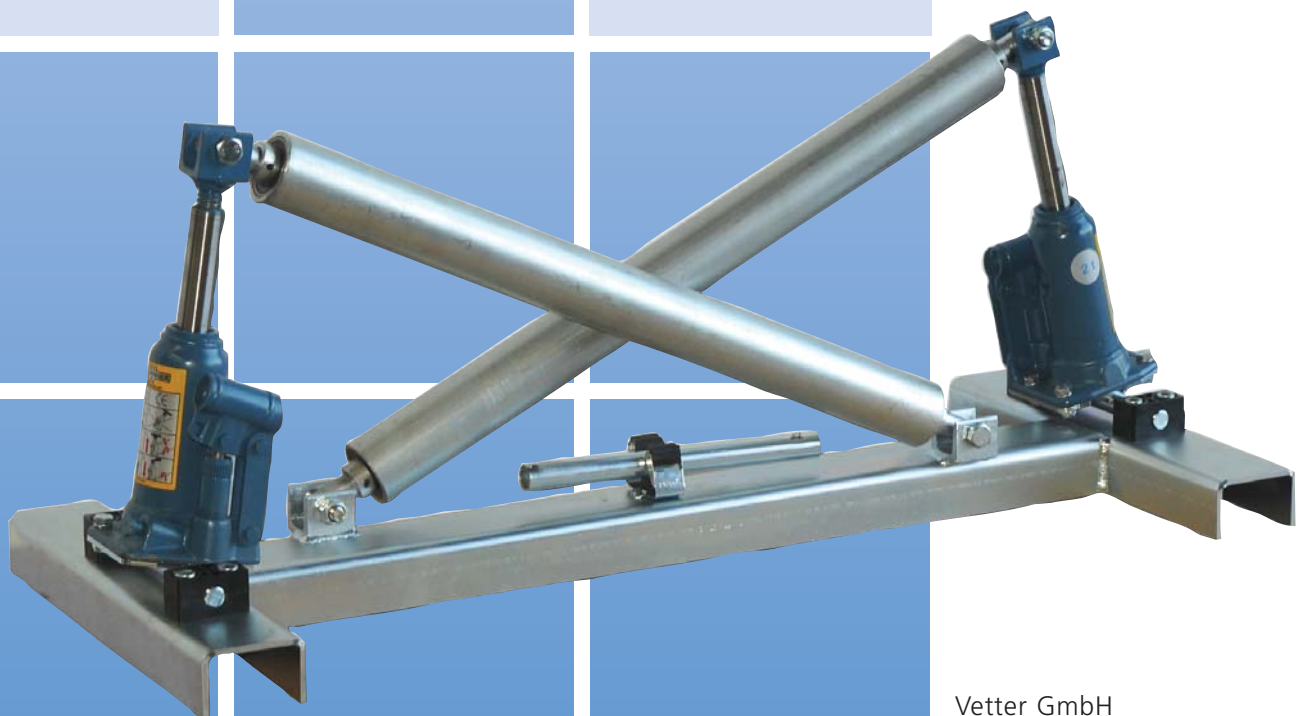
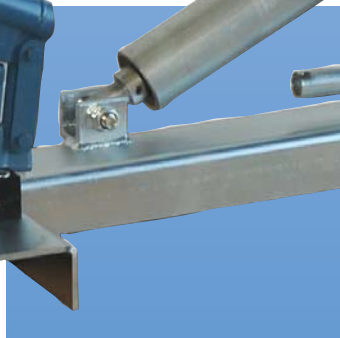
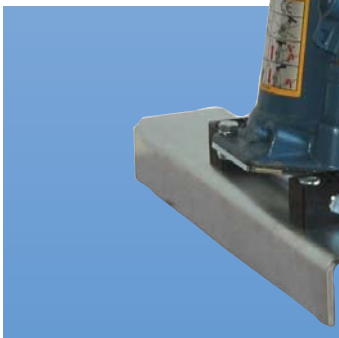
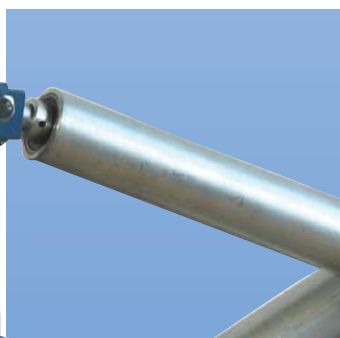
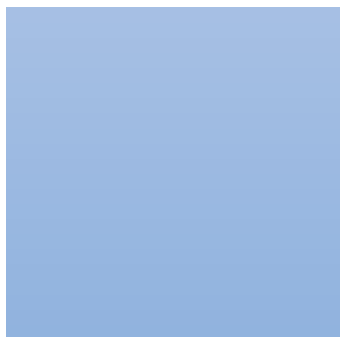
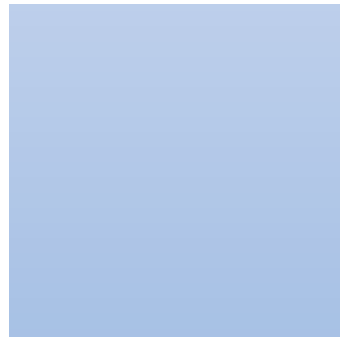
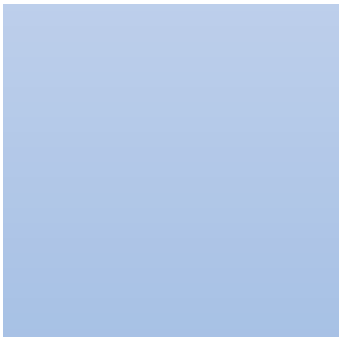
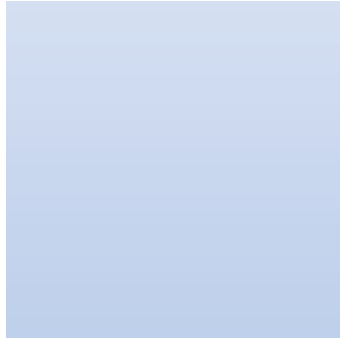
Тел.: +7 (495) 646-00-96

sale@opttools.ru

www.opttools.ru

Pipe laying
rollers

Pipe mounting
devices





Pipe laying rollers pipe mounting tools

Pipe laying roller for pipes up to D 1500 mm

Pipe pulling equipment

Pipe mounting tools

Pipe screw sockets and mounting tools

Conduit cleaning brushes and calibres

Lubricant for pipes and cables gel and liquid

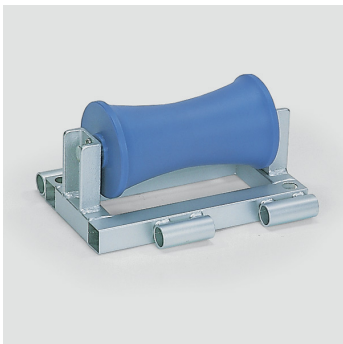
Pipe calibration and leakage-test units



Pipe roller

Pipe roller, 1 steel-roller with ball bearings, steel construction galvanized, with base plate.

Code	Type	Roller-D	Mat.	D-OD	SWL	L/W/H mm	kg
201080	TRS 1-300	120/76/185	Steel	to 300	200 kg	320x235x145	5,20



Pipe roller

Pipe roller, 1 polyamide-roller with friction bearings, steel construction galvanized

Code	Type	Roller-D	Mat.	D-OD	SWL	L/W/H mm	kg
201100	TRP 1-500	115/75x200	Poly.	to 500	200 kg	270x200x145	5,30



Pipe roller

Pipe roller, 1 steel-roller with ball bearings, steel construction galvanized.

Code	Type	Roller-D	Mat.	D-OD	SWL	L/W/H mm	kg
201125	TKS 1-160	120/76/145	Steel	to 160	200 kg	250x230x240	4,20



Pipe roller

Pipe roller, 1 base- 2 lateral alu-rollers and bearings for special aluminium, steel construction galvanized.

Code	Type	Roller-D	Mat.	D-OD	SWL	L/W/H mm	kg
201172	TKR 3-160	50	Alu	to 160	150 kg	300x250x250	5,40



Fixing nails

Fixing nails steel galvanized for fixing of all cable and pipe rollers to the ground.

Code	Type	Steel-D	Length	kg
205690	BN 30	16	30 cm	0,50
205710	BN 50	16	50 cm	0,80



Pipe roller

Pipe roller, 2 high wattage-steel-rollers D 60 with ball bearings. Steel construction galvanized

Code	Type	Roller-D	Mat.	D-OD	SWL	L/W/H mm	kg
201250	TVR 2-500	60x200	Steel	to 500	1000 kg	540x395x205	12,60
201270	TVR 2-760	60x360	Steel	to 760	1000 kg	880x395x256	20,40



Pipe roller hydr. adjustable

Pipe roller hydr. height adjustable for pipe diam. up to 1500 mm, 2 high wattage-steel-rollers D 60 with ball bearings. Steel construction galvanized

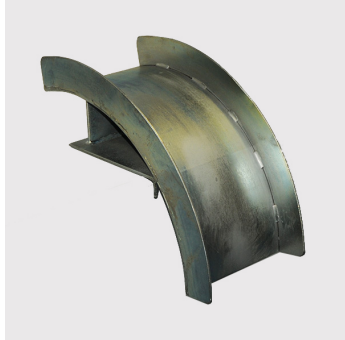
Code	Type	Roller-D	Mat.	D-OD	SWL	L/W/H mm	kg
201280	TVH 2-1500	60x630	Steel	to 1500	1000 kg	960x395x300	33,40



Leading-in funnel

Cable leading-in funnel, flexible metal hose for introducing all kind of cables into ducts in any position. Two mounted steel ropes lengthwise avoid damaging the flexible hose. During introducing of the cable the cables can be lubricated automatically and evenly on their whole length. Steel galvanized. These funnels can be supplied in different diameters and lengths.

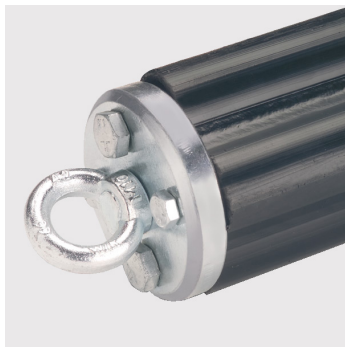
Code	Type	For D-ID	Length	Safety	kg
273050	MET 75/30	69-72	3,00 m	Steel rope	10,40
273100	MET 98/18	98-100	1,80 m	Steel rope	8,80
273108	MET 98/40	98-100	4,00 m	Steel rope	12,90



Protective cable bows

Protective bow for pulling-in multiple ducts, steel sheet galv.

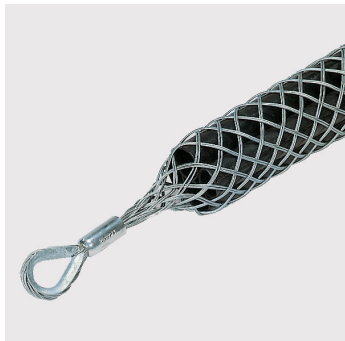
Code	Type	For multiple ducts-D	Width	kg
209230	RSB 200	2x35+2x28	200	7,00



Pulling head

Pulling head for multiple conduits D 40 and 32 mm into ducts of D 110 mm.

Code	Type	For D-D	Max. Pull	kg
273129	MZK 4/40	2x35+2x28	16 kN	1,40



Duct pulling grip

Duct pulling grip for pulling multiple conduits into ducts of D 110 mm. Opening D 85-100, Length 1650 mm.

Code	Type	Cap.-D	kN	L1/L2	kg
273270	MR 100/1	85-100	83,7	1500/1650	1,20



Pipe pulling heads

Pipe pulling heads for pulling in of PE-HD-pipes PN 6 and PN 10. Steel galvanized, without sealing. With sealing see PDF-Drawing, available on request.

Code	Type	D-ID	Max. pull	kg
273131	RZK 32	25- 28	4 kN	0,40
273132	RZK 40	31- 36	5 kN	0,65
273133	RZK 50	39- 47	6 kN	1,20
273134	RZK 63	49- 60	10 kN	1,55
273136	RZK 75	59- 70	11 kN	2,20
273138	RZK 90	71- 85	16 kN	3,85

273140	RZK 110	87-103	25 kN	7,80
273142	RZK 125	99-116	32 kN	12,60
273144	RZK 140	111-130	40 kN	14,10
273146	RZK 160	127-148	53 kN	19,40
27314610	RZK 180	144-166	53 kN	22,00



Mounting tool for ducts

Mounting device for conduit sleeves, steel construction galvanized.

Code	Type	D-OD	kg
239400	MRM 32	32	2,50
239410	MRM 40	40	2,70
239420	MRM 50	50	2,85
239430	MRM 110	110	8,00



Mounting tool for halved ducts

Mounting device for closing halved conduits, steel construction galvanized.

Code	Type	D-OD	kg
239440	MGK 32	32	0,41
239445	MGK 40	40	0,44
239450	MGK 50	50	0,47
239470	MGK 110	110	2,80
239480	MGK 125	125	2,80



Rounding tongs

Rounding tongs for correcting deformed conduits.

Code	Type	D-OD	kg
273240	RZA 32	32	0,65
273245	RZA 40	40	0,70
273250	RZA 50	50	1,20



Conduit cutters

Conduit cutters for plain cuts.

Code	Type	D-OD	Length	kg
273171	MRS 43	to 42	215	0,45
273172	MRS 50	to 50	265	0,60
273173	MRS 63	to 63	285	0,70
273174	MRS 75	to 75	485	1,60



Burring tools

Burring tools for in- and outside of plastic conduits.

Paring knife MSM 40, for separating multiple conduits.

Code	Type	D-OD	Burring	Mat.	kg
273190	MRE 63	28-63	only extern	Poly.	0,20
273180	MRE 50	28-50	ext. /intern	Alu	0,43
273200	MSM 40	Paring knife	---	Steel	0,50



Conduit and cable slitter

Conduit slitter for lengthwise and circumferential slitting of plastic conduits and cable covers. Complete reinforced steel version. In case 195x75x45 mm.

Code	Type	To wall thickness	---	kg
255905	KMS 6	6	195x75x45	0,35
255910	ERM 6	Spare knife	---	0,03



Spanner

Spanner and counter spanner for screw socket fittings. Aluminium.

Code	Type	D-OD	kg
273420	MS 1640	16- 40	0,14
273440	MS 4075	40- 75	0,60
273460	MS 63125	63-125	1,75



Screw socket fittings

Screw socket fittings for plastic conduits, air and water tight. Safest connection for blowing-in fibre optic cables.

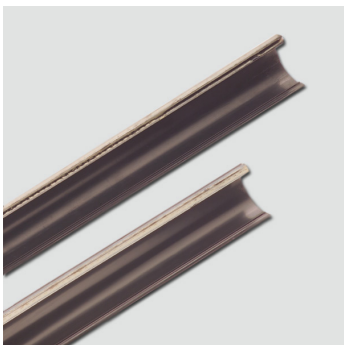
Code	Type	D-OD	Press.	kg
273520	SM 3232	32-32	PN 16	0,19
273530	SM 4040	40-40	PN 16	0,33
273540	SM 5050	50-50	PN 16	0,47
273550	SM 6363	63-63	PN 16	0,76
273616	RM 4032	Reduction 40 to 32	PN 16	0,25
273620	RM 5032	Reduction 50 to 32	PN 16	0,33
273630	RM 5040	Reduction 50 to 40	PN 16	0,50
273670	RM 6350	Reduction 63 to 50	PN 16	0,73



Conduit union

Screwed conduit union, length 1,20 m, PN 10. If this union is mounted before blowing in the first cable, it can be opened and closed again anytime e.g. for blowing-in further cables in the same duct.

Code	Type	D-OD	Press.	Length	kg
273720	RV 3240	32	PN 10	1,20 m	0,86
273730	RV 4050	40	PN 10	1,20 m	1,46



Halved conduits

Halved conduits, for completion split sockets for halved conduits and mounting tools, see code 239.440-450 are necessary.

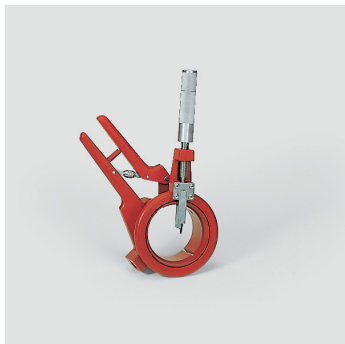
Code	Type	D-OD	Length	kg
273702	KHR 32	32	2,00 m	0,72
273705	KHR 40	40	2,00 m	0,92
273711	KHR 50	50	2,00 m	1,24



Split sockets

Split sockets for closing halved conduits.

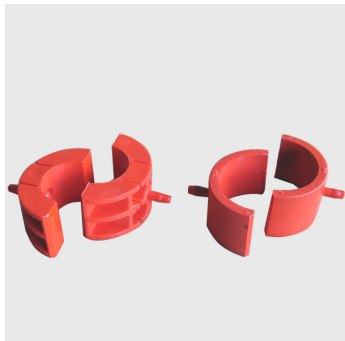
Code	Type	D-OD	kg
273713	KHM 32	32	0,27
273714	KHM 40	40	0,29
273715	KHM 50	50	0,32



Conduit cutting tool

Conduit cutting and bevelling tool, clamping jaws for smaller tubes to D 40 mm see below.

Code	Type	For ducts to	kg
239010	ROC 110	OD 110	1,80
239150	ROC 160	OD 160	2,00
239240	SP 1116	Spare knife reinforced for ROC 110-160	0,01



Clamping jaws

Clamping jaws for ROC 110 and ROC 160 for smaller ducts

Code	Type	For device	For ducts to	kg
239020	SPA 90	ROC 110	D 90	0,30
239030	SPA 75	ROC 110	D 75	0,30
239040	SPA 63	ROC 110	D 63	0,30
239050	SPA 50	ROC 110	D 50	0,30
239070	SPA 40	ROC 110	D 40	0,30
239170	SPA 125	ROC 160	D 125	0,30
239180	SPA 110	ROC 160	D 110	0,30



Cases for cutting tools

Case for conduit cutting and bevelling tool ROC 110 and ROC 160

Code	Type	For device	kg
239130	RK 110	ROC 110	1,20
239220	RK 160	ROC 160	1,60



Conduit brushes, nylon

Conduit brushes synthetic bristles the ext. diameter should be approx. 5-10 mm smaller than the int. diameter of the duct.

Code	Type	OD	Brush-L	Total-L	kg
230328	RNB 57	57	195	315	0,90
230350	RNB 77	77	250	410	1,00
230355	RNB 85	85	250	410	1,20
230360	RNB 92	92	250	410	1,20
230370	RNB 97	97	250	410	1,20
230390	RNB 117	117	250	410	1,60
230420	RNB 147	147	250	410	2,10
230480	RNB 197	197	250	410	2,50



Conduit calibre balls

Conduit calibre balls, Polyamide, two pcs. special short length for passing narrow duct bows. The ball-Ø should be approx. 80-85 % of the nominal internal diam. of the duct.

Code	Type	D	D-ID	Calibre-L	Connection	kg
231250	KGP 37/37	37	40-45	2x37	Clipper	0,32
231255	KGP 55/55	55	60-70	2x55	Clipper	0,44



Conduit calibre

Conduit calibre of polyamide. The calibre diameter should be approx. 80-95 % of the nominal internal diameter of the duct. Please ask your customer which calibre diameter he expects.

Code	Type	OD	D-ID	Calibre-L	Total-L	kg
231270	KDP 50/36	36	40-45	110	190	0,30
231280	KDP 63/45	45	51-56	150	230	0,45
231290	KDP 75/55	55	61-71	200	300	0,85
231310	KDP 90/65	65	74-84	200	300	1,00
231350	KDP 110/85	85	90-104	200	310	1,10
231360	KDP 110/90	90	100-104	200	310	1,20
231380	KDP 125/95	95	102-104	250	350	1,60
231400	KDP 125/105	105	113-118	250	350	2,10
231410	KDP 140/115	115	126-132	250	350	3,10
231420	KDP 150/125	125	134-144	250	350	3,60
231425	KDP 160/130	130	134-150	250	350	3,90
231430	KDP 160/135	135	144-155	250	350	3,40
231450	KDP 180/150	150	160-170	250	350	5,00

231460	KDP 200/165	165	180-190	250	350	6,00
231470	KDP 225/185	185	200-225	250	360	7,30



Lubricant gel for cable and ducts

Lubricant gel like, for medium up to heaviest cables, up to 80 % friction reducing. Also suitable to reduce strongly the friction pulling-in ducts in ducts.

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	Units	kg
235140	J-128V	1 pail 3,8 l	Single pail	4,00
235142	J-128V	4 pails à 3,8 l	Single pail	17,00
235150	J-640V	1 pail 19 l	Single pail	20,00
235152	J-640V	33 pails 19 l	1 Pallet	685,00



Lubricant pump

Lubricant pump driven by an external screw driver, for mounting on the pails J-640V or on the barrel SP-640V. Three different ration settings allow the user to pump lubricants with a variety of viscosities, from liquids to gels. Most lubricants can be pumped directly to the conduit or onto the cable during installation. Two hand-free applicators for conduits from diameter 40 to 150 mm are included.

Code	Type	Capability	Hose	kg
235335	LP-D5	5 l/min.	3 m	2,00



Lubricant liquid for cables and ducts

Lubricant liquid, for medium up to heaviest cables, excellent distribution on the cable and in the duct, up to 80 % friction reducing. Also suitable to reduce strongly the friction pulling-in ducts in ducts.

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	Units	kg
235200	SP-128V	1 bottle 3,8 l	single bottle	4,00
235202	SP-128V	4 bottles 3,8 l	single bottle	17,00
235220	SP-640V	1 pail 19 l	single pail	20,00
235222	SP-640V	33 pails 19 l	1 Pallet	685,00
235230	SP-190V	1 barrel 190 l	Barrel	220,00



Duct calibration set

Conduit calibration and leakage-test unit. Calibration and leakage-test before starting the cable blowing-in procedure is the safest guarantee for successful installation of fibre optic cables. Unit consisting of:

- Compressed air regulator with adjustable tripod.
- 5 m high pressure hose, calibre D 35, transmitter, for duct-D 50x4,6.
- All other diam. of calibres are available, please see extensions below.
- With conduit plug and catch box for the piston.
- With electronic detector 33 kHz . Compl. set in alu-case 780x380x330.

Code	Type	D-ID	kg
231601	RKV 40	40-41	27,00



Calibre extension set

Supplementary extension set for calibration and leakage test unit.

Code	Type	D-ID	kg
231602	RKVE 33	33-34	2,60
231603	RKVE 27	27-28	2,00



Calibre housings

Calibre housings of polyamide with sleeve rings, without transmitter. Calibre length 145 mm, total length 250 mm

Code	Type	Calibre D/L/total	D-ID	kg
231646	MKV 35	35/145/250	40-41	0,36
2316475	MKV 28	28/145/250	33-34	0,29
231648	MKV 25	25/145/250	27-28	0,32



Miniature transmitter D 18 mm

Miniature transmitter D 18x88 mm, suitable for all a. m. calibres.

Code	Type	D/L	Frequ.	Thread	Depth	Cap.	kg
231621	SKS 18N	18/88	33 kHz	M 10	8,0 m	20 h	0,23



Conduit plug for duct-OD

Conduit plug for fixing on duct-OD with hose safety coupling applicable for duct calibration, duct pressure tests, duct cleaning etc.

Code	Type	D-OD	Press.	kg
2316512	KRA 20	20	to 6 bar	0,40



Conduit plug for duct-OD

Conduit plug for fixing on duct-OD with hose safety coupling applicable for duct calibration, duct pressure tests, duct cleaning etc.

Code	Type	D-OD	Press.	kg
2316513	KRA 32	32	to 6 bar	0,50
231651	KRA 40	40	to 6 bar	0,84
231650	KRA 50	50	to 6 bar	0,90
231649	KRA 63	63	to 6 bar	1,00
2316541	KRA 110	110	to 6 bar	3,20



Sealing plug

Conduit sealing plug applicable for duct pressure tests.

Code	Type	D-OD	Press.	kg
273569	ENSA 20	20	to 6 bar	0,07
273572	ENSA 32	32	to 6 bar	0,10
273575	ENSA 40	40	to 6 bar	0,23
273580	ENSA 50	50	to 6 bar	0,29
273585	ENSA 63	63	to 6 bar	0,40
273586	ENSA 110	110	to 6 bar	1,93



Pipe leakage test set

Pipe leakage test set 0-10 bar, for testing of 1-4 ducts simultaneously, independent of the diameter.

Code	Type	For	kg
2316291	RDP 10/1	1 duct	16,50
2316293	RDP 10/4	4 ducts	36,00



Pressure recorder

Pressure recording device in completion to a. m. calibration and leakage unit. Electronic measuring of pressure and hardcopy on paper and storage for further computer handling of the data.

Code	Type	For	Max. test press.	kg
231733	DRG 10	any duct-D	10 bar	8,60



Low pressure test set

The low pressure test sets are used exclusively for leakage testing cable conduits with small wall thicknesses which are used for pulling different types of cable. The low pressure test is intended to provide proof of tightness to prevent ingress of ground water, alluvial sand, sediments etc. These elements contaminate the cable conduit and complicate the pulling of cables. The low-pressure test set is based on the proven Vetter DRG 10 "high-pressure" leakage test unit and is offered in 3 versions which also relate to existing assemblies.

The test method resorts to existing regulations for the acceptance of sewers and drains. Only the "Air" version is used for the testing of cable conduits. Low pressure testing of cable conduits is currently still being requested by clients with the "Air" method, version LC, in accordance with DIN EN 1610. DIN EN 1610 is still valid, but somewhat outdated. Work sheet DWA-A 139-2009-12 is used to introduce changes for leakage testing according to the "Air" method. With respect to the above mentioned regulation, these changes affect designation and test duration.

- The client decides which test method to use.
- Method LC: test pressure 0.1 bar (100 mbar, 10 kPa), for 3 min., adm. pressure drop 15 mbar (1.5 kPa)
- Method LE: test pressure 0.1 bar (100 mbar, 10 kPa), for 1.5 min., adm. pressure drop 15 mbar (1.5 kPa)
- In special cases Deutsche Telekom may request a duct leakage test. The following test data are requested:
- Test pressure 0,6-1,5 bar (subject to the depth), test duration 1 min.
- Test pressure > 1 bar must be tested with 10 bar pressure sensor DRG 10

Code	Type	Explanation	
231750	NDA	see above	0,00



Low pressure add-on test set

This test system is an extension of the DRG 10 pressure recorder the user has available for testing cable conduits to blow up to 10 bar.

Code	Type	Designation	kg
231752	NDA 01	Low pressure add-on test set	22,00



Low pressure test set without battery printer

This complete test system works independently without printer. The measurement data is stored in the system and can be transferred to any PC and processed by means of an infrared interface cable forming part of the system.

Code	Type	Designation	kg
231754	NDO 01	Low pressure test set without battery printer	26,00



Low pressure test set with battery printer

This complete test system works independently with a battery printer. The measurement data is stored in the system and can be printed directly on the battery printer. The measurement data can also be transferred to a PC and processed by means of an infrared interface cable forming part of the system.

Code	Type	Designation	kg
231756	NDM 01	Low pressure test set with battery printer	28,00



Electric diaphragm pump

Electric diaphragm pump to inflate the pipelines to be tested during low pressure testing, including claw coupling 42. Max. pressure 200 mbar

- Displacement at 100 mbar pressure: 160 l/min.
- Displacement at 200 mbar pressure: 120 l/min.

Code	Type	EI-connection	Sound	L/W/H mm	kg
231760	MPU 120	230V/95W	45 db(A)	214/185/211	6,50



Shut-off bladder Mini

Shut-off bladders to lock off the pipeline to be tested. Shut-off bladders are used on the opposite side of the test location. The short dimensions of the Mini version allow space-saving installation of pipe bends also.

Code	Type	For pipe-ID	Cyl.-D	Cyl.-L	Total-L	kg
231768	SBM 7/10	70-100	68	130	175	0,40
231770	SBM 8/15	80-150	72	120	170	0,40
231772	SBM 12/20	125-200	115	150	195	0,80



Test bladder Mini

Test bladders Mini for testing and shutting off pipes for low pressure testing.

Air coupling (brass) standard for bladder extension. Air coupling (chromed) special CE-standard 10.4 mm, for inflating the duct.

Code	Type	For pipe-ID	Cyl.-D	Cyl.-L	Total-L	kg
231778	PBM 7/10	70-100	68	190	340	0,63
231780	PBM 10/15	100-150	90	150	300	1,33
231782	PBM 15/20	150-200	145	195	345	2,83



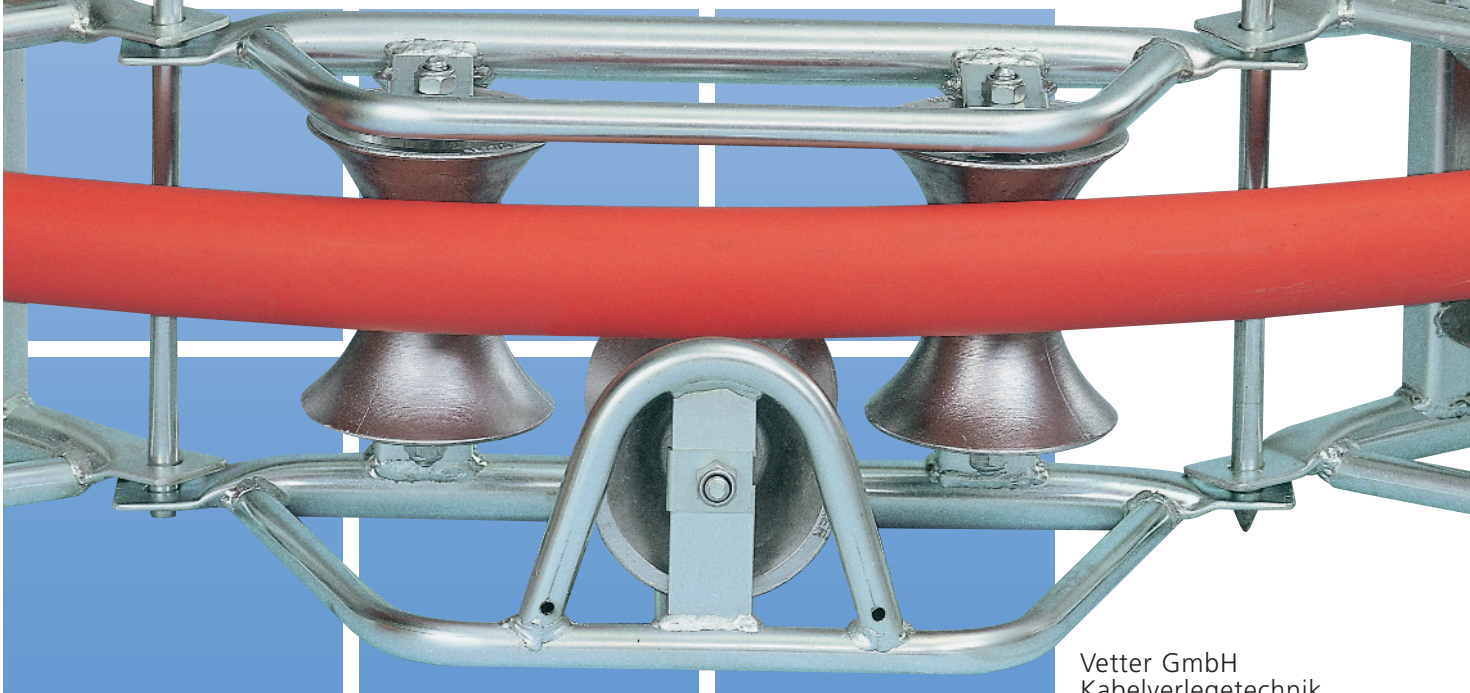
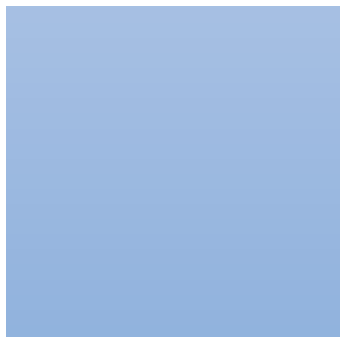
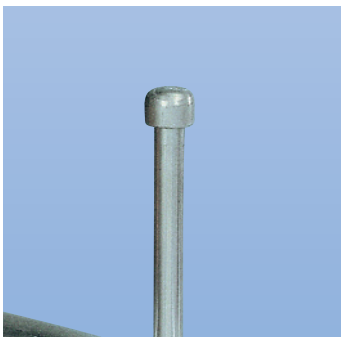
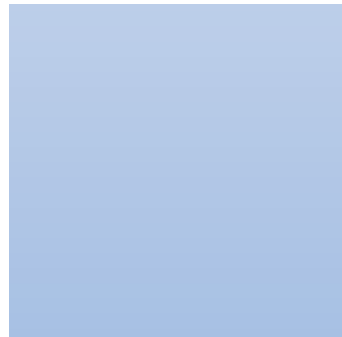
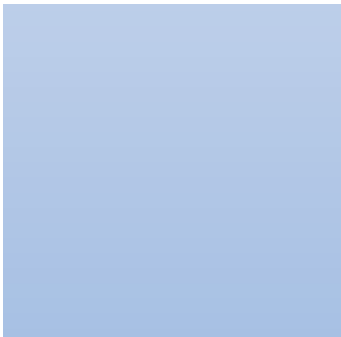
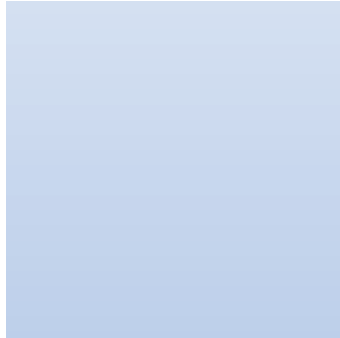
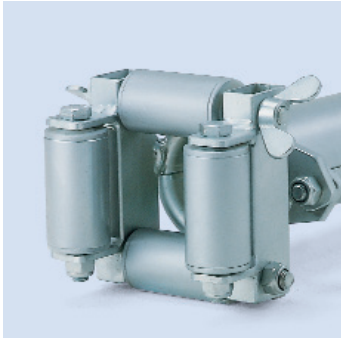
Foot pump with double stroke

Foot pump with double stroke and safety valve 2.5 bar to inflate SBM shut-off bladders and PBM test bladders. The use of a second foot pump for the second pipe end saves considerable installation time.

Code	Type	Press.	kg
231786	FP 2.5	2,5 bar	2,40

Cable laying rollers

Cable laying devices





Cable rollers for straight cable lines

Cable frame rollers for cable-D 10-300 mm

Cable corner and diversion roller bows

Cable guide rollers and canal braces

Cable shaft equipment and cover lifters

Cable and rope lead-in rollers and tubes

Hand-cable cutters

Rope and ACSR cutters

Hydraulic + Accu-cable cutters

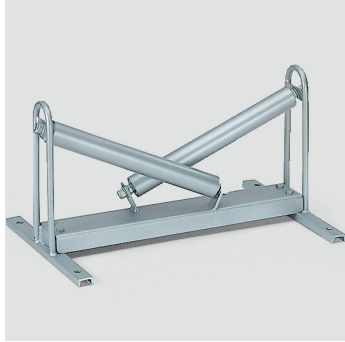
Cable safety cutting systems

Cable length measuring devices for cable-D 3-120 mm

Rolling odometers and rail measuring device

Cable jointer's tents and umbrellas

Cable warning and locating tapes



Cable run out roller

Cable run-out roller for wide cable guidance in front of the cable drum. 2 steel rollers D 60 mm with ball bearings, steel construction galvanized.

Code	Type	Roller-D	Mat.	SWL	L/W/H mm	kg
202090	KR 500	60x500	Steel	200 kg	760x500x460	16,40



Cable run out roller fold up type

Cable run-out roller 2 steel rollers D 60 mm with ball bearings. Capacity 200 kg. Wide cable guidance in front of the drum. Jack-knife type for transportation. Steel construction galvanized.

Code	Type	Roller-D	Open width	Folded L/W/H	kg
202092	KR 750	60x750	1400	850x500x400	18,40



Slim cable rollers

Slim cable laying roller, narrow tube construction. Alu-roller with friction bearings. Steel construction galvanized.

Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202300	CA 1	90/50/100	Alu	to 70	150 kg	250x155x190	2,90



Slim cable rollers

Slim cable laying roller, with base plate, narrow construction. Alu-roller with friction bearings. Steel construction galvanized.

Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202310	CAB 1	90/50/100	Alu	to 70	150 kg	250x155x190	3,30



Cable rollers

Cable laying roller, steel or alu roller, see table below. Steel construction galvanized.

Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202400	KRS 1	120/76/145	Steel	to 100	150 kg	250x230x240	4,20
202410	KRA 1	125/60/146	Alu	to 100	150 kg	250x230x240	4,20



Cable rollers

Cable laying roller with base plate, steel or alu roller, see table below. Steel construction galvanized.

Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202421	KBS 1	120/76/145	Steel	to 100	150 kg	250x230x210	5,20
202420	KBA 1	125/60/146	Alu	to 100	150 kg	250x230x210	5,20



Cable rollers

Cable laying roller, steel roller with ball bearings. Steel construction galvanized.

Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202414	KRQ 1	120/76/185	Steel	to 120	150 kg	290x260x260	5,40



Cable rollers

Cable laying roller for very heavy high voltage cables, cylindrical steel-roller with ball bearings, steel construction galvanized.

Code	Type	Roller-D	Int. width	Cable-D	SWL	L/W/H mm	kg
202470	KRS 1-170	80/216	175	to 170	400 kg	310x255x270	5,80
202472	KRS 1-220	80/275	230	to 220	400 kg	310x315x270	6,40



Fixing nails

Fixing nails steel galvanized for fixing of all cable and pipe rollers to the ground.

Code	Type	Steel-D	Length	kg
205690	BN 30	16	30 cm	0,50
205710	BN 50	16	50 cm	0,80



Cable rollers

Cable laying roller for very heavy high voltage cables, cylindrical steel-roller with ball bearings, steel construction galvanized.

Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202485	KRS 1-600	80/600	Steel	to 200	400 kg	629x295x261	14,00



Cable rollers

Cable laying roller only for slight curvatures, perfect cable guidance in any situation. 1 base and 2 lateral rollers of special aluminium with friction bearings. Steel construction galvanized. Also especially suitable for pulling plastic conduits.

Code	Type	Roller-D / Mat.	Opening	SWL	L/W/H mm	kg
202501	KR 3-120	50 / Alu	120	150 kg	300x250x250	5,70



Connector

Cable roller connector for two ore more cable laying rollers KR 3

Code	Type	Suitable for	kg
202540	VG 3	Cable roller KR 3	0,80



Cable rollers

Cable laying roller, steel-roller with ball bearings, very compact and low steel tube frame galvanized.

Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202425	KRO 1	120/76/174	Steel	to 120	150 kg	370x221x155	5,14



Cable rollers

Cable laying roller, complete plastic construction. Roller with ball bearings, very light weight, see carrying frame as accessory.

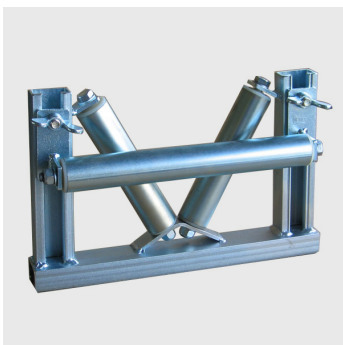
Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202417	KRK 1	142/60/172	PE	to 100	80 kg	280x220x195	1,70



Carrying frame

Carrying frame galvanized for 6 plastic cable rollers KRK 1.

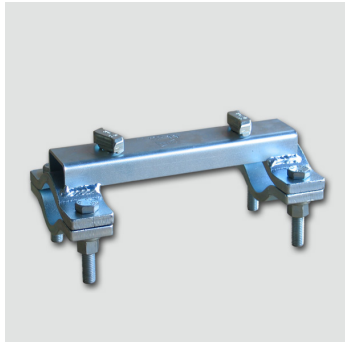
Code	Type	Cap.	Mat.	L/W/H mm	kg
202418	TRG 1	6 KRK 1	Steel	700x260x160	2,10



Cable guide rollers

Cable guide roller, 3 steel-rollers, adjustable, light version, 2 lateral and 1 adjustable horizontal roller, steel construction, galvanized. Frame with C-profile for individual fixing.

Code	Type	Roller-D	Mat.	SWL	L/W/H mm	kg
202110	BR 3	42x320	Steel	200 kg	400x55x250	5,60



Brace retainer

Brace retainer for triangle cable guide roller Code 202.110, BR 3, steel galvanized.

Code	Type	Suitable for	Suitable for	kg
205500	KSP 33	Frame roller BR 3	Braces D 60	2,70



Cable guide rollers

Cable guide roller for save guidance of the cables. 4 alu-rollers with friction bearings. Opening in all positions.

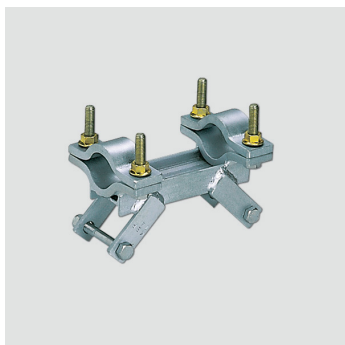
Code	Type	Opening	SWL	L/W/H mm	kg
202130	ER 4-100A	100x100	150 kg	260x60x260	10,00



Mounting base

Mounting base to cable guide roller Code 202.130, ER 4-100A, steel construction galvanized.

Code	Type	Suitable for	kg
202160	BF 4-100	Frame roller ER 4-100A	7,60



Brace retainer

Brace retainer for cable guide roller Code 202.130 ER 4-100A with alu-rollers. Steel construction galvanized.

Code	Type	Suitable for	Suitable for	kg
205400	KSP 14	Frame roller ER 4-100A	Braces D 60	3,40



Cable guide rollers

Cable guide rollers, 4 high wattage-rollers of thick wall steel, diam. 55 mm, with ball bearings. Opening in all positions. Steel construction galvanized. accessory for fixing on canal braces, on mounting base or on profiles are available.

Code	Type	Opening	SWL	L/W/H mm	kg
202131	ER 4-100S	100x100	500 kg	325x325x153	12,00
202132	ER 4-125	125x125	500 kg	350x350x153	14,00
202137	ER 4-150	150x150	500 kg	375x375x153	14,50
202145	ER 4-200	200x200	500 kg	425x425x153	17,20
202147	ER 4-250	250x250	500 kg	475x475x153	22,00
202152	ER 4-300	300x300	500 kg	525x525x153	25,00



Supports for cable guide rollers

Parts for supporting and fixing a.m. cable guide rollers ER 4-100-300 these standards can be screwed on all sizes. Special supports adapted to any kind of profiles are available at short notice.

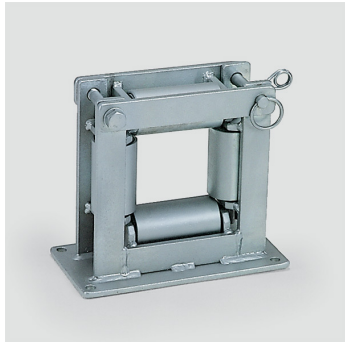
Code	Type	Designation	Suitable for	For	kg
205401	KSP 10	Brace retainer	ER 4-100S	Braces D 45-60	2,00
205402	KSP 12	Brace retainer	ER 4-125-300	Braces D 45-60	3,00
202168	BF 4-100S	Mounting base	ER 4-100S	Fixing on the floor	5,00
202170	BF 4-300	Mounting base	ER 4-125-300	Fixing on the floor	5,80
205420	KSA 22	Support connector	ER 4-125-300	Fixing on profiles	7,00



Tray roller supports

Cable roller holder for guide rollers ER 4-100-250 and clamps for tray wall of 15 mm. Clamps for other walls are available.

Code	Type	Suitable for	Length	kg
278770	PRH 4-715	ER 4-100-250	700	5,00



Cable guide rollers

Cable guide roller, 4 high wattage-rollers of thick wall steel with ball bearings. Opening in all positions. Steel construction galvanized.

Code	Type	Roller-D	Mat.	Pass	SWL	L/W/H mm	kg
202200	ES 4-100	60	Steel	max. 100	1500 kg	300x150x265	17,50



Cable corner rollers

Cable corner roller with 2 vertical and 1 horizontal steel roller with ball bearings. Steel tube construction galvanized. These corner rollers can be connected in any quantity to form a correct curve according to the bending radius of the cable. Please open the drawing pdf here on the left.

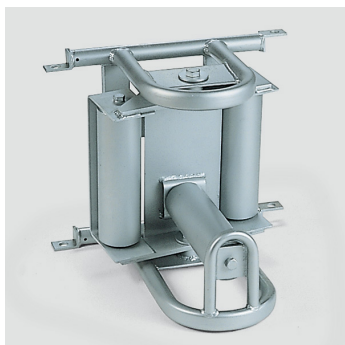
Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202600	ERS 3	120/76/145	Steel	to 100	400 kg	620x310x280	12,00



Cable corner rollers

Cable corner roller with 2 vertical and 1 horizontal steel roller with ball bearings. Sheet steel construction galvanized. These corner rollers can be connected in any quantity to form a correct curve according to the bending radius of the cable.

Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202624	ERQ 3	120/76/185	Steel	to 100	300 kg	450x330x300	16,00



Cable corner rollers

Cable corner rollers high-wattage steel tube construction for heavy high voltage cables. With 2 vertical and 1 horizontal steel roller with ball bearings. This special rocker construction allows an absolute equal radial load to the cable in any corner situation. These corner rollers can be connected in any quantity to form a correct curve according to the bending radius of the cable. Please open the drawing pdf here on the left.

Code	Type	Roller-D	Mat.	Cable-D	SWL	L/W/H mm	kg
202660	EWS 3-110	80/216	Steel	110	800 kg	450x390x340	23,50
202670	EWS 3-170	80/216	Steel	170	800 kg	470x450x400	29,80



Fixing nails

Fixing nails steel galvanized for fixing of all cable rollers and cable corner rollers to the ground. For best and safe fixing nails of a length of 100 cm are recommended.

Code	Type	Steel-D	Length	kg
205730	BN 70	16	70 cm	1,10
205740	BN 100	16	100 cm	1,58



Cable corner rollers

Cable corner and shaft entrance roller, 45°, 3 rollers. Bending radius 700 mm. Steel construction galvanized. Universal roller type e.g. for horizontal or vertical cable diversion. Select this roller either with steel or with alu-rollers, see table below.

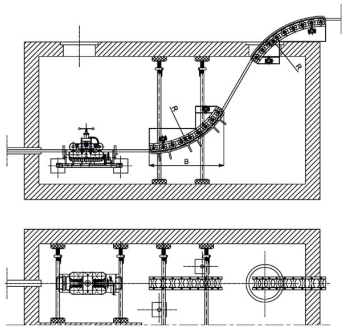
Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202760	SE 3-45S	120/76/145, Steel	700	100	500 kg	530x430x230	14,40
202750	SE 3-45A	125/60/146, Alu	700	100	500 kg	530x430x230	14,20



Cable corner rollers

Cable corner and shaft entrance roller, 90°, 3 rollers. Bending radius 700 mm. Steel construction galvanized. Universal roller type e.g. for horizontal or vertical cable diversion. Select this roller either with steel or with alu-rollers, see table below.

Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202820	SE 6-90S	120/76/145, Steel	700	100	500 kg	750x750x230	24,60
202810	SE 6-90A	125/60/146, Alu	700	100	500 kg	750x750x230	24,20



Cable deviation device

Cable deviation devices for big cable bending radius. Especially for big high voltage cables. Steel construction galvanized. Suitable for many applications, e.g. in shafts, channels or as shaft entrance rollers. See pdf drawings on the left, examples of complete deviation steel construction in cable shafts.

- For a complete cable deviation construction can be used:
- 205.180-205.260, high stressable canal braces in length from 0,80 - 3,00 m
- 205.340, brace connector for cross-connection of two canal braces tubes of diam. 48-60.
- 205.630, brace hinge for fixing any brace to any angular concrete shaft wall.
- 202.848, locking tube bow for fitting or retrofitting on deviation rollers SE 3 to SE 9 securing the cable.

Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202840	SE 6-90S	120/76/145, Steel	1100	100	500 kg	-	25,20

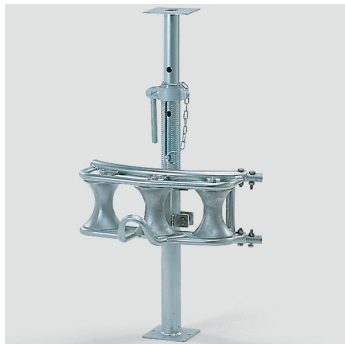
202842 SE 8-90S 120/76/145, Steel 1500 100 800 kg - 41,00



Locking tube bow

Locking tube bow for fitting and retrofitting on cable deviation devices SE 6-9, securing pulling rope and the cable while winch tension release. 4 of them are necessary for 1 bow. Can be mounted and dismantled by hand without any tool.

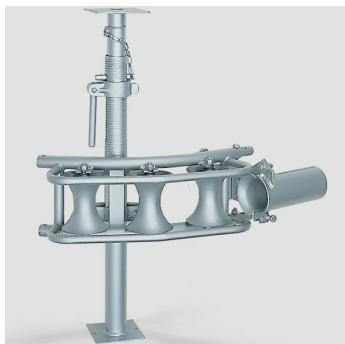
Code	Type	Suitable for	kg
202848	VSB 3-90	to all cable deviation devices SE 6 to SE 9	0,50



Cable diversion rollers

Cable diversion roller 45°, with 3 rollers of steel or alu. Steel construction galvanized. Two or more of them can be coupled. Select this roller either with steel or with alu-rollers, see table below. On the rear side there are 2 clamps for fixing the equipment on a channel brace for cable diversions in manholes. Order braces separately acc. to needed length, see further below.

Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202851	KUG 3-45S	120/76/145, Steel	700	100	500 kg	600x350x230	12,20
202850	KUG 3-45A	125/60/146, Alu	700	100	500 kg	600x350x230	12,00



Cable lead-in rollers

Cable lead-in roller 45° with 3 or 4 rollers of alu or steel. These rollers with a cable lead-in tube can be fixed directly into the tube and be hold by a canal brace. Lead-in tube and brace to ordered separately. Select this roller either with steel or with alu-rollers, see table below. Order braces separately acc. to needed length, see further below. Order also cable lead-in tubes acc. to duct diam. separately, see code 209.560-209.620.

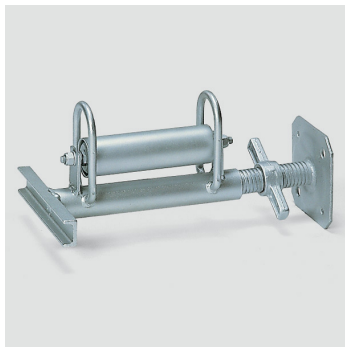
Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202911	KEG 3-45S	120/76/145, Steel	700	100	500 kg	600x350x230	14,50
202910	KEG 3-45A	125/60/146, Alu	700	100	500 kg	600x350x230	14,30
202951	KEG 4-45S	120/76/145, Steel	1100	100	500 kg	800x300x230	21,10
202950	KEG 4-45A	120/76/145, Alu	1100	100	500 kg	800x300x230	20,90



Cable guide rollers

Cable guide rollers for under or over passing of obstacles. Steel-roller with ball bearings D 100/150 mm for heavy loads. Without braces, roller length see table below.

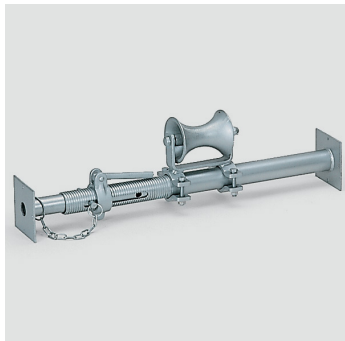
Code	Type	Roller-D	Mat.	C-D	SWL	LO/LI mm	kg
203150	LR 20	100	Steel	unlimited	500 kg	320/210	8,60
203190	LR 40	100	Steel	unlimited	500 kg	420/310	10,70



Cable protection roller

Cable protection roller, 1 steel roller with spindle extendable 350-500 mm. Steel galvanized. Dimension see table below.

Code	Type	Roller-D	Mat.	Extendable	SWL	L/W/H mm	kg
203250	KSR 200	60/200	Steel	400-550	100 kg	400x200x200	6,00

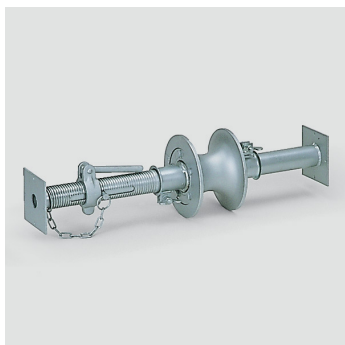


Cable brace roller

Cable guide roller for under or over passing of obstacles. 1 alu-roller without canal brace, accessory. Roller dimension see table below.

Canal braces see 205.160-205.240

Code	Type	Roller-D	Mat.	C-D	SWL	L/W/H mm	kg
203300	KSR 1A	125/60/146	Alu	to 100	100 kg	150x150x180	2,70

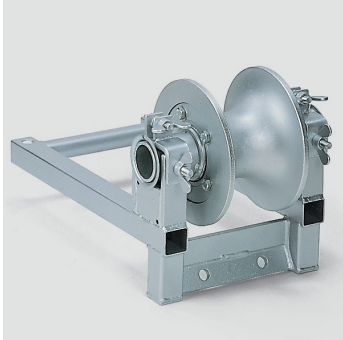


Cable brace roller

Cable guide roller for under or over passing of obstacles. 1 heavy alu-roller for cables up to D 100 mm, without canal brace, accessory. Roller dimension see table below.

Canal braces see 205.160-205.240

Code	Type	Roller-D	Mat.	C-D	SWL	L/W/H mm	kg
203500	ZR 220	220/100/140	Alu	to 100	300 kg	150x150x180	7,60



Edge roller

Edge roller, alu-roller with ball bearings for walls and manhole edges, for cable-D 100 mm.

Code	Type	Roller-D	Mat.	C-D	SWL	L/W/H mm	kg
203640	ZRB 220	220/100/140	Alu	to 100	300 kg	540x300x340	15,90



Cable bundle stand

Bundle stand, triangle changeable up or downgrade, on tripod with height adjustment, steel construction galvanized.

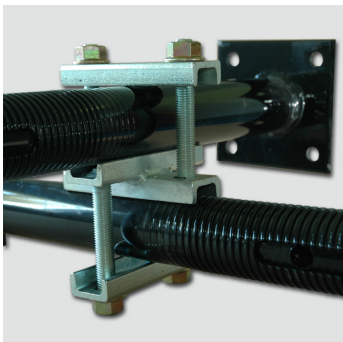
Code	Type	Roller-D	Mat.	SWL	L/W/H mm	kg
203910	BNB 3	42x320	Steel	200 kg	900x900x1300	13,20



Canal braces

Canal braces of steel tubes extendable. Type KS 4-6 is galvanized, types KS 6-10-17-30 are powder coated black.

Code	Type	D-OD	Length	kg
205160	KS 4-6	60	40-60 cm	6,20
205180	KS 6-10	60	60-100 cm	8,50
205200	KS 8-13	60	80-130 cm	10,00
205220	KS 10-17	60	100-170 cm	11,50
205240	KS 14-24	60	140-240 cm	15,50
205260	KS 17-30	60	170-300 cm	19,80



Brace connector

Brace connector for cross-connection of 2 canal braces or tubes. Steel galvanized.

Code	Type	For D-D	kg
205340	SPV 45-60	45-60	2,65



Brace hinge

Brace hinge for fixing of any braces to any angular concrete shaft wall, galvanized.

Code	Type	Suitable for	kg
205630	KSS 6-300	all braces KS 4-6 to KS 17-30	2,00



Cable roller bow

Cable roller bow mainly used in sea cable laying. Steel construction galvanized. Pulleys of high wattage Polyamide plastic with ball bearings also of stainless steel. Dimension: L/W/H 3500x400x2550 mm.

Code	Type	Pulley-D	Rad.	C-D	SWL	kg
202849	SE 12-180	200/100x160/146	1560	125	4800 kg	245,00



Double tandem pulleys

Double tandem pulleys, steel construction galvanized. Four high wattage Polyamide pulleys with ball bearings. Mainly used in sea cable laying. The device adapt automatically to each pulling angle. The double rocker construction allows big bending radius. See pdf-drawing on the left. SWL = safe working load

Code	Type	Pull-OD/ID	Groove	R. 45°	MBL	L/W/H mm	kg
510243	LKT 200P	200/100	D 125	2000	150 kN	1800x250x800	182,00
510245	LKT 202P	200/100	D 125	2000	300 kN	1800x250x800	198,00
510340	LKT 300P	300/120	D 230	2800	150 kN	2500x400x850	251,00

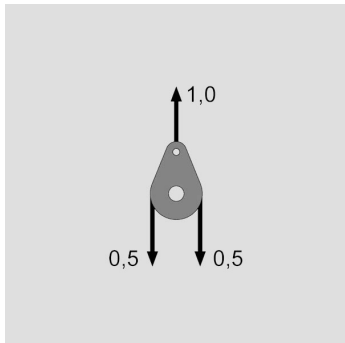


Steel snatch blocks

Steel snatch blocks, steel pulleys with friction bearing, swivelling hook. For diversion of pulling ropes and for mounting works on poles. Please pay attention to the max. allowed lifting load.

- The lifting load must not be higher than 1/2 of the hook load
- Please pay attention to the left-hand symbol

Code	Type	Pulley-D	Groove	Hook load	SWL	Dimension	kg
548240	DSR 10	85/105	D 7	1000 kg	500 kg	305x110x25	3,30
548243	DSR 20	150/190	D 13	2000 kg	1000 kg	425x200x30	8,90
548246	DSR 30	180/220	D 15	3200 kg	1600 kg	496x230x40	15,50
548249	DSR 60	210/260	D 18	6400 kg	3200 kg	655x280x50	26,50



Cover lifter

Cover lifter with triangular handle for light shaft covers, steel construction galvanized. Two required.

Code	Type	Dimension	kg
207110	DHZ 10	480x400x54	3,76



Cover lifter

Cover lifter with spindle for heavy and blocked shaft covers. Please select the height of 540 mm or 700 mm. Steel construction galvanized. Two required

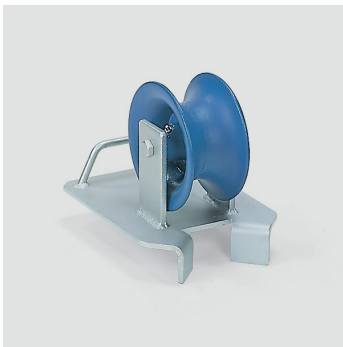
Code	Type	Height	Handle	Width	kg
207120	DHZ 20	540	400	134	6,70
207125	DHZ 27	700	400	134	6,90



Cover lifter

Cover lifter mobile, capacity 600 kg for lifting and transporting away of heaviest shaft covers. High lifting capacity and stroke. Steel construction galvanized. Two required.

Code	Type	Lift each/pair	Lift height	L/W/H mm	kg
207210	DHF 06	600/1200 kg	200	470x260x500	16,00



Shaft edge rollers

Shaft edge rollers for protection of the pulling winch ropes. Steel construction galvanized. High-wattage steel roller with friction bearings.

Code	Type	Roller-D	Type	SWL	L/W/H mm	kg
202700	SKS 1	200/120/90	fix	1000 kg	250x250x250	12,70
202710	SKD 1	200/120/90	swivelling	1000 kg	250x250x250	13,80



Shaft edge rollers

Cable corner and shaft entrance roller, 45°, 3 rollers. Bending radius 700 mm. Steel construction galvanized. Universal roller type e.g. for horizontal or vertical cable diversion. Select this roller either with steel or with alu-rollers, see table below.

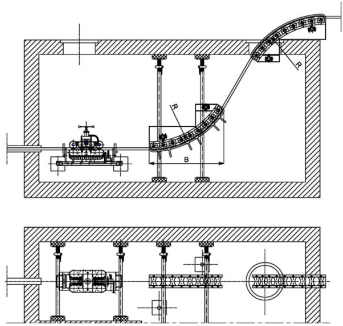
Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202760	SE 3-45S	120/76/145, Steel	700	100	500 kg	530x430x230	14,40
202750	SE 3-45A	125/60/146, Alu	700	100	500 kg	530x430x230	14,20



Shaft edge rollers

Cable corner and shaft entrance roller, 90°, 3 rollers. Bending radius 700 mm. Steel construction galvanized. Universal roller type e.g. for horizontal or vertical cable diversion. Select this roller either with steel or with alu-rollers, see table below.

Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202820	SE 6-90S	120/76/145, Steel	700	100	500 kg	750x750x230	24,60
202810	SE 6-90A	125/60/146, Alu	700	100	500 kg	750x750x230	24,20



Cable deviation device

Cable deviation devices for big cable bending radius. Especially for big high voltage cables. Steel construction galvanized. Suitable for many applications, e.g. in shafts, channels or as shaft entrance rollers. See pdf drawings on the left, examples of complete deviation steel construction in cable shafts.

- For a complete cable deviation construction can be used:
- 205.180-205.260, high stressable canal braces in length from 0,80 - 3,00 m
- 205.340, brace connector for cross-connection of two canal braces tubes of diam. 48-60.
- 205.630, brace hinge for fixing any brace to nay angular concrete shaft wall.
- 202.848, locking tube bow for fitting or retrofitting on deviation rollers SE 3 to SE 9 securing the cable.

Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202840	SE 6-90S	120/76/145, Steel	1100	100	500 kg	-	25,20
202842	SE 8-90S	120/76/145, Steel	1500	100	800 kg	-	41,00



Locking tube bow

Locking tube bow for fitting and retrofitting on cable deviation devices SE 6-9, securing pulling rope and the cable while winch tension release. 4 of them are necessary for 1 bow. Can be mounted and dismantled by hand without any tool.

Code	Type	Suitable for	kg
202848	VSB 3-90	to all cable deviation devices SE 6 to SE 9	0,50



Cable lead-in roller

Cable lead-in roller for protection of the cable and the duct. With steel tubes galvanized with fixing clamp to the duct.

Code	Type	D-ID	Tube-L	Roller-D	kg
274420	LER 22/1	22	240	80/30x38/50	0,60
274430	LER 25/1	25	240	80/30x38/50	0,70
274440	LER 28/1	28	240	80/30x38/50	0,70
274470	LER 35/1	35	240	80/30x38/50	0,82
274490	LER 40/1	40	240	80/30x38/50	0,80
274530	LER 54/1	54	240	80/30x38/50	0,90
274580	LER 74/1	74	240	80/30x38/50	1,20



Cable lead-in tubes

Cable lead-in tube for protection of the plastic conduit. Hinged with clamp for safe fit in the conduit, sheet steel galvanized.

Code	Type	D-ID	Insertion-L	kg
209340	KET 60	55-62	-	1,50
209360	KET 70	64-72	180	1,40
209370	KET 75	72-77	180	1,40
209380	KET 80	77-82	180	1,90
209400	KET 90	89-95	180	1,95
209420	KET 100	97-104	180	2,40
209460	KET 120	115-124	180	2,60
209470	KET 130	128-136	180	3,00
209490	KET 140	135-144	180	3,50
209520	KET 150	142-152	180	5,20
209525	KET 170	160-175	180	5,70
209528	KET 180	170-185	180	5,70
209530	KET 190	180-195	180	5,80
209535	KET 200	195-210	180	6,00



Cable lead-in tubes

Cable lead-in tube to be mounted on the cable lead in rollers KEG 3-7 for protection of the plastic conduit. Hinged with clamp for safe fit in the conduit, sheet steel galvanized.

Code	Type	D-ID	Insertion-L	kg
209560	KTL 80	77-82	180	2,10
209580	KTL 100	97-104	180	2,60
209600	KTL 120	115-124	180	2,80
209620	KTL 150	147-154	180	4,40



Rope lead-in tubes

Rope lead-in-tube with 1 steel roller for protection of the pulling rope and the conduit. Hinged with clamp for safe fit in the tube. Sheet construction galvanized.

Code	Type	D-ID	Steel rollers	Insertion-L	kg
209640	SET 60	55-62	90/50x100	180	3,90
209650	SET 70	64-72	90/50x100	180	3,91
209655	SET 75	71-75	90/50x100	180	4,45
209660	SET 80	77-82	90/50x100	180	4,70
209670	SET 90	90-95	90/50x100	180	4,80
209680	SET 100	97-104	90/50x100	180	5,10
209700	SET 120	115-124	90/50x100	180	5,50
209720	SET 130	128-136	90/50x100	180	6,00
209730	SET 140	135-144	90/50x100	180	5,81
209740	SET 150	147-154	125/60x145	180	8,50
209745	SET 180	170-185	125/60x145	180	10,60
209750	SET 190	180-195	125/60x145	180	10,30
209760	SET 200	195-210	125/60x145	180	10,60



Rope lead-in tubes

Cable lead-in-tube with rollers of for protection of the cable and the conduit. Hinged with clamp for safe fit in the tube. 4 steel rollers D 42 mm, galvanized.

Code	Type	D-ID	Insertion-L	kg
209786	KEK 50	45-50	180	2,70
209792	KEK 75	69-74	180	3,50
209802	KEK 80	77-82	180	3,60
209810	KEK 90	90-95	180	4,20
209820	KEK 100	97-104	180	4,60
209840	KEK 120	115-124	180	5,30
209850	KEK 130	128-136	180	6,00
209860	KEK 140	135-144	180	6,43
209880	KEK 150	147-154	180	8,00
209890	KEK 160	155-165	180	8,20
209910	KEK 180	170-185	180	8,50
209920	KEK 190	180-195	180	8,50
209930	KEK 200	195-210	180	8,80



Leading-in funnel

Cable leading-in funnel, flexible metal hose for introducing all kind of cables into ducts in any position. Two mounted steel ropes lengthwise avoid damaging the flexible hose. During introducing of the cable the cables can be lubricated automatically and evenly on their whole length. Steel galvanized. These funnels can be supplied in different diameters and lengths.

Code	Type	For D-ID	Length	Safety	kg
273050	MET 69/40	69-72	4,00 m	Steel rope	10,40
273100	MET 98/18	98-100	1,80 m	Steel rope	8,80
273108	MET 98/40	98-100	4,00 m	Steel rope	12,90



Protective cable bows

Protective cable bow smooth model, steel sheet galvanized

Code	Type	D-ID	kg
209100	KSB 10	100	1,90



Protective cable bows

Protective cable bow with handle and stop, steel sheet galvanized

Code	Type	D-ID	kg
209180	KSB 30	100	2,30



Protective cable bows

Protective cable bow two pcs. with snout, steel sheet galvanized

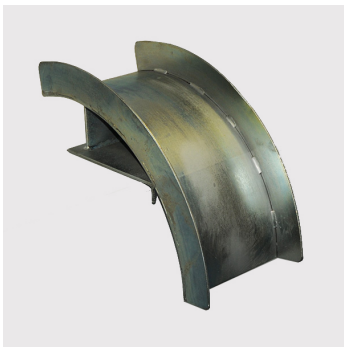
Code	Type	D-ID	kg
209220	KSB 40	100	3,50



Protective cable bows

Protective cable bow for cable shaft edges, steel sheet galvanized

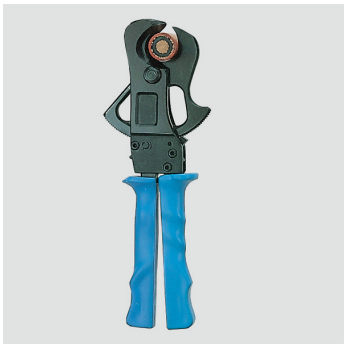
Code	Type	Up to C-D	kg
209140	KSB 20	100	4,70



Protective cable bows

Protective bow for pulling-in multiple ducts, steel sheet galv.

Code	Type	For multiple ducts-D	Width	kg
209230	RSB 200	2x35+2x28	200	7,00



Cable cutters open

Cable cutters with ratchet, open type, for insulated AL- and CU-cables.

Code	Type	C-D to	Length	kg
255980	KTO 25	25	240	0,94
256200	KTO 36	36	320	1,36



Cable cutters open

Cable cutters with ratchet, closed type with swing blades, very compact, for insulated AL- and CU-cables.

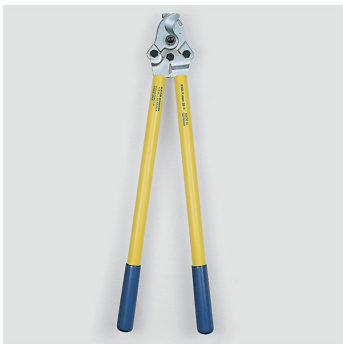
Code	Type	C-D to	Length	kg
256220	KTG 34	34	220	0,75
256230	KTG 42	42	260	1,03
256240	KTG 52	52	290	1,20



Cable cutters closed

Cable cutters with ratchet, closed type with swing blades, very compact, for insulated AL- and CU-cables.

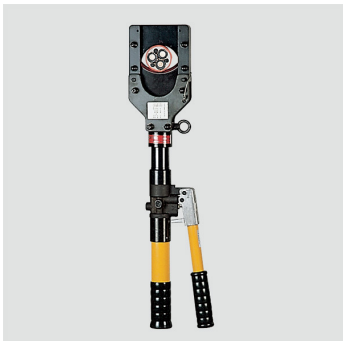
Code	Type	C-D to	Length	kg
256260	KTG 62	62	400	1,70
256280	KTG 80	80	530	3,00



Cable cutters

Cable cutters for insulated AL- and CU-cables

Code	Type	Cable to	Opening	Handle	Length	kg
255200	HK 101/1	150 mm ²	26	Steel	570	1,80
255210	HKI 201/1	150 mm ²	26	insulated	570	2,20
255300	HK 101/2	400 mm ²	40	Steel	950	3,70



Hydraulic cable cutters

Hydraulic cable cutter closed type, for insulated AL- and CU-cables including armouring, but without steel core. Built-in hand pump.

Code	Type	C-D to	Cutter	Cutting force	Length	kg
257550	SH 85	85	closed	55 kN	695	7,50



Hydraulic rope and ACSR cutters

Hydraulic rope and ACSR cutters, cutting heads rotating 180°. For steel ropes and conductors according to table below.

Code	Type	ACSR	Open	Steel-D	Cable	Press.	Length	kg
543500	SH 24	300 mm ²	24	22	24	110 kN	426	3,90
543530	SH 32	495 mm ²	32	32	32	200 kN	675	9,30
543610	SH 40	550 mm ²	40	22	40	90 kN	630	5,20
543670	SH 55	1000 mm ²	55	30	54	125 kN	610	7,80



Accu-hydraulic cable cutters

Battery operated hydraulic cable cutter. Design depending on the size with open or closed cutter. Light and compact structure for cutting Cu and Al cables. Cutting head rotating 360°. High speed feed with double hydraulic cylinder. High capacity Lithium-Ionic battery 18V/3Ah. Approximately 100-120 cuts per charge, depending on the cable. Variable speed for positioning of the tool.

ASL 25-ASL 85 supplied in plastic cases, ASL 95-ASL 120-2 supplied in nylon bag

- Ergonomic design for right and left hander for fatigue-proof working.
- 2 years of guaranty respectively 20.000 cycles.
- Assembly: cutter with battery 18V/3Ah, battery charger and carrying bag.
- Armour Yes means cutting of cables with light steel sheet armour.

Code	Type	Cable to	Cutter	Force	Cable	Armour	kg
257290	ASL 25	D 25	closed	60 kN	Cu/Al/ACSR	Yes	4,20
257300	ASL 45	D 45	closed	60 kN	Cu/Al/ACSR	Yes	5,40
257310	ASL 50	D 50	closed	60 kN	Cu/Al	No	4,90
257320	ASL 65	D 65	open	45 kN	Cu/Al	No	7,40
257330	ASL 85	D 85	closed	70 kN	Cu/Al	No	6,50
257340	ASL 95	D 95	open	65 kN	Cu/Al	No	9,10
257350	ASL 120-2	D 120	open	60 kN	Cu/Al	No	9,50
025732105	Akku 18V	for all	cutters	18V	---	---	0,67



Hydraulic cable cutters with foot-pump

Hydraulic cable cutters with foot-pump. Designed to cut aluminium and copper cables up to a diameter of the selected cutting head, cutting steel armour see table below.

Set existing of cutting head open or closed cutter, with foot-pump, operating pressure 700 bar. Compact dimension and low weight. Fast feeds by means of a double hydraulic cylinder (V1=28,6 cm³; V2=2,0 cm³/stroke)

- Pressure control gauge tank volume 760 ml.
- Manual return in case of need in any position possible.
- Assembly: cutting head, foot-pump, single in plastic cases.
- Without hose, please select length and order hose separately, see table below.
- Armour Yes means cutting of cables with light steel sheet armour.



Code	Type	Cable to	Cutter	Force	Cable	Armour	kg
257600	FPS 85	D 85	closed	70 kN	Cu/Al	Yes	17,60
257605	FPS 95	D 95	open	65 kN	Cu/Al	No	20,50
257610	FPS 120	D 120	closed	135 kN	Cu/Al	Yes	24,20
257620	FPS 120-2	D 120	open	60 kN	Cu/Al	No	23,20
257823	SCHA 3	Hose 3 m	---	---	---	---	3,50
257825	SCHA 5	Hose 5 m	---	---	---	---	6,00





Hydraulic cable cutters with accu-pump

Hydraulic cable cutters with accu-hydraulic pump. Designed to cut aluminium and copper cables up to a diameter of the selected cutting head, cutting steel armour see table below.

Set existing of cutting head open or closed cutter, with accu-hydraulic pump, operating pressure 700 bar. Compact dimension and low weight. Fast feeds by means of a double hydraulic cylinder.

- Accu-hydraulic-pump 700 bar, 18V/3.0 Ah, approx. 80-120 cuts, charging time approx. 60 min.
- Pressure control gauge for max. Cutting force, tank volume 1,18 l, and gettable 0,76 l.
- Two speeds feeds by means of a double hydraulic cylinder, remote cable control 1,50 m
- Assembly: cutting head, accu-pump with 1,50 m hose, single in plastic cases or bags.
- Armour Yes means cutting of cables with light steel sheet armour.



Code	Type	Cable to	Cutter	Force	Cable	Armour	kg
257645	APS 85	D 85	closed	70 kN	Cu/Al	Yes	8,60
257650	APS 95	D 95	open	65 kN	Cu/Al	No	11,50
257655	APS 120	D 120	closed	135 kN	Cu/Al	Yes	15,20
257658	APS 120-2	D 120	open	60 kN	Cu/Al	No	14,20
025732105	Akku 18V	for all	cutters	18V	---	---	0,67
257823	SCHA 3	Hose 3 m	extension	---	---	---	3,50
257825	SCHA 5	Hose 5 m	extension	---	---	---	6,00



Safety cable cutting system with foot-pump

The insulated cable cutter is a device for safe cable cutting when the cable may be live and the absence of tension cannot be checked with complete safety. Such a check is particularly difficult in metallic screened cables. Therefore, before proceeding with any cutting operations, it is essential to take adequate measures to guarantee the operators safety. One of such measure is the use of an insulated cable cutter.

This device with GS-label and conforming to DIN EN 50340 (VDE 0682 part 661) is made up essentially of a foot pump and a cutting head to which a high pressure non-metallic hose of length 10.5 m is connected by a steady fitting. Before carrying out any work on grounding systems for voltages up to 60kV the absence of tension must be guaranteed for the entire duration of the operations.

- Light structure of the foot-pump. Operating pressure: 625 bar (62,5MPa), tank 1200 ml.
- Pressure control by pressure gauge, manual return in any position.
- Fast feed by means of a double hydraulic cylinder ($V_1=18,3 \text{ cm}^3$; $V_2=2,0 \text{ cm}^3/\text{stroke}$).
- Assembly: cutting head, foot-pump, non-metallic hose 10,5 m steady mounted.
- Plastic case with rollers containing the complete set.
- Armour Yes means cutting of cables with light steel sheet armour.



Code	Type	Cable to	Cutter	Force	Cable	Armour	kg
259660	SSF 85	D 85	closed	63 kN	Cu/Al	Yes	23,00
259670	SSF 95	D 95	open	58 kN	Cu/Al	No	26,00
259680	SSF 120	D 120	closed	90 kN	Cu/Al	Yes	26,00
259700	SSF 120-2	D 120	open	54 kN	Cu/Al	No	27,00



Safety cable cutting system with accu-pump

The insulated cable cutter is a device for safe cable cutting when the cable may be live and the absence of tension cannot be checked with complete safety. Such a check is particularly difficult in metallic screened cables. Therefore, before proceeding with any cutting operations, it is essential to take adequate measures to guarantee the operators safety. One of such measure is the use of an insulated cable cutter.

This device with GS-label and conforming to DIN EN 50340 (VDE 0682 part 661) is made up essentially of a foot pump and a cutting head to which a high pressure non-metallic hose of length 10.5 m is connected by a steady fitting. Before carrying out any work on grounding systems for voltages up to 60kV the absence of tension must be guaranteed for the entire duration of the operations.

- Accu-hydraulic-pump 625 bar, 18V/3.0 Ah, approx. 80-120 cuts, charging time approx. 60 min.
- Pressure control gauge for max. cutting force, tank volume 1,18l, and gettable 0,76l.
- Two speeds feeds by means of a double hydraulic cylinder, remote cable control 1,50 m.
- Assembly: cutting head, accu-pump, non-metallic hose 10,5 m steady mounted.
- Plastic case with rollers containing the complete set.
- Armour Yes means cutting of cables with light steel sheet armour.

Code	Type	Cable to	Cutter	Force	Cable	Armour	kg
259710	SSA 85	D 85	closed	63 kN	Cu/Al	Yes	24,50
259720	SSA 95	D 95	open	58 kN	Cu/Al	No	28,00
259730	SSA 120	D 120	closed	90 kN	Cu/Al	Yes	32,00
259740	SSA 120-2	D 120	open	54 kN	Cu/Al	No	32,00
025732105	Akku 18V	for all	cutters	18V	---	---	0,67



Manual cable length measuring devices

Manual cable length measuring devices with counter up to 999,99 m. Accuracy $\pm 0,8\%$, figure height 4 mm.

- Types HK .. only for cables, types HD .. S with hardened rollers also for steel ropes.
- KB 01 Calibration before delivery through Vetter is possible, but this is not a conformity assessment module F1.
- Red hand grip can be unscrewed to screw the device on any other machine.

Code	Type	C-D	St-rope	L/W/H mm	kg
262460	HK 11	3-21	no	300x150x70	1,30
262400	HD 11S	3-21	3-12	300x150x70	1,40
262470	HK 12	3-50	no	330x190x70	1,98
262410	HD 12S	3-50	3-22	330x190x70	2,00
262480	KB 01	Calibration	---	---	0,01

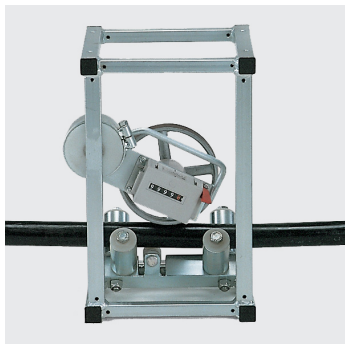




Manual cable length measuring devices

Manual cable and line length measuring devices with counter up to 9999,99 m. Accuracy $\pm 2,0\%$. Figure height 7 mm. Laterally open for endless measuring of cables and conductors. Constant spring pressure and fine adjustment. Calibration and justification for this device is not possible due to the complexity.

Code	Type	C-D	St-rope	L/W/H mm	kg
262500	KDM 45L	5-45	5-20	290x150x120	2,30



Cable length measuring devices

Cable length measuring device, measuring wheel circumference of 500 mm, with counter up to 9999,99 m. Accuracy $\pm 1,0\%$. Figure height 7 mm. Suitable for use in any positions, e.g. hanging on the cable, or as floor type. A spring ensures constant wheel pressure to cable. Calibration and justification for this device is not possible due to the complexity.

Code	Type	C-D	St-rope	L/W/H mm	kg
262530	KLM 110	25-110	no	275x325x425	13,00



Cable and wire length measuring machines, mechanical counter

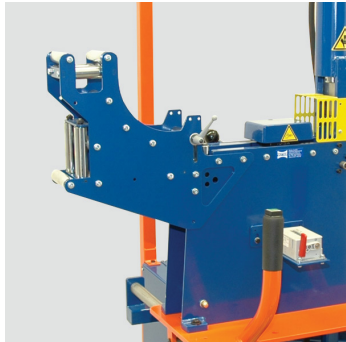
Cable and wire length measuring machines with mechanical counter without data storage, for stationary applications. Very robust steel construction. Due to the big perimeter of 1 m, high accuracy of $\pm 0,5\%$, accuracy class III, at temperatures of 5-40°C. May only be used for purely internal use, not for sales of cables.

Without conformity assessment. Conformity assessment procedure according to Module F1 is possible, which allows direct sales of cables.

- Types MZ ... only for insulated cables, types MZ ... S also for bare metal goods.
- The accuracy refers to a calibrated cable of a length of at least 10 m.
- Measuring machines for cable bigger than $\varnothing 60$ mm are available on request.

Code	Type	C-D	St-rope	L/W/H mm	kg
323730	MZ 20	1-20	no	360/280/400	16,00
323735	MZ 20S	1-20	1-8	360/280/400	16,00
323750	MZ 40	3-40	no	550/300/420	28,00
323755	MZ 40S	3-40	3-22	550/300/420	28,00
323770	MZ 60	10-60	no	700/360/600	54,00
323775	MZ 60S	10-60	6-32	700/360/600	54,00





Cable and wire length measuring machines with electronic counter

Cable and wire length measuring machines with electronic counter for mounting on all cable winding machines and for stationary use. For this the power supply device 323.110 is necessary. Mounted on a spooling machine the power supply comes from the machine. Very robust steel construction. Due to the big perimeter of 1 m high accuracy of $\pm 0,5 \%$, accuracy class III at temperature of 5-40°C.

With conformity assessment according to EU Directive 2014/32/EU, Annex MI-009, valid throughout Europe. Conformity assessment procedure with type examination according to module B and product test according to module F. Equipped as standard with 3.5 inch colour touch screen incl. electronic pre-selection counter.

- Types M ... only for insulated cables, types M ... S also for bare metal goods.
- The accuracy refers to a calibrated cable of a length of at least 5 m.
- Measuring machines for cable bigger than $\varnothing 60$ mm are available on request.
- Power supply given below is only necessary if measuring machines are used with external devices.

Code	Type	C-D	Wire	L/W/H mm	kg
323720	M 20	1-20	nein	360/280/400	17,00
323725	M 20S	1-20	1-8	360/280/400	17,00
323740	M 40	3-40	nein	550/300/420	28,00
323745	M 40S	3-40	3-22	550/300/420	28,00
323760	M 60	10-60	nein	700/630/600	54,00
323765	M 60S	10-60	6-32	700/630/600	54,00
323110	Power unit	24/230 Volt	on M counter	110/110/90	1,00

Roller bow

Roller bow for unwinding cables from drum of upper drum stands. For fitting at cable length measuring machines MZ or M. Steel rollers D 25 mm.

- Type RB 4090 and 6090 - 90° deviation for unwinding from upper drum stands, 15 steel rollers.

Code	Type	Suitable for	C-D	Pass	Bend	L/W/H mm	kg
322783	RB 4090	M/MZ 40	max. 40	45x45	90°	400x180x380	10,10
3227831	RBS 4090	M/MZ 40/40S	max. 40	45x45	90°	400x180x380	10,50
322781	RB 6090	M/MZ 60	max. 60	65x65	90°	450x200x500	30,50

Conformity assessment for M/MZ 20-60 S

Application of the new EU directive 2014/32/EU (MID) has become compulsory on 1 November 2016 and it has been implemented in German law in the Verification Act (MessEG) as well as the Verification Ordinance (MessEV). Apart from the correct measurement of lengths, the requirements for the recording, confirmability and traceability of the measurements have been tightened considerably. The main change is the demand for permanent and non-corruptible storage of all measurements.

Specifically, the legislator demands that information on each measurement be stored securely, permanently and unchangeably. Apart from the actual length, the date and time of the measurement as well as information about the measuring instrument used are of relevance. All of these data are to be identified by means of an unambiguous and unique identifier, the objective being to ensure continuous traceability of each measurement. This means that

Measuring machines delivered from 2017



Cable laying rollers and cable laying tools

machines may only be brought onto the market if they meet these requirements and have been accepted by a conformity assessment body (e.g. German Physical and Technical Institute, PTB, or the verification office) by way of a conformity assessment. The successful assessment of the measuring instruments is confirmed by the declaration of conformity issued by the manufacturer (e.g. Vetter) and is valid throughout Europe.

For companies who wish to sell the cables to third parties in the normal course of business, this means that only length measuring instruments meeting these requirements may be procured in future. The purchaser of a measuring machine with declaration of conformity is obliged to register the measuring machine with the competent verification office (in Germany www.eichamt.de) immediately following the acquisition. Machines with a declaration of conformity from Vetter are deemed duly verified until expiry of the respective nationally regulated verification period. In Germany the rule is that validity of the conformity assessment is of two years. In retail sale the validity is unlimited as long as no seal is damaged or the maximum number of errors permitted in service is not exceeded. Divergent regulations may apply in other countries. These are obtainable from the applicable national laws.

On expiry of the conformity assessment for the above-mentioned reasons, the competent verification office must carry out a reverification. Before this reverification, examination, adjustment and calibration of the measuring machine by trained personnel is recommended.

Thanks to the EU type examination certificate issued by the Federal Institute of Metrology METAS in Switzerland, machines of the new M series from Vetter can be used throughout Europe, irrespective of whether for use as measuring instruments on coiling machines or as a stand-alone solution for individual use. They offer the demanded uniformity, security, transparency and confirmability for buyers and sellers of cables within the European Economic Area. At the same time, the modular concept of the new series also enables use in direct sales or purely internal use and thus rounds off the complete range of applications for cable length measurement.

The Vetter cable measuring machines from the M 20-M60S series correspond to accuracy class III (+/- 0.5 %) according to EU Directive 2014/32/EU (MID) at temperatures of 5-40 °C with a minimum cable measuring length of 5 m for M machines and 10 m for MZ 20-M60S machines.

- KT 001 - Declaration for MZ-MZ/S, with mechanical counter, only for direct sales or purely internal use.
- KT 002 - Declaration for M-M/S, with electronical counter, for business use in absence of the buyer.

Code	Type	Module	For	kg
323700	KT 001	F1	MZ 20-MZ 60S	0,01
323705	KT 002	B+F	M 20-M 60S	0,01

Kalibrier-Bestätigung LM 20-80 (S)
Calibration-Confirmation LM 20-80 (S)

Stand: 01.09.15/VA

Betreiber/User: _____
Firma/Company: _____
Ort/Place: _____

Typ/Type: LM 40 Masch.Nr.: _____
Hersteller/Year of construction: _____

Hersteller/Producer: Vetter GmbH
Selle-Temeter GmbH

Eichstraße/
Calibration site: Nr. Abt.: 509 A

Messlänge/
Measuring length: 20 m Zulässige Toleranz/
Permissible tolerance: +/- 0,5 %
(+/- 0,10 m)

Prüfung/Test 1: _____ m
Prüfung/Test 2: _____ m

Abweichung max./
Difference max.: _____ m

Die Messergebnisse liegen innerhalb der zulässigen Toleranz!
The measuring result is according permissible tolerance.

Kalibrierung durchgeführt/Calibration carried out:
Hiermit: Wolfgang Baum

Datum/Date: _____
Unterschrift/Signature: _____

Vetter GmbH - Kabelverlegetechnik
D-79807 Lottstetten - Tel. +49 7745/9293-0 - Fax +49 7745/9293-499
www.vetter-kabel.de

Calibration of length measuring machines HK/HD/KDM/KLM/MZ

To confirm the testing of length measuring devices, HK/HD/KDM/KLM/MZ, according to ISO 9001 and other QM systems the calibration (KA 001) executed by Vetter is sufficient in most cases. On the other hand the calibration does not replace the EU conformity assessment whenever it comes to commercial sales of cables.

Code	Type	kg
323710	KA 001	0,01



Cable length measuring machine

Cable length measuring machine, very robust construction, measuring wheel circumference of 500 mm, with mechanical counter up to 9999,99 m. Accuracy $\pm 0,4 \%$. Figure height 7 mm. Can be equipped with a pre-set counter as accessory with automatic stop facility.

Code	Type	C-D	St-rope	L/W/H mm	kg
262610	KLM 120	20-120	no	505/280/600	67,00



Rolling odometer

Rolling odometer, collapsible. Rubber tired wheel of a circumference of 1 m. Counter for 9999,99 m, high precision.

Code	Type	Wheel-D	TUEV-tested	Counter acc.	kg
262250	RT 5930	318,5	yes	$\pm 0,02 \%$	4,60
262254	RT 5920	318,5	no	$\pm 0,05 \%$	3,90



Rail measuring device

Unit for measuring rails to mount on the a.m. rolling odometers.

Code	Type	Suitable for	kg
262270	RZ 5932	RT 5930+RT 5920	0,80



Case for odometers

Case of robust plastic for a.m. rolling odometers RT 5930 and RT 5920. Size 620x200x410 mm.

Code	Type	Suitable for	L/W/H mm	kg
262290	RK 5931	RT 5930+RT 5920	620x200x410	1,80



Rolling odometer

Rolling odometer for measuring in the field with big spoked wheel, collapsible. Rubber tired wheel of a circumference of 2 m. Counter for 9999,99 m. (Not TÜV-tested)

Code	Type	Wheel-D	TUEV-tested	Accuracy	kg
262310	RT 5906	637	no	± 0,1 %	6,10



Cable jointer's tents

Cable jointer's tents gable shape, PVC-PSE coated texture, white, with window and flap. Red warning marks around the tent. Hardly inflammable. Included 1 packing sack. Please order chassis separately.

Tent inscriptions on a.m. tents optional available, can be made all around the tent. Letter height 150 mm, price per letter.

Code	Type	Size	Included	kg
271211	ZKF 200	2,00x2,00x2,00 m	1 Tent sack	8,00
271411	ZKF 250	2,50x2,50x1,90 m	1 Tent sack	11,00
271611	ZKF 300	3,00x2,50x1,90 m	1 Tent sack	18,00
271720	ZBB 15	Inscription 150 mm	1 Tent sack	0,01



Tent packing sack as spare part

Tent packing sack suitable for all sizes of the cable jointer's tents. Only as spare part as one sack is supplied with each tent.

Code	Type	Suitable for	As	kg
271690	ZP 2-3	ZKF 200-300	Spare part	0,40



Pegs and poles for tents

Pegs and poles for cable jointer's tents, collapsible, max. transporting length 1,20 m, steel galvanized. Packing sack as accessory, please order separately.

Code	Type	Suitable for	kg
271261	ZG 200	ZKF 200	16,00
271461	ZG 250	ZKF 250	18,00
271661	ZG 300	ZKF 300	20,00

271695 ZGP 300 Packing pack for cages 1,50



Cable splicer's tents, gable shape

Very light cable splicer tents in gable shape. PVC coated texture. White with red base part. Prints of logos, names and other accessories see table below.

- Very light, mounted and dismantled in seconds.
- Structure of high quality glass fibre rods and tent combined in one piece.
- Folded packed in a carrying bag.
- Especially suitable for splicing fibre optic cables.
- Front and rear opening for entrance

Code	Type	Dimension m	kg
271740	ZPK 180	1,80x1,70x1,65	9,00
271745	ZPK 250	2,50x2,00x1,90	13,50



Cable splicer's tents, house shape

Very light cable splicer tents in house shape. PVC coated texture. White with red base part. Prints of logos, names and other accessories see table below.

- Very light, mounted and dismantled in seconds.
- Structure of high quality glass fibre rods and tent combined in one piece.
- Folded packed in a carrying bag.
- Especially suitable for splicing fibre optic cables.

Code	Type	Dimension m	kg
271750	ZPA 180	1,80x1,80x2,00	13,50
271754	ZPA 210	2,10x2,10x2,00	15,00
271758	ZPA 250	2,50x2,50x2,00	18,50
271760	ZPA 300	3,00x2,50x2,00	25,00

Accessories for splicer's tents

Accessories for all above listed splicer's tents

Code	Type	Designation	kg
271764	RWS 130	Warning marks red/white all around the tents	0,01
271766	DRU 130	Inscriptions on tents, logos, names etc. per sq.m	0,01
271768	ABL 130	Anchoring cables with tent pegs, per tent	1,00
271769	ZUT 130	Additional door on the opposite side	0,01
271770	REF 130	Reflector lines around the tents.	0,01
271772	LUF 130	Windows of ventilation, set of 4 pcs	0,01

**Accessory
without
photo**



Umbrella for cable works

Umbrella for cable works decagonal. Canvas, colour olive. For safe fastening in the surface see holder below.

Code	Type	Umbrella-D	Canvas	kg
271780	KLS 200	2,00 m	8 parts	5,00
271810	KLS 250	2,50 m	10 parts	8,50



Umbrella holders

Holders for umbrellas for fixing in the ground, steel galvanized.

Code	Type	For umbrellas	D/length	kg
271860	KOS 250	KLS 200+KLS 250	48/40x600	2,60



Umbrella bag

Umbrella bag of PVC suitable for all umbrellas for cable works.

Code	Type	For umbrellas	kg
271900	KSU 250	KLS 200+KLS 250	1,00



Warning tapes

Warning tapes for cable lines, standard colour yellow, high extensible, 250 m per roll. For special colour or special prints the minimum quantity is 10 rolls.

Code	Type	Print	Width	Thickness	kg
265060	TDK 50	Telekom	50	0,15	2,90
265150	TSS 40	High voltage cable	40	0,15	1,50
265160	TKA 40	Cable	40	0,15	1,50
265490	TSO 40	With special print	40	0,15	1,50
265510	TSO 80	With special print	80	0,15	2,80
265530	TSO 100	With special print	100	0,15	3,50

265860	TAP 40	Cliché for special print	40	all	0,01
265861	TAP 100	Cliché for special print	100	all	0,01



Locating tapes

Locating tapes, standard colour yellow, 250 m per roll, standard width 40 mm, other width available. In the tape integrated are 2 stainless steel wires D 0,5 mm for location. For special colour or special prints the minimum quantity is 10 rolls.

Code	Type	Print	Width	Thickness	kg
265610	TOB 40	With special print	40	0,15	2,30
265860	TAP 40	Cliché for special print	40	all	0,01
265861	TAP 100	Cliché for special print	100	all	0,01



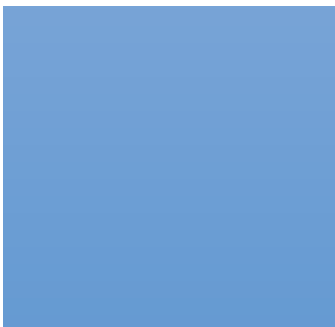
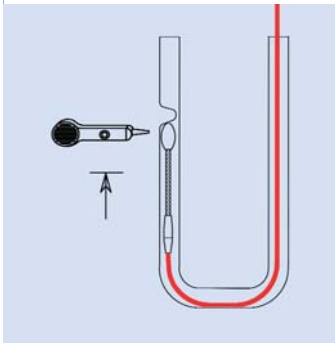
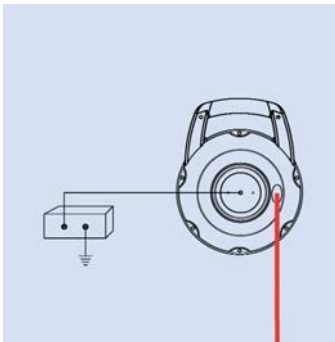
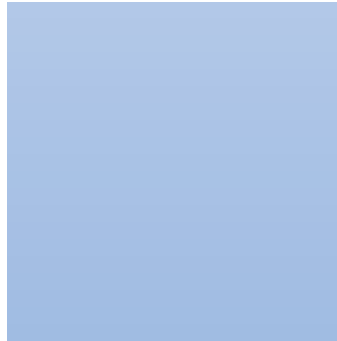
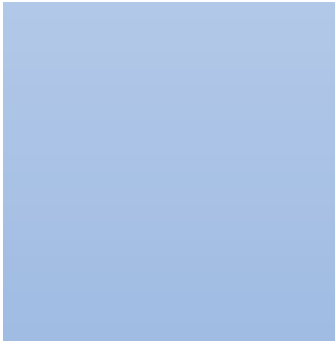
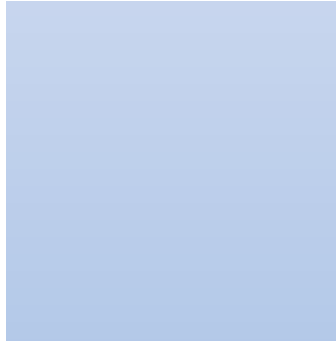
Warning tape dispenser

Warning tape dispenser, light steel construction galvanized. Suitable for all tapes.

Code	Type	For tape width	Roller-D	kg
265890	TWA 100	to 100	to 400	2,00

Mini conduit rod

Cord blowing equipment





Mini conduit rods and accessory

Mini-conduit rods yellow, D 3,0 mm

Mini-conduit detecting rods red, D 3,0 mm

Accessory and using parts to all mini-rods

Nylon and steel pull-in tapes D 4 mm

Conduit rods yellow, D 4,5-6,5 mm

Accessory and using parts to conduit rods D 4,5-6,5 mm

Detecting conduit rods red, D 4,5 mm



Mini-rod yellow

Mini-rod yellow. Highest quality of reinforced fibre rod with PP-covering. Cable pull-in tool complete equipped in plastic housing. Rod-D 3,0 mm, without copper conductors, not for detection, see red Mini-rods. Packed in single box. The core of this rod is reinforced by 10 % additional glass fibres. This leads to a higher pushing stability especially in ducts M 20. Furthermore the breaking resistance is higher. The following accessory is supplied with the Mini Rod:

- 1 Spring guided tip D 7 and 1 pc. D 10.
- 1 cable grip with brass eye for C-D 6- 9.
- 1 Pulling rubber disc D 75.
- 1 Service-set different parts with instruction.



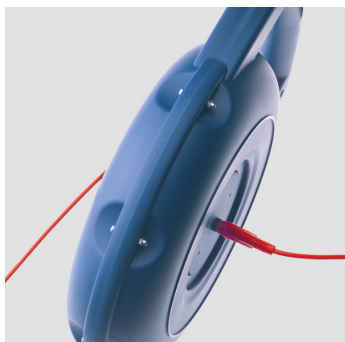
Code	Type	D/m	Housing	Carton	kg
211004	RS 3-30	3/30	320x250x80	350x290x90	1,26
211006	RS 3-50	3/50	320x250x80	350x290x90	1,50



Mini-rod red

Mini-rod red, highest quality of reinforced fibre rod with PP-covering. Cable pull-in tool complete equipped in plastic housing. Rod-D 3,0 mm, with copper conductors for detection. Packed in single box. The core of this rod is reinforced by 10 % additional glass fibres. This leads to a higher pushing stability especially in ducts M 20. Furthermore the breaking resistance is higher. The following accessory is supplied with the Mini Rod:

- 1 Spring guided tip D 7 and 1 pc. D 10.
- 1 cable grip with brass eye for C-D 6- 9.
- 1 Pulling rubber disc D 75.
- 1 Service-set different parts with instruction.



Code	Type	D/m	Housing	Carton	kg
211031	ORS 3-30	3/30	320x250x80	350x290x90	1,30
211033	ORS 3-50	3/50	320x250x80	350x290x90	1,50



Detection of multi ducts with average duct in the centre

Multi ducts can be detected in short distances through the average duct of dia. 12x2,0 or 14x2,0 mm laying in the centre. The micro transmitter SKS 06 of diam. 6,4 mm is screwed on the M5 thread of the mini-rod diam. 3 mm. The obtainable pushing length depends on the local condition but is limited anyway by the max. length of the mini rod of 50 m. Using lubricant relieves pushing and pulling back the transmitter. Detection depth in the ground is max. 2 m. The yellow or red mini rod can be used for inserting the micro transmitter.

Code	Type	Device	Subduct-ID	kg
231941	SKS 06	Micro transmitter	from 8	0,17
231943	BAT 06	Battery set	---	0,04
211006	RS 3-50	Mini rod	---	1,50
235130	J 35V	Lubricant	---	1,00



Detector for non-metallic conduits

Detector with 8 batteries, without transmitter For precise localisation of non-metallic conduits, and to find blockages with the conduit rods yellow or red, D 4,5-11 mm. The following configurations are possible:

- Yellow conduit rod with screwed on duct transmitter RD 18 for spot detection
- Red conduit rod with screwed on duct transmitter RD 18 for spot detection
- Red conduit rod to transmitted by CAT SEN4, for line or spot detection

Code	Type	Frequency	Transmitter	L/W/H mm	kg
231611	CAT4+	33 kHz	without	255/70/725	2,20



Spare mini rod yellow

Spare mini-rod yellow, highest quality of reinforced fibre rod with PP-covering. D 3,0 mm, without copper conductors, not for detection, see red Mini-rods. Ring with 1 spring guiding head D 10 mm. The core of this rod is reinforced by 10 % additional glass fibres. This leads to a higher pushing stability especially in ducts M 20. Furthermore the breaking resistance is higher. The following accessory is supplied with the Mini Rod:

Code	Type	D/m	Ring-D	kg
211012	ES 3-30	3/30	230x35	0,47
211014	ES 3-50	3/50	230x35	0,68



Spare mini rod red

Spare mini-rod red, highest quality of reinforced fibre rod with PP-covering, D 3,0 mm, with copper conductors for detection. Ring with 1 spring guiding head D 10 mm. The core of this rod is reinforced by 10 % additional glass fibres. This leads to a higher pushing stability especially in ducts M 20. Furthermore the breaking resistance is higher. The following accessory is supplied with the Mini Rod:

Code	Type	D/m	Ring-D	kg
211039	OES 3-30	3/30	230x35	0,46
211041	OES 3-50	3/50	230x35	0,66



Accessories

Pulling disc of rubber for safe and careful pulling of the mini-rods.

Code	Type	D	For RS	kg
226290	MBZ 75	75	D 3-12	0,05



Lubricant for indoor installation

Lubricant gel like, for smaller indoor installation cables, in battle. Up to 80 % friction reducing.

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Package	Quantity	kg
235130	J-35V	Bottle	0,95 l	1,00



Accessories

Guide tip with spring for mini-rods, length 87 mm, light tip of alu, for easy sliding through the ducts.

Code	Type	Set of	Thread	kg
226300	RFK 7	3 / D 7	M 5	0,13
226302	RFK 10	3 / D 10	M 5	0,13
226308	RFK 71	1 D 7+1 D 10	M 5	0,09



Accessories

Pulling eyes for all mini-rods of D 3 mm, set of 3 pcs.

Code	Type	Pull eye-D	Thread	kg
226310	RZO 6	6	M 5	0,04



Accessories

Pulling grips with eye M 5, for all rods of RS 3-4,5

Code	Type	C-D	Thread	kg
226312	RZS 6	4-6	M 5	0,02
226313	RZS 9	6-9	M 5	0,02
226314	RZS 12	9-12	M 5	0,02
226315	RZS 15	12-15	M 5	0,03



Service-Set

Service-Set for all mini-rods D 3 mm, yellow and red, consisting of:

- 3 brass sockets
- 2 brass connecting sleeves
- 2 brass pulling eyes
- 1 high strength mixed adhesive
- 1 Instruction

Code	Type	Suitable for	kg
226476	RPS 3	all mini rods	0,10



Perlon pull-in tape D 4 mm

Perlon pull-in tape D 4 mm, with leading spring and eye on both ends, ring packed in bag.

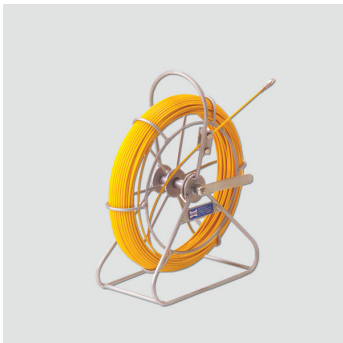
Code	Type	Length	kg
227802	PEB 405	5 m	0,09
227804	PEB 410	10 m	0,15
227806	PEB 415	15 m	0,21
227808	PEB 420	20 m	0,27
227810	PEB 425	25 m	0,34



Steel pull-in tape D 4 mm

Steel pull-in tape D 4 mm with pulling eye, ring packed in bag.

Code	Type	Length	kg
227842	SSP 405	5 m	0,37
227844	SSP 410	10 m	0,70
227846	SSP 415	15 m	1,03
227848	SSP 420	20 m	1,36
227850	SSP 425	25 m	1,70



Conduit rods

Conduit rod, highest quality of reinforced fibre rod with PP-covering. For pushing through conduits and pulling-in of winch ropes or light cables. On galvanized reel with safety brake. Including guide tip of aluminium D 11/M5. Without wheels. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Reel-D	D-ID	kg
211090	RS 4,5-40	4,5/40	11/M5	350	to 50	3,70
211130	RS 4,5-60	4,5/60	11/M5	350	to 50	4,30
211170	RS 4,5-80	4,5/80	11/M5	350	to 50	4,90



Conduit rods with reel

Conduit rod, highest quality of reinforced fibre rod with PP-covering. For pushing through conduits and pulling-in of winch ropes or light cables. On galvanized reel with safety brake. Including guide tip of aluminium D 11/M5. Without wheels. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Reel-D	D-ID	kg
213523	RS 6,5-40	6,5/40	12/M8	600	to 60	7,10
213563	RS 6,5-60	6,5/60	12/M8	600	to 60	8,10
213603	RS 6,5-80	6,5/80	12/M8	600	to 60	9,10



Spare rods

Spare conduit rod yellow, without reel, highest quality of reinforced fibre rod with PP-covering. On ring with alu guide tip. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	kg
211590	ES 4,5-40	4,5/40	11/M5	1,25
211630	ES 4,5-60	4,5/60	11/M5	1,85

211670	ES 4,5-80	4,5/80	11/M5	2,45
214523	ES 6,5-40	6,5/40	12/M8	2,10
214563	ES 6,5-60	6,5/60	12/M8	3,10
214603	ES 6,5-80	6,5/80	12/M8	4,10

Set of screw and joint brass sockets

Set of screw and joint brass sockets with adhesive for rods

Code	Type	For RS	Sleeves	kg
226500	RPS 4	RS 4,5	3 screw, 2 joint socket	0,12
226530	RPS 6	RS 6,5	1 screw, 1 joint socket	0,09



Screw brass sockets

Screw brass socket with thread for conduit rods

Code	Type	Thread	For RS	OD/L	kg
226470	RPA 3	M 5	RS 3,0	6/16	0,01
226480	RPA 4	M 5	RS 4,5	6/18	0,01
226510	RPA 6	M 8	RS 6,5	9/45	0,02

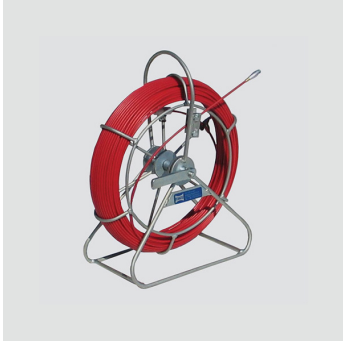


Joint brass sockets

Joint brass socket, without adhesive, for conduit rods

Code	Type	For RS	OD/L	kg
226490	RPV 4	RS 4,5	6/24	0,01
226520	RPV 6	RS 6,5	9/50	0,02





Detecting rods with reel

Detecting red conduit rods, highest quality of reinforced fibre rod with PP-covering. With alu-tip. For route detection with copper conductors, on galvanized reel with safety brake. Can also be used for pulling-in of winch ropes or light cables. Including connector for micro-transmitter with thread M5. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Reel-D	Cond.	D-ID	kg
225003	ORS 4,5-40	4,5/40	11/M5	350	4	to 50	3,80
225005	ORS 4,5-60	4,5/60	11/M5	350	4	to 50	4,40
225007	ORS 4,5-80	4,5/80	11/M5	350	4	to 50	5,00



Spare detecting rods

Spare detecting rod red, highest quality of reinforced fibre rod with PP-covering, with copper conductors for detection. Including connector for transmitter. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Cond.	kg
225011	OES 4,5-40	4,5/40	11/M5	4	1,25
225013	OES 4,5-60	4,5/60	11/M5	4	1,90
225015	OES 4,5-80	4,5/80	11/M5	4	2,50

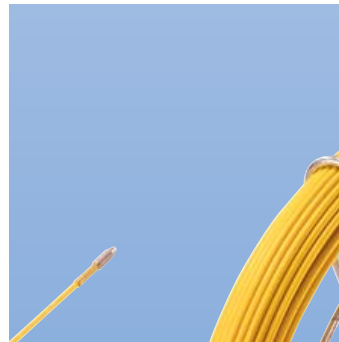
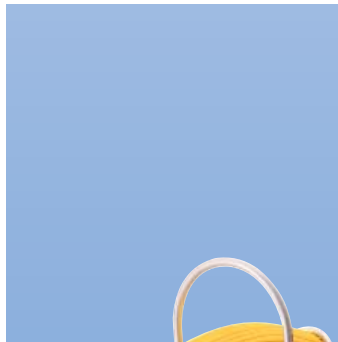
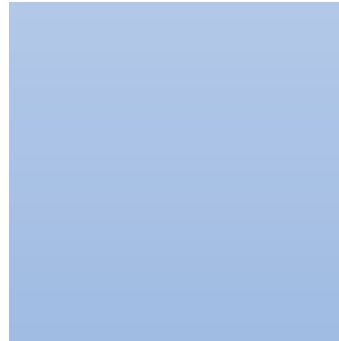
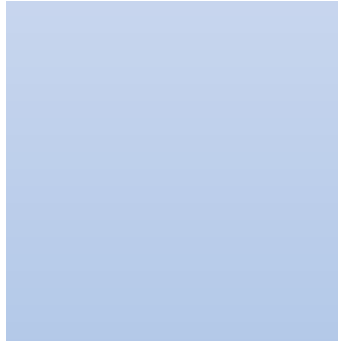


Service-Set for detecting rods

Service-set for detecting rods ORS, 1 screw socket and 1 joint socket, with adhesive.

Code	Type	For ORS	Sleeves	kg
225321	RPO 4	D 4,5	3 screw, 2 joint socket	0,14

Conduit rods Duct and cable locating devices





Conduit rods yellow, D 4,5-11 mm

Conduit rods yellow, D 15 mm

Spare conduit rods yellow, D 4,5-11 mm

Spare conduit rods yellow, D 15 mm

Detecting conduit rods red, D 4,5-11 mm

Detecting conduit rods red, D 15 mm

Spare detecting rods red, D 4,5-11 mm

Spare detecting rods red, D 15 mm

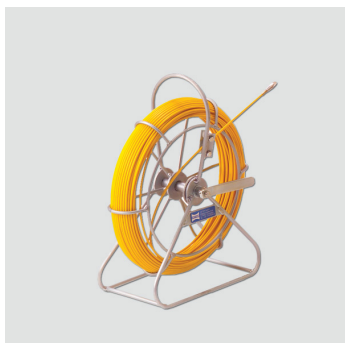
Conduit rod pushing unit on trailer

Guide tips, connectors, catching hooks and length meter

Accessory and using parts to conduit rods

Reels only to conduit rods, D 350-1500 mm

Cable and pipe detection equipment



Conduit rods D 4,5 mm with reel

Conduit rod, highest quality of reinforced fibre rod with PP-covering. For pushing through conduits and pulling-in of winch ropes or light cables. On galvanized reel with safety brake. Including guide tip of aluminium D 11/M5. Without wheels. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Reel-D	D-ID	kg
211090	RS 4,5-40	4,5/40	11/M5	350	to 50	3,70
211130	RS 4,5-60	4,5/60	11/M5	350	to 50	4,30
211170	RS 4,5-80	4,5/80	11/M5	350	to 50	4,90



Conduit rods D 6,5 mm with reel

Conduit rod, highest quality of reinforced fibre rod with PP-covering. For pushing through conduits and pulling-in of winch ropes or light cables. On galvanized reel with safety brake. Including guide tip of aluminium D 11/M5. Without wheels. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Reel-D	D-ID	kg
213523	RS 6,5-40	6,5/40	12/M8	600	to 60	7,10
213563	RS 6,5-60	6,5/60	12/M8	600	to 60	8,10
213603	RS 6,5-80	6,5/80	12/M8	600	to 60	9,10



Conduit rods D 9-11 mm with reel

Conduit rod, highest quality of reinforced fibre rod with PP-covering. For pushing through conduits and pulling-in of winch ropes or light cables. Including guide tip of aluminium D 25/M12 and shackle. On galvanized reel with safety brake. With 2 wheels. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Reel-D	D-ID	kg
215103	RS 9-40	9,0/40	25/M12	800	to 120	18,10
215163	RS 9-60	9,0/60	25/M12	800	to 120	20,40
215243	RS 9-80	9,0/80	25/M12	800	to 120	22,55
215303	RS 9-100	9,0/100	25/M12	800	to 120	24,80
215363	RS 9-120	9,0/120	25/M12	800	to 120	26,90
215373	RS 9-120	9,0/120	25/M12	1000	to 120	34,70
221463	RS 11-150	11,0/150	25/M12	1000	to 200	45,50
221603	RS 11-200	11,0/200	25/M12	1000	to 200	53,50
221613	RS 11-200	11,0/200	25/M12	1200	to 200	59,00
221763	RS 11-250	11,0/250	25/M12	1200	to 200	67,10
221913	RS 11-300	11,0/300	25/M12	1200	to 200	75,20



Conduit rods D 15 mm with reel

Conduit rod, highest quality of reinforced fibre rod with PP-covering. For pushing through conduits and pulling-in of winch ropes or light cables. Including guide tip of aluminium D 25/M12 and shackle. On galvanized reel with safety brake. With 2 wheels. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

The position of the rod entry and exit guiding can easily be changed from the upper or lower part of the reel or vice versa.

Code	Type	D/m	Alu-tip-D	Reel-D	D-ID	kg
224200	RS 15-200	15,0/200	25/M12	1500	to 400	126,00
224220	RS 15-250	15,0/250	25/M12	1500	to 400	141,00
224240	RS 15-300	15,0/300	25/M12	1500	to 400	157,00
224260	RS 15-350	15,0/350	25/M12	1500	to 400	171,00
224280	RS 15-400	15,0/400	25/M12	1500	to 400	186,00



Spare rods D 4,5-11 mm

Spare conduit rod yellow, without reel, highest quality of reinforced fibre rod with PP-covering. On ring with alu guide tip. From diam. 9 with shackle. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	kg
211590	ES 4,5-40	4,5/40	11/M5	1,25
211630	ES 4,5-60	4,5/60	11/M5	1,85
211670	ES 4,5-80	4,5/80	11/M5	2,45
214523	ES 6,5-40	6,5/40	12/M8	2,10
214563	ES 6,5-60	6,5/60	12/M8	3,10
214603	ES 6,5-80	6,5/80	12/M8	4,10
217103	ES 9-40	9,0/40	25/M12	4,70
217163	ES 9-60	9,0/60	25/M12	6,80
217243	ES 9-80	9,0/80	25/M12	9,10
217313	ES 9-100	9,0/100	25/M12	11,30
217373	ES 9-120	9,0/120	25/M12	13,45
223463	ES 11-150	11,0/150	25/M12	24,40
223613	ES 11-200	11,0/200	25/M12	32,40
223763	ES 11-250	11,0/250	25/M12	40,50
223913	ES 11-300	11,0/300	25/M12	48,50

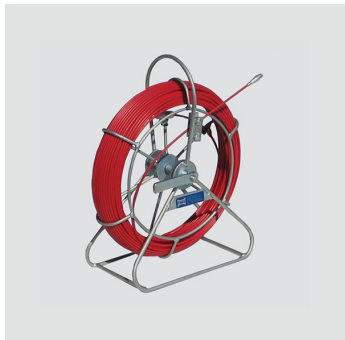


Spare rods D 15 mm

Spare conduit rod yellow, without reel, highest quality of reinforced fibre rod with PP-covering. On ring with alu guide tip. From diam. 9 with shackle. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

- The spare rods are delivered as rings tied off with cable ties.
- There is a high and dangerous spring tension when opening the ring.
- For safety reasons we do not supply 15 mm rods as rings.
- For winding-in 15 mm rods into empty reels a special machine is needed.
- Therefore the winding-in process can only be done at the Vetter premises.
- We request you to provide us with the suitable empty reel
- Please contact our sales department in order to organize a smooth processing.

Code	Type	D/m	Alu-tip-D	kg
224372	ES 15-200	15,0/200	25/M12	60,30
224374	ES 15-250	15,0/250	25/M12	75,30
224376	ES 15-300	15,0/300	25/M12	90,30
224378	ES 15-350	15,0/350	25/M12	105,00
224380	ES 15-400	15,0/400	25/M12	120,00



Detecting rods D 4,5 mm with reel

Detecting red conduit rods, highest quality of reinforced fibre rod with PP-covering. With alu-tip. For route detection with copper conductors, on galvanized reel with safety brake. Can also be used for pulling-in of winch ropes or light cables. Including connector for micro-transmitter with thread M5. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Reel-D	CU	D-ID	kg
225003	ORS 4,5-40	4,5/40	11/M5	350	4 cond.	to 50	3,80
225005	ORS 4,5-60	4,5/60	11/M5	350	4 cond.	to 50	4,40
225007	ORS 4,5-80	4,5/80	11/M5	350	4 cond.	to 50	5,00



Detecting rods D 7,4 mm with reel

Detecting red conduit rods, highest quality of reinforced fibre rod with PP-covering. With alu-tip. For route detection with copper conductors, on galvanized reel with safety brake. Can also be used for pulling-in of winch ropes or light cables. Including connector for micro-transmitter with thread M5. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Reel-D	CU	D-ID	kg
225034	ORS 7,4-40	7,4/40	25/M12	600	6 cond.	to 80	8,10
225036	ORS 7,4-60	7,4/60	25/M12	600	6 cond.	to 80	9,50
225038	ORS 7,4-80	7,4/80	25/M12	600	6 cond.	to 80	10,90
225040	ORS 7,4-100	7,4/100	25/M12	800	6 cond.	to 80	18,60



Detecting rods D 9-11 mm with reel

Detecting red conduit rods, highest quality of reinforced fibre rod with PP-covering. With alu-tip. For route detection with copper conductors, on galvanized reel with safety brake. Can also be used for pulling-in of winch ropes or light cables. Including connector for micro-transmitter with thread M5. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	Reel-D	CU	D-ID	kg
225205	ORS 9,0-60	9,0/60	25/M12	800	6 cond.	to 120	19,80
225207	ORS 9,0-80	9,0/80	25/M12	800	6 cond.	to 120	21,80
225209	ORS 9,0-100	9,0/100	25/M12	800	6 cond.	to 120	23,80
225211	ORS 9,0-120	9,0/120	25/M12	800	6 cond.	to 120	25,80
225250	ORS 11,0-150	11,0/150	25/M12	1000	6 cond.	to 200	44,20
225254	ORS 11,0-200	11,0/200	25/M12	1000	6 cond.	to 200	51,70
225258	ORS 11,0-250	11,0/250	25/M12	1200	6 cond.	to 200	64,70
225262	ORS 11,0-300	11,0/300	25/M12	1200	6 cond.	to 200	72,10



Detecting rods D 15 mm with reel

Detecting red conduit rods, highest quality of reinforced fibre rod with PP-covering. For route detection with copper conductors: Included alu tip with shackle. On galvanized reel with safety brake. Can also be used for pulling-in of winch ropes or light cables. Including connector for transmitter. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

The position of the rod entry and exit guiding can easily be changed from the upper or lower part of the reel or vice versa.

Code	Type	D/m	Alu-tip-D	Reel-D	CU	D-ID	kg
225302	ORS 15,0-200	15,0/200	25/M12	1500	6 cond.	to 400	121,00
225303	ORS 15,0-250	15,0/250	25/M12	1500	6 cond.	to 400	136,00
225304	ORS 15,0-300	15,0/300	25/M12	1500	6 cond.	to 400	150,00
225305	ORS 15,0-350	15,0/350	25/M12	1500	6 cond.	to 400	165,00
225306	ORS 15,0-400	15,0/400	25/M12	1500	6 cond.	to 400	180,00



Spare detecting rods D 4,5-11 mm

Spare detecting rod red, highest quality of reinforced fibre rod with PP-covering, with copper conductors for detection. Including connector for transmitter. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

Code	Type	D/m	Alu-tip-D	CU	kg
225011	OES 4,5-40	4,5/40	11/M5	4 cond.	1,25
225013	OES 4,5-60	4,5/60	11/M5	4 cond.	1,90
225015	OES 4,5-80	4,5/80	11/M5	4 cond.	2,50
225045	OES 7,4-40	7,4/40	25/M12	6 cond.	3,00

225047	OES 7,4-60	7,4/60	25/M12	6 cond.	4,40
225049	OES 7,4-80	7,4/80	25/M12	6 cond.	5,80
225051	OES 7,4-100	7,4/100	25/M12	6 cond.	7,20
225218	OES 9,0-60	9,0/60	25/M12	6 cond.	6,20
225220	OES 9,0-80	9,0/80	25/M12	6 cond.	8,20
225222	OES 9,0-100	9,0/100	25/M12	6 cond.	10,30
225224	OES 9,0-120	9,0/120	25/M12	6 cond.	12,30
225268	OES 11,0-150	11,0/150	25/M12	6 cond.	22,80
225272	OES 11,0-200	11,0/200	25/M12	6 cond.	30,30
225276	OES 11,0-250	11,0/250	25/M12	6 cond.	37,80
225280	OES 11,0-300	11,0/300	25/M12	6 cond.	45,20



Spare detecting rods D 15 mm

Spare detecting rod red, highest quality of reinforced fibre rod with PP-covering, with copper conductors for detection. On ring with alu guide tip. From diam. 9 with shackle. Including connector for transmitter. The core of this rod is reinforced by 27 % additional glass fibres. This leads to a higher pushing stability and also to higher breaking resistance.

- The spare rods are delivered as rings tied off with cable ties.
- There is a high and dangerous spring tension when opening the ring.
- For safety reasons we do not supply 15 mm rods as rings.
- For winding-in 15 mm rods into empty reels a special machine is needed.
- Therefore the winding-in process can only be done at the Vetter premises.
- We request you to provide us with the suitable empty reel
- Please contact our sales department in order to organize a smooth processing.

Code	Type	D/m	Alu-tip-D	CU	kg
225292	OES 15,0-200	15,0/200	25/M12	6 cond.	60,20
225293	OES 15,0-250	15,0/250	25/M12	6 cond.	75,40
225295	OES 15,0-300	15,0/300	25/M12	6 cond.	90,40
225296	OES 15,0-350	15,0/350	25/M12	6 cond.	105,40
225297	OES 15,0-400	15,0/400	25/M12	6 cond.	120,40



Rod pushing unit on trailer

This rod pushing unit is used for introducing rods through empty or occupied conduits. The strong hydraulic driven cable feeder is able to force a high push with its long steel chains equipped with neoprene profiles. The special strong rod of 15 mm is selectable in lengths between 300 to 400 m, guarantees a very high pushing stability. The reel for the rod and the length measuring counter are included in the pushing unit, but the rod itself has to be ordered by the wished length. If blockages or damages are suspected in the ducts the use of a red detectable rod with copper conductors is recommendable. This enable the duct line to be followed by a detector and to find the blockades, see table below.

The pushing unit can be mounted on a trailer either with canvas cover or with hard box or on any other vehicles. Details see below.

Code	Type	Designation	Configuration
224000	---	Pushing unit fix on trailer	See details below. 0,00

Rod pushing units

This pushing unit is either for fix mounting on one of the trailer either with canvas cover or with hard box, or is mounted on a base frame. The unit can work independent stationary or be pulled into the trailer to work as a mobile device. The reel and the length measuring counter for the rod are included, the selected length between 300-400 m of the rod has to be ordered separately, see table below.

To work with the unit on base frame without trailer, the 4 outriggers have to be retracted and the whole unit must be secured against a pull or push of at least 250 daN.

This version presents the following advantages:

- The pushing unit can easily be pulled out or into the trailer without mounting work.
- Afterwards the trailers can be used for any other transports.
- The pulled out unit can provide the same performance without the trailer.
- The complete unit can be mounted on different other platforms.
- Rod feeder optional with petrol engine or electric hydraulic power pack
- With rod reel including length meter. Without rod to order separately acc. wished length
- Dimension of the pushing unit on base frame 2500/1290/1700 mm

Code	Type	Designation	Push/Pull	m/min.	kg
224320	RSA 15	Pushing unit	250/200 daN	8-50	235,00
224330	RSAG 15	Base frame RSA 15	---	---	54,00
224360	Surcharge	For base plate	---	---	8,70





Trailer for conduit pushing units

Trailer with canvas cover (flat bed trailer). Aluminium platform gate, to rise on the right side and on the rear by pneumatic springs. These protect personnel from weather and humidity.

Trailer with hard body box (flat bed trailer). Box made 17 mm thick Plywood, inside and outside coated by white GFK. To rise on the right side and on the rear by pneumatic springs. These protect personnel from weather and humidity. Mounting the pushing unit as above mentioned.

Both trailers are equipped with a straight drawing bar with overrun brake and a ball coupling and two rear outriggers. Each mounted device can be dismantled from the trailer and be used individual for any other work.

- Trailer, canvas cover L/W/H: 3950/1830/2300, straight drawing bar, overrun brake, coupling height 450
- Trailer, hard body box L/W/H: 2950/2080/2420, V-shaped drawing bar, overrun brake, coupling height 450

Code	Type	Trailer	Tot. weight	kg
022430001	1226/13	Canvas cover	1200 kg	350,00
022431001	12738/13	Hard body box	1300 kg	550,00
022430101	Surcharge	Four lashing points	on trailers	5,00
034919120	Surcharge	Anti-theft device	on trailers	1,00

Guide tips

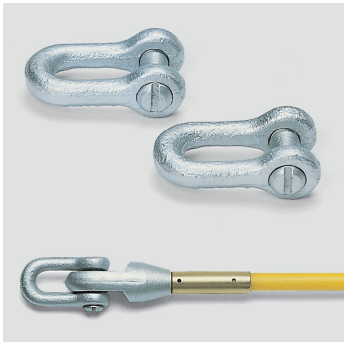
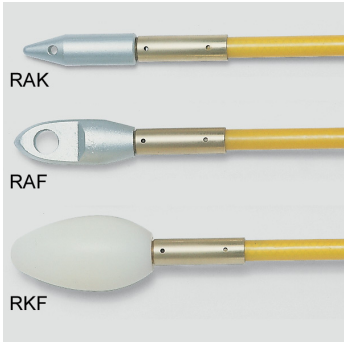
Guide tip for easy sliding through the pipes. Made of alu or polyamide.

Code	Type	D/Thread	For RS	Mat.	kg
226320	RAK 11	11/M 5	4,5	Alu	0,01
226350	RAK 12	12/M 8	6,5	Alu	0,01
226380	RAK 17	17/M 12	9-15	Alu	0,02
226400	RAF 25	25/M 12	9-15	Alu	0,05
226410	RKF 28	28/M 12	9-15	Poly.	0,08
226420	RKF 40	40/M 12	9-15	Poly.	0,14

Shackle

Shackle for guide tip RAF 25, special slim version with slotted screw

Code	Type	Bolt-D	Opening	kg
226440	RSL 10	10	14	0,09





Guide ball

Guide balls for easy sliding through the pipes. Made of PE.

Code	Type	D/Thread	For RS	Mat.	kg
226423	RFK 70	70/M 12	9-15	PE	0,14
226424	RFK 75	75/M 12	9-15	PE	0,16
226425	RFK 85	85/M 12	9-15	PE	0,18



Guide roller

Guide roller easy pushing through in occupied conduits. Suitable to all rods D 9-11 mm, including guide tips for screwing on the rods.

Code	Type	D/Thread	For RS	Mat.	kg
226430	RFR 50	50/M 12	9-15	Alu	0,21



Connectors

Connecting swivel for coupling of two ore more conduit rods.

Code	Type	D/L/Thread	For RS	kg
226160	RSK 12	12x55/M 8	6,5	0,04
226170	RSK 18	18x80/M 12	9-15	0,11



Guide swivel

Guide swivel for conduit rods, for twist-free pulling of winch ropes or cables. Steel galvanized.

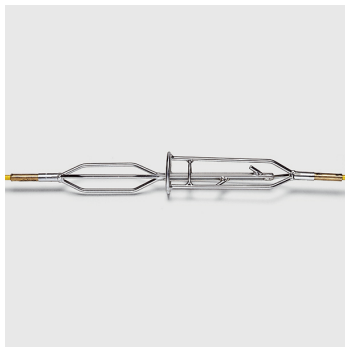
Code	Type	D/L/Thread	For RS	kg
226390	RSW 18	18x80/M 12	9-15	0,13



Catch hooks

Catch hook, very light version of alu for pushing two conduit rods from opposite parts. When they meet, the catch hooks couple automatically.

Code	Type	D-ID	Thread	kg
226180	RSF 35	40-50	M 12	0,50



Catch hooks

Catch hook, very light version of steel for pushing two conduit rods from opposite parts. When they meet, the catch hooks couple automatically.

Code	Type	D-ID	Thread	kg
226200	RSF 50	50-80	M 12	0,40
226210	RSF 100	80-100	M 12	0,80



Length meter

Length meter for conduit rods. Protected mounted in the interior space of the reel. Tolerance +/-0,5 %. Retrofitting on existing reels is possible.

Code	Type	For rod-D	Suitable for	kg
226140	RLM 600	4,5-7,4	Reel-D 600	0,80
226150	RLM 911	6,5-11,0	Reel-D 800-1200	0,65



Set of screw and joint brass sockets

Set of screw and joint brass sockets with adhesive for rods

Code	Type	For RS	Sleeves	kg
226500	RPS 4	RS 4,5	3 screw, 2 joint socket	0,12
226530	RPS 6	RS 6,5	1 screw, 1 joint socket	0,09
226545	RPS 7	RS 7,4	1 screw, 1 joint socket	0,10
226590	RPS 9	RS 9,0	1 screw, 1 joint socket	0,15
226633	RPS 11	RS 11,0	1 screw, 1 joint socket	0,15
226653	RPS 15	RS 15,0	1 screw, 1 joint socket	0,20



Screw brass sockets

Screw brass socket with thread for conduit rods

Code	Type	Thread	For RS	OD/L	kg
226470	RPA 3	M 5	RS 3,0	6/16	0,01
226480	RPA 4	M 5	RS 4,5	6/18	0,01
226510	RPA 6	M 8	RS 6,5	9/45	0,02
226540	RPA 7	M 12	RS 7,4	12/41	0,02
226570	RPA 9	M 12	RS 9,0	13/58	0,05
226613	RPA 11	M 12	RS 11,0	13/58	0,05
226643	RPA 15	M 12	RS 15,0	15/75	0,07



Joint brass sockets

Joint brass socket, without adhesive, for conduit rods

Code	Type	For RS	OD/L	kg
226490	RPV 4	RS 4,5	6/24	0,01
226520	RPV 6	RS 6,5	9/50	0,02
226542	RPV 7	RS 7,4	10/42	0,03
226580	RPV 9	RS 9,0	13/60	0,05
226623	RPV 11	RS 11,0	13/60	0,05
226648	RPV 15	RS 15,0	18/85	0,08



Adhesive

Mixed adhesive, high tensile strength, for brass sockets of all conduit rods

Code	Type	Adequate for	kg
226785	RPK 33	16 bondings	0,05



Service-Set for detecting rods

Service-set for detecting rods ORS, 1 screw socket and 1 joint socket, with adhesive.

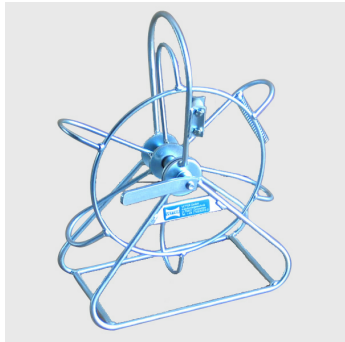
Code	Type	For ORS	Sleeves	kg
225321	RPO 4	D 4,5	3 screw, 2 joint, 1 shrink hose	0,14
225323	RPO 7	D 7,4	1 screw, 1 joint, 1 shrink hose	0,20
225324	RPO 9	D 9,0	1 screw, 1 joint, 1 shrink hose	0,25
225325	RPO 11	D 11,0	1 screw, 1 joint, 1 shrink hose	0,25
225326	RPO 15	D 15,0	1 screw, 1 joint, 1 shrink hose	0,27



Duct transmitter on rods

Duct transmitter for screwing on conduit rods yellow or red of D 6,5-15 mm.

Code	Type	Frequ.	D/L	Thread	Depth	Capac.	kg
231623	RD 18N	33 kHz	18/88	M 10	8,0 m	20h	0,27
231627	RD 39	33 kHz	39/120	M 10	5,0 m	8h	0,18
231628	RD 64	33 kHz	64/150	M 10	8,0 m	15h	0,34



Reel only to rods

Reel only to conduit rod, steel galvanized, with safety reel brake, without wheels.

Code	Type	Reel-D	For RS	L max.	L/W/H mm	kg
226010	RSH 350	350	4,5	80 m	320/170/430	2,45
226020	RSH 600	600	6,5	80 m	550/240/690	4,90



Reel only to rods

Reel only to conduit rod, steel galvanized, with safety reel brake, with 2 wheels.

Code	Type	Reel-D	For RS	L max.	L/W/H mm	kg
226070	RSH 800	800	9	120 m	755/405/915	11,20
226090	RSH 1000	1000	9/11	120/200 m	985/525/1150	21,40
226120	RSH 1200	1200	11	300 m	1185/540/1345	26,80
226130	RSH 1500	1500	15	400 m	1570/753/1561	66,00



Cable and duct detector

Cable and duct detector for precise localisation down to a depth of 4,50 m. Complete. set. Frequency 33 kHz, consisting of:

- Detector with digital and optic-acoustical display.
- Depth determination including transmitter with earthing cable.
- Plastic tool bag for complete equipment.

Code	Type	Frequency	Power	Depth	kg
231615	CAT4+G	33 kHz,	0,12 Watt	to 4,0 m	5,20



Detector for non-metallic conduits

Detector with 8 batteries, without transmitter For precise localisation of non-metallic conduits, and to find blockages with the conduit rods yellow or red, D 4,5-11 mm. The following configurations are possible:

- Yellow conduit rod with screwed on duct transmitter RD 18 for spot detection
- Red conduit rod with screwed on duct transmitter RD 18 for spot detection
- Red conduit rod to transmitted by Genny4, for line or spot detection

Code	Type	Frequency	Transmitter	L/W/H mm	kg
231611	CAT4+	33 kHz,	without	255/70/725	2,20



Transmitter for detectors

Transmitter with connecting cable as extension of RKV 40, which than can be used as cable and duct detecting equipment.

Code	Type	Frequency	Power	L/W/H mm	kg
231613	Genny4	33 kHz,	0,12 Watt	280/180/220	2,80



Clamp with cable for CAT SEN

Clamp with cable for CAT SEN, for induction of life cables.

Code	Type	Cable to	kg
2316195	CAZ 48	D 48	0,40
2316193	CAZ 98	D 98	0,50



Duct transmitter on rods

Duct transmitter for screwing on conduit rods yellow or red of D 6,5-11 mm.

Code	Type	Frequ.	D/L	Thread	Depth	Capac.	kg
231623	RD 18N	33 kHz	18/88	M 10	8,0 m	20h	0,27
231627	RD 39	33 kHz	39/120	M 10	5,0 m	8h	0,18
231628	RD 64	33 kHz	64/150	M 10	8,0 m	15h	0,34



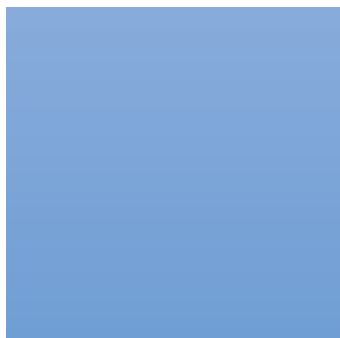
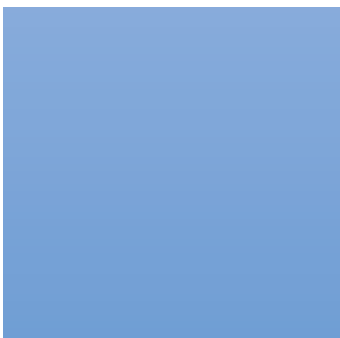
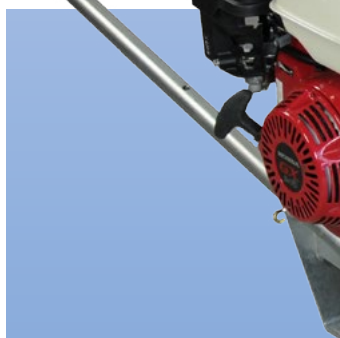
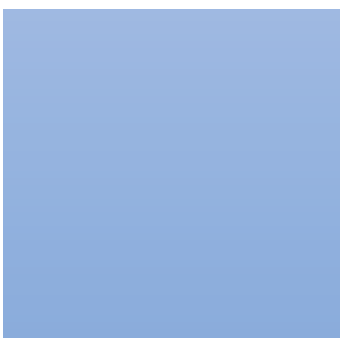
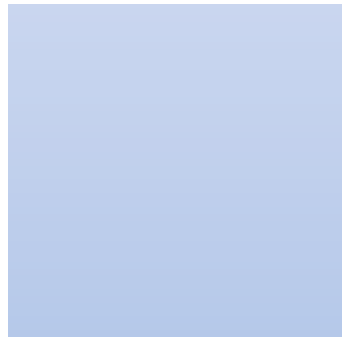
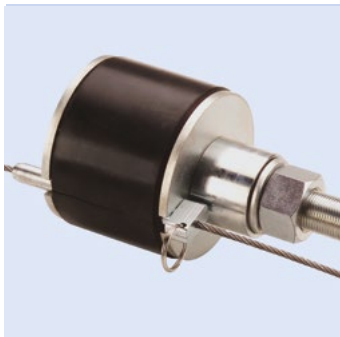
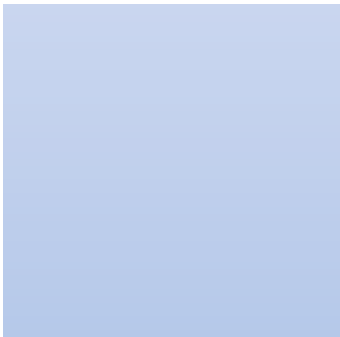
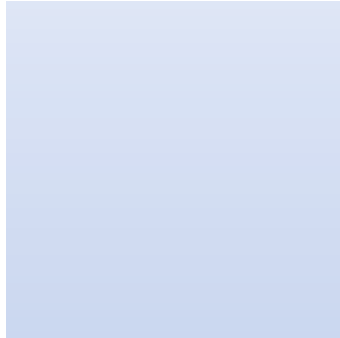
Grounding head

Grounding head D 22x45, M12/M10, Alu, for additional. spot detection with transmitter D 18

Code	Type	Diam.	For transmitt.	Thread	kg
225310	ERK 22	22	RD 18	M 12 to 10	0,03
225312	ERK 42	42	RD 39	M 12 to 10	0,10

Blower units for winch ropes

Cable lubri- cants





Pilot rope winches 5 kN - ropes and accessory

Conduit plugs divided for blowing ropes

Ball Pistons

Duct cleaning and lubricating sponge for duct D 40-210 mm

Cable and pipe lubricant, gel and liquid

Duct cleaning and lubricating sponge for duct D 4-63 mm



Pilot rope winch petrol engine

Latest design of pilot rope winch with Honda-petrol engine. This winch is not any more driven by a V-belt, but with a better positive mode transmission chain drive. This guarantees higher power train to the drum. For blowing-in pilot ropes from declutched drum through conduits for afterwards introducing bigger pulling ropes from cable winches or for direct pulling-in of smaller cables such as fibre optic cables or single or bundle subducts. The drum is divisible for coiling cords, ropes or cables and can easy be removed from the winch e.g. for using drums with other ropes. Capacity up to 1100 m D 4 mm or 750 m D 5 mm. Mobile on two pneumatic wheels.

The winch is available in two different versions. With a dynamometer with overload cut-off, or with an electronic digital line pull data recorder MP 30 with USB interface, for pulling-in fibre optic cables, subducts or delicate cables. For safety reason the pulling force on the drum bottom is limited to 5,0 kN.

Each winch is equipped with hand operated rope guide and a rope protection cover according to the rules. The winch with dynamometer can be equipped with the mechanical rope length measuring device Code 232380, SLM 510 see further below. In the winch version with data recorder MP 30 a length and speed measuring device is included.

- Types SBS 510DL and 510ML with slower speed for pulling sensitive cables

Code	Type	Control	Bottom/top	m/min.	Petrol	kg
232310	SBS 510D	Dynamo	5,0/4,0 kN	18-65	4,1 kW	163,00
232311	SBS 510M	Recorder	5,0/4,0 kN	18-65	4,1 kW	163,00
232312	SBS 510DL	Dynamo	5,0/4,0 kN	9-30	4,1 kW	163,00
232313	SBS 510ML	Recorder	5,0/4,0 kN	9-30	4,1 kW	172,00



Pilot rope winch electric motor

Latest design of pilot rope winch with SEW-electric motor. This winch is not any more driven by a V-belt, but with a better positive mode transmission chain drive. This guarantees higher power train to the drum. For blowing-in pilot ropes from declutched drum through conduits for afterwards introducing bigger pulling ropes from cable winches or for direct pulling-in of smaller cables such as fibre optic cables or single or bundle subducts. The drum is divisible for coiling cords, ropes or cables and can easy be removed from the winch e.g. for using drums with other ropes. Capacity up to 1100 m D 4 mm or 750 m D 5 mm. Mobile on two pneumatic wheels.

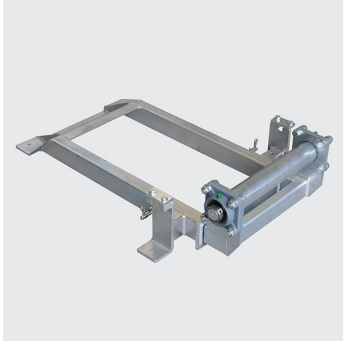
The winch is available in two different versions. With a dynamometer with overload cut-off, or with an electronic digital line pull data recorder MP 30 with USB interface, for pulling-in fibre optic cables, subducts or delicate cables. For safety reason the pulling force on the drum bottom is limited to 5,0 kN.

Each winch is equipped with hand operated rope guide and a rope protection cover according to the rules. The winch with dynamometer can be equipped with the mechanical rope length measuring device Code 232380, SLM 510 see further below. In the winch version with data recorder MP 30 a length and speed measuring device is included.

- Frequency converter allows to adapt the speed infinitely variable to the cable pull

Code	Type	Control	Bottom/top	Speed	Electric	kg
232315	SES 410D	Dynamo	5,0/4,0 kN	4-59 m/min.	1,5 kW	187,00
232316	SES 410M	Recorder	5,0/4,0 kN	4-59 m/min.	1,5 kW	195,00





Base frame for platforms

Base frame for fixed mounting of all above-mentioned pilot rope winches on vehicle platforms or for installation in vans. With integrated telescoping roll for safe rope guide near vehicle platform edges.

This frame is also for retrofitting on all Vetter pilot rope winches supplied after August 2014. Anyway the winch can be changed and also be used as a mobile one. Hot galvanized steel construction.

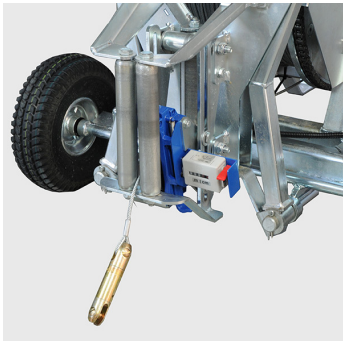
Code	Type	Suitable to all	Dimensions	kg
232400	PAR 510	Pilot rope winches SBS/SES 510/410	1180/750/270	63,00



Strap hangers for pilot rope winches

Strap hangers of Polyester, 3-strand, for loading pilot rope winches SBS 510 and SES 410, acc. EN 1492-1

Code	Type	Cap.	Length	kg
232390	BGH 510	1500 kg	1400	7,50



Mechanical length meter

Rope length measuring device for pilot ropes D 3-12 mm, only for pilot rope winches with dynamometer.

Code	Type	Suitable for	For rope-D	kg
232380	SLM 510	SBS 510D + SES 410D	3-12	5,50



Accessories to pilot rope winches

Steel rope drum alone, divisible for coiling cords, ropes or cable rings, suitable to pilot rope winches SBS 510 and SES 410. Dimension D 410/100x210 mm, for rope up to 1100 m D 4 mm, or 750 m D 5 mm. For coiling rings there will be mounted 3 segments into the drum. With this mounted steel segments the capacity will be reduced to app. 900 m D 4 or 500 m D 5 mm.

- Using some of these loose drums it is possible to blow-in pilot ropes in multi manholes and conduits.
- With the drums it is possible to blow ropes without the winch.
- The drum support is equipped with a foot brake to control the pay-out of the rope.
- With built-in steel segments stronger pulls than 1 kN are not possible.
- The steel segments must only be used for coiling cords or small cables.

Code	Type	Accessory	Detail	kg
------	------	-----------	--------	----

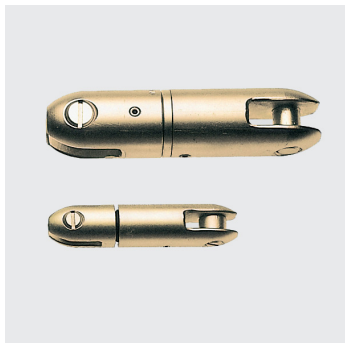
232320	SWT 510	Drum alone	D 410x100x210	41,00
232322	TRS 208	Segment	3 needed	1,10
232340	TWG 510	Drum support	with foot brake	11,00



Accessory to pilot winches

Steel ropes galvanized for pilot rope winches. Nominal strength 1960 N/mm². kN = Minimum Breaking Load

Code	Type	Rope	kN	Length	kg
232880	STC 4-6	4	11,4	per 1 m	0,07
23288011	STC 4-6	4	11,4	1100 m	66,00
232890	STC 5-6	5	17,7	per 1 m	0,10
23289007	STC 5-6	5	17,7	750 m	67,60
232900	STC 6-6	6	25,5	per 1 m	0,14
23290005	STC 6-6	6	25,5	500 m	70,00

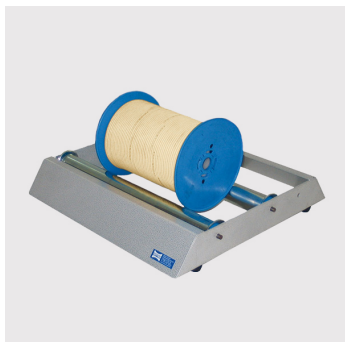


Swivels to pilot rope winches

Swivels with friction bearings, turnable connector between winch rope and cable grip. The friction bearing guarantees that the swivel reduces rotation and torsion with increasing pulling force. Swivels with ball bearings turn off and destroy the steel ropes, they can only be used in connection with absolute twist free steel ropes.

kN = Minimum Breaking Load

Code	Type	D	L	Fork	Bolt	kN	kg
243020	V 20 D	20	86	7	8	21	0,16
243040	V 25 D	25	120	9	10	30	0,32



Accessory to pilot winches

Polyester ropes for blowing through ducts, spools of 500 or 1000 m. kN = Minimum Breaking Load

Code	Type	Rope	Spool	kN	kg
23297005	KSP 04-40	4	500 m	2,8	4,70
23297010	KSP 04-40	4	1000 m	2,8	10,22
23298005	KSP 05-40	5	500 m	4,5	7,80
23298010	KSP 05-40	5	1000 m	4,5	14,52
23299005	KSP 06-40	6	500 m	6,4	18,00



Plastic cord spools

Spools of plastic cord. Minimum order at least 3 spools, price per 1 spool.

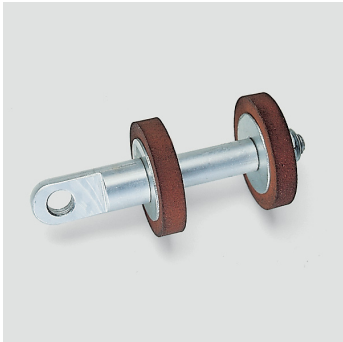
Code	Type	Cord-D	Spool	kN	kg
282240	KS 600	2	600 m	0,22	0,40



Conduit plugs divided

Conduit plug divided, with coupling, for blowing-in ropes of D 4 mm in ducts.

Code	Type	D-ID	kg
234240	KRG 28	27-28	1,00
234250	KRG 35	34-35	1,05
234260	KRG 40	40-41	1,23



Pistons

Pistons with cup rings for blowing ropes in connection with divided plugs KRG 28-40.

Code	Type	D-ID	kg
234510	MKO 28	27-28	0,13
234530	MKO 35	34-35	0,13
234550	MKO 40	40-41	0,14



Conduit plugs divided

Conduit plug divided with lateral rope passage. Included 1 slotted sleeve and tools. With these plugs ropes from D 4 can be blown. It is also possible to blow bigger ropes up to D 9 mm directly through the ducts, but only from capstan winches which allows to pay out the ropes stress less.

An air pressure of approx. 0,5-1,5 bar must not be exceeded. The bigger the duct the lower has to be the pressure.

Code	Type	D-ID	Press. pipe	Coupling	
234295	KRS 50	50-55	1/4"	1/2"	1,50
234297	KRS 54	54-61	1/4"	1/2"	1,50
234312	KRS 61	61-69	1/4"	1/2"	1,65
234315	KRS 70	70-80	3/8"	1/2"	2,60

234325	KRS 76	76-85	3/8"	1/2"	2,70
234330	KRS 86	86-95	1/2"	1/2"	3,10
234372	KRS 96	96-103	3/4"	3/4"	4,90
234385	KRS 103	103-112	3/4"	3/4"	4,90
234395	KRS 113	113-120	3/4"	3/4"	5,30
234402	KRS 118	118-128	3/4"	3/4"	5,30
234405	KRS 128	128-136	3/4"	3/4"	6,10
234422	KRS 135	135-147	3/4"	3/4"	6,30
234432	KRS 146	146-159	3/4"	3/4"	7,00
234445	KRS 160	158-172	1"	3/4"	9,50
234462	KRS 173	173-184	1"	3/4"	9,80
234485	KRS 198	199-208	1"	3/4"	11,10
234489	KRS 220	220-225	1"	3/4"	12,30
234490	KRS 240	230-240	1"	3/4"	13,00
234491	KRS 250	240-250	1"	3/4"	13,50
2344912	Bigger	diam.	No	---	0,00



Slotted sleeves

Slotted sleeve, accessory to KRS-plugs for blowing-in different rope diameters.

Code	Type	Rope	kg
234492	SBU 04	4	0,15
234493	SBU 05	5	0,14
234494	SBU 06	6	0,13
234495	SBU 07	7	0,12
234496	SBU 08	8	0,11
234497	SBU 09	9	0,10



Air-regulator valve

Air-regulator valve for blowing-in of pilot ropes and winch ropes. Equipped with one screw coupling and one standard quick coupling. This regulator valve must not be served in the shaft, but only outside. It is to be connected between two hoses.

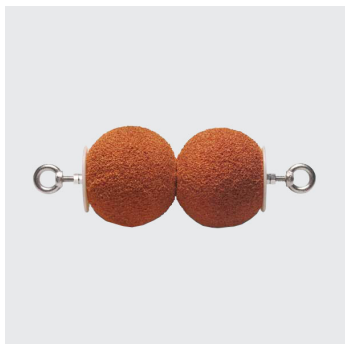
Code	Type	Size	kg
234080	REV 34	1/2-3/4"	0,82



Ball pistons

Ball piston for blowing-in rope winches and simultaneously lubricating the ducts. Ball pistons go easier through the ducts they adapt better to the different duct shapes. Distances can be very long, the air pressures are low approx. 0,5-1,5 bar max.

Code	Type	D-ID	
234542	BKO 40	35-42	0,07
234562	BKO 50	45-50	0,20
234567	BKO 60	50-60	0,24
234572	BKO 70	60-70	0,26
234602	BKO 80	70-80	0,30
234612	BKO 90	80-90	0,35
234632	BKO 110	90-110	0,52
234692	BKO 125	110-125	0,55
234712	BKO 150	130-150	0,72
234722	BKO 160	150-160	0,95
234726	BKO 190	170-190	1,35
234732	BKO 210	190-210	1,60
234734	BKO 225	200-225	2,40
234738	BKO 250	230-250	3,20
234742	Bigger	diam. not possible	0,00



Duct lubricator

Duct lubricator and cleaner. Other diameters are available. After pulling through these lubricators there is an equal lubrication of the duct wall on the complete length, which reduces the pulling forces up to 80 %.

Code	Type	D-ID	Length	
234856	RSG 50	45-50	220	0,28
234858	RSG 60	50-60	240	0,36
234860	RSG 70	60-70	260	0,44
234862	RSG 80	70-80	280	0,85
234864	RSG 100	80-100	370	0,95
234866	RSG 120	100-120	390	1,10
234868	RSG 140	120-140	430	1,40
234870	RSG 160	140-160	480	1,70
234872	RSG 180	160-180	510	2,15
234874	RSG 200	180-200	550	2,75
234876	RSG 220	200-220	590	3,15
234878	RSG 250	220-250	530	3,85
234880	Bigger	diameters	No	0,00



Duct lubricator

Duct lubricator and cleaner, two independent balls, especially for passing narrow duct bows. After pulling through these lubricators there is an equal lubrication of the duct wall on the complete length, which reduces the pulling forces up to 80 %.

Code	Type	D-ID	Length	Connection	kg
234820	RSB 50/2	45-50	130	Clipper	0,56
234828	RSB 75/2	60-70	150	Clipper	0,60



Lubricant for indoor installation

Lubricant gel like, for smaller indoor installation cables, in battle. Up to 80 % friction reducing.

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Quantity	kg
235130	J-35V	0,95 l	1,00



Lubricant gel for cable and ducts

Lubricant gel like, for medium up to heaviest cables, up to 80 % friction reducing. Also suitable to reduce strongly the friction pulling-in ducts in ducts.

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	Units	kg
235140	J-128V	1 pail 3,8 l	Single pail	4,00
235142	J-128V	4 bottles 3,8 l	Single pail	17,00
235150	J-640V	1 pail 19 l	Single pail	20,00
235152	J-640V	33 pails 19 l	1 Pallet	685,00



Lubricant pump

Lubricant pump driven by an external screw driver, for mounting on the pails J-640V or on the barrel SP-640V. Three different ration settings allow the user to pump lubricants with a variety of viscosities, from liquids to gels. Most lubricants can be pumped directly to the conduit or onto the cable during installation. Two hand-free applicators for conduits from diameter 40 to 150 mm are included.

Code	Type	Capability	Hose	kg
235335	LP-D5	5 l/min.	3 m	2,00



Lubricant liquid for cables and ducts

Lubricant liquid, for medium up to heaviest cables, excellent distribution on the cable and in the duct, up to 80 % friction reducing. Also suitable to reduce strongly the friction pulling-in ducts in ducts.

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	Units	kg
235200	SP-128V	1 bottle 3,8 l	Single bottle	4,00
235202	SP-128V	4 bottles 3,8 l	Single bottle	17,00
235220	SP-640V	1 pail 19 l	Single pail	20,00
235222	SP-640V	33 pails 19 l	1 Pallet	685,00
235230	SP-190V	1 barrel 190 l	Barrel	220,00



Funnel for liquid lubricant

Funnel of steel sheet, 3,2 litre, with 2 m hose for introduction of liquid lubricant, type SP 128-SP 190, which can be distributed with the duct lubricator RSG on the whole length of the conduit.

Code	Type	For ducts	kg
234810	GET 32	of any size	0,90



Lubricant for FOC

Jettinglube lubricant for blowing-in fibre optic cables. Excellent lubricating effect. Adheres to the duct wall and leaves the cable nearly dry, an advantage for over blowing and working in cascades with further blowing machines. Consumption approx. 0,5 l per 1000 m at duct-ID 40 mm. For other duct-ID analogue

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	kg
234960	CJL 1032	1 bottle 0,95 l	1,00
234965	CJL 1032	12 bottles 0,95 l	12,00
234970	CJL 378	4 bottles 3,80 l	16,00



Lubricant for FOC

Micro Jetting Lube, lubricant for blowing-in fibre optic cables. Excellent lubricating effect. Adheres to the duct wall and leaves the cable nearly dry, an advantage for over blowing and working in cascades with further blowing machines. Consumption approx. 10 ml per 1000 m at duct-ID 10 mm. For other duct-ID analogue

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	kg
234975	MJL 240	1 bottle 0,24 l	0,32
234977	MJL 424	24 bottles 0,24 l	7,50



Lubricant liquid

Cable lubricant Softenol, liquid, for blowing-in and for pulling-in fibre optic cables.

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	kg
235800	SOF 05	1 canister 5 l	5,60
235810	SOF 10	1 canister 10 l	11,00
235830	SOF 25	1 canister 25 l	26,50
235890	SOF 190	1 barrel 190 l	200,00



Duct cleaning sponge

Sponge for sub duct cleaning and pre-lubricating prior to cable blowing

Code	Type	D-ID	D-ID	Cellular	Qty.	kg
275398	RSM 04	7	4	D 8x30	20	0,01
275400	RSM 06	7-10	5-6	D 8x50	20	0,01
275402	RSM 08	10-12	8	D 16x50	20	0,02
275404	RSM 10	12-16	10-12	D 20x50	20	0,03
275406	RSM 16	20	15-16	D 32x50	20	0,06
275408	RSM 32	32	28	D 45x90	1	0,01
275410	RSM 40	40	35	D 55x90	1	0,01
275412	RSM 50	50	40	D 65x90	1	0,01
275414	RSM 63	63	51	D 78x90	1	0,02

Pipe and duct plugs for energy and fibre optic cables

240





Duct plugs for energy and fibre optic cables

Blank duct plugs for duct D 46-162 mm

Duct and cable sealing plug for 1 electro cable

Duct and cable sealing plug for 3 electro cables

Duct and cable sealing plug for 4 electro cables

Hole plugs and bushing sleeves to sealing plugs

Blank duct plugs for duct D 18-46 mm

Duct and cable sealing plug for 1 cable

Duct and cable sealing plug for 2 cables



Duct plugs

Blank duct plugs with rope ties for sealing vacant conduit and inner duct. All plastic construction, corrosion proof.

Code	Type	D-ID	Pack.	kg
24012420	20D236U	46,0-60,0	12	0,11
24012425	25D296U	60,0-75,0	12	0,13
24012430	30D346U	76,0-88,0	12	0,15
24012435	35D400U	87,0-102,0	12	0,20
24012440	40D402U	100,0-110,0	8	0,24
24012445	50D500U	117,0-127,0	8	0,41
24012450	50D535U	127,0-136,0	8	0,40
24012460	60D637U	148,0-162,0	8	0,57



Electro cable simplex plug

Simplex duct plugs for sealing around and supporting 1 electro cable in conduits. Split-round plug. Plastic construction, with stainless steel fasteners.

- Water and air tight to 0,5 bar (7,25 psi).
- Simple installation around in-place cables.
- Supports minimum 2,0 kN/400 lbs of cable or subducts.
- Ideal for manholes and building entrances. Removable and reusable.

Code	Type	D-ID	Cable-D	Pack.	kg
24013110	21S136SG	50,0-53,0	33,0-35,0	12	0,10
24013111	25S136SG	59,0-64,0	33,0-35,0	12	0,13
24013112	25S157SG	59,0-65,0	35,0-40,0	12	0,11
24013120	30S136S	77,0-80,0	30,0-34,0	12	0,39
24013121	30S196SB	77,0-80,0	35,0-50,0	12	0,41
24013122	30S204S	77,0-80,0	48,0-52,0	12	0,39
24013130	30S136A	83,0-86,0	30,0-34,0	12	0,51
24013131	30S196AB	83,0-86,0	35,0-50,0	12	0,43
24013140	35S136S	89,0-93,0	30,0-34,0	12	0,53
24013141	35S196SB	89,0-93,0	35,0-50,0	12	0,54
24013150	40S136S	100,0-106,0	30,0-34,0	12	0,71
24013151	40S196SB	100,0-106,0	35,0-50,0	12	0,73
24013152	40S256SB	100,0-106,0	48,0-65,0	12	0,69
24013153	40S291SB	100,0-106,0	65,0-74,0	12	0,46
24013154	40S327SB	100,0-106,0	75,0-83,0	12	0,38
24013160	40S136A	106,0-110,0	30,0-34,0	12	0,83
24013161	40S196AB	106,0-110,0	35,0-50,0	12	0,83
24013162	40S256AB	106,0-110,0	48,0-65,0	12	0,78
24013171	50S256SB	128,0-136,0	48,0-65,0	6	1,13
24013173	50S373SGB	128,0-136,0	80,0-95,0	6	0,97
24013180	60S196SGB	153,0-161,0	35,0-50,0	6	2,83

24013183 60S373SGB 153,0-161,0 80,0-95,0 6 1,93



Electro cable triplex plug

Triplex duct plugs for sealing around and supporting 3 electro cables in conduits. Split-round plug. Plastic construction, with stainless steel fasteners.

- Water and air tight to 0,5 bar (7,25 psi).
- Simple installation around in-place cables.
- Supports minimum 3,0 kN/400 lbs of cable or subducts.
- Ideal for manholes and building entrances. Removable and reusable.

Code	Type	D-ID	Cable-D	Pack.	kg
24013307	35B136S	89,0-92,0	3 x 31-34	12	0,31
24013310	40B122S	100,0-107,0	3 x 27-31	12	0,54
24013312	40B136S	101,0-105,0	3 x 31-34	12	0,52
24013316	40B167S	101,0-105,0	3 x 39-42	12	0,43
24013320	40B142A	106,0-109,0	3 x 32-36	12	0,57
24013324	40B167A	106,0-109,0	3 x 39-42	12	0,48
24013344	50B192HG	124,0-127,0	3 x 45-49	6	0,97
24013352	50B167SG	128,0-136,0	3 x 38-42	6	1,10
24013370	60B142S	153,0-161,0	3 x 32-36	6	0,66
24013372	60B167SG	153,0-161,0	3 x 38-42	6	2,17
24013376	60B236SB	153,0-158,0	3 x 50-60	6	1,45



Electro cable quadplex plug

Quadplex duct plugs for sealing around and supporting 4 electro cables or tubes in conduits. Split-round plug. Plastic construction, with stainless steel fasteners.

- Water and air tight to 0,5 bar (7,25 psi).
- Simple installation around in-place cables.
- Supports minimum 4,0 kN/400 lbs of cable or subducts.
- Ideal for manholes and building entrances. Removable and reusable.

Code	Type	D-ID	Cable-D	Pack.	kg
24013406	35Q126SG	89,0-92,0	4 x 29-32	12	0,33
24013408	36Q126S	93,0-96,0	4 x 29-32	12	0,36
24013410	40Q136H	98,0-102,0	4 x 30-34	12	0,38
24013420	50Q167HG	124,0-127,0	4 x 39-42	6	0,85
24013424	50Q136SG	128,0-136,0	4 x 30-34	6	1,18
24013426	50Q167S	128,0-136,0	4 x 38-42	6	0,70
24013432	60Q167HG	148,0-152,0	4 x 39-42	6	1,73
24013440	60Q167SG	153,0-161,0	4 x 38-42	6	1,78



Duct quadplex plug

Quadplex duct plugs for sealing around and supporting 4 sub ducts in conduits. Split-round plug. Plastic construction, with stainless steel fasteners.

- Water and air tight to 0,5 bar (7,25 psi).
- Simple installation around in-place cables.
- Supports minimum 5,0 kN/500 lbs of cable or subducts.
- Ideal for manholes and building entrances. Removable and reusable.

Code	Type	D-ID	Multiple ducts	Pack.	kg
24013470	40Q160SG-1	101,0-105,0	2xD 40+2xD 32	12	0,41
24013474	45Q160SG-1	116,0-120,0	2xD 40+2xD 32	12	0,65



Hole plugs

Hole plugs for sealing vacancies in triplex and quadplex duct plugs. For temporary or permanent use. Water and air tight 0,5 bar. Solid polypropylene plastic.

Code	Type	Exit-D	Pack.	kg
24013610	136JMH136	31,0-36,0	12	0,03
24013611	167JMH167	39,0-42,0	12	0,02
24013612	192JMH192	44,0-48,0	12	0,03



Bushing sleeves

Bushing sleeves to adjust the hole sizes and modify the cable O.D. range of the simplex, triplex and quadplex plugs. Water and air tight 0,5 bar. Soft rubber quality.

Code	Type	Exit-D	Cable-D	Pack.	kg
24013810	136JMB038	31,0-34,0	6,0-10,0	12	0,04
24013811	136JMB047	31,0-34,0	10,0-12,0	12	0,08
24013812	136JMB055	31,0-34,0	12,0-14,0	12	0,07
24013813	136JMB063	31,0-34,0	14,0-16,0	12	0,07
24013814	136JMB075	31,0-34,0	16,0-19,0	12	0,06
24013815	136JMB087	31,0-34,0	19,0-22,0	12	0,05
24013816	136JMB094	31,0-34,0	22,0-24,0	12	0,04
24013817	136JMB102	31,0-34,0	24,0-26,0	12	0,04
24013818	136JMB110	31,0-34,0	26,0-28,0	12	0,03
24013819	136JMB118	31,0-34,0	28,0-30,0	12	0,02
24013822	142JMB055	33,0-36,0	12,0-14,0	12	0,10
24013824	142JMB075	33,0-36,0	16,0-19,0	12	0,08
24013825	142JMB087	33,0-36,0	19,0-22,0	12	0,08
24013832	167JMB047	39,0-42,0	10,0-12,0	12	0,09
24013836	167JMB087	39,0-42,0	19,0-22,0	12	0,10

24013837	167JMB094	39,0-42,0	22,0-24,0	12	0,09
24013838	167JMB102	39,0-42,0	24,0-26,0	12	0,08
24013839	167JMB110	39,0-42,0	26,0-28,0	12	0,07
24013840	167JMB118	39,0-42,0	28,0-30,0	12	0,06
24013841	167JMB126	39,0-42,0	30,0-32,0	12	0,05
24013842	167JMB136	39,0-42,0	32,0-35,0	12	0,05
24013843	167JMB142	39,0-42,0	34,0-36,0	12	0,04
24013844	167JMB150	39,0-42,0	36,0-38,0	12	0,03
24013845	192JMB038	44,0-48,0	6,0-10,0	12	0,05
24013846	192JMB047	44,0-48,0	10,0-12,0	12	0,05
24013847	192JMB055	44,0-48,0	12,0-14,0	12	0,05
24013848	192JMB063	44,0-48,0	14,0-16,0	12	0,05
24013849	192JMB075	44,0-48,0	16,0-19,0	12	0,05
24013850	192JMB087	44,0-48,0	19,0-22,0	12	0,05
24013852	192JMB102	44,0-48,0	24,0-26,0	12	0,05
24013853	192JMB110	44,0-48,0	26,0-28,0	12	0,05
24013854	192JMB118	44,0-48,0	28,0-30,0	12	0,05
24013855	192JMB126	44,0-48,0	30,0-32,0	12	0,05
24013856	192JMB136	44,0-48,0	32,0-35,0	12	0,05
24013857	192JMB142	44,0-48,0	34,0-36,0	12	0,05
24013858	192JMB150	44,0-48,0	36,0-38,0	12	0,05



Duct plugs

Blank duct plugs with rope ties for sealing vacant conduit and inner duct. All plastic construction, corrosion proof.

- Water and air tight to 0,5 bar (7,25 psi)
- Simple installation. Ideal for manholes and building entrances.
- Ideal for manholes and building entrances. Removable and reusable.

Code	Type	D-ID	Pack.	kg
24012408	07D100U	18,0-26,0	12	0,02
24012410	10D104U	24,0-30,0	12	0,03
24012412	12D148U	29,0-38,0	12	0,04
24012415	15D183U	38,0-46,0	12	0,05



Fibre optic simplex plug

Simplex duct plugs for sealing around and supporting 1 fibre optic cable in conduits. All plastic construction, corrosion proof.

- Water and air tight to 0,5 bar (7,25 psi).
- Simple installation around in-place cables.
- Supports minimum 2,0 kN/400 lbs of cable or subducts.
- Ideal for manholes and building entrances. Removable and reusable.

Code	Type	D-ID	For C-D	Pack.	kg
24013006	07S035SB	19,8-21,8	5,1-8,9	12	0,03
24013007	07S057SB	18,5-20,0	10,0-14,5	12	0,04
24013009	09S050SB	23,5-26,0	9,0-12,7	12	0,03
240130105	10S035SB	25,5-29,0	5,0-9,0	12	0,04
24013011	10S057SB	25,5-29,0	9,0-14,5	12	0,04
24013012	10S070SB	25,5-28,0	13,0-18,0	12	0,04
24013013	11S057SB	28,0-32,0	9,0-14,5	12	0,05
24013014	11S070SB	28,0-32,0	13,0-18,0	12	0,05
24013016	12S035SB	31,0-34,5	5,0-9,0	12	0,06
24013017	12S057SB	31,0-34,5	9,0-14,5	12	0,06
24013018	12S070SB	31,0-34,5	13,0-18,0	12	0,06
24013019	12S090SB	31,0-34,5	18,0-23,0	12	0,05
240130190	13S097SB-1	33,8-37,1	8,9-24,6	12 or 288	0,08
24013020	13S057SB	34,5-38,0	9,0-14,5	12	0,07
24013021	13S070SB	34,5-38,0	13,0-18,0	12	0,07
240130215	15S035SB	38,0-42,0	5,0-9,0	12 or 288	0,08
24013022	15S057SB	38,0-42,0	9,0-14,5	12	0,08
24013023	15S070SB	38,0-42,0	13,0-18,0	12	0,07
24013024	15S090SB	38,0-42,0	18,0-23,0	12	0,09
24013025	15S110SB	38,0-42,0	23,0-28,0	12	0,07
24013028	20S057SB	46,0-50,0	9,0-14,5	12	0,15
24013029	20S070SB	46,0-50,0	13,0-18,0	12	0,15
24013030	20S090SB	46,0-50,0	18,0-23,0	12	0,14
24013032	21S057SB	50,0-55,5	9,0-14,5	12	0,15
24013033	21S070SB	50,0-55,5	13,0-18,0	12	0,16
24013034	21S090SB	50,0-55,5	18,0-23,0	12	0,14
24013035	21S110AB	50,0-55,5	23,0-28,0	12	0,16



Fibre optic duplex plug

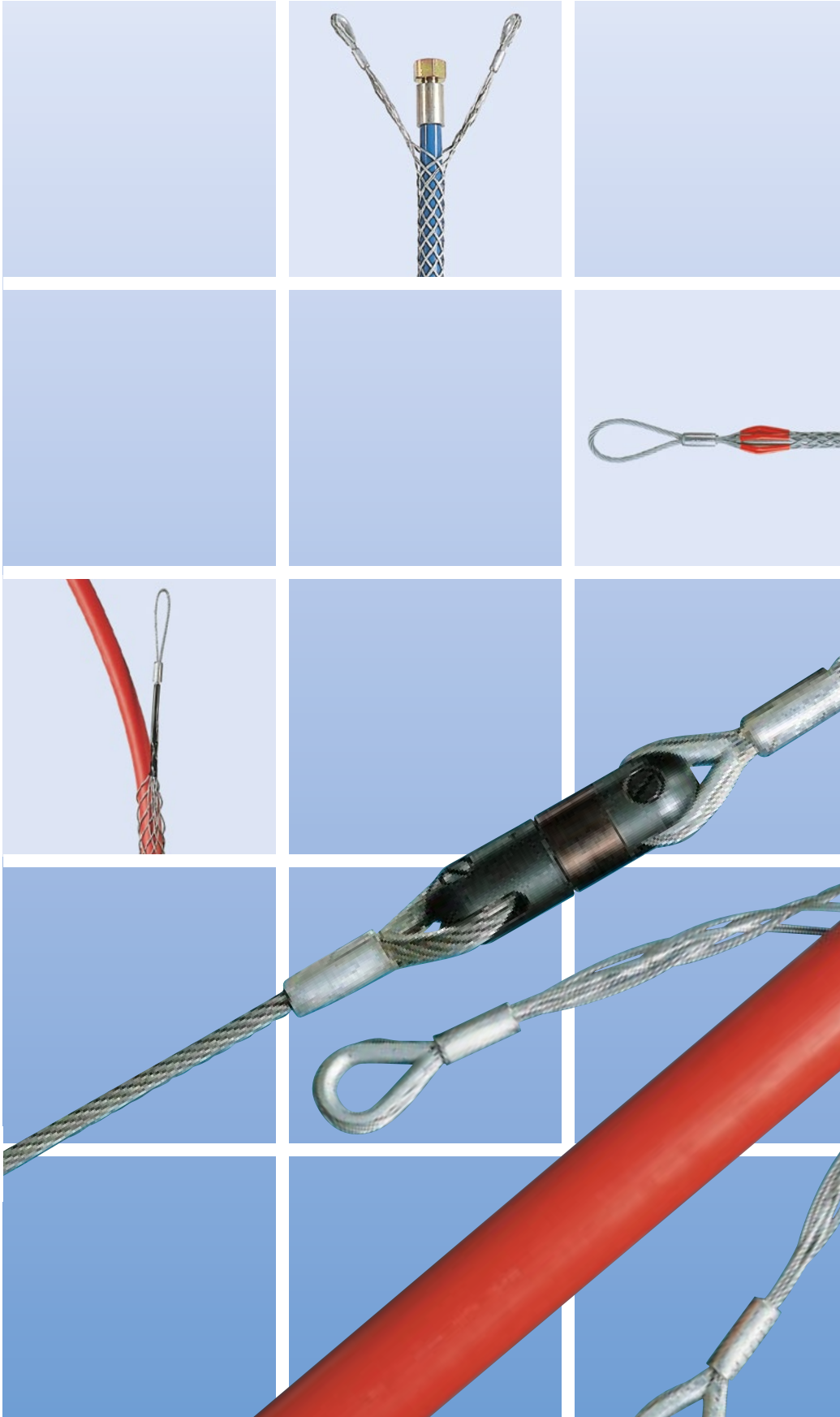
Duplex duct plugs for sealing around and supporting 2 fibre optic cables in conduits. All plastic construction, corrosion proof.

- Water and air tight to 0,5 bar (7,25 psi).
- Simple installation around in-place cables.
- Supports minimum 3,0 kN/600 lbs of cable or subducts.
- Ideal for manholes and building entrances. Removable and reusable.

Code	Type	D-ID	1. cable-D	2. Cable-D	Pack.	kg
24013040	40ZGH12-12	40,0-41,0	11,0-12,0	11,0-12,0	12	0,15
24013041	40ZGH12-13	40,0-41,0	11,0-12,0	12,0-13,0	12	0,15
24013042	40ZGH12-14	40,0-41,0	11,0-12,0	13,0-14,0	12	0,15
24013043	40ZGH12-15	40,0-41,0	11,0-12,0	14,0-15,0	12	0,15
24013044	40ZGH12-16	40,0-41,0	11,0-12,0	15,0-16,0	12	0,15
24013045	40ZGH12-17	40,0-41,0	11,0-12,0	16,0-17,0	12	0,15
24013047	40ZGH13-13	40,0-41,0	12,0-13,0	12,0-13,0	12	0,15
24013048	40ZGH13-14	40,0-41,0	12,0-13,0	13,0-14,0	12	0,15
24013049	40ZGH13-15	40,0-41,0	12,0-13,0	14,0-15,0	12	0,15
24013050	40ZGH13-16	40,0-41,0	12,0-13,0	15,0-16,0	12	0,15
24013051	40ZGH13-17	40,0-41,0	12,0-13,0	16,0-17,0	12	0,15
24013053	40ZGH14-14	40,0-41,0	13,0-14,0	13,0-14,0	12	0,15
24013054	40ZGH14-15	40,0-41,0	13,0-14,0	14,0-15,0	12	0,15
24013055	40ZGH14-16	40,0-41,0	13,0-14,0	15,0-16,0	12	0,15
24013056	40ZGH14-17	40,0-41,0	13,0-14,0	16,0-17,0	12	0,15
24013058	40ZGH15-15	40,0-41,0	14,0-15,0	14,0-15,0	12	0,15
24013059	40ZGH15-16	40,0-41,0	14,0-15,0	15,0-16,0	12	0,15
24013060	40ZGH15-17	40,0-41,0	14,0-15,0	16,0-17,0	12	0,15
24013062	40ZGH16-16	40,0-41,0	15,0-16,0	15,0-16,0	12	0,15
24013063	40ZGH16-17	40,0-41,0	15,0-16,0	16,0-17,0	12	0,15
24013065	40ZGH17-17	40,0-41,0	16,0-17,0	16,0-17,0	12	0,15
24013066	40ZGH17-18	40,0-41,0	16,0-17,0	17,0-18,0	12	0,15
24013068	40ZGH19-12	40,0-41,0	18,0-19,0	11,0-12,0	12	0,15

Cable pulling grips

Hose securing grips





Swivels D 20-100 mm, for cable pulling

Cable pulling grips, 1 loop, cable-D 10-160 mm

Cable pulling grips for 3 bundle cables with 1 loop

Cable pulling grips with 2 loops, cable-D 15-160 mm

Cable connecting grips D 10-90 mm

Cable pulling grips for in-house installation and FOC

Cable supporting and mounting grips, 1 loop

Cable supporting and mounting grips, 2 loops

Cable supporting and mounting grips, 1 loop stainless steel

Cable supporting and mounting grips, 2 loops stainless steel

Cable supporting and mounting grips, divided, 2 loops stainless steel

Cable strain relief grips 1 lateral loop

Cable strain relief grips 1 lateral loop, stainless steel

Supporting grips 1 lateral loop for wind energy plants

Supporting grips 1 lateral loop for wind energy plants, stainless steel

Hose securing grips galv. steel wire

Hose securing grips 2 loops each end, galv. steel

Hose securing grips divided with binding strand

Hose securing grips stainless steel

Hose securing grips divided stainless steel

Hose securing loops galv. steel or stainless steel

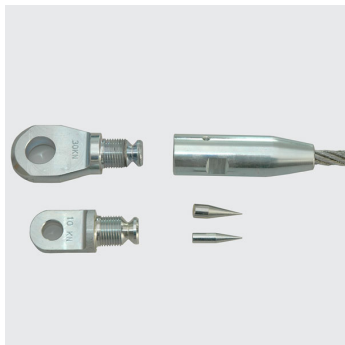


Swivels for underground cables

Swivels with friction bearings, colour yellow, turnable connector between winch rope and cable grip. The friction bearing guarantees that the swivel reduces rotation and torsion with increasing pulling force. Only for underground cables, not suitable for pulling overhead lines.

- Swivels for underground cables must be equipped only with friction bearings.
- With increasing pulling force friction bearings twist harder and thus avoid the untwisting of the pulling rope
- Ball bearings let untwist the ropes and leads to destruction.
- kN = minimum breaking load

Code	Type	D	L	Fork	Bolt	kN	kg
243020	V 20 D	20	86	7	8	21	0,16
243040	V 25 D	25	120	9	10	30	0,32
243050	V 35 D	35	130	12	14	60	0,60
243130	V 45 D	45	180	16	16	150	1,50
243140	V 50 D	50	187	18	16	165	1,90
243150	V 55 D	55	190	20	18	180	2,30
243170	V 60 D	60	217	23	20	225	3,10
243180	V 65 D	65	235	26	24	300	3,42
243190	V 75 D	75	270	30	27	320	6,70
243200	V 85 D	85	315	34	30	400	9,40
243220	V 100 D	100	350	38	36	500	14,50



Rope connecting set

Rope connecting set for solder in ropes, for pulling forces up to 30 kN, 5 parts for rope-D 6-9 mm.

- 1 rope cone D 25, 2 expansion cones, for soldering in ropes D 6-9.
- 1 changeable eye nut D 25 for pulling through small ducts to max. 10,0 kN.
- 1 changeable eye nut D 35 for pulling forces to 30,0 kN.

Code	Type	For pull	For rope	kg
243490	SVB 25/5	to max. 30,0 kN	D 6-9	0,60

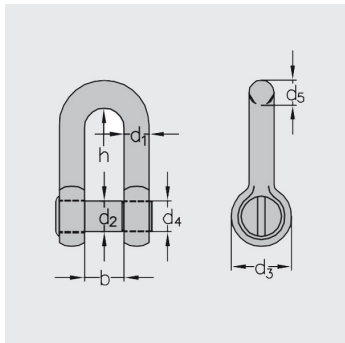


Shackle stainless steel, miniature size

Shackle stainless steel, miniature size, with slotted screw. For duct-ID >24 mm

SWL of all shackles includes a safety factor of 4

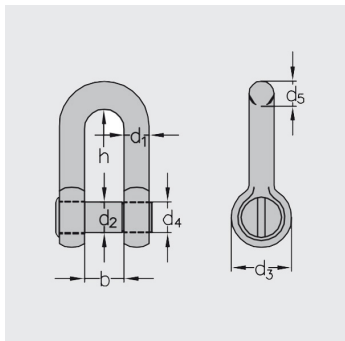
Code	Type	d2	d1/d5	b	h	SWL	kg
0924282615	HA1 05	5	5/5	10	20	160 kg	0,01



Shackle slim version

Shackle galvanized, special slim version with slotted screw for easy passing ducts and cable rollers.

Code	Type	d2	d1/d5	b	h	SWL	kg
254879	SHB 04	10	8/10	14	30	400 kg	0,09
254880	SHB 06	12	10/12	17	36	630 kg	0,16
254881	SHB 10	16	13/15	21	49	1000 kg	0,34
254882	SHB 16	20	17/19	27	61	1600 kg	0,72
254883	SHB 20	22	19/21	30	67	2000 kg	1,00
254884	SHB 25	24	21/23	33	73	2500 kg	1,32
254885	SHB 30	27	24/26	38	83	3150 kg	1,85





Cable pulling grips, 1 loop

Cable pulling grips with 1 loop, galvanized bowden wire. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Up to K 30 loops without thimbles, from K 40 loops with steel thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
245010	K 15/1	10-15	18	5	10,2	600/700	0,08
245030	K 20/1	15-20	18	5	12,9	1000/1100	0,19
245050	K 25/1	20-25	18	5	20,4	600/700	0,21
245080	K 30/1	25-30	18	5	24,3	1000/1100	0,23
245140	K 40/1	30-40	18	11	35,1	1250/1350	0,42
245190	K 50/1	40-50	20	12	48,0	1250/1350	0,58
245250	K 60/1	50-60	20	15	48,0	1500/1600	0,69
245300	K 70/1	60-70	20	15	63,9	1500/1650	0,93
245350	K 90/1	70-90	25	18	83,7	1500/1650	1,23
245400	K 110/1	90-110	25	18	104,7	1500/1700	1,40
245450	K 130/1	110-130	25	18	104,7	1500/1700	1,50
245490	K 160/1	130-160	25	18	128,1	1500/1700	1,80

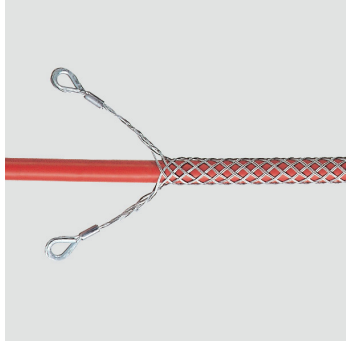


Cable pulling grips, 1 loop, for 3 cables

Cable pulling grips for 3 cables with 1 loop, galvanized bowden wire. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. For pulling-in together of 3 single core cables.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Loops without thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
245860	K 30/3	3x25-30	40	13	48,6	1000/1150	0,97
245870	K 40/3	3x30-40	40	13	70,2	1250/1400	1,51
245880	K 50/3	3x40-50	40	13	96,0	1250/1400	2,00
245890	K 60/3	3x50-60	40	13	96,0	1500/1650	2,34
245900	K 70/3	3x60-70	40	13	128,0	1500/1650	2,50

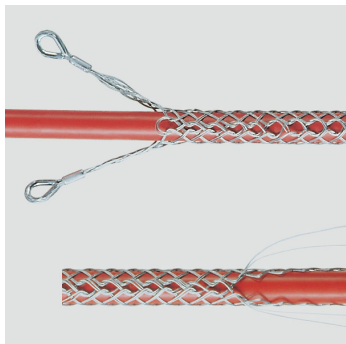


Cable pulling grips, 2 loops

Cable pulling grips with 2 loops, galvanized bowden wire. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Up to K 30 loops without thimbles, from K 40 loops with steel thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load. at equal pull on both loops

Code	Type	C-D	B	D	kN	L1/L2	kg
246010	K 15/2	10-15	18	5	10,2	600/800	0,06
246030	K 20/2	15-20	18	5	12,9	600/800	0,12
246050	K 25/2	20-25	18	5	20,4	600/800	0,13
246080	K 30/2	25-30	18	5	24,3	1000/1200	0,26
246140	K 40/2	30-40	18	11	35,1	1250/1450	0,49
246190	K 50/2	40-50	20	12	48,0	1250/1450	0,70
246250	K 60/2	50-60	20	15	48,0	1500/1800	0,82
246300	K 70/2	60-70	20	15	63,9	1500/1800	1,10
246350	K 90/2	70-90	25	18	83,7	1500/1800	1,55
246400	K 110/2	90-110	25	18	104,7	1500/1850	1,93
246450	K 130/2	110-130	25	18	104,7	1500/1850	2,40
246490	K 160/2	130-160	25	18	128,1	1500/1850	2,70



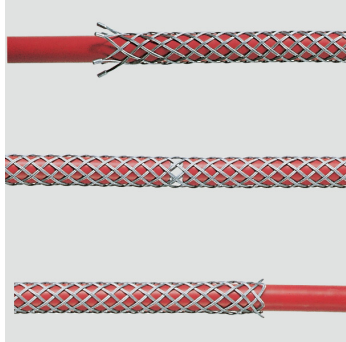
Cable pulling grips, 2 loops, lateral divided

Cable pulling grips with 2 loops, galvanized bowden wire. Lateral divided with binding strand. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available. For all underground and duct cables.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Up to K 30 loops without thimbles, from K 40 loops with steel thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load. at equal pull on both loops

Code	Type	C-D	B	D	kN	L1/L2	kg
247010	K 15/2G	10-15	18	5	10,2	600/800	0,10
247030	K 20/2G	15-20	18	5	12,9	600/800	0,27
247050	K 25/2G	20-25	18	5	20,4	600/800	0,31
247080	K 30/2G	25-30	18	5	24,3	1000/1200	0,33
247140	K 40/2G	30-40	18	11	35,1	1250/1500	0,60
247190	K 50/2G	40-50	20	12	48,0	1250/1500	0,92
247250	K 60/2G	50-60	20	15	48,0	1500/1800	1,30

247300	K 70/2G	60-70	20	15	63,9	1500/1800	1,39
247350	K 90/2G	70-90	25	18	83,7	1500/1800	2,20
247400	K 110/2G	90-110	25	18	104,7	1500/1850	2,40
247450	K 130/2G	110-130	25	18	104,7	1500/1850	2,71
247490	K 160/2G	130-160	25	18	128,1	1500/1850	2,90

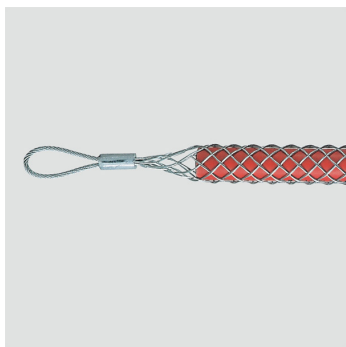


Cable connecting grips

Cable connecting grips, galvanized bowden wire. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available. For connecting of two cables to follow.

- For connection of two cut cables. Not for use in overhead lines.
- L, the mentioned mesh length are without a cable in.
- The real length on the cable can be, depending on the cable diameter, much shorter.
- kN = minimum breaking load

Code	Type	C-D	kN	L mm	kg
248010	KV 15	10-15	10,2	1500	0,13
248030	KV 20	15-20	20,4	1500	0,27
248050	KV 25	20-25	20,4	2000	0,40
248080	KV 30	25-30	24,3	2000	0,49
248140	KV 40	30-40	35,1	2000	0,60
248190	KV 50	40-50	48,0	2000	0,70
248250	KV 60	50-60	48,0	2500	0,80
248300	KV 70	60-70	63,9	2500	1,00
248350	KV 90	70-90	83,7	2500	1,20

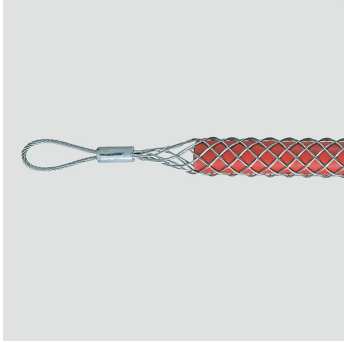


Cable pulling grips, 1 loop

Cable pulling grips with 1 loop, galvanized bowden wire. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Loops without thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
244040	J 6	4-6	10	2	1,8	140/200	0,01
244060	J 9	6-9	15	2	3,3	170/245	0,01
244090	J 12	9-12	15	3	3,9	250/310	0,02
244150	J 19	12-19	20	3	7,8	360/460	0,04
244180	J 25	19-25	20	4	12,0	380/490	0,05
244210	J 31	25-31	20	4	17,4	420/550	0,09

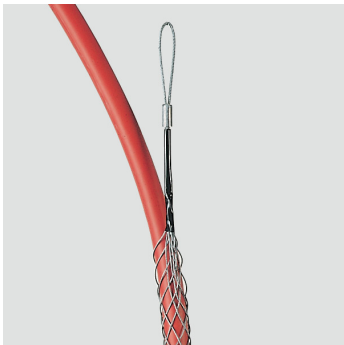


Cable pulling grips, 1 loop

Cable pulling grips with 1 loop, galvanized bowden wire. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Loops without thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
244260	L 9	6-9	15	2	3,3	600/670	0,02
244290	L 12	9-12	15	3	3,9	600/670	0,04
244350	L 19	12-19	20	3	7,8	600/700	0,06
244380	L 25	17-25	20	4	12,0	600/710	0,07
244410	L 31	25-31	20	4	17,4	600/730	0,11
244415	L 40	30-40	20	4	17,4	600/730	0,13
244420	L 50	40-50	20	5	17,4	600/730	0,15

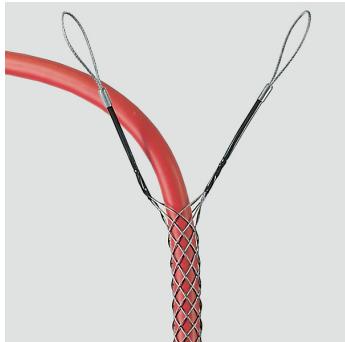


Cable supporting grips, 1 loop

Cable supporting grips with 1 loop, galvanized bowden wire. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length are available. Grips made of stainless steel see further below. For safe and strain relieved cable supporting.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Loops without thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
250021	KM 6/1	4-6	30	2	1,8	100/275	0,02
250031	KM 9/1	7-9	30	2	3,3	120/290	0,02
250041	KM 12/1	9-12	30	2	3,9	135/340	0,02
250071	KM 15/1	12-15	30	2	6,3	180/390	0,03
250091	KM 19/1	15-19	30	3	7,8	220/450	0,04
250121	KM 25/1	19-25	35	3	7,8	275/510	0,05
250161	KM 30/1	25-30	35	3	12,0	350/610	0,07
250171	KM 40/1	30-40	50	3	17,4	370/660	0,12
250191	KM 50/1	40-50	50	4	24,0	490/800	0,12
250201	KM 60/1	50-60	50	4	24,0	500/810	0,28
250211	KM 70/1	60-70	50	5	31,8	520/860	0,28
250221	KM 90/1	70-90	50	5	41,7	580/950	0,35

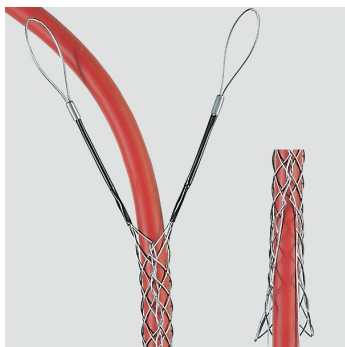


Cable supporting grips, 2 loops

Cable supporting grips with 2 loops, galvanised bowden wire. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length are available. Grips made of stainless steel see further below. For safe and strain relieved cable supporting.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Loops without thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load at equal pull on both loops

Code	Type	C-D	B	D	kN	L1/L2	kg
251071	KM 15/2	12-15	30	2	6,3	180/400	0,02
251091	KM 19/2	15-19	30	2	7,8	220/450	0,04
251121	KM 25/2	19-25	35	2	7,8	275/530	0,05
251161	KM 30/2	25-30	35	3	12,0	350/630	0,06
251171	KM 40/2	30-40	50	3	17,4	370/680	0,12
251191	KM 50/2	40-50	50	3	24,0	490/800	0,12
251201	KM 60/2	50-60	50	3	24,0	500/840	0,28
251211	KM 70/2	60-70	50	4	31,8	520/890	0,30
251221	KM 90/2	70-90	50	5	41,7	580/900	0,35



Cable supporting grips, 2 loops, lateral divided

Cable supporting grips with 2 loops, galvanised bowden wire. Lateral divided with binding strand. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available. For safe and strain relieved cable supporting.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Loops without thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load at equal pull on both loops

Code	Type	C-D	B	D	kN	L1/L2	kg
252071	KM 15/2G	12-15	30	2	6,3	180/400	0,02
252091	KM 19/2G	15-19	30	2	7,8	220/450	0,04
252121	KM 25/2G	19-25	35	2	7,8	275/530	0,05
252161	KM 30/2G	25-30	35	3	12,0	350/630	0,06
252171	KM 40/2G	30-40	50	3	17,4	370/680	0,12
252191	KM 50/2G	40-50	50	3	24,0	490/800	0,12
252201	KM 60/2G	50-60	50	3	24,0	500/840	0,28
252211	KM 70/2G	60-70	50	4	31,8	520/890	0,30
252221	KM 90/2G	70-90	50	5	41,7	580/900	0,35

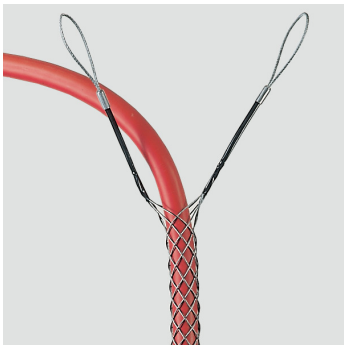


Cable supporting grips, 1 loop, stainless steel

Cable supporting grips with 1 loop. Stainless steel bowden wire V4A/1.4401 with copper clamp. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length are available. For safe and strain relieved cable supporting.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Loops without thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
250271	KME 6/1	4-6	30	2	1,8	100/275	0,02
250281	KME 9/1	7-9	30	2	3,3	120/290	0,02
250291	KME 12/1	9-12	30	2	3,9	135/340	0,02
250321	KME 15/1	12-15	30	2	6,3	180/390	0,02
250341	KME 19/1	15-19	30	3	7,8	220/450	0,04
250371	KME 25/1	19-25	35	3	7,8	275/510	0,05
250411	KME 30/1	25-30	35	3	12,0	350/610	0,07
250421	KME 40/1	30-40	50	3	17,4	370/660	0,12
250441	KME 50/1	40-50	50	4	24,0	490/800	0,12
250451	KME 60/1	50-60	50	4	24,0	500/810	0,28
250461	KME 70/1	60-70	50	5	31,8	520/860	0,28



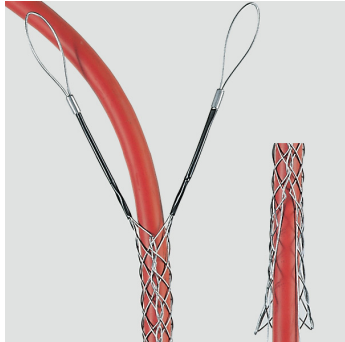
Cable supporting grips, 2 loops, stainless steel

Cable supporting grips with 2 loops. Stainless steel bowden wire V4A/1.4401 with copper clamp. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length are available. For safe and strain relieved cable supporting.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Loops without thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load at equal pull on both loops

Code	Type	C-D	B	D	kN	L1/L2	kg
251321	KME 15/2	12-15	30	2	6,3	180/400	0,02
251341	KME 19/2	15-19	30	2	7,8	220/450	0,04
251371	KME 25/2	19-25	35	2	7,8	275/530	0,05
251411	KME 30/2	25-30	35	3	12,0	350/630	0,06
251421	KME 40/2	30-40	50	3	17,4	370/680	0,12
251441	KME 50/2	40-50	50	3	24,0	490/800	0,12
251451	KME 60/2	50-60	50	3	24,0	500/840	0,28

251461 KME 70/2 60-70 50 4 31,8 520/890 0,32



Cable supporting grips, 2 loops, lateral divided, stainless steel

Cable supporting grips with 2 loops. Lateral divided with binding strand. Stainless steel bowden wire V4A/1.4401 with copper clamp. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available. For safe and strain relieved cable supporting.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Loops without thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load at equal pull on both loops

Code	Type	C-D	B	D	kN	L1/L2	kg
252321	KME 15/2G	12-15	30	2	6,3	180/400	0,02
252341	KME 19/2G	15-19	30	2	7,8	220/450	0,04
252371	KME 25/2G	19-25	35	2	7,8	275/530	0,05
252411	KME 30/2G	25-30	35	3	12,0	350/630	0,06
252421	KME 40/2G	30-40	50	3	17,4	370/680	0,08
252441	KME 50/2G	40-50	50	3	24,0	490/800	0,12
252451	KME 60/2G	50-60	50	3	24,0	500/840	0,28
252461	KME 70/2G	60-70	50	4	31,8	520/890	0,34



Cable strain relief grip 1 lateral loop

Cable strain relief grip especially for spring cable reels or motor driven cable reels, 1 lateral loop galvanized bowden wire. All Vetter cable grips are handmade and therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available. For stress-free wind and unwinding operation on cable drums.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- All loops are equipped with galv. steel thimbles.
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
25304004	KS 10/1	7-10	15	11	6,6	400/600	0,07
25305004	KS 15/1	10-15	18	11	10,2	400/600	0,08
25308004	KS 20/1	15-20	18	11	12,9	400/600	0,10
25309004	KS 25/1	20-25	18	12	20,4	400/600	0,12
25310004	KS 30/1	25-30	18	12	24,3	400/600	0,13
25314004	KS 40/1	30-40	18	12	35,1	400/600	0,17
25316004	KS 50/1	40-50	20	13	48,0	400/600	0,25

25318004 KS 60/1 50-60 20 16 48,0 400/600 0,30



Cable strain relief grip 1 lateral loop, stainless steel

Cable strain relief grip especially for spring cable reels or motor driven cable reels, 1 lateral loop. Stainless steel bowden wire V4A/1.4401 with copper clamp. All Vetter cable grips are handmade and therefore of high flexibility. Other versions, e.g. reinforced, different length are available. For stress-free wind and unwinding operation on cable drums.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- All loops are equipped with stainless steel thimbles.
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
25330004	KSE 10/1	7-10	15	11	6,6	400/600	0,08
25331004	KSE 15/1	10-15	18	11	10,2	400/600	0,10
25333004	KSE 20/1	15-20	18	11	12,9	400/600	0,12
25335004	KSE 25/1	20-25	18	12	20,4	400/600	0,14
25337004	KSE 30/1	25-30	18	12	24,3	400/600	0,15
25339004	KSE 40/1	30-40	18	12	35,1	400/600	0,20
25341004	KSE 50/1	40-50	20	13	48,0	400/600	0,25
25343004	KSE 60/1	50-60	20	16	48,0	400/600	0,30



Cable supporting grips for wind energy plants

Cable supporting grips especially for wind energy plants. With 1 lateral loop, galvanized bowden wire. All Vetter cable grips are handmade therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length, or in stainless steel are available. For safe and strain relieved cable supporting.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- All loops are equipped with galv. steel thimbles.
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
253050	MW 10/1	8-10	15	11	6,6	500/630	0,08
253060	MW 15/1	10-15	18	11	10,2	500/640	0,10
253080	MW 20/1	15-20	18	11	12,9	500/690	0,15
253100	MW 25/1	20-25	18	12	20,4	500/690	0,16
253120	MW 30/1	25-30	18	12	24,3	500/690	0,17
253140	MW 40/1	30-40	18	12	35,1	500/760	0,22
253160	MW 50/1	40-50	20	13	48,0	800/1000	0,35

253180	MW 60/1	50-60	20	16	48,0	800/1000	0,45
253200	MW 70/1	60-70	20	16	63,0	800/1200	0,55

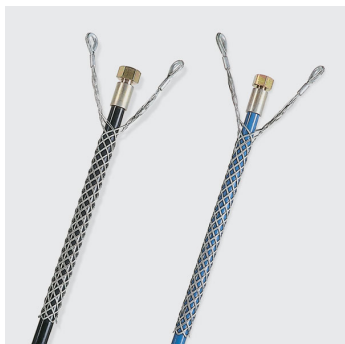


Cable supporting grips for wind power plants, 1 loop, stainless steel

Cable supporting grips for wind power plants, 1 lateral loop. Stainless steel bowden wire V4A/1.4401 with copper clamp. All Vetter cable grips are handmade and therefore of high flexibility. They adapt easy at any difference in cable diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available. For strain-relief suspension of cables in plants.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- All loops are equipped with stainless steel thimbles.
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	C-D	B	D	kN	L1/L2	kg
25330005	MWE 10/1	8-10	15	11	6,6	500/630	0,08
25331005	MWE 15/1	10-15	18	11	10,2	500/640	0,10
25333005	MWE 20/1	15-20	18	11	12,9	500/690	0,15
25335005	MWE 25/1	20-25	18	12	20,4	500/690	0,16
25337005	MWE 30/1	25-30	18	12	24,3	500/690	0,17
25339005	MWE 40/1	30-40	18	12	35,1	500/760	0,22
25341005	MWE 50/1	40-50	20	13	48,0	800/1000	0,35
25343005	MWE 60/1	50-60	20	16	48,0	800/1000	0,45
25345005	MWE 70/1	60-70	20	16	63,0	800/1200	0,55



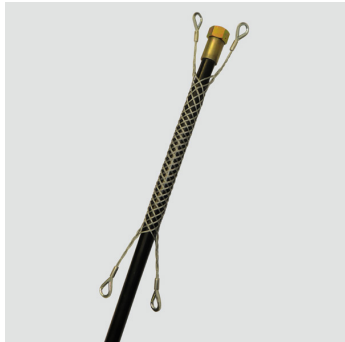
Hose securing grips, 2 loops

Hose securing grips with 2 loops, galvanized bowden wire. All Vetter securing grips are handmade therefore of high flexibility. They adapt easy at any difference in hose diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available. For all water-, hydraulic or other high pressure hoses.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Up to SC 30 loops without thimbles, from SC 40 loops with steel thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load at equal pull on both loops

Code	Type	Hose-D	B	D	kN	L1/L2	kg
24600006	SC 10/2	6-10	18	5	6,6	600/740	0,05
24601006	SC 15/2	10-15	18	5	10,2	600/740	0,07
24603006	SC 20/2	15-20	18	5	12,9	600/780	0,15
24605006	SC 25/2	20-25	18	5	20,4	600/800	0,16
24608006	SC 30/2	25-30	18	5	24,3	600/800	0,18

24614006	SC 40/2	30-40	18	11	35,1	600/820	0,31
24619006	SC 50/2	40-50	20	12	48,0	600/850	0,47
24625006	SC 60/2	50-60	20	15	48,0	600/880	0,53
24630006	SC 70/2	60-70	20	15	63,9	600/930	0,65
24635006	SC 90/2	70-90	20	15	83,7	600/960	0,70



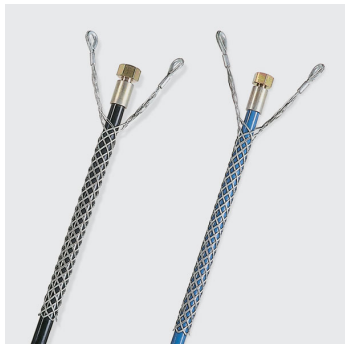
Hose securing grips, 2+2 loops

Hose securing grips with 2 loops on each end. This type is mainly used for short hoses, where two single grips would be to long. For all water-, hydraulic or other high pressure hoses. All Vetter securing grips are handmade therefore of high flexibility. They adapt easy at any difference in hose diameter and are therefore simple to handle. Material galvanized bowden wire. Any other length or in stainless steel are available in short term. Please ask for offers.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Up to SC 30 loops without thimbles, from SC 40 loops with steel thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load at equal pull on both loops

Code	Type	Hose-D	B	D	kN	L1/L2	kg
246000065	SCD 10/2+2	6-10	18	5	6,6	600/900	0,10
246000075	SCD 10/2+2	6-10	18	5	6,6	840/1200	0,15
246000077	SCD 10/2+2	6-10	18	5	6,6	920/1200	0,20
246010065	SCD 15/2+2	10-15	18	5	10,2	600/900	0,12
246010075	SCD 15/2+2	10-15	18	5	10,2	840/1200	0,18
246010077	SCD 15/2+2	10-15	18	5	10,2	920/1200	0,22
246030065	SCD 20/2+2	15-20	18	5	12,9	600/960	0,20
246030075	SCD 20/2+2	15-20	18	5	12,9	840/1200	0,25
246030077	SCD 20/2+2	15-20	18	5	12,9	920/1200	0,30
246050065	SCD 25/2+2	20-25	18	5	20,4	600/960	0,25
246050075	SCD 25/2+2	20-25	18	5	20,4	840/1200	0,30
246050077	SCD 25/2+2	20-25	18	5	20,4	920/1200	0,35
246080065	SCD 30/2+2	25-30	18	5	24,3	600/960	0,30
246080075	SCD 30/2+2	25-30	18	5	24,3	840/1200	0,35
246080077	SCD 30/2+2	25-30	18	5	24,3	920/1200	0,40
246140065	SCD 40/2+2	30-40	18	11	35,1	600/960	0,35
246140075	SCD 40/2+2	30-40	18	11	35,1	840/1200	0,45
246140077	SCD 40/2+2	30-40	18	11	35,1	920/1200	0,50
246190065	SCD 50/2+2	40-50	20	12	48,0	600/960	0,55
246190075	SCD 50/2+2	40-50	20	12	48,0	840/1200	0,65
246190077	SCD 50/2+2	40-50	20	12	48,0	920/1200	0,70
246250065	SCD 60/2+2	50-60	20	15	48,0	600/960	0,65
246250075	SCD 60/2+2	50-60	20	15	48,0	840/1200	0,75
246250077	SCD 60/2+2	50-60	20	15	48,0	920/1200	0,80
246300065	SCD 70/2+2	60-70	20	15	63,9	600/960	0,75

246300075	SCD 70/2+2	60-70	20	15	63,9	840/1200	0,85
246300077	SCD 70/2+2	60-70	20	15	63,9	920/1200	0,90
246350065	SCD 90/2+2	70-90	20	15	83,7	600/960	0,85
246350075	SCD 90/2+2	70-90	20	15	83,7	840/1200	0,95
246350077	SCD 90/2+2	70-90	20	15	83,7	920/1200	1,00

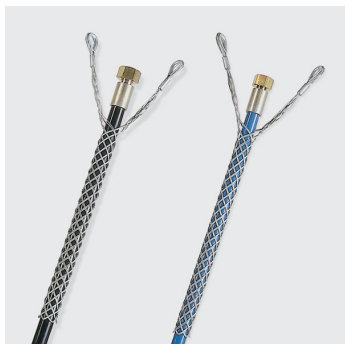


Hose securing grips, 2 loops, lateral divided

Hose securing grips with 2 loops, galvanized bowden wire. Lateral divided with binding strand. All Vetter securing grips are handmade therefore of high flexibility. They adapt easy at any difference in hose diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available. For all water-, hydraulic or other high pressure hoses.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Up to SC 30 loops without thimbles, from SC 40 loops with steel thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load at equal pull on both loops

Code	Type	Hose-D	B	D	kN	L1/L2	kg
24701006	SC 15/2G	10-15	18	5	10,2	600/740	0,07
24703006	SC 20/2G	15-20	18	5	12,9	600/780	0,15
24705006	SC 25/2G	20-25	18	5	20,4	600/800	0,16
24708006	SC 30/2G	25-30	18	5	24,3	600/800	0,18
24714006	SC 40/2G	30-40	18	11	35,1	600/820	0,31
24719006	SC 50/2G	40-50	20	12	48,0	600/850	0,47
24725006	SC 60/2G	50-60	20	15	48,0	600/880	0,53
24730006	SC 70/2G	60-70	20	15	63,9	600/930	0,61



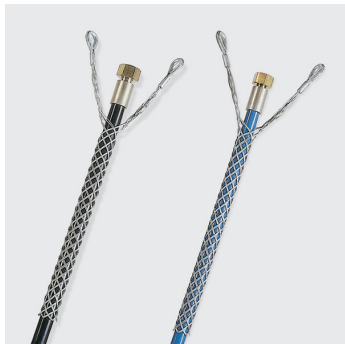
Hose securing grips, 2 loops, stainless steel

Hose securing grips with 2 loops. Stainless steel bowden wire V4A/1.4401 with copper clamp. All Vetter securing grips are handmade therefore of high flexibility. They adapt easy at any difference in hose diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length are available.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Up to SCE 30 loops without thimbles, from SCE 40 loops with stainless steel thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load at equal pull on both loops

Code	Type	Hose-D	B	D	kN	L1/L2	kg
24600046	SCE 10/2	6-10	15	5	6,6	600/740	0,05
24601046	SCE 15/2	10-15	18	5	10,2	600/740	0,07

24603046	SCE 20/2	15-20	18	5	12,9	600/780	0,15
24605046	SCE 25/2	20-25	18	5	20,4	600/800	0,16
24608046	SCE 30/2	25-30	18	5	24,3	600/800	0,18
24614046	SCE 40/2	30-40	18	11	35,1	600/820	0,31
24619046	SCE 50/2	40-50	20	12	48,0	600/850	0,47
24625046	SCE 60/2	50-60	20	15	48,0	600/880	0,53
24630046	SCE 70/2	60-70	20	15	63,9	600/930	0,65
24635046	SCE 90/2	70-90	20	15	83,7	600/960	0,70



Hose securing grips, 2 loops, lateral divided, stainless steel

Hose securing grips with 2 loops. Lateral divided with binding strand. Stainless steel bowden wire V4A/1.4401 with copper clamp. All Vetter securing grips are handmade therefore of high flexibility. They adapt easy at any difference in hose diameter and are therefore simple to handle. Other versions, e.g. reinforced, different length or in stainless steel are available. For all water-, hydraulic or other high pressure hoses.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- Up to SCE 30 loops without thimbles, from SCE 40 loops with stainless steel thimbles
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load at equal pull on both loops

Code	Type	Hose-D	B	D	kN	L1/L2	kg
24701046	SCE 15/2G	10-15	18	5	10,2	600/740	0,07
24703046	SCE 20/2G	15-20	18	5	12,9	600/780	0,15
24705046	SCE 25/2G	20-25	18	5	20,4	600/800	0,16
24708046	SCE 30/2G	25-30	18	5	24,3	600/800	0,18
24714046	SCE 40/2G	30-40	18	11	35,1	600/820	0,31
24719046	SCE 50/2G	40-50	20	12	48,0	600/850	0,47
24725046	SCE 60/2G	50-60	20	15	48,0	600/880	0,53
24730046	SCE 70/2G	60-70	20	15	63,9	600/930	0,61

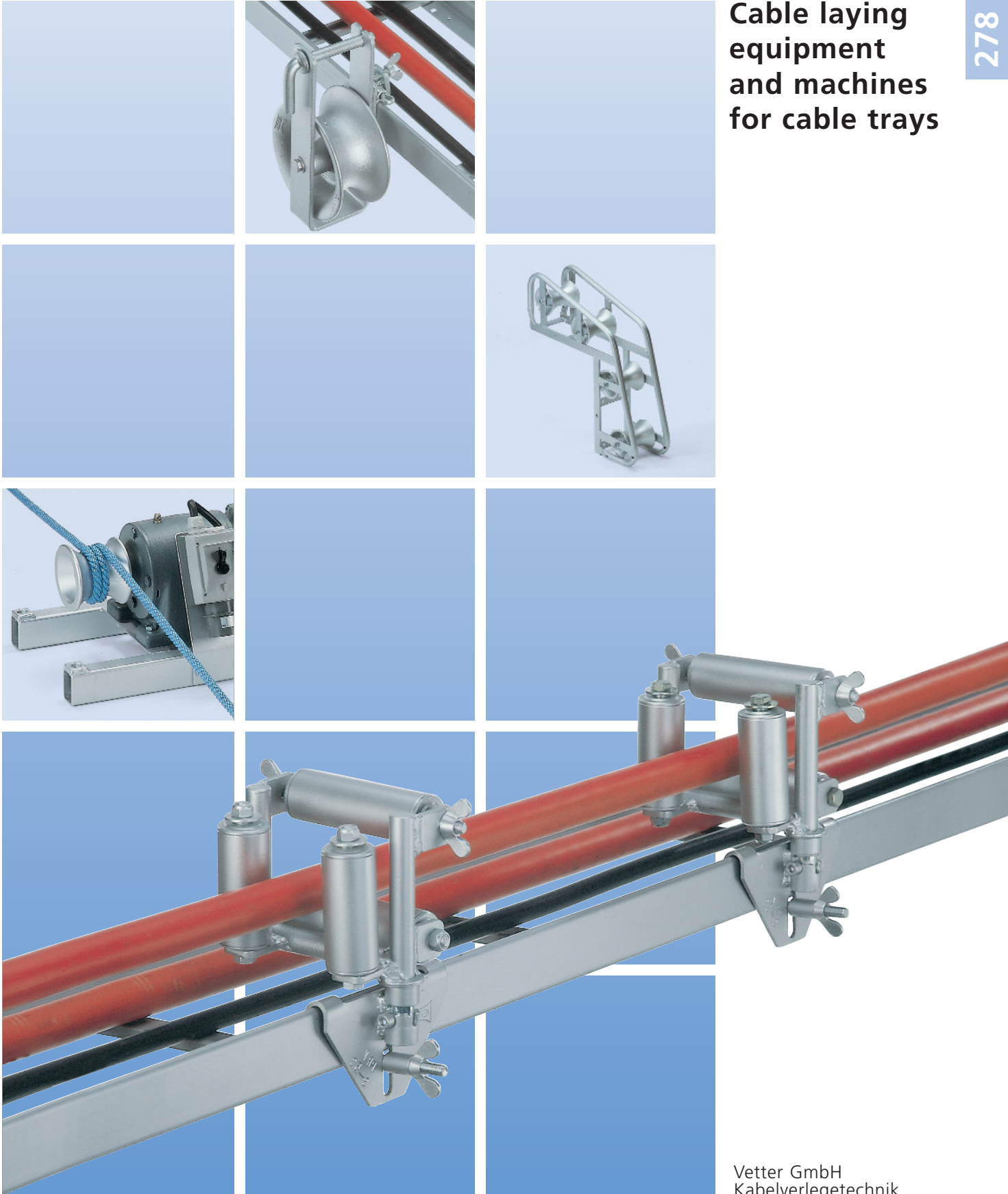


Hose securing loops

Hose securing loops for hose to gun or hose to hose. They adapt easy at any difference in hose diameter and are therefore simple to handle. Available in galv. steel or in stainless steel wire V4a, see table below. For all water-, hydraulic or other high pressure hoses. Minimum Braking Load for all these loops = 17,0 kN.

Code	Type	Connection	Mat.	Hose-D	Length	kg
254800	FSG 00-060S	Hose-gun	Steel galv.	10-50	600	0,16
254804	FSS 10-060S	Hose-hose	Steel galv.	10-25	600	0,25
254808	FSS 20-080S	Hose-hose	Steel galv.	25-40	800	0,27
254812	FSS 40-120S	Hose-hose	Steel galv.	30-50	1200	0,33
254824	FSG 00-060V	Hose-gun	Stainl. V4a	10-50	600	0,18
254828	FSS 10-060V	Hose-hose	Stainl. V4a	10-25	600	0,27
254832	FSS 20-080V	Hose-hose	Stainl. V4a	25-40	800	0,30
254836	FSS 40-120V	Hose-hose	Stainl. V4a	30-50	1200	0,34

**Cable laying
equipment
and machines
for cable trays**





Cable laying equipment for cable trays

Cable laying rollers for straight cable trays

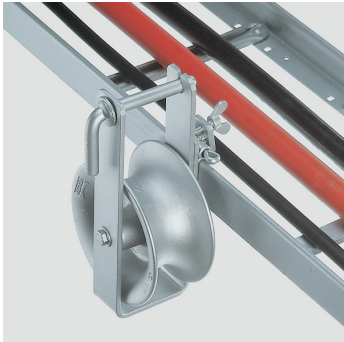
Frame cable rollers for cable trays

Cable roller bows for cable trays

Cable bollard winches for cable trays

Cable feeders electro hydraulic for cable up to D 160 mm

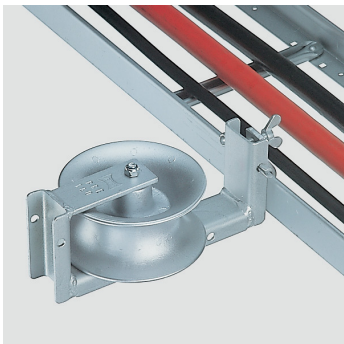
Polyester ropes and accessory for cable bollard winches



Cable tray rollers

Cable tray rollers with fixing clamps for attachment outside and inside the tray edge.

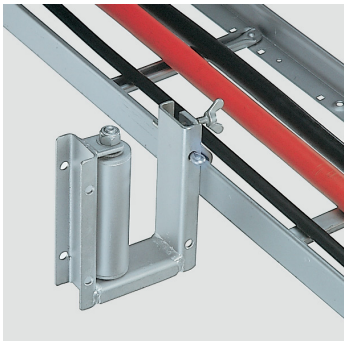
Code	Type	Roller-D	Mat.	SWL	kg
278050	PRK 140	D 140/86x58	Alu	100 kg	2,10



Cable tray corner roller

Cable corner roller with fixing clamps for attachment outside and inside tray bows.

Code	Type	Roller-D	Mat.	SWL	kg
278100	PRE 140	D 140/86x58	Alu	100 kg	2,40



Cable tray flank roller

Cable tray flank roller with fixing clamps for attachment outside of the tray. By turning the roller, inside or outside cable curves can be pulled. For cable-Ø max. 40 mm.

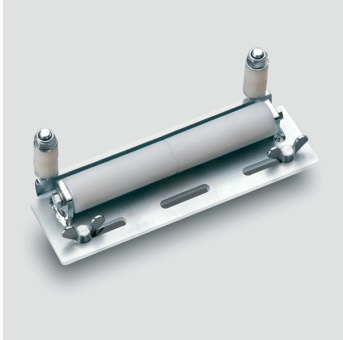
Code	Type	Roller-D	Mat.	SWL	kg
278150	PRF 42	42/149	Steel	100 kg	1,65



Cable tray rollers

Cable tray roller for pulling-in of several cables one after the others. Two lateral rollers can be turned down to lay the cables in the trays. Low construction. This roller can be taken away underneath the tray. Steel construction galvanized with polyamide rollers.

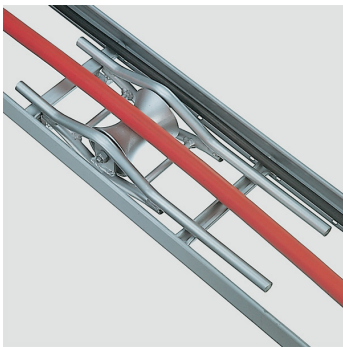
Code	Type	Ext. Width	Wheels	SWL	kg
278340	PRS 150	150	6 / D 35	100 kg	1,20
278360	PRS 250	250	11 / D 35	100 kg	1,84



Cable tray rollers

Cable tray roller, 2 polyamide rollers-rollers, low construction steel construction galvanized of only 60 mm height.

Code	Type	Ext. Width	Wheels	SWL	kg
278370	PRR 195	195	2 / D 25	100 kg	0,84



Cable tray rollers

Cable tray roller for inside the tray with cross members of 500 mm spanning the tray. After pulling this roller can be removed below the tray. Steel construction galvanized with 1 alu-roller.

Code	Type	Alu-roller	L/W/H mm	SWL	kg
278410	PRC 1	D 88/50x100	490/144/47	100 kg	2,60

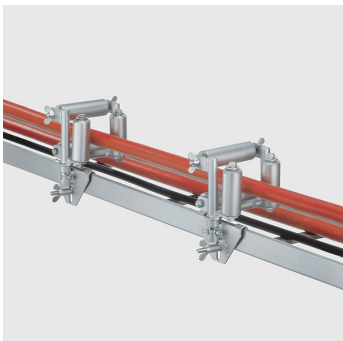


Cable tray rollers

Cable tray rollers of 3 rollers for smaller cables up to D 30 mm, with clamp. Steel construction galvanized.

- Can be fixed on the tray edge, swivelling in- or outside of the tray.
- The barrier roller produces a safe cable guidance.

Code	Type	Roller-D	Opening	SWL	kg
278470	PRK 3-53	33	53	100 kg	1,80





Cable tray rollers

Cable tray rollers of 3 rollers for bigger cables, with clamp. Steel construction galvanized. Can be fixed outside or inside the tray in order to locate the cable in the trays. Without support. The roller can be closed with the barrier roller to achieve an accurate cable guidance.

- Can be fixed in- or outside on 2 tray edges.
- After the pull the cable can be simply put into the cable tray.
- The barrier roller completes a safe guidance for the cable.
- Tray holder to be ordered separately, see below.

Code	Type	Roller-D	Opening	SWL	L/W/H mm	kg
278540	PRK 3-85	40	85x85	150 kg	222x189x85	2,80

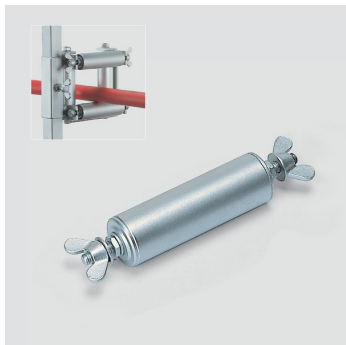


Cable tray rollers

Cable tray rollers of 3 rollers for bigger cables. Steel construction galvanized. Can be fixed outside or inside the tray in order to locate the cable in the trays. Without support. The roller can be closed with the barrier roller to achieve an accurate cable guidance.

- Can be fixed in- or outside on 2 tray edges.
- After the pull the cable can be simply put into the cable tray.
- The barrier roller completes a safe guidance for the cable.
- Tray holder to be ordered separately, see below.

Code	Type	Roller-D	Opening	SWL	L/W/H mm	kg
278570	PRK 3-100	42	100x100	150 kg	252x240x100	4,10



Barrier rollers

Barrier roller for cable tray rollers, with axle and screws. Steel galvanized.

Code	Type	Suitable for	Roller-D	SWL	kg
278480	PRV 1-53	PRK 3-53	33/112	150 kg	0,30
278550	PRV 1-85	PRK 3-85	40/134	150 kg	0,50
278580	PRV 1-100	PRK 3-100	42/190	150 kg	0,75



Cable guide rollers

Cable guide rollers, 4 high wattage-rollers of thick wall steel with ball bearings. Opening in all positions. Steel construction galvanized. accessory for fixing on canal braces, on mounting base or on profiles are available.

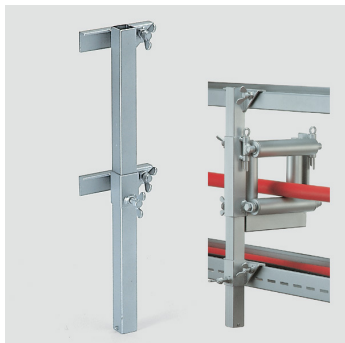
Code	Type	Opening	SWL	L/W/H mm	kg
202131	ER 4-100S	100x100	500 kg	325x325x153	12,00
202132	ER 4-125	125x125	500 kg	350x350x153	14,00
202137	ER 4-150	150x150	500 kg	375x375x153	14,50
202145	ER 4-200	200x200	500 kg	425x425x153	17,20



Supports for cable guide rollers

Parts for supporting and fixing a.m. cable guide rollers ER 4-100-300 these standards can be screwed on all sizes. Special supports adapted to any kind of profiles are available at short notice.

Code	Type	Designation	Suitable for	For	kg
205401	KSP 10	Brace retainer	ER 4-100S	Braces D 45-60	2,00
205402	KSP 12	Brace retainer	ER 4-125-300	Braces D 45-60	3,00
202168	BF 4-100S	Mounting base	ER 4-100S	Fixing on the floor	5,00
202170	BF 4-300	Mounting base	ER 4-125-300	Fixing on the floor	5,80
205420	KSA 22	Support connector	ER 4-125-300	Fixing on profiles	7,00



Tray roller supports

Cable roller holder for below mentioned cable tray rollers, steel galvanized.

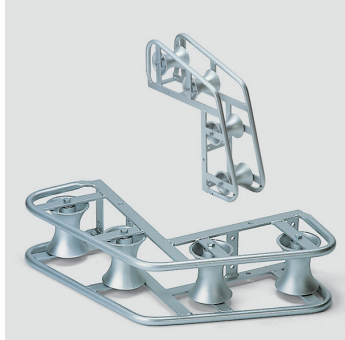
Code	Type	Suitable for	Length	kg
278710	PRH 3-615	PRK 3-85+3-100	615	1,50
278770	PRH 4-715	ER 4-100-250	715	5,00



Guide roller support

Support for fixing guide rollers on suspension stays 16 A1 or 16 A3. With it the guide rollers can be fixed in any position, e.g. vertical or horizontal suitable for pulling heaviest cables. Steel galvanized.

Code	Type	Suitable for	Needed per roller	L/W/H mm	kg
278720	PRH 3-145	PRK 3-85+PRK 3-100	2	153x80x70	0,90
278725	PRH 4-250	ER 4-125-250	1	230x178x90	3,00



Cable tray bow

Cable tray curve unit 90° angle with 4 alu rollers. Bending radius 400 mm. Compact version allows application under difficult conditions. Steel construction galvanized.

Code	Type	Roller-D / Mat.	Bend-Rad	C-D	SWL	L/W/H mm	kg
278780	PRB 90/400	90/50x100, Alu	400	100	300 kg	500x500x140	7,80



Cable tray bow

Cable tray curve unit 45° angle with 3 alu rollers. Bending radius 600 mm. Compact version allows application under difficult conditions. Steel construction galvanized.

Code	Type	Roller-D / Mat.	Bend-Rad	C-D	SWL	L/W/H mm	kg
278820	PRB 45/600	90/50x100, Alu	600	100	300 kg	500x500x140	7,10



Cable tray corner rollers

Cable tray corner roller, 45°, 3 steel rollers. Bending radius 700 mm. Steel construction galvanized. Universal roller type e.g. for horizontal or vertical cable diversion. Suitable for heavy cable pulls.

Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202760	SE 3-45S	120/76/145, Steel	700	100	500 kg	530x430x230	14,40



Cable tray corner rollers

Cable tray corner roller, 90°, 3 steel rollers. Bending radius 700 mm. Steel construction galvanized. Universal roller type e.g. for horizontal or vertical cable diversion. Suitable for heavy cable pulls.

Code	Type	Roller-D / Mat.	Rad.	C-D	SWL	L/W/H mm	kg
202820	SE 6-90S	120/76/145, Steel	700	100	500 kg	750x750x230	24,60



Cable bollard winch without brake

Cable tray capstan winches, electric motors, mounted on base frame enabling alternative fixing, incl. footswitch.

- With 1 constant speed.
- Without lifting brake, therefore not allowed for vertical cable laying.

Code	Type	Pull/Speed	EI-motor	Connection	kg
279502	PSW 7/8	7,0 kN/8 m/min	1,10 kW	230V/50-60Hz	57,00
279505	PSW 3/16	3,0 kN/16 m/min	1,10 kW	230V/50-60Hz	57,00
279540	PSW 10/8	10,0 kN/8 m/min	1,10 kW	400V/50-60Hz	54,00

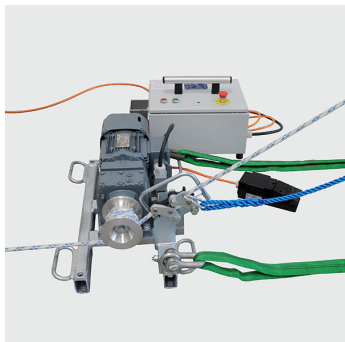


Cable bollard winch without brake

Cable tray capstan winches, electric motors, mounted on base frame enabling alternative fixing, incl. footswitch. Frequency converter allows two pulling speeds, one for heavy cable pulls up to 1 t and one for lighter cable pulls up to 400 kp. Not allowed for vertical pulls.

- Electric motor 1,5 kW, with 2 speeds, each variable through frequency converter 20-100 Hz.
- Connectable on 230 volt net, or with adapter cable also on 400 volt net.
- Without lifting brake, therefore not allowed for vertical cable laying.

Code	Type	Pull1 (50Hz)	Pull2 (80Hz)	Connection	kg
279560	PSW 10-13	10 kN/7 m/min.	4 kN/13 m/min.	230V/50-60Hz	67,00
279580	ADK 400	Adapter cable	400 to 230 volt	400-230V/50Hz	0,50

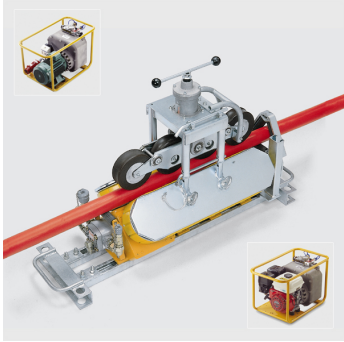


Cable bollard winch with brake

Cable tray capstan winches, electric motors, mounted on base frame enabling alternative fixing, incl. footswitch. Frequency converter allows two pulling speeds, one for heavy cable pulls up to 1 t and one for lighter cable pulls up to 400 kp. This PSW 10-13S is approved as cable hoisting winch also for vertical cable pulls up to 500 kg.

- Electric motor 1,5 kW, with 2 speeds, each variable through frequency converter 20-100 Hz.
- Connectable on 230 volt net, or with adapter cable also on 400 volt net.
- With rope holding safety clamp, suitable to lift cables vertical to 5,0 kN.

Code	Type	Pull1 (50Hz)	Pull2 (80Hz)	Connection	kg
279565	PSW 10-13S	10 kN/7 m/min.	4 kN/13 m/min.	230V/50-60Hz	72,00
279580	ADK 400	Adapter cable	400 to 230 volt	400-230V/50Hz	0,50



Cable feeders, hydraulic, 6,0 kN

Cable feeders, hydraulic with adjustable pushing and pulling force and speed. High performance reduces significantly the pulling forces of the cable winch especially in long cable lines with many curves. Included hydraulic power pack, hoses and valves. Can be driven alternatively with petrol engine or electro motor hydraulic power pack. Hydr. power pack flow 8 l/min., 250 bar. Tank volume 13 l. Hose set 7 m. Pushing and pulling speed progressively adjustable from 4-18 m/min. One loading device is included which size you can select acc. to your cable-diameter ranges. See table below.

Due to the big driving length of the V-shaped belts of 485 mm, and a balancing vertical spring pressure, the radial pressure on all kind of cables is very low. Therefore the cables are transported carefully on the whole belt driving length.

- Pushing force 6,0 kN, what reduces winch pulling even more in winding lines.
- Can be driven outside with petrol power pack and inside with electro power pack.
- Light fractional weights of max. 60 kg, can be handled and be placed of 2 persons.
- Control with hoses, 7 m. Procedure easy to control from above ground.
- Dimension cable feeder 1170x380x700, small for fixing in trenches, shafts or cable trays.
- Dimension hydr. power pack 770x480x500, weight 65 kg.

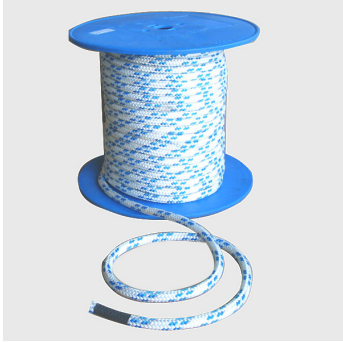
Code	Type	C-D	Load device	Hydr. Unit	kg
425750	DF 6-90 HB	28-130	28-90	Petrol 6,3 kW	166,00
425752	DF 6-130 HB	28-130	45-130	Petrol 6,3 kW	168,00
425800	DF 6-90 HE	28-130	28-90	Electro 4,0 kW	161,00
425802	DF 6-130 HE	28-130	45-130	Electro 4,0 kW	165,00
425755	DF 6-160 HB	55-160	55-160	Petrol 6,3 kW	175,00
425805	DF 6-160 HE	55-160	55-160	Electro 4,0 kW	171,00



Cable loading device for cable feeders

Cable loading device for cable feeders. In feeders above there is one loading device included which you can choose according to your cable diameters. For further diameters the following loading devices are available as accessory.

Code	Type	C-D	Roller-D	Suitable for	kg
425190	DF 20-50	20-50	150x38, R17	DF 5/6-130	19,80
425200	DF 28-90	28-90	150x50, R33	DF 5/6-130	20,80
425210	DF 45-130	45-130	150x90, flat	DF 5/6-130	23,70
425215	DF 55-160	55-160	150x90, flat	DF 5/6-160	25,00



Polyester ropes

Polyester rope double braided, with two spliced loops, (one each end). Suitable for cable tray capstan winches especially when using them as hoists. Stocked lengths are 250 and 500 m. The particular rope drum is included in the rope price. Can be used with swivels with ball bearings. kN = Minimum Breaking Load

Code	Type	Rope	Stretch	kN	Length	kg
27968512	PKG12-125	12	4-6 %	32	125 m	11,30
27968525	PKG12-250	12	4-6 %	32	250 m	22,50
27968530	PKG12-300	12	4-6 %	32	300 m	30,50
27968550	PKG12-500	12	4-6 %	32	500 m	45,00



Polypropylene ropes

Polypropylene-rope with two spliced loops, (one each end). Not suitable for hoisting pulls. Stocked length are 150 and 250 m. For this swivel with ball bearings must not be used, but swivels with friction bearings. kN = Minimum Breaking Load

Code	Type	Rope	Stretch	kN	Length	kg
27969015	PKT 14-150	14	15 %	27	150 m	14,00
27969025	PKT 14-250	14	15 %	27	250 m	24,00



Swivel for Polyester rope

Swivels with ball bearings suitable for twist-free polyester rope D 12 mm, (not for polypropylene rope). kN = Minimum Breaking Load

kN = Minimum Breaking Load

Code	Type	For rope	D/length/fork	kN	kg
537360	FVD 30	D 12	30/128/12	60	0,50



Swivel for Polypropylene-rope

Swivels with friction bearings, turnable connector between winch rope and cable grip. Only suitable for Polypropylene rope D 14 mm, D 45x180/16 mm. Min. breaking load 150,0 kN. Not suitable for pulling overhead lines. kN = Minimum Breaking Load

Code	Type	For rope	D/length/fork	kN	kg
243130	V 45 D	D 16	45/180/16	150	1,50



Reel for plastic ropes

Reel stand for ropes, steel galvanized with 2 rubber wheels. Plastic ropes must not be spooled with high tensions on drums. Depending on temperatures there are volume dilatations which will crush the drum core and also the flanges. Rope capacities of this drum are:

- Plastic rope diameter 6, approx. 1200 m, total rope weight approx. 48 kg
- Plastic rope diameter 7, approx. 1000 m, total rope weight approx. 40 kg
- Plastic rope diameter 8, approx. 700 m, total rope weight approx. 35 kg
- Plastic rope diameter 10, approx. 500 m, total rope weight approx. 35 kg
- Plastic rope diameter 12, approx. 350 m, total rope weight approx. 35 kg
- Plastic rope diameter 14, approx. 250 m, total rope weight approx. 35 kg

Code	Type	Rope cap.	Reel-D	L/W/H mm	kg
279720	PSH 600	s. above	600/150/240	727/331/790	19,20

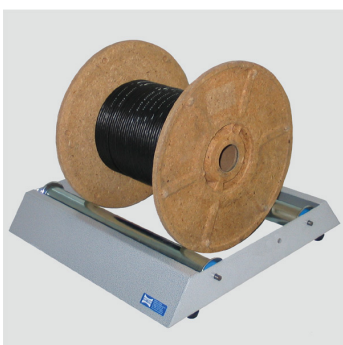


Drum for plastic ropes

Rope drum of plywood for plastic ropes. Plastic ropes must not be spooled with high tensions on drums. Depending on temperatures there are volume dilatations which will crush the drum core and also the flanges. Rope capacities of this drum are:

- Plastic rope diameter 7, approx. 2000 m, total rope weight approx. 80 kg
- Plastic rope diameter 8, approx. 1500 m, total rope weight approx. 75 kg
- Plastic rope diameter 10, approx. 1000 m, total rope weight approx. 70 kg
- Plastic rope diameter 12, approx. 750 m, total rope weight approx. 75 kg
- Plastic rope diameter 14, approx. 550 m, total rope weight approx. 77 kg

Code	Type	Rope cap.	Drum-D	Width	Hole	kg
279740	STR 750	s. above	750/315	395/420	80	20,00



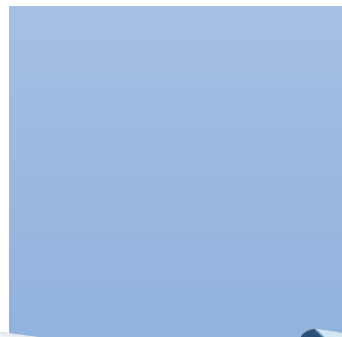
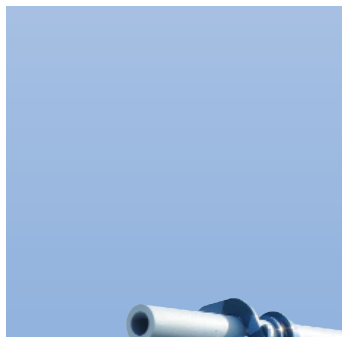
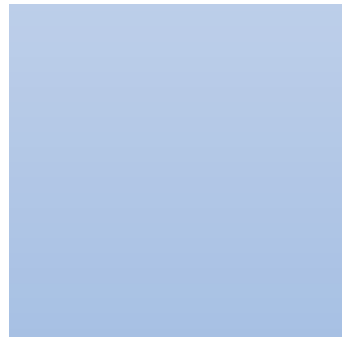
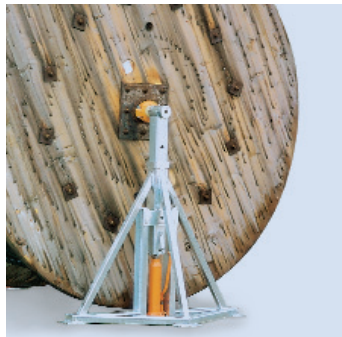
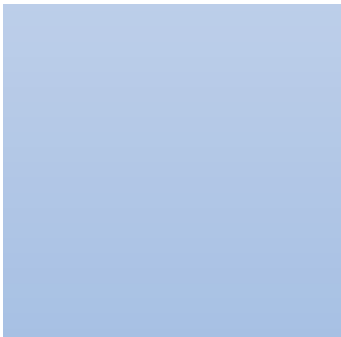
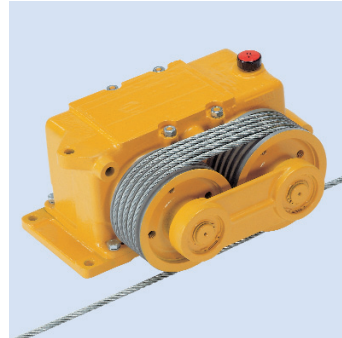
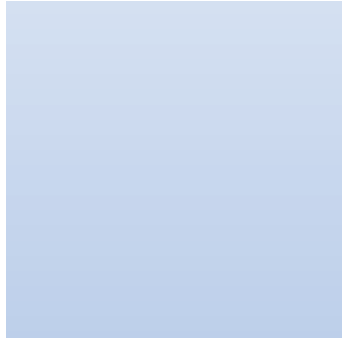
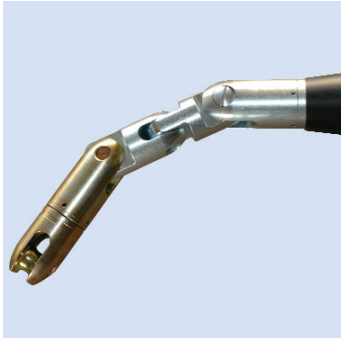
Drum wind off roller

Cable drum wind-off roller for cables or ropes. Steel construction, powder coated. Steel rollers galvanized with ball bearings.

- Rollers adjustable for smaller spools down to Ø 100
- Rubber feet for stable and quiet running

Code	Type	For drum-D	Drum width	SWL	L/W/H mm	kg
320660	KTA 7	100-1200	max. 500	150 kg	530/550/110	8,80

Cable laying and mounting devices for 110-550 kV cables





Cable mounting and fixing systems 110-550 kV

Cable pulling heads for cable from 110-550 kV

Cable pulling and feeding machinery for high voltage cables

Cable drum winding machines for drums 20-55 t

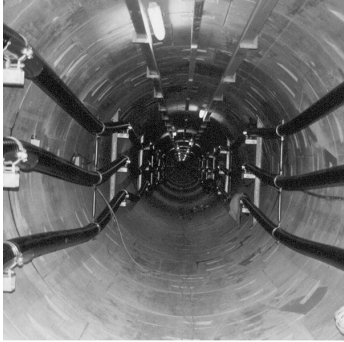
Cable drum shafts to winding machines 20-55 t

Cable drum brakes to winding machines

Cable drum drives to cable winding machines

Cable drum jacks hydraulic, for drums up to 55 t

Cable drum shafts and accessory for drums up to 55 t

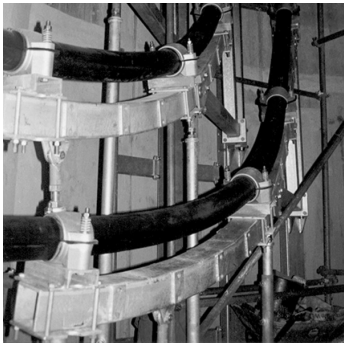


Cable mounting and fixing systems

Cable mounting and fixing systems of high voltage cables 110-520 kV. We design complete cable plants in tunnels and power station. For this we supply:

- Engineering and complete mounting and fixing equipment.
- The cable pull calculation and the procedure of the cable laying.
- The complete program of machinery and tools.
- References: Berlin, London, China, Taiwan, Merowe-reservoir dam and others.
- Please provide us with techn. details of cable, tunnel and laying design.
- If you send us plans you will get a first layout.

Code	Type	Tunnel	Cable	
287000	Tunnel	D 3 m, length 13 km	380 kV	0,00



Cable mounting in angles

Cable mounting and fixing in angles for safe guiding the cable during pulling from vertical in horizontal direction.

- This mounting system allows pulling of heaviest cables with relatively low forces.
- Big cable lengths of 1000 m and more can be pulled in through a ball bearing roller system.
- Immediately after cable pulling the cables is situated in the final fixing position.

Code	Type	Bows	Rad.	
287000	bows	in each angle	from 2-4 m	0,00



Cable mounting in slopes

Cable mounting in slopes. This system offers in steep slopes an ideal cable fixing through the long saddle supports.

- Especially for slope channel calculations and constructions are necessary.

Code	Type	Plants with slopes	
287000	slope	Done to a slope of 23°	0,00

Cable pulling and fixing

Cable pulling is realized directly into the final cable saddle system.

- Fixing of the system, of the brackets and saddles is simple and fast.
- Cable saddles of antimagnetic stainless steel, all other parts of steel hot galvanized.
- Side moving or any other movements of the cables is not necessary after the cable pull.
- For this the cables will be handled very carefully.
- The final mounting costs are strongly reduced.

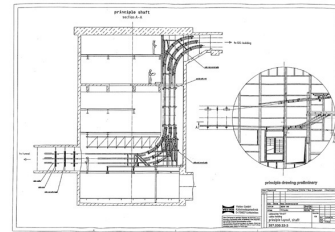
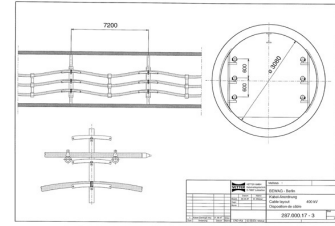
Code	Type	Cable saddle	Saddle lengths
287000	saddle	for C-D 90-160	400-800 0,00

Cable mounting in vertical shafts

Vertical shafts are a special challenge in cable laying and fixing especially in vertical shafts.

- In vertical channels many angles are three-dimensional.
- The roller bows are the solution for pulling and afterward for fastening.

Code	Type	Plants vertical
287000	vertical	Done down to 180 m. 0,00



Cable pulling heads

Cable pulling heads for single-conductor cables. Mounted directly on the conductor, for this much higher pulling forces are possible compared with cable grips acting on the cover. For high voltage cables 110-550 kV, from 800-3200 mm². Easy mounting procedure on cable manufacturers place or in the field within 2-3 minutes. This pulling heads are reusable continuously.

Please ask for offer indicating exact techn. details of the cable.

- Before dispatch of the cable one needs: 1 cable sleeve, 1 taper key, 1 cap.
- Before pulling the cable the cap will be unscrewed and the fork head screwed on the sleeve.
- Before cable pulling a cardan link and a swivel must be mounted on the pulling head.

Code	Type	Needed parts
243600	KZK-Kombi	See description above 0,00



Cable jointing sleeves

Cable jointing sleeves for cable pulling-heads for pre-mounting on the conductor of high voltage cables.

- For high voltage cables 110-550 kV with CU- or AL-conductor of 400-2500 mm²
- Easy and fast mounting in the factory or on the working site in approx. 2-3 minutes.
- These pulling heads can be re-used many times.
- kN = Minimum Breaking Load

Code	Type	Cross section	Cond.-D	OD	kN	kg
243911	KZH 06-630	630 mm ²	30-32	65	125	2,45
243922	KZH 08-1200	800-1200 mm ²	34-44	76	240	2,50
243941	KZH 12-1600	1200-1600 mm ²	44-53	86	320	4,00
243956	KZH 20-2500	2000-2500 mm ²	53-66	100	500	5,60
2439562	KZH 25-3200	2500-3200 mm ²	66-74	115	500	6,00



Fork head

Fork heads for screwing on cable jointing sleeves immediately before pulling the cable in.

- On the site 1-2 fork heads will be enough.
- kN = Minimum Breaking Load

Code	Type	Cross section	Sleeve	Fork	Bolt	kN	kg
243912	GAB 06-630	630 mm ²	D 65	26	24	300	1,60
243923	GAB 08-1200	800-1200 mm ²	D 76	30	27	320	2,50
243942	GAB 12-1600	1200-1600 mm ²	D 86	35	30	400	3,10
243957	GAB 20-2500	2000-2500 mm ²	D 100	38	36	500	5,50
2439572	GAB 25-3200	2500-3200 mm ²	D 115	38	36	500	7,00



Hollow cone taper key

Hollow cone taper key for cable pulling heads for segmented conductors.

- Segment conductors with a centre rope need hollow taper keys.
- Exact conductor diameter is needed for an offer
- Also diameter of the centre core is needed.

Code	Type	Cross section	Cond.-D	kg
243926	KEIH 43-1200	1200-1400 mm ²	42,0-43,3	0,17
243943	KEIH 46-1400	1200-1400 mm ²	44,0-46,7	1,00
243945	KEIH 50-1600	1200-1600 mm ²	48,0-50,3	0,70
243947	KEIH 53-1600	1400-1600 mm ²	51,0-53,0	0,30
243950	KEIH 55-2000	1400-1600 mm ²	53,2-56,5	0,35
243958	KEIH 57-2500	2000-2500 mm ²	56,6-59,0	1,40
2439601	KEIH 60-2000	2000-2500 mm ²	58,5-60,5	1,03
243961	KEIH 59-2500	2000-2500 mm ²	59,0-63,0	1,00

243960	KEIH 63-2500	2000-2500 mm ²	63,0-66,0	0,70
2439612	KEIH 66-3200	2500-3200 mm ²	66,1-68,5	1,00
2439614	KEIH 68-3200	2500-3200 mm ²	68,6-71,2	1,00



Solid cone taper key

Solid cone taper key for cable pulling heads for round conductors.

- For stranded conductors plane solid keys are used.
- Exact conductor diameter is needed for an offer

Code	Type	Cross section	Cond.-D	kg
243924	KEIV 35-800	800-1200 mm ²	32,0-34,8	0,40
2439241	KEIV 37-800	800-1200 mm ²	34,9-36,9	0,34
243925	KEIV 39-1000	800-1200 mm ²	37,0-39,3	0,28
2439251	KEIV 41-1000	800-1200 mm ²	39,5-42,2	0,21
2439254	KEIV 44-1000	800-1200 mm ²	41,6-43,5	0,15
2439255	KEIV 46-1000	1200-1600 mm ²	43,6-45,5	0,20
2439256	KEIV 48-1000	1200-1600 mm ²	45,6-47,5	0,20
2439583	KEIV 36-1600	2000-2500 mm ²	52,7-54,4	1,40
243959	KEIV 56-2300	2000-2500 mm ²	55,5-58,0	1,50
2439591	KEIV 67-3200	2500-3200 mm ²	65,5-67,4	1,66



Mounting tool

Mounting tool for all cable pulling heads for segment conductors with central rope. Made of special high quality steel, for beating in round taper keys.

Code	Type	Cross section	Central rope	Dimension	kg
243997	KMB 12-1600	1200-1600 mm ²	D 11	D 22x200	0,80
243998	KMB 20-2500	2000-2500 mm ²	D 17	D 28x200	0,90
243999	KMB 25-3200	2500-3200 mm ²	D 20	D 34x200	1,00



Cardan joint

Cardan joint for flexible connection of the cable pulling heads with the pulling rope-swivels.

- Together with the swivels it functions like a globe joint.
- Important for pulling the cable through curves in different directions.
- kN = Minimum Breaking Load

Code	Type	To pull head	Swivel	kN	kg
243976	KKG 06-630	OD 65	V 55 D	180	2,60
243978	KKG 08-1200	OD 76	V 65 D	280	4,10

243982	KKG 12-1600	OD 86	V 75 D	500	6,45
243985	KKG 20-3200	OD 100-115	V 75 D	500	6,70



Swivels

Swivels with friction bearings, turnable connector between winch rope and cable grip. The friction bearing guarantees that the swivel reduces rotation and torsion with increasing pulling force. Not suitable for pulling overhead lines.

- Swivels for underground cables must be equipped only with friction bearings.
- With increasing pulling force friction bearings twist harder and thus avoid the untwisting of the pulling rope
- Ball bearings let untwist the ropes and leads to destruction.
- kN = Minimum Breaking Load

Code	Type	Cross section	D	L	Fork	Bolt.	kN	kg
243140	V 50 D	300 mm ²	50	187	18	16	165	1,90
243150	V 55 D	630 mm ²	55	190	20	18	180	2,30
243180	V 65 D	800-1200 mm ²	65	235	26	24	300	3,42
243190	V 75 D	1200-2500 mm ²	75	270	30	27	320	6,70
243200	V 85 D	1200-2500 mm ²	85	315	34	30	400	9,40
243220	V 100 D	1200-2500 mm ²	100	350	38	36	500	14,50



Closing cap

Closing cap with eye nut for screwing on the cable jointing sleeves.

- With the caps screwed on the cones the cable ends can be fixed on the drum.
- For pulling the cable, the cap will be unscrewed and replaced by the fork head.
- In no case must be pulled cables using this cap.

Code	Type	For sleeve-D	kN	kg
243965	ADK 65-630	65	not for cable pulling	1,20
243968	ADK 76-1200	76	not for cable pulling	1,25
243970	ADK 86-1600	86	not for cable pulling	1,40
243972	ADK 100-2500	100	not for cable pulling	1,60
2439722	ADK 115-3200	115	not for cable pulling	2,00



Cable guiding cones

Cable guiding cones of polyamide for soft running through the rollers of cable pulling heads.

- The cones should be used if the cable is much bigger than the pulling head.
- This combination guarantees a friction-free rolling of the cable through all parts of the roller line.

Code	Type	Poly.-D	For sleeve	kg
24399126	KFK 76-130	76/130/110	D 76	0,57
24399250	KFK 86-130	86/130x130	D 86	0,44
24399445	KFK 100-140	100/140x130	D 100	0,46

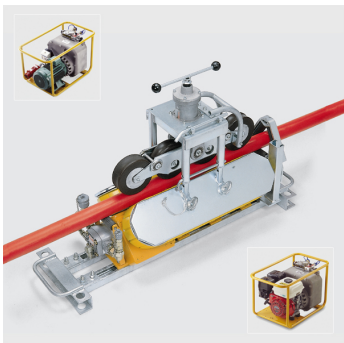
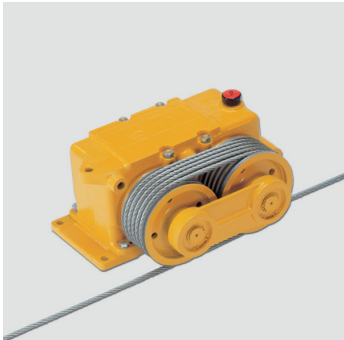


Cable capstan winches 40-50 kN, hydraulic

Cable capstan winches with hydraulic drive. Please select digital pull recorder or dynamometer as accessory to your need. A swivel with friction bearing is included. All other techn. details and accessory see below.

- Without rope, Cap. m/mm: 1100/12, 1300/11 or 950/13.
- Diesel engine Lombardini, 33 kW, pay out speed 0-93 m/min.
- Easy pay out of the rope without energy due to automatic unwinding of the drum.
- Mounted on one axle trailer with height adjustable draw bar with overrun brake with eye coupling
- With swing out canopy. Winch furnishing RAL 1007 yellow.

Code	Type	Engine	Pull1/m/min.	Pull2/m/min.	kg
446241	TL 4041 DRHZ	Diesel 10 kW	40 kN / 0-23	10 kN / 0-115	1.480,00
446491	TL 5041 DRHZ	Diesel 10 kW	50 kN / 0-19	10 kN / 0-93	1.485,00



Cable feeders, hydraulic, 6,0 kN

Cable feeders, hydraulic with adjustable pushing and pulling force and speed. High performance reduces significantly the pulling forces of the cable winch especially in long cable lines with many curves. Included hydraulic power pack, hoses and valves. Can be driven alternatively with petrol engine or electro motor hydraulic power pack. Hydr. power pack flow 8 l/min., 250 bar. Tank volume 13 l. Hose set 7 m. Pushing and pulling speed progressively adjustable from 4-18 m/min. One loading device is included which size you can select acc. to your cable-diameter ranges. See table below.

Due to the big driving length of the V-shaped belts of 485 mm, and a balancing vertical spring pressure, the radial pressure on all kind of cables is very low. Therefore the cables are transported carefully on the whole belt driving length.

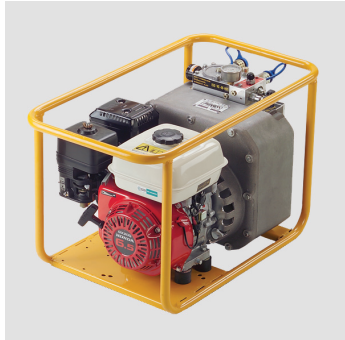
- Pushing force 6,0 kN, what reduces winch pulling even more in winding lines.
- Can be driven outside with petrol power pack and inside with electro power pack.
- Light fractional weights of max. 60 kg, can be handled and be placed of 2 persons.
- Control with hoses, 7 m. Procedure easy to control from above ground.
- Dimension cable feeder 1170x380x700, small for fixing in trenches, shafts or cable trays.
- Dimension hydr. power pack 770x480x500, weight 65 kg.

Code	Type	C-D	Load device	Hydr. Unit	kg
425750	DF 6-90 HB	28-130	28-90	Petrol 6,3 kW	166,00
425752	DF 6-130 HB	28-130	45-130	Petrol 6,3 kW	168,00
425800	DF 6-90 HE	28-130	28-90	Electro 4,0 kW	161,00
425802	DF 6-130 HE	28-130	45-130	Electro 4,0 kW	165,00
425755	DF 6-160 HB	55-160	55-160	Petrol 6,3 kW	175,00
425805	DF 6-160 HE	55-160	55-160	Electro 4,0 kW	171,00

Hydraulic power packs mobile

Hydraulic power packs for cable feeders and drum drives without hoses and valves. Tank 13 Litre, oil flow 14 l/min.

Code	Type	Suitable for	Motor kW	Press.	L/W/H mm	kg
425302	HB 210	Feeders+Drum drives	Petrol 6,3	210 bar	778/490/500	70,00
425312	HD 210	Feeders+Drum drives	Diesel 5,0	210 bar	790/510/565	85,00
425351	HE 210	Feeders+Drum drives	Electro 4,0	210 bar	733/405/433	67,00





Hydraulic hose set

Hydraulic hose set 7 m, with volume governor for hydraulic power packs.

Code	Type	Length	Flow governor	kg
425381	SL 7	7 m	to 30 l/min	13,20



Cable winding units stationary

Cable winding and unwinding stands, stationary or for mounting on lorries etc. For drums from 20-55 t. See accessories like drum drives, drum brakes etc. Techn. details see table below. Please ask for our more extensive offers.

- Possible configurations:
- Drum flange brakes, one or both sides, breaking force 12,5 resp. 25,0 kN at cable.
- With an additional pre- and emergency brake braking forces to 50,0 kN are possible.
- Drive of the brakes per manual hydraulic pump or by electro-hydraulic drive
- Drum drives one-side or double sides, pulling force 16,0 kN resp. 32,0 kN
- Adjustable on the site to any drum width.

Code	Type	Cap.	Drum-D	Int. width	kg
331736	KTU 20 ST	20 t	2000-3700	any adjustable	1.870,00
331738	KTU 20 ST	20 t	2800-4300	any adjustable	1.880,00
331740	KTU 25 ST	25 t	3600-5100	any adjustable	1.945,00
331750	KTU 55 ST	55 t	3600-5100	any adjustable	1.980,00
331752	KTU 55 ST	55 t	4300-6000	any adjustable	1.980,00



Drum shafts for KTU 20-55

Drum shafts for KTU 20-55. The height adjustable drum supports are equipped with ball bearing rollers in which the drum shafts turn easily. The stand can be adapted to any drum width. Drum shafts are available in length from 3000 to 5000 mm in partition of any 500 mm. The shaft must be of min. 1 m longer than the widest drum width. In standard it is equipped with 4 clamps for fixing the shaft and the drum. Centring bushes have to be ordered separately according to the drum shaft diameter and the bore diameter of the drums. See below.

Code	Type	D/L mm	SWL	Drum width	kg
031483334	KSR 10122	101/4000	16 t	max. 3000	187,00
031483344	KSR 10825	108/4000	20 t	max. 3000	221,00
031483354	KSR 11417	114/4000	20 t	max. 3000	184,00
031483364	KSR 12120	121/4000	24 t	max. 3000	219,00
031483374	KSR 12714	127/4000	22 t	max. 3000	178,00
031483384	KSR 12725	127/4000	30 t	max. 3000	273,00
031483424	KSR 13917	139/4000	31 t	max. 3000	231,00

031483454	KSR 13930	139/4000	38 t	max. 3000	348,00
031483464	KSR 15925	159/4000	54 t	max. 3000	355,00
031483466	KSR 15925	159/4500	54 t	max. 3500	397,00
031483476	KSR 15930	159/4500	59 t	max. 3500	454,00
031483478	KSR 15930	159/5000	59 t	max. 4000	502,00



Centring bushes for drum shafts D 101-159

Centring bushes for drum shafts to fit with the drum bore, see table below. Also available in other diameters. Bush length 80 mm

Code	Type	For shaft	Drum bore	kg
315765	ZBS 101/125	D 101	D 125	10,00
315780	ZBS 101/140	D 101	D 140	12,00
315815	ZBS 108/145	D 108	D 145	15,00
315818	ZBS 108/200	D 108	D 200	9,00
315850	ZBS 114/150	D 114	D 150	15,00
315880	ZBS 114/200	D 114	D 200	15,00
315920	ZBS 121/200	D 121	D 200	15,00
315945	ZBS 127/150	D 127	D 150	4,00
315952	ZBS 127/200	D 127	D 200	12,00
315978	ZBS 139/200	D 139	D 200	12,00
315987	ZBS 159/185	D 159	D 185	16,00
315989	ZBS 159/200	D 159	D 200	18,00



Clamps for drum shafts D 101-159 mm

Clamp for drum shafts for lateral fixing of the cable drum on drum shafts of steel or alu. Steel coated. Width 50 mm.

Code	Type	For shaft	kg
315340	KLS 101	D 101-105	2,00
315350	KLS 108	D 108-110	2,40
315360	KLS 114	D 114-115	3,00
315370	KLS 121	D 121-123	5,00
315380	KLS 127	D 127-130	3,40
315384	KLS 135	D 135-137	4,00
315385	KLS 139	D 139-140	3,60
315390	KLS 159	D 159-160	3,90



Drum brakes for KTU 20-55

Drum brakes for KTU 20-55, operated by hand pump or electro-hydraulic pump by separate hydraulic power pack. Per drum flange 1 brake shoe in front and behind. The drum can be braked on one or on both flanges. If high braking forces are required, e.g. at cable lowering in shafts etc. the pre- and emergency brake with independent hand pump should be installed. Electric power packs for one or two flange brakes have to be ordered separately.

- Drum flange brake on one or both sides, 12,5 resp. 25,0 kN braking force on the cable.
- Hydraulic by hand pump or by electro-motor-hydraulic.

Code	Type	Drum-D	Brake	Braking	kg
331753	TRB 3701	2000-3700	one-side	min. 12,5 kN	135,00
331754	TRB 4301	2800-4300	one-side	min. 12,5 kN	135,00
331756	TRB 5101	3600-5100	one-side	min. 12,5 kN	136,00
3317561	TRB 6001	4300-6000	one-side	min. 12,5 kN	149,00
3317564	TRB 3702	2000-3700	both-sides	min. 25,0 kN	250,00
331757	TRB 4302	2800-4300	both-sides	min. 25,0 kN	270,00
331758	TRB 5102	3600-5100	both-sides	min. 25,0 kN	270,00
3317581	TRB 6002	4300-6000	both-sides	min. 25,0 kN	270,00



Drum brake shoes for drum brakes to KTU 20-55

Drum brake shoes to KTU 20-55. Each brake shoe is suitable for a certain range of drum diameter, see table below. They can easily be replaced by bigger or smaller ones. They are equipped by high performance brake linings of a long service life and can simply be changed by screwing right on the field.

For drum brakes one-side there are 2 brake shoes necessary, for brakes both-sides 4 brake shoes. Getting to the biggest drum diameter, please select the next bigger brake shoe. E.g. drum Ø 2400 mm, select brake shoe for drum Ø 2400-2800 mm.

Code	Type	Drum-D	Rad.	kg
331798	TBS 2400	2000-2400	1120	17,00
331799	TBS 2800	2400-2800	1320	17,00
331800	TBS 3200	2800-3200	1520	17,00
331804	TBS 3600	3200-3600	1720	17,00
331808	TBS 4100	3600-4100	1920	17,00
331812	TBS 4600	4100-4600	2170	17,00
331816	TBS 5100	4600-5100	2420	17,00
331818	TBS 5600	5100-5600	2670	17,00
331820	TBS 5800	5600-5800	2920	17,00

Accessory without photo

Drum pre-and emergency brake to KTU 20-55

Drum pre-and emergency brake to KTU 20-55, operated by an independent hand pump. The drum is braked from the bottom with two brake shoes on both flanges, when lowering cables in shafts etc. The brake shoes according to drum diameter have to be ordered separately.

- Drum flange brakes on both sides, min. 25,0 kN braking force on the cable.
- Hydraulic by hand pump-system is included in the drum pre-brake.

Code	Type	Drum-D	Brake	Braking	kg
3317584	TRV 3702	2000-3700	both-sides	min. 25,0 kN	213,00
331759	TRV 4302	2800-4300	both-sides	min. 25,0 kN	213,00
331760	TRV 5102	3600-5100	both-sides	min. 25,0 kN	213,00
331761	TRV 6002	4300-5800	both-sides	min. 25,0 kN	213,00

Drum drives for KTU 20-55

Drum drives for KTU 20-55, for electro-hydraulic drives of separate hydraulic power packs. Per drum flange there are 1 tandem rubber drive rollers in front and 1 behind. With this drive the drum can be driven or braked with the same force, see table below. If high braking forces are required, e.g. at cable lowering in shafts etc. the pre- and emergency brake with independent hand pump should be installed. Electric power packs for one or two flange drives have to be ordered separately.

- Drum drives, on one side or both sides, breaking force at the cable min. 8,0 resp. 16,0 kN
- Accessory: hydraulic drive by electro-motor, continuous control.
- The drive is able to brake, braking forces are equal to the drum drive forces.

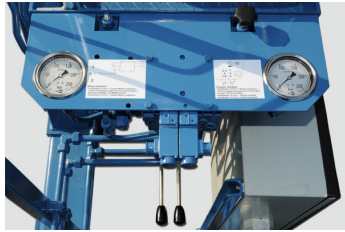
Code	Type	Drum-D	Drive	Below/top	m/min.	kg
331764	TRV 3702	2000-3700	one-side	16/8 kN	8/16	265,00
331765	TAH 1604	2000-3700	both-sides	32/16 kN	8/16	450,00
331766	TAH 0802	2800-4300	one-side	16/8 kN	8/16	260,00
331768	TAH 1604	2800-4300	both-sides	32/16 kN	8/16	530,00
331770	TAH 0802	3600-5100	one-side	16/8 kN	8/16	260,00
331772	TAH 1604	3600-5100	both-sides	32/16 kN	8/16	535,00
331773	TAH 0802	4300-6000	one-side	16/8 kN	8/16	260,00
3317732	TAH 1604	4300-6000	both-sides	32/16 kN	8/16	530,00

Hand pump hydraulic for drum brakes

Hand pump hydraulic for drum brakes for KTU 20-55. The drum can be braked on one or on both flanges.

Code	Type	Drive	Brake	Below/top	kg
331776	THH 4501	Hand pump	one-side	16/8 kN	29,00
331778	THH 4502	Hand pump	both-sides	32/16 kN	29,00





Electro-hydraulic for drum brakes

Electro-hydraulic for drum brakes for KTU 20-55. The drum can be braked on one or on both flanges.

Code	Type	Drive	Brake	Below/top	E-Motor	kg
331782	TEH 4501	El.-hydraulic	one-side	16/8 kN	5,5 kW	65,00
331784	TEH 4502	El.-hydraulic	both-sides	32/16 kN	11,0 kW	62,00



Electro-hydraulic for drum drives

Electro-hydraulic for drum drives for KTU 20-55. The drum can be driven on one or on both flanges.

Code	Type	Drive	Drive	Below/top	E-Motor	kg
331786	TTH 0802	El.-hydraulic	one-side	16/8 kN	5,5 kW	137,00
331788	TTH 1604	El.-hydraulic	both-sides	32/16 kN	11,0 kW	137,00



Cable drum hydraulic jacks

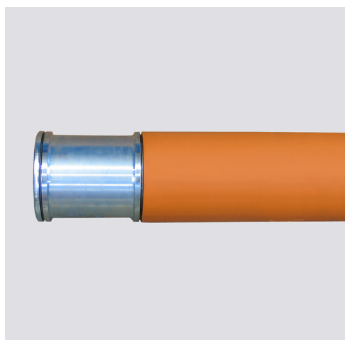
Cable drum hydraulic jacks, with height adjustable central claw support for heaviest and biggest drums. Big triangular base. Steel construction hot galvanized.

Below mentioned capacity is per pair. Two are required

- Base and top telescope tube adjustable to drum sizes.
- Hydraulic lift by hand pump 150
- THV 20/30 accessory, shaft closing clamp, if jacks are on soft grounds or on lorries or boats

Code	Type	Cap.	Drum-D	Triangle base	kg
312471	THD 20/25	40 t	1800-2500	1500/550	128,00
312500	THD 20/37	40 t	2500-3700	1500/550	140,00
312520	THD 20/42	40 t	3000-4200	1500/550	150,00
312521	THD 20/44	40 t	3200-4400	1500/550	155,00
312522	THD 20/46	40 t	3400-4600	1500/550	158,00
312544	THD 30/50	50 t	3600-5000	2000x1000	271,00
312561	THV 20/30	Closing clamp	---	---	2,30





Tubular steel drum shafts, rotating

Tubular steel drum shafts, rotating with friction bearings, without clamps, for heavy drum weights and wider drums. Shaft length must be 500 mm longer than the drum width. Especially for application with the THD hydraulic jacks. The load capacities are corresponding to the widest possible drum, for reduced width the capacity decreases significantly. Static calculations are available.

Code	Type	D/L mm	Seat	SWL	kg
031481024	KSDL 10122	101/2400	D 96x115	to 15 t	110,00
031481032	KSDL 10122	101/2600	D 96x115	to 15 t	119,00
031481040	KSDL 10122	101/2800	D 96x115	to 15 t	127,00
031481044	KSDL 10122	101/3000	D 96x115	to 15 t	136,00
031481046	KSDL 10122	101/3200	D 96x115	to 15 t	145,00
031481228	KSDL 10825	108/2400	D 96x115	to 25 t	135,00
031481234	KSDL 10825	108/2600	D 96x115	to 25 t	145,00
031481240	KSDL 10825	108/2800	D 96x115	to 25 t	155,00
031481248	KSDL 10825	108/3000	D 96x115	to 25 t	166,00
031481252	KSDL 10825	108/3200	D 96x115	to 25 t	176,00
031481428	KSDL 11417	114/2500	D 96x115	to 24 t	119,00
031481432	KSDL 11417	114/2800	D 96x115	to 24 t	130,00
031481440	KSDL 11417	114/3000	D 96x115	to 24 t	140,00
031481448	KSDL 11417	114/3200	D 96x115	to 24 t	148,00
031481456	KSDL 11417	114/3300	D 96x115	to 24 t	152,00
031481832	KSDL 12714	127/2800	D 116x115	to 28 t	150,00
031481844	KSDL 12714	127/3000	D 116x115	to 28 t	158,00
031481852	KSDL 12714	127/3200	D 116x115	to 28 t	166,00
031481856	KSDL 12714	127/3300	D 116x115	to 28 t	170,00
031482044	KSDL 12725	127/2800	D 116x115	to 38 t	194,00
031482052	KSDL 12725	127/3000	D 116x115	to 38 t	206,00
031482064	KSDL 12725	127/3200	D 116x115	to 38 t	219,00
031482068	KSDL 12725	127/3600	D 116x115	to 38 t	244,00
031482072	KSDL 12725	127/4020	D 116x115	to 38 t	270,00
031482651	KSDL 13925	139/3200	D 116x115	to 48 t	241,00
031483256	KSDL 15930	159/3200	D 116x115	to 55 t	315,00
031483260	KSDL 15930	159/3500	D 116x115	to 55 t	344,00
031483270	KSDL 15930	159/4900	D 116x115	to 55 t	487,00



Tubular steel drum shafts, for disc brake

Tubular steel drum shafts, rotating with friction bearings, without clamps, for heavy drum weights and wider drums. Shaft length must be 500 mm longer than the drum width. The load capacities are corresponding to the widest possible drum, for reduced width the capacity decreases significantly. Especially for application with the THD hydraulic jacks. On one or both ends there is an adapter for one or two disc brakes STBT 400. Static calculations are available.

- Shaft length must be 500 longer than biggest drum width.
- The capacities correspond to the widest drum, for reduced widths the cap. decreases.
- Any other length or dimension available.
- Static drum shaft calculation available on request..

Code	Type	D/L mm	Seat	SWL	Braking	kg
031481436	KSDK 11417	114/2900	D 96x115	to 24 t	3200 Nm	143,00
031481642	KSDK 12120	121/2800	D 96x115	to 28 t	3200 Nm	154,00
031481836	KSDK 12714	127/2800	D 116x115	to 28 t	3200 Nm	152,00
031482649	KSDK 13925	139/3000	D 116x115	to 48 t	3200 Nm	230,00

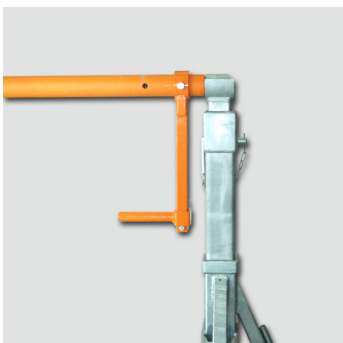


Cable drum disc brake

Cable drum disc brake without drum fork, to order separately, for controlled unwinding of cable or line drums from the hydraulic drum jacks THD 20/25 - 30/50. Suitable for all a.m. cable drum shafts. One complete set as shown left consists of:

- 1 steel shaft type KSDK, see above, to select acc. to capacity and width of the drum
- 1 disc brake STBT 400
- 1 drum fork suitable in diameter to the drum shaft, see below
- 2 clamps fitting the drum shaft see below
- 2 Centric cones fitting the drum shaft and the drum bore diameter, see below

Code	Type	Operation	Braking	At the cable	kg
350862	STBT 400	mechanic	3200 Nm	approx. 4,0 kN	37,00



Drum fork

Drum fork suitable for a.m. drum disc brake together with the tubular steel drum shafts.

Code	Type	For shaft	kg
0333701164	TMK 076	D 76	10,00
033370118	TMK 095	D 95	8,00
033370121	TMG 114	D 114	10,00
033370122	TMG 121	D 121	13,00
033370123	TMG 127	D 127	13,00



Clamps for drum shafts D 101-159 mm

Clamp for drum shafts for lateral fixing of the cable drum on drum shafts of steel or alu. Steel coated. Width 50 mm.

Code	Type	For shaft	kg
315340	KLS 101	D 101-105	2,00
315350	KLS 108	D 108-110	2,40
315360	KLS 114	D 114-115	3,00
315370	KLS 121	D 121-123	5,00
315380	KLS 127	D 127-130	3,40
315384	KLS 135	D 135-137	4,00
315385	KLS 139	D 139-140	3,60
315390	KLS 159	D 159-160	3,90



Centring bushes for drum shafts D 101-159

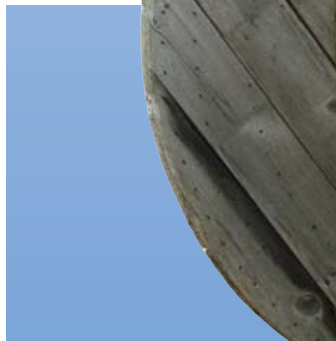
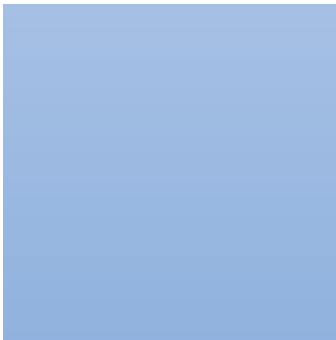
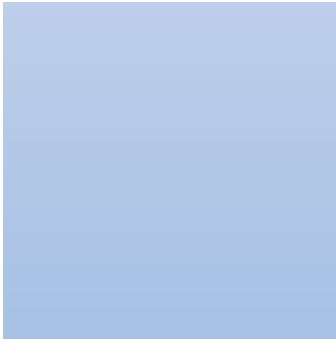
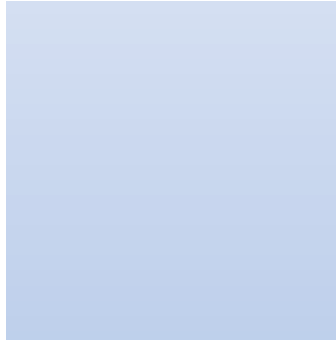
Centring bushes for drum shafts to fit with the drum bore, see table below. Also available in other diameters. Bush length 80 mm

Code	Type	For shaft	Drum bore	kg
315765	ZBS 101/125	D 101	D 125	10,00
315780	ZBS 101/140	D 101	D 140	12,00
315815	ZBS 108/145	D 108	D 145	15,00
315818	ZBS 108/200	D 108	D 200	9,00
315840	ZBS 114/140	D 114	D 140	11,00
315880	ZBS 114/200	D 114	D 200	15,00
315940	ZBS 127/140	D 127	D 140	4,00
315952	ZBS 127/200	D 127	D 200	12,00
315978	ZBS 139/200	D 139	D 200	12,00
315987	ZBS 159/185	D 159	D 185	16,00
315989	ZBS 159/200	D 159	D 200	18,00

**Cable drum
lifting jacks**

Drum shafts

**Drum loading
traverses**





Drum lifting jacks, mechanical up to 16 t drum weight

Drum lifting hydraulic jacks up to 16 t drum weight

Drum shafts, supporting equipment and accessory

Drum lifting hydraulic jacks up to 50 t drum weight

Drum shafts Ø 101 to 159 mm, for drums up to 55 t

Drum centring bushes for shaft-Ø 101-159 mm

Drum shaft clamps for Ø 101-159 mm

Drum loading and moving traverses from 3-21 t

Cable drum quick-lift hook from 6 to 40 t

Cable drum shaft from 3 to 24 t

Suspension for drum shafts from 3 to 28 t

Locating cones, centring bushes and shaft clamps

Horizontal drum lifting devices up to 2,2 t

Cable unwinding tools for in-house installation



Cable drum spindle jacks

Tripod cable drum spindle jacks, with crossbar captivated. Two required.

Below mentioned capacity is per pair. Two are required

Code	Type	Cap.	Drum-D	kg
310200	LQ 20/540	4 t	max. 1600	12,10



Cable drum lifter

Cable drum lifter, easy to handle, with adjustable catching claws. Steel construction galvanized. Two foot profiles 300x40x40 mm.

For one pair select one left-hand and one right-hand.

Code	Type	Design	SWL	Drum-D	kg
311100	TM 10L	Left-hand	1,0 t	600-1650	14,00
311110	TM 10R	Right-hand	1,0 t	600-1650	14,00



Cable drum rack-and-pinion jacks

Cable drum rack-and-pinion jacks, with height adjustable side claws. Safety crank and 2 rubber wheels.

Below mentioned capacity is per pair. Two are required

Code	Type	Cap.	Drum-D	Base	Height min.	kg
311130	TZ 15	3 t	600-1750	500/330	805	32,00
311220	TZ 30	6 t	800-2500	625/450	1045	64,00
311250	TZ 50	10 t	1000-3200	625/450	1350	87,00
311280	TZ 80	16 t	1000-3200	625/450	1400	108,00

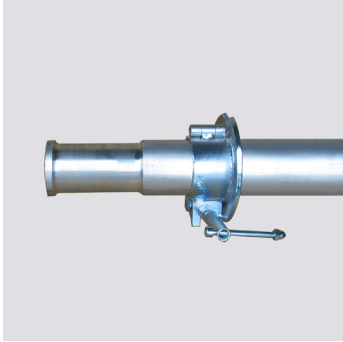


Cable drum hydraulic jacks

Cable drum hydraulic jacks, with height adjustable central claw and 2 rubber wheels. Steel construction galvanized.

Below mentioned capacity is per pair. Two are required

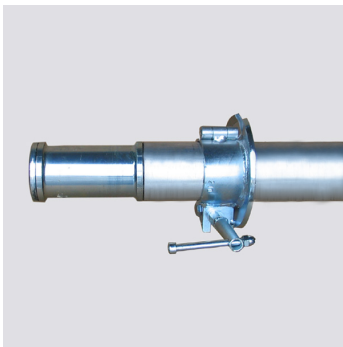
Code	Type	Cap.	Drum-D	Base	Height min.	Lift	kg
312130	TH 31	6 t	800-2500	500/430	1340	150	54,00
312160	TH 61	12 t	900-3200	650/400	1660	150	96,00
312200	TH 81	16 t	900-3200	650/400	1660	150	99,00



Solid alu drum shafts, rigid

Cable drum shafts rigid, solid alu with recessed ends, without clamps.

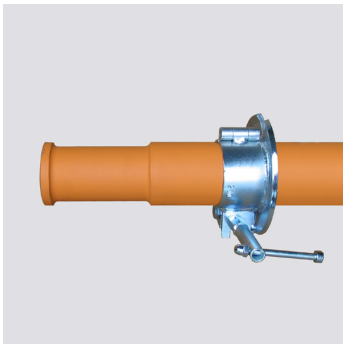
Code	Type	D/L mm	Seat	SWL	kg
314150	KAV 7519	75/1900	D 66x115	to 5,6 t	22,10
314190	KAV 7521	75/2100	D 66x115	to 4,4 t	24,40



Solid alu drum shafts, rotating

Cable drum shafts rotating, solid alu with bearings and recessed ends, without clamps.

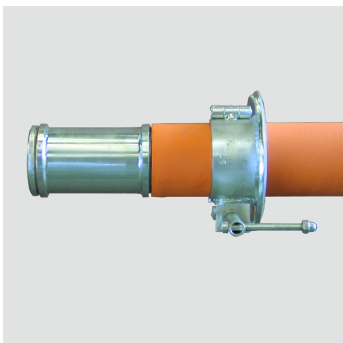
Code	Type	D/L mm	Seat	SWL	kg
314600	KAD 7519	75/1900	D 66x115	to 5,0 t	25,40
314640	KAD 7521	75/2100	D 66x115	to 4,4 t	27,80



Tubular steel drum shafts, rigid

Cable drum shafts rigid, tubular steel with recessed ends, without clamps

Code	Type	D/L mm	Seat	SWL	kg
314300	KSR 5110	51/1500	D 43x115	to 2,5 t	12,80
314340	KSR 7610	76/1850	D 66x115	to 6,6 t	28,00
314380	KSR 7614	76/2000	D 66x115	to 8,0 t	39,00
314430	KSR 8917	89/2200	D 78x115	to 13,0 t	65,40
314460	KSR 9517	95/2200	D 85x115	to 15,4 t	71,00



Tubular steel drum shafts, rotating

Cable drum shafts rotating, tubular steel with bearings and recessed ends, without clamps.

Code	Type	D/L mm	Seat	SWL	kg
314760	KSD 6007	60/1500	D 50x115	to 2,5 t	19,10
314770	KSD 7610	76/1850	D 66x115	to 6,6 t	38,30
314810	KSD 7614	76/2000	D 66x115	to 7,0 t	50,30
314850	KSD 8917	89/2200	D 80x115	to 13,0 t	70,10
314890	KSD 9517	95/2200	D 80x115	to 15,0 t	76,00



Solid alu drum shafts, rotating

Cable drum shafts rotating, solid alu with plain bearings without clamps. Further lengths on request. The bearings are without recessed ends. Therefore these drum shafts are not for use with drum shaft suspension WAH. These shafts are used for e.g. drum trailers or for any other drum lifting equipment.

Code	Type	D/L mm	Suitable for	Bearing	SWL	kg
3507871	TAS 750	75/1450	KVS 1000	D 76x80	to 5 t	23,00
350789	TAS 752	75/1730	KVS 1500-2000	D 76x80	to 5 t	27,00

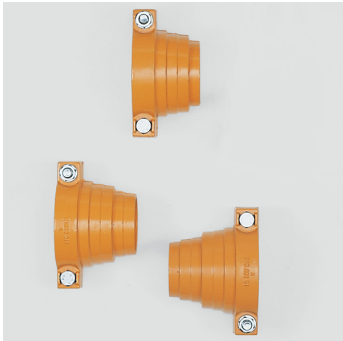


Drum shaft suspension

Suspension with shackle only for rotating drum shafts for lifting and unwinding cable drums, without cones.

Below mentioned capacity is per pair. Two are required

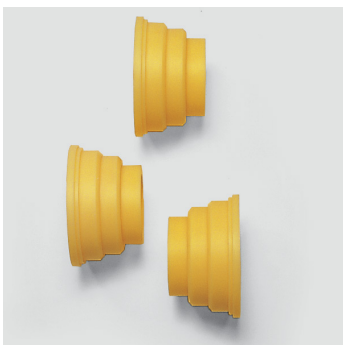
Code	Type	For shaft	Clamping-D	SWL	kg
315399	WAH 60	D 60-63	52	3 t	4,00
315400	WAH 76	D 75-76	67	6 t	6,00
315403	WAH 90	D 89-95	81	15 t	10,00
315406	WAH 108	D 101-114	98	27 t	25,00
315408	WAH 127	D 127	118	40 t	54,00



Locating cones

Locating cone for drum shafts made of cast steel including clamp. With several steps for drum bores according to DIN.

Code	Type	For shaft	Steps-D	kg
315430	ZKO 76	D 75-76	140/130/125/105/100/90	5,50
315460	ZKO 90	D 89-90	140/130/125/105/100	4,80
315490	ZKO 95	D 94-95	140/130/125/105	4,50



Stepped bushes

Stepped bushes of polyamide for shafts, with steps for drum bores according to DIN.

Code	Type	For shaft	Steps-D	kg
315505	ZBP 51	D 50-51	80	0,26
315506	ZBP 60	D 60-61	80	0,20
315508	ZBP 70	D 70-71	140/125/99	0,92
315510	ZBP 76	D 75-76	140/125/103	0,87
315515	ZBP 90	D 89-90	140/125	0,64

315520 ZBP 95 D 94-95 140/125 0,57



Clamps for drum shafts

Clamps, new construction reinforced, hinged, for drum shafts for lateral fixing of the cable drum on drum shafts of steel or alu. Hinged version, steel galvanized. Width 61 mm.

Code	Type	For shaft	Width	kg
315030	KSV 51	D 47-51	61	1,30
315035	KSV 60	D 60-61	61	1,40
315040	KSV 70	D 70-71	61	1,50
315045	KSV 76	D 75-76	61	1,50
315050	KSV 90	D 89-90	61	1,70
315055	KSV 95	D 95-96	61	1,80



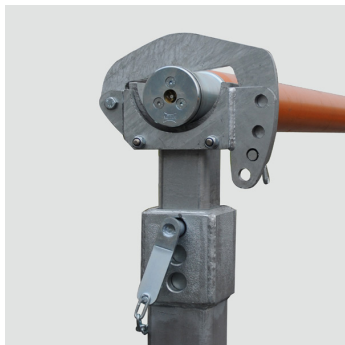
Cable drum hydraulic jacks

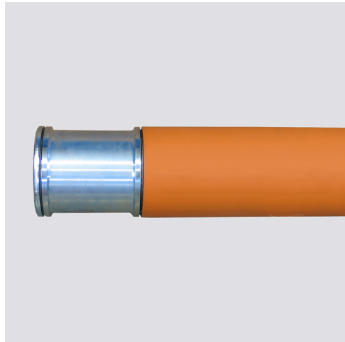
Cable drum hydraulic jacks, with height adjustable central claw support for heaviest and biggest drums. Big triangular base. Steel construction hot galvanized.

Below mentioned capacity is per pair. Two are required

- Base and top telescope tube adjustable to drum sizes.
- Hydraulic lift by hand pump 150
- THV 20/30 accessory, shaft closing clamp, if jacks are on soft grounds or on lorries or boats

Code	Type	Cap.	Drum-D	Triangle base	kg
312471	THD 20/25	40 t	1800-2500	1500/550	128,00
312500	THD 20/37	40 t	2500-3700	1500/550	140,00
312520	THD 20/42	40 t	3000-4200	1500/550	150,00
312521	THD 20/44	40 t	3200-4400	1500/550	155,00
312522	THD 20/46	40 t	3400-4600	1500/550	158,00
312544	THD 30/50	50 t	3600-5000	2000x1000	271,00
312561	THV 20/30	Closing clamp	---	---	2,30





Tubular steel drum shafts, rotating

Tubular steel drum shafts, rotating with friction bearings, without clamps, for heavy drum weights and wider drums. Shaft length must be 500 mm longer than the drum width. Especially for application with the THD hydraulic jacks. The load capacities are corresponding to the widest possible drum, for reduced width the capacity decreases significantly. Static calculations are available.

Code	Type	D/L mm	Seat	SWL	kg
031481024	KSDL 10122	101/2400	D 96x115	to 15 t	110,00
031481032	KSDL 10122	101/2600	D 96x115	to 15 t	119,00
031481040	KSDL 10122	101/2800	D 96x115	to 15 t	127,00
031481044	KSDL 10122	101/3000	D 96x115	to 15 t	136,00
031481046	KSDL 10122	101/3200	D 96x115	to 15 t	145,00
031481228	KSDL 10825	108/2400	D 96x115	to 25 t	135,00
031481234	KSDL 10825	108/2600	D 96x115	to 25 t	145,00
031481240	KSDL 10825	108/2800	D 96x115	to 25 t	155,00
031481248	KSDL 10825	108/3000	D 96x115	to 25 t	166,00
031481252	KSDL 10825	108/3200	D 96x115	to 25 t	176,00
031481428	KSDL 11417	114/2500	D 96x115	to 24 t	119,00
031481432	KSDL 11417	114/2800	D 96x115	to 24 t	130,00
031481440	KSDL 11417	114/3000	D 96x115	to 24 t	140,00
031481448	KSDL 11417	114/3200	D 96x115	to 24 t	148,00
031481456	KSDL 11417	114/3300	D 96x115	to 24 t	152,00
031481832	KSDL 12714	127/2800	D 116x115	to 28 t	150,00
031481844	KSDL 12714	127/3000	D 116x115	to 28 t	158,00
031481852	KSDL 12714	127/3200	D 116x115	to 28 t	166,00
031481856	KSDL 12714	127/3300	D 116x115	to 28 t	170,00
031482044	KSDL 12725	127/2800	D 116x115	to 38 t	194,00
031482052	KSDL 12725	127/3000	D 116x115	to 38 t	206,00
031482064	KSDL 12725	127/3200	D 116x115	to 38 t	219,00
031482068	KSDL 12725	127/3600	D 116x115	to 38 t	244,00
031482072	KSDL 12725	127/4020	D 116x115	to 38 t	270,00
031482651	KSDL 13925	139/3200	D 116x115	to 48 t	241,00
031483256	KSDL 15930	159/3200	D 116x115	to 55 t	315,00
031483260	KSDL 15930	159/3500	D 116x115	to 55 t	344,00
031483270	KSDL 15930	159/4900	D 116x115	to 55 t	487,00



Centring bushes for drum shafts D 101-159

Centring bushes for drum shafts to fit with the drum bore, see table below. Also available in other diameters. Bush length 80 mm

Code	Type	For shaft	Drum bore	kg
315765	ZBS 101/125	D 101	D 125	10,00
315780	ZBS 101/140	D 101	D 140	12,00
315815	ZBS 108/145	D 108	D 145	15,00
315818	ZBS 108/200	D 108	D 200	9,00
315850	ZBS 114/150	D 114	D 150	15,00
315880	ZBS 114/200	D 114	D 200	15,00
315920	ZBS 121/200	D 121	D 200	15,00
315945	ZBS 127/150	D 127	D 150	4,00
315952	ZBS 127/200	D 127	D 200	12,00
315978	ZBS 139/200	D 139	D 200	12,00
315987	ZBS 159/185	D 159	D 185	16,00
315989	ZBS 159/200	D 159	D 200	18,00



Clamps for drum shafts D 101-159 mm

Clamp for drum shafts for lateral fixing of the cable drum on drum shafts of steel or alu. Steel coated. Width 50 mm.

Code	Type	For shaft	kg
315340	KLS 101	D 101-105	2,00
315350	KLS 108	D 108-110	2,40
315360	KLS 114	D 114-115	3,00
315370	KLS 121	D 121-123	5,00
315380	KLS 127	D 127-130	3,40
315384	KLS 135	D 135-137	4,00
315385	KLS 139	D 139-140	3,60
315390	KLS 159	D 159-160	3,90



Loading traverses

Loading traverse for safe lifting and transporting of cable drums. With chain suspension and 2 adjustable steel rope suspensions, suitable for drums acc. table below. Further dimensions are available on short call.

- Expanding construction advantages:
- Telescoping small dimensions for stocking, lightweight.
- Steel profile construction galvanized, complete with rope suspension, without quick-lifting hooks.

Code	Type	Cap.	Drum width	Drum-D	L max.	L min.	kg
317320	KLT 31	3 t	1200-1800	3000	2000	1200	35,00
317322	KLT 51	5 t	1200-1800	3000	2000	1250	56,00

317326	KLT 81	8 t	1200-1800	3000	2000	1280	84,00
317330	KLT 101	10 t	1200-1800	3500	2000	1280	93,00
317334	KLT 121	12 t	1700-2500	4000	2700	1730	148,00
317338	KLT 151	15 t	1700-2500	4500	2700	1730	161,00
317342	KLT 181	18 t	1750-2750	4500	2950	1900	250,00
317346	KLT 211	21 t	1750-2750	4500	2950	1900	260,00



Drum quick lift hooks

Cable drum quick-lift hooks for safe lifting and transporting cable drums if there is no space to insert a long drum shaft. Not suitable to unwind cable drums. Made of steel galvanized.

- Below mentioned capacity is per pair. Two are required.
- These 3 types are not suitable for through connection pipes in the drum, for this see the following table.

Code	Type	Cap.	For hole-D	Tube-D/L	kg
317370	KTH 30	6 t	80-105	76/250	6,40
317400	KTH 50	10 t	90-125	89/295	12,40
317410	KTH 80	16 t	125-140	121/400	19,70

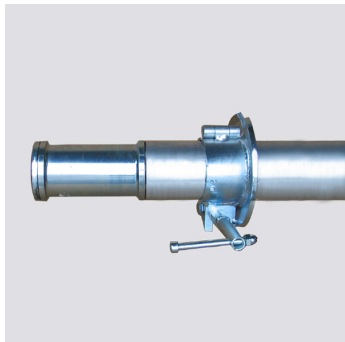


Drum quick lift hooks only for through pipe connection

Cable drum quick-lift hooks for safe lifting and transporting cable drums if there is no space to insert a long drum shaft. Not suitable to unwind cable drums. Made of steel galvanized.

- Below mentioned capacity is per pair. Two are required.
- These 2 types are only suitable for through connection pipes in the drums.

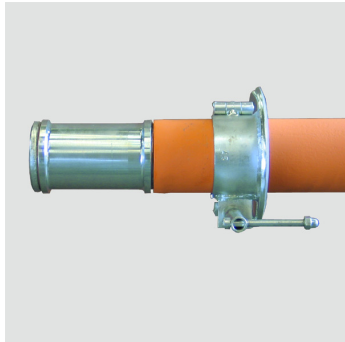
Code	Type	Cap.	For hole-D	Tube-D/L	kg
317420	KTH 125	25 t	125-140	121/400	25,40
317430	KTH 200	40 t	125-140	121/600	49,50



Solid alu drum shafts, rotating

Cable drum shafts rotating, solid alu with bearings and recessed ends, without clamps.

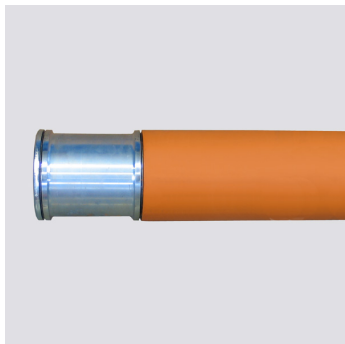
Code	Type	D/L mm	Seat	SWL	kg
314600	KAD 7519	75/1900	D 66x115	max. 3,0 t	25,40
314640	KAD 7521	75/2100	D 66x115	max. 3,0 t	27,80



Tubular steel drum shafts, rotating

Cable drum shafts rotating, tubular steel with bearings and recessed ends, without clamps.

Code	Type	D/L mm	Seat	SWL	kg
314770	KSD 7610	76/1850	D 66x115	to 6,6 t	38,30
314810	KSD 7614	76/2000	D 66x115	to 7,0 t	50,30
314850	KSD 8917	89/2200	D 80x115	to 13,0 t	70,10
314890	KSD 9517	95/2200	D 80x115	to 15,0 t	76,00



Tubular steel drum shafts, rotating

Tubular steel drum shafts, rotating with friction bearings, without clamps, for heavy drum weights and wider drums. Shaft length must be 500 mm longer than the drum width. Especially for application with the THD hydraulic jacks. The load capacities are corresponding to the widest possible drum, for reduced width the capacity decreases significantly. Static calculations are available.

Code	Type	D/L mm	Seat	SWL	kg
031481024	KSDL 10122	101/2400	D 96x115	to 15 t	110,00
031481032	KSDL 10122	101/2600	D 96x115	to 15 t	119,00
031481040	KSDL 10122	101/2800	D 96x115	to 15 t	127,00
031481044	KSDL 10122	101/3000	D 96x115	to 15 t	136,00
031481046	KSDL 10122	101/3200	D 96x115	to 15 t	145,00
031481228	KSDL 10825	108/2400	D 96x115	to 25 t	135,00
031481234	KSDL 10825	108/2600	D 96x115	to 25 t	145,00
031481240	KSDL 10825	108/2800	D 96x115	to 25 t	155,00
031481248	KSDL 10825	108/3000	D 96x115	to 25 t	166,00
031481252	KSDL 10825	108/3200	D 96x115	to 25 t	176,00
031481428	KSDL 11417	114/2500	D 96x115	to 24 t	119,00
031481432	KSDL 11417	114/2800	D 96x115	to 24 t	130,00
031481440	KSDL 11417	114/3000	D 96x115	to 24 t	140,00
031481448	KSDL 11417	114/3200	D 96x115	to 24 t	148,00
031481456	KSDL 11417	114/3300	D 96x115	to 24 t	152,00



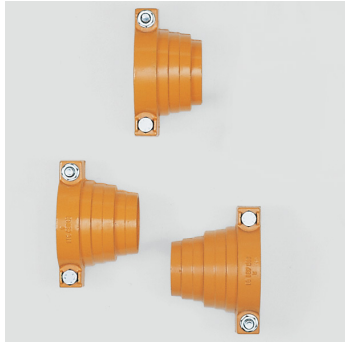
Drum shaft suspension

Suspension with shackle only for rotating drum shafts for lifting and unwinding cable drums, without cones.

Below mentioned capacity is per pair. Two are required

Code	Type	For shaft	Clamping-D	SWL	kg
315399	WAH 60	D 60-63	52	3 t	4,00
315400	WAH 76	D 75-76	67	6 t	6,00
315403	WAH 90	D 89-95	81	15 t	10,00
315406	WAH 108	D 101-114	98	27 t	25,00

315408 WAH 127 D 127 118 40 t 54,00



Locating cones

Locating cone for drum shafts made of cast steel including clamp. With several steps for drum bores according to DIN.

Code	Type	For shaft	Steps-D	kg
315430	ZKO 76	D 75-76	140/130/125/105/100/90	5,50
315460	ZKO 90	D 89-90	140/130/125/105/100	4,80
315490	ZKO 95	D 94-95	140/130/125/105	4,50



Centring bushes for drum shafts D 101-159

Centring bushes for drum shafts to fit with the drum bore, see table below. Also available in other diameters. Bush length 80 mm

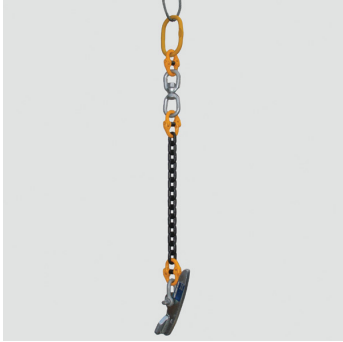
Code	Type	For shaft	Drum bore	kg
315765	ZBS 101/125	D 101	D 125	10,00
315780	ZBS 101/140	D 101	D 140	12,00
315815	ZBS 108/145	D 108	D 145	15,00
315818	ZBS 108/200	D 108	D 200	9,00
315850	ZBS 114/150	D 114	D 150	15,00
315880	ZBS 114/200	D 114	D 200	15,00



Clamps for drum shafts D 101-159 mm

Clamp for drum shafts for lateral fixing of the cable drum on drum shafts of steel or alu. Steel coated. Width 50 mm.

Code	Type	For shaft	kg
315340	KLS 101	D 101-105	2,00
315350	KLS 108	D 108-110	2,40
315360	KLS 114	D 114-115	3,00



Cable drum lifting shoe

Cable drum lifting shoe. Only for horizontal lifting of cable drums through one drum centre hole. Chain with swivel and shoe. Total length approx. 1 m.

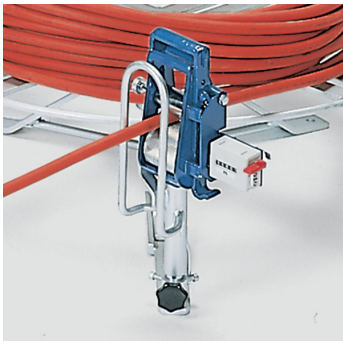
Code	Type	Cap.	For hole-D	kg
317600	7152-3013	1300 kg	75-105	6,00
317605	7152-3028	2800 kg	105-125	11,50



Cable uncoiler

Cable uncoiler steel galvanized, with ball-bearings, with 4 adjustable spindles. Used for installation works. For rings of D 100-700 mm. Cable length measuring devices with holder as accessory to be ordered separately, see table below.

Code	Type	Ring-D	Dimension	SWL	kg
320120	KA 600	100-500	D 600/440	40 kg	7,00
320140	KA 700	250-600	D 700/440	60 kg	15,50
320160	KA 800	250-700	D 800/440	60 kg	18,00



Cable length meters

Cable and line length meter for KA 700-800, counter up to 999,99,99 m, accuracy $\pm 0,8 \%$.

Code	Type	Suitable for	C-D	St-rope	kg
320240	KL 21	KA 700-800	3-21	no	3,40
320245	KL 21S	KA 700-800	3-21	3-12	3,40
320250	KL 50	KA 700-800	3-50	no	4,20
320255	KL 50S	KA 700-800	3-50	3-22	4,20



Cable unwinder

Cable unwinder for small drums, even with damaged flanged wheels for electric installation works. Tubular steel construction galvanized. Consisting of: basic frame with 2 rubber coated wheels, one drum shaft D 25 mm with 2 cones of polyamide for hole diameter 25-80 mm.

- Collapsible for easy transportation to the site.
- Easy movable with the drum through big rubber coated wheels.
- For drum-D to 800 and drum widths to 530, drum weight max. 200 kg
- As accessory steel tube drum shaft D 50, ball bearings, 2 clamps, for cones see table below.

Code	Type	Equipment	Shaft	Cones for	kg
320290	KTA 8	Winder as above	D 25	Hole D 25-80	11,60

320292	KTA 8W	Steel tube shaft	D 50	See next line	2,05
315504	ZKP 50-80	Poly-cone (1 each)	D 50	Hole-D 50-80	0,15
3155045	ZKP 50-108	Poly-cone (1 each)	D 50	Hole-D 50-108	0,39



Cable drum tipping stand

Cable drum tipping stands. Simple drum unwinding equipment at installation works. Excellent tipping leverage due to optimum positioning of centre of gravity. Capable of lifting heavy loads. Tubular steel construction galvanized.

Code	Type	Drum-D	Shaft	Max.	Int. width	Ext. width	kg
320300	KW 6-8	600-800	D 48	300 kg	600	880	13,00
320320	KW 6-10	600-1000	D 48	500 kg	700	985	22,00
320330	KW 6-12	600-1250	D 48	800 kg	930	1250	38,00



Stepped bushes

Stepped bushes of polyamide for shaft-D 48, one step D 80, for drum tipping stands KW 6-12.

Code	Type	For shaft	For drum bore	kg
315503	ZBP 48	D 48	D 80	0,37

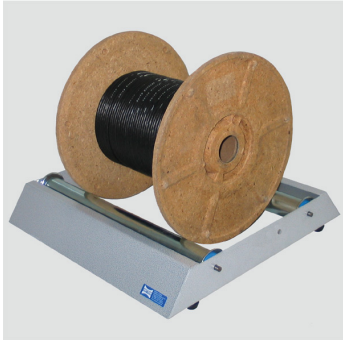


Drum unwinding stand for FOC

Drum unwinding stand for FOC or subduct drums, galvanized. Equipped with a lightweight aluminium shaft D 75 mm with drum shaft securing and 2 clamps.

- Sturdy steel construction, hot galvanized, easy dismantlable by hand for transportation.
- Two crank spindles to lift the stand for unwind cables in any position.
- High stability under load even in uneven places.
- For drum-D to 1400, and drum width to 900, drum weight max. 500 kg.
- As accessory alu-drum shaft D 50, ball bearings, order clamps and cones separately, see table below.
- Dimensions mounted: L/W/H 1450/1400/689.

Code	Type	Equipment	Shaft	Cones for	kg
344355	TRG 1140	Winder as above	D 75	---	96,00
350592	TAK 5013	Alu drum shaft	D 50	---	7,40
315030	KSV 51	Shaft clamps	D 50	---	1,30
315504	ZKP 50-80	Poly-cone (1 each)	D 50	Hole-D 50-80	0,15
3155045	ZKP 50-108	Poly-cone (1 each)	D 50	Hole-D 50-108	0,39



Drum wind off roller

Cable drum wind-off roller for cables or ropes. Steel construction, powder coated. Steel rollers galvanized with ball bearings.

- Rollers adjustable for smaller spools down to Ø 100
- Rubber feet for stable and quiet running

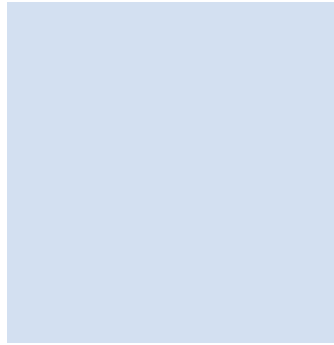
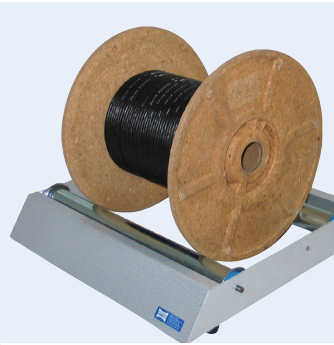
Code	Type	For drum-D	Drum width	SWL	L/W/H mm	kg
320660	KTA 7	100-1200	max. 500	150 kg	530/550/110	8,80



Drum wind off roller

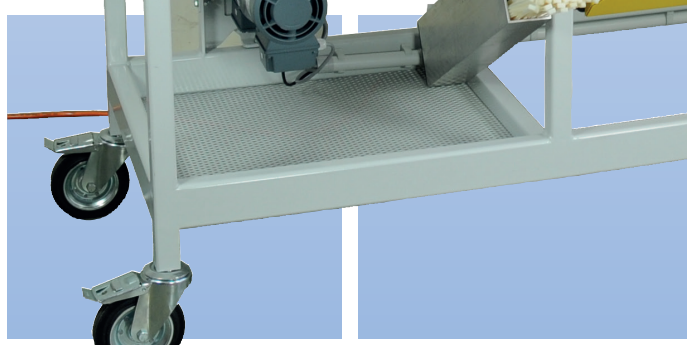
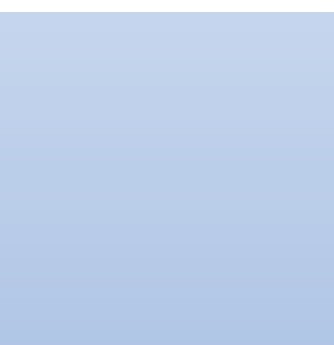
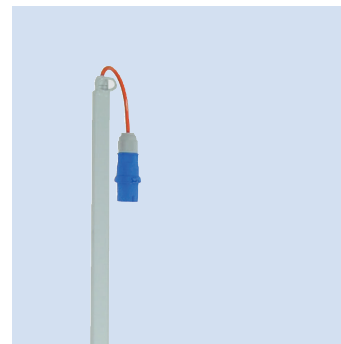
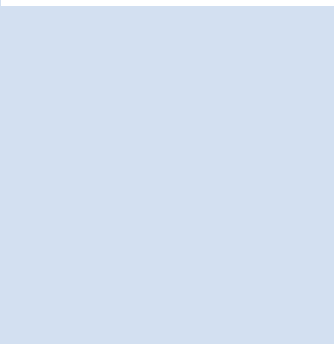
Cable drum wind-off roller, alu chassis with adjustable alu-rollers with ball bearings. Two required. Dimension each: 980x220x145 mm. Further techn. Details see table below.

Code	Type	Support	Wooden drum-D	Steel drum-D	kg
320710	KTA 2A	Alu	400-1000/kg 500	400-1600/kg 1000	8,20



Cable winding and length measuring devices

322





Hand cable winding machines for cable D 3-30 mm

Hand cable winding machines for cable D 1-30 mm

Electric cable ring winding machines for cable D 1-30 mm

Cable drum and ring winding machines for drums to D 1400 mm

Cable drum and ring winding machines for drums to D 2000 mm

Cable drum and ring winding machines for drums to D 2500 mm

Accessory for all cable winding machines

Cable length measuring machines

Accessory electronic cable traversing

Cable drum storage stands for drums D 400-1600 mm

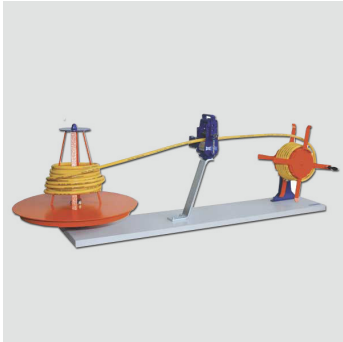
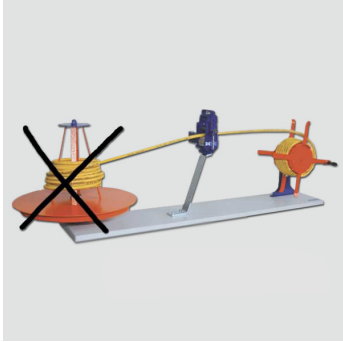
Cable and hose spooling stands for drums to D 1800 mm

Cable drum transport and winding units 3-15 t

Accessory for cable drum winding units KTU 3-15

Cable winding units for drums from 20-55 t and up to D 6000 mm

Cable steel drums hot galv. D 1000-3200 mm



Manual cable coilers, cable-D 3-16 mm

These small, but effective manual winding devices are primarily intended for the occasional winding of smaller cables, wires or lines from delivery drums to rings. Using a spool as an accessory, lengths of cable can also be rewound from larger drums to smaller ones.

Manual cable coilers on table plate with coil winder DW 20S with crank for winding small cables from small drums on rings or from rings to rings. Without length measuring device, prepared to take length measuring equipment HK 11 or HD 11S optional. Accessory see table below.

- DH 15 on 28 mm base plate of glued wood, 1000x250 mm, without ring unwinder.
- DH 15A on 28 mm base plate of glued wood, 1250x250 mm, with ring unwinder D 380/150-170x100 mm.
- Prepared for mounting hand length measuring devices HK 11 or HD 11S.

Code	Type	C-D	Coil winder	C-winder dimens.	Cable D/m	kg
322303	DH 15	3-16	DW 20S	D 380/150-170x100	5/200, 15/20	12,30
322304	DH 15A	3-16	DW 20S	D 380/150-170x100	5/200, 15/20	21,90



Manual cable coilers, cable-D 1-16 mm

These small, but effective manual winding devices are primarily intended for the occasional winding of smaller cables, wires or lines from delivery drums to rings. Using a spool as an accessory, lengths of cable can also be rewound from larger drums to smaller ones.

Manual cable coilers on table plate with cable winder DW 20S with crank for winding small cables from small drums on rings or from rings to rings. Without length measuring device, prepared to take length measuring equipment MZ 20, MZ 20S or M 20, M 20S.

- DH 16 on 28 mm base plate of glued wood, 1000x250 mm, without ring unwinder.
- DH 16A on 28 mm base plate of glued wood, 1250x250 mm, with ring unwinder D 380/150-170x100 mm.
- Prepared for mounting length measuring machines MZ 20, MZ 20S or M 20, M 20S.

Code	Type	C-D	Coil winder	C-winder dimens.	Cable D/m	kg
322305	DH 16	1-16	DW 20S	D 380/150-170x100	5/200, 15/20	11,30
322307	DH 16A	1-16	DW 20S	D 380/150-170x100	5/200, 15/20	20,80



Manual cable coiler, cable-D 3-30 mm

These small, but effective manual winding devices are primarily intended for the occasional winding of smaller cables, wires or lines from delivery drums to rings. Using a spool as an accessory, lengths of cable can also be rewound from larger drums to smaller ones.

Manual cable coiler, column type, without coil winder, without drum adapter shaft. Prepared for one of the manual length measuring device, see tables below. For cable-D 3-30 mm. Base plate 600x600 mm, through tilting easy moving by hand by 2 poly-wheels. Height to coiler centre approx. 850 mm. Basic machine without accessory, please select below according to your need.

- Length measuring device HK/HD 11S, cable-Ø to 21, or HK/HD 12S, cable-Ø 50, see table below
- Without coil winders, different coil winders, see table below
- DS 32H = adapter shaft for wooden or plastic spools, capacity 100 kg, see table below

Code	Type	Description	Cable D	Drum D/W	kg
322308	DH 28	Cable coiler	3-30 mm	---	60,00
322673	DS 32H	Adapter for	Wooden/plastic	D 800, W 400	5,60



Adapter for HK 11/HD 11S, or HK 12/HD 12S on DH 28

Support for mounting length measuring device HK 11/HD 11S or HK 12/HD 12S on coiler machine DH 28.

Code	Type	Suitable for	kg
322309	TK 28	HK 11/HD 11S or HK 12/HD 12S	2,40



Manual cable length measuring devices

Manual cable length measuring devices with counter up to 999,99 m. Accuracy $\pm 0,8\%$, figure height 4 mm.

- Types HK .. only for cables, types HD .. S with hardened rollers also for steel ropes.
- KB 01 Calibration before delivery through Vetter is possible, but this is not a conformity assessment module F1.
- Red hand grip can be unscrewed to screw the device on any other machine.

Code	Type	C-D	St-rope	L/W/H mm	kg
262400	HD 11S	3-21	3-12	300x150x70	1,40
262410	HD 12S	3-50	3-22	330x190x70	2,00
262460	HK 11	3-21	no	300x150x70	1,30
262470	HK 12	3-50	no	330x190x70	1,98



262480 KB 01 Calibration --- --- 0,01



Manual cable coiler, cable-D 1-30 mm

Manual cable coiling machine, mobile steel construction. Without drum adapter shaft, without coil winder. Prepared for one of length measuring devices M/MZ 20-40 (S), see tables below. For cable-D 1-30 mm, or steel rope D 1-8 mm. L/W: 1600x660 mm. Cable entrance height approx. 1150 mm. Capacity 100 kg.

- Cable length measuring device M/MZ 20 for cable, or M/MZ 20 S for steel ropes
- Cable length measuring device M/MZ 40 for cable, or M/MZ 40S for steel ropes
- DS 32H = adapter shaft for wooden or plastic spools, see below
- For length measuring machines type M a power supply code 323110 is necessary

Code	Type	Description	Cable D	Drum D/W	kg
322313	DH 31	Cable coiler	1-30 mm	---	96,00
322673	DS 32H	Adapter for	Wooden/plastic	D 800, W 400	5,60



Cable coiling and spooling machine for cable-Ø 1-30 mm

This small but effective electrical ring coiler are primarily used by electrical wholesalers and industry. It is intended for the frequent and professional winding of smaller cables, wires or lines from delivery drums onto rings. Using a spool as an accessory, lengths of cable can also be rewound from larger drums to smaller ones.

This electrical cable and ring coiling machine DE 30 for cable diameters up to 30 mm is equipped with the latest technique and also sensitive fibre optic cables can be spooled very well. The frequency controlled drives enable gentle, automated start-up and braking to protect the cable and for highly accurate measurements. This machine can be equipped with an automatic cable layering feature that increases performance even further.

An universal cable coiling and spooling machine for cables from 1-30 mm. Suitable for coiling and spooling on smaller drums up to dia. 800 mm, of width to 340 mm. Two speed steps between 0-140 rpm can be adapted to the cable diameter and its sensitivity. An automatic blocking device avoids to work with the wrong speed. DE 30 therefore is a machine for two applications: spooling of small electronic or telecommunication cables with high speed and spooling of bigger cables with reduced speed. For sensitive cables there is a possibility to limit the pulling force.

Simple and easy understandable operation through touch-screen with additional mechanical push-button. Potentiometer mounted on a pivoting operator panel. Type DE 30SF with electronic automatic cable traversing provides an even alignment of the cable on the drum. Adjustment of the reversal points is done by push-buttons and input of the cable diameter by a control dial. Corrections of both parameters during the winding procedure are possible through laser pointer. On type DE 30 F cable traversing is done manually by the operator. Further technical details and accessory like coil winders and cable cutters see internet or pdf-leaflet no. 322

The appropriate length measuring equipment can be selected for this device. It is also possible to permanently mount cable cutting equipment to the measuring machines.

- Driving power of electric motor 230/400V, 0,75 kW, torque 130 Nm.
- Frequency controlled soft start and soft stop. Capacity 100 kg.
- For drums to 400 mm 0-140 rpm, for drums > 400, 0-80 rpm.
- Electronic pre-set counter for pre-selection of the cable length with automatic cut-off.
- Compact construction for easy rotating in shelf corridors. Dimension 1680x900x1200.

Code	Type	C-D	L-meter	Traversing	Drum-D	kg
323326	DE 30F	1-30	M/MZ 20-40	manual	D 800x340	212,00

323327 DE 30SF 1-30 M/MZ 20-40 automatic D 800x340 252,00



Power lead

Power lead from top to coiling machines DF 26-32 F/SF, two-piece. As accessory or for retrofitting of earlier supplied machines.

Code	Type	Suitable for	Height	kg
322371	SZ 3	DE 30F/SF	2,30 m	3,10



Cable soiling and spooling machine C-D 1-30 mm, official calibration not possible.

This small but effective electrical ring coiler are primarily used by electrical wholesalers and industry. It is intended for the frequent and professional winding of smaller cables, wires or lines from delivery drums onto rings. Using a spool as an accessory, lengths of cable can also be rewound from larger drums to smaller ones.

This electrical cable and ring coiling machine DE 30 for cable diameters up to 30 mm is equipped with the latest technique and also sensitive fibre optic cables can be spooled very well. The frequency controlled drives enable gentle, automated start-up and braking to protect the cable and for highly accurate measurements. This machine can be equipped with an automatic cable layering feature that increases performance even further.



An universal cable coiling and spooling machine for cables from 1-30 mm. Suitable for coiling and spooling on smaller drums up to dia. 800 mm, of width to 340 mm. Two speed steps between 0-140 rpm can be adapted to the cable diameter and its sensitivity. An automatic blocking device avoids to work with the wrong speed. DE 30 therefore is a machine for two applications: spooling of small electronic or telecommunication cables with high speed and spooling of bigger cables with reduced speed. For sensitive cables there is a possibility to limit the pulling force.

Simple and easy understandable operation through touch-screen with additional mechanical push-button. Potentiometer mounted on a pivoting operator panel. Type DE 30SF with electronic automatic cable traversing provides an even alignment of the cable on the drum. Adjustment of the reversal points is done by push-buttons and input of the cable diameter by a control dial. Corrections of both parameters during the winding procedure are possible through laser pointer. On type DE 30 F cable traversing is done manually by the operator. Further technical details and accessory like coil winders and cable cutters see internet or pdf-leaflet no. 322

The appropriate length measuring equipment can be selected for this device. It is also possible to permanently mount cable cutting equipment to the measuring machines.

- Driving power of electric motor 230/400V, 0,75 kW, torque 130 Nm.
- Frequency controlled soft start and soft stop. Capacity 100 kg.
- For drums to 400 mm 0-140 rpm, for drums > 400, 0-80 rpm.
- Electronic pre-set counter for pre-selection of the cable length with automatic cut-off.
- Compact construction for easy rotating in shelf corridors. Dimension 1680x900x1200.
- These DE 30../MZ are only for internal use. Official calibration not possible.
- For length measuring machines with mechanical counter. Upgrading with MID not possible.

Code	Type	C-D	L-meter	Traversing	Drum-D	kg
322326	DE 30F/MZ	1-30	MZ 20-40	manual	D 800x340	212,00
322327	DE 30SF/MZ	1-30	MZ 20-40	automatic	D 800x340	252,00



Power lead

Power lead from top to coiling machines DF 26-32 F/SF, two-piece. As accessory or for retrofitting of earlier supplied machines.

Code	Type	Suitable for	Height	kg
322371	SZ 3	DE 30F/SF	2,30 m	3,10



Cable drum and coiling machines hand pump lifting

These types for trade and industry focus on rewinding cables from drum to winding heads. Quick and easy modification also allows each machine to be fitted for winding from drum to drum of Ø 400-1000 mm.

Cable drum and coiling machines for cables and wires. For use in cable stores at distributors, industrial plants etc. Winding and measuring from drum to drum or to coil. Machine in stable steel construction. Drum lifting by hydraulic hand pump. Drum shaft for bores from 60 mm with cones clamped by hand. Cable traversing with ball bearings to mount length measuring equipment MZ and M 20-40 / S, moving by hands. Electronic pre-set counter included as standard equipment. Included safety cage with automatic switch-off. Easy displacement through big wheels. Further accessory see below.

The appropriate length measuring equipment can be selected for this device. It is also possible to permanently mount cable cutting equipment to the measuring machines.

- For winding from drum to drum or von drum to coils.
- Frequency controlled drive with soft start and soft stop.
- Winding speed 15-80 rpm. Capacity to 400 kg.

Code	Type	C-D	Drum-D/W	kW/Volt	L/W/H m	kg
323400	DTR 80F	3-35	400-800/200-620	1,1/230	1,6/1,4/1,4	455,00





Cable drum and coiling machines electro hydraulic lifting

These types for trade and industry focus on rewinding cables from drum to winding heads. Quick and easy modification also allows each machine to be fitted for winding from drum to drum of Ø 400-1000 mm.

Cable drum and coiling machines for cables and wires. For use in cable stores at distributors, industrial plants etc. Winding and measuring from drum to drum or to coil. Machine in stable steel construction. Drum lifting by electro-hydraulic pump. Drum shaft for bores from 60 mm with cones clamped by hand. Cable traversing with ball bearings to mount length measuring equipment MZ and M 20-40 / S, moving by hands. Electronic pre-set counter included as standard equipment. Included safety cage with automatic switch-off. Easy displacement through big wheels. Further accessory see below.

The appropriate length measuring equipment can be selected for this device. It is also possible to permanently mount cable cutting equipment to the measuring machines.

- For winding from drum to drum or von drum to coils.
- Frequency controlled drive with soft start and soft stop.
- Winding speed 15-80 rpm. Capacity DTR 80 to 400 kg, DTR 100 to 800 kg.

Code	Type	C-D	Drum-D/W	kW/Volt	L/W/H m	kg
323410	DTR 80FH	3-35	400-800/200-620	1,1/230	1,6/1,4/1,4	480,00
323430	DTR 100FH	3-40	400-1000/420-780	1,5/400	1,8/1,7/2,0	530,00



Cable drum and coiling machines

These types for trade and industry focus on rewinding cables from drum to drum. Quick and easy modification also allows each machine to be fitted with winding heads in various diameters and adjustable versions, in order to make cable rings. There is almost no task that cannot be productively solved using these machines. Drums from 600 mm to 2500 mm can be wound on and off. Hydraulic raising and lowering of the drums, as well as automated layering of the cable, allow extensive automation of the work processes.

For more information, please see the following sections. If you tell us what sizes of drum you need to work with and your main type of cable, we can develop a tailor-made concept to meet your requirements.

Cable drum and coiling machines. For use in cable stores at distributors, industrial plants etc. Machine in stable steel construction. Electro-hydraulic drum and coil winder lifting by 2 arms. Cable traversing with ball bearings ready to mount length measuring equipment M 20 - M 60 / S, moving by hands. Electronic pre-set counter included as standard equipment. Included safety cage with automatic switch-off. Easy displacement through big wheels.

The appropriate length measuring equipment can be selected for this device. It is also possible to permanently mount cable cutting equipment to the measuring machines.

- For winding from drum to drum or from drum to coils.
- Frequency controlled drive with soft start and soft stop.
- Drum lifting by hand hydraulic.
- Capacity: TR 147F 1500 kg.

Code	Type	C-D	Drum-D	kW/V	rpm	L/W/H m	kg
323501	TR 147F	5-40	600-1400	2,2/400	5-80	2,4/1,6/1,9	700,00



Cable drum and coiling machines

These types for trade and industry focus on rewinding cables from drum to drum. Quick and easy modification also allows each machine to be fitted with winding heads in various diameters and adjustable versions, in order to make cable rings. There is almost no task that cannot be productively solved using these machines. Drums from 600 mm to 2500 mm can be wound on and off. Hydraulic raising and lowering of the drums, as well as automated layering of the cable, allow extensive automation of the work processes.

For more information, please see the following sections. If you tell us what sizes of drum you need to work with and your main type of cable, we can develop a tailor-made concept to meet your requirements.

Cable drum and coiling machines. For use in cable stores at distributors, industrial plants etc. Machine in stable steel construction. Electro-hydraulic drum and coil winder lifting by 2 arms. Cable traversing with ball bearings ready to mount length measuring equipment M 20 - M 60 / S, moving by hands. Electronic pre-set counter included as standard equipment. Included safety cage with automatic switch-off. Easy displacement through big wheels. Further accessory see below.

The appropriate length measuring equipment can be selected for this device. It is also possible to permanently mount cable cutting equipment to the measuring machines.

- For winding from drum to drum or from drum to coils.
- Frequency controlled drive with soft start and soft stop.
- Electro-hydraulic drum lifting and hand clamping centric seals.
- Quick clamp of the drum with mechanical ratchet seals and hydraulic seals
- Capacity: TR 147FH, 1500 kg, TR 167FH, 2000 kg, TR 207FH, 3000 kg.

Code	Type	C-D	Drum-D	kW/V	rpm	L/W/H, m	kg
323511	TR 147FH	5-40	600-1400	2,2/400	15-80	2,7/2,0/1,9	700,00
323531	TR 167FH	10-45	700-1600	3,0/400	15-80	2,4/1,9/2,1	800,00
323551	TR 207FH	10-60	700-2000	5,5/400	10-60	2,8/2,2/2,2	1.200,00



Cable drum and coiling machines

These types for trade and industry focus on rewinding cables from drum to drum. Quick and easy modification also allows each machine to be fitted with winding heads in various diameters and adjustable versions, in order to make cable rings. There is almost no task that cannot be productively solved using these machines. Drums from 600 mm to 2500 mm can be wound on and off. Hydraulic raising and lowering of the drums, as well as automated layering of the cable, allow extensive automation of the work processes.

For more information, please see the following sections. If you tell us what sizes of drum you need to work with and your main type of cable, we can develop a tailor-made concept to meet your requirements.

Cable drum and coiling machines for cables and wires, series TRG. Automatic working machine for bigger cable drums. Automatic cable traversing with infinitely variable electronic setting of the cable diameter. Cable traversing ready to mount length measuring equipment M 40 - M 80. Electronic pre-set counter included as standard equipment and many other special functions. Control through central touch panel 7" with option to connection on PC. Protecting cover with automatic switch-off. Further accessory see below.

The appropriate length measuring equipment can be selected for this device. It is also possible to permanently mount cable cutting equipment to the measuring machines.

- Frequency controlled drive with soft start and soft stop.
- Hydraulic open and closing of the lifting arms with automatic drum fixing.
- Coil winder speed on all machines TRG 160-250FH is 15-100 rpm.
- Automatic swivelling of the coil winder into working position.

Code	Type	C-D	Drum-D	kW/V	rpm	L/W/H m	kg
323630	TRG 160FH	10-45	600-1600	3,0/400	15-80	2,6/2,7/2,2	1.050,00
323650	TRG 200FH	10-60	600-2000	5,5/400	10-70	3,0/2,4/2,4	1.250,00
323670	TRG 250FH	10-80	600-2500	7,5/400	7-60	3,6/2,7/2,7	1.650,00

Coil winder fixed centre

Conical coil winder with fixed centre and foot. Capacity 10 kg.

Code	Type	C-winder to	C-winder dimens.	C-D/m	kg
322623	DW 18S	DH 15-16	D 300/80-90, int. 60	5/70, 10/16	4,00
322625	DW 20S	DH 15-16	D 380/150-170, int. 100	5/200, 10/50	4,50
322624	DW 18	DE 30F/SF	D 300/80-90, int. 60	5/70, 10/16	2,80
322626	DW 20	DE 30F/SF	D 380/150-170, int. 100	5/200, 10/50	3,30

Adapter for coil winders

Adapter for coil winders on electric coil winding machines

Code	Type	Suitable for	On machine	kg
322620	DWA 20	DW 18+DW 20	DE 30	3,00

Accessory to manual cable coiler DH 31

Coil winders and adapter shaft for wooden or plastic spools. With these the hand cable coiler can be assembled by yourself in any configuration. For this please select accessories below. Capacity 100 kg.

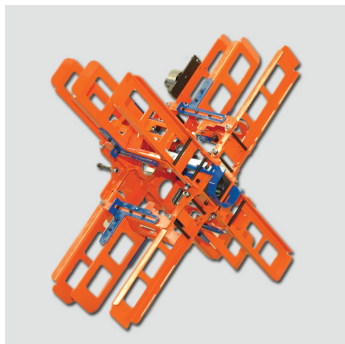
Code	Type	Descript.	C-winder dimens.	C-D/m	kg
322634	DW 26VK	Coil winder	D 600/200-420, int. 35-200	10/340, 20/65	27,00
322673	DS 32H	Adapter	Wooden/plastic spools	D 800, W 400	5,60



Eccentric clamp

Eccentric clamp for fixing the cable head to the coil winder for winding procedure.

Code	Type	Suitable for	For C-D	kg
322875	KE 41	Coil winder DW 26 VK	5-30	0,30



Coil winder collapsible

Coil winder adjustable in diameter and width. Collapsible for fast serving of cable rings, including cable loop for fixing the cable head on the coil winder. Incl. eccentric clamp for cable-D 5-30 mm. Capacity 100 kg.

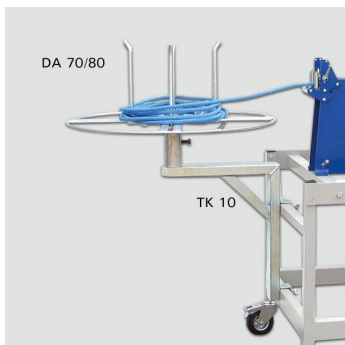
Code	Type	C-winder to	C-winder dims.	C-D/m	kg
322639	DW 30VK	DH 31	D 800/350, int. 80-200	10/600, 20/140	29,00



Adapter for drums

Adapter for wooden or plastic drums on electric coil winding machines DE 30. Capacity 100 kg.

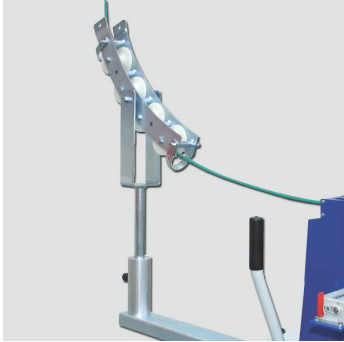
Code	Type	Suitable for	Drum-D max.	Drum width	kg
322672	DS 32	DE 30F/SF	850	330-400	5,50



Cable ring unwinder

Cable ring unwinder, without support TK 10.

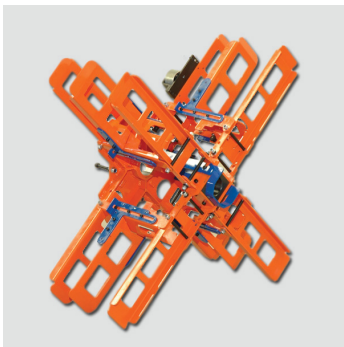
Code	Type	Suitable for	For cable rings	kg
322610	DA 70	DE 30F/SF	D 250-600, height 270	8,40
322611	DA 80	DE 30F/SF	D 250-700, height 270	9,40
322614	TK 10	DE 30F/SF	Support to DA 70, DA 80 + RB 45	8,20



Roller bow with adapter

Roller bow with adapter for support for unwinding cables from drums of upper stands. Please order support TK 10, code 322.614 separately.

Code	Type	Suitable for	kg
322613	RB 45	DE 30F/SF	6,80



Coil winder collapsible

Coil winder collapsible, cylindrical, adjustable in width. For fast serving of cable rings. Capacity 100 kg.

- After winding procedure the ring will be served through the spokes.
- To take away the ring the coil winders flange will be folded down.

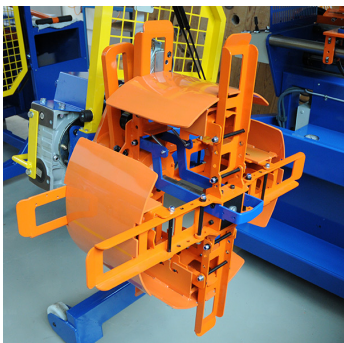
Code	Type	Suitable to	C-winder dimens.	C-D/m	kg
322654	DTW 80VK	DTR 80-100	D 800/420, int. 90-200	10/600, 20/140	37,00
322655	DTW 90VK	DTR 100	D 800/350-420, B 90-200	10/600, 20/140	37,00



Coil winder collapsible

Coil winder collapsible, cylindrical, adjustable in width. For fast serving of cable rings, including eccentric clamp for fixing the cable head on the coil winder. Capacity 100 kg.

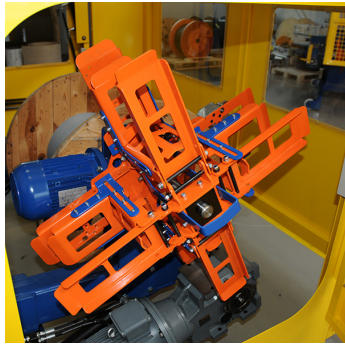
Code	Type	Suitable for	Dimension	Cable D/m	kg
3226621	RW 36VK	TR 147-207 FH	D 800/350, int. 90-200	15/260, 30/60	32,00
3226631	RW 46VK	TR 147-207 FH	D 900/450, int. 100-250	15/390, 30/100	35,00
3226641	RW 56VK	TR 147-207 FH	D 1000/460, int. 100-250	15/530, 30/130	37,00



Adapter to coil winder RW 56VK

Adapter for coil winder RW 56VK for achieving better, rounder winding core. Especially for sensitive cables and aluminium cables.

Code	Type	For	Dimension	Cable D/m	Cap.	kg
03226643	Adapter	RW 56VK	D 1000/630, In 250	15/350, 30/100	100 kg	25,00

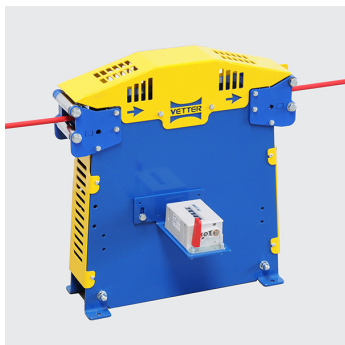


Coil winder with drive

Coil winder with drive for optional mounting on lifting arms of TRG 160-250

- Coil winder with separate drive. D 800/350, int. width 100-200
- Hinged mounted on the machine.
- High winding speed of 15-100 rpm. Capacity 150 kg.

Code	Type	Suitable for	Capax. cable D/m	kg
322666	RWG 80VK	TRG 160-250	10/750, 30/80	80,00



Cable length measuring machines, mechanical counter

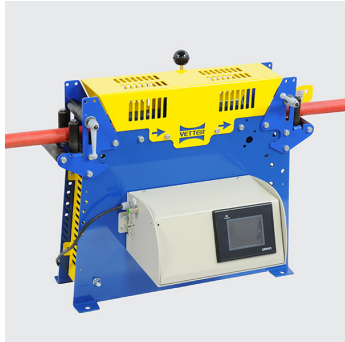
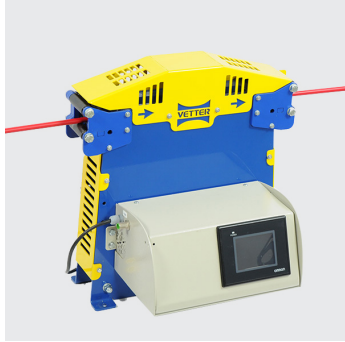
Cable and wire length measuring machines with mechanical counter without data storage, for stationary applications. Very robust steel construction. Due to the big perimeter of 1 m, high accuracy of $\pm 0,5 \%$, accuracy class III, at temperatures of 5-40°C.

Without conformity assessment. May only be used for purely internal use, not for sales of cables. Conformity assessment procedure according to Module F1 is possible, which allows direct sales of cables.

- Types MZ ... only for insulated cables, types MZ ... S also for bare metal goods.
- The accuracy refers to a calibrated cable of a length of at least 10 m.
- Measuring machines for cable bigger than $\varnothing 60$ mm are available on request.
- In the winding machines DTR/TR/TRG the electronic pre-set counter is installed as standard.



Code	Type	C-D	St-rope	L/W/H mm	kg
323730	MZ 20	1-20	no	360/280/400	16,00
323735	MZ 20S	1-20	1-8	360/280/400	16,00
323750	MZ 40	3-40	no	550/300/420	28,00
323755	MZ 40S	3-40	3-22	550/300/420	28,00
323770	MZ 60	10-60	no	700/360/600	54,00
323775	MZ 60S	10-60	6-32	700/360/600	54,00



Cable length measuring machines, electronic counter

Cable and wire length measuring machines with electronic counter for mounting on all cable winding machines and for stationary use. For this the power supply device 323.110 is necessary. Mounted on a spooling machine the power supply comes from the machine. Very robust steel construction. Due to the big perimeter of 1 m high accuracy of $\pm 0,5 \%$, accuracy class III at temperature of 5-40°C.

With conformity assessment according to EU Directive 2014/32/EU, Annex MI-009, valid throughout Europe. Conformity assessment procedure with type examination according to module B and product test according to module F. Equipped as standard with 3.5 inch colour touch screen incl. electronic pre-selection counter.

- Types M ... only for insulated cables, types M ... S also for bare metal goods.
- The accuracy refers to a calibrated cable of a length of at least 5 m.
- Measuring machines for cable bigger than $\varnothing 60$ mm are available on request.
- Power supply given below is only necessary if measuring machines are used with external devices.

Code	Type	C-D	Wire	L/W/H mm	kg
323720	M 20	1-20	nein	360/280/400	17,00
323725	M 20S	1-20	1-8	360/280/400	17,00
323740	M 40	3-40	nein	550/300/420	28,00
323745	M 40S	3-40	3-22	550/300/420	28,00
323760	M 60	10-60	nein	700/630/600	54,00
323765	M 60S	10-60	6-32	700/630/600	54,00
323110	Power unit	24/230 Volt	on M counter	110/110/90	1,00

Conformity assessment for M/MZ 20-60 S

Application of the new EU directive 2014/32/EU (MID) has become compulsory on 1 November 2016 and it has been implemented in German law in the Verification Act (MessEG) as well as the Verification Ordinance (MessEV). Apart from the correct measurement of lengths, the requirements for the recording, confirmability and traceability of the measurements have been tightened considerably. The main change is the demand for permanent and non-corruptible storage of all measurements.

Specifically, the legislator demands that information on each measurement be stored securely, permanently and unchangeably. Apart from the actual length, the date and time of the measurement as well as information about the measuring instrument used are of relevance. All of these data are to be identified by means of an unambiguous and unique identifier, the objective being to ensure continuous traceability of each measurement. This means that machines may only be brought onto the market if they meet these requirements and have been accepted by a conformity assessment body (e.g. German Physical and Technical Institute, PTB, or the verification office) by way of a conformity assessment. The successful assessment of the measuring instruments is confirmed by the declaration of conformity issued by the manufacturer (e.g. Vetter) and is valid throughout Europe.

For companies who wish to sell the cables to third parties in the normal course of business, this means that only length measuring instruments meeting these requirements may be procured in future. The purchaser of a measuring machine with declaration of conformity is obliged to register the measuring machine with the competent verification office (in Germany www.eichamt.de) immediately following the acquisition. Machines with a declaration of conformity from Vetter are deemed duly verified until expiry of the respective nationally regulated verification period. In Germany the rule is that validity of the conformity assessment is of two years. In retail sale the validity is unlimited as long as no seal is damaged or the maximum number of errors permitted in service is not exceeded. Divergent regulations may apply in other countries. These are obtainable from the applicable national laws.

On expiry of the conformity assessment for the above-mentioned reasons, the competent verification office must carry

Measuring machines delivered from 2017

out a reverification. Before this reverification, examination, adjustment and calibration of the measuring machine by trained personnel is recommended.

Thanks to the EU type examination certificate issued by the Federal Institute of Metrology METAS in Switzerland, machines of the new M series from Vetter can be used throughout Europe, irrespective of whether for use as measuring instruments on coiling machines or as a stand-alone solution for individual use. They offer the demanded uniformity, security, transparency and confirmability for buyers and sellers of cables within the European Economic Area. At the same time, the modular concept of the new series also enables use in direct sales or purely internal use and thus rounds off the complete range of applications for cable length measurement.

The Vetter cable measuring machines from the M 20-M60S series correspond to accuracy class III (+/- 0.5 %) according to EU Directive 2014/32/EU (MID) at temperatures of 5-40 °C with a minimum cable measuring length of 5 m for M machines and 10 m for MZ 20-M60S machines.

- KT 001 - Declaration for MZ-MZ/S, with mechanical counter, only for direct sales or purely internal use.
- KT 002 - Declaration for M-M/S, with electronical counter, for business use in absence of the buyer.

Code	Type	Module	For	kg
323700	KT 001	F1	MZ 20-MZ 60S	0,01
323705	KT 002	B+F	M 20-M 60S	0,01

Kalibrier-Bestätigung / Calibration-Confirmation LM 20-80 (S) / LM 20-60 (S)

Stand: 01.09.2019

Betreiber/User: _____
 Firma/Company: _____
 Ort/Place: _____

Typ/Type: LM 60 Besch.Nr.: _____
 Baujahr/Year of construction: _____

Hersteller/Producer: Vetter GmbH
 Selve-Tennler GmbH

Eichzähler/Calibration value: Nr.No.: 509 A

Messlänge/Measuring length: 20 m Zulässige Toleranz/Permissible tolerance: +/- 0,5 % (+/- 0,10 m)

Prüfung/Test 1:
 Prüfung/Test 2:

Abweichung max./Difference max:

Die Messergebnisse liegen innerhalb der zulässigen Toleranz! / The measuring result is according permissible tolerance

Kalibrierung durchgeführt/Calibration carried out: _____
 Hersteller: Vögtling Sturm

Datum/Date: _____ Unterschrift/Signature: _____

Calibration of length measuring machines HK/HD/KDM/KLM/MZ

To confirm the testing of length measuring devices, HK/HD/KDM/KLM/MZ, according to ISO 9001 and other QM systems the calibration (KA 001) executed by Vetter is sufficient in most cases. On the other hand the calibration does not replace the EU conformity assessment whenever it comes to commercial sales of cables.

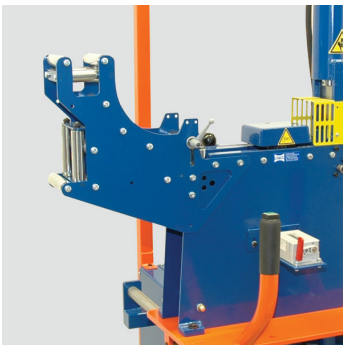
Code	Type	kg
323710	KA 001	0,01

Roller bow

Roller bow for unwinding cables from drum of upper drum stands. For fitting at cable length measuring machines MZ or M. Steel rollers D 25 mm.

- Type RB 4090 and 6090 - 90° deviation for unwinding from upper drum stands, 15 steel rollers.

Code	Type	Suitable for	C-D	Pass	Bend	L/W/H mm	kg
322783	RB 4090	M/MZ 40	max. 40	45x45	90°	400x180x380	10,10
3227831	RBS 4090	M/MZ 40/40S	max. 40	45x45	90°	400x180x380	10,50
322781	RB 6090	M/MZ 60	max. 60	65x65	90°	450x200x500	30,50

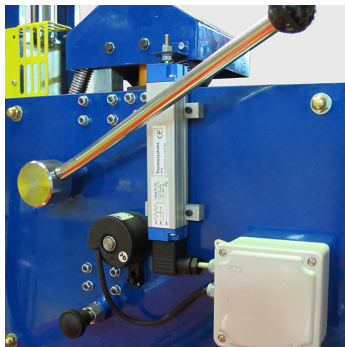




Electronic cable traversing

Automatic electronic cable traversing unit to DTR 80FH and DTR 100FH. Adjustment return points and cable diameter electronic with key button and rotary switch on the control panel. Incl. cable layering arm VA 20 for sensitive cables.

Code	Type	Suitable for	For C-D	kg
322834	REL 26D	DTR 80FH-100FH	3-40	16,00



Automatic cable diam. identification device

Automatic measuring device for identify the cable-d in all length measuring machines on cable spooling machines. The electronic cable traversing unit takes over the electronic measured values self-dependent. Manually correction of cable diameter with potentiometer in operator panel is also possible.

Code	Type	For mounting on	kg
322950	ACD 75	DE 30SF	1,10
322930	ACD 100	DTR 80-100 + TR/TRG 147-207	1,10



Layering-over arm telescopic

Layering-over arm telescopic for traversing sensitive cables on DTR machines

Code	Type	Suitable for	Machine	C-D	kg
322790	BRD 20	DTR	M/MZ20	1-20	8,00
322791	BRD 20S	DTR	M/MZ20S	1-20	8,00
322792	BRD 40	DTR	M/MZ 40	3-40	8,00
322793	BRD 40S	DTR	M/MZ 40S	3-40	8,00



Hand cutter

Cable or rope hand cutter including fixing plate for mounting on cable length measuring machines MZ/M 20-40.

Code	Type	Suitable for	For C-D	St-rope	kg
322810	HK 35	MZ/M 20-40	35	no	5,80
322812	HS 35	MZ/M 20S-40S	10	10	6,30



Layering arms

Layering arms on cable length measuring machines M/MZ 40-60 S, for better cable traversing on winding machines TR/TRG, especially for soft or thin cables.

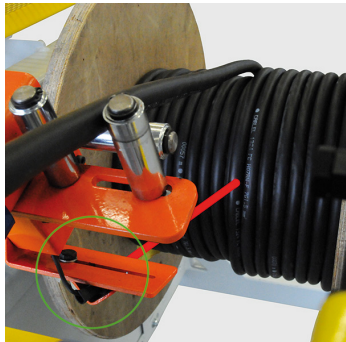
Code	Type	Suitable for	On machine	C-D	kg
322802	BRT 40	TR/TRG	M/MZ 40	3-40	8,00
322803	BRT 40S	TR/TRG	M/MZ 40S	3-40	8,00
322804	BRT 60	TR/TRG	M/MZ 60	10-60	8,00
322805	BRT 60S	TR/TRG	M/MZ 60S	10-60	8,00



Control arm

Control arm with nivomat to prevent from damage of Fibre Optic and sensitive CU-cables up to D 12 mm during winding process. Light control arm of aluminium, length approx. 1050 mm, bending radius R 150 mm, with adjustable weights to the winding process. Arm is easy removable for winding of heavier cables.

Code	Type	Suitable for	For C-D	Length	kg
322720	SAA 20	MZ 20	12	1050	8,00
322723	SAA 40	MZ 40	12	1050	10,00



Laser-Pointer

Laser-Pointer for easy and accurate adjustment of cable traversing on cable winding machines. Fixing on layering arm or length measuring device M/MZ 20-40

Code	Type	Colour	To mount	kg
322839	LP 10	red	M/MZ 20-60 S	5,00



Centring sleeves for drums

Standard all drum winding units are equipped with the following centring sleeves:

- TR 147-167 standard for centre holes of D 80
- TR 200-207 standard for centre holes of D 80 and D 125.
- For other centre holes special sleeves see below have to be ordered.

Code	Type	Suitable for	Fixing	Form	For hole	kg
322864	AKZ 66	TR 147-207	D 40	conic	D 85-35	5,40



Cable cutting head, hydraulic

Cable cutting head, hydraulic for mounting on cable length measuring machines types M, for cutting insulated CU- and AL-cables, not for steel ropes.

Code	Type	Suitable for	For C-D	St-ropes	kg
322820	HKS 40	M/MZ 40	40	no	11,00
322821	HKS 60	M/MZ 60	60	no	14,50

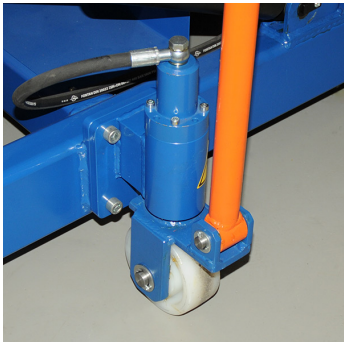


Moving equipment, mech.

Moving equipment for mechanical lift of the winding machine and for displacement by a hand draw bar.

- The moving equipment exists of the following parts:
- Loose hand steering pole with two polyamide wheels
- On the opposite side the machines are equipped with two fixed polyamide wheels
- The retrofitting of this equipment is not possible

Code	Type	Suitable for	Lifting	Running	kg
322962	HG 90	TR 147	Tilting draw bar	manual	18,00

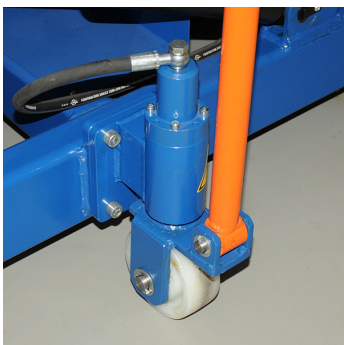


Moving equipment, hydr.

Moving equipment for electro-hydraulic lift of the winding machine and for displacement by a hand draw bar.

- The moving equipment exists of the following parts:
- Fixed hand steering pole with hydraulically lifting jack and a polyamide wheel
- On the opposite side the machines are equipped with two fixed polyamide wheels
- The retrofitting of this equipment is not possible

Code	Type	Suitable for	Lifting	Running	kg
322965	HG 100HI	TR 167/TRG 160	Hydraulic	manual	25,00

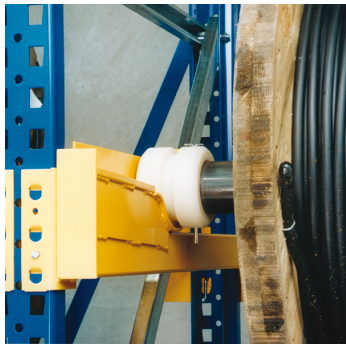


Moving equipment, hydr.

Moving equipment for electro-hydraulic lift of the winding machine and for displacement by a hand draw bar.

- The moving equipment exists of the following parts:
- Fixed hand steering pole with hydraulically lifting jack and a polyamide wheel
- On the opposite side the machines are equipped with two hydraulically lifting and lowering polyamide wheels
- The retrofitting of this equipment is not possible

Code	Type	Suitable for	Lifting	Running	kg
322966	HG 125HI	TR 207	Hydraulic	manual	26,00



Cable drum stands

Cable drum stands for storage and unwinding cables directly from the storage position into the cable winding machines. Length of the stands unlimited, height max. 6 m. In these stands standard cable drums can be shelved. Tell us your needs we submit you a solution.

- Suitable for all standard drums of D 400-1600
- Special polyamide bushings allow safe unwinding of the cable even from above.
- Each cable stand can be adapted to your needs.
- For optimizing of your stock we would like to mail you our check list.
- You will receive a list of standard components with an offer.

Code	Type	Drum-D	Drum weight	Int. width
324000	KTR-Syst	400-1600	max. 2 t each	900/1100/1300 0,00

Accessory to cable drum stands

Cable drum shaft for drum stand and polyamide bearings to cable drum stands

- Light thin-walled steel tubes
- Special polyamide bushings allow safe unwinding of the cables

Code	Type	Shaft	Bearings	kg
03259230	38/900	D 38x900	see below	2,00
03259232	51/900	D 51x900	see below	2,61
03259234	76/900	D 76x900	see below	4,50
03259236	51/1100	D 51x1100	see below	5,03
03259237	76/1100	D 76x1100	see below	5,50
03259238	76/1300	D 76x1300	see below	6,50
03259245	LAB 38	---	for shaft-D 38	1,00
03259246	LAB 51	---	for shaft-D 51	0,82
03259247	LAB 76	---	for shaft-D 76	0,60

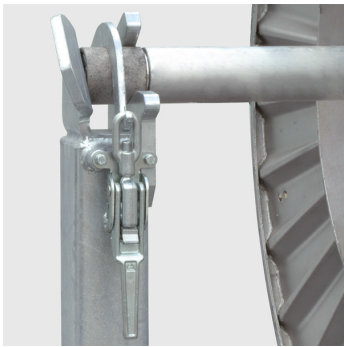


Cable winding stands

Cable winding and unwinding stands, stationary or for mounting on lorries etc. For drums up to 1,5 t. Drum drives in electric, hydraulic or pneumatic version available. Techn. details see table below. Please ask for our more extensive offers.

- Winding and unwinding equipment in many designs.
- Suitable also for multiple drums for cables or hoses.
- Drum drives electric, hydraulic or pneumatic version, see code 329.5xxx as accessory.
- The drum has to be loaded from the top by a hoist.
- The switch board can be replaced on the site at any of the three frame corners.
- Accessory rotating alu-drum shaft, select 0350.692xxx depending on internal width.

Code	Type	Cap.	Drum-D	Int. width	L/W/H mm	kg
329100	KTA 1,0 ST	1,0 t	630-1400	1000	1320/1140/1100	108,00
329200	KTA 1,5 ST	1,5 t	630-1800	1310	1620/1450/1300	138,00



Rotating drum shafts

Rotating drum shafts suitable to cable winding stands KTA 1,0 ST and KTA 1,5 ST. Please order clamps separately.

Code	Type	Suitable for	D/length	SWL	kg
350684	TAS 7511	KTA 1,0 ST	75/1140	to 5 t	23,50
3506845	TAS 7514	KTA 1,5 ST	75/1450	to 5 t	24,00



Cable winding stand for 2 drums

Cable winding and unwinding stand for 2 drums, stationary or for mounting on trucks etc. For drums up to 1,0 t. Drum drives in electric, hydraulic or pneumatic version available. Techn. details see table below. Please ask for our more extensive offers.

- Winding and unwinding equipment in many designs.
- Suitable for 2 drums and also for multiple drums for cables or hoses.
- Drum drives electric, hydraulic or pneumatic version, see code 329.5xxx as accessory.
- The drums have to be loaded from the top by a hoist.
- accessory rotating alu-drum shaft, select 0350.692xxx depending on internal width.

Code	Type	Cap.	Drum-D	Int. width	L/W/H mm	kg
329054	KTA 1,2 ST	1,0 t	630-1400	any width	1400/1200/1430/1100	111,00



Cable drum drive to KTA 1.2

Cable drum drive to drum stand KTA 1.2, electric motor 0,75 kW, 400 V/50 Hz, with control box with frequency convertor, for winding and unwinding cables or hoses from KTA stand. Techn. details see table below. Please ask for our more extensive offers.

Code	Type	Drive	Pulley	Pull kN	Pull KN	m/min.	kg
329540	TEA 204	electric	D 220/80	bottom 2,5	on top 1,25	2-60	90,00



Hose winding units with rotary transmission lead through

Hose winding units with rotary transmission lead through for air, water and suction tubes. Stationary or for mounting on lorries etc. For drums up to 1,0 t. Drum drives in electric, hydraulic or pneumatic version available. Techn. details see table below. Please ask for our more extensive offers.

- Any adaptation according to your application is possible.
- Suitable for single, multiple or several single drums for hoses and cables.
- Drum drives electric, hydraulic or pneumatic version, see code 329.5xxx as accessory.
- The drum has to be loaded from the top by a hoist.
- accessory drum shaft, to be selected acc. to technical needs.

Code	Type	Cap.	Drum-D	Int. width	L/W/H mm	kg
329050	KTA 0.5 DE	0,5 t	750-1300	640	1325/800/1150/1000	87,00



329051 KTA 1.0 DE 1,0 t 750-1300 840 1525/1000/1350/1200 106,00



Cable winding stands

Cable winding and unwinding stands, mobile by 2 steering and 2 fixed wheels with parking brake. Wheels are coated with high wattage polyurethane. Suitable for drums up to 1,5 t and speeds up to 6 km/h. See accessories like: electro-, hydraulic- or pneumatic drum drives. Techn. details see table below. Please ask for our more extensive offers.

- Winding and unwinding equipment in many designs.
- Suitable also for multiple drums for cables or hoses.
- Drum drives electric, hydraulic or pneumatic version, see below
- The drum has to be loaded from the top by a hoist.
- accessory rotating alu-drum shaft, select 350.684xxx depending on internal width.

Code	Type	Cap.	Drum-D	Int. width	L/W/H mm	kg
329150	KTA 1,0 FA	1,0 t	630-1400	1000	1330/1180/1200	144,00
329250	KTA 1,5 FA	1,5 t	630-1800	1310	1630/1490/1400	174,00



Cable drum drives

Cable drum drives for winding and unwinding cables from KTA stands. Techn. details see table below. Please ask for our more extensive offers.

- TEA 208 - Electro 1,5 kW/400V, with frequency converter 25-100 Hz
- TZ 200 - Hydraulic motor, 12 l/min. 160 bar, without hydraulic power pack
- TP 205 - Pneumatic motor, max. 1 m³/min., 6 bar, incl. air equipment

Code	Type	Drive	Pulley	Pull kN	Pull kN	rpm	kg
329550	TEA 208	electric	D 240/200	bottom 2,5	on top 1,25	0-15	118,00
351210	TZ 200	hydraulic	D 150/205	bottom 2,5	on top 1,25	0-15	69,00

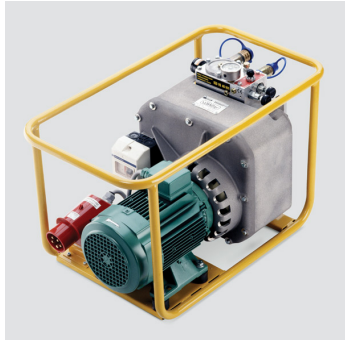


Hydraulic power packs mobile

Hydraulic power pack for cable drum drive, with petrol- diesel- or electric engine equipped with rapid hose couplings.

- Petrol power pack, tank 10 Litre, oil flow 12 l/min.
- Electro power pack, tank 13 Litre, oil flow 14 l/min.
- The hydraulic power pack must not be mounted on drawing bar of the trailer, the hitch load would be to high.
- For control of the winding speed please order below mentioned hydraulic hose combination

Code	Type	Suitable for	Motor kW	Press.	L/W/H mm	kg
351330	THF 203B	drum drives	Petrol 9,6	160 bar	854/457/507	74,00
351332	THF 203D	drum drives	diesel 6,8 kW	160 bar	854/457/507	95,00
425351	HE 210	drum drives	Electro 4,0	210 bar	733/405/433	67,00



Hydraulic hose set

Hydraulic hose set 7 m, with volume governor for hydraulic power packs.

Code	Type	Length	Flow governor	kg
425381	SL 7	7 m	to 30 l/min	13,20



Cable winding units stationary

Cable winding units stationary or for mounting on vehicles etc. For drums up to 3.0 t. This special unit is especially prepared for a drum drive through the centre shaft of the drum. With this drive heavy cables loads can be safety lifted and lowered. Only customer selected steel drums will be fix mounted and cannot be replaced by a standard cable drum. On demand different steel drums can be supplied, which can be replaced in the KTU 3 ZE within 3-4 hours. Please ask for a more extensive offer.

- Mainly used for lowering and lifting of cables and hoses in shafts and ground drillings.
- Through this high lifting and lowering forces can be safely controlled.

Code	Type	Cap.	Drum-D	Int. width	kg
331445	KTU 3 ZE	3 t	to 2000	any width	403,00



Cable drum drive through the centre

Drum drive for winding or unwinding of cables, hoses or other goods. Suitable for cable winding stands KTU 3 ZE. Electric braking motor 4,0 kW, 230/400 volts, frequency convertor, switch cupboard, mobile control panel with 10 m cable. Protection IP 55 hose proofed. This drum drive transmits the winding force through the central drum shaft. With this drive big cable loads can be safely lifted and lowered. Techn. details see below. Please ask for a more extensive offer.

- Electric-brake motor with mitre gear 4,0 kW, 230/400 volt.
- Frequency convertor, control box, mobile remote control with 10 m cable.
- Protection IP 55 hose proof

Code	Type	For KTU	Pull force	m/min.	kg
333227	TEZ 201	3 ZE	max. 13 kN	0-25	345,00



Cable winding units stationary

Cable winding and unwinding stands, stationary or for mounting on lorries etc. For drums up to 10 t. See accessories like drum drives, drum brakes etc. Techn. details see table below. Please ask for our more extensive offers.

- As winding unit with drum drive, accessory see below.
- As unwinding unit with drum disc brake, accessory see below.
- The both units can be combined to a complete cable winding plant.
- Between the units a traversing table with length measuring and control instruments can be placed.

Code	Type	Cap.	Drum-D	Int./ext. width/length	kg
331350	KTU 3 ST	3 t	800-2500	1740/1960/2000	420,00
331500	KTU 6 ST	6 t	800-3000	1740/2000/2200	470,00
331650	KTU 10 ST	10 t	800-3300	1940/2240/2600	540,00



Cable winding units mobile

Cable winding and unwinding stands, mobile by 2 steering and 2 fixed wheels with parking brake. See accessories like drum drives, drum brakes etc. Techn. details see table below. Please ask for our more extensive offers.

- Wheels are coated with high wattage polyurethane.
- Suitable for speeds to 6 km/h.
- See accessories like drum electric, hydraulic drives, drum brakes etc.

Code	Type	Cap.	Drum-D	Int./ext. width/length	kg
331400	KTU 3 FA	3 t	1000-2500	1740/1960/2100	450,00
331550	KTU 6 FA	6 t	1000-3000	1740/2000/2340	500,00
331700	KTU 10 FA	10 t	1000-3300	1915/2240/2670	570,00
331710	KTU 15 FA	15 t	1200-2500	2200/2820/3845	785,00



Cable winding units stationary

Cable winding and unwinding stands, with hydraulic lift, stationary or for mounting on lorries, wagons etc. For drums up to 6 t. Incl. rotating drum shaft D 76 mm with drum fixing clamps.

Accessories are available like drum drives and drum brakes. Please ask for our more extensive offers.

Code	Type	Cap.	Drum-D	Int./ext. width/length	kg
331442	KTU 3 LH	3 t	800-2800	1740/2000/2200	470,00
331562	KTU 6 LH	6 t	800-3300	1740/2040/2600	520,00
331563	KTU 6 LH	6 t	800-3300	1940/2240/2600	540,00



Cable winding units stationary

Cable winding and unwinding stands, without hydraulic lift, stationary or for mounting on lorries, wagons etc. For drums up to 6 t. Incl. rotating drum shaft D 76 mm with drum fixing clamps.

Accessories are available like drum drives and drum brakes. Please ask for our more extensive offers.

Code	Type	Cap.	Drum-D	Int./ext. width/length	kg
331454	KTU 3 LS	3 t	800-2800	1740/2000/2200	390,00
331566	KTU 6 LS	6 t	800-3300	1740/2040/2600	460,00
331567	KTU 6 LS	6 t	800-3300	1940/2240/2600	500,00



Retainer for fork lifts

Retainer for fork lifts for KTU 3-10 ST, LH and LS, not for FA. for loading the unloaded machines without a cable drum on lorries or wagons. Max. size of the fork tooth see table below. Applicable from the front and the side part. This support can be mounted also as retrofitting part on all machines supplied after 01.08.2012.

Code	Type	Suitable to	For fork tooth	kg
331458	GAB 3-ST	KTU 3 ST	125x50	64,00
331590	GAB 6-ST	KTU 6 ST	150x50	55,00
331715	GAB 10-ST	KTU 10 ST	150x50	60,00



Hydraulic jack lifter

Hydraulic jack lifting device. Electro-hydraulic power pack, 3 kW/400V motor. Individual control of the lifting jacks. Only for initial configuration, not for retrofitting.

Code	Type	Suitable for	kg
333287	HAE 310	KTU 3-10 without drum drive	24,00
333288	HAE 311	KTU 3-10 with drum drive	24,00

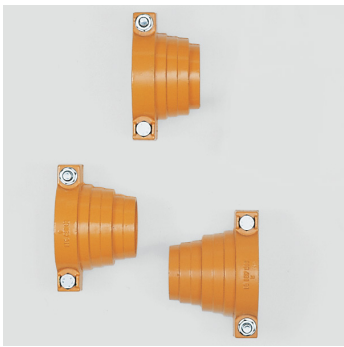


Drum drive over flange

Drum drive for winding or unwinding of cables up to D 120 mm over the drum flanges. Suitable for cable winding stands KTU. Infinitely variable speed. Techn. details see below. Please ask for a more extensive offer.

- Driving drum diameter, see individual KTU-Types ..ST, or ..FA.
- TEEL 502 available as retrofitting part, for mounting on customers equipments, see pdf-drawing on the left.
- Winding force 5,0 kN on core diam. and 2,5 kN on ext. diameter
- Winding speed adjustable from 2-40 m/min.
- Hand pump can be replaced by electro-motor-hydraulic Code 333.288
- 333248 TEE 502/MID equipped acc. to EU directive 2014/32/EU (MessEG) see length measuring devices types M

Code	Type	For	Drive kW	Drum lift	kg
333250	TEE 502	KTU 3-6	El.-mech. 1,5	without	263,00
333254	TEE 534	KTU 10	El.-mech. 1,5	without	284,00
333248	TEE 502/MID	KTU 3-10	El.-mech. 1,5	without	265,00



Preparation for drum drive

Preparation of the drum shafts, its necessary if a KVS type is equipped with a hydraulic drum drive or with a drum disc brake. Instead of clamps two locating cones are supplied.

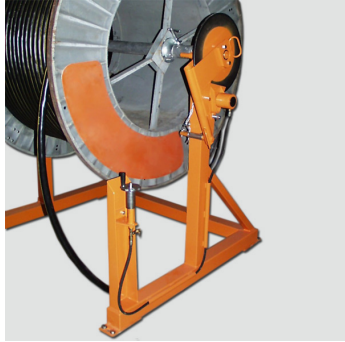
Code	Type	For shaft	Steps-D	kg
350800	VAB 760	D 75-76	140/130/125/105/100/90	7,00



Cable drum disc brake

Cable drum disc brake with drum fork for controlled unwinding of cable or line drums. Hand mechanical setting of the braking force. To use it with KVH-types code 350.790 APR 690 is necessary.

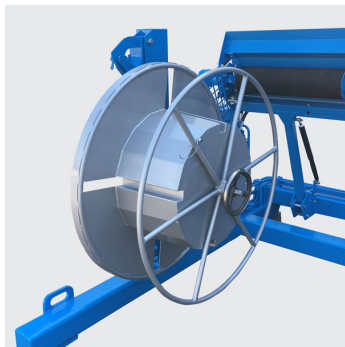
Code	Type	Operation	Braking	At the cable	kg
350860	STB 400	mechanic	3200 Nm	approx. 4 kN	46,00



Cable drum disc brake hydraulic

Cable drum disc brake without drum fork for controlled unwinding of cable drums. Hand mechanic or hand hydraulic setting of the braking force. Suitable for all KTU 3-10 ST und FA. To use it with KTU code 350.800, VAB 760 and a drum fork are necessary. Techn. details see table below.

Code	Type	Operation	Braking	At the cable	kg
350870	STC 400	hand-hydraulic	3200 Nm	approx. 4 kN	39,00



Coil winders for KTU

Coil winder for cable winding stands KTU 3-10, for serving cable rings. Steel construction galvanized. Order support RA 8014 separately, see table below.

Code	Type	C-winder dim.	kg
331250	RW 800	D 800/500, IW 250	37,00
331280	RW 1000	D 1000/600, IW 300	56,00
331310	RW 1400	D 1400/1050, IW 300	86,00
331330	RA 8014	Locating device for coil winders	8,00



Cable traversing table

Cable traversing table for mounting cable length measuring machines. Moving manual according to the natural cable layering on the drum. Mobile equipment, to fix on the floor. Height adjustable by hand crank. Without cable length measuring device.

Code	Type	For KTU	Length meter	L/W/H mm	kg
335575	LST 125	3-10 ST/FA	MZ 60-80/KLM 120	1940x1230x945-1375	145,00



Cable and wire length measuring machines, mech. counter

Cable and wire length measuring machines with mechanical counter without data storage, for stationary applications. Very robust steel construction. Due to the big perimeter of 1 m, high accuracy of $\pm 0,5 \%$, accuracy class III, at temperatures of 5-40°C.

Without conformity assessment. May only be used for purely internal use, not for sales of cables. Conformity assessment procedure according to Module F1 is possible, which allows direct sales of cables.

- Types MZ ... only for insulated cables, types MZ ... S also for bare metal goods.
- The accuracy refers to a calibrated cable of a length of at least 10 m.
- Measuring machines for cable bigger than $\varnothing 60$ mm are available on request.
- In the winding machines DTR/TR/TRG the electronic pre-set counter is installed as standard.

Code	Type	C-D	St-rope	L/B/H mm	kg
323750	MZ 40	3-40	no	550/300/420	28,00
323755	MZ 40S	3-40	3-22	550/300/420	28,00
323770	MZ 60	10-60	no	700/360/600	54,00
323775	MZ 60S	10-60	6-32	700/360/600	54,00



Cable and wire length measuring machines, electron. counter MID

Cable and wire length measuring machines with electronic counter for mounting on all cable winding machines and for stationary use. For this the power supply device 323.110 is necessary. Mounted on a spooling machine the power supply comes from the machine. Very robust steel construction. Due to the big perimeter of 1 m high accuracy of $\pm 0,5 \%$, accuracy class III at temperature of 5-40°C.

With conformity assessment according to EU Directive 2014/32/EU, Annex MI-009, valid throughout Europe. Conformity assessment procedure with type examination according to module B and product test according to module F. Equipped as standard with 3.5 inch colour touch screen incl. electronic pre-selection counter.

- Types M ... only for insulated cables, types M ... S also for bare metal goods.
- The accuracy refers to a calibrated cable of a length of at least 5 m.
- Measuring machines for cable bigger than $\varnothing 60$ mm are available on request.
- In the winding machines DTR/TR/TRG the electronic pre-set counter is installed as standard.

Code	Type	C-D	St-rope	L/B/H mm	kg
323740	M 40	3-40	no	550/300/420	28,00
323745	M 40S	3-40	3-22	550/300/420	28,00
323760	M 60	10-60	no	700/360/600	54,00
323765	M 60S	10-60	6-32	700/360/600	54,00
323110	Power unit	24/230 Volt	on M counter	110/110/90	1,00

Messmaschinen geliefert ab 2017

Conformity assessment for M/MZ 20-60 S

Application of the new EU directive 2014/32/EU (MID) has become compulsory on 1 November 2016 and it has been implemented in German law in the Verification Act (MessEG) as well as the Verification Ordinance (MessEV). Apart from the correct measurement of lengths, the requirements for the recording, confirmability and traceability of the measurements have been tightened considerably. The main change is the demand for permanent and non-corruptible storage of all measurements.

Specifically, the legislator demands that information on each measurement be stored securely, permanently and unchangeably. Apart from the actual length, the date and time of the measurement as well as information about the measuring instrument used are of relevance. All of these data are to be identified by means of an unambiguous and unique identifier, the objective being to ensure continuous traceability of each measurement. This means that machines may only be brought onto the market if they meet these requirements and have been accepted by a conformity assessment body (e.g. German Physical and Technical Institute, PTB, or the verification office) by way of a conformity assessment. The successful assessment of the measuring instruments is confirmed by the declaration of conformity issued by the manufacturer (e.g. Vetter) and is valid throughout Europe.

For companies who wish to sell the cables to third parties in the normal course of business, this means that only length measuring instruments meeting these requirements may be procured in future. The purchaser of a measuring machine with declaration of conformity is obliged to register the measuring machine with the competent verification office (in Germany www.eichamt.de) immediately following the acquisition. Machines with a declaration of conformity from Vetter are deemed duly verified until expiry of the respective nationally regulated verification period. In Germany the rule is that validity of the conformity assessment is of two years. In retail sale the validity is unlimited as long as no seal is damaged or the maximum number of errors permitted in service is not exceeded. Divergent regulations may apply in other countries. These are obtainable from the applicable national laws.

On expiry of the conformity assessment for the above-mentioned reasons, the competent verification office must carry out a reverification. Before this reverification, examination, adjustment and calibration of the measuring machine by trained personnel is recommended.

Thanks to the EU type examination certificate issued by the Federal Institute of Metrology METAS in Switzerland, machines of the new M series from Vetter can be used throughout Europe, irrespective of whether for use as measuring instruments on coiling machines or as a stand-alone solution for individual use. They offer the demanded uniformity, security, transparency and confirmability for buyers and sellers of cables within the European Economic Area. At the same time, the modular concept of the new series also enables use in direct sales or purely internal use and thus rounds off the complete range of applications for cable length measurement.

The Vetter cable measuring machines from the M 20-M60S series correspond to accuracy class III (+/- 0.5 %) according to EU Directive 2014/32/EU (MID) at temperatures of 5-40 °C with a minimum cable measuring length of 5 m for M machines and 10 m for MZ 20-M60S machines.

- KT 001 - Declaration for MZ-MZ/S, with mechanical counter, only for direct sales or purely internal use.
- KT 002 - Declaration for M-M/S, with electronic counter, for business use in absence of the buyer.

Code	Type	Module	For	kg
323700	KT 001	F1	MZ 20-MZ 60S	0,01
323705	KT 002	B+F	M 20-M 60S	0,01

Kalibrier-Bestätigung LM 20-80 (S)
Calibration-Confirmation LM 20-80 (S)

Vorgabe: 14.03.2008/4

Benutzer/Name: _____
 Firma/Company: _____
 Ort/Place: _____

Typ/Type: LM 40 Masch.-Nr.: _____
 Messgerät/Model of construction: _____

Hersteller/Producer: Vetter GmbH X
 Seta-Tensler GmbH

Eichdauer/ Calibration wire: Nr./No.: 505 A

Messlänge/ Measuring length: 20 m Zulässige Toleranz/ Permissible variation: $\pm 0,4\%$
 (N=10,00m)

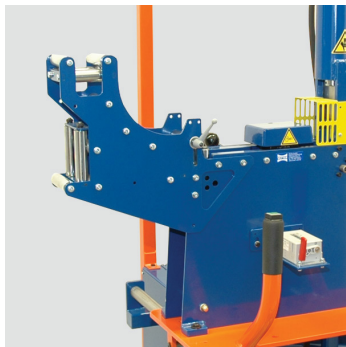
Prüfung/Probe 1: m
 Prüfung/Probe 2: m

Abweichung max./ Difference max.: _____ m
 _____ m

Die Messergebnisse liegen innerhalb der zul. Toleranz!
 The measuring result is according permissible variation.

Kalibrierung durchgeführt/Calibration carry out:
 Herr/Mr.: Wolfgang Saum

Datum/Date: _____ Unterschrift/Signature: _____



Calibration of length measuring machines HK/HD/KDM/KLM/MZ

To confirm the testing of length measuring devices, HK/HD/KDM/KLM/MZ, according to ISO 9001 and other QM systems the calibration (KA 001) executed by Vetter is sufficient in most cases. On the other hand the calibration does not replace the EU conformity assessment whenever it comes to commercial sales of cables.

Code	Type	kg
323710	KA 001	0,01

Roller bow

Roller bow for unwinding cables from drum of upper drum stands. For fitting at cable length measuring machines MZ or M. Steel rollers D 25 mm.

- Type RB 6090 - 90° deviation for unwinding from upper drum stands, 15 steel rollers D 25.

Code	Type	Suitable for	C-D	Pass	Bend	L/W/H mm	kg
322781	RB 6090	M/MZ 60	max. 60	65x65	90°	450x200x500	30,50



Cable length measuring machine without MID

Cable length measuring machine, very robust construction, measuring wheel circumference of 500 mm, with mechanical counter up to 9999,99 m. Accuracy $\pm 0,4\%$. Figure height 7 mm. Can be equipped with a pre-set counter as accessory with automatic stop facility.

Code	Type	C-D	St-rope	L/W/H mm	kg
262610	KLM 120	20-120	no	505/280/600	67,00



Electronic pre-set counter without MID

Electronic pre-set counter 230V/AC, without cables, with control panel. For pre-set of the cable length with automatic stop facility. Only for single cable length measuring machines. Select cable as accessory in your length.

Code	Type	Suitable for	Cable length	kg
03227641	ZE 212P	MZ 20-80+KLM 120	without	4,60
03227651	KA 2	MZ 20-80+KLM 120	2,0 m	0,30
03227661	KA 5	MZ 20-80+KLM 120	5,0 m	0,40
03227671	KA 10	MZ 20-80+KLM 120	10,0 m	0,50



Cable winding units stationary

Cable winding and unwinding stands, stationary or for mounting on lorries etc. For drums from 20-55 t. See accessories like drum drives, drum brakes etc. Techn. details see table below. Please ask for our more extensive offers.

- Possible configurations:
- Drum flange brakes, one or both sides, breaking force 12,5 resp. 25,0 kN at cable.
- With an additional pre- and emergency brake braking forces to 50 kN are possible.
- Drive of the brakes per manual hydraulic pump or by electro-hydraulic drive
- Drum drives one-side or double sides, pulling force 16,0 kN resp. 32,0 kN
- Adjustable on the site to any drum width.

Code	Type	Cap.	Drum-D	Int. width	kg
331736	KTU 20 ST	20 t	2000-3700	any adjustable	1.870,00
331738	KTU 20 ST	20 t	2800-4300	any adjustable	1.880,00
331740	KTU 25 ST	25 t	3600-5100	any adjustable	1.945,00
331750	KTU 55 ST	55 t	3600-5100	any adjustable	1.980,00
331752	KTU 55 ST	55 t	4300-6000	any adjustable	1.980,00



Drum shafts for KTU 20-55

Drum shafts for KTU 20-55. The height adjustable drum supports are equipped with ball bearing rollers in which the drum shafts turn easily. The stand can be adapted to any drum width. Drum shafts are available in length from 3000 to 5000 mm in partition of any 500 mm. The shaft must be of min. 1 m longer than the widest drum width. In standard it is equipped with 4 clamps for fixing the shaft and the drum. Centring bushes have to be ordered separately according to the drum shaft diameter and the bore diameter of the drums. See below.

Code	Type	D/L mm	SWL	Drum width	kg
031483334	KSR 10122	101/4000	16 t	max. 3000	187,00
031483344	KSR 10825	108/4000	20 t	max. 3000	221,00
031483354	KSR 11417	114/4000	20 t	max. 3000	184,00
031483364	KSR 12120	121/4000	24 t	max. 3000	219,00
031483374	KSR 12714	127/4000	22 t	max. 3000	178,00
031483384	KSR 12725	127/4000	30 t	max. 3000	273,00
031483424	KSR 13917	139/4000	31 t	max. 3000	231,00
031483454	KSR 13930	139/4000	38 t	max. 3000	348,00
031483464	KSR 15925	159/4000	54 t	max. 3000	355,00
031483466	KSR 15925	159/4500	54 t	max. 3500	397,00
031483476	KSR 15930	159/4500	59 t	max. 3500	454,00
031483478	KSR 15930	159/5000	59 t	max. 4000	502,00



Centring bushes for drum shafts D 101-159

Centring bushes for drum shafts to fit with the drum bore, see table below. Also available in other diameters. Bush length 80 mm

Code	Type	For shaft	Drum bore	kg
315765	ZBS 101/125	D 101	D 125	10,00
315780	ZBS 101/140	D 101	D 140	12,00
315815	ZBS 108/145	D 108	D 145	15,00
315818	ZBS 108/200	D 108	D 200	9,00
315850	ZBS 114/150	D 114	D 150	15,00
315880	ZBS 114/200	D 114	D 200	15,00
315920	ZBS 121/200	D 121	D 200	15,00
315945	ZBS 127/150	D 127	D 150	4,00
315952	ZBS 127/200	D 127	D 200	12,00
315978	ZBS 139/200	D 139	D 200	12,00
315987	ZBS 159/185	D 159	D 185	16,00
315989	ZBS 159/200	D 159	D 200	18,00



Clamps for drum shafts D 101-159 mm

Clamp for drum shafts for lateral fixing of the cable drum on drum shafts of steel or alu. Steel coated. Width 50 mm.

Code	Type	For shaft	kg
315340	KLS 101	D 101-105	2,00
315350	KLS 108	D 108-110	2,40
315360	KLS 114	D 114-115	3,00
315370	KLS 121	D 121-123	5,00
315380	KLS 127	D 127-130	3,40
315384	KLS 135	D 135-137	4,00
315385	KLS 139	D 139-140	3,60
315390	KLS 159	D 159-160	3,90



Drum brakes for KTU 20-55

Drum brakes for KTU 20-55, operated by hand pump or electro-hydraulic pump by separate hydraulic power pack. Per drum flange 1 brake shoe in front and behind. The drum can be braked on one or on both flanges. If high braking forces are required, e.g. at cable lowering in shafts etc. the pre- and emergency brake with independent hand pump should be installed. Electric power packs for one or two flange brakes have to be ordered separately.

- Drum flange brake on one or both sides, 12,5 resp. 25,0 kN braking force on the cable.
- Hydraulic by hand pump or by electro-motor-hydraulic.

Code	Type	Drum-D	Brake	Braking	kg
331753	TRB 3701	2000-3700	one-side	min. 12,5 kN	135,00

331754	TRB 4301	2800-4300	one-side	min. 12,5 kN	135,00
331756	TRB 5101	3600-5100	one-side	min. 12,5 kN	136,00
3317561	TRB 6001	4300-6000	one-side	min. 12,5 kN	149,00
3317564	TRB 3702	2000-3700	both-sides	min. 12,5 kN	250,00
331757	TRB 4302	2800-4300	both-sides	min. 25,0 kN	270,00
331758	TRB 5102	3600-5100	both-sides	min. 25,0 kN	270,00
3317581	TRB 6002	4300-6000	both-sides	min. 25,0 kN	270,00



Drum brake shoes for drum brakes to KTU 20-55

Drum brake shoes to KTU 20-55. Each brake shoe is suitable for a certain range of drum diameter, see table below. They can easily be replaced by bigger or smaller ones. They are equipped by high performance brake linings of a long service life and can simply be changed by screwing right on the field.

For drum brakes one-side there are 2 brake shoes necessary, for brakes both-sides 4 brake shoes. Getting to the biggest drum diameter, please select the next bigger brake shoe. E.g. drum Ø 2400 mm, select brake shoe for drum Ø 2400-2800 mm.

Code	Type	Drum-D	Rad.	kg
331798	TBS 2400	2000-2400	1100	17,00
331799	TBS 2800	2400-2800	1300	17,00
331800	TBS 3200	2800-3200	1500	17,00
331804	TBS 3600	3200-3600	1700	17,00
331808	TBS 4100	3600-4100	1920	17,00
331812	TBS 4600	4100-4600	2170	17,00
331816	TBS 5100	4600-5100	2420	17,00
331818	TBS 5600	5100-5600	2675	17,00
331820	TBS 6100	5600-6100	2920	17,00

Drum pre-and emergency brake to KTU 20-55

Drum pre-and emergency brake to KTU 20-55, operated by an independent hand pump. The drum is braked from the bottom with two brake shoes on both flanges, when lowering cables in shafts etc. The brake shoes according to drum diameter have to be ordered separately.

- Drum flange brakes on both sides, min. 25,0 kN braking force on the cable.
- Hydraulic only by hand pump.

Code	Type	Drum-D	Brake	Braking	kg
3317584	TRV 3702	2000-3700	both-sides	min. 25,0 kN	213,00
331759	TRV 4302	2800-4300	both-sides	min. 25,0 kN	213,00
331760	TRV 5102	3600-5100	both-sides	min. 25,0 kN	213,00
331761	TRV 6002	4300-6000	both-sides	min. 25,0 kN	213,00

**Accessory
without
photo**



Drum drives for KTU 20-55

Drum drives for KTU 20-55, for electro-hydraulic drives of separate hydraulic power packs. Per drum flange there are 1 tandem rubber drive rollers in front and 1 behind. With this drive the drum can be driven or braked with the same force, see table below. If high braking forces are required, e.g. at cable lowering in shafts etc. the pre- and emergency brake with independent hand pump should be installed. Electric power packs for one or two flange drives have to be ordered separately.

- Drum drives, on one side or both sides, braking force at the cable min. 8,0 resp. 16,0 kN
- Accessory: hydraulic drive by electro-motor, continuous control.
- The drive is able to brake, braking forces are equal to the drum drive forces.

Code	Type	Drum-D	Drive	Below/top	m/min.	kg
331764	TAH 0802	2000-3700	one-side	16/8 kN	8/16	265,00
331765	TAH 1604	2000-3700	both-sides	32/16 kN	8/16	450,00
331766	TAH 0802	2800-4300	one-side	16/8 kN	8/16	260,00
331768	TAH 1604	2800-4300	both-sides	32/16 kN	8/16	530,00
331770	TAH 0802	3600-5100	one-side	16/8 kN	8/16	260,00
331772	TAH 1604	3600-5100	both-sides	32/16 kN	8/16	535,00
331773	TAH 0802	4300-6000	one-side	16/8 kN	8/16	260,00
3317732	TAH 1604	4300-6000	both-sides	32/16 kN	8/16	530,00



Hand pump hydraulic for drum brakes

Hand pump hydraulic for drum brakes for KTU 20-55. The drum can be braked on one or on both flanges.

Code	Type	Drive	Brake	Below/top	kg
331776	THH 4501	Hand pump	one-side	16/8 kN	29,00
331778	THH 4502	Hand pump	both-sides	32/16 kN	29,00



Electro-hydraulic for drum brakes

Electro-hydraulic for drum brakes for KTU 20-55. The drum can be braked on one or on both flanges.

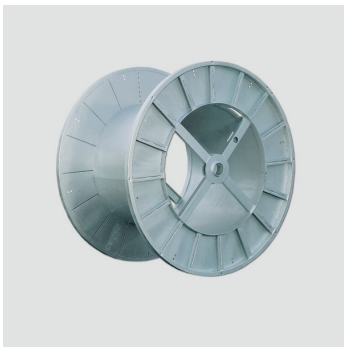
Code	Type	Drive	Brake	Below/top	E-Motor	kg
331782	TEH 4501	El.-hydraulic	one-side	16/8 kN	5,5 kW	65,00
331784	TEH 4502	El.-hydraulic	both-sides	32/16 kN	11,0 kW	62,00



Electro-hydraulic for drum drives

Electro-hydraulic for drum drives for KTU 20-55. The drum can be driven on one or on both flanges.

Code	Type	Drive	Drive	Below/top	E-Motor	kg
331786	TTH 0802	El.-hydraulic	one-side	16/8 kN	5,5 kW	137,00
331788	TTH 1604	El.-hydraulic	both-sides	32/16 kN	11,0 kW	137,00



Cable steel drums

Cable steel drums, robust steel profile construction, with even parallel flanges inside, galvanized. All welded construction not dismountable.

- Drums are in main dimensions acc. to DIN 46391-1.
- All other dimension are available.
- Drums to D 4500, also in furnished construction are available.

Code	Type	d1/d2	d4	L1/L2	dm ³	Cap.	kg
376100	TPC 100	1000/500	80+2	736/630	280	1000 kg	105,00
376120	TPC 120	1200/630	80+2	736/630	460	1500 kg	130,00
376140	TPC 140	1400/710	80+2	8,60/750	700	2000 kg	175,00
376160	TPC 160	1600/800	80+2	1006/900	1060	2500 kg	225,00
376180	TPC 180	1800/1120	80+2	1226/1120	1500	3500 kg	280,00
376200	TPC 200	2000/1250	125+2	1246/1120	1800	4000 kg	445,00
376220	TPC 224	2240/1400	125+2	1366/1220	2510	6000 kg	550,00
376250	TPC 250	2500/1600	125+2	1366/1220	3880	10000 kg	670,00
376280	TPC 280	2800/1800	125+2	1540/1380	4500	12000 kg	825,00



Cable steel drums

Cable steel drums, with 3 chambers, robust steel profile construction, with even parallel flanges inside, galvanized. All welded construction, not dismountable.

- 3-chamber drums for cable to 220 kV, with or without helix form.
- Special fixing points for potheads in any position possible.

Code	Type	d1/d2	d4	L1/L2	dm ³	kg
37628046	TPC 280/3	2800/1250	125+2	1540/430/430/430	4335	1.140,00
37630045	TPC 300/3	3000/1900	140+2	1540/430/430/430	4863	1.290,00
37632050	TPC 320/3	3200/1800	140+2	1560/430/430/430	6600	1.700,00



Cable steel drums helix form

Cable steel drums, with 3 chambers, with helix forms. Robust steel profile construction, with accessory for fixing the potheads. All welded construction, not dismountable, galvanized. Below mentioned dimensions are indications. Production according individual technical details.

- 3-chamber drums for cable to 220 kV, with helix forms.
- Special fixing points for potheads in any position possible.

Code	Type	d1/d2	d4	L1/L2	dm ³	kg
37628050	TPC 280/3	2800/1600	140+2	1540/440/440/440	4335	1.600,00
37632010	TPC 320/3	3200/1800	140+2	1540/440/440/440	6600	2.250,00

Cable drum transport devices

342





Cable drum transport devices

Cable drum trailers 1.0 - 2.7 t with accessory

Cable drum trailers hydr. loading 4.5-6.0 t, 80 km/h

Cable drum trailers hydr. loading 5.8-7.3 t, 25 km/h

Accessory for cable drum trailers hydraulic loading



Cable trailer straight or adjustable drawbar

Cable drum trailer with straight or height adjustable draw bar and overrun brake for speeds up to 80 km/h. For loading the support arms are swung down and then raised picking up the drum by a single hand winch. Rigid tubular steel shaft D 76 mm. Rotating alu-shaft D 75 mm as accessory. Further accessory see below.

Payload without accessories. If accessories are mounted like hydr. drum drives etc. the payload reduces according to their weights.

- Types G - with straight draw bar can only be equipped with ball coupling
- Types H - with adjustable draw bar equipped with eye coupling, ball coupling as accessory
- Suitable for one-man operation
- Complete trailer hot galvanized
- Rotating alu shafts as accessory, see below.
- Drum band brake as accessory, see below.

Code	Type	Payl.	Total	Drum-D	Hitch	Int./Ext.	kg
342088	KVS 1000/80G	980 kg	1300 kg	600-1650	75 kg	1300/2140	320,00
342131	KVS 1500/80G	1500 kg	2100 kg	600-2400	100 kg	1580/2450	590,00
342146	KVS 2000/80G	2000 kg	2600 kg	600-2400	100 kg	1580/2450	600,00
342093	KVS 1000/80H	930 kg	1300 kg	600-1650	75 kg	1300/2140	370,00
342136	KVS 1500/80H	1500 kg	2200 kg	600-2400	120 kg	1580/2450	670,00
342151	KVS 2000/80H	2000 kg	2700 kg	600-2400	120 kg	1580/2450	700,00

Rotating drum shafts

Surcharge for rotating drum shafts. All a.m. trailers are fitted with rigid tubular steel drum shafts. With rotating shafts cable drums unwind much easier, they are necessary if the trailer is equipped with a drum drive or a drum disc brake.

Code	Type	Suitable for	D/length	SWL	kg
350787	APR 750	KVS 1000G+H	75/1450	to 5 t	19,80
350788	APR 752	KVS 1500-2000G+H	75/1730	to 5 t	20,30

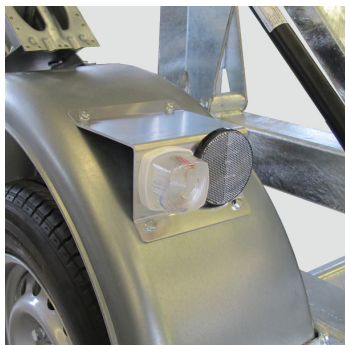


Rear protection gate

Rear protection gate, for Cable trailers KVS 1000-2000 G+H, hot galvanized.

The need of a rear protection is subject to national regulations. Independent of this, the rear protection offers a higher safety in the road traffic.

Code	Type	Suitable for	Trailer ext. width	kg
349820	KUF 100	KVS 1000G+H	2140	16,00
349826	KUF 200	KVS 1500-2000G+H	2450	30,00



Position lights

Position lights 12 volt, in front of the trailers KVS 1000-2000 G + H, according to the law of some countries

Code	Type	Suitable for	kg
349550	KPL 12	KVS 1000-2000G+H	3,00



Ball coupling

Ball coupling with screws, changeable against height adjustable drawbar eye coupling for trailers with overrun brake.

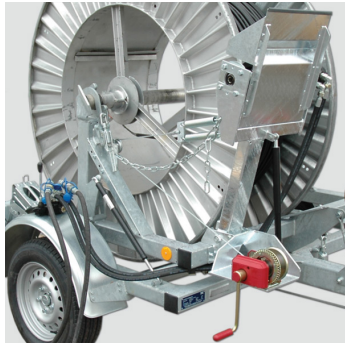
Code	Type	Suitable for	Tot. weight	kg
349190	PK 25	KVS 1000-2000H	3200 kg	2,90



Cable drum band brake

Cable drum band brake for KVS 1000-2000/80 without shaft, to screw on rotating alu shaft. This band brake avoids uncontrolled unwinding of the cable drum. Mostly used for unwinding overhead lines.

Code	Type	Suitable for	Braking at cable	kg
350842	BTB 202	KVS 1000-2000G+H	approx. 2,0 kN	10,00



Drum drive one side

Drum drive one side for cable trailers KVS 1000-2000/80, but not suitable for all types, see table below. Hydraulic or pneumatic, without hoses and power packs.

Code	Type	Suitable for	Drive	Pull	m/min.	kg
351210	TZ 200	KVS 1000G+H	hydraul.	1,5 kN	0-120	69,00
351220	TZ 203	KVS 1500-2000/80H	hydraul.	1,5 kN	0-120	69,00



Hydraulic power pack mobile

Hydraulic power pack for cable drum drive, with petrol- or Diesel engine equipped with rapid hose couplings.

- The hydraulic power pack must not be mounted on drawing bar of the trailer, the hitch load would be too high.
- For control of the winding speed please order below mentioned hydraulic hose combination

Code	Type	Suitable for	Hydr. pack	Press.	L/W/H mm	kg
351330	THF 203B	drum drives	petrol 9,6 kW	160 bar	854/457/507	74,00
351332	THF 203D	drum drives	diesel 6,8 kW	160 bar	854/457/507	95,00



Hydraulic hose set

Hydraulic hose set 7 m, with volume governor for hydraulic power packs.

Code	Type	Length	Flow governor	kg
425381	SL 7	7 m	to 30 l/min	13,20



Cable trailer adjustable drawbar

Cable drum trailer with height adjustable draw bar with eye coupling and overrun brake. Tandem axle for speeds up to 80 km/h. Drums are lifted for transport by two swung arms hydraulic operated by motorized hydraulic included drum drive as an accessory. Rigid tubular steel shaft D 76 mm. Rotating as accessory. Further accessory see below.

Payload without accessories. If accessories are mounted like hydr. drum drives etc. the payload reduces according to their weights.

- Very robust welded construction, complete hot galvanized.
- Through tandem axle even distribution of the total weight on each wheel.
- Drum lifting arms operated by double action hydraulic jacks.

Code	Type	Payl.	Total	Drum-D	Hitch	Int./Ext.	kg
342310	KVT 2,7/80A	2700 kg	3500 kg	1000-2800	150 kg	1720/2540	920,00



Suspension for subduct drums

Suspension for subduct drums. Incl. drum shafts, distance bushes and clamps.

Attention: please see mobile drum unwinding stand code 344.100 TRG 8120

Code	Type	Drum	Drum-D	kg/drum	kg
342317	ZGH 7/120	to 7 pcs.	1200, width 380	appr. 100 kg	154,92



Rear protection gate

Rear protection gate, for Cable trailers KVT 2.6/80 A, plug-in device

The need of a rear protection is subject to national regulations. Independent of this, the rear protection offers a higher safety in the road traffic.

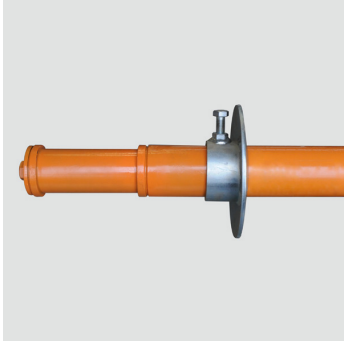
Code	Type	Suitable for	Trailer ext. width	kg
349838	KUF 270	KVT 2.7/80	2540	40,00



Ball coupling

Ball coupling with screws, changeable against height adjustable drawbar eye coupling for trailers with overrun brake.

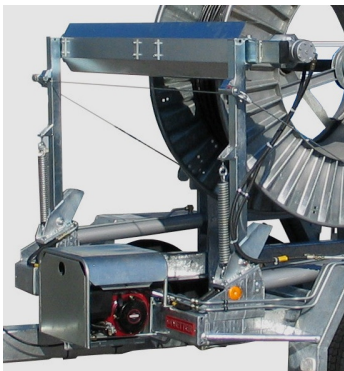
Code	Type	Suitable for	Tot. weight	kg
349110	PK 35	KVT 2,7/80A	3500 kg	2,50



Rotating drum shafts

Surcharge for rotating drum shafts. All a.m. trailers are fitted with rigid tubular steel drum shafts. With rotating shafts cable drums unwind much easier, they are necessary if the trailer is equipped with a drum drive or a drum disc brake.

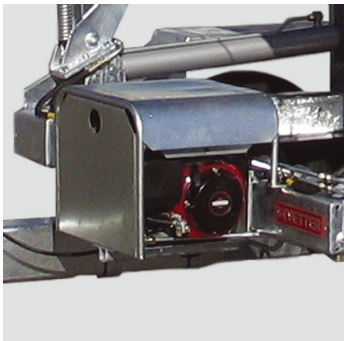
Code	Type	Suitable for	D/length	kg
350785	APR 350	KVT 2,7/80	70/2005	44,00



Drum and jack drive

Cable drum drive both sides, with drive of the hydraulic jacks, with petrol-engine on the trailer for cable trailer KVT 2,7/80. Type TH 400 is only for motor-hydraulic loading and unloading of the drum.

Code	Type	Drive	Engine	Pull	m/min.	kg
351560	TVB 400	hydraulic	Petrol 4 kW	3 kN	0-36	215,00
351570	TH 400	hydraulic	Petrol 4 kW	only for drum jacks	---	30,00



Protection for petrol engine

Protection of metal sheet for petrol engine of cable drum drives, folding and lockable, without padlock.

Code	Type	Suitable for	kg
351598	BVB 400	TVB 400 petrol engine	10,00



Cable trailer hydraulic loading, 80 km/h

Cable trailer hydraulic loading for lorry transport up to 80 km/h. Drums are vertically lifted for transport by two hydraulic jacks operated by central hand pump or by motorized hydraulic which can also drive the drum, as an accessory. If smaller drums than mentioned below have to be transported or winded, please select as accessory one of the below shown small drum suspension KVZ 180 or drum support TAV 080. Further accessory see below.

*Payload without accessory. By mounting accessories like hydraulic drum drives, drum disc brake etc. the payload will be reduced according on the weights of the accessories.

- With air brake systems EBS incl. ABS for speed up to 80 km/h.
- Through stub axles the trailers are open to the rear for receiving the cable drum.
- Big ground clearance through long lifting hydraulic jacks.
- The trailers are equipped with rear and side protections according to EC Directive 2007/46/EG

- Standard painting RAL 2011 with parts partial hot galvanized. Special painting as accessory possible.

Code	Type	*Payload	Total	Drum-D	Hitch	Int./Ext.	kg
343450	KVH 4,5/80	4500 kg	6000 kg	1800-3200	700 kg	1700/2550	1.450,00
343600	KVH 6,0/80	6000 kg	7500 kg	1800-3200	700 kg	1700/2550	1.450,00

Cable trailer hydraulic loading, 25 km/h

Cable trailer hydraulic loading for lorry transport up to 25 km/h. Drums are vertically lifted for transport by two hydraulic jacks operated by central hand pump or by motorized hydraulic which can also drive the drum, as an accessory. If smaller drums than mentioned below have to be transported or winded, please select as accessory one of the below shown small drum suspension KVZ 180 or drum support TAV 080. Further accessory see below.

*Payload without accessory. By mounting accessories like hydraulic drum drives, drum disc brake etc. the payload will be reduced according on the weights of the accessories.

- With air brake systems EBS incl. ABS for speed up to 80 km/h.
- Through stub axles the trailers are open to the rear for receiving the cable drum.
- Big ground clearance through long lifting hydraulic jacks.
- The trailers are equipped with rear and side protections according to EC Directive 2007/46/EG
- Standard painting RAL 2011 with parts partial hot galvanized. Special painting as accessory possible.

Code	Type	*Payload	Total	Drum-D	Hitch	Int./Ext.	kg
343580	KVH 5,8/25	5800 kg	7300 kg	1800-3200	700 kg	1700/2550	1.450,00
343730	KVH 7,3/25	7300 kg	8800 kg	1800-3200	700 kg	1700/2550	1.450,00

Small drum suspension

Small drum suspension for drums below D 1800-800 mm for all KVH-types, but not for driving these drums by hydraulic drum drives.

For hydraulic drive of such small drums of diam. 800-1800 mm, see next table, drum support 346600 TAV 100, can also be retrofitted.

Code	Type	Suitable for	Drum-D	Ext. width	Shaft-D	kg
350942	KVZ 180	KVH 4,5-7,3	800-1800	2550	76 mm	68,00

Drum support for small drums

Additional support in front of all trailers KVH for winding and unwinding small drums D 800-1800 of maximum 2t. Winding by the hydraulic drum drives of the trailers. One set exists of one right-hand and one left-hand support. For loading these drums a lifting equipment is necessary.

Non additional drum shaft is necessary, the standard shaft of the trailer can be used.

Code	Type	Suitable for	Drum-D	Max.	kg
346600	TAV 100	KVH 4,5-7,3	800-1800	2 t	19,00



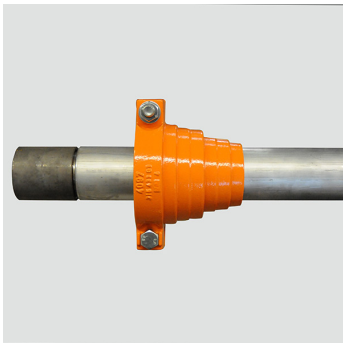


Rotating steel drum shafts

Surcharge for rotating drum shafts of steel tubes. With rotating shafts cable drums unwind much easier. We recommend also the use of the cones to unroll the cable drum true. With this steel drum shaft the drum disc brake can be used.

- If no drum disc brake is necessary the use of below mentioned light alu drum shaft is recommended.

Code	Type	Suitable for	D/length	kg
350480	TSK 7620	KVH 4,5-7.3	76/20/1888	51,80



Rotating alu drum shafts

Surcharge for rotating drum shafts of aluminium. With rotating shafts cable drums unwind much easier. We recommend also the use of the cones to unroll the cable drum true. With this aluminium drum shaft the drum disc brake can not be used.

Code	Type	Suitable for	D/length	kg
350690	TAS 7519	KVH 4,5-7.3	75/1888	29,00



Hydraulic drum drives

Cable drum drive both sides, forwards and reverse, with engine on the trailer for all cable trailers KVH 4.5-7.3.

Hydraulically pressing of the driving wheels on the drum flange, lifting and lowering of the drum. Remote control equipped with 6 m cable. (Radio control as option see below code 351608 TOF 600)

- Hydraulic drive by hydraulic engines with electric starter on the trailer.
- Pulling force on cable depending on drum diameter to approx. 5,0 kN.
- Winding and unwinding speed depending on the drum diameter approx. 0-50 m/min.

Code	Type	Drive of	Engine kW	kg
351600	TBH 600	Drum and jack lift	Petrol 9.6	260,00
351602	TDH 600	Drum and jack lift	Diesel 6.8	280,00



Radio control for drum drives

Radio control for drum drive and drum lifting for all cable trailers KVH 4.5-7.3 for all operations drum lifting and lowering, pressing the drive rollers to the drum, winding and unwinding the cable with control of the speed.

Code	Type	Functions	kg
351608	TOF 600	See above	20,00



Drum drives for external hydraulic

Cable drum drive, forwards and reverse, for external hydraulic connection of the towing vehicle. For all cable trailers KVH 4.5-7.3.

Hydraulically pressing of the driving wheels on the drum flange, lifting and lowering of the drum. Remote control equipped with 6 m cable. (Radio control as option see below code 351608 TOF 600)

- Hydraulic drive supplied by the towing vehicle or other external hydraulics.
- Pulling force on cable depending on drum diameter to approx. 5,0 kN.
- Winding and unwinding speed depending on the drum diameter approx. 0-50 m/min.

Code	Type	Drive of	Hydraulic drive	kg
351605	TFH 600	Drum and jack lift	External hydraulic	225,00



Cable drum disc brake

Cable drum disc brake with drum fork for controlled unwinding of cable or line drums. Hand mechanical setting of the braking force. To use it with KVH-types cones code 315430, ZKO 76 are necessary.

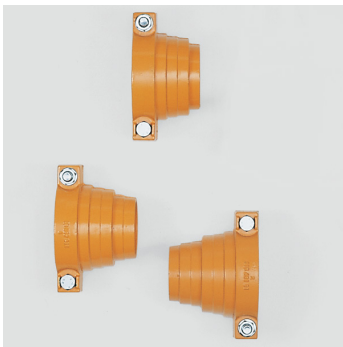
Code	Type	Operation	Braking	At the cable	kg
350860	STB 400	Mechanical	3200 Nm	approx. 4,0 kN	46,00



Clamps for drum shafts

Clamps, new construction reinforced, hinged, for drum shafts for lateral fixing of the cable drum on drum shafts of steel or alu. Hinged version, steel galvanized. Width 61 mm.

Code	Type	For shaft	Width	kg
315045	KSV 76	D 75-76	61	1,50



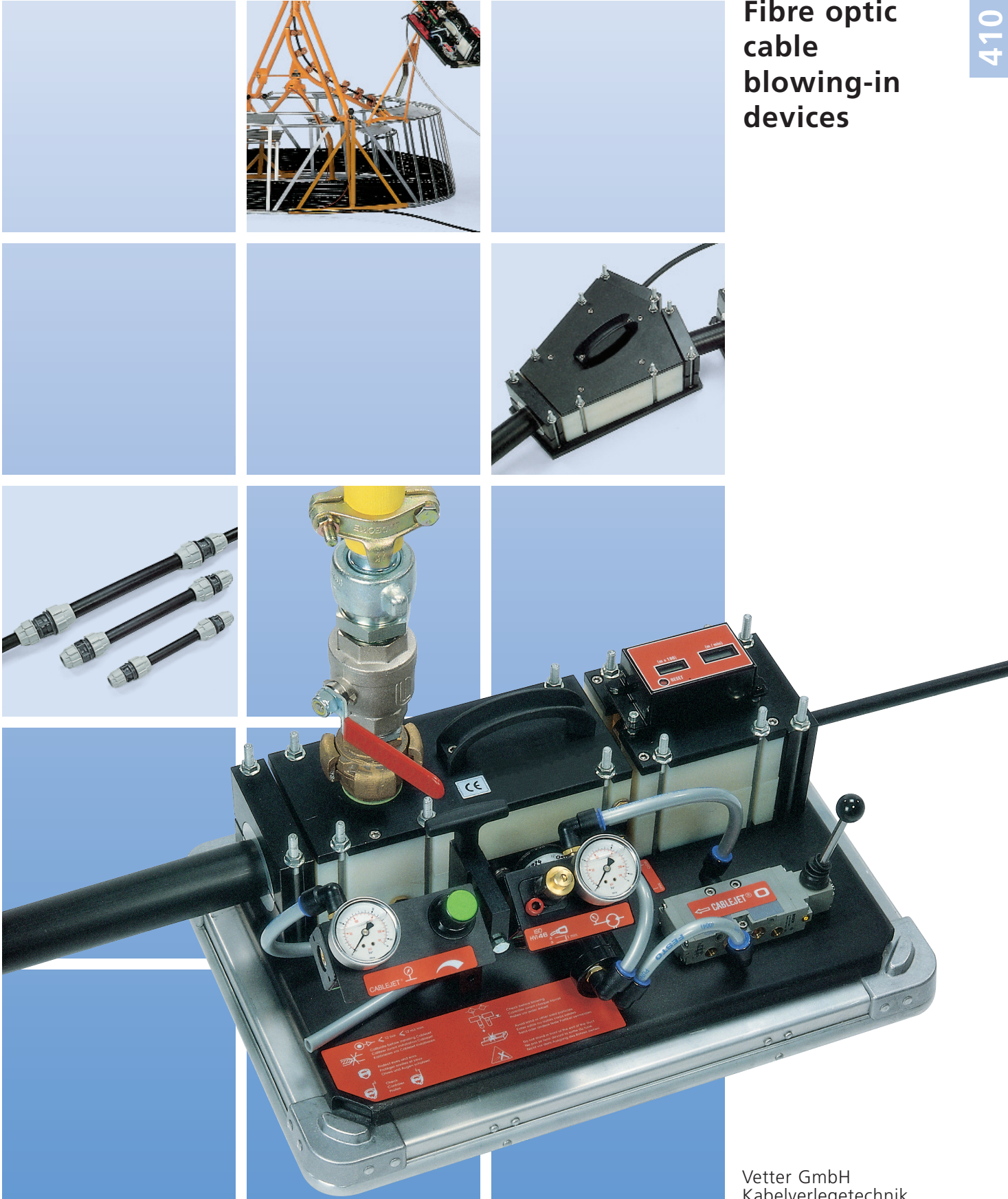
Locating cones for drum shafts

Locating cone for drum shafts made of cast steel including clamp. With several steps for drum bores according to DIN.

Code	Type	For shaft	Steps-D	kg
315430	ZKO 76	D 75-76	140/130/125/105/100/90	5,50

Fibre optic cable blowing-in devices

410





CableJet blowing units for cable D 9-19 mm

SuperJet blowing units for cable D 14-32 mm

Sonic heads for blowing-in thin and soft fibre optic cables

Duct cleaning and lubricating sponge

Cable crash test tube for limiting the pushing force

Metallic hinged duct coupler for coupling two cable ducts

FigarO - the cable basket replaces laying figure of 8

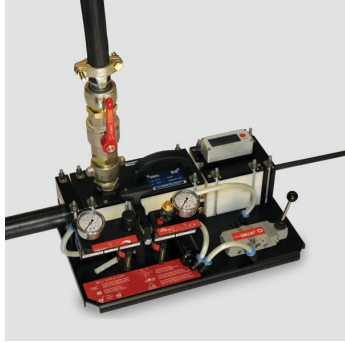
Compressor for blowing-in conventional fibre optic cables

Conduit cutters and burring tools for ducts up to D 70 mm

Cable conduit saw for duct-Ø 31-150 mm

Cable lubricant for blowing-in fibre optic cables

Duct calibration and leakage test units



CableJet for FOC D 9-19 mm

CableJet for tension-free blowing-in of fibre optic cables D 9-19 mm. Worldwide thousand fold proven blowing machine. Basic machine without cable and duct inserts. See accessory below.

- Average lengths are 2000 m and more.
- Pneumatic cable drive, easy to control.
- Electronic digital length- and speed measuring device
- For ducts to D 50, compressors of a pressure of 12 bar at 10 m³/min. is necessary.
- For ducts to D 63, compressors of a pressure of 12 bar at 14 m³/min. is necessary.

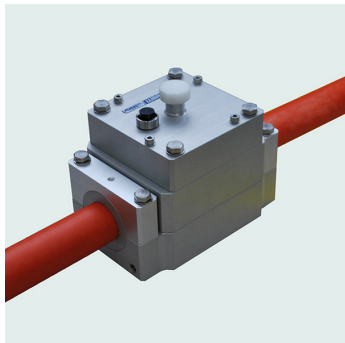
Code	Type	C-D	For D-OD	Air	kg
410100	CJS 19	9-19	28-63	10 m ³ /12 bar	47,00



Driving shafts for cable D 6-9 mm

Driving shafts for smaller cables D 6-9 mm, suitable to CableJet.

Code	Type	C-D	kg
41015005	AWS 6-9	6-9	1,40



Lubricator automatic device

Lubricator L 18 for automatic continuous greasing of the cable blown by CableJet or SuperJet. This lubricator L 18 is especially recommended when blowing bigger cables in ducts

- The Lubricator L 18 guarantees an uniform lubrication on the whole length duct length.
- With the Lubricator L 18 the blowing cable lengths can be increased of approx. 20-40 %.
- This bigger Lubricator L 18 is only for use with CableJet and SuperJet machines.

Code	Type	Suitable to	K-D	Ro-AD	kg
423505	L 18	CableJet+SuperJet	9-18	20-50	10,00



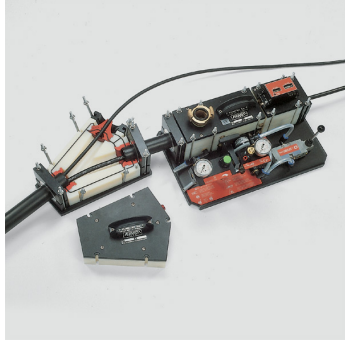
Accessory for FOC-floating

Accessory for FOC-floating with water for CableJet and SuperJet.

- The CableJet and SuperJet are also able to float-in very long lengths of cables with water.
- Cable lengths of 10 km were floated very successfully.
- The procedure is very simple and big length will certainly be achieved.
- Please ask for our special systems documents.

Code	Type	Suitable to	C-D	D-OD	Press.	kg
275210	REC 15/1W	Cablejet	9-19	28-63	4-8 bar	4,80

275213	RES 15/1W	SuperJet	14-32	28-63	4-8 bar	3,45
275216	GMT 600	SuperJet	Lubricant funnel	for all	for all	1,00



Y-duct connector

Y-duct connector for blowing-in a second or third cable in occupied ducts. Please select for this the corresponding cable and duct inserts. See table below of CableJet or SuperJet.

- Allows to blow-in second or third cable in the same duct.
- Also necessary for blowing of additional subducts in occupied ducts.

Code	Type	Duct inserts	Cable inserts	kg
410220	YK 5050	2x for D-OD 50 incl.	for 2 cables order separately	16,00
41024510	KEY 18	-	for 3rd cable order separately	0,46



SuperJet for FOC D 12-34 mm

SuperJet for tension-free blowing-in of bigger fibre optic cables and bundles of sub ducts D 7-14 mm each. A very long belt drive of 330 mm secures a correct guide of cables and sub ducts. With digital length and speed meter. Including hydraulic power pack with petrol engine and control instruments. Worldwide thousand fold proven blowing machine. For successful blowing-in of big length, in ducts of D 50 mm a compressor of 12 bar and 10 m³/min. is necessary. Basic machine without belts, cable and duct inserts. See accessory below. Basic equipment consist of the following details:

- Petrol-hydraulic pack with hoses
- Length- and speed meter
- Ball valve 1 1/2" with screw couplings.
- Air pressure hose 1 1/2", length 10 m.
- Compressor of min. 10 m³/12 bar for duct dia. 50x4,6

Code	Type	C-D	Subducts	Chain band	Duct-D	kg
410314	SJH 34	14-32	D 7-14	L 330	28-63	125,00

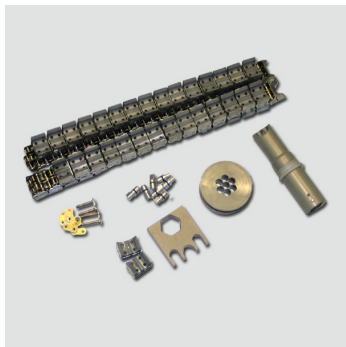




Creeper chain for cables

Creeper chain with rubber cams for blowing-in cables of D 14-32 mm with the SuperJet. Two are required.

Code	Type	Suitable for	C-D	Required	kg
042500209	PRO 0820	SuperJet	14-32	2	1,60
0425002095	PRS 0821	SuperJet	Chain joint	2	0,02



Driving chains for sub ducts

Driving chains of aluminium for blowing-in subducts with the SuperJet, combination see table below.

Code	Type	D-OD	Subducts	In D-OD	kg
42107007	KET 7/007	7	7	50 or 40	4,70
42107010	KET 7/010	7	10	50 or 40	4,70
42111005	KET 10/345	10	3/4/5	50 or 40	4,85
42111007	KET 10/007	10	7	50	4,70
42111205	KET 12/345	12	3/4/5	50 or 40	10,20
42111207	KET 12/007	12	7	63	4,70
42111403	KET 14/023	14	2/3	50	5,20
42111404	KET 14/004	14	4	50	11,00
42111633	KET 16/003	16	3	50	11,00



Flat rubber chain

Flat rubber chain single incl. chain joint. This chain is mounted on the bottom to complete the existing chain of 5x7 / 5x10 and 5x12 for further subducts of 2x7 / 3x7 / 2x10 and 2x12 mm.

Code	Type	D-OD	Subducts	In D-OD	kg
042113931	flat chain	see text	see text	50 or 40	1,00



Cable inserts

Cable inserts suitable to CableJet and SuperJet. Also necessary for the Y-piece to blow-in a second or third cable in one duct. One set of cable sealing for the hole range of cable diameters is included.

Code	Type	C-D	kg
41015009	KEJ 9	6,0- 9,0	0,46
41015011	KEJ 11	9,0-11,0	0,43
41015012	KEJ 12	11,0-12,3	0,44
41015014	KEJ 14	12,3-14,0	0,44
41015015	KEJ 15	14,0-15,5	0,44
41015018	KEJ 18	15,5-18,0	0,45
41015022	KEJ 22	17,5-22,0	0,41
41015024	KEJ 24	22,0-23,5	0,45
41015028	KEJ 28	23,5-28,0	0,41
41015032	KEJ 32	28,0-32,0	0,41



Cable sealing

Cable sealing for CableJet and SuperJet. These are also useable in the Y-piece for blowing-in of further cables in the same duct.

Code	Type	C-D	To insert	Set of	kg
415107	KDR 07	6,0-6,7	KEJ 9	20 half seals	0,01
415108	KDR 08	6,7-8,5	KEJ 9	10 cpl. seals	0,01
415109	KDR 09	8,5-9,0	KEJ 9	20 half seals	0,01
415110	KDR 10	9,0-10,3	KEJ 11	20 half seals	0,01
415111	KDR 11	10,3-11,0	KEJ 11	20 half seals	0,01
415120	KDR 12	11,0-12,5	KEJ 12	20 half seals	0,01
415140	KDR 14	12,3-14,0	KEJ 14	20 half seals	0,01
415150	KDR 15	14,0-15,5	KEJ 15	20 half seals	0,02
415180	KDR 18/16	15,5-16,8	KEJ 18	20 half seals	0,02
41518017	KDR 18/17	16,8-17,5	KEJ 18	20 half seals	0,02
41518018	KDR 18/18	17,5-18,0	KEJ 18	20 half seals	0,02
415200	KDR 20/18	17,5-18,3	KEJ 22	20 half seals	0,04
41520020	KDR 20/20	18,3-20,4	KEJ 22	20 half seals	0,04
41522022	KDR 22/22	20,4-22,0	KEJ 22	20 half seals	0,04
415230	KDR 24	22,0-23,5	KEJ 24	20 half seals	0,03
415280	KDR 25	23,5-25,0	KEJ 28	20 half seals	0,05
41528026	KDR 28/26	25,0-26,4	KEJ 28	20 half seals	0,12
41528028	KDR 28	26,4-28,0	KEJ 28	20 half seals	0,05
41535030	KDR 32/30	28,0-30,0	KEJ 32	20 half seals	0,12
41535033	KDR 32/32	30,0-32,0	KEJ 32	20 half seals	0,12



Duct inserts

Duct inserts suitable to CableJet, SuperJet. Also necessary for the Y-piece to blow-in a second or third cable in one duct.

Code	Type	D-OD	kg
41018032	REJ 32	32	1,40
41018040	REJ 40	40	1,40
41018050	REJ 50	50	1,40
41018063	REJ 63	63	1,40



Cable guiding heads

Cable guiding heads for screwing on the cables for low-friction sliding during cable-blowing. One set of 6 different cable diameters from 8,5 to 20 mm.

Code	Type	For C-D	Head OD	Set of	kg
410270	KFM 82	8,5-20	15-22	6	0,11



Sonic heads

Sonic heads for successful blowing-in of thin and soft fibre optic cables with the CableJet or the SuperJet for achieving of bigger lengths.

- The sonic head opens and allows to pass 90 % of the cable supporting Jet-stream.
- The pulling force exerting on the cable head is therefore only of some kg.
- This pull as pre-tension is enough to carry soft cable straight on through the duct.

Code	Type	D-OD	D-ID	kg
410600	SKO 40	32+41	26-32	0,48
410620	SKO 50	40+50	32-41	0,59
410640	SKO 63	63	40-51	0,88



Duct cleaning sponge

Sponge for duct cleaning and pre-lubricating prior to cable blowing

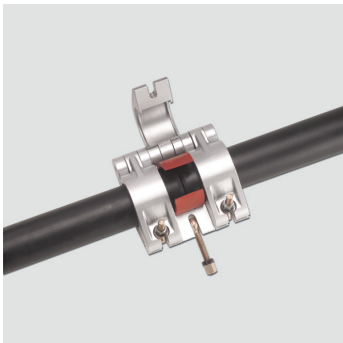
Code	Type	D-OD	D-ID	Cellular	kg
275408	RSM 32	32	28	D 45x90	0,01
275410	RSM 40	40	35	D 55x90	0,01
275412	RSM 50	50	40	D 65x90	0,01
275414	RSM 63	63	51	D 78x90	0,02



Cable crash test tube

Cable crash test tube transparent with sealing end. For limiting the pushing force of the blowing-in machines. Tests without compressed air. For determination of the cable stiffness up to the crash. Safe packed in reusable plastic duct.

Code	Type	D-OD	D-ID	For C-D	Length	kg
275312	CTR 32/27	32	28	to 15,0	1,65 m	0,80
275315	CTR 40/34	40	34	to 16,0	1,65 m	1,10
275318	CTR 50/42	50	42	to 20,0	1,65 m	1,30
275321	CTR 63/54	63	54	to 25,0	1,65 m	1,70



Duct coupler

Metallic duct coupler of aluminium, hinged, for coupling two cable ducts for blowing through cables. Up to air pressures 12 bars.

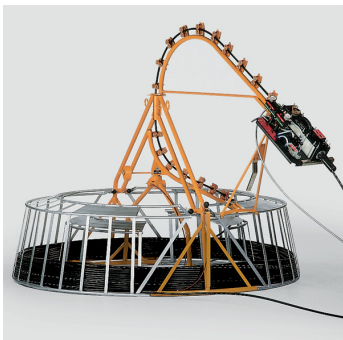
Code	Type	D-OD	kg
275200	RK 4040	40	1,35
275203	RK 5050	50	1,10
275206	SW 11	Socketed spinner wrench	0,18



Cable duct connecting nipple

Cable duct connecting nipple for ducts, which are cut plain with the manhole wall. This connecting nipple with right- and left-hand thread enables a through-connection to blow-through cables. Afterwards the nipple can be opened lengthwise and be separated. Included are: 1 sickle spanner, 1 allen key and 2 pipe clamps.

Code	Type	Nipple	D-OD	Length	kg
410260	VB 5050	ID 33	50	220	1,60
410255	VB 4040	ID 25	40	220	0,90



FigarO the cable basket

FigarO. The FOC basket is used is the cable is to long to be blown completely with only one blowing machine. If half of the cable is installed in one direction the remaining cable is pushed into the FigarO with the blowing machine. Out of the FigarO this part of the cable can be blown uncut in the opposite direction to finish the installation.

- To handle the FigarO see suitable trailer below.
- Cable Cap.: 4200 m D 8 / 2700 m D 12 / 2000 m D 14 / 1200 D 18
- The FigarO replaces laying figure of 8 on the ground, is clean and space saving.
- The FigarO is always placed besides the cable drum.

Code	Type	Basket-D	kg
411210	SLK 225	2250	159,00



Trailer for Figaro

Trailer for the Figaro. After folding down both Figaro halves the cable can be pushed directly into the Figaro on an agreeable and safe height. Under the same condition the cable can afterwards also be blown into the duct. Trailer with alu platform, all side walls can be folded down. Height adjustable drawbar with ball coupling and parking brake.

- On this trailer the Figaro can be replaced from pit to pit.
- The cables stays away from mud on a good working height.

Code	Type	Platform size	Total	Hitch	kg
275800	FAN 440	2300x1520x400	750 kg	75 kg	320,00



Compressor diesel engine

High powered compressors for blowing-in bigger fibre optic cables. Suitable for CableJet and SuperJet and for duct ID up to 41 mm. Mounted on single axle trailer with height adjustable overrun drawbar. Incl. Diesel-Oxidation filter and particle filter. Emission standard IV and US-standard EPA Tier 4.

- Deutz Diesel-engine, 105 kW. Compressor dimension: 5180x2130x1790
- Flow rate 9,7 m³ at 14 bar, 10,70 m³, at 12 bar, 11,5 m³ at 7,0 bar working pressure
- With integrated after cooler and water separator.
- Diesel-Oxidation filter and particle filter. Emission standard IV and US-standard EPA Tier 4.
- Air discharge valves: 1 x G 1 1/2" and 3 x G 3/4"

Code	Type	Air	Press.	D-ID	C-D	kg
960125	M 125	9,7-11,5 m ³ /min.	14-7 bar, s. above	to 41	to 30	2.088,00



Pressure release valve

Pressure release valve with sound absorber for compressors. Max. pressure 15 bar.

Code	Type	Press.	For compressor	kg
09601003	EVK 34	15 bar	MK 17 / M 31	1,30
275220 8	EVK 15	15 bar	M 125	2,70



Compressed air hose

Air hose, special flat, for blowing-in fibre optic cables and subducts. Complete with screw fittings.

Code	Type	Size	Working	Bursting	Length	kg
410420	KFS 15/1,5"	1 1/2"	20 bar	60 bar	15 m	9,12
231660	KFS 15/1"	1"	15 bar	45 bar	15 m	4,70
23165910	KFS 10/1"	1"	15 bar	45 bar	10 m	3,50



Conduit cutters

Conduit cutters for plain cuts.

Code	Type	D-OD	Length	kg
273171	MRS 43	to 42	215	0,45
273172	MRS 50	to 50	265	0,60
273173	MRS 63	to 63	285	0,70
273174	MRS 75	to 75	485	1,60



Burring tools

Burring tools for in- and outside of plastic conduits.

Paring knife MSM 40, for separating multiple conduits.

Code	Type	D-OD	Burring	Mat.	kg
273190	MRE 63	28-63	only extern	Poly.	0,20
273180	MRE 50	28-50	ext. /intern	Alu	0,43
273200	MSM 40	Paring knife	---	Steel	0,50



Conduit and cable slitter

Conduit slitter for lengthwise and circumferential slitting of plastic conduits and cable covers. Complete reinforced steel version. In case 195x75x45 mm.

Code	Type	To wall thickn.	---	kg
255905	KMS 6	6	195x75x45	0,35
255910	ERM 6	Spare knife	---	0,03



Cable conduit saw

This cable conduit saw SRS 6.1 is a further development of the proven SRS 6. The saw is suitable for cutting occupied and unoccupied cable conduits without damaging internal cables or subducts. The saw is suitable for conduits at an outer diameter of 32-150 mm and at a max. wall thickness up to 6 mm. The saw can precisely cut lengthwise and crosswise and can also precisely cut windows into the cable conduit. Especially for long cuts on the cable conduits which are necessary for cable line redirections the great benefits of this saw pay off. The cutting depth can be precisely adjusted to a 1/10 of a millimetre by an adjustment mechanism thus the cables inside the cable conduit are well-protected. The cutting depth has always to be set 0,2 mm less than the conduits wall thickness. The remaining very thin plastic membrane will be removed by a lifter tool thus the cable is also protected during this final step.

The conduit guiding plates allow a high safety at work as well as accurate cuts. The guiding plates are available for the below mentioned conduit-diameters. The cordless saw is handy and small in order to be fit for application also in narrow working conditions its weight is below 2 kg. Included in delivery are the following parts:

- Accu-saw with high-quality blade hard metal equipped and 3 accus with 1 charger
- Precise pre-adjustment of the cutting depth, 1/10 mm accurate sliding calliper.
- Lifter for the window-cutting rest
- Packed and delivered in robust box, 445x355x255, weight app. 6,5 kg
- Only approx. 1,9 kg of weight for comfortable application

Code	Type	Device	For D-OD	kg
273212	SRS 6.1	Saw as above	32-150	6,50
273228	RFP 32	Guide plate	32	0,35
273230	RFP 40	Guide plate	40	0,32
273232	RFP 50	Guide plate	50	0,26
273234	RFP 63	Guide plate	63	0,26
273237	RFP 64+	Guide plate	64-150	0,20
273222	ESB 6	Spare blade	---	0,03

Lubricant for FOC

Jettinglube lubricant for blowing-in fibre optic cables. Excellent lubricating effect. Adheres to the duct wall and leaves the cable nearly dry, an advantage for over blowing and working in cascades with further blowing machines. Consumption approx. 0,5 l per 1000 m at duct-ID 40 mm. For other duct-ID analogue

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	kg
234960	CJL 1032	1 bottle 0,95 l	1,00
234965	CJL 1032	12 bottles 0,95 l	12,00
234970	CJL 378	4 bottles 3,80 l	16,00



Lubricant liquid

Cable lubricant Softenol, liquid, for blowing-in and for pulling-in fibre optic cables.

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	kg
235800	SOF 05	1 canister 5 l	5,60
235810	SOF 10	1 canister 10 l	11,00
235830	SOF 25	1 canister 25 l	26,50
235890	SOF 190	1 barrel 190 l	200,00



Duct cleaning sponge

Sponge for duct cleaning and pre-lubricating prior to cable blowing

Code	Type	D-OD	D-ID	Cellular	kg
275408	RSM 32	32	28	D 45x90	0,01
275410	RSM 40	40	35	D 55x90	0,01
275412	RSM 50	50	40	D 65x90	0,01
275414	RSM 63	63	51	D 78x90	0,02



Duct calibration set

Conduit calibration and leakage-test unit. Calibration and leakage-test before starting the cable blowing-in procedure is the safest guarantee for successful installation of fibre optic cables. Unit consisting of:

- Compressed air regulator with adjustable tripod.
- 5 m high pressure hose, calibre D 35, transmitter, for duct-D 50x4,6.
- All other diam. of calibres are available, please see extensions below.
- With conduit plug and catch box for the piston.
- With electronic detector 33 kHz . Compl. set in alu-case 780x380x330.

Code	Type	D-ID	kg
231601	RKV 40	40-41	27,00



Calibre extension set

Supplementary extension set for calibration and leakage test unit.

Code	Type	D-ID	kg
231602	RKVE 33	33-34	2,60
231603	RKVE 27	27-28	2,00



Calibre housings

Calibre housings of polyamide with sleeve rings, without transmitter. Calibre length 145 mm, total length 250 mm

Code	Type	Calibre D/L/total	D-ID	kg
231646	MKV 35	35/145/250	40-41	0,36
2316475	MKV 28	28/145/250	33-34	0,29
231648	MKV 25	25/145/250	27-28	0,32



Miniature transmitter D 18 mm

Miniature transmitter D 18x88 mm, suitable for all a. m. calibres.

Code	Type	D/L	Frequ.	Thread	Depth	Cap.	kg
231621	SKS 18N	18/88	33 kHz	M 10	8,0 m	20 h	0,23



Piston for loosing cables

Pistons for loosing old cables in ducts before blowing or pulling them out.

Code	Type	D-OD	D-ID	C-D	kg
275230	LKO 40	40	33-35	10-21	0,10
275232	LKO 50	50	40-42	10-21	0,10



Conduit plug for duct-OD

Conduit plug for fixing on duct-OD with hose safety coupling applicable for duct calibration, duct pressure tests, duct cleaning etc.

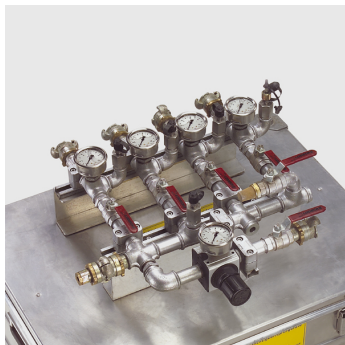
Code	Type	D-OD	Press.	kg
2316513	KRA 32	32	to 6 bar	0,50
231651	KRA 40	40	to 6 bar	0,84
231650	KRA 50	50	to 6 bar	0,90
231649	KRA 63	63	to 6 bar	1,00
2316541	KRA 110	110	to 6 bar	3,20



Sealing plug

Conduit sealing plug applicable for duct pressure tests.

Code	Type	D-OD	Press.	kg
273569	ENSA 20	20	to 6 bar	0,07
273572	ENSA 32	32	to 6 bar	0,10
273575	ENSA 40	40	to 6 bar	0,23
273580	ENSA 50	50	to 6 bar	0,29
273585	ENSA 63	63	to 6 bar	0,40
273586	ENSA 110	110	to 6 bar	1,93



Pipe leakage test set

Pipe leakage test set 0-10 bar, for testing of 1-4 ducts simultaneously, independent of the diameter.

Code	Type	For	kg
2316291	RDP 10/1	1 duct	16,50
2316293	RDP 10/4	4 ducts	36,00



Pressure recorder

Pressure recording device in completion to a. m. calibration and leakage unit. Electronic measuring of pressure and hardcopy on paper and storage for further computer handling of the data.

Code	Type	For	Max. test press.	kg
231733	DRG 10	any duct-D	10 bar	8,60



Low pressure test set

The low pressure test sets are used exclusively for leakage testing cable conduits with small wall thicknesses which are used for pulling different types of cable. The low pressure test is intended to provide proof of tightness to prevent ingress of ground water, alluvial sand, sediments etc. These elements contaminate the cable conduit and complicate the pulling of cables. The low-pressure test set is based on the proven Vetter DRG 10 "high-pressure" leakage test unit and is offered in 3 versions which also relate to existing assemblies.

The test method resorts to existing regulations for the acceptance of sewers and drains. Only the "Air" version is used for the testing of cable conduits. Low pressure testing of cable conduits is currently still being requested by clients with the "Air" method, version LC, in accordance with DIN EN 1610. DIN EN 1610 is still valid, but somewhat outdated. Work sheet DWA-A 139-2009-12 is used to introduce changes for leakage testing according to the "Air" method. With respect to the above mentioned regulation, these changes affect designation and test duration.

- The client decides which test method to use.
- Method LC: test pressure 0.1 bar (100 mbar, 10 kPa), for 3 min., adm. pressure drop 15 mbar (1.5 kPa)
- Method LE: test pressure 0.1 bar (100 mbar, 10 kPa), for 1.5 min., adm. pressure drop 15 mbar (1.5 kPa)
- In special cases Deutsche Telekom may request a duct leakage test. The following test data are requested:
- Test pressure 0,6-1,5 bar (subject to the depth), test duration 1 min.
- Test pressure > 1 bar must be tested with 10 bar pressure sensor DRG 10

Code	Type	Explanation	
231750	NDA	see above	0,00



Low pressure add-on test set

This test system is an extension of the DRG 10 pressure recorder the user has available for testing cable conduits to blow up to 10 bar.

Code	Type	Designation	kg
231752	NDA 01	Low pressure add-on test set	22,00



Low pressure test set without battery printer

This complete test system works independently without printer. The measurement data is stored in the system and can be transferred to any PC and processed by means of an infrared interface cable forming part of the system.

Code	Type	Designation	kg
231754	NDO 01	Low pressure test set without battery printer	26,00



Low pressure test set with battery printer

This complete test system works independently with a battery printer. The measurement data is stored in the system and can be printed directly on the battery printer. The measurement data can also be transferred to a PC and processed by means of an infrared interface cable forming part of the system.

Code	Type	Designation	kg
231756	NDM 01	Low pressure test set with battery printer	28,00



Electric diaphragm pump

Electric diaphragm pump to inflate the pipelines to be tested during low pressure testing, including claw coupling 42. Max. pressure 200 mbar

- Displacement at 100 mbar pressure: 160 l/min.
- Displacement at 200 mbar pressure: 120 l/min.

Code	Type	EI-connection	Sound	L/W/H mm	kg
231760	MPU 120	230V/95W	45 db(A)	214/185/211	6,50



Shut-off bladder Mini

Shut-off bladders to lock off the pipeline to be tested. Shut-off bladders are used on the opposite side of the test location. The short dimensions of the Mini version allow space-saving installation of pipe bends also.

Code	Type	For pipe-ID	Cyl.-D	Cyl.-L	Total-L	kg
231768	SBM 7/10	70-100	68	130	175	0,40
231770	SBM 8/15	80-150	72	120	170	0,40
231772	SBM 12/20	125-200	115	150	195	0,80

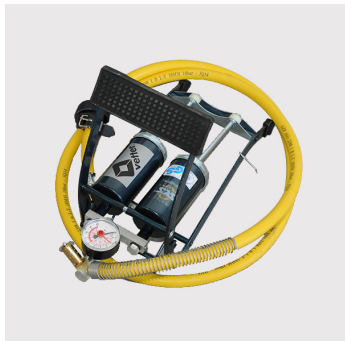


Test bladder Mini

Test bladders Mini for testing and shutting off pipes for low pressure testing.

Air coupling (brass) standard for bladder extension. Air coupling (chromed) special CE-standard 10.4 mm, for inflating the duct.

Code	Type	For pipe-ID	Cyl.-D	Cyl.-L	Total-L	kg
231778	PBM 7/10	70-100	68	190	340	0,63
231780	PBM 10/15	100-150	90	150	300	1,33
231782	PBM 15/20	150-200	145	195	345	2,83



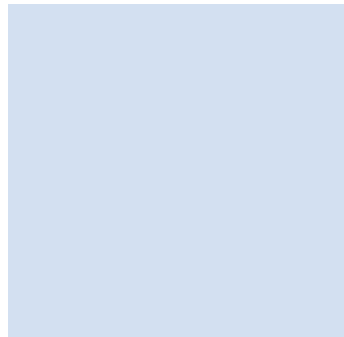
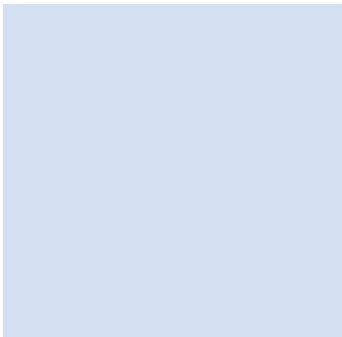
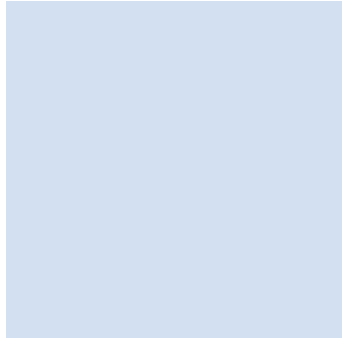
Foot pump with double stroke

Foot pump with double stroke and safety valve 2.5 bar to inflate SBM shut-off bladders and PBM test bladders. The use of a second foot pump for the second pipe end saves considerable installation time.

Code	Type	Press.	kg
231786	FP 2.5	2,5 bar	2,40

Mini and Micro cable blowing-in devices

420





IntelliJet blowing units for cable D 4-12 mm

MiniJet blowing units for cable D 4-12 mm

Intelli-MicroJet and MicroJets for cable D 0,8-7,5 mm

MicroJets for cable D 0,8-7,5 mm

Duct sealing to IntelliJet and MiniJet

UltimaZ P2P and E25 for cables D 0.8-4.0 mm

Cable inserts and sealings for UltimaZ P2P and E25

Lubricator L 9 for MiniJet, MicroJet

Lubricator L 18 for CableJet and SuperJET

Intermediate cable blowing head for C-D 3,4-12,4 mm

Lubricator L4 and accessory for UltimaZ ULV, P2P, and MicroJets

Cable guiding heads for screwing on cables D 2,0-12,0 mm

Cable crash test tube for limiting the pushing force

Subduct calibration sets and detectors

Air connectors and plugs for subducts

Case for accessory

Duct and cable cutting tools

Figarino - cable basket for blowing-in big length

Compressor for blowing-in fibre optic cables

Cable drum unwinder for mini fibre optic cables



IntelliJet for micro- and mini-cables - complete new device

The first semi-automatic cable blowing unit with blowing assistant and electronic blowing data memory. Now in series production.

The new IntelliJet is a pioneering, intelligent blowing system that facilitates the blowing of fibre optic mini cables for the operator and improves installation quality. Cable layers as well as clients benefit from these improvements.

At the heart of the innovation is the measurement, presentation and control of the pushing force, which is transferred onto the cable by the drive system. The pushing force is constantly verified against the maximum permissible pushing force, which is determined through the crash test, and which will be specified in the cable data sheet in the future. A second assistant monitors the cable slippage. Both assistants give the operator an indication as soon the blowing procedure approaches a critical range and provide information on counter-measures. If the critical range is exceeded, the blowing unit stops. In this way, damage to cables can be avoided, the responsibility of the blow-in operator is relieved and the blowing quality is increased.

A clear blowing log with an electronic data transfer completes the new system. The new IntelliJet not only helps meet the minimum requirements for automatic logging of Deutsche Telekom but also the far-reaching demands for automated blowing processes. In addition to the new device, the IntelliJet can also be created from the tried and tested "MiniJet" blowing unit by means of an upgrade. With the IntelliJet, sustainability for further automation levels is also guaranteed. The main benefits for cable layers are:

- Operators with little blowing experience can also achieve optimal blowing results with sensitivity and technical skill ? the problem with the currently tight labour market can thus be alleviated.
- The two blowing assistants indicate critical operating conditions and stop the blowing procedure before damage to the cable occurs.
- Time savings for the blowing team and in order processing thanks to automatic data logging, archiving and electronic transmission.
- The logging of blowing parameters can provide evidence of bad subduct routes and is thus a basis for legitimate variation orders.
- The handling on the construction site is simple and nearly identical to current work with the MiniJet.
- Customers also benefit from the use of the IntelliJet:
- The automation of the blowing process will improve blowing performance and quality and reduce damage to cables, which increases the efficiency of FTtx projects.
- Precise and clear logging of the agreed blowing performance facilitates the error detection, financial settlement and data archiving.
- If damage to cables occurs at a later point, the original blowing log provides a reference for the blowing-out capability of the cable and can thereby reduce the repair time required (simplification of crisis scenario).

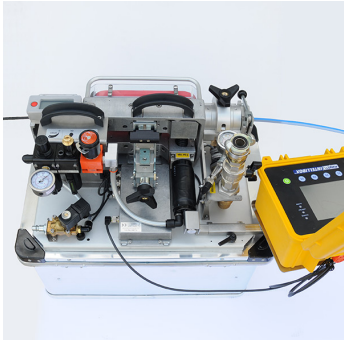
Einblas-Protokoll		
Protokoll-Nr.	0010001	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Protokoll-Objekt	Trasse 0001	Trasse: 0001
Protokoll-Datum	2019-05-01	Trasse: 0001
Protokoll-Standort	Trasse 0001	Trasse: 0001
Protokoll-Status	Blow-In	Trasse: 0001
Protokoll-Operator	Blow-In	Trasse: 0001
Prot		



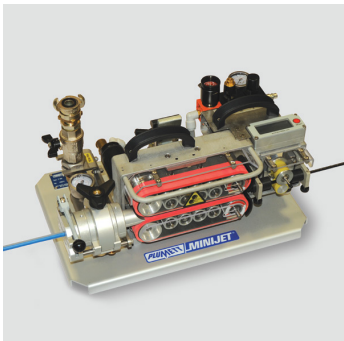
Upgrade of customer MiniJet P01 and P02, from 2011

A customer MiniJet of the P01 and P02 (from 2011) series can be upgraded at Vetter to the IntelliJet version. An "upgrade" machine such as this has no disadvantages compared with the new device when put to practical use on the construction site.

Upon customer request, during this upgrade the condition of the MiniJet can also be checked at the same time, a maintenance offer issued, if necessary, and carried out on acceptance of the service. In this way, the overhauled, newly upgraded IntelliJet blowing unit will once again be well prepared for the upcoming challenges of the various blowing projects.



Code	Type	C-D	Duct-D	Air-supply	Push	kg
424320	PIU 02	4-12	8-40	16 bar/5 m ³ /min.	300 N	14,70

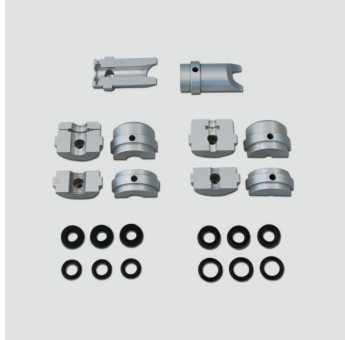


MiniJet for Fibre Optic Cables

MiniJet, further development of the CableJet and MicroJet. For blowing-in mini fibre optic cables in long distances. Long and soft pneumatic belt drive especially for delicate cables. Produces high daily output. Electronic length and speed meter. Without cable and duct inserts. accessory and technical details see below.

- Very careful but high power transmission to the cable through the soft belts.
- Suitable excellent for very long cable distances with complicated design.
- Simple control, high safety for operator and for cable.
- Small dimension of 635x400x255, weight of the machine only 21,6 kg
- For compressed air to max. 16 bar, airflow to 5 m³/min.

Code	Type	C-D	D-OD	Air	Push	kg
420100	P 02	4-12	8-40	16 bar/5 m ³ /min.	300 N	41,00



Accessory-set for MiniJet

accessory-set for MiniJet P 02. All cable and duct inserts for a certain cable and duct diameter range, see below.

Code	Type	C-D	In duct-D	kg
420130	SET 40-83	4,0-8,3	10 + 12	0,57
420140	SET 84-124	8,4-12,4	14 + 16	0,56



Duct inserts

Duct inserts for MiniJet for bigger duct of D 20-40 mm.

Code	Type	D-OD	kg
420228	REM 20	20	0,20
420230	REM 25	25	0,20
420232	REM 32	32	0,20
420240	REM 40	40	0,20



Upgrade of customer MicroJets PRM 196, PR 196 and PR 140

A customer MicroJet of the PRM 196; PR 196; PR 140 (from 2011) series with electronic counter VL 20 can be upgraded at Vetter to the Intelli-MicroJet version. An "upgrade" machine such as this has no disadvantages compared with the new device when put to practical use on the construction site. Earlier series before 2011 must be completed before the upgrade by a counter VL 20. All upgraded machines have the same performance as any new machine.

Upon customer request, during this upgrade the condition of the MicroJet can also be checked at the same time, a maintenance offer issued, if necessary, and carried out on acceptance of the service. In this way, the overhauled, newly upgraded Intelli-MicroJet blowing unit will once again be well prepared for the upcoming challenges of the various blowing projects.

Code	Type	Motor	C-D	Duct-D	Air-supply	Push	kg
424220	PMIU 02	Pneumatic	0,8-7,5	3-16	16 bar/1-2 m³/min.	140 N	27,00

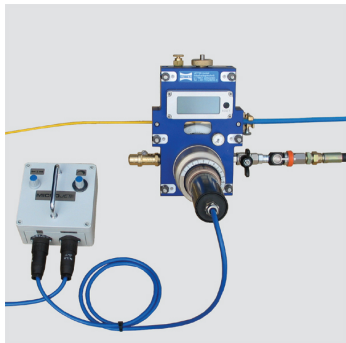


MicroJet for FOC, pneumatic

MicroJet pneumatic drive, combined machine with adjustable magnetic clutch for bundle fibres and for micro and mini cables from D 0,8-7,5 mm in ducts from D 3-12 mm. Air pressure 16 bar/1-2 m³/min. With digital length and speed meter. Without cable and duct inserts. Accessory and technical details see below.

- Very careful but high power transmission to the cable through a magnetic clutch.
- Suitable excellent for very long cable distances with complicated design.
- Simple control, high safety for operator and for cable.

Code	Type	Motor	C-D	D-OD	Air-supply	Push	kg
422210	PRM 196	Pneumatic	0,8-7,5	3-12	16 bar/1-2 m³/min.	adj. 0-140 N	23,60



MicroJet for FOC, electro

MicroJet for blowing-in micro fibre optic cables. Electric drive with fine adjustment, especially for delicate cables and bundle fibres. With digital length and speed meter. Without cable and duct inserts. Accessory and technical details see below.

- Very careful but high power transmission to the cable through a magnetic clutch.
- Suitable excellent for very long cable distances with complicated design.
- Simple control, high safety for operator and for cable.

Code	Type	El-Motor	C-D	D-OD	Air-supply	Push	kg
422200	EM 25	24 Volt	0,8-3,5	3-7	15 bar/0,6 m³/min.	adj. 0-25 N	16,30



Receiver to EM 25

Receiver for connecting the MicroJet EM 25 to the net or to the compressor.

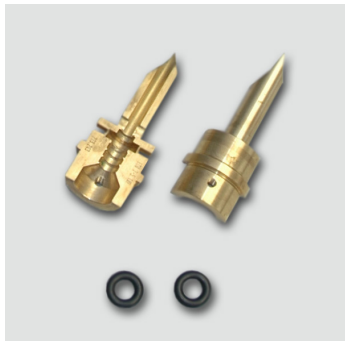
Code	Type	Supply from	Tension	kg
275600	NGE 24	Net	230 to 24 volt	1,00
275603	NGE 12	compressor	12 to 24 Volt	3,90



Accessory-set for MicroJets

Accessory-set for MicroJet EM 25, PR 140 and PRM 196. All cable driving disc and cable and duct inserts for a certain cable and duct diameter range, according to table below.

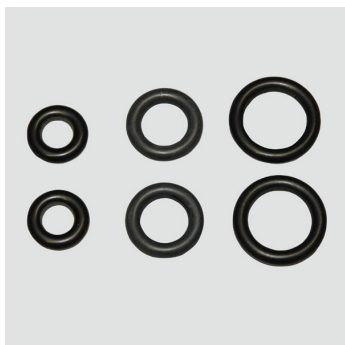
Code	Type	Suitable for	C-D	D-OD	kg
422230	SET 08-35	EM 25, PRM 196	0,8-3,5	5, 7	1,37
422236	SET 36-75	PR 196/PRM 196	3,6-7,5	7, 10, 12	2,00
422240	SET 08-75	PRM 196	0,8-7,5	5, 7, 10, 12	3,00



Duct insert for MicroJets

Duct insert separate for MicroJet PR 140, PR 196 and PRM 196, for bigger ducts OD 14 mm and for cables up to D 8 mm.

Code	Type	Suitable for	C-D	D-OD	kg
42230132	REM 148	PR 140/PR 196/PRM 196	to 7.5	14	0,12
42230134	REM 168	Cable sealing	to 7.5	16	0,12



Duct sealing for MicroJets and MiniJets

Duct sealing, sets of 6 pcs. suitable for cable blowing machines and duct-diam. according to table shown below.

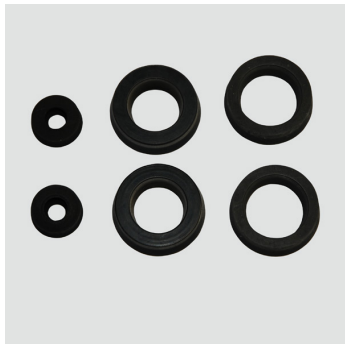
Code	Type	D-OD	For device	Set	kg
42230163	RAD 03	3	PRM196/EM25	6	0,01
42230164	RAD 04	4	PRM196/EM25	6	0,01
42230165	RAD 05	5	PRM196/EM25	6	0,01
42230167	RAD 07	7	PRM196/EM25/P02	6	0,01
42230168	RAD 08	8	PRM196/P02	6	0,01
42230170	RAD 10	10	PRM196/P02	6	0,01
42230172	RAD 12	12	PRM196/P02	6	0,01

42024014	RAD 14	14	PRM196/P02	6	0,01
42024016	RAD 16	16	IntelliJet/MiniJet	6	0,01
42024020	RAD 20	20	IntelliJet/MiniJet	6	0,01
42024025	RAD 25	25	IntelliJet/MiniJet	6	0,01
42024032	RAD 32	32	IntelliJet/MiniJet	6	0,01
42024040	RAD 40	40	IntelliJet/MiniJet	6	0,01

Cable sealing

Cable sealing, sets of 6 pcs. suitable for cable blowing machines and cable-diam. according to table shown below.

Code	Type	C-D	For device	Set	kg
42230147	KAD 43	3,4-4,3	PRM196/P02/NBK483	6	0,01
42230149	KAD 53	4,4-5,3	PRM196/P02/NBK483	6	0,01
42230151	KAD 63	5,4-6,3	PRM196/P02/NBK483	6	0,01
42230152	KAD 70	6,4-7,0	PRM196/P02/NBK483	6	0,01
42230154	KAD 77	7,1-7,7	PRM196/P02/NBK483	6	0,01
42230156	KAD 83	7,8-8,4	P 02 / NBK 483	6	0,01
42021509	KAD 107	8,4-10,7	P02 / NBK812	6	0,01
42021511	KAD 124	10,8-12,4	P02 / NBK812	6	0,01



UltimaZ E25 for in-house installation, professional device

ULTIMAZ E25, blow fibre units and micro cable blowing device especially for in-house cabling up to lengths of approx. 300 m. The ULTIMAZ E25 is a consequent further development of the version ULTIMAZ P2P. The comfort features E25 is also designed for in-house installation of mini cables and fibres. The performance is improved and its handling is comfortable.

The battery operated electric drive enables an eight hours operation. The pushing force can be adapted electronically by the operator in six steps from 5 to 22 N. The correct pushing force is found out as usual by crash-tests. This precise adjustment of the pushing force is the basic principle to avoid damages to the delicate mini cables and fibres. The ease of use is increased by the automatic contact pressure of the driving roller system. The contact pressure is automatically determined in dependency of the adjusted pushing force. The maximum speed of 80-180 m/min. is also controlled electronically in dependency of the pushing force.

In in-house installation with micro ducts and due to many bows and with special fire protected cables high air pressure of 10-12 bar is necessary.

Because of low air volume small manageable compressors (see below) or compressed air bottles are sufficient. Accessory and performance see technical details below. Without cable and duct inserts, see accessory below.

- Fast and easy starting operation in any spot
- The battery operated electric drive with electronic controlling
- The operator does not need large cable blowing experience
- Small dimension of 80x255x195 mm, weight only approx. 4,3 kg of the basic machine

Code	Type	C-D	D-OD	Push	Press.	kg
423210	E25	0,8-4,0	3-12	0-22 N	10-12 bar	9,40





UltimaZ P2P for in-house installation, start-up device

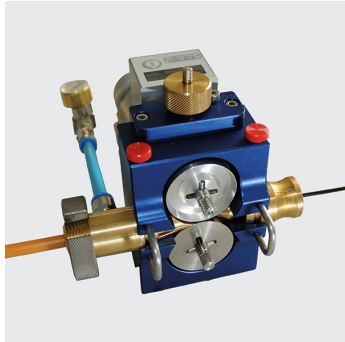
UltimaZ P2P blow fibre units and micro cable blowing device especially for in-house cabling up to lengths of approx. 200 m. The UltimaZ P2P makes it possible to continue the last mile from the underground floor to all flats. Drive through an accu-driven hand-drill, accessory.

In in-house installation with micro ducts and due to many bows and with special fire protected cables high air pressure of 10-12 bar is necessary. Because of low air volume small manageable compressors (see below) or compressed air bottles are sufficient.

The torque can be adjusted by fine steps from 0-20 N. This avoids largely damages of the cables. Accessory and performance see technical details below. Without cable and duct inserts, see accessory and techn. details below.

- Fast and easy starting operation in any spot
- Feeding drive through accu drilling machine of 500 t/min. not included
- The operator does not need large cable blowing experience
- Small dimension of 210x75x135, only approx. 2,4 kg of weight for comfortable application

Code	Type	C-D	D-OD	Push	Press.	kg
423200	P2P	0,8-4,0	3-12	0-20 N	10-12 bar	3,90



Compressed air hose

Compressed air hose DN 10, L 7 m, with swing-coupling and connecting standard nipple for UltimaZ P2P to compressor VE 100

Code	Type	DN	Press.	Length	kg
042334017	DLS 10/7	10	15 bar	7 m	1,60



Air connector for compressor

Air connector for connecting hose DLS 10/7 with a compressor

Code	Type	D-OD	kg
275610	DAS 42K	7-14	0,44



Air regulator

Air regulator with manometer for subduct calibration set.

With safety couplings for air pressure hoses.

Code	Type	Adjustable	kg
275724	DMP 16	0-16 bar	1,90



Pressure wheels to P2P

Pressure wheels to P2P, D 40 mm, NBR-tyres or aluminium

Code	Type	C-D	Material	kg
423341	KAPR 40N	1,0-4,0	NBR-tyre plane	0,02
423342	KAP 40A	1,0-4,0	Aluminium plane	0,07



Drive wheels to P2P

Drive wheel to Ultimaz P2P, steel D 40, with groove.

Code	Type	C-D	Material	kg
423345	KAP 41N	1,5-2,0	NBR-tyre groove	0,02
423341	KAPR 40N	1,0-2,0	NBR-tyre plane	0,02



Drive wheels to P2P

Drive wheel to Ultimaz P2P, steel D 40, with groove.

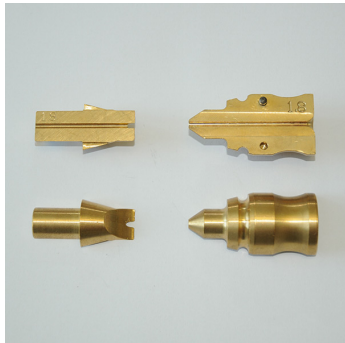
Code	Type	C-D	Material	kg
423346	KAR 42	1,6-2,0	Steel, groove	0,06
423347	KAR 402	2,1-2,5	Steel, groove	0,05
423348	KAR 43	2,6-3,0	Steel, groove	0,06
423349	KAR 404	3,1-3,5	Steel, groove	0,05
423350	KAR 44	3,6-4,0	Steel, groove	0,08



Duct insert divisible for P2P

Duct insert divisible for P2P, for duct-OD 3-12 mm and cable-Ø 1,8-4,0 mm, incl. 6 duct seals.

Code	Type	D-OD	C-D	For device	kg
423230	RET 3018	3	1,8	Ultimaz P2P	0,01
423232	RET 4025	4	2,5	Ultimaz P2P	0,01
423234	RET 5033	5	3,3	Ultimaz P2P	0,01
423236	RET 6040	6	4	Ultimaz P2P	0,01
423238	RET 7040	7	4	Ultimaz P2P	0,01
423240	RET 8040	8	4	Ultimaz P2P	0,01
423242	RET 10040	10	4	Ultimaz P2P	0,01
423244	RET 12040	12	4	Ultimaz P2P	0,01



Cable insert divisible for Ultimaz P2P

Cable insert divisible for Ultimaz P2P, for cable-Ø 1,0-4,0 mm, for cable lead in.

Code	Type	C-D	For device	kg
423250	KFT 180	0,8-1,8	Ultimaz P2P	0,01
423252	KFT 250	1,9-2,6	Ultimaz P2P	0,01
423254	KFT 400	2,7-4,0	Ultimaz P2P	0,01



Duct insert not divisible for P2P

Duct insert not divisible for P2P, for duct-OD 3-12 mm and cable-Ø 1,8-4,0 mm, without sealing KAD.

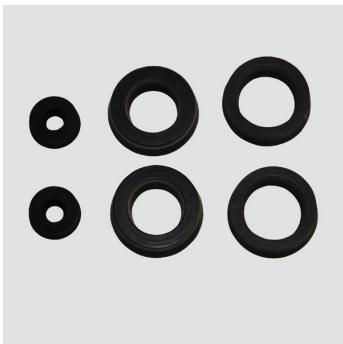
Code	Type	D-OD	C-D	For device	kg
423260	REN 3418	3-4	1,8	Ultimaz P2P	0,01
423262	REN 5640	5-6	3,3	Ultimaz P2P	0,01
423264	REN 71240	7/8/10/12	4	Ultimaz P2P	0,23



Cable insert not divisible for Ultimaz P2P

Cable insert not divisible for Ultimaz P2P, for cable lead in.

Code	Type	C-D	For device	kg
423270	KFN 180	1,0-1,8	Ultimaz P2P	0,18
423272	KFN 250	1,9-2,6	Ultimaz P2P	0,18
423274	KFN 400	2,7-4,0	Ultimaz P2P	0,18



Cable sealing-set to P2P

Cable sealing-set to Ultimaz P2P, to RET 3018 up to RET 12040, sets of see table below

Code	Type	C-D	For device	Set	kg
42230140	KAD 10	0,8-1,1	Ultimaz P2P	10	0,01
42230141	KAD 12	1,2-1,4	Ultimaz P2P	10	0,01
42230142	KAD 18	1,4-1,8	Ultimaz P2P	6	0,01
42230143	KAD 24	1,8-2,4	Ultimaz P2P	6	0,01
42230144	KAD 33	2,4-3,3	Ultimaz P2P	6	0,01
42230145	KAD 40	3,4-4,0	Ultimaz P2P	6	0,01



Lubricator L 9 - automatic device

Lubricator L 9 for continuous greasing of the cables blown by MicroJet, MiniJet and UltimaZ. Performance and techn. details see below.

- The Lubricator L 9 guarantees an uniform lubrication on the whole cable and duct length.
- To mount on MiniJet there are adapters, see below.
- In the Lubricator L 9 is included an adapter for the MicroJets EM 25, PR 140 and PRM 196

Code	Type	Suitable to	C-D	D-OD	kg
423500	L 9	MiniJet+MicroJet	1-9	4-16	2,20



Cable guide for Lubricator L 9

Cable guide for the Lubricator L 9 only necessary when used with the MicroJet

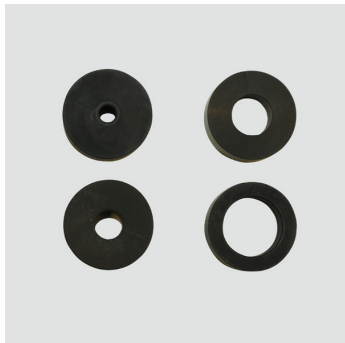
Code	Type	Required for	For C-D	kg
423520	KBF 125	for Lubricator L 9with MicroJets	1,0-2,5	0,02
423522	KBF 254	for Lubricator L 9with MicroJets	2,5-4,0	0,02
423524	KBF 408	for Lubricator L 9with MicroJets	4,0-9,0	0,02



Duct inserts for Lubricator L 9

Duct inserts with 2 sealing for Lubricator L 9 for duct-D see table below.

Code	Type	D-OD	For device	kg
423530	RES 4	4	Lubricator	0,04
423532	RES 5	5	Lubricator	0,04
423534	RES 7	7	Lubricator	0,03
423536	RES 8	8	Lubricator	0,03
423538	RES 10	10	Lubricator/Intermed. blowing head	0,03
423540	RES 12	12	Lubricator/Intermed. blowing head	0,03
423542	RES 14	14	Lubricator/Intermed. blowing head	0,03
423544	RES 15	15	Lubricator/Intermed. blowing head	0,03
423546	RES 16	16	Lubricator/Intermed. blowing head	0,03
423548	RES 20	20	Intermediate blowing head	0,03



Duct single sealings for Lubricator L 9

Duct single sealing to Lubricator L 9 and intermediate blowing head, for ducts-D see table below.

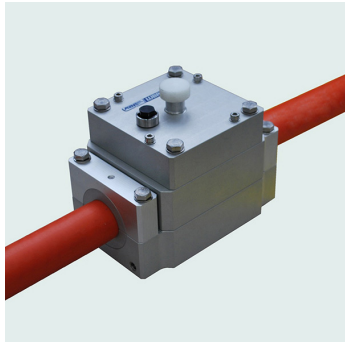
Code	Type	D-OD	For device	kg
042353801	RDL 4	4	Lubricator L 9	0,01
042353802	RDL 5	5	Lubricator L 9	0,01
042353803	RDL 7	7	Lubricator L 9	0,01
042353804	RDL 8	8	Lubricator L 9	0,01
042353805	RDL 10	10	Lubricator L 9 + Intermed. head	0,01
042353807	RDL 12	12	Lubricator L 9 + Intermed. head	0,01
042353809	RDL 14	14	Lubricator L 9 + Intermed. head	0,01
042353810	RDL 15	15	Lubricator L 9 + Intermed. head	0,01
042353811	RDL 16	16	Lubricator L 9 + Intermed. head	0,01



Adapter Lubricator L 9 - MiniJet

Adapter for mounting the Lubricator L 9 on the MiniJet included cable guides and duct clamp for subducts.

Code	Type	For	D-OD	For C-D	kg
423561	LA 9M	MiniJet	3-15	4,0-9,0	0,48



Lubricator automatic device

Lubricator L 18 for automatic continuous greasing of the cable blown by CableJet or SuperJet. This lubricator L 18 is especially recommended when blowing bigger cables in ducts

- The Lubricator L 18 guarantees an uniform lubrication on the whole length duct length.
- With the Lubricator L 18 the blowing cable lengths can be increased of approx. 20-40 %.
- This bigger Lubricator L 18 is only for use with CableJet and SuperJet machines.

Code	Type	Suitable to	For C-D	D-OD	kg
423505	L 18	CableJet+SuperJet	9-18	20-50	10,00

Duct insert for Lubricator L 18

Duct insert with two duct sealings for Lubricator L 18 for duct-OD see table below. Two sets are necessary for L 18.

Code	Type	D-OD	Suitable to	kg
423610	RES 20	20	Lubricator L 18	0,10
423612	RES 25	25	Lubricator L 18	0,20
423614	RES 32	32	Lubricator L 18	0,20
423616	RES 40	40	Lubricator L 18	0,20
423618	RES 42	42	Lubricator L 18	0,20
423620	RES 50	50	Lubricator L 18	0,20

Foto im Moment nicht verfügbar



Photo not available at the moment



Intermediate cable blowing head

Intermediate blowing head for finishing the left loops after blowing in two direction. Without duct inserts, without cable sealing. Max. pressure 16 bars.

Code	Type	C-D	D-OD	kg
275700	NBK 483	3,4-8,3	7-16	1,40
275703	NBK 812	8,4-12,4	12-20	1,50
275710	DAP 08	Air connector	for NBK 483	0,50
275712	DAP 11	Air connector	for NBK 812	0,73

Lubricator automatic device

Lubricator for continuous greasing of the cables blown by Ultimaz P2P, by MicroJets PR/PRM 196. Performance and techn. details see below.

- The Lubricator guarantees an uniform lubrication on the whole length duct length.
- With the Lubricator the performance is approximately 20-40 % higher.
- Weight machine only 0,6 kg

Code	Type	C-D	D-OD	For device	kg
------	------	-----	------	------------	----



423490 L 4 0,8-4,0 3-12 see above 3,00



Lubricant for FOC

Micro Jetting Lube, lubricant for blowing-in fibre optic cables. Excellent lubricating effect. Adheres to the duct wall and leaves the cable nearly dry, an advantage for over blowing and working in cascades with further blowing machines. Consumption approx. 10 ml per 1000 m at duct-ID 10 mm. For other duct-ID analogue

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	kg
234975	MJL 240	1 bottle 0,24 l	0,32



Duct cleaning sponge

Sponge for sub duct cleaning and pre-lubricating prior to cable blowing

Code	Type	D-OD	D-ID	Cellular	Qty.	kg
275398	RSM 04	7	4	D 8x30	20 pcs.	0,01
275400	RSM 06	7-10	5-6	D 8x50	20 pcs.	0,01
275402	RSM 08	10-12	8	D 16x50	20 pcs.	0,02
275404	RSM 10	12-16	10-12	D 20x50	20 pcs.	0,03



Cable guiding heads

Cable guiding heads for screwing on the cable heads for friction-low sliding during cable-blowing.

Code	Type	D/L	C-D	Set of	kg
275517	KFM 23	2,3/8	2	10	0,01
275520	KFM 28	2,8/14	2,5	10	0,01
275529	KFM 64	6,4/23	6	10	0,03
275523	KFM 44	4,4/17	4	10	0,11
275526	KFM 54	5,4/22	5	10	0,11
275532	KFM 67	6,7/23	6,5	10	0,03
275535	KFM 74	7,4/23	7	10	0,03
275538	KFM 84	8,4/28	8	10	0,05
275541	KFM 88	8,8/28	8,5	10	0,06
275544	KFM 93	9,3/28	9	10	0,07
275547	KFM 103	10,3/31	10	10	0,08
275550	KFM 113	11,3/34	11	10	0,11
275553	KFM 123	12,3/36	12	10	0,13



Cable crash test tube

Cable crash test tube transparent with sealing end. For limiting the pushing force of the blowing-in machines. Tests without compressed air. For determination of the cable stiffness up to the crash. Safe packed in reusable plastic duct.

Essential for fail-safe adjustment of the pushing force of all different cable blowing machines. Duct-length 1 m.

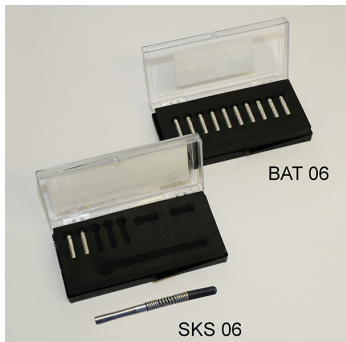
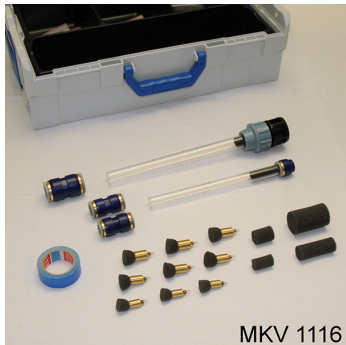
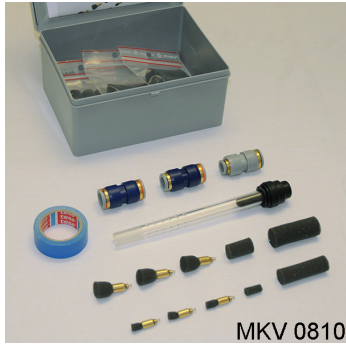
Code	Type	D-OD	D-ID	For C-D	kg
275296	CTR 05/03	5	3	to 2,0	0,40
275300	CTR 10/04	10	4	to 3,0	0,50
275301	CTR 10/06	10	6	to 4,0	0,50
275303	CTR 12/08	12	8	to 6,5	0,55
275306	CTR 14/10	15	10	to 8,0	0,60
275307	CTR 16/12	16	12	to 9,0	0,66
275309	CTR 20/16	20	16	to 12,0	0,70



Duct-connector

Sub duct connector with two couplings. For closing an intermediate blowing position of a duct-OD 10 mm, on a length of max. 400 mm. Set of 3 pcs.

Code	Type	D-OD	D-ID	Length	kg
273770	RV 1014	14	10	500	0,24



Subduct calibration sets

The calibration sets MKV 0810 and MKV 1116 in conjunction with the accessory micro-transmitter SKS 6 (code-no. 231941) are destined for the calibration of subducts with an internal diameter 8,0 to 16,0 mm. The calibration can be done for single subducts as well as for multi subducts. By the calibration defects or blockages on the subducts can be detected in advance thus a good blowing-in performance can be achieved.

The MKV 0810 set contains two calibres with different diameters for the calibration of subducts with internal diameter 8,0 or 9,8-10,0 mm. The MKV 1116 set contains three different calibres for testing subducts of ID 11,4-16,0 mm. The calibres are easily screwed onto the micro-transmitter and blown through the subducts by air-pressure. The set also contains all essential connectors, reducing nipples as well as a catcher for the micro-transmitter. The catcher has to be used in order to avoid damages to the micro-transmitter. The air-pressure for the calibration has to be limited to max. 4 bars for MKV 0810 and to max. 2 bars for MKV 1116. By applying a higher pressure the micro-transmitter might be damaged by hitting duct blockages or by hard crashing into the catcher at the very end. The set contains the following parts:

- MKV 0810 with: each 3 calibre D 6,8 for ID 8,0 / 3 calibre D 8,5 for ID 9,8-10
- MKV 1116 with: each 3 calibre D 9,5 / ID 11,4-12 / 3 calibre D 11,0 / ID 15-16 / 3 calibre D 12,5 / ID 15-16.
- 6 washers to each calibre
- 5 sponges for each calibre. 1 general catcher and different connectors and duct-reducers
- Depending on the duct diameters different air connectors are necessary, see the following tables.

Code	Type	Device	Subduct-ID	Case	kg
231950	MKV 0810	Calibration set	8-10	180x140x80	1,43
231952	MKV 1116	Calibration set	11,4-16	442x357x151	5,00
231941	SKS 06	Micro transmitter	D 6,5x84	---	0,17
231943	BAT 06	Set of batteries	10 each	---	0,04



MKK 0606



Calibration Set for Subducts 10/06

The calibration set MKK 0606 in conjunction with the micro transmitter SKS 04 is foreseen to calibrate subducts with inner diameter D 6.0 mm only. The calibration can be performed for single subducts as well as for multi subducts in buried and protective pipe installed versions. This new calibration set supports the blowing-in of mini- and micro cables on a completely new level since the quality of a sub duct installation can be checked in general. The set comprises of 3 calibres with protection sponge having a diameter of 4.8 mm, a collecting device for the pipe end, a spare battery cover and 2 spare batteries.

The calibre will be simply unscrewed on the micro transmitter and with the sponge ahead blown-into the pipes using compressed air. The micro transmitter is a precision engineered measuring device, which has to be handled in the civil engineering with special care. Never operate the transmitter without protection sponge, bumper and collecting device fixed at the end of the pipe. Attentions should be paid to max. possible bending radius and air injection pressure - too high air pressure can cause damages on the calibration set. During backward blowing the enclosed collecting device has to be used or at least a sufficient padding of another collecting device shall be implemented.

- Calibration set MKK 0606 including 3 calibres D 4,8 for ID 6,0 mm
- 20 sponges and collecting device at the pipe end for collection of the calibre
- 1 Micro Transmitter SKS 04, detection frequency 33 kHz, sensitivity in earth max. 2,0 m
- Max. injection pressure 5 bar, 4 bar is sufficient for horizontal routes
- Min. bending radius for subducts 175 mm, smaller radius cause unavoidable a blockage
- Batteries of the larger micro transmitter SKS 06 are used

Code	Type	Device	Subduct-ID	Case	kg
231930	MKK 0606	Calibration set	6,0	180x140x80	1,00
231943	BAT 06	Set of batteries	10 pcs.	--	0,04



Detection of multi ducts with average duct in the centre

Multi ducts can be detected in short distances through the average duct of dia. 12x2,0 or 14x2,0 mm laying in the centre. The micro transmitter SKS 06 of diam. 6,4 mm is screwed on the M5 thread of the mini-rod diam. 3 mm. The obtainable pushing length depends on the local condition but is limited anyway by the max. length of the mini rod of 50 m. Using lubricant relieves pushing and pulling back the transmitter. Detection depth in the ground is max. 2 m. The yellow or red mini rod can be used for inserting the micro transmitter.

Code	Type	Device	Subduct-ID	kg
231941	SKS 06	Micro transmitter	from 8	0,17
231943	BAT 06	Battery set	---	0,04



Detector for micro transmitter in subducts

Detector with 8 batteries, without transmitter. For precise localisation of non-metallic conduits, and to find blockages with the conduit rods yellow or red D 3,0 mm. The following configuration is possible:

- Yellow conduit rod with screwed on micro transmitter for spot or blockage detection

Code	Type	Frequency	Transmitter	L/W/H mm	kg
231611	CAT4+	33 kHz,	without	255/70/725	2,20



Air connector for calibration sets

Air connector for subduct calibration sets.

Included in MicroJet PRM 196 and in Minijet P 02.

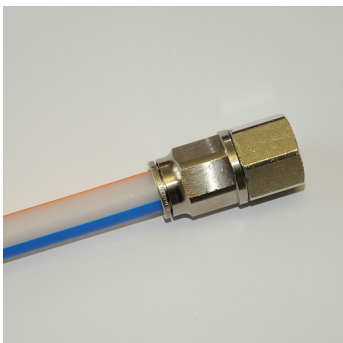
Code	Type	D-OD	Press.	kg
275766	DAM 10	10	to 6 bar	0,08



Air connectors for calibration sets

Air connectors for subduct calibration sets.

Code	Type	D-OD	Press.	kg
275750	DAK 10	10	to 6 bar	0,39
275752	DAK 12	12	to 6 bar	0,41
275754	DAK 14	14	to 6 bar	0,40
275756	DAK 16	16	to 6 bar	0,40



Subduct-plugs of metal

Subduct-plugs of metal with plug-in coupling, for max. pressure 6 bars

Code	Type	D-OD	Press.	kg
275770	DEM 10	10	to 6 bar	0,07
275771	DEM 12	12	to 6 bar	0,13
275772	DEM 14	14	to 6 bar	0,20
275773	DEM 16	16	to 6 bar	0,15



Conduit plug for duct-OD

Conduit plug for fixing on duct-OD with hose safety coupling applicable for duct calibration, duct pressure tests, duct cleaning etc.

Code	Type	D-OD	Press.	kg
2316512	KRA 20	20	to 6 bar	0,40



Sealing plug

Conduit sealing plug applicable for duct pressure tests.

Code	Type	D-OD	Press.	kg
273569	ENSA 20	20	to 6 bar	0,07



Air regulator for calibration sets

Air regulator with manometer for subduct calibration set.

Included in MicroJet PRM 196

Code	Type	Adjustable	kg
275744	DMM 16	0-16 bar	1,43



Air regulator for calibration sets

Air regulator with manometer for subduct calibration set.

With safety couplings for air pressure hoses.

Code	Type	Adjustable	kg
275724	DMP 16	0-16 bar	1,90



Air regulator on tripod

Air regulator valves with tripod and 5 m exit hose. An important regulator for calibration and pressure tests of cable conduits and to pressure of subducts prior blowing in conduits.

Included in duct calibration set RKV 40.

Code	Type	Adjustable	Hose	kg
23163007	DLR 10	0-10 bar	Exit 5 m	11,30



Case for accessory

Case for micro cabling accessory, with 9 shelves as following:

- 4 each 132x82x105
- 4 each 168x131x105
- 1 of 286x168x105

Code	Type	Dimension	kg
275638	KZM 6040	600x400x155	4,30

ohne Zubehör | without accessories



Cable blow-in stop

Cable blow-in stop for in-house and underground fibre cable installations for cable lengths up to 200 m. Transparent duct with sponge shock absorber.

The standard rope winch is equipped with hand operated rope guide and a rope protection cover according to the rules. The winch can be equipped with the mechanical rope length measuring device SLM 510. For pulling-in fibre optic cables, subducts or delicate cables with the electronic digital line pull data recorder with USB interface, see below. For safety reason the pulling force on the bottom of drum is limited to 5,0 kN.

Code	Type	D-OD	D-ID	kg
275650	KES 0704	7	4	0,03



FOC-Cable cutter

Cable side cutter for micro and mini FOC cables up to dia. 4,0 mm, length 125 mm. Knife special hardened also for Aramid and Kevlar.

Code	Type	For FOC-D	kg
255960	KSS 4,0	0,5-4,0	0,06



Cable cutter

Cable cutter for Cu-/Al and FOC cables up to D 20 mm / 70 mm². Precision ground, hardened blades, therefore clean and smooth cut. Insulated with multi-component grips, VDE-tested. Length 200 mm.

Code	Type	For C-D	kg
255965	KSD 20	20	0,36



Conduit and cable slitter

Conduit slitter for lengthwise and circumferential slitting of plastic conduits and cable covers. Complete reinforced steel version. In case 195x75x45 mm.

Code	Type	To wall thickn.	---	kg
255905	KMS 6	6	195x75x45	0,35
255910	ERM 6	Spare knife	---	0,03



Cable conduit saw

This cable conduit saw SRS 6.1 is a further development of the proven SRS 6. The saw is suitable for cutting occupied and unoccupied cable conduits without damaging internal cables or subducts. The saw is suitable for conduits at an outer diameter of 32-150 mm and at a max. wall thickness up to 6 mm. The saw can precisely cut lengthwise and crosswise and can also precisely cut windows into the cable conduit. Especially for long cuts on the cable conduits which are necessary for cable line redirections the great benefits of this saw pay off. The cutting depth can be precisely adjusted to a 1/10 of a millimetre by an adjustment mechanism thus the cables inside the cable conduit are well-protected. The cutting depth has always to be set 0,2 mm less than the conduits wall thickness. The remaining very thin plastic membrane will be removed by a lifter tool thus the cable is also protected during this final step.

The conduit guiding plates allow a high safety at work as well as accurate cuts. The guiding plates are available for the below mentioned conduit-diameters. The cordless saw is handy and small in order to be fit for application also in narrow working conditions its weight is below 2 kg. Included in delivery are the following parts:

- Accu-saw with high-quality blade hard metal equipped and 3 accus with 1 charger
- Precise pre-adjustment of the cutting depth, 1/10 mm accurate sliding calliper.
- Lifter for the window-cutting rest
- Packed and delivered in robust box, 445x355x255, weight app. 6,5 kg
- Only approx. 1,9 kg of weight for comfortable application

Code	Type	Device	For D-OD	kg
273212	SRS 6.1	Saw as above	32-150	6,50
273228	RFP 32	Guide plate	32	0,35
273230	RFP 40	Guide plate	40	0,32
273232	RFP 50	Guide plate	50	0,26
273234	RFP 63	Guide plate	63	0,26
273237	RFP 64+	Guide plate	64-150	0,20
273222	ESB 6	Spare blade	---	0,03

Sub duct slitter

Sub duct slitter for lengthwise slitting. Supplied with a protecting cap.

Code	Type	Subduct occup.	Subduct empty	Wall	L/W/H mm	kg
255942	MLS 20	from D 10x1,00	from 8x2,00	to 2,00	125x50x30	0,07



Sub duct slitter

Sub duct slitter for lengthwise slitting and circumferential slitting of plastic conduits and cable covers. Cutter for empty and occupied subducts and dismantler for multiducts. Special thin and grinded turning guide shoe blade. Special shape of handle reduces danger of injury. Incl. 2 spare turning blades, e.g. 4 single blades.

Code	Type	Subduct occup.	Subduct empty	kg
255950	MLS 22	from D 7x1,50	from 5x0,75	0,70
255955	MLE 22	Spare knife	for LMS 22	0,02



Duct cutter

Duct cutter for occupied or empty subducts.

Code	Type	D-OD	For ducts	kg
272400	SDC 0314	3-14	occupied + empty	0,02



Duct cutting tongs

Duct cutting tongs, only for use with empty subducts.

Code	Type	D-OD	For ducts	kg
272410	RSK 0214	2-14	only for empty ducts	0,10
0931240272	EM 14	--	5 spare blades for RSK 0214	0,03
272414	RSK 0525	5-25	only for empty ducts	0,28
0931240302	EM 25	--	5 spare blades for RSK 0525	0,02



Burring tool

Burring tool for in- and outside of plastic conduits. Of lightweight aluminium

Code	Type	D-OD	Dimension	kg
273175	MRE 26	3-26	D 36x90	0,39



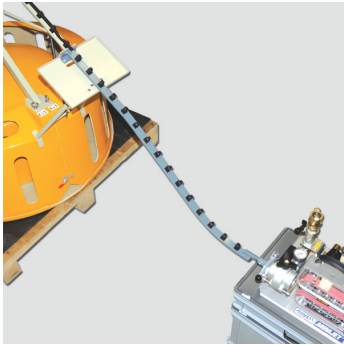
FigarinO the cable basket

FigarinO. The FOC basket is used if the cable is too long to be blown completely with only one blowing machine. When half of the cable is installed in one direction the remaining cable is pushed into the FigarinO with the blowing machine. Out of the FigarinO this part of the cable can be blown uncut in the opposite direction to finish the installation.

A second application is "overblowing" longer cables. Instead of laying these on figure of eight on the floor they can be blown in the FigarinO. After opening the FigarinO the cable ring can be turned around and the cable can be blown-in totally.

- Cable Cap.: 4600 m D 4 / 2000 m D 6 / 1200 m D 7,5.
- The FigarinO replaces laying figure of 8 on the ground, is clean and space saving.
- The FigarinO is always placed besides the cable drum.

Code	Type	Basket-D	For transport	kg
411150	SLK 120	1260	Divisible in the middle.	71,00



Cable lead in bow

Cable bow for pushing-in the cable into the FigarinO with the Minijet

Code	Type	Equipment	Suitable to	kg
04111521	KEB 120	Cable bow	Minijet-FigarinO	3,90
04111523	KEB 120M	Cable bow	MicroJet-FigarinO	4,00



Compressor diesel engine

High powered compressors for blowing-in bigger fibre optic cables. Suitable for MiniJet, for duct ID up to 20 mm. Mounted on single axle trailer with height adjustable drawbar, without overrun brake.

- Kubota Diesel-engine, 24,1 kW. Compressor dimension: 3190x1260x1300
- Flow rate 1,90 m³, at 14 bar working pressure
- With integrated after cooler and water separator. Air discharge valve: 2 x G 3/4"

Code	Type	Air	Press.	D-ID	C-D	kg
960121	M 31	1,90 m ³ /min.	14 bar	3-16,0	to 10	585,00



Compressor electric motor

Compressors with electric motors and integrated after coolers. For blowing-in fibre optic min cables, fibres and bundle fibres up to length of 500 m and more. Mounted on 2 pneumatic wheels, which enables the transport on stairs for one person alone. Suitable for MicroJet EM 25.

- Electric motor 7,5 kW, 400 Volt, compressor dimensions: 1080x800x790
- Flow rate 620 l/min. at 15,0 bar working pressure
- With separate after cooler. Air discharge valve: 1 x G 3/4"

Code	Type	Air	Press.	D-ID	C-D	kg
960114	ME 13	620 l/min.	15 bar	3-8,0	0,8-6,0	205,00



Compressor petrol engine

Compressor with petrol engine and after cooler. For blowing-in fibre optic mini cables, fibres and bundle fibres. Suitable for all MicroJets and for MiniJet P 02. The external after cooler reduces the compressed air temperature approx. 8° C above ambient temperature. The compressor is equipped with a sound absorption cover. It is portable by two pneumatic wheels.

- With Honda-petrol engine 16 kW. Dimension: 1080x800x790
- Flow rate 1000 l/min. at 15,0 bar working pressure.
- With separate after cooler electrical fed by the compressor. Air discharge valve: 1 x G 3/4"
- As accessory see tiltable support for after cooler, table below.

Code	Type	Air	Press.	D-ID	C-D	kg
960118	MK 17.2	1,0 m³/min.	15 bar	3-12,0	0,8-9,0	206,00



Support for after cooler

Support for the after cooler on compressor MK 17.2. Steel frame hot galvanized. With this the after cooler is fixed safe and rubbery-elastic by four elements.

To transport the compressor in a van the after cooler is tiltable, please mind the total height of approx. 1,10 m. The after cooler can easily be dismantled from the support.

- Dimension with vertical positioned after cooler, L/W/H 1170/800/1220
- Dimension for transportation with tilted after cooler, total height only 1100

Code	Type	Material	kg
960145	KHN 17.2	Steel profiles, galvanized	8,50





Compressor electric motor

Compressors with electric motors and integrated after coolers. For blowing-in fibre optic min cables, fibres and bundle fibres up to length of 500 m and more. Mounted on 2 pneumatic wheels, which enables the transport on stairs for one person alone. Suitable for MicroJet EM 25.

- Electric motor 2,2 kW, 400 Volt, IP 55, compressor dimensions: 1150/580/540
- Low sound level of 69 dBA(A).
- 3-fold air filters, clean, dry, oil- and water-free air.
- With integrated after cooler and water separator. Air discharge valve: 1 x G 3/8"
- Convenient for one man stair transports.

Code	Type	Air	Press.	D-ID	C-D	kg
960111	VE 240	240 l/min.	10,5 bar	2,5-6,0	0,8-4,0	54,00



Compressor electric motor

Compressor with electric motor for blowing-in optic bundle fibres and mini cables in in-house installation. 230 Volt, without after cooler. Portable and transportable on 2 wheels. Soundproof hood. Suitable for UltimaZ P2P.

- Electric motor 1,1 kW, 230 Volt, compressor dimensions: 560/350/560
- Capacity 100 l/min. at 12 bar.
- Soundproof hood 71 dB(A).
- Pressure reservoir 4 litre

Code	Type	Air	Press.	D-ID	C-D	kg
960102	VE 100	100 l/min.	12 bar	2,5-5,5	0,8-4,0	31,00



Compressed air hose

Compressed air hose DN 10, L 7 m, with swing-coupling and connecting standard nipple for UltimaZ P2P to compressor VE 100

Code	Type	DN	Press.	Length	kg
042334017	DLS 10/7	10	15 bar	7 m	1,60



Y-piece with accessory

Y-piece for connection of 2 compressors VE 100, with same pressure and volume of 15 bar and 0,24m³/min. Incl. 2 non-return valves. Connection parts are not included, the need is as following:

- For duct-Ø 10 - Code 275.766, DAM 10, Air-connector
- For duct-Ø 12 - Code 275.768, DAM 12, Air-connector
- For compressor connection: 2 air hoses Code 0423.340.15, DLS 10/7, see below

Code	Type	Max. press.	D-OD	kg
275775	YVE 16	15 bar	---	1,10
275766	DAM 10	10 bar	10	0,08
275768	DAM 12	10 bar	12	0,10



Cable unwinder

Cable unwinder for small drums, even with damaged flanged wheels for electric installation works. Tubular steel construction galvanized. Consisting of: basic frame with 2 rubber coated wheels, one drum shaft D 25 mm with 2 cones of polyamide for hole diameter 25-80 mm.

- Collapsible for easy transportation to the site.
- Easy movable with the drum through big rubber coated wheels.
- For drum-D to 800 and drum widths to 530, drum weight max. 200 kg
- As accessory steel tube drum shaft D 50, ball bearings, 2 clamps, for cones see table below.

Code	Type	Equipment	Shaft	Cones for	kg
320290	KTA 8	Winder as above	D 25	Hole D 25-80	11,60
320292	KTA 8W	Steel tube shaft	D 50	See next line	2,05
315504	ZKP 50-80	Poly-cone (1 each)	D 50	Hole-D 50-80	0,15
3155045	ZKP 50-108	Poly-cone (1 each)	D 50	Hole-D 50-108	0,39



Drum unwinding stand for FOC

Drum unwinding stand for FOC or subduct drums, galvanized. Equipped with a lightweight aluminium shaft D 75 mm with drum shaft securing and 2 clamps.

- Sturdy steel construction, hot galvanized, easy dismountable by hand for transportation.
- Two crank spindles to lift the stand for unwind cables in any position.
- High stability under load even in uneven places.
- For drum-D to 1400, and drum width to 900, drum weight max. 500 kg.
- As accessory alu-drum shaft D 50, ball bearings, order clamps and cones separately, see table below.
- Dimensions mounted: L/W/H 1450/1400/689.

Code	Type	Equipment	Shaft	Cones for	kg
344355	TRG 1140	Winder as above	D 75	---	96,00
350592	TAK 5013	Alu drum shaft	D 50	---	7,40
315030	KSV 51	Shaft clamps	D 50	---	1,30
315504	ZKP 50-80	Poly-cone (1 each)	D 50	Hole-D 50-80	0,15

3155045 ZKP 50-108 Poly-cone (1 each) D 50 Hole-D 50-108 0,39



Cable trailer straight or adjustable drawbar

Cable drum trailer with straight or height adjustable draw bar and overrun brake for speeds up to 80 km/h. For loading the support arms are swung down and then raised picking up the drum by a single hand winch. Rigid tubular steel shaft D 76 mm. Rotating alu-shaft D 75 mm as accessory. Further accessory see below.

Payload without accessories. If accessories are mounted like hydr. drum drives etc. the payload reduces according to their weights.

- Types G - with straight draw bar can only be equipped with ball coupling
- Types H - with adjustable draw bar equipped with eye coupling, ball coupling as accessory
- Suitable for one-man operation
- Complete trailer hot galvanized
- Rotating alu shafts as accessory, see below.
- Drum band brake as accessory, see below.



Code	Type	Payl.	Total	Drum-D	Hitch	Int./Ext.	kg
342088	KVS 1000/80G	980 kg	1300 kg	600-1650	75 kg	1300/2140	320,00
342131	KVS 1500/80G	1500 kg	2100 kg	600-2400	100 kg	1580/2450	590,00
342146	KVS 2000/80G	2000 kg	2600 kg	600-2400	100 kg	1580/2450	600,00
342093	KVS 1000/80H	930 kg	1300 kg	600-1650	75 kg	1300/2140	370,00
342136	KVS 1500/80H	1500 kg	2200 kg	600-2400	120 kg	1580/2450	670,00
342151	KVS 2000/80H	2000 kg	2700 kg	600-2400	120 kg	1580/2450	700,00

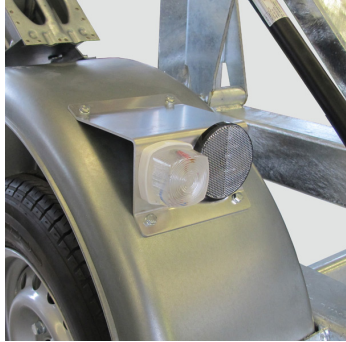


Rear protection gate

Rear protection gate, for Cable trailers KVS 1000-2000 G+H, hot galvanized.

The need of a rear protection is subject to national regulations. Independent of this, the rear protection offers a higher safety in the road traffic.

Code	Type	Suitable for	Trailer ext. width	kg
349820	KUF 100	KVS 1000G+H	2140	16,00
349826	KUF 200	KVS 1500-2000G+H	2450	30,00

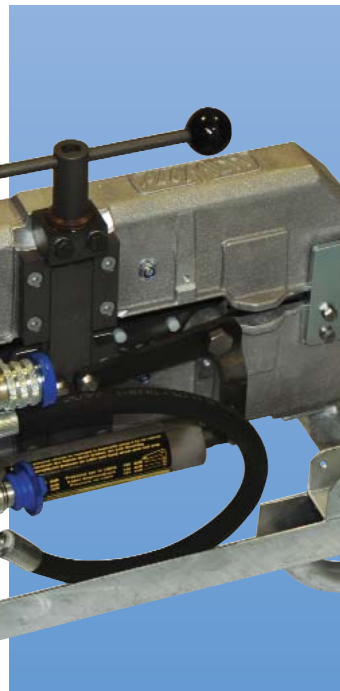
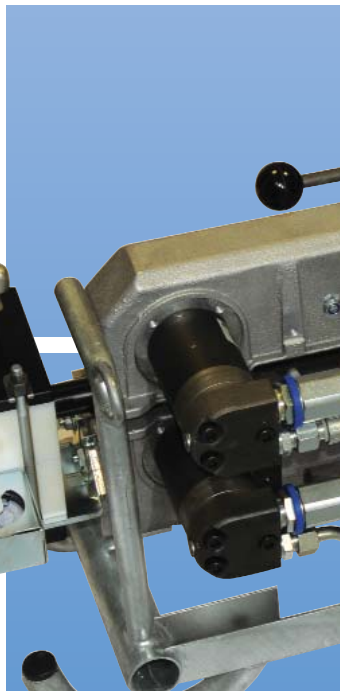
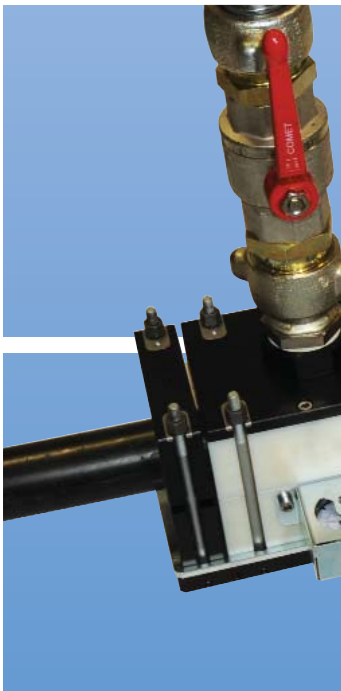
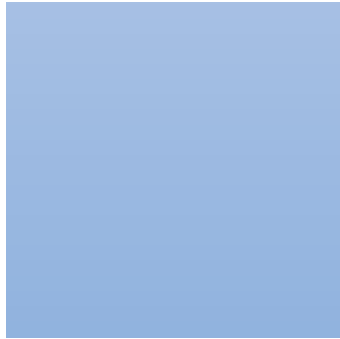
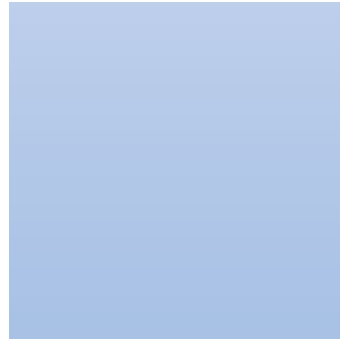
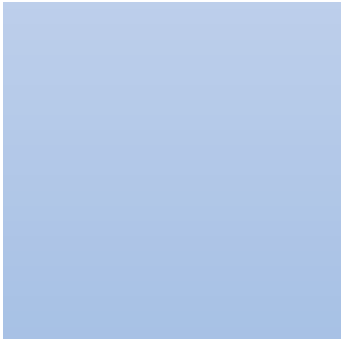
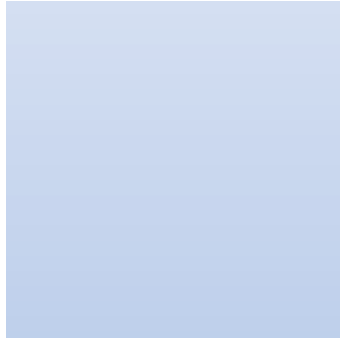
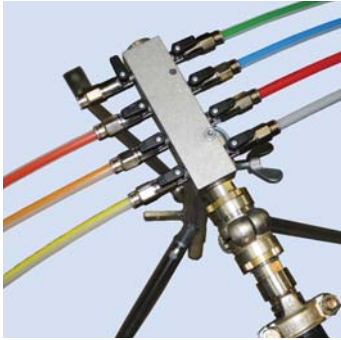


Position lights

Position lights 12 volt, in front of the trailers KVS 1000-2000 G + H, according to the law of some countries

Code	Type	Suitable for	kg
349550	KPL 12	KVS 1000-2000G+H	3,00

Blowing-in and pulling units for subducts





SuperJet for cables D 14-32 mm and subducts in all sizes

Compressors for blowing-in subducts

Subduct drum unwinding units up to 8 drums

Calibration-sets and detectors for subducts

Cable conduit saw for duct-Ø 31-150 mm

Air distributors and regulators for subducts

Cutter and burring tools for plastic cable ducts

Lubricants for fibre optic cables and subducts

Pulling-in equipment for 1 to 20 subducts

Cable lead-in tubes and rollers

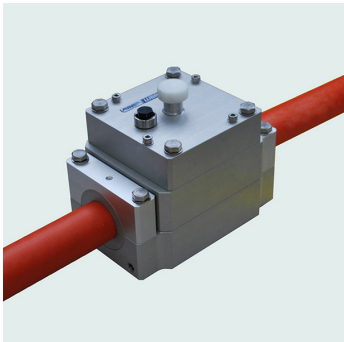


SuperJet for FOC D 12-34 mm

SuperJet for tension-free blowing-in of bigger fibre optic cables and bundles of sub ducts D 7-14 mm each. A very long belt drive of 330 mm secures a correct guide of cables and sub ducts. With digital length and speed meter. Including hydraulic power pack with petrol engine and control instruments. Worldwide thousand fold proven blowing machine. For successful blowing-in of big length, in ducts of D 50 mm a compressor of 12 bar and 10 m³/min. is necessary. Basic machine without belts, cable and duct inserts. See accessory below. Basic equipment consist of the following details:

- Petrol-hydraulic pack with hoses
- Length- and speed meter
- Ball valve 1 1/2" with screw couplings.
- Air pressure hose 1 1/2", length 10 m.
- Compressor of min. 10 m³/12 bar for duct dia. 50x4,6

Code	Type	Cable-D	Subducts	Chain band	Duct-D	kg
410314	SJH 34	14-32	D 7-14	330	28-63	125,00



Lubricator automatic device

Lubricator L 18 for automatic continuous greasing of the cable blown by CableJet or SuperJet. This lubricator L 18 is especially recommended when blowing bigger cables in ducts

- The Lubricator L 18 guarantees an uniform lubrication on the whole length duct length.
- With the Lubricator L 18 the blowing cable lengths can be increased of approx. 20-40 %.
- This bigger Lubricator L 18 is only for use with CableJet and SuperJet machines.

Code	Type	Suitable to	K-D	Ro-AD	kg
423505	L 18	CableJet+SuperJet	9-18	20-50	10,00

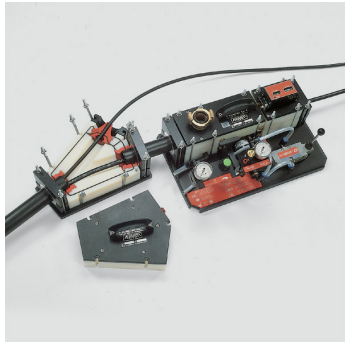


Accessory for FOC-floating

Accessory for FOC-floating with water for CableJet and SuperJet.

- The CableJet and SuperJet are also able to float-in very long lengths of cables with water.
- Cable lengths of 10 km were floated very successfully.
- The procedure is very simple and big length will certainly be achieved.
- Please ask for our special systems documents.

Code	Type	Suitable to	C-D	D-OD	Press.	kg
275210	REC 15/1W	Cablejet	9-19	28-63	4-8 bar	4,80
275213	RES 15/1W	SuperJet	14-32	28-63	4-8 bar	3,45
275216	GMT 600	SuperJet	Lubricant funnel	for all	for all	1,00



Y-duct connector

Y-duct connector for blowing-in a second or third cable in occupied ducts. Please select for this the corresponding cable and duct inserts. See table below of CableJet or SuperJet.

- Allows to blow-in second or third cable in the same duct.
- Also necessary for blowing of additional subducts in occupied ducts.

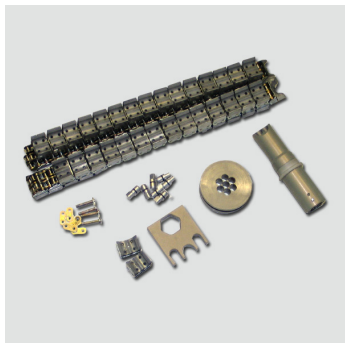
Code	Type	Duct inserts	Cable inserts	kg
410220	YK 5050	2x for D-OD 50 incl.	for 2 cables order separately	16,00
41024510	KEY 18	-	for 3rd cable order separately	0,46



Creeper chain for cables

Creeper chain with rubber cams for blowing-in cables of D 14-32 mm with the SuperJet. Two are required.

Code	Type	Suitable for	C-D	Required	kg
042500209	PRO 0820	SuperJet	14-32	2	1,60
0425002095	PRS 0821	SuperJet	Chain joint	2	0,02



Driving chains for sub ducts

Driving chains for blowing-in subducts with the SuperJet, combination see table below.

Code	Type	D-OD	Subducts	In D-OD	kg
42107007	KET 7/007	7	7	50 or 40	4,70
42107010	KET 7/010	7	10	50 or 40	4,70
42111005	KET 10/345	10	3/4/5	50 or 40	4,85
42111007	KET 10/007	10	7	50	4,70
42111205	KET 12/345	12	3/4/5	50 or 40	10,20
42111207	KET 12/007	12	7	63	4,70
42111403	KET 14/023	14	2/3	50	5,20
42111404	KET 14/004	14	4	50	11,00
42111633	KET 16/003	16	3	50	11,00



Flat rubber chain

Flat rubber chain single incl. chain joint. This chain is mounted on the bottom to complete the existing chain of 5x7 / 5x10 and 5x12 for further subducts of 2x7 / 3x7 / 2x10 and 2x12 mm.

Code	Type	D-OD	Subducts	In D-OD	kg
042113931	flat chain	see text	see text	50 or 40	1,00



Cable inserts

Cable inserts suitable to CableJet and SuperJet. Also necessary for the Y-piece to blow-in a second or third cable in one duct. One set of cable sealing for the hole range of cable diameters is included.

Code	Type	C-D	kg
41015014	KEJ 14	12,5-14,0	0,44
41015015	KEJ 15	14,0-15,5	0,44
41015018	KEJ 18	15,5-18,0	0,45
41015022	KEJ 22	17,5-22,0	0,41
41015024	KEJ 24	22,0-24,0	0,45
41015028	KEJ 28	24,0-28,0	0,41
41015032	KEJ 32	28,0-32,0	0,41



Cable sealing

Cable sealing for CableJet. These are also useable in the Y-piece for blowing-in of further cables in the same duct.

Code	Type	C-D	For insert	Set of	kg
415140	KDR 14	12,5-14,0	KEJ 14	20 half seals	0,01
415150	KDR 15	14,0-15,5	KEJ 15	20 half seals	0,02
415180	KDR 18/16	15,0-16,0	KEJ 18	20 half seals	0,02
41518018	KDR 18/18	16,0-18,0	KEJ 18	20 half seals	0,02
415200	KDR 20/18	17,0-18,0	KEJ 18	20 half seals	0,04
41520020	KDR 20/20	18,0-20,0	KEJ 22	20 half seals	0,04
41522022	KDR 20/22	20,0-22,0	KEJ 22	20 half seals	0,04
415230	KDR 24	22,0-24,0	KEJ 22	20 half seals	0,03
415280	KDR 25	23,0-25,0	KEJ 22	20 half seals	0,05
41528028	KDR 28	25,0-28,0	KEJ 28	20 half seals	0,05
41535030	KDR 32/30	28,0-30,0	KEJ 32	20 half seals	0,12
41535033	KDR 32/32	30,0-32,0	KEJ 32	20 half seals	0,12



Subduct chain inserts

Subduct chain inserts suitable to SuperJet to blow-in a bundle of subducts. Sealing set is included. Suitable to chains see table below.

Code	Type	For subduct chains KET	kg
41015035	SDJ 36	7/007 (7/010) (10/345) (10/007)	0,36
41015042	SDJ 42	12/345 (12/0079) (14/023) (14/004) (16/003)	0,36



Subduct sealing

Subduct-sealing to subduct-inserts for SuperJet.

Code	Type	For insert	Set of	kg
41535038	SDR 36	SDJ 36	4 half seals	0,01
41542044	SDR 42	SDJ 37	2 cpl. seal	0,06



Duct inserts

Duct inserts suitable to CableJet, SuperJet. Also necessary for the Y-piece to blow-in a second or third cable in one duct.

Code	Type	D-OD	kg
41018032	REJ 32	32	1,40
41018040	REJ 40	40	1,40
41018050	REJ 50	50	1,40
41018063	REJ 63	63	1,40



Compressor diesel engine

High powered compressors for blowing-in bigger fibre optic cables. Suitable for CableJet and SuperJet and for duct ID up to 41 mm. Mounted on single axle trailer with height adjustable overrun drawbar. Incl. Diesel-Oxidation filter and particle filter. Emission standard IV and US-standard EPA Tier 4.

- Deutz Diesel-engine, 105 kW. Compressor dimension: 5180x2130x1790
- Flow rate 10,70 m³, at 12 bar working pressure
- With integrated after cooler and water separator.
- Diesel-Oxidation filter and particle filter. Emission standard IV and US-standard EPA Tier 4.
- Air discharge valves: 1 x G 1 1/2" and 3 x G 3/4"

Code	Type	Air	Press.	D-ID	C-D	kg
------	------	-----	--------	------	-----	----

960125 M 125 9,7-11,5 m³/min. 14-7 bar, s. above to 41 to 30 2.088,00



Pressure release valve

Pressure release valve with sound absorber for compressors. Max. pressure 15 bar.

Code	Type	Press.	For compressor	kg
09601003	EVK 34	15 bar	MK 17 / M 31	1,30
275220 8	EVK 15	15 bar	M 125	2,70



Compressed air hose

Air hose, special flat, for blowing-in fibre optic cables and subducts. Complete with screw fittings.

Code	Type	Size	Working	Bursting	Length	kg
410420	KFS 15/1,5"	1 1/2"	20 bar	60 bar	15 m	9,12
231660	KFS 15/1"	1"	15 bar	45 bar	15 m	4,70
23165910	KFS 10/1"	1"	15 bar	45 bar	10 m	3,50



Drum unwinding stand

Drum transporting and unwinding stand for subduct drums of different suppliers. For several application e.g. on platforms of trucks or for placing on the ground or on the trailer TRA 8120, see below. Equipped with 2 lightweight aluminium shafts D 75 mm with 2 clamps and 6 spacer tubes.

Drum unwinding stand dismounted for shipment ex works. With small efforts the customer can screw it together. If not used for longer time, it can again be dismounted and stocked at a very small place.

- Sturdy steel construction, hot galvanized, screw mounted, easy dismountable for transport.
- Pay load for 8 / 6 full subduct drums, total weight without trailer 2500 kg possible.
- Two crank spindles to lift the stand for unwind the subducts in any position.

Code	Type	Drums/D	Drum width	Int. width	L/W/H mm	kg
344100	TRG 8120	8 max. 1200	max. 440	2160	2770/2330/770	277,00
344110	TRG 8120S	6 max. 1200	max. 440	1720	2770/1900/770	250,00



Platform Trailer

Tandem trailer prepared for mounting the drum unwinding stand TRG 8120 or for universal use for other goods. Height adjustable draw bar with overrun and parking brake. With eye and interchangeable ball coupling. Two rear crank spindles. Chamber to lodge the aluminium loading ramps. accessory 4 folding down alu-boards and 2 aluminium loading ramps. Trailer checked by Technical Inspection Agency.

Code	Type	Total	Payl.	Hitch	L/W/H mm	kg
344300	TRA 8120	2000 kg	1245 kg	100 kg	5430/2450/600	800,00



Aluminium boards to trailer

Folding down aluminium boards to tandem trailer, four parts, height 300 mm.

Code	Type	Height	kg
344301	TRA board	300	50,00



Drum loading ramps

Drum loading ramps, light aluminium construction for easy loading subduct drums on the trailer by only one person.

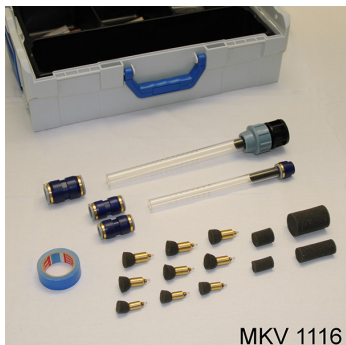
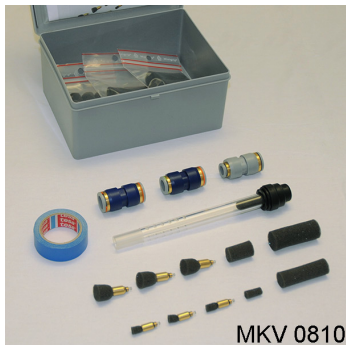
Code	Type	Suitable to	Dimension	kg
344302	TRA Ramp	TRA 8120	2500x300x55	20,00



Cable bundle stand

Bundle stand, triangle changeable up or downgrade, on tripod with height adjustment, steel construction galvanized.

Code	Type	Roller-D	Mat.	SWL	L/W/H mm	kg
203910	BNB 3	42x320	Steel	200 kg	900x900x1300	13,20



Subduct calibration sets

The calibration sets MKV 0810 and MKV 1116 in conjunction with the accessory micro-transmitter SKS 6 (code-no. 231941) are destined for the calibration of subducts with an internal diameter 8,0 to 16,0 mm. The calibration can be done for single subducts as well as for multi subducts. By the calibration defects or blockages on the subducts can be detected in advance thus a good blowing-in performance can be achieved.

The MKV 0810 set contains two calibres with different diameters for the calibration of subducts with internal diameter 8,0 or 9,8-10,0 mm. The MKV 1116 set contains three different calibres for testing subducts of ID 11,4-16,0 mm. The calibres are easily screwed onto the micro-transmitter and blown through the subducts by air-pressure. The set also contains all essential connectors, reducing nipples as well as a catcher for the micro-transmitter. The catcher has to be used in order to avoid damages to the micro-transmitter. The air-pressure for the calibration has to be limited to max. 4 bars for MKV 0810 and to max. 2 bars for MKV 1116. By applying a higher pressure the micro-transmitter might be damaged by hitting duct blockages or by hard crashing into the catcher at the very end. The set contains the following parts:

- MKV 0810 with: each 3 calibre D 6,8 for ID 8,0 / 3 calibre D 8,5 for ID 9,8-10
- MKV 1116 with: each 3 calibre D 9,5 / ID 11,4-12 / 3 calibre D 11,0 / ID 15-16 / 3 calibre D 12,5 / ID 15-16.
- 6 washers to each calibre
- 5 sponges for each calibre. 1 general catcher and different connectors and duct-reducers
- Depending on the duct diameters different air connectors are necessary, see the following tables.

Code	Type	Device	Subduct-ID	Case	kg
231950	MKV 0810	Calibration set	8-10	180x140x80	1,43
231952	MKV 1116	Calibration set	11,4-16	442x357x151	5,00
231941	SKS 06	Micro transmitter	D 6,5x84	---	0,17
231943	BAT 06	Set of batteries	10 each	---	0,04



MKK 0606



Calibration Set for Subducts 10/06

The calibration set MKK 0606 in conjunction with the micro transmitter SKS 04 is foreseen to calibrate subducts with inner diameter D 6.0 mm only. The calibration can be performed for single subducts as well as for multi subducts in buried and protective pipe installed versions. This new calibration set supports the blowing-in of mini- and micro cables on a completely new level since the quality of a sub duct installation can be checked in general. The set comprises of 3 calibres with protection sponge having a diameter of 4.8 mm, a collecting device for the pipe end, a spare battery cover and 2 spare batteries.

The calibre will be simply unscrewed on the micro transmitter and with the sponge ahead blown-into the pipes using compressed air. The micro transmitter is a precision engineered measuring device, which has to be handled in the civil engineering with special care. Never operate the transmitter without protection sponge, bumper and collecting device fixed at the end of the pipe. Attentions should be paid to max. possible bending radius and air injection pressure - too high air pressure can cause damages on the calibration set.

During backward blowing the enclosed collecting device has to be used or at least a sufficient padding of another collecting device shall be implemented.

- Calibration set MKK 0606 including 3 calibres D 4,8 for ID 6,0 mm
- 20 sponges and collecting device at the pipe end for collection of the calibre
- 1 Micro Transmitter SKS 04, detection frequency 33 kHz, sensitivity in earth max. 2,0 m
- Max. injection pressure 5 bar, 4 bar is sufficient for horizontal routes
- Min. bending radius for subducts 175 mm, smaller radius cause unavoidable a blockage
- Batteries of the larger micro transmitter SKS 06 are used

Code	Type	Device	Subduct-ID	Case	kg
231930	MKK 0606	Calibration set	6,0	180x140x80	1,00
231943	BAT 06	Set of batteries	10 pcs.	--	0,04



Cable conduit saw

This cable conduit saw SRS 6.1 is a further development of the proven SRS 6. The saw is suitable for cutting occupied and unoccupied cable conduits without damaging internal cables or subducts. The saw is suitable for conduits at an outer diameter of 32-150 mm and at a max. wall thickness up to 6 mm. The saw can precisely cut lengthwise and crosswise and can also precisely cut windows into the cable conduit. Especially for long cuts on the cable conduits which are necessary for cable line redirections the great benefits of this saw pay off. The cutting depth can be precisely adjusted to a tense of a millimetre by an adjustment mechanism thus the cables inside the cable conduit are well-protected. The cutting depth has always to be set 0,2 mm less than the conduits wall thickness. The remaining very thin plastic membrane will be removed by a lifter tool thus the cable is also protected during this final step.

The conduit guiding plates allow a high safety at work as well as accurate cuts. The guiding plates are available for the below mentioned conduit-diameters. The cordless saw is handy and small in order to be fit for application also in narrow working conditions its weight is below 2 kg. Included in delivery are the following parts:

- Accu-saw with high-quality blade hard metal equipped and 3 accus with 1 charger
- Precise pre-adjustment of the cutting depth, 1/10 mm accurate sliding calliper.
- Lifter for the window-cutting rest
- Packed and delivered in robust box, 445x355x255, weight app. 6,5 kg
- Only approx. 1,9 kg of weight for comfortable application

Code	Type	Device	For D-OD	kg
273212	SRS 6.1	Saw as above	32-150	6,50
273228	RFP 32	Guide plate	32	0,35
273230	RFP 40	Guide plate	40	0,32
273232	RFP 50	Guide plate	50	0,26
273234	RFP 63	Guide plate	63	0,26
273237	RFP 64+	Guide plate	64-150	0,20
273222	ESB 6	Spare blade	---	0,03

Detection of multi ducts with average duct in the centre

Multi ducts can be detected in short distances through the average duct of dia. 12x2,0 or 14x2,0 mm laying in the centre. The micro transmitter SKS 06 of diam. 6,4 mm is screwed on the M5 thread of the mini-rod diam. 3 mm. The obtainable pushing length depends on the local condition but is limited anyway by the max. length of the mini rod of 50 m. Using lubricant relieves pushing and pulling back the transmitter. Detection depth in the ground is max. 2 m. The yellow or red mini rod can be used for inserting the micro transmitter.

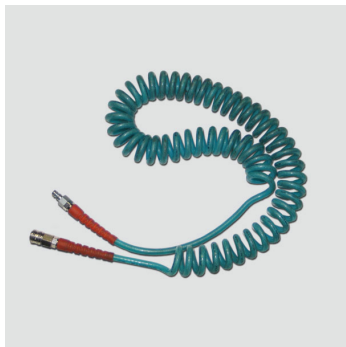
Code	Type	Device	Subduct-ID	kg
231941	SKS 06	Micro transmitter	from 8	0,17
231943	BAT 06	Battery set	---	0,04
211006	RS 3-50	Mini rod	---	1,50
235130	J 35V	Lubricant	---	1,00



Air distributor for sub ducts

Air distributor device for 8 sub ducts

Code	Type	Subducts	D-OD	kg
275629	DVA 10	8	10	2,44
275631	DVA 12	8	12	2,80



Spiral air hose for sub ducts

Spiral air hose with coupling for air filling of sub ducts

Code	Type	D-OD	kg
275633	SPS 12	7-14	0,75



Air distributor for subducts

Air distributor for subducts, existing of alu-distributor, manometer, plug-in coupling and ball valve with release valve.

If you want connect sub ducts Ø 12 mm with VKM 10S, you need in addition the reduction coupling RSM 12/10. This can also be used for VKM 12S for connecting sub ducts Ø 10 mm.

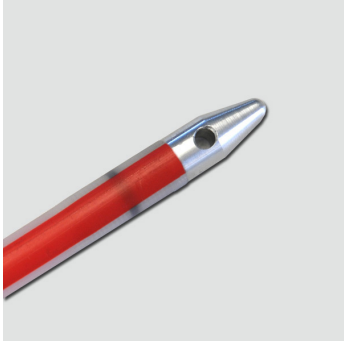
Code	Type	D-OD	Coupling	kg
275620	VKM 10S	10	-	0,46
275625	VKM 12S	12	-	0,48
272522	RSM 12/10	Reduction	12/10 or 10/12	0,03



Air connector for sub-ducts

Air connector for blowing up single sub ducts .

Code	Type	D-OD	kg
275610	DAS 42K	7-14	0,44



Plug and pulling head

Plug, blowing and pulling head of aluminium for subducts

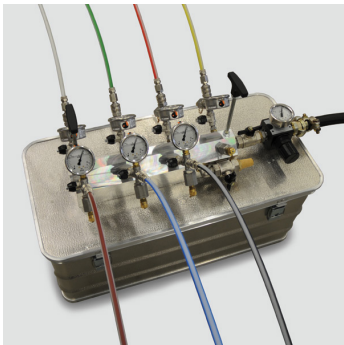
Code	Type	For D-D	Set of	Size	kg
2739904	SDV 0707	7x0,75	10	D 7,2x44	0,51
2739908	SDV 0715	7x1,50	10	D 7,2x40	0,03
2739912	SDV 1010	10x1,00	10	D 10,2x50	0,22
2739914	SDV 1211	12x1,10	5	D 12,2x50	0,06
2739922	SDV 1413	14x1,30	5	D 14,2x50	0,08
2739928	SDV 1620	16x20	5	D 16,2x56	0,21



Air regulator valves for sub-ducts

Air regulator valves with tripod and 5 m exit hose. Entry hose as accessory. An important regulator for calibration and pressure tests of cable conduits and to pressure of subducts prior blowing in conduits.

Code	Type	Press.	Hose	kg
23163016	DLR 16	0-16 bar	Exit 5 m	11,30
23163007	DLR 10	0-10 bar	Exit 5 m	11,30
231655	KFS 5/1	0-16 bar	Entry 5 m accessory	2,20



Air pressure testing unit

Air pressure testing unit for subducts. Complete set with 7 manometers and valves. Without hoses, in alu case.

Code	Type	Subducts	Press.	Alu-Case	kg
275640	RDP 7	7	0-10 bar	780/310/280	26,00



Duct coupling and plug for testing subducts

Duct coupling and plug for testing subducts

Code	Type	Article	D-ID	Press.	kg
275635	AKM 10	Coupling	10x1,0	6 bar	0,05
275636	AKM 12	Coupling	12x1,0 + 1,1	6 bar	0,10
275645	VST 10	Plug	10x1,0	6 bar	0,07
275646	VST 12	Plug	12x1,0 + 1,1	6 bar	0,13

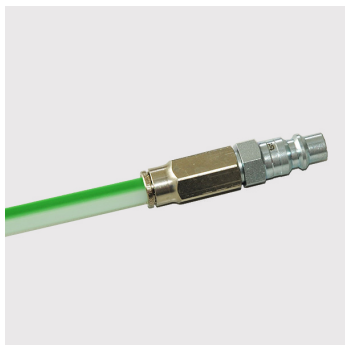


Detector for micro transmitter in subducts

Detector with 8 batteries, without transmitter. For precise localisation of non-metallic conduits, and to find blockages with the conduit rods yellow or red D 3,0 mm. The following configuration is possible:

- Yellow conduit rod with screwed on micro transmitter for spot or blockage detection

Code	Type	Frequency	Transmitter	L/W/H mm	kg
231611	CAT4+	33 kHz,	without	255/70/725	2,20



Air connector for calibration sets

Air connector for subduct calibration sets.

Included in MicroJet PRM 196 and in Minijet P 02.

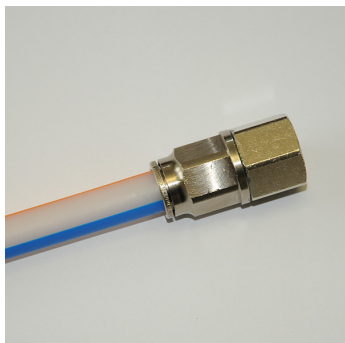
Code	Type	D-OD	Press.	kg
275766	DAM 10	10	to 6 bar	0,08



Air connectors for calibration sets

Air connectors for subduct calibration sets.

Code	Type	D-OD	Press.	kg
275750	DAK 10	10	to 6 bar	0,39
275752	DAK 12	12	to 6 bar	0,41
275754	DAK 14	14	to 6 bar	0,40
275756	DAK 16	16	to 6 bar	0,40



Subduct-plugs of metal

Subduct-plugs of metal with plug-in coupling, for max. pressure 6 bars

Code	Type	D-OD	Press.	kg
275770	DEM 10	10	to 6 bar	0,07
275771	DEM 12	12	to 6 bar	0,13
275772	DEM 14	14	to 6 bar	0,20
275773	DEM 16	16	to 6 bar	0,15



Conduit plug for duct-OD

Conduit plug for fixing on duct-OD with hose safety coupling applicable for duct calibration, duct pressure tests, duct cleaning etc.

Code	Type	D-OD	Press.	kg
2316512	KRA 20	20	to 6 bar	0,40



Sealing plug

Conduit sealing plug applicable for duct pressure tests.

Code	Type	D-OD	Press.	kg
273569	ENSA 20	20	to 6 bar	0,07



Air regulator for calibration sets

Air regulator with manometer for subduct calibration set.

Included in MicroJet PRM 196

Code	Type	Adjustable	kg
275744	DMM 16	0-16 bar	1,43



Air regulator for calibration sets

Air regulator with manometer for subduct calibration set.

With safety couplings for air pressure hoses.

Code	Type	Adjustable	kg
275724	DMP 16	0-16 bar	1,90



Air regulator on tripod

Air regulator valves with tripod and 5 m exit hose. An important regulator for calibration and pressure tests of cable conduits and to pressure of subducts prior blowing in conduits.

Included in duct calibration set RKV 40.

Code	Type	Adjustable	Hose	kg
23163007	DLR 10	0-10 bar	Exit 5 m	11,30



Conduit cutters

Conduit cutters for plain cuts.

Code	Type	D-OD	Length	kg
273171	MRS 43	to 42	215	0,45
273172	MRS 50	to 50	265	0,60
273173	MRS 63	to 63	285	0,70
273174	MRS 75	to 75	485	1,60



Burring tools

Burring tools for in- and outside of plastic conduits.

Paring knife MSM 40, for separating multiple conduits.

Code	Type	D-OD	Burring	Mat.	kg
273190	MRE 63	28-63	only extern	Poly.	0,20
273180	MRE 50	28-50	ext. /intern	Alu	0,43
273200	MSM 40	Paring knife	---	Steel	0,50



Conduit and cable slitter

Conduit slitter for lengthwise and circumferential slitting of plastic conduits and cable covers. Complete reinforced steel version. In case 195x75x45 mm.

Code	Type	To wall thickn.	---	kg
255905	KMS 6	6	195x75x45	0,35
255910	ERM 6	Spare knife	---	0,03



Sub duct slitter

Sub duct slitter for lengthwise slitting. Supplied with a protecting cap.

Code	Type	Subduct occup.	Subduct empty	Wall	L/W/H mm	kg
255942	MLS 20	from D 10x1,00	from 8x2,00	to 2,00	125x50x30	0,07



Sub duct slitter

Sub duct slitter for lengthwise slitting and circumferential slitting of plastic conduits and cable covers. Cutter for empty and occupied subducts and dismantler for multiducts. Special thin and grinded turning guide shoe blade. Special shape of handle reduces danger of injury. Incl. 2 spare turning blades, e.g. 4 single blades.

Code	Type	Subduct occup.	Subduct empty	kg
255950	MLS 22	from D 7x1,50	from 5x0,75	0,70
255955	MLE 22	Spare knife	for LMS 22	0,02



Duct cutter

Duct cutter for occupied or empty subducts.

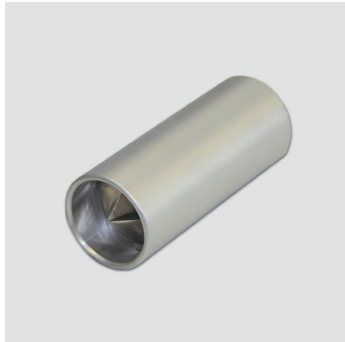
Code	Type	D-OD	For ducts	kg
272400	SDC 0314	3-14	occupied + empty	0,02



Duct cutting tongs

Duct cutting tongs, only for use with empty subducts.

Code	Type	D-OD	For ducts	kg
272410	RSK 0214	2-14	only for empty ducts	0,10
0931240272	EM 14	--	5 spare blades for RSK 0214	0,03
272414	RSK 0525	5-25	only for empty ducts	0,28
0931240302	EM 25	--	5 spare blades for RSK 0525	0,02



Burring tool

Burring tool for in- and outside of plastic conduits. Of lightweight aluminium

Code	Type	D-OD	Dimension	kg
273175	MRE 26	3-26	D 36x90	0,39



Lubricant for FOC

Jettinglube lubricant for blowing-in fibre optic cables. Excellent lubricating effect. Adheres to the duct wall and leaves the cable nearly dry, an advantage for over blowing and working in cascades with further blowing machines. Consumption approx. 0,5 l per 1000 m at duct-ID 40 mm. For other duct-ID analogue

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	kg
234960	CJL 1032	1 bottle 0,95 l	1,00
234965	CJL 1032	12 bottles 0,95 l	12,00
234970	CJL 378	4 bottles 3,80 l	16,00



Lubricant liquid

Cable lubricant Softenol, liquid, for blowing-in and for pulling-in fibre optic cables.

For lubrication unique and ultimate classification, Water pollution class - non-hazardous, acc. to VCI-Conception. Safety data sheets are available.

Code	Type	Pack. drums	kg
235800	SOF 05	1 canister 5 l	5,60
235810	SOF 10	1 canister 10 l	11,00
235830	SOF 25	1 canister 25 l	26,50
235890	SOF 190	1 barrel 190 l	200,00



Duct cleaning sponge

Sponge for duct cleaning and pre-lubricating prior to cable blowing

Code	Type	D-OD	D-ID	Cellular	kg
275408	RSM 32	32	28	D 45x90	0,01
275410	RSM 40	40	35	D 55x90	0,01
275412	RSM 50	50	40	D 65x90	0,01
275414	RSM 63	63	51	D 78x90	0,02

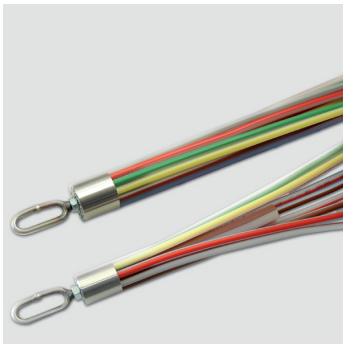


Cutting unit

To achieve a big packing density of subducts in pipes a subduct-bundle with many single ducts from only one single drum is pulled into the duct. The cover of the subduct-bundle is to cut open and to remove manual before the bundle is pulled in. This is done with the cutting unit for subduct bundles. Consisting of double knife, 8 leading rollers and leading tongue made of stainless steel.

- With double knives, 8 leading rollers and tongue made of stainless steel.
- Lead-in width 70, lead-in height 15-30

Code	Type	Dimension	kg
273905	SVR 70	480x330x290	30,10

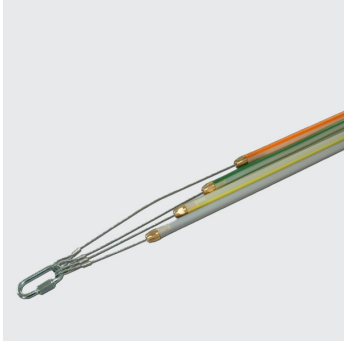


Sub duct pulling heads

Subduct pulling heads for subduct bundles in short duct length. Pulling head of stainless steel, pulling eye of steel.

- Important to meet the max. allowed pulling forces given by the producer.
- Depending on the friction and allowed pull forces length to 300 m are possible.
- At a high utilization of the duct volume the pulling lengths could be shorter.

Code	Type	Subducts	In centre	Head-D	D-ID	kg
2739513	ZK 24/07X	24 x D 7x1,50	1xD14,0x2,00	48,5	min. 51,0	0,85
2739533	ZK 18/07	18 x D 7x1,50	non	36,0	min. 40,8	0,59
2739535	ZK 14/07	14 x D 7x1,50	non	36,0	min. 40,8	0,51
2739543	ZK 10/07X	10 x D 7x1,50	1xD 14,0x2,00	35,0	min. 40,8	0,43
2739563	ZK 10/07	10 x D 7x1,50	non	28,5	min. 32,6	0,36
2739573	ZK 8/07X	8 x D 7x1,50	1xD 14,0x2,00	28,5	min. 32,6	0,22
2739575	ZK 6/07	6 x D 7x1,50	non	24,0	min. 27,4	0,27

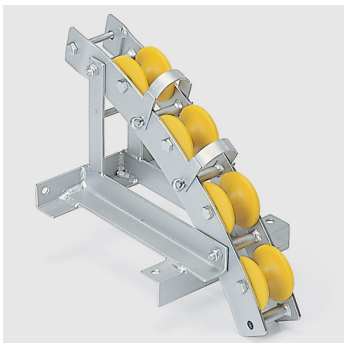


Sub duct pulling units

Subduct pulling units for pulling of odd parts of subducts through shorter ducts. The pulling units are divisible and can be easily combined by the user in any configuration.

- Consisting of screw link, ropes with brass nipples.
- Mind the max. allowed pulling forces given by the producer of the subducts.
- In consideration of friction and allowed pulling forces of the duct 300 m could be achieved.
- At a high filling ration pulling lengths can be much shorter.

Code	Type	Subduct-D	D-OD	Subduct-D	D-OD	kg
2739795	ZE 7/0707	7 pcs. 7x0,75	from 32	---	---	0,14
2739797	ZE 7/1010	---	from 40	7 pcs. 10x2,00	from 40	0,37
2739801	ZE 1/1012	1 pcs. 10x1,00	from 32	1 pcs. 12x2,00	from 32	0,05
2739802	ZE 2/1012	2 pcs. 10x1,00	from 32	2 pcs. 12x2,00	from 32	0,08
2739803	ZE 3/1012	3 pcs. 10x1,00	from 32	3 pcs. 12x2,00	from 40	0,11
2739804	ZE 4/1012	4 pcs. 10x1,00	from 40	4 pcs. 12x2,00	from 40	0,14
2739805	ZE 5/1012	5 pcs. 10x1,00	from 40	5 pcs. 12x2,00	from 50	0,17
2739807	ZE 7/1012	7 pcs. 10x1,00	from 40	7 pcs. 12x2,00	from 50	0,23
2739808	ZE 8/1012	8 pcs. 10x1,00	from 50	8 pcs. 12x2,00	from 63	0,26
2739811	ZE 1/1214	1 pcs. 12x1,10	from 32	1 pcs. 14x2,00	from 32	0,06
2739812	ZE 2/1214	2 pcs. 12x1,10	from 32	2 pcs. 14x2,00	from 40	0,10
2739813	ZE 3/1214	3 pcs. 12x1,10	from 32	3 pcs. 14x2,00	from 40	0,14
2739814	ZE 4/1214	4 pcs. 12x1,10	from 40	4 pcs. 14x2,00	from 50	0,18
2739815	ZE 5/1214	5 pcs. 12x1,10	from 50	5 pcs. 14x2,00	from 63	0,22
2739817	ZE 7/1214	7 pcs. 12x1,10	from 50	7 pcs. 14x2,00	from 63	0,30
2739823	ZE 3/1414	3 pcs. 14x1,30	from 50	---	---	0,19
2739827	ZE 7/1414	7 pcs. 14x1,30	from 63	---	---	0,39
2739831	ZE 1/1616	1 pcs. 16x2,00	from 32	---	---	0,20
2739833	ZE 3/1616	3 pcs. 16x2,00	from 63	---	---	0,35
2739834	ZE 4/1616	4 pcs. 16x2,00	from 63	---	---	0,50
2739838	ZE 8/1616	8 pcs. 16x2,00	from 75	---	---	0,61
2739843	ZE 4/2025	4 pcs. 20x2,50	from 75	---	---	0,60
2739850	ZE 4/2020	4 pcs. 20x2,00	from 75	---	---	0,54



Cable shaft entrance roller

Cable shaft entrance roller bow, without or with base support. Roller bow 45°, Radius 600 mm, for fibre optic cables, steel construction galvanized with 4 polyamide rollers with ball bearings, diam. 80/30x50 mm.

Code	Type	Device	kg
274020	LRB 45	Roller bow, without support	3,60
274060	LSE 4	Shaft entrance roller with base support	7,30



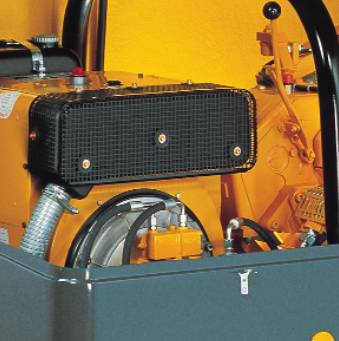
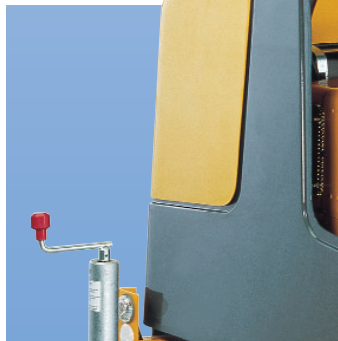
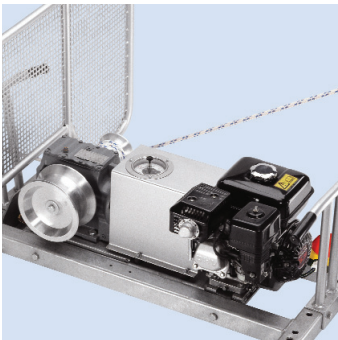
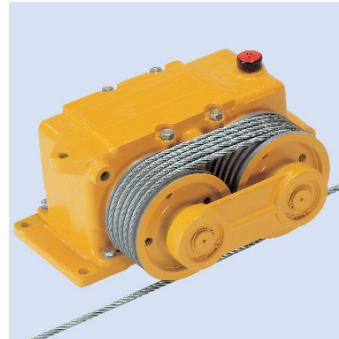
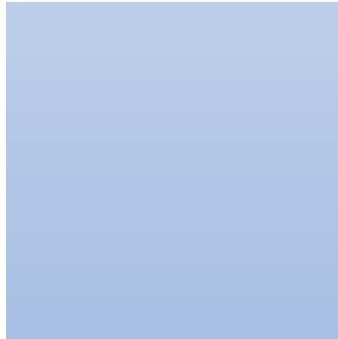
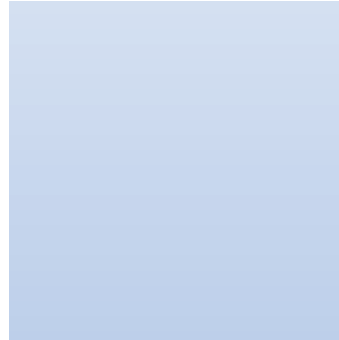
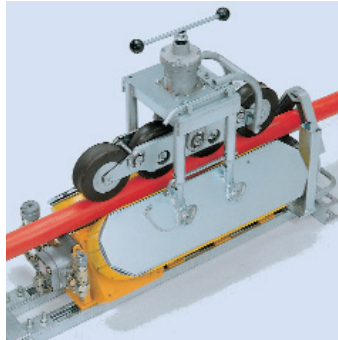
Cable lead-in roller

Cable lead-in roller for protection of the cable and the duct. With steel tubes galvanized with fixing clamp to the duct.

Code	Type	D-ID	Tube-L	Roller-D	kg
274420	LER 22/1	22	240	80/30x38/50	0,60
274430	LER 25/1	25	240	80/30x38/50	0,70
274440	LER 28/1	28	240	80/30x38/50	0,70
274470	LER 35/1	35	240	80/30x38/50	0,82
274490	LER 40/1	40	240	80/30x38/50	0,80
274530	LER 54/1	54	240	80/30x38/50	0,90
274580	LER 74/1	74	240	80/30x38/50	1,20

Cable pulling capstan winches

Cable feeders





Hydraulic cable feeders for cable D 20-160, feeding 6 kN

Cable and round material feeders for cable D 8-37 mm

Electro bollard winches 10 kN

Cable bollard winches 10 kN with accessory

Cable double capstan winches 11 kN with accessory

Cable double capstan winches 20 kN with accessory

Cable double capstan winches 24-30 kN with accessory

Cable double capstan winches 40-50 kN with accessory

Dynamometers and electronic pull recorders

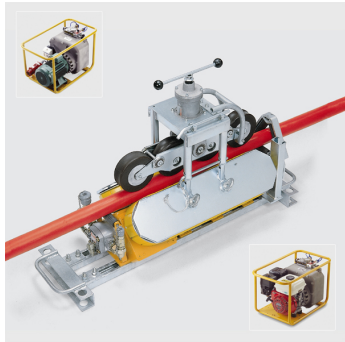
Steel ropes low torsion D 6-13 mm

Steel ropes torsion free D 6-13 mm

Swivels only for underground cable pulling, D 20-100 mm

Swivels only for overhead lines, D 18-100 mm, ball bearings

Rope connecting sets for solder in ropes and shackles



Cable feeders, hydraulic, 6,0 kN

Cable feeders, hydraulic with adjustable pushing and pulling force and speed. High performance reduces significantly the pulling forces of the cable winch especially in long cable lines with many curves. Included hydraulic power pack, hoses and valves. Can be driven alternatively with petrol engine or electro motor hydraulic power pack. Hydr. power pack flow 8 l/min., 250 bar. Tank volume 13 l. Hose set 7 m. Pushing and pulling speed progressively adjustable from 4-18 m/min. One loading device is included which size you can select acc. to your cable-diameter ranges. See table below.

Due to the big driving length of the V-shaped belts of 485 mm, and a balancing vertical spring pressure, the radial pressure on all kind of cables is very low. Therefore the cables are transported carefully on the whole belt driving length.

- Pushing force 6,0 kN, what reduces winch pulling even more in winding lines.
- Can be driven outside with petrol power pack and inside with electro power pack.
- Light fractional weights of max. 60 kg, can be handled and be placed of 2 persons.
- Control with hoses, 7 m. Procedure easy to control from above ground.
- Dimension cable feeder 1170x380x700, small for fixing in trenches, shafts or cable trays.
- Dimension hydr. power pack 770x480x500, weight 65 kg.

Code	Type	C-D	Load device	Hydr. Unit	kg
425750	DF 6-90 HB	28-130	28-90	Petrol 6,3 kW	166,00
425752	DF 6-130 HB	28-130	45-130	Petrol 6,3 kW	168,00
425800	DF 6-90 HE	28-130	28-90	Electro 4,0 kW	161,00
425802	DF 6-130 HE	28-130	45-130	Electro 4,0 kW	165,00
425755	DF 6-160 HB	55-160	55-160	Petrol 6,3 kW	175,00
425805	DF 6-160 HE	55-160	55-160	Electro 4,0 kW	171,00



Cable loading device for cable feeders

Cable loading device for cable feeders. In feeders above there is one loading device included which you can choose according to your cable diameters. For further diameters the following loading devices are available as accessory.

Code	Type	C-D	Roller-D	Suitable for	kg
425190	DF 20-50	20-50	150x38, R17	DF 5/6-130	19,80
425200	DF 28-90	28-90	150x50, R33	DF 5/6-130	20,80
425210	DF 45-130	45-130	150x90, flat	DF 5/6-130	23,70
425215	DF 55-160	55-160	150x90, flat	DF 5/6-160	25,00



Cable feeders, hydraulic, 2,0 kN

Cable feeders, hydraulic for light cables. Pulling and pushing forces adjustable, high performance especially with very long cable lines. Included hydraulic power pack, hoses and valves.

Due to the big driving length of the belts of 330 mm, and a balancing vertical spring pressure, the radial pressure for all kind of cables is very low. Therefore the cables are transported carefully on the whole belt driving length. For this cable feeders many applications are possible, e.g.:

- For intermediate feeder in long cable lines, like along of railways.
- For pulling and pushing of cables, pipes, hoses of metal and other materials.
- DF 22 HB, with petrol hydr. power pack, 6,2 kW, 71, kg, 770x480x500.
- DF 22 HE, with electro-hydr. power pack, 4,0 kW, 67, kg, 710x400x440.

Code	Type	Mat.-D	Push	m/min.	L/W/H mm	kg
425062	DF 22 HB	8-37	2 kN	8,0-50,0	690/250/430	105,00
276215	DF 22 HB	8-37	2 kN	0,8-22,0	690/250/430	96,45
425092	DF 22 HE	8-37	2 kN	8,0-50,0	690/250/430	101,00
276230	DF 22 HE	8-37	2 kN	0,8-22,0	690/250/430	106,00



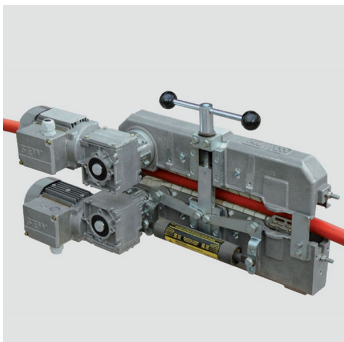
Feeders hydraulic for round materials

Feeders for round materials, hydraulic drive for pulling and pushing of cables, pipes, hoses of metal or plastic etc. Machine without basic construction and without hydraulic power pack and hoses.

Due to the big driving length of the belts of 330 mm, and a balancing vertical spring pressure, the radial pressure for all kind of cables is very low. Therefore the goods are transported carefully on the whole belt driving length.

- For installing in production machineries for pushing, pulling of cables, tubes, hoses etc.
- For each kind of operation the feeding speed and the power can be adapted, see table below.
- Also for external hydraulics, for oil pressure to 160 bar, oil flow 0-20 l/min.

Code	Type	Mat.-D	Push	m/min.	L/W/H mm	kg
276200	DF 22 HY	8-37	2 kN	8,0-50,0	500/355/360	20,50
276235	DF 22 HY	8-37	2 kN	0,5-10,0	500/355/360	25,40
276250	DF 22 HY	8-37	2 kN	0,8-22,0	500/355/360	24,40
425054	VR 22-1	Forward-	Backward	Control	with hoses	11,40



Feeders electric for round materials

Feeders for round materials, with electric motors for frequency controlling, for pulling and pushing of cables, pipes, hoses of metal or plastic etc. Machines without basic construction. Frequency converter and control box as accessory, see next table below.

Due to the big driving length of the belts of 330 mm, and a balancing vertical spring pressure, the radial pressure for all kind of materials is very low. Therefore the goods are transported carefully on the whole belt driving length.

- For installing in production machineries for pushing, pulling of cables, tubes, hoses etc.
- For each kind of operation the feeding speed and power can be adapted, see table and drawing below.
- Electric motors 0,12 kW/400 Volt/50 Hz. Frequency control box as accessory see below.

Code	Type	Mat.-D	Push	m/min.	L/W/H mm	kg
276255	DF 22 EL	15-37	0,60-1,80 kN	0,23-10,10	660/300/360	29,00
276260	DF 22 EL	15-37	0,30-0,90 kN	0,46-20,30	660/300/360	29,00
276265	DF 22 EL	15-37	0,13-0,38 kN	1,10-48,00	660/300/360	29,00
276268	DF 22 EL	06-37	0,10-0,30 kN	1,40-60,00	550/445/360	29,00



Frequency control to feeders

Frequency control to feeder DF 22 EL. Mobile device with frequency converter 0,55 kW, switch pay-in, pay-out, potentiometer, foot switch, emergency stop. 3 m connection cable to motor, 3 m cable with Schuko-plug 16A.

Code	Type	Suitable for	Protection	Dimension	kg
276272	DF 22 FR	DF 22 EL	IP 54	400x300x220	0,01
279580	ADK 400	Adapter cable	400 to 230 volt	--	0,50



Hydraulic power packs mobile

Hydraulic power packs for cable feeders and drum drives without hoses and valves. Tank 13 Litre, oil flow 14 l/min.

Code	Type	Suitable for	Motor kW	Press.	L/W/H mm	kg
425302	HB 210	Feeders+Drum drives	Petrol 6,3	210 bar	778/490/500	70,00
425312	HD 210	Feeders+Drum drives	Diesel 5,0	210 bar	790/510/565	85,00
425351	HE 210	Feeders+Drum drives	Electro 4,0	210 bar	733/405/433	67,00





Hydraulic hose set

Hydraulic hose set 7 m, with volume governor for hydraulic power packs.

Code	Type	Length	Flow governor	kg
425381	SL 7	7 m	to 30 l/min	13,20

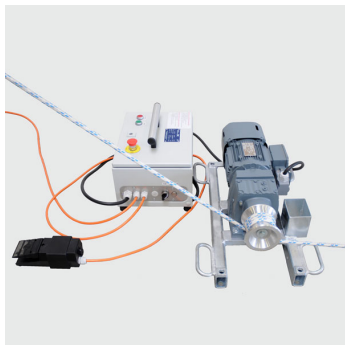


Cable bollard winch without brake

Cable tray capstan winches, electric motors, mounted on base frame enabling alternative fixing, incl. footswitch.

- With 1 constant speed.
- Without lifting brake, therefore not allowed for vertical cable laying.

Code	Type	Pull/Speed	El-motor	Connection	kg
279502	PSW 7/8	7,0 kN/8 m/min	1,10 kW	230V/50-60Hz	57,00
279505	PSW 3/16	3,0 kN/16 m/min	1,10 kW	230V/50-60Hz	57,00
279540	PSW 10/8	10,0 kN/8 m/min	1,10 kW	400V/50-60Hz	54,00

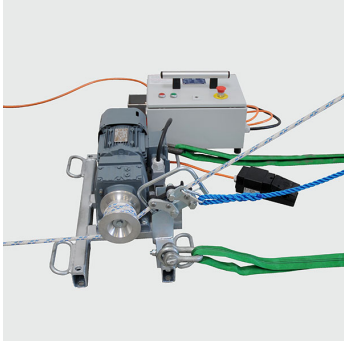


Cable bollard winch without brake

Cable tray capstan winches, electric motors, mounted on base frame enabling alternative fixing, incl. footswitch. Frequency converter allows two pulling speeds, one for heavy cable pulls up to 1 t and one for lighter cable pulls up to 400 kp. Not allowed for vertical pulls.

- Electric motor 1,5 kW, with 2 speeds, each variable through frequency convertor 20-100 Hz.
- Connectable on 230 volt net, or with adapter cable also on 400 volt net.
- Without lifting brake, therefore not allowed for vertical cable laying.

Code	Type	Pull 1	Pull force 2	Connection	kg
279560	PSW 10-13	10 kN/7 m/min.	4 kN/13 m/min.	230V/50-60Hz	67,00
279580	ADK 400	Adapter cable	400 to 230 volt	400-230V/50Hz	0,50

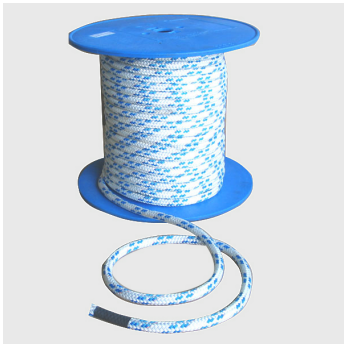


Cable bollard winch with brake

Cable tray capstan winches, electric motors, mounted on base frame enabling alternative fixing, incl. footswitch. Frequency converter allows two pulling speeds, one for heavy cable pulls up to 1 t and one for lighter cable pulls up to 400 kp. This PSW 10-13S is approved as cable hoisting winch also for vertical cable pulls up to 500 kg.

- Electric motor 1,5 kW, with 2 speeds, each variable through frequency converter 20-100 Hz.
- Connectable on 230 volt net, or with adapter cable also on 400 volt net.
- With rope holding safety clamp, suitable to lift cables vertical to 5,0 kN.

Code	Type	Pull1 (50Hz)	Pull2 (80Hz)	Connection	kg
279565	PSW 10-13S	10 kN/7 m/min.	4 kN/13 m/min.	230V/50-60Hz	72,00
279580	ADK 400	Adapter cable	400 to 230 volt	400-230V/50Hz	0,50



Polyester ropes

Polyester rope double braided, with two spliced loops, (one each end). Suitable for cable tray capstan winches especially when using them as hoists. Stocked lengths are 250 and 500 m. The particular rope drum is included in the rope price. Can be used with swivels with ball bearings. kN = Minimum Breaking Load

Code	Type	Rope	Stretch	kN	Length	kg
27968512	PKG12-125	12	4-6 %	32	125 m	11,30
27968525	PKG12-250	12	4-6 %	32	250 m	22,50
27968530	PKG12-300	12	4-6 %	32	300 m	30,50
27968550	PKG12-500	12	4-6 %	32	500 m	45,00



Polypropylene ropes

Polypropylene-rope with two spliced loops, (one each end). Not suitable for hoisting pulls. Stocked length are 150 and 250 m. For this swivel with ball bearings must not be used, but swivels with fiction bearings. kN = Minimum Breaking Load

Code	Type	Rope	Stretch	kN	Length	kg
27969015	PKT 14-150	14	15 %	27	150 m	14,00
27969025	PKT 14-250	14	15 %	27	250 m	24,00



Swivel for Polyester rope

Swivels with ball bearings suitable for twist-free polyester rope D 12 mm, (not for polypropylene rope). kN = Minimum Breaking Load

kN = Minimum Breaking Load

Code	Type	Rope	D/length/fork	kN	kg
537360	FVD 30	12	30/128/12	60	0,50



Swivel for Polypropylene-rope

Swivels with friction bearings, turnable connector between winch rope and cable grip. Only suitable for Polypropylene rope D 14 mm, D 45x180/16 mm. Min. breaking load 150,0 kN. Not suitable for pulling overhead lines. kN = Minimum Breaking Load

Code	Type	Rope	D/length/fork	kN	kg
243130	V 45 D	16	45/180/16	150	1,50



Reel for plastic ropes

Reel stand for ropes, steel galvanized with 2 rubber wheels. Plastic ropes must not be spooled with high tensions on drums. Depending on temperatures there are volume dilatations which will crush the drum core and also the flanges. Rope capacities of this drum are:

- Plastic rope diameter 6, approx. 1200 m, total rope weight approx. 48 kg
- Plastic rope diameter 7, approx. 1000 m, total rope weight approx. 40 kg
- Plastic rope diameter 8, approx. 700 m, total rope weight approx. 35 kg
- Plastic rope diameter 10, approx. 500 m, total rope weight approx. 35 kg
- Plastic rope diameter 12, approx. 350 m, total rope weight approx. 35 kg
- Plastic rope diameter 14, approx. 250 m, total rope weight approx. 35 kg

Code	Type	Rope cap.	Reel-D	L/W/H mm	kg
279720	PSH 600	s. above	600/150/240	727/331/790	19,20

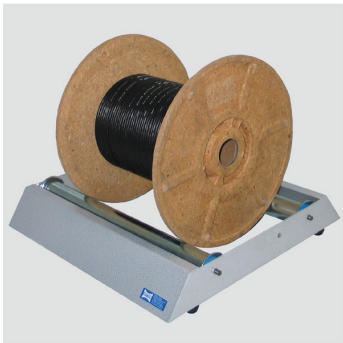


Drum for plastic ropes

Rope drum of plywood for plastic ropes. Plastic ropes must not be spooled with high tensions on drums. Depending on temperatures there are volume dilatations which will crush the drum core and also the flanges. Rope capacities of this drum are:

- Plastic rope diameter 7, approx. 2000 m, total rope weight approx. 80 kg
- Plastic rope diameter 8, approx. 1500 m, total rope weight approx. 75 kg
- Plastic rope diameter 10, approx. 1000 m, total rope weight approx. 70 kg
- Plastic rope diameter 12, approx. 750 m, total rope weight approx. 75 kg
- Plastic rope diameter 14, approx. 550 m, total rope weight approx. 77 kg

Code	Type	Rope cap.	Drum-D	Width	Hole	kg
279740	STR 750	s. above	750/315	395/420	80	20,00



Drum wind off roller

Cable drum wind-off roller for cables or ropes. Steel construction, powder coated. Steel rollers galvanized with ball bearings.

- Rollers adjustable for smaller spools down to Ø 100
- Rubber feet for stable and quiet running

Code	Type	For drum-D	Drum width	SWL	L/W/H mm	kg
320660	KTA 7	100-1200	max. 500	150 kg	530/550/110	8,80

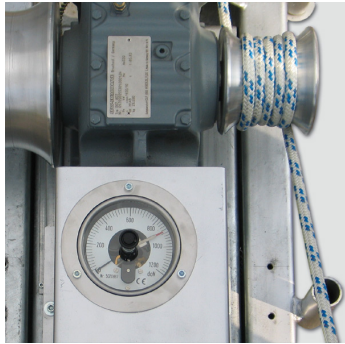


Cable bollard winch

Cable bollard winch with petrol engine, without rope, for endless lengths. On base frame, portable or mobile on two pneumatic wheels. This winch is equipped with two bollards. Techn. details see table below.

- Honda petrol engine 3,25 kW. Sound level 78 db(A)
- One bollard of D 120 for heavy pulls to 10,0 kN, speed 15 m/min.
- One bollard D 195 for lighter cable pulls to 5,0 kN, speed 30 m/min.
- Accessory, see below: Dynamometer, Chassis, Polyester ropes.

Code	Type	Small bollard	Big bollard	kg
233300	SPW 10B	10,0 kN/15 m/min.	5 kN/30 m/min.	110,00



Dynamometer

Dynamometer adjustable with automatic overload cut off, accessory to SPW 10B

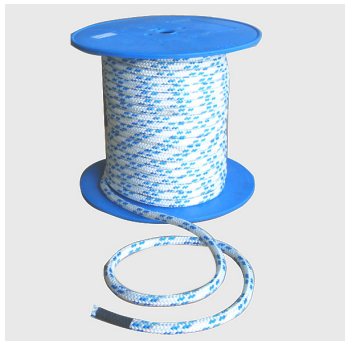
Code	Type	Suitable for	For pulls	Adjustable	kg
233320	ZKD 10/12	SPW 10 B	to 12 kN	Scale 20 daN	1,12



Chassis for bollard winch

Axle with two pneumatic wheels for a.m. cable bollard winch SPW 10B

Code	Type	Wheel-D	kg
233310	FAG 10B	260x85	8,30



Polyester ropes

Polyester rope double braided, with two spliced loops, (one each end). Suitable for cable tray capstan winches especially when using them as hoists. Stocked lengths are 250 and 500 m. The particular rope drum is included in the rope price. Can be used with swivels with ball bearings. kN = Minimum Breaking Load

Code	Type	Rope	Stretch	kN	Length	kg
27968512	PKG12-125	12	4-6 %	32	125 m	11,30
27968525	PKG12-250	12	4-6 %	32	250 m	22,50
27968530	PKG12-300	12	4-6 %	32	300 m	30,50
27968550	PKG12-500	12	4-6 %	32	500 m	45,00



Swivel for Polyester rope

Swivels with ball bearings suitable for twist-free polyester rope D 12 mm, (not for polypropylene rope). kN = Minimum Breaking Load

kN = Minimum Breaking Load

Code	Type	For rope	D/length/fork	kN	kg
537360	FVD 30	12	30/128/12	60	0,50



Reel for plastic ropes

Reel stand for ropes, steel galvanized with 2 rubber wheels. Plastic ropes must not be spooled with high tensions on drums. Depending on temperatures there are volume dilatations which will crush the drum core and also the flanges. Rope capacities of this drum are:

- Plastic rope diameter 6, approx. 1200 m, total rope weight approx. 48 kg
- Plastic rope diameter 7, approx. 1000 m, total rope weight approx. 40 kg
- Plastic rope diameter 8, approx. 700 m, total rope weight approx. 35 kg
- Plastic rope diameter 10, approx. 500 m, total rope weight approx. 35 kg
- Plastic rope diameter 12, approx. 350 m, total rope weight approx. 35 kg
- Plastic rope diameter 14, approx. 250 m, total rope weight approx. 35 kg

Code	Type	Rope cap.	Reel-D	L/W/H mm	kg
279720	PSH 600	s. above	600/150/240	727/331/790	19,20

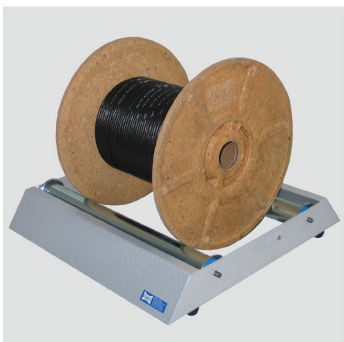


Drum for plastic ropes

Rope drum of plywood for plastic ropes. Plastic ropes must not be spooled with high tensions on drums. Depending on temperatures there are volume dilatations which will crush the drum core and also the flanges. Rope capacities of this drum are:

- Plastic rope diameter 7, approx. 2000 m, total rope weight approx. 80 kg
- Plastic rope diameter 8, approx. 1500 m, total rope weight approx. 75 kg
- Plastic rope diameter 10, approx. 1000 m, total rope weight approx. 70 kg
- Plastic rope diameter 12, approx. 750 m, total rope weight approx. 75 kg
- Plastic rope diameter 14, approx. 550 m, total rope weight approx. 77 kg

Code	Type	Rope cap.	Drum-D	Width	Hole	kg
279740	STR 750	s. above	750/315	395/420	80	20,00



Drum wind off roller

Cable drum wind-off roller for cables or ropes. Steel construction, powder coated. Steel rollers galvanized with ball bearings.

- Rollers adjustable for smaller spools down to Ø 100
- Rubber feet for stable and quiet running

Code	Type	Drum-D	Drum width	SWL	L/W/H mm	kg
320660	KTA 7	100-1200	max. 500	150 kg	530/550/110	8,80



Cable drum tipping stand

Cable drum tipping stands. Simple drum unwinding equipment at installation works. Excellent tipping leverage due to optimum positioning of centre of gravity. Capable of lifting heavy loads. Tubular steel construction galvanized.

Code	Type	Drum-D	Shaft	Max.	Int. width	Ext. width	kg
320300	KW 6-8	600-800	D 48	300 kg	600	880	13,00



Stepped bushes

Stepped bushes of polyamide for shaft-D 48, one step D 80, for drum tipping stands KW 6-12.

Code	Type	For shaft	For drum bore	kg
315503	ZBP 48	48	D 80	0,37



Cable capstan winch 11 kN , mechanical

Cable capstan winch with mechanical drive through Honda petrol engine or electric motor. Please select digital pull recorder or dynamometer as accessory to your need. A swivel with friction bearing is included. All other techn. details and accessory see below.

- Type D = with petrol engines, Type DE = with electro motors
- With steel rope D 6, lengths see below, and swivel. Rope retaining brake with free-wheel.
- Easy pay out of the rope without energy due to automatic unwinding of the drum of 77 / 61 m/min.
- Mounted on base frame with 2 removable pneumatic wheels.

Code	Type	Eng./Motor	Pull1/m/min.	Pull2/m/min.	Incl. rope	kg
440280	TL 1118 D	3,6 kW	11 kN/7-16	5,5 kN/14-33	900 m/6	340,00
440300	TL 1118 DE	1,5 kW/400V	11 kN/13	5,5 kN/26	900 m/6	360,00



Cable capstan winch 11 kN , mechanical

Cable capstan winch with mechanical drive through Honda petrol engine or electric motor. Please select digital pull recorder or dynamometer as accessory to your need. A swivel with friction bearing is included. All other techn. details and accessory see below.

- Type D = with petrol engines, Type DE = with electro motors
- With steel rope D 8, lengths see below, and swivel. Rope retaining brake with free-wheel.
- Easy pay out of the rope without energy due to automatic unwinding of the drum of 80 / 63 m/min.
- Mounted on base frame with 2 removable pneumatic wheels.

Code	Type	Eng./Motor	Pull1/m/min.	Pull2/m/min.	Incl. rope	kg
442080	TL 2018 D	5,3k W	20 kN/5-12	10 kN/10-23	520 m/8	360,00
442090	TL 2018 DE	3,0kW/400V	20 kN/9,5	10 kN/19	520 m/8	375,00



Cable capstan winch 11 kN , mechanical

Cable capstan winch with mechanical drive through Honda petrol engine. Please select digital pull recorder or dynamometer as accessory to your need. A swivel with friction bearing is included. All other techn. details and accessory see below.

- With steel rope D 8, lengths see below, and swivel. Rope retaining brake with free-wheel.
- Easy pay out of the rope without energy due to automatic unwinding of the drum of 0-80 m/min.
- Mounted on trailer, height adjustable draw bar, without overrun brake.
- Ball coupling or eye coupling arbitrary. Furnishing RAL 1007 yellow.
- Reinforced glass fibre top. Furnishing RAL 1007 yellow.

Code	Type	Engine	Pull1/m/min.	Pull2/m/min.	Incl. rope	kg
442140	TL 2019 DR	Petrol 6 kW	20 kN/5-12	10 kN/10-23	730 m/8	740,00



Cable capstan winch 11 kN , mechanical

Cable capstan winch with mechanical drive through Honda petrol engine. Please select digital pull recorder or dynamometer as accessory to your need. A swivel with friction bearing is included. All other techn. details and accessory see below.

- With 520 m steel rope D 8 and swivel. Rope retaining brake with free-wheel.
- Honda petrol engine 6 kW with electric starter
- Easy pay out of the rope without energy due to automatic unwinding of the drum of 0-80 m/min.
- Mounted on trailer, height adjustable draw bar, without overrun brake, canopy top.
- Ball coupling as standard, eye coupling as accessory see below. Furnishing RAL 1007 yellow.

Code	Type	Engine	Pull1/m/min.	Pull2/m/min.	kg
442160	TL 2020 DR	Petrol 6 kW	20 kN/4-12	10 kN/12-25	595,00
480560	LK 6	Eye coupling	---	---	6,20
483150	TSL 20	Special painting	---	---	0,10



Cable capstan winch 30 kN, mechanical

Cable capstan winch with mechanical drive through Honda petrol engine. Please select digital pull recorder or dynamometer as accessory to your need. A swivel with friction bearing is included. All other techn. details and accessory see below.

- With steel rope D 9, lengths see below, and swivel. Rope retaining brake with free-wheel.
- Easy pay out of the rope without energy due to automatic unwinding of the drum of 0-80 m/min.
- Mounted on trailer, height adjustable draw bar, without overrun brake.
- Ball coupling as standard, eye coupling as accessory see below. Furnishing RAL 1007 yellow.
- Reinforced glass fibre top. Furnishing RAL 1007 yellow.

Code	Type	Engine	Pull1/m/min.	Pull2/m/min.	Incl. rope	kg
444090	TL 3119 DR	Petrol 7,1 kW	30 kN/5-12	15 kN / 10-23	570 m/9	780,00

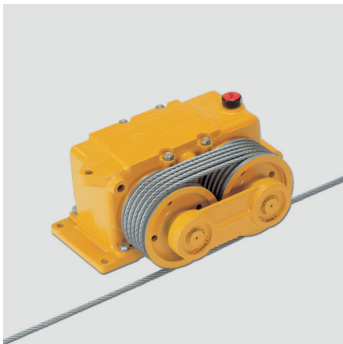


Cable capstan winches 24-30 kN, hydraulic

Cable capstan winches with hydraulic drive. Please select digital pull recorder or dynamometer as accessory to your need. A swivel with friction bearing is included. All other techn. details and accessory see below.

- Without rope, capacity m/mm: 1300/8, 1050/9, 850/10
- Types ... DRH with Honda petrol engine 15 kW, paying-out 0-80 m/min.
- Types ... DRHZ with Hatz Diesel Silent-Pack 10 kW, pay-out 0-80 m/min.
- Easy pay out of the rope without energy due to automatic unwinding of the drum of 0-80 m/min.
- Reinforced glass fibre top. Furnishing RAL 1007 yellow.
- Mounted on one axle trailer with height adjustable draw bar and overrun brake, eye or ball coupling.
- APR 100 surcharge for permission of speed 100 km/h on German Autobahn.

Code	Type	Engine	Pull1/m/min.	Pull2/m/min.	kg
442710	TL 2422 DRH	Petrol 15kW	24 kN/0-20	5,0 kN/0-80	847,00
442810	TL 2422 DRHZ	Diesel 10kW	24 kN/0-15	5,0 kN/0-68	927,00
444150	TL 3022 DRH	Petrol 15kW	30 kN/0-14	7,0 kN/0-80	844,00
444270	TL 3022 DRHZ	Diesel 10kW	30 kN/0-15	7,0 kN/0-68	924,00
474745	APR 100	Permission for	100 km/h	on Autobahn	0,01





Cable capstan placing winches 24-30 kN, hydraulic

Cable capstan placing winches with hydraulic drive. Please select digital pull recorder or dynamometer as accessory to your need. A swivel with friction bearing is included. Dimension: L/W/H 2720/1290/1590 mm. All other techn. details and accessory see below.

- Without rope, capacity m/mm: 1300/8, 1050/9, 850/10
- Types ... DH with Honda petrol engine 15 kW, paying-out 0-80 m/min.
- Types ... DHZ with Hatz Diesel Silent-Pack 10 kW, pay-out 0-80 m/min.
- Easy pay out of the rope without energy due to automatic unwinding of the drum of 0-80 m/min.
- Mounted on static chassis for placing on trucks or on the ground with adjustable legs.
- Reinforced glass fibre top. Furnishing RAL 1007 yellow.



Code	Type	Engine	Pull1/m/min.	Pull2/m/min.	kg
276400	TL 2422 DH	Petrol 15kW	24 kN/0-20	5,0 kN/0-80	932,00
276420	TL 2422 DHZ	Diesel 10kW	24 kN/0-15	5,0 kN/0-68	1.010,00
276450	TL 3022 DH	Petrol 15kW	30 kN/0-14	7,0 kN/0-80	930,00
276480	TL 3022 DHZ	Diesel 10kW	30 kN/0-15	7,0 kN/0-68	1.010,00



accessory for winch trailers

Interchangeable eye coupling including screws for cable capstan winches TL 2422/3022 DRH/DRHZ.

Code	Type	Total weight	kg
480700	PK 16	to 2000 kg	2,90



accessory for winch trailers

Interchangeable eye coupling including screws for cable capstan winches TL 2422/3022 DRH/DRHZ and compressors M 125.

Code	Type	Total weight	kg
480720	LK 27	to 2700 kg	4,00



Cable capstan winches 40-50 kN, hydraulic

Cable capstan winches with hydraulic drive. Please select digital pull recorder or dynamometer as accessory to your need. A swivel with friction bearing is included. All other techn. details and accessory see below.

- Without rope, Cap. m/mm: 1100/12, 1300/11 or 950/13.
- Diesel engine Lombardini, 33 kW, pay out speed 0-93 m/min.
- Easy pay out of the rope without energy due to automatic unwinding of the drum.
- Mounted on one axle trailer with height adjustable draw bar with overrun brake with eye coupling
- With swing out canopy. Winch furnishing RAL 1007 yellow.

Code	Type	Engine	Pull1/m/min.	Pull2/m/min.	kg
446241	TL 4041 DRHZ	Diesel 10kW	40 kN / 0-23	10 kN / 0-115	1.480,00
446491	TL 5041 DRHZ	Diesel 10kW	50 kN / 0-19	10 kN / 0-93	1.485,00



Ball coupling

Ball coupling with screws, changeable against drawbar eye for trailers with overrun brake.

Code	Type	Total weight	kg
349190	PK 25	to 2500 kg	2,90



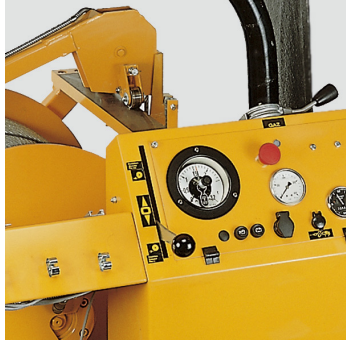
Electronic pull recorder MP 30 USB

Electronic digital line pull data recorder MP 30 with overload setting and automatic overload cut-off with USB interface. Digital display and storage of pulling force, pulling speed and cable length. Digital figure height 5 mm.

- The MP 30 saves the cable pull dates on an USB stick. Afterwards they can be imported in a PC.
- The OpenOffice software can be used independent of the operation system.
- In this report as PDF file company name and logo can be inserted.
- There is also possible to write a comment in the report of e.g. site or cable details.
- You will find all the programmes on the provided CD.

Code	Type	Suitable for	For pulls	Adjustable	kg
473171	MP 30/15	any TL 11..	to 15 kN	per daN	3,00

473172	MP 30/23	any TL 20..	to 23 kN	per daN	3,00
473173	MP 30/43	TL 2422/3022	to 23 kN	per daN	3,00
473174	MP 30/55	TL 5041 DRHZ	to 55 kN	per daN	3,00



Dynamometer

Dynamometer with admissible pull indicator and automatic cut-off. No registration of the dates.

- Protects winch and cable of overload

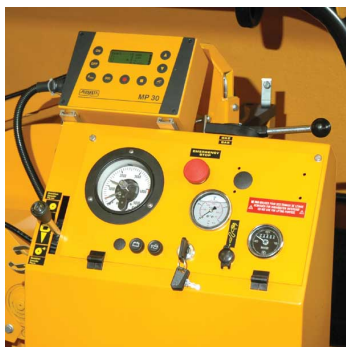
Code	Type	Suitable for	For pulls	Adjustable	kg
474051	ZK 12/12	any TL 11..	to 12 kN	Scale 100 daN	3,40
474063	ZK 20/32	any TL 20..	to 23 kN	Scale 100 daN	3,40
474063	ZK 20/32	TL 2422/3022	to 33 kN	Scale 100 daN	3,40
474065	ZK 40/50	TL 4041/5041	to 55 kN	Scale 100 daN	3,40



Length and speed meter

Length and speed meter is used if the capstan winch is equipped with a dynamometer. Digital figure height 8 mm.

Code	Type	Suitable for	kg
474200	VL 20	all cable capstan winches	0,50



Electronic pull recorder MP 30, USB and dynamometer

Combination of electronic digital line pull data recorder MP 30 with overload setting and automatic overload cut-off with USB interface. Digital display and storage of pulling force, pulling speed and cable length digital figure height 5 mm. In addition with an dynamometer ZK. This combination secures a pull control even if one of the instruments gets invalid.

- The MP 30 saves the cable pull dates on an USB stick. Afterwards they can be imported in a PC.
- The OpenOffice software can be used independent of the operation system.
- In this report as PDF file company name and logo can be inserted.
- There is also possible to write a comment in the report of e.g. site or cable details.
- You will find all the programmes on the provided CD.

Code	Type	Suitable for	For pulls	Adjustable	kg
473180	MPZ 30/23	all TL 20..	to 23 kN	per daN	11,00
473181	MPZ 30/33	TL 2422/3022	to 33 kN	per daN	11,00
473182	MPZ 30/55	TL 4041/5041 DRHZ	to 55 kN	per daN	11,00



Radio control

Radio control suitable for cable capstan winches types TL 4041/5041 DRHZ. Consisting of light mobile transmitter and receiver on the winch. Control command of winding, unwinding, continuously fast, slow.

These instruments are protected for transportation in a plastic case.

Code	Type	Distance	Plastic case	kg
474714	FST 30	ca. 300 m	450x360x140	10,50



Steel rope low torsion

Steel rope for cable capstan winches, low torsion quality, galvanized, rated strength of wire 1960 N. kN = Minimum Breaking Load

Code	Type	Rope	kN	Length	kg
487430	STC 6-6	6	25,5	per 1 m	0,14
487580	STC 7-6	7	34,8	per 1 m	0,20
487680	STC 8-6	8	45,4	per 1 m	0,24
48768005	STC 8-6	8	45,4	520 m	124,80
48768013	STC 8-6	8	45,4	1300 m	312,00
487810	STC 9-6	9	57,5	per 1 m	0,35
48781010	STC 9-6	9	57,5	1050 m	367,50
487930	STC 10-6	10	65,1	per 1 m	0,38
488060	STC 11-6	11	85,8	per 1 m	0,46
488180	STC 12-6	12	101,0	per 1 m	0,60
488310	STC 13-6	13	118,0	per 1 m	0,70



Steel rope torsion-free

Steel rope for cable capstan winches, high torsion-free quality, galvanized, rated strength of wire 1770 N. kN = Minimum Breaking Load

Code	Type	Rope	kN	Length	kg
487461	DIE 6-7	6	23	optional	0,17
487591	DIE 7-7	7	36	optional	0,23
487691	DIE 8-7	8	47	optional	0,30
487821	DIE 9-7	9	60	optional	0,38
487940	DIE 10-7	10	74	optional	0,47
488070	DIE 11-7	11	89	optional	0,56
488190	DIE 12-7	12	107	optional	0,67
488320	DIE 13-7	13	126	optional	0,79



Swivels

Swivels with friction bearings, colour yellow, turnable connector between winch rope and cable grip. The friction bearing guarantees that the swivel reduces rotation and torsion with increasing pulling force. Only for underground cables, not suitable for pulling overhead lines.

- Swivels for underground cables must be equipped only with friction bearings.
- With increasing pulling force friction bearings twist harder and thus avoid the untwisting of the pulling rope
- Ball bearings let untwist the ropes and leads to destruction.
- kN = minimum breaking load

Code	Type	D	L	Fork	Bolt	kN	kg
243020	V 20 D	20	86	7	8	21	0,16
243040	V 25 D	25	120	9	10	30	0,32
243050	V 35 D	35	130	12	14	60	0,60
243130	V 45 D	45	180	16	16	150	1,50
243140	V 50 D	50	187	18	16	165	1,90
243150	V 55 D	55	190	20	18	180	2,30
243170	V 60 D	60	217	23	20	225	3,10
243180	V 65 D	65	235	26	24	300	3,42
243190	V 75 D	75	270	30	27	320	6,70
243200	V 85 D	85	315	34	30	400	9,40
243220	V 100 D	100	350	38	36	500	14,50



Overhead line swivels

Overhead line swivels, colour silver, connection between pulling rope and pulling grip. With ball bearings, therefore only suitable to absolute twist-free steel ropes. Avoids untwisting the conductor. These swivels may not be used for pulling over capstans or line tensioner. For this please use above mentioned types FTS 28-60. Swivels with high electrical conductivity for working in the neighbourhood of live wires you can find in the sectors below.

kN = Minimum Breaking Load in straight pull.

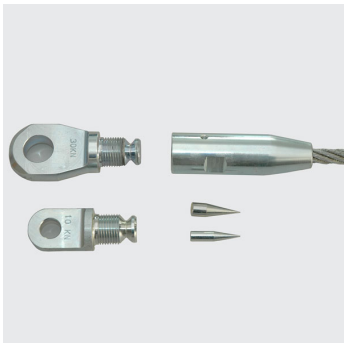
Code	Type	D	L	Fork	Bolt	kN	kg
537280	FVD 18	18	80	6,5	6	21	0,11
537300	FVD 25	25	109	9	10	45	0,30
537360	FVD 30	30	128	12	12	60	0,50
537410	FVD 35	35	137	12	14	90	0,70
537490	FVD 40	40	160	14	16	120	1,10
537550	FVD 50	55	187	18	16	165	1,90
537580	FVD 55	55	190	20	18	180	2,30
537640	FVD 60	60	220	23	20	225	3,10
537670	FVD 65	65	235	26	24	300	3,50
537700	FVD 75	75	270	30	27	320	6,70
537730	FVD 85	85	305	35	30	400	9,40
537760	FVD 100	100	340	38	36	500	14,30



Steel rope slings

Steel rope slings for connection from swivel to the cable grips. kN = Minimum Breaking Load

Code	Type	D	L	kN	kg
276800	SST 06	6	500	23	0,13
276810	SST 08	8	500	45	0,28
276820	SST 09	9	500	56	0,35
276830	SST 10	10	500	66	0,40
276840	SST 12	12	500	104	1,10

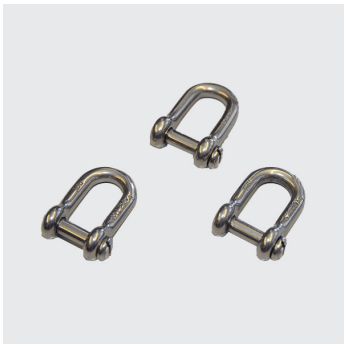


Rope connecting set

Rope connecting set for solder in ropes, for pulling forces up to 30,0 kN, 5 parts for rope-D 6-9 mm.

- 1 rope cone D 25, 2 expansion cones, for soldering in ropes D 6-9.
- 1 changeable eye nut D 25 for pulling through small ducts to max. 10,0 kN.
- 1 changeable eye nut D 35 for pulling forces to 30.0 kN.

Code	Type	For pull	For rope	kg
243490	SVB 25/5	to max. 30,0 kN	D 6-9	0,60

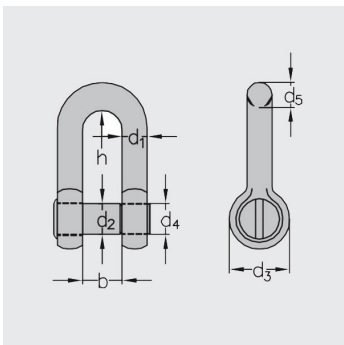


Shackle stainless steel, miniature size

Shackle stainless steel, miniature size, with slotted screw. For duct-ID >24 mm

SWL of all shackles includes a safety factor of 4

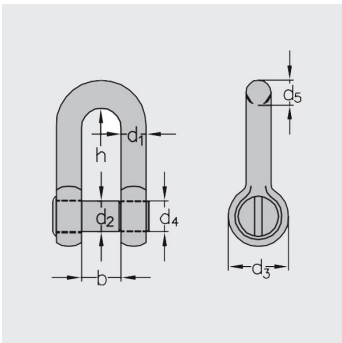
Code	Type	d2	d1/d5	b	h	SWL	kg
0924282615	HA1 05	5	5/5	10	20	160 kg	0,01



Shackle slim version

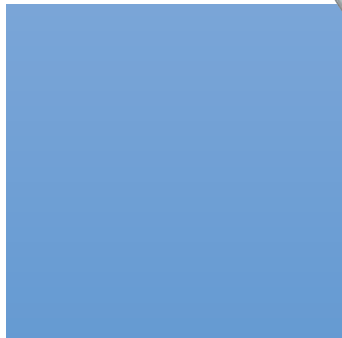
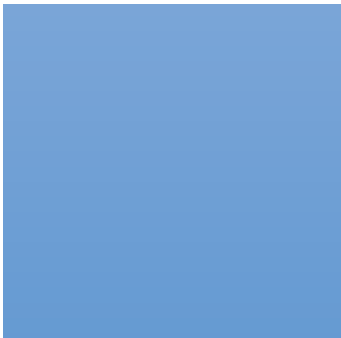
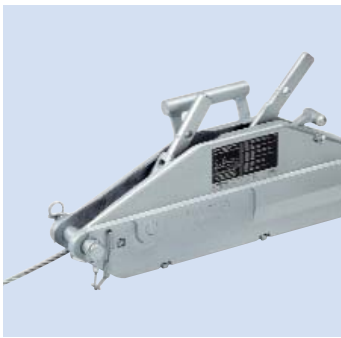
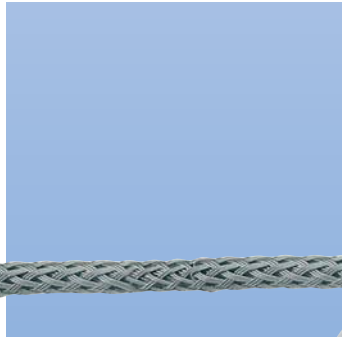
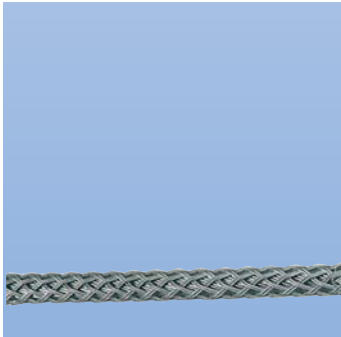
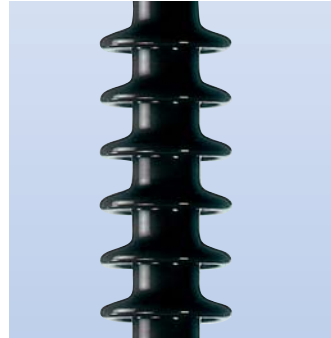
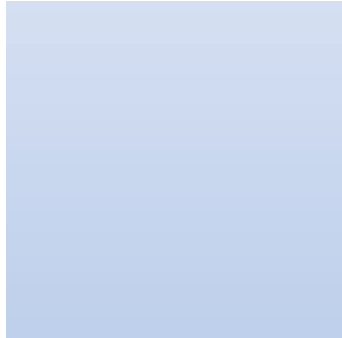
Shackle galvanized, special slim version with slotted screw for easy passing ducts and cable rollers.

Code	Type	d2	d1/d5	b	h	SWL	kg
254879	SHB 04	10	8/10	14	30	400 kg	0,09
254880	SHB 06	12	10/12	17	36	630 kg	0,16
254881	SHB 10	16	13/15	21	49	1000 kg	0,34
254882	SHB 16	20	17/19	27	61	1600 kg	0,72
254883	SHB 20	22	19/21	30	67	2000 kg	1,00
254884	SHB 25	24	21/23	33	73	2500 kg	1,32
254885	SHB 30	27	24/26	38	83	3150 kg	1,85



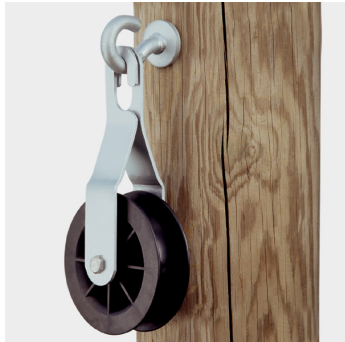
**Overhead line
stringing
equipment
and machines**

500





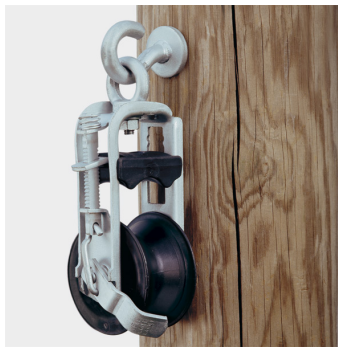
- Overhead cable pulleys for insulated cables**
- Pulling grips of Kevlar for overhead insulated cables**
- Equipment for pulling or changing ACSR or OPGW conductors**
- Aluminium and steel mounting snatch blocks**
- Line pulleys for medium and high voltage**
- Overhead line grips, pressed loop**
- Overhead line grips, hand spliced loop**
- Overhead line connection grips**
- Connectors not swivelling for overhead lines**
- Swivels only for overhead lines, with ball bearings**
- Conductor pulling equipment, electrical conductive**
- Rope and ACSR cutters**
- Come along clamps for steel-, ACSR- and CU conductors**
- Steel rope and ratchet chain hoists**
- Dynamometers for catenaries and overhead lines**
- Pole erection and pole pulling-out equipment**
- Pole climbers and pole aluminium ladders**
- Overhead line pulling machines**
- Overhead line unwinding and winding units**
- Overhead line pull plastic ropes**



Overhead insulated cable pulley

Overhead insulated cable pulley of polyamide with gaping hook. Steel frame galvanized.

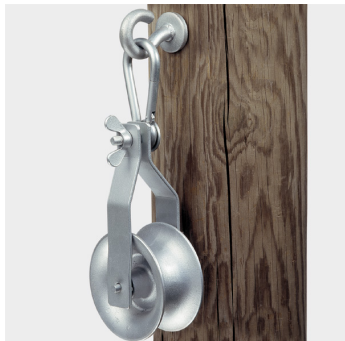
Code	Type	Pulley-D	Groove	L/W/H mm	SWL	kg
510090	LKP 150	150/90	D 46	150/100/300	300 kg	1,10



Pulley and clamp

Overhead insulated cable pulley and clamp construction. Steel frame with swivelling eye. Roller of polyamide with soft elastomeric inlay. After the cable pull the cable can be safely fixed by simple relocating the clamp lever.

Code	Type	Pulley-D	For cable	L/W/H mm	SWL	kg
510092	LKM 108	108/80x52	2x25-4x95 mm ²	115/100/300	300 kg	1,50
510094	LKM 115	115/80x65	4x95-4x150 mm ²	125/100/300	300 kg	2,20



Overhead insulated cable pulley

Overhead insulated cable pulley of alu with ball bearings, steel suspension with spring hook, galvanized.

Code	Type	Pulley-D	Groove	L/W/H mm	SWL	kg
510170	LKK 140	140/86	D 58	140/100/380	300 kg	2,30



Pole bracket

Pole bracket for overhead cable pulleys for fixing on wooden or concrete poles, galvanized, with belt.

Code	Type	For pulley	SWL	kg
510200	MBF 140	LKK 140 / LKD 140	300 kg	1,60
510360	MBF 300	LKD 250 / LKD 300	300 kg	3,00



Overhead insulated cable pulley

Overhead insulated cable pulley of alu with ball bearings, steel suspension with swivelling hook, galvanized.

Code	Type	Pulley-D	Groove	SWL	kg
510130	LKD 140	140/86	D 58	300 kg	3,00
510250	LKD 250	250/166	D 48	300 kg	4,40



Overhead insulated cable pulley

Overhead insulated cable pulley of alu with ball bearings, steel suspension without hook, galvanized.

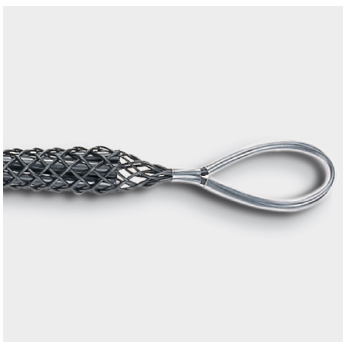
Code	Type	Pulley-D	Groove	SWL	kg
510310	LKR 300	300/160	D 92	1500 kg	8,60



Double tandem pulleys

Double tandem pulleys, steel construction galvanized. Four high wattage Polyamide pulleys with ball bearings. Mainly used in sea cable laying. The device adapt automatically to each pulling angle. The double rocker construction allows big bending radius. See pdf-drawing on the left. SWL = safe working load

Code	Type	Pulley-OD/ID	Groove	Rad. 45°	MBL	L/W/H mm	kg
510243	LKT 200P	200/100	D 125	2000	150 kN	1800x250x800	182,00
510245	LKT 202P	200/100	D 125	2000	300 kN	1800x250x800	198,00
510340	LKT 300P	300/120	D 230	2800	150 kN	2500x400x850	251,00



Overhead insulated cable grips

Overhead insulated cable grips with 1 loop, made of Kevlar strands covered with plastic. Especially for pulling insulated overhead power cables.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- B = internal diameter of the loop
- D = thickness of the loop

Code	Type	C-D	B	D	kN	For cables	L 1/L2	kg
510802	LKS 20/1	10-20	55	12	1,2	4x6-4x10 mm ²	1000/1100	0,10
510804	LKS 30/1	20-30	55	12	1,6	4x25-4x50 mm ²	1000/1100	0,10

510806	LKS 40/1	30-40	55	12	2,2	4x50-4x70 mm ²	1000/1100	0,11
510808	LKS 50/1	40-50	55	12	2,8	4x70+2x35 mm ²	1000/1100	0,12



OPGW, ADSS double tandem pulleys

Double tandem pulleys, with 4 polyamide or aluminium rollers with ball bearings. Steel construction galvanized. Safe working load 2100 da kN. Mainly used for pulling of OPGW-lines (Optical Ground Wire) and ADSS Fibre cables, and for exchange of conductors. Due to the low weight and the distance of 500 mm from axle to axle the device adapts automatically to each pulling angle. The double rocker construction allows bending radius from min. 750 to 2750 mm. See PDF-drawing on the left.

Code	Type	Pulleys	Pulley/groove	L/W/H mm	MBL	kg
510224	LKW 140PS	4 poly.	D 140/80/58	860/150/360	63 kN	17,00
510234	LKW 140AS	4 alu	D 140/80/58	860/150/360	63 kN	17,70



Double and triple pulleys for conductor change

Double and triple pulleys for conductor change. Suspension of light steel construction galvanized. See table below.

- Optional polyamide-pulleys with friction bearings or alu-pulleys with ball bearings, see table below.
- Select the pulley with a aluminium clamp suitable to your rope of 8-10, see below.
- Select the pulley with a brass clamp suitable to your rope of 12-22, see below.
- Please take notice of the accessory 1 or 2 eyes on the top or/and on the bottom

Code	Type	Pulleys	Pulley/groove	SWL	For rope-D	kg
511100	DRG 132/P	2 Poly	D 130/60/68	360 kg	12-22	2,70
511101	DRG 132/P	2 Poly	D 130/60/68	360 kg	8-10	2,45
511130	DRG 132/A	2 Alu	D 130/60/68	360 kg	12-22	3,15
511131	DRG 132/A	2 Alu	D 130/60/68	360 kg	8-10	2,90
511300	DRG 133/P	3 Poly	D 130/60/68	360 kg	12-22	3,70
511301	DRG 133/P	3 Poly	D 130/60/68	360 kg	8-10	3,45
511330	DRG 133/A	3 Alu	D 130/60/68	360 kg	12-22	4,40
511331	DRG 133/A	3 Alu	D 130/60/68	360 kg	8-10	4,20
511361	DRG 134Z1	1 eye	Eye ID 20	360 kg	to 20	0,07
511362	DRG 134Z2	2 eyes	Eye ID 20	360 kg	to 20	0,14



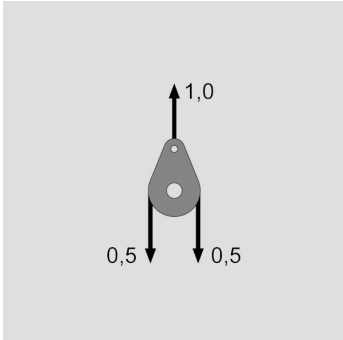


Alu snatch pulley

Alu snatch pulley with spring hook. Very light pulley for hanging on the belt. Please pay attention to the max. allowed lifting load.

- The lifting load must not be higher than 1/2 of the hook load
- Please pay attention to the left-hand symbol

Code	Type	Pulley-D	Groove	Hook load	SWL	Dimension	kg
513050	MRK 02-80	115/80	D 15	400 kg	200 kg	300x115x85	1,20

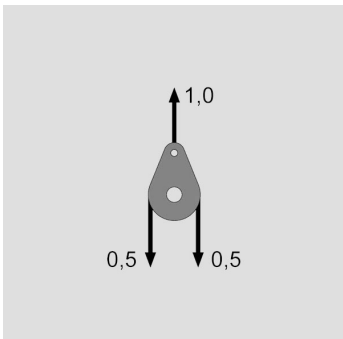


Alu snatch blocks

Alu snatch blocks with safety hook. Pulley is recessed in the cheeks. For mounting and hoisting works in overhead line construction. Please pay attention to the max. allowed lifting load.

- The lifting load must not be higher than 1/2 of the hook load
- Please pay attention to the left-hand symbol

Code	Type	Pulley-D	Pass	Rope	Hook	SWL	Dimension	kg
513071	MRK 05-70	70/50	28	20	500 kg	250 kg	230x90x43	0,95
513076	MRK 10-120	120/96	38	26	1000 kg	500 kg	320x140x55	2,70
513078	MRK 30-120	120/100	38	35	3000 kg	1500 kg	330x140x73	3,90
513081	MRK 30-220	220/194	38	35	3000 kg	1500 kg	470x240x73	7,70
513083	MRK 50-250	250/225	44	35	5000 kg	2500 kg	500x270x73	11,90



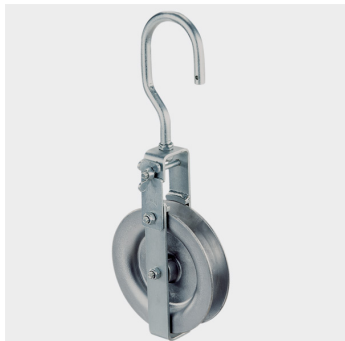
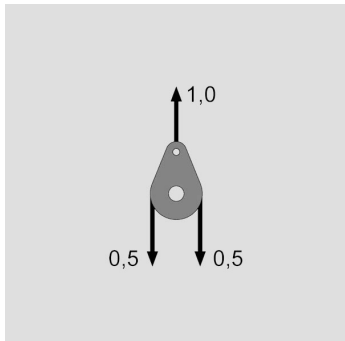


Steel snatch blocks

Steel snatch blocks, steel pulleys with friction bearing, swivelling hook. For diversion of pulling ropes and for mounting works on poles. Please pay attention to the max. allowed lifting load.

- The lifting load must not be higher than 1/2 of the hook load
- Please pay attention to the left-hand symbol

Code	Type	Pulley-D	Groove	Hook load	SWL	Dimension	kg
548240	DSR 10	85/105	D 7	1000 kg	500 kg	305x110x25	3,30
548243	DSR 20	150/190	D 13	2000 kg	1000 kg	425x200x30	8,90
548246	DSR 30	180/220	D 15	3200 kg	1600 kg	496x230x40	15,50
548249	DSR 60	210/260	D 18	6400 kg	3200 kg	655x280x50	26,50



Overhead line pulleys, lightweight

Overhead line pulleys of alu with ball bearings, lightweight steel suspension with swivelling hook of internal D 75 mm. Galvanized. Techn. detail see table below.

Code	Type	Pulley-D	Groove	SWL	Dimension	kg
513110	SRD 115	115/80	D 25	100 kg	370x115x80	1,50
513170	SRD 200	200/130	D 33	200 kg	480x200x85	3,10



Overhead line pulleys

Overhead line pulleys of alu with ball bearings, sturdy steel suspension all around of the pulley, alu pulley with ball bearings. For suspension with tongue, hook or pin. accessory see below.

Code	Type	Pulley-D	Groove	SWL	Dimension	kg
513540	SRD 315	315/250	D 42	200 kg	620x315x120	6,30



Overhead line pulleys

Overhead line pulleys of alu with ball bearings, sturdy steel suspension all around of the pulley, alu pulley with ball bearings. For suspension with tongue, hook or pin. accessory see below.

Code	Type	Pulley-D	Groove	SWL	Dimension	kg
513250	SR 200	200/130	D 33	500 kg	340x200x100	4,20



Overhead line pulleys

Overhead line pulleys of alu with ball bearings, sturdy steel suspension all around of the pulley, alu pulley with ball bearings. For suspension with tongue, hook or pin. accessory see below.

Code	Type	Pulley-D	Groove	SWL	Dimension	kg
513590	SR 315	315/250	D 42	600 kg	515x315x155	7,90



Rotating hook

Rotating hook ID 75 mm, for pulleys SR 200 and SR 315. Steel galvanized.

Code	Type	Suitable for	SWL	Dimension	kg
516220	AHD 16	SR 200+SR 315	200 kg	240x120x75	0,70



Pin for pulley

Pin for pulleys SR 200 and SR 315, steel galvanized.

Code	Type	Suitable for	SWL	Dimension	kg
516130	SB 250	SR 200+SR 315	200 kg	D 22x250	0,80



Screw clamp

Screw clamp for pulleys SR 200 and SR 315. Clamping range 35-110 mm. Steel galvanized.

Code	Type	Suitable for	SWL	Clamp range	Dimension	kg
516600	SZ 310	SR 200+SR 315	200 kg	35-110	230x155x40	1,47



Insulator mounted alu roller

Insulator mounted alu roller for 240 mm², hinged alu casing with 3 rollers, with rubberised tensioning claws.

- Suitable for horizontal and vertical pulls to 4°.
- Can be mounted by hand without tools on any pin insulator.
- After regulation the conductor can be placed directly in the insulator groove using the conductor lifter.

Code	Type	For ACSR	SWL	Dimension	kg
516760	STR 020	to 150 mm ² .	500 kg	155x355x145	3,00



Conductor lifter

Conductor lifter suitable to take out the conductors of the insulator mounted pulley and to lay it directly into the insulator groove.

Code	Type	For	Dimension	kg
516765	SCL 025	STR 020	300x130x45	1,20



Insulator mounted corner roller

Insulator mounted angle pulley, suitable for all pin insulators. With rubberised tensioning claws. Can be mounted by hand without tools on any pin insulator. Suitable for straight and for angle pulls up to 40°. Once the pulling motion is completed, the conductor can be placed directly in the insulator groove. Suitable for ACSR

Code	Type	For ACSR	SWL	Dimension	kg
516790	STE 030	to 240 mm ² .	500 kg	500x200x140	6,70



Overhead line pulleys

Overhead line pulleys of alu with ball bearings, sturdy steel suspension not all around only down to the axle.

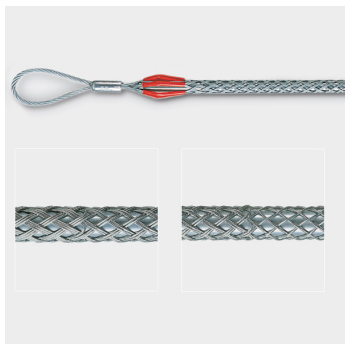
Code	Type	Pulley-D	Groove	SWL	Rubber	Dimension	kg
513480	TS 315	315/250	D 42	500 kg	no	440/315x115	5,80
515110	TS 350	350/260	D 58	500 kg	no	500/350x150	9,50
515120	TS 350G	350/280	D 58	500 kg	yes	500/350x150	10,00
517250	TS 580	580/480	D 58	1500 kg	no	730/580x150	14,25
517260	TS 580G	580/500	D 58	1500 kg	yes	730/580x150	15,25



Overhead line pulleys

Overhead line pulleys of alu with ball bearings, sturdy steel suspension all around of the pulley, alu pulley with ball bearings.

Code	Type	Pulley-D	Groove	SWL	Rubber	Dimension	kg
515170	SR 350	350/260	D 58	1500 kg	no	515/350x150	12,30
515180	SR 350G	350/280	D 58	1500 kg	yes	515/350x150	12,80
517310	SR 580	580/480	D 58	1500 kg	no	750/580x150	17,60
517320	SR 580G	580/500	D 58	1500 kg	yes	750/580x150	18,40

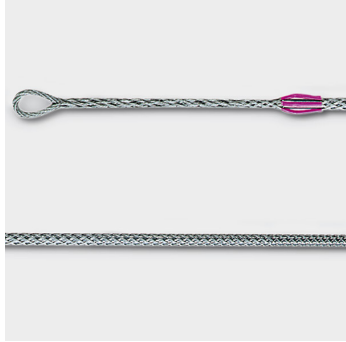


Overhead line grips pressed loops

Overhead line grips with 1 pressed loop. Galvanized bowden wire. Highest tensile strength over entire length and tension resulting from variable mesh 3-2-1-strand. Produced and colour-coordinated according to DIN EN 48207-2. These grips with pressed loops are for conventional pulling operations but not for negotiating capstans or tensioner heads, for this select hand spliced grips below, types MSP. All Vetter grips are handmade therefore of high flexibility. They adapt easy at any difference in conductor diameter and are therefore simple to handle.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- These grips are produced according to DIN EN 48207-2
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

Code	Type	D	Sect. mm ²	B	D	kN	L1/L2 mm	Colour	kg
540070	MS 11	6-11	25-50	30	8	18	840/1050	violet	0,20
540120	MS 16	11-16	50-120	40	10	36	960/1210	green	0,40
540170	MS 21	16-21	120-210	60	10	66	1300/1600	yellow	0,70
540220	MS 27	21-27	210-340	70	12	93	1640/2000	grey	1,40
540260	MS 38	27-38	380-680	70	14	135	1740/2140	red	1,80
540310	MS 45	38-45	680 -.....	70	14	150	1930/2330	brown	2,10



Overhead line grips spliced loops

Overhead line grips with 1 hand-spliced loop. Galvanized bowden wire. Highest tensile strength over entire length and tension resulting from variable mesh 3-2-1-strand. Produced and colour-coordinated according to DIN EN 48207-2. These grips with hand-spliced loops are suitable for negotiating capstans or tensioner heads. All Vetter grips are handmade therefore of high flexibility. They adapt easy at any difference in conductor diameter and are therefore simple to handle.

- L1 = the lengths without cables in. L2 = total length included the loops.
- The real length mounted on the cable can be much shorter, depending on the cable diameter.
- These grips are produced according to DIN EN 48207-2
- B = internal diameter of the loop
- D = thickness of the loop
- kN = minimum breaking load

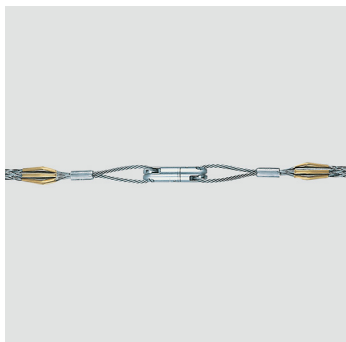
Code	Type	D	mm ²	B	D	kN	L1/L2 mm	Colour	kg
540410	MSP 11	6-11	25-50	35	8	18	840/1290	violet	0,28
540420	MSP 16	11-16	50-120	45	11	36	960/1500	green	0,55
540430	MSP 21	16-21	120-210	50	16	66	1300/2000	yellow	0,90
540440	MSP 27	21-27	210-340	55	18	93	1640/2470	grey	2,10
540450	MSP 38	27-38	380-680	60	20	135	1740/2620	red	2,80
540460	MSP 45	38-45	680 -.....	72	20	150	1930/2860	brown	3,20



Line connecting grips

Rope connecting grips. Suitable for changing crane ropes. Not to use for overhead lines, for this it is recommended to use 2 MS grips and 1 FVD swivel. Connecting grips would be destroyed by the torsion between two conductors. kN = Minimum Breaking Load

Code	Type	D	kN	Length	kg
540560	SVS 10	6-10	6,6	1000	0,10
540600	SVS 15	10-15	10,2	1500	0,13
540650	SVS 20	15-20	20,4	1500	0,27
540660	SVS 25	20-25	22,2	2000	0,40
540700	SVS 30	25-30	24,3	2000	0,49
540750	SVS 40	30-40	35,1	2000	0,60



Line connection

For connecting two lines the most reliable method is to use two overhead line grips MS or MSP 11-45, as above shown. These will be connected by a swivel type FVD to avoid torsion.

- One set for safe working consist of the followings:
- Code 540.xxx - two overhead line grips as shown above
- Code 537.xxx - one overhead line swivel with ball bearings to avoid torsion.

Code	Type	Article	Overhead line grips
540500	MS-MSP	Article see	- 0,00

540500 MS-MSP Article see - 0,00



Connector rigid

Rigid line connector for overhead line pulling, for connection of different pull ropes, slim construction for easy running through the pulleys. These swivels are suitable for pulling over capstans or line tensioner.

kN = Minimum Breaking Load

Code	Type	D	L	Fork	Bolt	kN	kg
537010	FTS 28	28	59	11	17	70	0,14
537040	FTS 41	41	72	14	19	110	0,35
537080	FTS 48	48	90	19	20	160	0,53
537120	FTS 56	56	101	19	22	220	0,77
537170	FTS 60	60	120	26	27	360	1,05



Overhead line swivels

Overhead line swivels, colour silver, connection between pulling rope and pulling grip. With ball bearings, therefore only suitable to absolute twist-free steel ropes. Avoids untwisting the conductor. These swivels may not be used for pulling over capstans or line tensioner. For this please use above mentioned types FTS 28-60. Swivels with high electrical conductivity for working in the neighbourhood of live wires you can find in the sectors below.

kN = Minimum Breaking Load in straight pull.

Code	Type	D	L	Fork	Bolt	kN	kg
537280	FVD 18	18	80	6,5	6	21	0,11
537300	FVD 25	25	109	9	10	45	0,30
537360	FVD 30	30	128	12	12	60	0,50
537410	FVD 35	35	137	12	14	90	0,70
537490	FVD 40	40	160	14	16	120	1,10
537550	FVD 50	55	187	18	16	165	1,90
537580	FVD 55	55	190	20	18	180	2,30
537640	FVD 60	60	220	23	20	225	3,10
537670	FVD 65	65	235	26	24	300	3,50
537700	FVD 75	75	270	30	27	320	6,70
537730	FVD 85	85	305	35	30	400	9,40
537760	FVD 100	100	340	38	36	500	14,30



Conductor pulling equipment electrical conductive

Overhead line pull connectors, for pulling conductors in the neighbourhood of live wires instead of using pulling grips. To complete the safety use only swivels with high electrical conductivity, e.g. FED tested up to 84 Ampere. Please ask for more information.

For a complete conductor pulling set the following below listed single parts are necessary:

- 1 Swivel electrical conductive
- 1 Cardan joint to connect the line pull connector with the swivel
- 1 Line pull connector according to the conductor diameter
- 1 Solid cone according to the conductor diameter

Code	Type	Needed parts	
538000	LZK-Kombi	See description above	0,00



Swivels electrical conductive

Overhead line swivels. With high electrical conductivity to deflect induced currents in the neighbourhood of live wires. With ball bearings, therefore only suitable to absolute twist-free steel ropes. Avoids untwisting the conductor. These swivels may not be used for pulling over capstans or line tensioner. For this please use above mentioned types FTS 28-60.

Amp. = Deflecting induced currents. kN = minimum breaking load.

Code	Type	D	Amp.	L	Fork	Bolt	kN	kg
537820	FED 40	40	84	160	14	16	150	1,22
537835	FED 55	55	170	190	20	18	180	2,65
537840	FED 65	65	170	235	26	24	300	3,75



Cardan joints

Cardan joints for connection of the pull connector with the swivels FED electrical conductive.

- Together with the swivels it functions like a globe joint.
- Important also when pulling in level differences
- kN = Minimum Breaking Load

Code	Type	For connector	Swivel	kN	kg
538855	LKG 40-40	OD 40	FED 40	150	2,16
538860	LKG 45-45	OD 45	FED 45	150	2,36
538865	LKG 50-50	OD 50	FED 50	165	2,85
538870	LKG 55-55	OD 55	FED 55	180	3,30
538875	LKG 60-60	OD 60	FED 60	180	4,10



Line pull connectors

Overhead line pull connectors, for pulling conductors in the neighbourhood of live wires instead of using pulling grips. To complete the safety use only swivels with high electrical conductivity, e.g. FED from 84 to 170 Ampere. Please ask for more information.

- Overhead line grips are tending to burst open at a spark erosion.
- The conductor stringing clamps together with the swivels FED are continuously conductive.
- A safe connection to avoid destruction and the fall down of the conductors.
- The pulling clamp can be reused often.
- kN = Minimum Breaking Load



Code	Type	D	Cond.-D	mm ²	kN	kg
538802	LZK 40-070	40	9,6-12,0	50-70	60	1,16
538805	LZK 40-125	40	13,6-16,3	95-125	60	1,16
538810	LZK 45-185	45	17,1-19,0	150-185	75	1,60
538812	LZK 50-265	50	20,3-22,4	210-265	90	2,22
538814	LZK 55-385	55	24,1-26,7	300-385	120	2,30
538818	LZK 60-570	60	27,5-32,5	385-570	125	2,90



Solid cone taper key for connectors

Solid cone taper key for connectors

- Exact conductor diameter is needed for an offer

Code	Type	Cond-D	For connector	kg
538822	KEL 9,6	9,6-10,5	LZK 40-070	0,05
538824	KEL 11,7	11,7-13,6	LZK 40-070	0,05
538826	KEL 15,5	15,5-16,3	LZK 40-125	0,06
538828	KEL 17,1	17,1-19,0	LZK 45-185	0,06
538830	KEL 20,3	20,3-22,4	LZK 50-265	0,09
538832	KEL 24,1	24,1-25,0	LZK 55-385	0,13
538834	KEL 26,7	26,7-27,0	LZK 55-385	0,15
538836	KEL 28,8	28,8-29,5	LZK 60-570	0,18



Mounting tool

Mounting tool for overhead line pull connectors. Made of special high quality steel. For beating in round taper keys.

Code	Type	Zu Cross section	Cond.-D	Dimension	kg
538880	LKT 40-60	40-570 mm ²	9-32	30/12x160	0,40



Rope and ACSR cutters

Rope and ACSR cutters, type Felco highest quality. For steel ropes and conductors according to table below.

Code	Type	ACSR	Open	Steel-D	Cable	kg
543090	C 9	35 mm ²	12	9	9	0,80
543120	C 12	70 mm ²	15	12	12	1,50
543250	C 16	95 mm ²	25	16	20	2,30
543300	C 16E	185 mm ²	28	10	25	2,30



Hydraulic rope and ACSR cutters

Hydraulic rope and ACSR cutters, cutting heads rotating 180°. For steel ropes and conductors according to table below.

Code	Type	ACSR	Open	Steel-D	Cable	Press.	Length	kg
543500	SH 24	300 mm ²	24	22	24	110 kN	426	3,90
543530	SH 32	495 mm ²	32	32	32	200 kN	675	9,30
543610	SH 40	550 mm ²	40	22	40	90 kN	630	5,20
543670	SH 55	1000 mm ²	55	30	54	125 kN	610	7,80



Accu-hydraulic conductor cutters

Battery operated hydraulic conductor cutter. Design with closed cutter. Light and compact structure for cutting Cu and ACSR lines. Cutting head rotating 360°. High speed feed with double hydraulic cylinder. High capacity Lithium-Ionic battery 18V/3Ah. Approximately 100-120 cuts per charge, depending on the conductor. Variable speed for positioning of the tool.

ASL 25-ASL 45 supplied in plastic cases.

- Ergonomic design for right and left hander for fatigue-proof working.
- 2 years of guaranty respectively 20.000 cycles.
- Assembly: cutter with battery 18V/3Ah, battery charger and carrying bag.
- Armour Yes means cutting of cables with light steel sheet armour.

Code	Type	Cond-D	Cutter	Force	Conductor	kg
257290	ASL 25	D 25	closed	60 kN	Cu/Al/ACSR	4,20
257300	ASL 45	D 45	closed	60 kN	Cu/Al/ACSR	5,40
025732105	Akku 18V	for all	cutters	18V	---	0,67



Conductor cleaning brush

Conductor cleaning brush, hinged aluminium shell with stainless steel V2A bristles. Blue for AL conductors.

Code	Type	Colour	For conductor	kg
560400	SRA 40	blue	Alu-D 10-40	0,20



Conductor cleaning brush

Conductor cleaning brush, hinged aluminium shell with stainless steel V2A bristles. Red for CU conductors.

Code	Type	Colour	For conductor	kg
560410	SRC 40	red	CU-D 10-40	0,20



Come along clamps for St and Cu

Come along clamps for St and Cu ropes with long parallel clamping jaws made of height quality steel. Jaws hardened.

Code	Type	Cond-D	mm ²	SWL	Jaw-L	Eye-D	kg
561500	SCS 5	1,0-5,0	1-16	500 kg	60	20	0,27
561510	SCS 9	3,0-9,0	6-35	1000 kg	90	22	0,85
561520	SCS 12	4,0-12,0	16-70	1700 kg	110	27	1,20
561530	SCS 18	6,0-18,0	50-150	3000 kg	120	25x38	1,85
561540	SCS 28	10,0-28,0	90-400	3500 kg	140	30x40	3,80
561550	SCS 40	20,0-40,0	240-800	4000 kg	140	30x40	6,20



Come along clamps for Al and ACSR

Come along clamps for Al, ACSR and Aldrey conductors. With long parallel clamping jaws made of height quality steel. Jaws with fine grooves, hardened.

Code	Type	Cond-D	mm ²	SWL	Jaw-L	Eye-D	kg
561580	SAA 8	5,4-8,5	25-35	1000 kg	90	22	0,80
561600	SAA 12	5,0-12,0	16-70	1700 kg	110	27	1,15
561630	SAA 18	8,0-18,0	50-150	3000 kg	120	25x38	1,79
561680	SAA 28	15,0-28,0	120-400	3500 kg	140	30x40	3,80
561685	SAA 40	20,0-40,0	240-800	4000 kg	140	30x40	5,50



Come along clamps for bare wires

Come along clamps for all kind of bare wires, for pulling and tensioning of metal wires. Made of high quality steel. Parallel jaws. Lateral safety latch avoids the clamp leaving the rope.

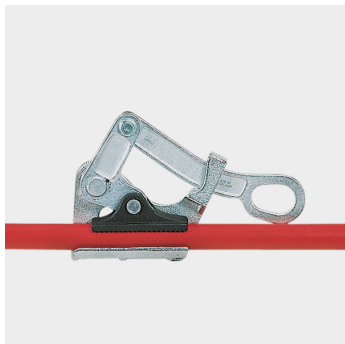
Code	Type	Cond-D	For material	SWL	Jaw-L	Eye	kg
561702	AL-20	5-22	CU/ACSR/AL	20 kN	90	32x42	1,50
561704	AL-30	5-22	CU/ACSR/AL	30 kN	90	32x42	1,70
561706	W-30	6-22	CU/ST	30 kN	90	32x42	1,70
561708	AL-50	18-36	CU/ACSR/AL	50 kN	180	43x51	4,70



Wedge type clamps

Wedge type clamps for bare wires, for clamping or catching the line during pulling. Self-clamping, the greater the pull, the greater the clamping pressure.

Code	Type	Cond-D	SWL	Jaw-L	Dimension	kg
561720	KSP 10	5,0-10,0	1000 kg	100	275x80x35	1,00
561722	KSP 14	10,5-14,0	2000 kg	155	365x100x40	2,00
561724	KSP 21	15,0-21,0	3000 kg	240	500x150x50	5,20



Cable clamps for insulated cables

Cable clamps for insulated cables, galvanized, with long parallel clamping round jaws of high quality steel hardened. No slipping on one-core to four-core bundle cables.

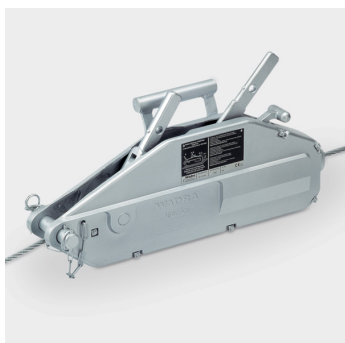
Code	Type	C-D	mm ²	SWL	Eye	L mm	kg
561780	KSK 25	8,0-25,0	4x35	500 kg	27x40	70	0,90
561800	KSK 34	16,0-34,0	4x70	1200 kg	30x45	100	2,20
561810	KSK 45	28,0-45,0	4x95-150	1800 kg	30x45	100	3,10



Clamps for insulated telecom cables

Clamps for insulated telecom air cables. Clamping jaws and guide clamps made of glass fibre reinforced plastic, housing made of galvanized sheet steel.

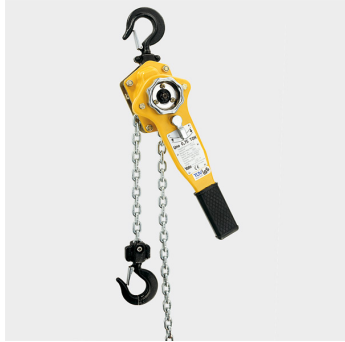
Code	Type	C-D	SWL	Dimension	kg
561910	KST 10,5	5,5-10,5	400 kg	174x45x32	0,17
561912	KST 13,5	10,5-13,5	700 kg	236x61x39	0,40
561914	KST 17,5	13,5-17,5	900 kg	276x70x47	0,65
561916	KST 24,0	16,5-24,0	1600 kg	437x102x53	1,35



Steel rope hoists

Steel rope hoists, lightweight alu-construction for pulling and hoisting works. Officially approved by safety institution. Including 20 m special steel rope with hook. Weight mentioned in the table below is for device inclusive 20 m steel rope.

Code	Type	Pull force	Rope	Hook load	L/W/H mm	kg
550280	SZA 08	8,0 kN	8,4	800 kg	420x60x230	15,50
550310	SZA 16	16,0 kN	11,5	1600 kg	550x80x280	26,00
550340	SZA 32	32,0 kN	16,0	3200 kg	680x90x330	44,60



Ratchet chain hoists

Ratchet chain hoists, especially lightweight construction, with round link chains. Chain release device. Swivelling hooks. Lift 1,50 m.

Code	Type	Pull-lift	Chain lift	Dimension	kg
550580	KRZ 02	250 kg	1,50 m	270x55x90	2,20
550581	KRZ 05	500 kg	1,50 m	270x55x90	2,80
550582	KRZ 07	750 kg	1,50 m	295x111x142	7,00
550584	KRZ 15	1500 kg	1,50 m	380x140x166	11,00
550586	KRZ 30	3000 kg	1,50 m	420x174x184	14,90



Steel rope tensioner, lightweight

Steel rope tensioner, lightweight, for pulling and tensioning, not for hoisting of loads. Dimension 600x400x155 mm.

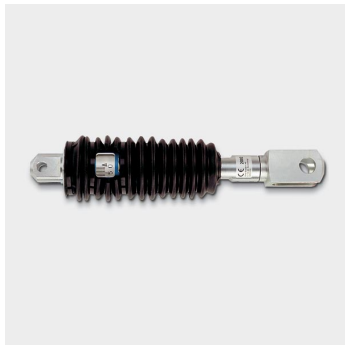
Code	Type	Single strand/L	Double strand/L	Rope	kg
550370	SLM 546	5,0 kN/4,60 m	10 kN/2,30 m	4,8	6,50
550374	SLM 763	7,0 kN/6,00 m	14 kN/3,00 m	5,6	6,00
550376	SLM 952	9,0 kN/5,20 m	18 kN/2,60 m	6,4	5,90



Pulley blocks, 3 fold

Pulley blocks, 3 fold with 20 m of hemp wire, 3-grooved rollers, swivelling hook.

Code	Type	Pull-lift	Roller-D	Rope	kg
550660	FLZ 60	250 kg	60	10	2,60
550670	FLZ 70	300 kg	70	12	4,30
550680	FLZ 80	350 kg	80	12	4,40



Dynamometer for catenaries accuracy $\pm 0,6\%$

Dynamometer for catenary and overhead line works. High accuracy of $\pm 0,6\%$. With 2 fork heads. Pull results on a black and white drum type scale. Overload protection. Complete body protected in a rubber joint. kN = Minimum Breaking Load

Code	Type	Cap.	Scale	MBL	Fixing	D/L	kg
550035	DBA 02	0-250 kg	5 kg	1250 kg	Fork-Eye	70/289	1,90
550065	DBA 05	0-500 kg	10 kg	2500 kg	Fork-Eye	70/289	1,90
550095	DBA 10	0-1000 kg	20 kg	5000 kg	Fork-Eye	70/289	1,90
550105	DBA 15	0-1500 kg	20 kg	7500 kg	Fork-Eye	70/292	2,40



Dynamometer for overhead lines $\pm 0,6 \%$

Dynamometer for overhead line works. Accuracy of $\pm 0,6 \%$. Pull results on speedometer casing. MBL = Minimum Breaking Load

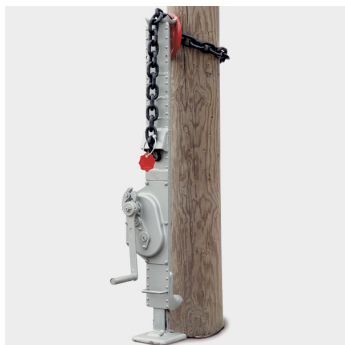
Code	Type	Cap.	Scale	MBL	Fixing	D/L	kg
550090	DYB 10	0-1000 kg	20 kg	5000 kg	Eye-Eye	50/266	1,90
550120	DYM 20	0-2000 kg	25 kg	10000 kg	Eye-Eye	86/395	7,80
550150	DYO 30	0-3000 kg	50 kg	15000 kg	Eye-Eye	86/395	7,80



Dynamometer for overhead lines $\pm 3,0 \%$

Dynamometer for overhead line works. Accuracy of $\pm 3,0 \%$. Pull results on speedometer casing. MBL = Minimum Breaking Load

Code	Type	Cap.	Scale	MBL	Fixing	D/L	kg
550190	TM-05	0-500 kg	10 kg	1500 kg	Eye-Eye	65/140	0,90
550192	TM-10	0-1000 kg	20 kg	3000 kg	Eye-Eye	65/140	1,00
550194	TM-20	0-2000 kg	50 kg	6000 kg	Eye-Eye	65/150	1,10
550196	TM-30	0-3000 kg	50 kg	9000 kg	Eye-Eye	75/250	1,90
550198	TM-50	0-5000 kg	50 kg	15000 kg	Eye-Eye	90/250	2,60



Pole extraction jack

Pole extraction jack with safety crank and pole pulling chain length 1600 mm. Big lifting height.

Code	Type	Extract force	Extract height	Min. height	kg
550810	MHW 50	5 t	700	1120	46,40



Pole hand ground borer

Pole hand ground borer, of high quality steel furnished, consisting of borer, borer-handle and extension 700 mm.

Code	Type	Hole-D	Hole depth	For borer-D	kg
551310	MEB 1515	150	1500	---	5,30
551313	MEB 1520	200	1500	---	6,10
551316	MEB 1525	250	1500	---	8,80
551323	MEV 0718	Extension	+ 700	150-200	1,40
551324	MEV 1018	Extension	+ 1000	150-200	2,10

551327	MEV 0720	Extension	+ 700	250-300	1,80
551328	MEV 1020	Extension	+ 1000	250-300	2,60



Pole ground anchor

Pole ground anchor, steel, galvanized,

Code	Type	Anchor-D	Anchor-L	kg
551340	MES 1515	150	1500	2,80
551342	MES 1520	200	1500	3,25
551345	MES 2015	150	2000	3,60
551347	MES 2020	200	2000	4,00
551349	MES 2024	240	2000	5,00



accessory for pole ground anchors

Socket wrench reinforced for pole ground anchors.

Code	Type	Suitable for	Length	kg
551352	EST 1520	Ground anchors MES 1515-MES 2024	1700	5,00



accessory for pole ground anchors

Eye nut for screwing on the pole ground anchors. Thread M 16, galvanized, DIN 582.

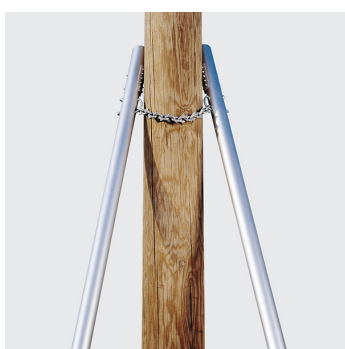
Code	Type	Suitable for	kg
551355	RIM 16	ground borer	0,24



accessory for pole ground anchors

Turn buckle for connecting stay wires with the ground anchors. Size 16, with 1 hook and 1 eye. Galvanized, DIN 1480.

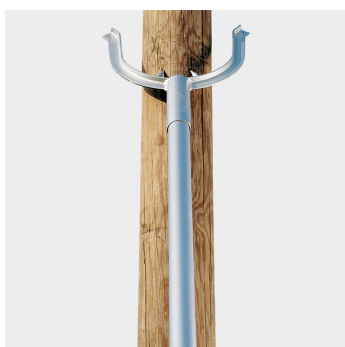
Code	Type	Suitable for	kg
551358	SPS 16	ground borer	1,00



Pole erection bars

Pole erection bars with spiked head chain of 15 links. For wooden telecom or electro overhead line poles D 100-250 mm, alu-tube rods D 54 mm. Foot rod with handles, base plate and tip

Code	Type	Total L	Tube length	kg
551200	MSG 301	3,00 m	1x3,00 m	15,00
551202	MSG 402	4,00 m	2x2,00 m	22,00
551204	MSG 502	5,00 m	2x2,50 m	25,00
551206	MSG 602	6,00 m	2x3,00 m	28,00
551208	MSG 704	7,00 m	3x2,00 m + 1x1,00 m	38,00



Pole erection forks

Pole erection forks for telecom or electro overhead line poles D 100-250 mm, alu-tube rods D 54 mm, divisible, consisting of: 1-2 rods with fork, intermediate rods, foot rod with handles, base plate and tip.

Code	Type	Total L	Tube length	kg
551220	MGA 301	3,00 m	1x3,00 m	11,00
551222	MGA 402	4,00 m	2x2,00 m	14,00
551224	MGA 502	5,00 m	2x2,50 m	16,00
551226	MGA 602	6,00 m	2x3,00 m	18,00



Pole spiked chain, only

Pole spiked chain, only for self-mounting on wooden rods of D 65 mm, chain length 350 mm, for poles of D 100-250 mm.

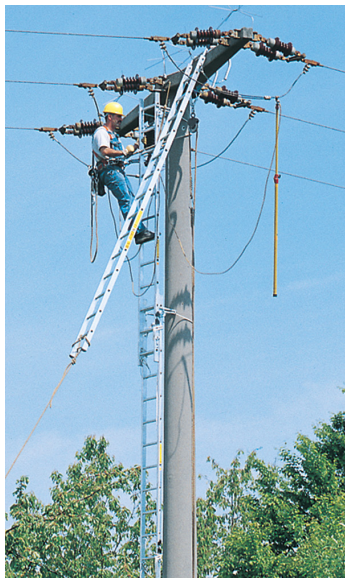
Code	Type	For pole-D	Chain length	Rod-D	kg
551213	MSL 250	100-250	350	65	1,50



Pole fork only

Pole fork only for self-mounting on wooden rods of D 55 mm, for poles of D 100-250 mm.

Code	Type	For pole-D	Rod-D	kg
551232	MGL 250	100-250	55	3,80



Pole ascent ladders

Pole ascent ladders. Rectangular side rails and ripped non-slip aluminium rungs 30x30 mm. Combination of several single parts, one lower ladder of 3,52 m, one or more middle ladders of 2,85 m and one upper ladder of 2,80 m. Incl. safety rail of aluminium. Fall arrester as accessory.

- Ladder external width 505, ladder beam 58
- For pole diameters 140 to 1000. Load capacity per ladder combination 150 kg
- Quick and simple mounting on the pole in any terrain
- According to standards: EN 353, EN 0121, DIN 18799-1, EN 14122-4, EN 131

Code	Type	Length	Low	Middle	Upper	Spokes	kg
585380	MGA 8,8	8,8 m	1 pc.	1 pc.	1 pc.	32 pc.	40,00
585390	MGA 11,6	11,6 m	1 pc.	2 pc.	1 pc.	42 pc.	52,00
585400	MGA 14,4	14,4 m	1 pc.	3 pc.	1 pc.	52 pc.	64,00
585420	MGA 20,0	20,0 m	1 pc.	5 pc.	1 pc.	72 pc.	88,00



Fall arrester

Fall arrester suitable for all pole ascent ladders. Easy to mount and dismount. Can already be used for safety when mounting the ladders on the poles.

Code	Type	Suitable for	kg
585430	VST 8820	all pole ascent ladders	1,70



Suspension ladders

Suspension ladders with strong rectangular side rails of 58-68 mm and aluminium rungs. Ribbed, non-slip rectangular rungs 30x30 mm. Inside-/outside width 420/370 mm. Galvanised steel stop hooks D 320 mm with chain locking device. According to BGV D 36/DIN 4567.

Important: these suspension ladders are not suitable for horizontal use.

Code	Type	Rungs	Length	Load vert.	kg
585620	MHA 214	6	2,14 m	100 kg	8,90
585630	MHA 270	8	2,70 m	100 kg	9,80
585640	MHA 326	10	3,26 m	100 kg	10,70
585650	MHA 382	12	3,82 m	100 kg	11,60
585660	MHA 438	14	4,38 m	100 kg	13,50
585670	MHA 494	16	4,94 m	100 kg	15,10



Overhead pole capstan winch

Overhead pole capstan winch. Capstan winch designed for mounting conductors or replacing old conductors. With mechanical drive by a petrol engine. For fixing on wooden poles or with accessory also on concrete poles. The capstan gives constant output and speed.

- Pulling force through the small bollard constantly 4,0 kN at 25 m/min.
- Pulling force on big bollard constantly 2,5 kN at 40 m/min.
- Self-locking gear for securing the load in both direction.
- For transportation the winch can be dismantled and ease remounted on the site.
- These parts are: petrol engine, capstan gear box, rope drum and pole clamp.

Code	Type	Petrol	Rope drum	Wood. poles	kg
570070	PCW 400	4,8 kW	700 m/7	D 200-400	90,00



Overhead pole drum winch

Overhead pole drum winch, designed for mounting conductors or replacing old conductors. With mechanical drive by a petrol engine. For fixing on wooden poles. This is not a capstan winch. The pull is exerted directly by the rope drum, therefore the pulling force and the speed vary from the bottom of the drum to the top.

- Direct pull on the rope drum coil of 3,5-1,75 kN at 30-60 m/min. depending on filling quantity.
- Irreversible gear for sustain of load in both directions.
- For transportation the winch can be dismantled and easily be re-assembled mounted on the site.
- These parts are: petrol engine, gear box, rope drum and pole clamp.

Code	Type	Petrol	Rope drum	Wood. poles	kg
570100	PDW 175	4,8 kW	500 m/7	D 200-400	78,00



Overhead pole coiling winch

Overhead pole coiling winch, designed for winding old overhead lines. With mechanical drive by a petrol engine. For fixing on wooden poles. This is not a capstan winch. The pull is exerted directly by the coiling drum, therefore the pulling force and the speed vary from the bottom of the coiling drum to the top.

To withdraw old conductors and to coil them on the on the divisible coiler the following lengths are possible:
 mm^3 : 25/4 0 = 500 m, 35/6 = 350 m, 50/8 = 250 m, 70/12 = 175 m, 95/15 = 130 m

- Direct pull on the coil winder of 3,5-1,75 kN at 30-60 m/min. depending on filling quantity.
- Self-locking gear for securing the load in both direction.
- For transportation the winch can be dismantled and ease remounted on the site.
- These parts are: petrol engine, gear box, coil winder and pole clamp.

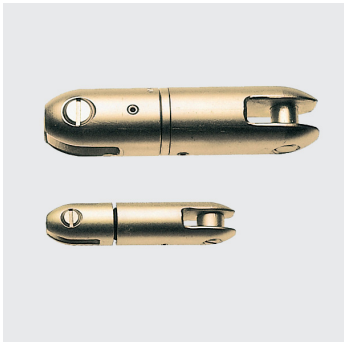
Code	Type	Petrol	Rope drum	Wood. poles	kg
570180	PRW 175	4,8 kW	500 m/7	D 200-400	79,00



Polyester plastic rope, extension 4 %

Polyester-rope, 3-fold, prestretched, limited extension

Code	Type	Rope	Stretch	kN	kg
571312	LKS 07-21	7	<4 %	12,0	0,04



Swivels

Swivels with friction bearings, turnable connector between winch rope and cable grip. The friction bearing guarantees that the swivel reduces rotation and torsion with increasing pulling force. Swivels with ball bearings turn off and destroy the steel ropes, they can only be used in connection with absolute twist free steel ropes.

- Swivels for underground cables must be equipped only with friction bearings.
- With increasing pulling force friction bearings twist harder and thus avoid the untwisting of the pulling rope
- Ball bearings let untwist the ropes and leads to destruction.

Code	Type	D	L	Fork	Bolt	kN	kg
243020	V 20 D	20	86	7	8	21	0,16
243040	V 25 D	25	120	9	10	30	0,32



Drum unwind stand

Drum unwind stand for overhead line construction. Band brake is only for unintended unwinding of the drum at line pulling stop, it is not suitable for braking or sagging the line. Easy height levelling out of the two sides by hand crank, drums can be fixed horizontal in each kind of ground. Steel construction galvanized.

- Equipped with drum shaft D 70.
- Band brake for controlled unwinding.
- Drum fork and accessory.
- Device dismountable for the transportation in 3 parts.

Code	Type	Cable drum	Drum-D	Drum width	kg
570800	DST 30	to 3000 kg	1000-1800	to 1200	107,00



Cable trailer straight or adjustable drawbar

Cable drum trailer with straight or height adjustable draw bar and overrun brake for speeds up to 80 km/h. For loading the support arms are swung down and then raised picking up the drum by a single hand winch. Rigid tubular steel shaft D 76 mm. Rotating alu-shaft D 75 mm as accessory. Further accessory see below.

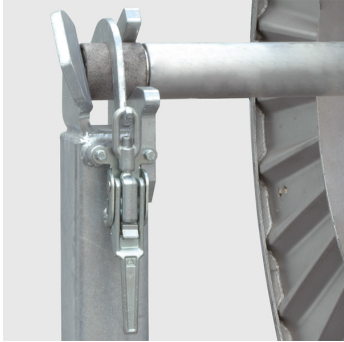
Payload without accessories. If accessories are mounted like hydr. drum drives etc. the payload reduces according to their weights.

- Types G - with straight draw bar can only be equipped with ball coupling
- Types H - with adjustable draw bar equipped with eye coupling, ball coupling as accessory
- Suitable for one-man operation
- Complete trailer hot galvanized
- Rotating alu shafts as accessory, see below.
- Drum band brake as accessory, see below.



Code	Type	Payl.	Total	Drum-D	Hitch	Int./Ext.	kg
342088	KVS 1000/80G	980 kg	1300 kg	600-1650	75 kg	1300/2140	320,00
342131	KVS 1500/80G	1500 kg	2100 kg	600-2400	100 kg	1580/2450	590,00
342146	KVS 2000/80G	2000 kg	2600 kg	600-2400	100 kg	1580/2450	600,00
342093	KVS 1000/80H	930 kg	1300 kg	600-1650	75 kg	1300/2140	370,00
342136	KVS 1500/80H	1500 kg	2200 kg	600-2400	120 kg	1580/2450	670,00
342151	KVS 2000/80H	2000 kg	2700 kg	600-2400	120 kg	1580/2450	700,00





Rotating drum shafts

Surcharge for rotating drum shafts. All a.m. trailers are fitted with rigid tubular steel drum shafts. With rotating shafts cable drums unwind much easier, they are necessary if the trailer is equipped with a drum drive or a drum disc brake.

Code	Type	Suitable for	D/length	kg
350787	APR 750	KVS 1000G+H	75/1450	19,80
350788	APR 752	KVS 1500-2000G+H	75/1730	20,30

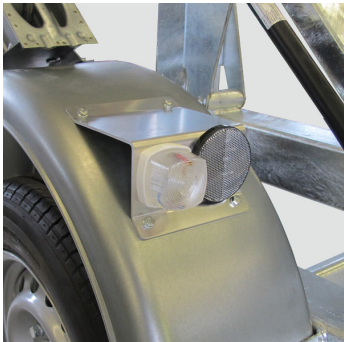


Rear protection gate

Rear protection gate, for Cable trailers KVS 1000-2000 G+H, hot galvanized.

The need of a rear protection is subject to national regulations. Independent of this, the rear protection offers a higher safety in the road traffic.

Code	Type	Suitable for	Trailer ext. width	kg
349820	KUF 100	KVS 1000G+H	2140	16,00
349826	KUF 200	KVS 1500-2000G+H	2450	30,00



Position lights

Position lights 12 volt, in front of the trailers KVS 1000-2000 G + H, according to the law of some countries

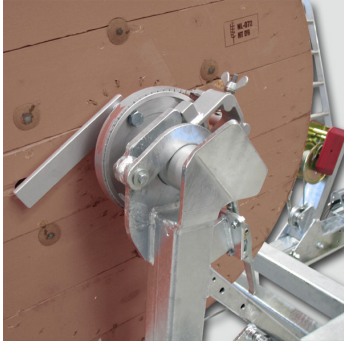
Code	Type	Suitable for	kg
349550	KPL 12	KVS 1000-2000G+H	3,00



Ball coupling

Ball coupling with screws, changeable against height adjustable drawbar eye coupling for trailers with overrun brake.

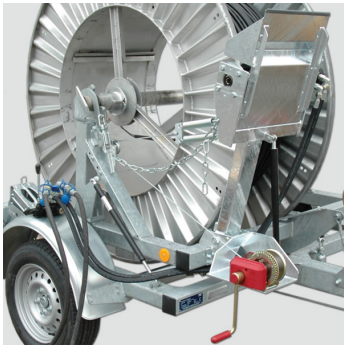
Code	Type	Suitable for	Tot. weight	kg
349190	PK 25	KVS 1000-2000H	3200 kg	2,90



Cable drum band brake

Cable drum band brake for KVS 1000-2000/80 without shaft, to screw on rotating alu shaft. This band brake avoids uncontrolled unwinding of the cable drum. Mostly used for unwinding overhead lines.

Code	Type	Suitable for	Braking at cable	kg
350842	BTB 202	KVS 1000-2000G+H	approx. 2,0 kN	10,00



Drum drive one side

Drum drive one side for cable trailers KVS 1000-2000/80, but not suitable for all types, see table below. Hydraulic or pneumatic, without hoses and power packs.

Code	Type	Suitable for	Drive	Pull	m/min.	kg
351210	TZ 200	KVS 1000G+H	hydraul.	1,5 kN	0-120	69,00
351220	TZ 203	KVS 1500-2000/80H	hydraul.	1,5 kN	0-120	69,00



Hydraulic power pack mobile

Hydraulic power pack for cable drum drive, with petrol- or Diesel engine equipped with rapid hose couplings.

- The hydraulic power pack must not be mounted on drawing bar of the trailer, the hitch load would be too high.
- For control of the winding speed please order below mentioned hydraulic hose combination

Code	Type	Suitable for	Hydr. pack	Press.	L/W/H mm	kg
351330	THF 203B	drum drives	petrol 9,6 kW	160 bar	854/457/507	74,00
351332	THF 203D	drum drives	diesel 6,8 kW	160 bar	854/457/507	95,00



Hydraulic hose set

Hydraulic hose set 7 m, with volume governor for hydraulic power packs.

Code	Type	Length	Flow governor	kg
425381	SL 7	7 m	to 30 l/min	13,20



Covered polyester ropes, Cup, extension 3-5 %

Covered plastic polyester ropes, with core and cover exhibit low linear extensibility. Torsion-free and high tension. These ropes are proven in overhead line construction. Ropes are supplied on rings in carton boxes or on one way bobbins. Loops can be spliced against extra charge. kN = Minimum Breaking Load

- Order one or two spliced eyes separately, see block Spliced eyes below.

Code	Type	Rope	Stretch	kN	kg
571411	FKS 06-001	6	3-5 %	7	0,03
571413	FKS 08-001	8	3-5 %	13	0,05
571415	FKS 10-001	10	3-5 %	22	0,07
571417	FKS 12-001	12	3-5 %	32	0,10
571418	FKS 14-001	14	3-5 %	46	0,14
571419	FKS 16-001	16	3-5 %	65	0,18
571420	FKS 18-001	18	3-5 %	77	0,21
571421	FKS 20-001	20	3-5 %	85	0,26



Double braided polyester ropes, Gemini, extension 4-6 %

Covered plastic polyester ropes, with core and cover exhibit low linear extensibility. Torsion-free and high tension. These ropes are proven in overhead line construction. Ropes are supplied on rings in carton boxes or on one way bobbins. Loops can be spliced against extra charge. kN = Minimum Breaking Load

- Order one or two spliced eyes separately, see block Spliced eyes below.

Code	Type	Rope	Stretch	kN	kg
571441	FKS 06-101	6	4-6 %	11	0,03
571443	FKS 08-101	8	4-6 %	15	0,04
571445	FKS 10-101	10	4-6 %	24	0,07
571447	FKS 12-101	12	4-6 %	36	0,09
571448	FKS 14-101	14	4-6 %	45	0,13
571449	FKS 16-101	16	4-6 %	65	0,18
571450	FKS 18-101	18	4-6 %	83	0,23
571451	FKS 20-101	20	4-6 %	100	0,29



Covered Dyneema ropes, extension 1-2 %

Covered plastic Dyneema ropes, with core and cover exhibit low linear extensibility. Torsion-free and high tension. These ropes are proven in overhead line construction. Ropes are supplied on rings in carton boxes or on one way bobbins. Loops can be spliced against extra charge. kN = Minimum Breaking Load

- Order one or two spliced eyes separately, see block Spliced eyes below.
- 16

Code	Type	Rope	Stretch	kN	kg
571471	FKS 06-121	6	1-2 %	16	0,03

571473	FKS 08-121	8	1-2 %	30	0,04
571475	FKS 10-121	10	1-2 %	49	0,07
571477	FKS 12-121	12	1-2 %	75	0,10
571478	FKS 14-121	14	1-2 %	95	0,13
571479	FKS 16-121	16	1-2 %	120	0,18
571480	FKS 18-121	18	1-2 %	150	0,22
571481	FKS 20-121	20	1-2 %	190	0,28



Covered Dyneema ropes, high tensile, extension 1-2 %

Covered plastic Dyneema ropes, with core and cover exhibit very low linear extensibility. Torsion-free and very high tension. These ropes are proven in overhead line construction. Ropes are supplied on rings in carton boxes or on one way bobbins. Loops can be spliced against extra charge. kN = Minimum Breaking Load

- Order one or two spliced eyes separately, see block Spliced eyes below.
- 27

Code	Type	Rope	Stretch	kN	kg
571486	FKS 06-201	6	1-2 %	27	0,02
571488	FKS 08-201	8	1-2 %	50	0,04
571490	FKS 10-201	10	1-2 %	85	0,07
571492	FKS 12-201	12	1-2 %	115	0,09
571493	FKS 14-201	14	1-2 %	155	0,11
571494	FKS 16-201	16	1-2 %	205	0,13
571495	FKS 18-201	18	1-2 %	220	0,17
571496	FKS 20-201	20	1-2 %	265	0,20



Spliced eye

Spliced eye for all above mentioned plastic ropes. If you need one eye on each end please order two pieces.

Code	Type	For rope	kg
57159806	loop	D 6 mm	0,01
57159808	loop	D 8 mm	0,01
57159810	loop	D 10 mm	0,01
57159812	loop	D 12 mm	0,01
57159814	loop	D 14 mm	0,01
57159816	loop	D 16 mm	0,01
57159818	loop	D 18 mm	0,01
57159820	loop	D 20 mm	0,01

Spare parts
for cable
laying units

900





Spare rollers to pipe and cable laying rollers

Spare rollers to drum unwinding devices KTA 2A and KTA 7

Spare claws to shaft cover lifters

Spare rope drum for pilot rope winch SBS 500

Spare sleeves to piston for duct ID-ID 28-40 mm

Spare balls to piston for duct-ID 28-250 mm

Spare parts to UltimaZ ULV 20

Spare cups for sonic heads SKO 40-63

Spare pulleys to conductor changing pulleys DRG 2 and DRG 3

Spare pulleys to insulated overhead cable pulleys D 80-300 mm

Spare pulleys to overhead line stringing pulleys D 115-580 mm

Shackles high tensile, bolt D 22-38 mm



Spare rollers for cable laying

Sheet steel roller galv., with ball bearings and axle M 12

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Mat.	OD/ID	Roller-L	SWL	kg
020241407	KRQLE 1S E	TRS 1-300	Steel	120/76	185	200 kg	1,95



Spare rollers for cable laying

Polyamide roller, with friction bearings for axle-D 20 mm, without axle

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Mat.	OD/ID	Roller-L	SWL	kg
020110106	TRPL 1-500 E	TRP 1-500	Poly.	115/75	200	200 kg	2,54



Spare rollers for cable laying

Alu-roller with sintered bronze friction bearing, for axle-D 16 mm, without axle

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Mat.	OD/ID	Roller-L	SWL	kg
020230105	CAL 1A E	CA 1 A	Alu	90/50	100	150 kg	0,60
020230107	CAL 1S E	SET 60-130	Steel	90/50	100	150 kg	1,70



Spare rollers for cable laying

Sheet steel roller galv., with ball bearings and axle M 12

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Mat.	OD/ID	Roller-L	SWL	kg
020240106	KRL 1S E	KRS 1 etc..	Steel	120/76	145	150 kg	1,58
020241407	KRQL 1S E	KRQ 1/ERQ 3	Steel	120/76	185	150 kg	1,95



Spare rollers for cable laying

Alu-roller with sintered bronze friction bearing, for axle-D 16 mm, without axle

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Mat.	OD/ID	Roller-L	SWL	kg
020241105	KRL 1A E	KRA 1 etc..	Alu	125/60	146	150 kg	1,20



Spare rollers for cable laying

Cast steel roller with sintered bronze friction bearing, for axle-D 16 mm, without axle

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Mat.	OD/ID	Roller-L	SWL	kg
020241107	KRL 1G E	SET 140-180	Steel	125/60	146	500 kg	2,70

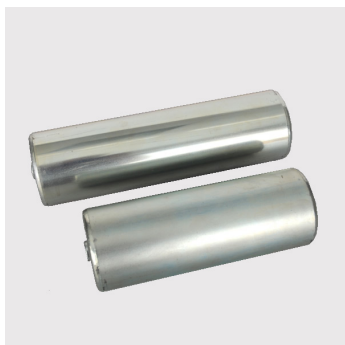


Spare axle set

Axle set D 16 mm, compl. with nuts and sleeves, to CAL 1 and KRL 1, for alu- or cast steel rollers

Spare axle set for existing cable rollers

Code	Type	Axle for	Mat.	Axle-D/L	kg
020230111	ACA 1 E	CAL 1A+CAL 1S	Steel	16/155	0,30
020241111	AKR 1 E	KRL 1A+KRL 1G	Steel	16/205	0,36



Spare rollers for cable laying

Steel roller cylindrical, with ball bearings, galvanized

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	D	Roller-L	Fitting-L	SWL	kg
092488448	TRG 80-216 E	KRS 1-170	80	216	222	400 kg	2,25
092488460	TRG 80-275 E	EWS 3-170	80	275	281	400 kg	2,72
092488465	TRG 80-594 E	KRS 1-600	80	594	600	400 kg	8,00



Spare rollers for cable laying

Spare roller alu, basic roller with integrated axle

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Mat.	OD/ID	Roller-L	SWL	kg
020250100	KRLB 3A E	Basis KR 3+ER 4	Alu	60/50/60	99	200 kg	0,80
020250105	KRLS 3A E	Side KR 3	Alu	60/30/60	99	200 kg	0,47
020250130	TRLS 3A E	Side TKR 3	Alu	60/30/43	99	200 kg	0,45

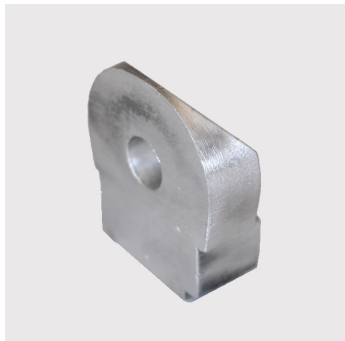


Spare corner bearing

Alu-corner bearing, special hardened

Spare alu-corner bearing for existing cable rollers

Code	Type	Bearing for	Mat.	kg
020250160	KRAL 3A E	KR 3+TKR 3	Alu	0,36



Spare corner bearing

Alu-corner bearing, to frame rollers

Spare alu-corner bearing for existing cable rollers

Code	Type	Bearing for	Mat.	kg
020213105	ERA 4-100A E	ER 4-100 A	Alu	0,36



Spare rollers for cable laying

Steel roller cylindrical, with ball bearings, galvanized

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Roller-D	Roller-L	Fitting-L	SWL	kg
092488140	TRG 30-86 E	SWF 400	30	86	95	30 kg	0,20
092488160	TRG 30-160 E	SWF 400	30	160	169	30 kg	0,30
092488240	TRG 40-136 E	PRK 3-85	40	136	155	150 kg	0,44
092488383	TRG 60-194 E	KSR 200	60	194	220	120 kg	1,10
092488420	TRG 60-492 E	KR 500	60	492	518	240 kg	2,50

092488430 TRG 60-750 E KR 750 60 750 776 240 kg 3,80



Spare rollers for cable laying

Steel roller cylindrical, high-wattage, with ball bearings, galvanized. Complete with axle and screws

Spare rollers for frame rollers or for fitting in any customer made product

Code	Type	Roller for	Mat.	D/L	Roller-L	SWL	kg
020213710	ERR 4-190 E	ER 4-100-150	Steel	55x190	190	500 kg	1,95
020214510	ERR 4-200 E	ER 4-200	Steel	55x250	250	500 kg	2,47
020214710	ERR 4-250 E	ER 4-250	Steel	55x300	300	500 kg	3,50
020215210	ERR 4-300 E	ER 4-300	Steel	55x350	350	500 kg	4,00



Spare rollers for cable laying

Cast steel roller with friction bearing, for axle-D 25 mm, without axle

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Roller OD-ID	Width	Groove-D	SWL	kg
020270105	SKL 1S E	SKS+SKD 1	200/120	100	90	1000 kg	5,80

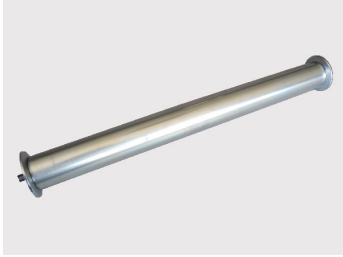


Spare rollers

Alu-roller high-wattage to cable drum-unwinder KTA 2, complete with ball bearings and axles, without screws

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Roller OD-ID	Width	Groove-D	SWL	kg
032071001	KTAR 2A E	KTA 2 A	120/68	105	82	500 kg	1,67



Spare rollers

Steel roller cylindrical with ball bearings, galvanized to cable drum-unwinder KTA 7, with ball bearings and axle

Spare rollers for existing cable rollers or for fitting in any customer made product

Code	Type	Roller for	Roller-D	Roller-L	Fitting-L	SWL	kg
092488320	TRG 50-540 E	KTA 7	50	540	565	80 kg	1,50



Spare claw set

Claw set forged steel for cover lifter DHZ 20

Code	Type	Spare part for	kg
020712110	DHZK 20 E	DHZ 20	0,80



Spare claw set

Claw set forged steel for cover lifter DHZ 21

Code	Type	Spare part for	kg
020720110	DHFK 06 E	DHF 06	1,15



Accessories to pilot rope winches

Steel rope drum alone, divisible for coiling cords, ropes or cable rings, suitable to pilot rope winches SBS 500 with V-belt. Dimension D 410/100x210 mm, for rope up to 1100 m D 4 mm, or 750 m D 5 mm. For coiling rings there will be mounted 3 segments into the drum. Order drum support with foot brake separately.

- Suitable to pilot rope winches SBS 500 supplied before August 20014.
- With the drums it is possible to blow ropes without the winch.
- The drum support is equipped with a foot brake to control the pay-out of the rope.
- With built-in segment stronger pulls than 1 kN are not possible.
- The segments must only be used for coiling cords or small cables.

Code	Type	Accessory	Detail	kg
232752	SWT 500 E	Drum alone	D 410x100x210	37,50

232322	TRS 208 E	Segment	3 needed	1,10
232340	TWG 510 E	Drum support	with foot brake	11,00

Spare sleeves to piston

Polyurethane-sleeves to pistons MKO and for duct calibre with transmitter MKV

Code	Type	Spare part for	Size	D-ID	kg
023451103	PSL 28 E	MKO 28+MKV 25	D 28/8x8	27-28	0,01
023453103	PSL 35 E	MKO 35+MKV 28-30	D 33/8x8	34-35	0,01
023455103	PSL 40 E	MKO 40+MKV 40	D 35/8x8	40-41	0,01

Spare balls to piston

Spare balls to ball pistons or for fitting in any customer made product. Also often used for cleaning and lubricating ducts.

Code	Type	For duct ID	Hole-D	
023453002	BKL 25 E	22-25	8	0,01
023453102	BKL 30 E	25-30	8	0,01
023453202	BKL 35 E	28-35	8	0,01
023454202	BKL 40 E	35-42	8	0,02
023456202	BKL 50 E	45-50	8	0,03
023456702	BKL 60 E	50-60	8	0,04
023457202	BKL 70 E	60-70	8	0,08
023460202	BKL 80 E	70-80	8	0,10
023461202	BKL 90 E	80-90	8	0,13
023463202	BKL 110 E	90-110	10	0,18
023469202	BKL 125 E	110-125	10	0,28
023471202	BKL 150 E	130-150	10	0,43
023472202	BKL 160 E	150-160	10	0,60
023472602	BKL 190 E	170-190	10	0,90
023473122	BKL 210 E	190-210	12	1,10
023473132	BKL 225 E	200-225	12	1,40
023473142	BKL 250 E	230-250	12	1,70
023474000	Bigger	diam. not possible	--	0,00



Pressure reducing valve

Pressure reducing valve up to 16 bar, for UltimaZ

Code	Type	Designation	Press.	kg
275717	DOU 16	Pressure reducing valve	0-16 bar	0,49



Pressure wheel for UltimaZ

Pressure wheel for UltimaZ, D 40, material and cable-D see table below.

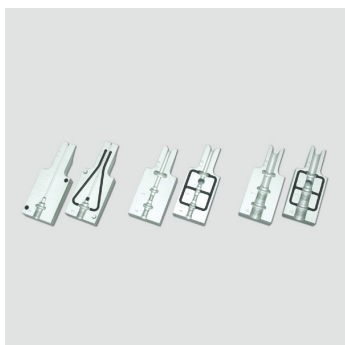
Code	Type	C-D	Mat.	kg
423340	KAPR 40P	1,0-4,0	Polyurethane plain	0,08
423342	KAP 40A	2,0-4,0	Alu	0,07



Drive wheel for UltimaZ

Drive wheel for UltimaZ, D 40, material and cable-D see table below.

Code	Type	C-D	Mat.	kg
423340	KAPR 40P	1,0-2,5	Polyurethane plain	0,08
423344	KAP 41P	1,0-1,6	Poly with groove	0,08
423346	KAR 42	1,6-2,0	Steel hardened, groove	0,06
423347	KAR 402	2,1-2,5	Steel hardened, groove	0,05
423348	KAR 43	2,6-3,0	Steel hardened, groove	0,06
423349	KAR 404	3,1-3,5	Steel hardened, groove	0,05
423350	KAR 44	3,6-4,0	Steel hardened, groove	0,08



Duct inserts for UltimaZ

Duct inserts for blowing unit UltimaZ, for duct-D see table below.

Code	Type	D-OD	C-D	kg
423358	RKE 3016	3	1,6	0,05
423360	RKE 5010	5	1	0,05
423362	RKE 5014	5	1,4	0,05
423364	RKE 3426	3-4	2,6	0,05

423366	RKE 5640	5-6	4	0,05
423368	RKE 7840	7-8	4	0,05
423370	RKE 1240	10-12	4	0,05

Lip seals for UltimaZ

Lip seals for UltimaZ, set of 6 pcs. for cable-D see table below.

Code	Type	Size	C-D	For blowing machine	kg
423150	LPD 230	D 2/10,5	1,4-2,3	UltimaZ	0,02
423152	LPD 330	D 3/10,5	2,4-3,3	UltimaZ	0,02
423154	LPD 430	D 4/10,5	3,4-4,3	UltimaZ	0,02

Duct sealing for UltimaZ

Duct sealing for UltimaZ, sets of 6 pcs. for duct-D see table below.

Code	Type	Size	D-OD	For blowing machine	kg
423170	ROR 3	D 3x2	3	UltimaZ	0,01
423172	ROR 4	D 4x2	4	UltimaZ	0,02
423174	ROR 5	D 5x2	5	UltimaZ	0,02
423176	ROR 7	D 7x2	7	UltimaZ	0,02
423178	ROR 8	D 8x2	8	UltimaZ	0,02
423180	ROR 10	D 10x2	10	UltimaZ	0,02
423182	ROR 12	D 12x2	12	UltimaZ	0,02

Spare cups for sonic heads

Spare cups to sonic head SKO 50 for blowing-in soft fibre optic cables

Code	Type	Spare part for	Colour	Diam.	For D-ID	kg
041060125	SKOL 25 E	SKO 40	yellow	25	25-28	0,01
041060130	SKOL 30 E	SKO 40	green	30	30-33	0,01
041062130	SKOL 30 E	SKO 50	yellow	30	30-33	0,01
041062134	SKOL 34 E	SKO 50	blue	30	34-37	0,01
041062140	SKOL 40 E	SKO 50	green	34	40-42	0,01
041064140	SKOL 40 E	SKO 63	yellow	40	40-45	0,01
041064145	SKOL 45 E	SKO 63	blue	45	45-50	0,01
041064150	SKOL 50 E	SKO 63	green	50	50-55	0,01



Spare pulleys

Polyamide-pulley to line changing pulleys DRG 2+3, with friction bearings, without axles. Alu-pulley with ball bearings, without axle.

Spare pulleys for existing line pulleys or for fitting in any customer made product

Code	Type	Pulley for	Mat.	OD/ID	Groove	SWL	kg
051008113	DRG 130P E	DRG 2+3 P	Poly.	130/60	68/80	100 kg	0,41
051009001	DRG 130A E	DRG 2+3 A	Alu	130/60	68/80	100 kg	0,70



Spare pulleys

Polyamide-pulley with ball bearings, for axle-D 10 mm, without axle

Spare pulleys for existing line pulleys or for fitting in any customer made product

Code	Type	Pulley for	Mat.	OD/ID	Groove	SWL	kg
092447680	KRL 80P E	LER 16-74 + LRB 45	Poly.	80/30	38/52	100 kg	0,16
092447706	KRL 140P E	LKW 140 + PRP 140	Poly.	140/82	58/68	200 kg	0,73



Spare pulleys

Alu-pulley with ball bearings, without axle

Spare pulleys for existing line pulleys or for fitting in any customer made product

Code	Type	Pulley for	Mat.	OD/ID	Groove	SWL	kg
051010114	LKL 140AS E	PRK-LKD 140	Alu	140/86	59/68	630 kg	0,92
051025114	LKL 250A E	LKD 250	Alu	250/160	54/68	300 kg	2,40
051031111	LKL 300A E	LKD -LKR 300	Alu	300/160	92/108	500 kg	3,35



Spare pulleys

Alu-pulley with ball bearings, without axle

Spare pulleys for existing line pulleys or for fitting in any customer made product

Code	Type	Pulley for	Mat.	OD/ID	Groove	SWL	kg
051305111	SRL 115A E	SRD 115	Alu	115/80	25/35	100 kg	0,45
051317111	SRL 200A E	SRD-SR 200	Alu	200/130	33/43	200 kg	1,23



Spare pulleys

Alu-pulley with ball bearings, without axle

Spare pulleys for existing line pulleys or for fitting in any customer made product

Code	Type	Pulley for	Mat.	OD/ID	Groove	SWL	kg
051348111	SRL 315A E	SRD-SR 315	Alu	315/250	42/52	600 kg	2,40
051511111	SRL 350A E	SR 350	Alu	350/260	58/76	1500 kg	4,22
051725111	SRL 580A E	SR 580	Alu	580/480	58/76	1500 kg	8,20

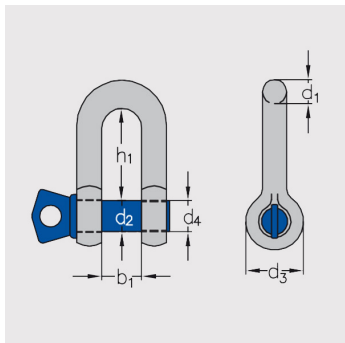


Shackles high tensile

Shackles high tensile with eye bolt. SWL = safe working load

Universal use in pulling and security purpose

Code	Type	d2	d1	b1	h1	SWL	kg
092428267	HA1 22	22	19	32	60 m	4700 kg	1,00
092428269	HA1 29	29	25	43	81 m	8500 kg	2,00
092428272	HA1 38	38	35	57	113 m	13500 kg	5,40





Ваш поставщик:
ООО "КОМПАНИЯ ОПТУЛС"
Москва, ул.Иловайская, д.3
Тел.: +7 (495) 646-00-96
sale@opttools.ru
www.opttools.ru



Vetter GmbH
Kabelverlegetechnik

Industriestrasse 28
D-79807 Lottstetten
Tel. +49 77 45/9293-0
Fax +49 77 45/9293-499
www.vetter-kabel.de
info@vetter-kabel.de