

# WIRING PIPES AND ACCESSORIES



## Wiring pipes and accessories

The pipes and accessories are made in compliance with ČSN EN 50 086-1 and ČSN EN 61 386-1, IEC 614, specifications and approved documentation.  
 The PVC pipes and accessories passed the test of resistance against spread of flame in compliance with EN 61 386-1. In compliance with ČSN 33 2312 can be used in flammability class A to C3 materials.  
 Polyethylene pipes of type LPE 1 and LPE 2 with low and very low mechanical resistance can be used only for installing on/into class A non-inflammable materials.  
 The pipes are intended for installation to the distribution of low voltage.  
 Manufacturer recommends the assembling of plastic pipes at the temperature over 0 °C.  
 The ČSN 64 0090 standard is applicable for storage.  
 For information on chemical resistance of used material see catalogue pg. 134.

**Flexible pipes** ..... 104  
 very low mechanical resistance (125 N)  
 low mechanical resistance (320 N)  
 medium mechanical resistance (750 N)  
 Wiring flexible pipes LPFLEX, MONOFLEX and SUPER MONOFLEX can be installed in areas with danger of explosion of flammable substances in compliance with ČSN EN 60 079-10, dangerous zone 2.

**Rigid socket pipes** ..... 109  
 low mechanical resistance (320 N)  
 medium mechanical resistance (750 N)  
 high mechanical resistance (1250 N)  
 Wiring rigid socket pipes of type 15xx, 40xx, 80xx, 15xxHF with accessories can be installed in areas with danger of explosion of flammable substances in compliance with ČSN EN 60 079-10, dangerous zone 2.  
 Standard length of pipes is 3 m with toleration of ±10 mm.

Used labeling on the product, e.g.:  

<b>KOPOS</b>	<b>TYP4020</b>	<b>IEC325</b>	<b>EN 3341</b>	<b>750N</b>	<b>PVC</b>
manufacturer	type	ort	code		material

The pipes are made in dimension compliance with EN and IEC standards and passed the mechanical resistance test in compliance with: ČSN EN 50 086-1 and 61 386-2-1, IEC 614-1 and IEC 614-2.

<b>Optical cable protectors - HDPE</b> .....	112
<b>Cable protection KOPOFLEX® a KOPODUR®</b> .....	113
<b>Sectional protection KOPOHALF®</b> .....	115
<b>Earthen channel KOPOKAN</b> .....	115
<b>Steel pipes</b> .....	116
<b>Aluminium pipes</b> .....	119
<b>Flexible metal pipe</b> .....	120
<b>Drainage pipe KOPODREN</b> .....	120

























All pipes and accessories (except for Weicon) are in compliance with EU directives.









Flexible pipes of types 14.. and 12.. and rigid pipes of types 15.., 40.., 80.., 15.. HF including elbows and couplings are in compliance with German electric standard.

## Icons - capture

 material	 outside diameter (mm)
 temperature resistance, scope of application (°C)	 inside diameter (mm)
 flammability class of construction material	 length (mm, m)
 mechanical resistance / load limit value (N)	 dimensions - width, height (mm)
 limit of compression strength (kPa)	 dimensions - width (mm)
 classification	 dimensions - inner width (mm)
 IP classification	 dimensions - height (mm)
 color	 dimensions - inner height (mm)
 accessories, additional assortment	 thread
 package (m / kg; pcs / kg)	 minimum bending radius (mm)
 package dimensions (mm)	 arc radius - 90°



### LPFLEX - very low mechanical resistance

					
125 N / 5 cm	EN 61 386-1141 IEC 614-125	grey-white RAL 9002	PVC self-snuffing	-25 - + 60 °C	A - C3

For installation into or under the parget.  
Suitable for mounting into plaster walls and ceilings.  
Suitable for installing in dangerous zone 2 in explosive areas.  
The pipes manufactured in the dimensions according to EN may be connected or attached by means of rigid pipe accessories, see page 110.

EN					
	conf.	mm	mm	m	kg
2316E	H100	16	10,7	100	3,9
	H100D			100	4,3
	H50			50	1,9
	H50D			50	2,1
2320	H100	20	14,1	100	4,6
	H100D			100	5,0
	H50			50	2,4
	H50D			50	2,6
2325	H50	25	18,3	50	3,4
	H50D			50	3,6
2332	H50	32	24,3	25	5,3
	H50D			50	5,5
2340	H25	40	31,2	25	4,3
	H25D			25	4,4
2350	H25	50	39,6	4,7	
	H25D			25	4,8




#### configuration description

H...	color: grey-white RAL 9002
...100...	package: 100 m
...50...	package: 50 m
...25...	package: 25 m
...D	with draw-through wire

ČSN					
	conf.	mm	mm	m	kg
2313	H100	18,7	13,5	100	4,3
	H50			50	2,2
2316	H100	21,2	16	100	4,6
	H50			50	2,4
2323	H100	28,5	22,9	100	8,5
	H50			50	4,8
2329	H50	34,5	28,4	50	6,1
2336	H50	42,2	35,9	50	7,2
2348	H50	54,5	47,7	50	11,0



### MONOFLEX - low mechanical resistance

					
320 N / 5 cm	EN 61 386-2241 IEC 614-225	light grey RAL 7035 white RAL 9010	PVC self-snuffing	-25 - + 60 °C	A - C3

For surface installation, into or under parget.  
Suitable for mounting into hollow walls, plaster walls and ceilings.  
Suitable for installing in dangerous zone 2 in explosive areas.  
The pipes manufactured in the dimensions according to EN may be connected or attached by means of rigid pipe accessories, see page 110.

EN					
	conf.	mm	mm	m	kg
1416E	H50	16	10,7	50	2,0
	K50			50	2,0
	K50D			50	2,2
1420	H50	20	14,1	50	2,6
	K25			25	1,3
	K50			50	2,6
	K50D			50	2,8
1425	H50	25	18,3	50	3,5
	K25			25	1,8
	K50			50	3,5
	K50D			50	3,7
1432	H50	32	24,3	50	5,9
	K25			25	3,1
	K25D			25	3,2
	K50			50	5,9
1440	H25	40	31,2	25	4,7
	K25			25	4,7
1450	K25	50	39,6	25	5,2




#### configuration description

H...	color: white RAL 9010
K...	color: light grey RAL 7035
...100...	package: 100 m
...50...	package: 50 m
...25...	package: 25 m
...D	with draw-through wire

ČSN					
	conf.	mm	mm	m	kg
1413/1	K100	18,7	13,5	100	6,1
1416/1	K100	21,2	16	100	6,8
1423/1	K100	28,5	22,9	100	11,2
1429/1	K50	34,5	28,4	50	6,8
1436/1	K50	42,2	35,9	50	10,2
1448/1	K50	54,5	47,7	50	11,4



### Connections for flexible pipes ČSN

			
white	PVC self-snuffing	-25 - + 60 °C	A - C3

ČSN			
	mm	pcs	kg
0216	21,2	50; 400	6,1
0223	28,5	300	8,6
0229	34,5	200	5,3



**SUPER MONOFLEX - medium mechanical resistance**

750 N / 5 cm	EN 61 386-3341 IEC 614-325	dark grey RAL 7012	PVC self-snuffing	-25 - + 60 °C	A - C3

		EN			
	conf.				
		mm	mm	m	kg
<b>1216E</b>	L50	16	10,7	50	3,2
	L50D			50	3,4
<b>1220</b>	L50	20	14,1	50	3,6
	L50D			50	3,8
<b>1225</b>	L50	25	18,3	50	5,4
	L50D			50	5,6
<b>1232</b>	L25	32	24,3	25	4,2
	L25D			25	4,3
<b>1240</b>	L25	40	31,2	25	5,0
	L25D			25	5,1
<b>1250</b>	L25	50	39,6	25	7,0
	L25D			25	7,2

configuration description

L...	color: dark grey RAL 7012
...50...	package: 50 m
...25...	package: 25 m
...D	with draw-through wire

For surface installation, into or under parget.  
Suitable for mounting into hollow walls, plaster walls, ceilings and into concrete.  
Suitable for installing in dangerous zone 2 in explosive areas.  
The pipes manufactured may be connected or attached by means of rigid pipe accessories, see page 110.



**MONOFLEX HFPP - low mechanical resistance**

320 N / 5 cm	EN 61 386-2232	black RAL 9005	PP halogen-free self-snuffing	-15 - +90 °C	A - C3

		EN			
	conf.				
		mm	mm	m	kg
<b>1416EHFPP</b>	F100	16	10,7	100	3,1
<b>1420HFPP</b>	F100	20	14,1	100	4,2
<b>1425HFPP</b>	F50	25	18,2	50	2,9
<b>1432HFPP</b>	F50	32	24,2	50	2,6
<b>1440HFPP</b>	F25	40	32,4	25	3,3

conf. description

F...	color: black RAL 9005
...100	package: 100 m
...50	package: 50 m
...25	package: 25 m

Flexible halogen-free self-extinguishing pipe made from PP.  
It may be used in premises where human resources and valuable property protection, damage minimization in case of fire are insisted on, further on it may be used for machinery, public buildings and railways.  
The pipes manufactured may be connected or attached by means of rigid pipe accessories, see page 111.



**SUPER MONOFLEX HFPP - medium mechanical resistance**

750 N / 5 cm	EN 61 386-3343	grey RAL 7037	PP halogen-free self-snuffing	-25 - +105 °C	A - C3

		EN			
	conf.				
		mm	mm	m	kg
<b>1216EHFPP</b>	L100	16	10,7	100	5,1
<b>1220HFPP</b>	L100	20	14,1	100	6
<b>1225HFPP</b>	L100	25	18,2	100	14
<b>1232HFPP</b>	L50	32	24,2	50	5,2
<b>1240HFPP</b>	L50	40	32,4	50	10
<b>1250HFPP</b>	L25	50	41,2	25	7

conf. description

L...	color: grey RAL 7037
...100	package: 100 m
...50	package: 50 m
...25	package: 25 m

Flexible halogen-free self-extinguishing pipe made from PP.  
It may be used in premises where human resources and valuable property protection, damage minimization in case of fire are insisted on, further on it may be used for machinery, public buildings and railways.  
The pipes manufactured may be connected or attached by means of rigid pipe accessories, see page 111.











**LPE-1 - low mechanical resistance**

					
320 N / 5 cm	EN 61 386-2242 IEC 614-295	ČSN - white EN - orange	PE not self-snuffing	-25 - + 90 °C	A

Suitable for direct monolithic concreting or under the parget. Tubes with the dimension ČSN 16, 29 are standardly delivered with color strips for easy identification of individual wiring circuits. It is also possible to deliver tubes of this dimension without the distinctive strips. Tubes with the dimension EN 16, 20 and 25 can be delivered with color strips. Dimension EN and ČSN 16, 29 are available with pull-out wire as well.

EN					
	conf.				
		mm	mm	m	kg
2316E/LPE-1	A100	16	10,7	100	4,6
	A100D			100	5,0
2320/LPE-1	A100	20	14,1	100	6,0
	A100D			100	6,4
2325/LPE-1	A100	25	18,3	100	8,5
	A100D			100	8,8
2332/LPE-1	A50	32	24,3	50	5,3
	A50D			50	5,5
2340/LPE-1	A25	40	31	25	3,8

configuration	description
A...	color: orange
H...	color: white
...100...	package: 100 m
...50...	package: 50 m
...25	package: 25 m
...D	with draw-through wire




ČSN					
	conf.				
		mm	mm	m	kg
2316/LPE-1	H100	21,2	16	100	5,6
2323/LPE-1	H100	28,5	22,9	100	10,3
2329/LPE-1	H50	34,5	28,4	50	6,5






**LPE-2 - very low mechanical resistance**

					
125 N / 5 cm	EN 61 386-1142 IEC 614-195	ČSN - white EN - orange	PE not self-snuffing	-25 - + 90 °C	A

Suitable for installing into prefabricated concrete elements. Tubes with the dimension ČSN 13, 16, 29 are standardly delivered with color strips for easy identification of individual wiring circuits. It is also possible to deliver tubes of this dimension without the distinctive strips. Tubes with the dimension EN 16, 20 and 25 can be delivered with color strips. Dimension EN and ČSN 13, 16, 29 are available with pull-out wire as well.





EN					
	conf.				
		mm	mm	m	kg
2316E/LPE-2	A100	16	10,7	100	3,2
	A100D			100	3,6
2320/LPE-2	A100	20	14,1	100	4,5
	A100D			100	4,9
2325/LPE-2	A100	25	18,3	100	7,2
	A100D			100	7,5
2332/LPE-2	A50	32	24,3	50	3,8
	A50D			50	4,0
2340/LPE-2	A25	40	31	25	2,8



configuration	description
A...	color: orange
H...	color: white
...100...	package: 100 m
...50...	package: 50 m
...25	package: 25 m
...D	with draw-through wire

ČSN					
	conf.				
		mm	mm	m	kg
2313/LPE-2	H100	18,7	13,5	100	4,1
2316/LPE-2	H100	21,2	16	100	4,4
2323/LPE-2	H100	28,5	22,9	100	7,4
2329/LPE-2	H50	34,5	28,4	50	4,9
2336/LPE-2	H50	42,2	35,9	50	6,4



**Connections for flexible pipes ČSN**





			
white	PE not self-snuffing	-25 - + 90 °C	A

ČSN			
			
	pipes mm	pcs	kg
0216/1	21,2	400	3,1
0223/1	28,5	300	4,5
0229/1	34,5	100; 200	2,8



### SPIROFLEX - low mechanical resistance

					
320 N / 5 cm	EN 61 386-2311	light grey RAL 7035	PVC self-snuffing fireproof	+5 - + 60 °C	A - C3


	conf.	 mm	 mm	 m	 kg
<b>SF16</b>	K30	20,7	16	30	3,5
<b>SF20</b>	K30	24,7	20	30	4,4
<b>SF25</b>	K30	30,6	25	30	5,6
<b>SF32</b>	K30	38,0	32	30	7,3





configuration	description
K...	color: light grey RAL 7035
...30	package: 30 m

Flexible protective pipe reinforced with hard PVC spiral. Excels in smooth inside surface and very good strength, while the flexibility is guaranteed.



### Conduit bushing SPIROFLEX

				
IP67	light grey RAL 7035	PVC self-snuffing fireproof	+5 - + 60 °C	A - C3

	 mm	 pipes mm	 pcs	 kg
<b>SFM20</b>	M20x1,5	16	25	3,5
<b>SFM25</b>	M25x1,5	20	25	4,5
<b>SFM32</b>	M32x1,5	25	10	2,3
<b>SFM40</b>	M40x1,5	32	10	2,7





**Low mechanical resistance**

320 N / 5 cm	EN 61 386-2241 IEC 614-225	light grey RAL 7035 white RAL 9010	PVC self-snuffing fireproof	-25 - + 60 °C	A - C3	pg. 110

Rigid socket pipes are fireproof-tested.  
Available in the length of 2 m as well.  
Suitable for installing in dangerous zone 2 in explosive areas.

EN						
	conf.					
			mm	mm	m	kg
<b>1516E</b>	KA	HA	16	13,7	3	30 2,5
<b>1520</b>	KA	HA	20	17,4	3	30 3,3
<b>1525</b>	KA	HA	25	22,1	3	30 4,2
<b>1532</b>	KA	HA	32	28,6	3	30 6,2
<b>1540</b>	KA	HA	40	35,8	3	30 7,3
<b>1550</b>	KA	HA	50	45,1	3	30 11,1
<b>1563</b>	KA	HA	63	57	3	15 8,0

conf.	description
K...	color: light grey RAL 7035
H...	color: white RAL 9010
...A	length: 3 m; package: in PE foil



**Medium mechanical resistance**

750 N / 5 cm	EN 61 386-3341 IEC 614-325	dark grey RAL 7012	PVC self-snuffing fireproof	-25 - + 60 °C	A - C3	pg. 110

Rigid socket pipes are fireproof-tested.  
Available in the length of 2 m as well.  
Suitable for installing in dangerous zone 2 in explosive areas.

EN						
	conf.					
			mm	mm	m	kg
<b>4016E</b>	LA		16	13	3	30 3,3
<b>4020</b>	LA		20	16,9	3	30 3,8
<b>4025</b>	LA		25	21,4	3	30 5,4
<b>4032</b>	LA		32	27,8	3	30 7,1
<b>4040</b>	LA		40	35,4	3	30 9,6
<b>4050</b>	LA		50	44,3	3	30 11,0
<b>4063</b>	LA		63	57	3	15 9,7

conf.	description
L...	color: dark grey RAL 7012
...A	length: 3 m; package: in PE foil



**High mechanical resistance**

1250 N / 5 cm	EN 61 386-4441 IEC 614-425	black RAL 9005	PVC self-snuffing fireproof	-25 - + 60 °C	A - C3	pg. 110

Rigid socket pipes are fireproof-tested.  
Available in the length of 2 m as well.  
Suitable for installing in dangerous zone 2 in explosive areas.

EN						
	conf.					
			mm	mm	m	kg
<b>8016E</b>	FA		16	12,2	3	30 4,1
<b>8020</b>	FA		20	15,8	3	30 4,8
<b>8025</b>	FA		25	20,6	3	30 6,5
<b>8032</b>	FA		32	26,6	3	30 8,9
<b>8040</b>	FA		40	34,4	3	30 9,0
<b>8050</b>	FA		50	43,2	3	30 15,6
<b>8063</b>	FA		63	57	3	15 11,2

conf.	description
F...	color: black RAL 9005
...A	length: 3 m; package: in PE foil

**Rigid pipe accessories made in dimension series in compliance with EN and IEC**

The accessories is intended for rigid and flexible pipes to be made in EN dimension range.

**Elbow** - precise elbows manufactured using injection have throat on both sides are designed for 90° bend. Bend radius allows to for continual transition and to easily fix the conductors and cables.

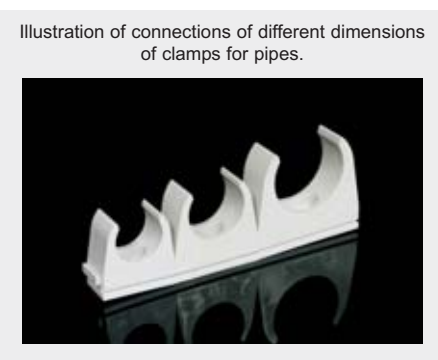
**Couplings** - designed for smooth transition in pipe distribution system. Throated pipes decrease usage for realization of distribution system from fixed pipes.

**Clips** - isolation PVC clamps are designed for fixation of the pipe distribution system onto underlying material. Push the pipe between the clamp jaws to mount the pipe. The clamps are equipped with elements for placing next to each other to create continual row of pipes as well as with grooves for installation in supporting trunkings of 5820/.. series (see page 94). Possible to mount in areas of danger zone 2 - explosive environment.

<b>MAT</b>		
PVC self-snuffing	-25 - + 60 °C	A - C3

conf.	description
K...	color: light grey RAL 7035
H...	color: white RAL 9010
L...	color: dark grey RAL 7012
F...	color: black RAL 9005
...B	package: small 2 - 10 pcs

pipes 	elbows								couplings				clamps									
	configuration				pcs	kg		configuration				pcs	kg	configuration				pcs	kg			
16	<b>4116</b>	KB	HB	LB	FB	10; 480		5,3	55	<b>0216E</b>	KB	HB	LB	FB	10; 1320	8,8	<b>5316E</b>	KB	HB	LB	FB	10; 2500
20	<b>4120</b>	KB	HB	LB	FB	10; 270	5,6	70	<b>0220</b>	KB	HB	LB	FB	10; 840	8,0	<b>5320</b>	KB	HB	LB	FB	10; 1900	13,5
25	<b>4125</b>	KB	HB	LB	FB	10; 140	4,9	85	<b>0225</b>	KB	HB	LB	FB	10; 480	7,6	<b>5325</b>	KB	HB	LB	FB	10; 1280	12,6
32	<b>4132</b>	KB	HB	LB	FB	10; 60	4,6	110	<b>0232</b>	KB	HB	LB	FB	10; 260	6,5	<b>5332</b>	KB	HB	LB	FB	10; 840	11,3
40	<b>4140</b>	KB	HB	LB	FB	5; 35	3,8	135	<b>0240</b>	KB	HB	LB	FB	10; 120	4,6	<b>5340</b>	KB	HB	LB	FB	10; 520	8,8
50	<b>4150</b>	KB	HB	LB	FB	10; 30	5,8	170	<b>0250</b>	KB				10; 180	9,6	<b>5350</b>	KB	HB	LB	FB	10; 420	8,9
										HB	LB	FB	10; 210	10,5								
63									<b>0263</b>	KB	HB	LB	FB	2; 50	4,4	<b>5363</b>	KB				10; 240	7,0
											HB	LB	FB				HB	LB	FB	10; 300	8,6	





**Halogen-free pipes**

320 N / 5 cm 750 N / 5 cm 1250 N / 5 cm	black - RAL 9005 light grey - RAL 7035	PPO <b>halogen-free</b> self-snuffing fireproof	-45 - + 90 °C	A - C3

conf.	description
F...	color: black RAL 9005
K...	color: light grey RAL 7035
...A	length: 3 m; package: in PE foil

Halogen-free rigid socket pipe suitable for housing and industrial distribution in hospitals, schools, IT centers, etc. Suitable for environments with increased need of people and equipment protection. Tested with flaming loop 960 °C. The black pipes (FA) are UV-stabilized. The pipes are equipped with throat. Suitable for installing in dangerous zone 2 in explosive areas.

low mechanical resistance 320 N							medium mechanical resistance 750 N							high mechanical resistance 1250 N								
EN							EN							EN								
conf.	mm	mm	m	m	kg		conf.	mm	mm	m	m	kg		conf.	mm	mm	m	m	kg			
1516EHF	FA	KA	16	13,7	3	30	2,1	4016EHF	FA	KA	16	13	3	30	3,0	8016EHF	FA	16	12,2	3	30	3,7
1520HF	FA	KA	20	17,4	3	30	2,5	4020HF	FA	KA	20	16,9	3	30	3,4	8020HF	FA	20	15,8	3	30	4,3
1525HF	FA	KA	25	22,1	3	30	3,4	4025HF	FA	KA	25	21,4	3	30	4,9	8025HF	FA	25	20,6	3	30	5,9
1532HF	FA	KA	32	28,6	3	30	4,6	4032HF	FA	KA	32	27,4	3	30	6,4	8032HF	FA	32	26,6	3	30	8,0
1540HF	FA	KA	40	35,8	3	30	6,8	4040HF	FA	KA	40	35,4	3	30	8,6	8040HF	FA	40	34,4	3	30	10,1
1550HF	FA	KA	50	45,1	3	30	10,3	4050HF	FA	KA	50	44,3	3	30	9,9	8050HF	FA	50	43,2	3	30	14,0
1563HF	FA	KA	63	57	3	15	6,7	4063HF	FA	KA	63	58	3	15	8,7	8063HF	FA	63	57	3	15	10,0

**Accessories for rigid halogen-free pipes made in dimension series in compliance with EN and IEC**

Accessories is intended for rigid and flexible halogen free pipes to be made in EN dimensions range. **Elbow** - precise elbows to be manufactured by using of injection, have the throat on both sides and are designed for 90° bend. Bend radius allows to for continual transition and to easily fix the conductors and cables. **Couplings** - designed for smooth transition in pipe distribution system. Throated pipes decrease usage for realization of distribution system from fixed pipes. **Clips** - isolation PVC clamps are designed for fixation of the pipe distribution system onto underlying material. Push the pipe between the clamp jaws to mount the pipe. The clamps are equipped with elements for placing next to each other to create continual row of pipes as well as with grooves for installation in supporting trunkings of 5820/.. series (see page 94). Possible to mount in areas of danger zone 2 - explosive environment. Elbows, connections and clamps in black colour (FB) are of UV stable.

PPO <b>halogen-free</b> , self-snuffing fireproof	-45 - + 90 °C	A - C3

conf.	description
F...	color: black RAL 9005
K...	color: light grey RAL 7035
...B	package: small 2 - 10 pcs



pipes	elbows						couplings						clamps					
mm	configuration	pcs	kg	mm	configuration	pcs	kg	configuration	pcs	kg	configuration	pcs	kg					
16	4116HF	FB KB	10; 480	4,7	55	0216HF	FB KB	10; 1320	7,4	5316EHF	FB KB	10; 2500	12,3					
20	4120HF	FB KB	10; 100	1,7	70	0220HF	FB KB	10; 850	6,5	5320HF	FB	10; 1900	11,2					
25	4125HF	FB KB	10; 140	3,9	85	0225HF	FB KB	10; 500	6,3	5325HF	KB	10; 1900	10,6					
32	4132HF	FB KB	10; 60	3,5	110	0232HF	FB KB	10; 260	5,5	5332HF	FB	10; 1280	10,5					
40	4140HF	FB KB	5; 35	3,2	135	0240HF	FB KB	10; 120	3,8	5340HF	FB	10; 840	9,3					
50	4150HF	FB KB	10; 40	6,2	170	0250HF	FB KB	10; 210	8,8	5350HF	KB	10; 880	9,8					
63						0263HF	FB KB	2; 50	3,7	5363HF	FB	10; 560	8,2					
											KB	10; 520	7,6					
											FB	10; 480	8,5					
											FB	10; 240	5,4					



**Optical cable protectors HDPE**

750 N / 20 cm	HDPE	-5 - + 50 °C	A

conf.	description
A...	color: orange
F...	color: black
L...	color: dark grey
K...	color: light grey
C...	color: blue
B...	color: red
E...	color: yellow
D...	color: green
...S100	package: cable harness 100 m

Single-coated pipes designed to protect optical cables.

The 06040 protector is available with inner surface lubricated with mineral oil as well. For larger volumes different color versions (beyond presented versions), labeling, number of differential stripes, denticular inner surface or inner diameter size (material thickness) can be ordered based on customer needs and specifications. Upon the agreement with our sales manager there is possible to deliver the protectors in the packing at drums of 1750 m (06050 - 1250 m).

Shock resistance: N (normal, ČSN EN 50086-2-4/A1)  
Bend resistance: flexible

The minimum bending radius for production and storage is 400 - 500 mm (see the table).

The protectors are made of high-density polyethylen and are classified as C3 flammability class in compliance with ČSN 73 0823 (pg. 133).

The protectors are tested under pressure of 1,5 MPa for the time of 1 hour.

\* upon order

\*\* upon order under the condition of minimum offtake

	configuration												
	mm	mm	mm	m	kg								
<b>06025</b>	AS100**	FS100*	LS100**	KS100*	CS100*	BS100**	ES100**	DS100**	25	20	400	100	16
<b>06032</b>	AS100	FS100*	LS100	KS100**	CS100*	BS100	ES100	DS100**	32	26 / 27	400	100	26
<b>06040</b>	AS100	FS100	LS100*	KS100	CS100	BS100*	ES100	DS100	40	33 / 34 / 35	400	100	39
<b>06050</b>	AS100	FS100	LS100*	KS100*	CS100	BS100*	ES100**	DS100**	50	41 / 44	500	100	48



**HDPE coupling**

			conf.	description
HDPE	-5 - + 50 °C	A	K...	color: grey
			...B	package: small 1 pcs

	conf.	pipes mm	pcs	kg
<b>05030</b>	KB	32	1	0,04
<b>05040</b>	KB	40	1	0,32
<b>05050</b>	KB	50	1	0,20

Protector coupling of optical cables is designed to join the pipes when tracing and guarantees its perfect connection.



**HDPE terminal**






			conf.	description
HDPE	-5 - + 50 °C	A	K...	color: grey
			...B	package: small 1 pcs

	conf.	pipes mm	pcs	kg
<b>05031</b>	KB	32	1	0,08
<b>05041</b>	KB	40	1	0,19
<b>05042</b>	KB	40	1	0,22
<b>05051</b>	KB	50	1	0,32

The terminal of optical cable protector is designed to terminate the tracing.  
The 05042 terminal - with valve.



**KOPOFLEX® - flexible doublecoat corrugated pipe**

				
>450 N / 20 cm	HDPE not self-snuffing	-45 - + 60 °C	A	pg. 114

conf.	description
B...	color: red
C...	color: blue
F...	color: black
E...	color: yellow
...A	package: 50 m
...B	package: 25 m

Double-coated pipe designed for mechanical protection of all kinds of power and data wiring.

The pipes are made in compliance with ČSN EN 50086-2-4. When ordering a bigger quantity the pieces may be delivered in various colour performance or marking, as a standard they are delivered in red and blue.







There is a tightening wire or string in each scroll and the coupling is put on as well.

Coverage level: IP 40, with sealing ring IP 67. The outside of the pipe is made of HDPE and the inside is made of LDPE. This combination allows high flexibility even with small bend radius.

It is necessary to pay attention, during the mechanical compacting of the layers above the protector, so that the values for the allowed loading of the protector are not exceeded.





\* upon order

\*\* upon order under the condition of minimum offtake

										
					mm	mm	mm	cm	m	kg
<b>KF 09040</b>	BA	CA	EA*	FA	40	32	230	65 x 30	50	5,4
	BB**	CB	EB**	FB**				50 x 15	25	2,7
<b>KF 09050</b>	BA	CA	EA	FA	50	41	350	90 x 30	50	8,1
	BB**	CB	EB**	FB**				80 x 20	25	4,0
<b>KF 09063</b>	BA	CA	EA	FA	63	52	350	95 x 35	50	12,1
	BB**	CB*	EB**	FB**				85 x 30	25	6,1
<b>KF 09075</b>	BA	CA	EA	FA	75	61	350	100 x 45	50	15,7
	BB**	CB	EB**	FB**				105 x 30	25	7,8
<b>KF 09090</b>	BA	CA	EA**	FA	90	75	400	110 x 45	50	20,5
<b>KF 09110</b>	BA	CA	EA*	FA	110	94	400	115 x 65	50	25,4
	BB	CB	EB**	FB**				120 x 40	25	12,7
<b>KF 09120</b>	BA	-	-	-	120	100	500	150 x 50	50	35,0
<b>KF 09125</b>	BA	-	-	-	125	108	500	150 x 60	50	39,0
<b>KF 09160</b>	BA	CA*	-	FA	160	136	650	160 x 80	50	50,0
<b>KF 09175</b>	BA	-	-	FA	175	150	700	200 x 65	50	64,0
<b>KF 09200</b>	BB*	-	-	FB*	200	172	700	170 x 75	25	33,8



**KOPOFLEX® - UV-stabilized flexible doublecoat corrugated pipe**

			
>450 N / 20 cm	HDPE not self-snuffing	-45 - + 60 °C	A

conf.	description
UV...	UV-stabilized
...F...	color: black
...B...	color: red
...A	package: 50 m

Double-coated pipe designed for mechanical protection of all kinds of power and data wiring.







The pipes are made in compliance with ČSN EN 50086-2-4. When ordering a bigger quantity the pieces may be delivered in blue colour, as a standard they are delivered in black and red.

There is a tightening wire or string in each scroll and the coupling is put on as well. Coverage level: IP 40, with sealing ring IP 67.

It is necessary to pay attention, during the mechanical compacting of the layers above the protector, so that the values for the allowed loading of the protector are not exceeded.

\* upon order

\*\* upon order under the condition of minimum offtake

	configuration						
		mm	mm	mm	cm	m	kg
<b>KF 09040</b>	UVFA UVBA*	40	32	230	65 x 30	50	5,3
<b>KF 09050</b>	UVFA UVBA*	50	41	350	90 x 30	50	8,1
<b>KF 09063</b>	UVFA UVBA**	63	52	350	90 x 40	50	12,1
<b>KF 09075</b>	UVFA UVBA**	75	61	350	100 x 45	50	15,7
<b>KF 09090</b>	UVFA UVBA**	90	75	400	110 x 45	50	20,5
<b>KF 09110</b>	UVFA UVBA**	110	94	400	115 x 70	50	25,4
<b>KF 09160</b>	UVFA -	160	136	650	160 x 80	50	50,0


**KOPODUR®** - rigid doublecoat corrugated pipe

				
>450 N / 20 cm	HDPE not self-snuffing	-45 - + 60 °C	A	pg. 114

conf.	description
B...	color: red
C...	color: blue
F...	color: black
...A	package: 6 m (3 m)
...C	package: 6 m

Double-coated pipe designed for mechanical protection of all kinds of power and data wiring.

The pipes are made in compliance with ČSN EN 50086-2-4.

When ordering a bigger quantity the pieces may be delivered in various colour performance or marking, as a standard they are delivered in red.

The pipe is available in form of a bar, the coupling is put on one end of it.






The connection is sealed dust/sand resistant.

Coverage level: IP 40, with sealing ring IP 67.

Both outer and inner coat of the pipe are made of HDPE. This combination provides high strength.

It is necessary to pay attention, during the mechanical compacting of the layers above the protector, so that the values for the allowed loading of the protector are not exceeded.

\*\* upon order under the condition of minimum offtake

KD	configuration								kg
	BC	CC**	FC**	mm	mm	m	cm	m	
<b>KD 09040</b>	BC	CC**	FC**	40	32	6	45 x 45 x 600	432	116
<b>KD 09050</b>	BC	CC	FC	50	41	6	82 x 66 x 600	360	119
<b>KD 09063</b>	BC	CC**	FC**	63	52	6	80 x 52 x 600	312	135
<b>KD 09075</b>	BC	CC	FC**	75	61	6	104 x 88 x 600	312	126
<b>KD 09090</b>	BC	CC	FC	90	75	6	120 x 76 x 600	312	185
<b>KD 09110</b>	BC	-	-	110	94	6	112 x 95 x 600	462	336
	-	CC	FC				77 x 57 x 600	216	163
	BA**	CA**	FA	3	107 x 86 x 300	231	168		
<b>KD 09120</b>	BC	-	-	120	100	6	112 x 128 x 600	612	459
<b>KD 09125</b>	BC	-	-	125	108	6	112 x 71 x 600	306	220
	BA	CC	-				112 x 71 x 600	288	207
<b>KD 09160</b>	BC	CC	FC	160	136	6	117 x 83 x 600	198	251
<b>KD 09175</b>	BA	-	-	175	150	6	108 x 126 x 600	306	392
<b>KD 09200</b>	BA	-	-	200	175	6	115 x 76 x 600	120	178

**Accessories for corrugated pipes KOPOFLEX® and KOPODUR®**

**Couplings** - slip-over couplings are the same for both types of pipes and are used to join the pipes.



**Sealing rings** - the same for both types of pipes and are used to seal the joint to prevent it against humidity and water.

**Closing plugs** - for blinding of backup lines and for temporary blinding of pipes when installing.

**90° elbows** - rigid elbows for joining pipes in 90° angle. Per order only.

**45° elbows** - rigid elbows for joining pipes in 45° angle. Per order only.

**Distance spacers** - for position fixation of several pipes in one excavation. Distance spacers are for fixation 8 pipes and spacer can be split for fixation 2, 4 and 6 pipes. Per order only.

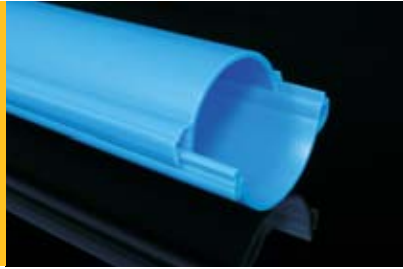
						
	coupling	sealing ring	closing plug	elbow		distance spacer
				90°	45°	
40	02040	16040	17040			
50	02050	16050	17050	08050/90	08050/45	350
63	02063	16063	17063	08063/90	08063/45	350
75	02075	16075	17075	08075/90	08075/45	350
90	02090	16090	17090	08090/90	08090/45	400
110	02110	16110	17110	08110/90	08110/45	400
120	02120	16120	17120	08120/90	08120/45	500
125	02125	16125	17125	08125/90	08125/45	500
160	02160	16160	17160	08160/90	08160/45	650
175	02175	16175	17175	08175/90	08175/45	700
200	02200	16200	17200	08200/90	08200/45	850

Use the connection of IP 40.



Use the connection with sealing rings  
- IP 67.





**KOPOHALF®** - divided cable duct

				conf. description
450 N / 20 cm 750 N / 20 cm	HDPE <b>halogen-free</b>	storage, fixing: -45 - +75 °C assembly: +5 - +75 °C	A	B... color: red C... color: blue ...A... length: 3 m ...D package: at completed size

	configuration							
			N / cm	mm	mm	m	cm	m kg
<b>06110/2</b>	BA	CA	450 / 20	110	100	3	56 x 85 x 300	162 375
	BAD	CAD					56 x 85 x 300	105 246
<b>06160/2</b>	BA	CA	750 / 20	160	138	3	56 x 60 x 300	72 360
	BAD	CAD					56 x 85 x 300	45 228

A system of divided cable ducts is suitable mainly for a protection of underground cable laying and for a laying-out of the energy and communication lines.

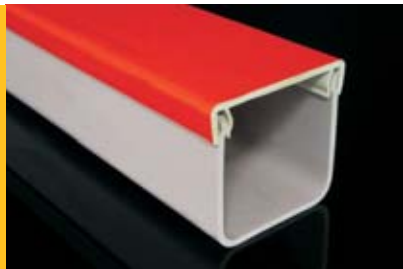
Another possible application is a protection of already installed underground cables.

The cable ducts are delivered in dismantled condition.

When installing, the cables are put in the bottom part and then the top part is snapped to the bottom one.

The divided cable ducts are manufactured and tested in accordance with standard ČSN 50 086-2-4.

Connecting of protectors is performed by overlapping joined lower parts with an upper part at length of approximately 30 cm.



**KOPOKAN** - earthen channel



PVC - recycled, self-snuffing	-25 - +70 °C	A - C2

	mm	mm	m	kPa	m	kg
<b>KOPOKAN 1</b>	100	100	2	483	324	1312
<b>KOPOKAN 2</b>	120	100	2	223	252	847
<b>KOPOKAN 3</b>	130	140	2	285	224	1180
<b>KOPOKAN 4</b>	200	125	2	204	140	883

Earthen channels are intended for mechanical protection of installation of engineering networks to be loaded under ground.

By its technical parameters those fully replace the earlier used concrete channels.

There is possible to use them for additional protection already installed earthen engineering networks.

Earthen channels are delivered including the red lid.

The connection is via conjunctions.



**connection for KOPOKAN**



	mm	mm	mm	pcs	kg
<b>CONNECTION K1</b>	120	80	100	10	1,1
<b>CONNECTION K2</b>	138	80	100	10	1,2
<b>CONNECTION K3</b>	151	80	100	10	1,3
<b>CONNECTION K4</b>	221	80	100	10	1,6



### Steel pipes - high mechanical resistance

ČSN	1250 N / 5 cm	EN 61386-44561	steel	-60 - + 250 °C	pg. 117 - 118
EN	unthreaded: 1250 N / 5 cm threaded: 4000 N / 5 cm	unthreaded: EN 61386-4456 threaded: EN 61386-5557		-45 - + 250 °C	

The pipes are suitable for mechanical protection of conductors and cables. The conduits are also available for fire resistance system.

Threaded conduits are supplied with one coupler.

While using pipes along with bushing 4813/P - 4842/P and 4913 - 4942 is scope of application only -5 - +60 °C.

Unvarnished: without surface finish, without corrosion resistance, suitable mostly for construction purposes.

Varnished (ČSN): ZNM material surface-finished using powder technology, black color RAL 9005, medium corrosion resistance - group 2

Varnished (EN): smooth steel material to be varnished by both sides black colour, medium corrosive resistance - group 2

ZNM: both side hot-galvanized steel bar, zinc layer 10 - 19 µm, replaces shop primer, medium corrosion resistance - group 2

ZN: after steel bar welding hot-galvanized using immersion, zinc layer 60 - 100 µm, high corrosion resistance - group 4

EN						kg
	mm	mm	m		m	
threaded varnished						
6016E	16	12,6	3	M16x1,5	30; 600	306
6020	20	16,2	3	M20x1,5	30; 600	450
6025	25	21,2	3	M25x1,5	30; 600	600
6032	32	28,2	3	M32x1,5	21; 420	533
6040	40	36,2	3	M40x1,5	15; 150	247
6050	50	46,2	3	M50x1,5	15; 150	302
6063	63	58,8	3	M63x1,5	15; 150	424
threaded ZN						
6016E ZN	16	12,6	3	M16x1,5	30; 600	306
6020 ZN	20	16,2	3	M20x1,5	30; 600	450
6025 ZN	25	21,2	3	M25x1,5	30; 600	600
6032 ZN	32	28,2	3	M32x1,5	21; 420	533
6040 ZN	40	36,2	3	M40x1,5	15; 150	247
6050 ZN	50	46,2	3	M50x1,5	15; 150	302
6063 ZN	63	58,8	3	M63x1,5	15; 150	424
threaded varnished						
6216E	16	14	3		30; 600	234
6220	20	18	3		30; 600	294
6225	25	22,6	3		30; 600	445
6232	32	29,6	3		21; 420	404
6240	40	37,6	3		15; 150	182
6250	50	47,6	3		15; 150	228
6263	63	60,6	3		15; 150	290
unthreaded ZN						
6216E ZN	16	14	3		30; 600	234
6220 ZN	20	18	3		30; 600	294
6225 ZN	25	22,6	3		30; 600	445
6232 ZN	32	29,6	3		21; 420	404
6240 ZN	40	37,6	3		15; 150	182
6250 ZN	50	47,6	3		15; 150	228
6263 ZN	63	60,6	3		15; 150	290

ČSN						kg
	mm	mm	m		m	
threaded varnished						
6013	20,4	18,2	3	P13,5	30; 1200	780
6016	22,5	20,3	3	P16	30; 1200	800
6021	28,3	25,7	3	P21	30; 750	680
6029	37	34,4	3	P29	15; 450	561
6036	47	44	3	P36	15; 300	617
6042	54	51	3	P42	15; 225	463
threaded unvarnished						
6013 N	20,4	18,2	3	P13,5	1350	753
6016 N	22,5	20,3	3	P16	1200	742
6021 N	28,3	25,7	3	P21	750	680
6029 N	37	34,4	3	P29	600	728
6036 N	47	44	3	P36	300	531
6042 N	54	51	3	P42	300	613
threaded ZN						
6013 ZN	20,4	18,2	3	P13,5	30; 1200	780
6016 ZN	22,5	20,3	3	P16	30; 1200	800
6021 ZN	28,3	25,7	3	P21	30; 750	680
6029 ZN	37	34,4	3	P29	15; 450	561
6036 ZN	47	44	3	P36	15; 300	617
6042 ZN	54	51	3	P42	15; 225	463
threaded ZNM						
6013 ZNM	20,4	18,2	3	P13,5	30; 1200	780
6016 ZNM	22,5	20,3	3	P16	30; 1200	800
6021 ZNM	28,3	25,7	3	P21	30; 750	680
6029 ZNM	37	34,4	3	P29	15; 450	561
6036 ZNM	47	44	3	P36	15; 300	617
6042 ZNM	54	51	3	P42	15; 225	463
unthreaded varnished						
6216 N	22,5	20,3	3		1200	735
6221 N	28,3	25,7	3		750	678
6229 N	37	34,4	3		600	713
6236 N	47	44	3		300	520
6242 N	54	51	3		300	605
unthreaded ZN						
6213 ZN	20,4	18,2	3		1350	745
6216 ZN	22,5	20,3	3		1200	735
6221 ZN	28,3	25,7	3		30; 750	678
6229 ZN	37	34,4	3		15; 450	535
6236 ZN	47	44	3		300	520
6242 ZN	54	51	3		15; 225	454
unthreaded ZNM						
6213 ZNM	20,4	18,2	3		1350	745
6216 ZNM	22,5	20,3	3		1200	735
6221 ZNM	28,3	25,7	3		750	678
6229 ZNM	37	34,4	3		600	713
6236 ZNM	47	44	3		300	520
6242 ZNM	54	51	3		300	605



**Elbows for steel pipes - high mechanical resistance**



			<b>MAT</b>	
<b>ČSN</b>	1250 N / 5 cm	EN 61386-44561 TP-KO-02/98	steel	-60 - + 250 °C
<b>EN</b>	unthreaded: 1250 N / 5 cm threaded: 4000 N / 5 cm	unthreaded: EN 61386-4456 threaded: EN 61386-5557		-45 - + 250 °C

The elbows are also available for fire resistance system. Threaded elbows are supplied with one coupler.

Varnished (ČSN): ZNM surface-finished material using powder technology, black color RAL 9005, medium corrosion resistance - group 2

Varnished (EN): smooth steel material to be varnished by both sides black colour, medium corrosive resistance - group 2

ZNM: both side hot-galvanized steel bar, zinc layer 10 - 19 µm, replaces shop primer, medium corrosion resistance - group 2  
 ZN: after steel bar welding hot-galvanized using immersion, zinc layer 60 - 100 µm, high corrosion resistance - group 4

EN									
threaded		unthreaded		pipes mm				mm	kg
threaded	ZN	threaded	ZN						
<b>6116E</b>	<b>6116E ZN</b>	<b>6316E</b>	<b>6316E ZN</b>	16	M16x1,5	55	15	3,2	
<b>6120</b>	<b>6120 ZN</b>	<b>6320</b>	<b>6320 ZN</b>	20	M20x1,5	70	25	6,8	
<b>6125</b>	<b>6125 ZN</b>	<b>6325</b>	<b>6325 ZN</b>	25	M25x1,5	115	25	8,8	
<b>6132</b>	<b>6132 ZN</b>	<b>6332</b>	<b>6332 ZN</b>	32	M32x1,5	125	20	9,8	
<b>6140</b>	<b>6140 ZN</b>	<b>6340</b>	<b>6340 ZN</b>	40	M40x1,5	140	15	8,3	
<b>6150</b>	<b>6150 ZN</b>	<b>6350</b>	<b>6350 ZN</b>	50	M50x1,5	170	5	3,5	
<b>6163</b>	<b>6163 ZN</b>	<b>6363</b>	<b>6363 ZN</b>	63	M63x1,5	210	3	2,3	

ČSN									
threaded			pipes mm				mm	pcs	kg
varnished	ZNM	ZN							
<b>6113</b>	<b>6113 ZNM</b>	<b>6113 ZN</b>	20,4	P13,5	80	25	4,4		
<b>6116</b>	<b>6116 ZNM</b>	<b>6116 ZN</b>	22,5	P16	100	25	5,5		
<b>6121</b>	<b>6121 ZNM</b>	<b>6121 ZN</b>	28,3	P21	120	20	7,5		
<b>6129</b>	<b>6129 ZNM</b>	<b>6129 ZN</b>	37	P29	155	20	11,0		
<b>6136</b>	<b>6136 ZNM</b>	<b>6136 ZN</b>	47	P36	185	5	5,0		
<b>6142</b>	<b>6142 ZNM</b>	<b>6142 ZN</b>	54	P42	200	5	6,9		

**Couplers for steel threaded pipes**



<b>MAT</b>
EN - steel ČSN - Al-alloy

EN				
varnished	Zn			
			pcs	kg
<b>316E/1</b>	<b>316E/1 ZN</b>	M16x1,5	25	1,2
<b>320/1</b>	<b>320/1 ZN</b>	M20x1,5	50	2,5
<b>325/1</b>	<b>325/1 ZN</b>	M25x1,5	50	3
<b>332/1</b>	<b>332/1 ZN</b>	M32x1,5	50	3,5
<b>340/1</b>	<b>340/1 ZN</b>	M40x1,5	25	2
<b>350/1</b>	<b>350/1 ZN</b>	M50x1,5	10	1
<b>363/1</b>	<b>363/1 ZN</b>	M63x1,5	5	0,6

ČSN				
mm	mm	mm	pcs	kg
<b>313/1</b>	24,0 x 30	P13,5	10; 540	6,3
<b>316/1</b>	26,5 x 35	P16	10; 350	6
<b>321/1</b>	32,0 x 40	P21	10; 240	5,2
<b>329/1</b>	41,5 x 45	P29	10; 120	5,6
<b>336/1</b>	51,5 x 55	P36	10; 60	3,9
<b>342/1</b>	58,5 x 60	P42	10; 100	7,8

Couplers are designed to join steel pipes and elbows or to protect conductors and cables mechanically.  
 ČSN couplers are made of Al-alloy.  
 EN couplers are made of steel with varnish or Zn surface finish.

**Slip-on couplers for steel pipes**



<b>MAT</b>
steel

EN				
varnished	Zn			
		min mm	pcs	kg
<b>316E/2</b>	<b>316E/2 ZN</b>	16	25	1,2
<b>320/2</b>	<b>320/2 ZN</b>	20	50	2,5
<b>325/2</b>	<b>325/2 ZN</b>	25	50	3
<b>332/2</b>	<b>332/2 ZN</b>	32	50	3,5
<b>340/2</b>	<b>340/2 ZN</b>	40	25	2
<b>350/2</b>	<b>350/2 ZN</b>	50	10	1
<b>363/2</b>	<b>363/2 ZN</b>	63	5	0,6

ČSN				
mm	min mm	mm	pcs	kg
<b>313/2</b>	22,6	20,4	10	0,3
<b>316/2</b>	24,7	22,5	10	0,4
<b>321/2</b>	30,9	28,3	10	0,6
<b>329/2</b>	39,6	37	10	0,7
<b>336/2</b>	50	47	10	1,1
<b>342/2</b>	57	54	10	1,3

The couplers are designed to join steel pipes and elbows or to protect conductors and cables mechanically.  
 They are fitted with throats on both ends and are designed to join unthreaded armature pipes.  
 The couplers are made of hoops by welding.  
 ČSN couplers are made with ZnCr surface finish.  
 EN couplers are made with varnish or Zn surface finish.



**Extending couplers for steel pipes**

<b>MAT</b>
Al-alloy

	mm	min mm		pcs	kg
<b>9813</b>	24,0 x 30	19,3	P13,5	20	0,26
<b>9816</b>	26,5 x 35	21,7	P16	20	0,35
<b>9829</b>	32,0 x 40	35,7	P29	20	0,75

The couplings are designed for connection of flexible metal pipes of 33.. series (page 120) with steel threaded pipes. It is fitted with inner PG thread on one side and a clipping nick to fix the flexible metal pipe on the other side.



**Straight bushing for steel pipes - outer**

<b>MAT</b>		
PE self-snuffing	-5 - + 60 °C	A - C2

EN					
	pipes mm	mm	input mm	pcs	kg
<b>4816E</b>	16	20	12	50	0,15
<b>4820</b>	20	22	16	50	0,2
<b>4825</b>	25	27	21	400	2,4
<b>4832</b>	32	33	28	250	2,5
<b>4840</b>	40	39	35	100	1,2
<b>4850</b>	50	47	43	50	0,8
<b>4863</b>	63	59	57	20	0,6

ČSN					
	pipes mm	mm	input mm	pcs	kg
<b>4813/P</b>	20,4	14	15	500; 3000	9
<b>4816/P</b>	22,5	16	17	100; 1200	5,6
<b>4821/P</b>	28,3	21	22	100; 1000	4,5
<b>4829/P</b>	37	27	30	100; 400	4,9
<b>4836/P</b>	47	27	38	100; 300	3,3
<b>4842/P</b>	54	27	44	75; 150	4



The bushings are designed to mechanically protect the conductors or cables coming from the steel pipe. Plug the bushing from outside on the end of pipe before installing cables.

**Straight bushing for steel pipes - inner**

<b>MAT</b>		
PE self-snuffing	-5 - + 60 °C	A - C2

ČSN					
	pipes mm	mm	input mm	pcs	kg
<b>4913</b>	18,2	22	13	400; 3200	8,0
<b>4916</b>	20,3	22	16	400; 2000	5,6
<b>4921</b>	25,7	22	21	250; 1500	4,8
<b>4929</b>	34,4	22	30	150; 700	3,3
<b>4936</b>	44	22	39	80; 400	2,8
<b>4942</b>	51	22	46	60; 360	3,0

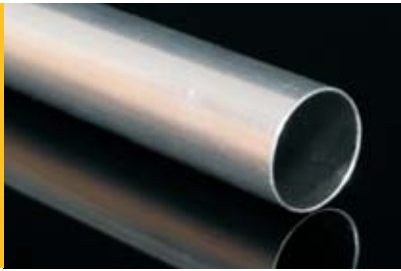


The bushings are designed to mechanically protect the conductors or cables coming from the the steel pipe. Plug the bushing from inside on the end of pipe before installing cables.

**WEICON 375**







Corrosion protection for galvanized surfaces. To eliminate defective and damaged places on galvanized surface.



**Aluminium pipes - high mechanical resistance**

		<b>MAT</b>
1250 N / 5 cm	EN 61386-2-1	Al Mg Si 0,5-F 22



unthreaded	EN				
	 mm	 mm	 m	 m	kg
<b>6216E AL</b>	16	12,6	3	30; 600	58
<b>6220 AL</b>	20	16,2	3	30; 600	77
<b>6225 AL</b>	25	21,2	3	30; 600	98
<b>6232 AL</b>	32	28,2	3	30; 300	73
<b>6240 AL</b>	40	36,2	3	15; 150	51
<b>6250 AL</b>	50	46,2	3	15; 150	65
<b>6263 AL</b>	63	58,8	3	15; 150	106

The pipes are proper for mechanical protection of conductors and cables. They can be used for industrial installations, high anticorrosive ability – class 4.



**Elbows for aluminium pipes - high mechanical resistance**

		<b>MAT</b>
1250 N / 5 cm	EN 61386-2-1	Al Mg Si 0,5-F 22



unthreaded	EN		
	 pipes mm	 pcs	kg
<b>6316E AL</b>	16	10	0,24
<b>6320 AL</b>	20	10	0,44
<b>6325 AL</b>	25	10	0,68
<b>6332 AL</b>	32	10	1,48
<b>6340 AL</b>	40	5	0,76
<b>6350 AL</b>	50	5	1,36
<b>6363 AL</b>	63	5	1,81

Per order only.



**Slip-on couplers for aluminium pipes**



<b>MAT</b>
Al Mg Si 0,5-F 22



unthreaded	EN		
	 pipes mm	 pcs	kg
<b>316E/2 AL</b>	16	50	0,2
<b>320/2 AL</b>	20	50	0,3
<b>325/2 AL</b>	25	50	0,7
<b>332/2 AL</b>	32	50	1,2
<b>340/2 AL</b>	40	25	0,7
<b>350/2 AL</b>	50	25	1,2
<b>363/2 AL</b>	63	25	1,7



**Clips OMEGA**

<b>MAT</b>
ZN Al






<b>MAT</b>	EN		
	 pipes mm	 pcs	kg
<b>ZN</b>			
<b>5216E ZNM</b>	16	250	7,0
<b>5220 ZNM</b>	20	250	7,5
<b>5225 ZNM</b>	25	250	10,0
<b>5232 ZNM</b>	32	125	5,5
<b>5240 ZNM</b>	40	100	4,8
<b>5250 ZNM</b>	50	100	6,0
<b>5263 ZNM</b>	63	100	7,7





<b>MAT</b>	EN		
	 pipes mm	 pcs	kg
<b>AL</b>			
<b>5216E AL</b>	16	250	3,5
<b>5220 AL</b>	20	250	3,8
<b>5225 AL</b>	25	250	4,6
<b>5232 AL</b>	32	125	2,7
<b>5240 AL</b>	40	100	2,4
<b>5250 AL</b>	50	100	2,8
<b>5263 AL</b>	63	100	3,2

In order to facilitate the assembly the clip is fitted with a groove for insertion, during the assembly it is not necessary to entirely separate the upper part of the clip. The screws with dowels, the screws into concrete or anchors are recommended to be used for fixing this holders.



### Flexible metal pipe

				
750 N / 5 cm	IEC 614-3352	steel	-45 - + 90 °C	pg. 114, 116





				
	mm	mm	m	kg
<b>3313</b>	18,9	13,5	100	18,7
<b>3316</b>	21,4	16	100	23,2
<b>3323</b>	28,9	23	50	16,4
<b>3329</b>	35,2	29	50	22,3
<b>3336</b>	43	36	25	14,8
<b>3348</b>	54,9	48	25	18,3

The pipes are suitable for mechanical protection of conductors and cables inside halls (indoor).  
The pipes are made of galvanized steel bar at the top (zinc layer 3 - 4 µm) and isolation layer inside.  
Flexible metal pipes may be connected to steel threaded pipes by means of couplings of 98xx series (page 118).



### Couplers for flexible metal pipes


Al-alloy





				
	mm	mm	pcs	kg
<b>9613</b>	24 x 35	19,3	20	0,25
<b>9616</b>	26,5 x 40	21,7	20	0,35
<b>9629</b>	41 x 50	35,7	20	0,75
<b>9636</b>	49 x 55	43,5	10	0,78
<b>9648</b>	61 x 60	55,3	10	0,85

The couplers are designed to join flexible metal pipes using inner clipping nick.  
9636 and 9648 available before sellout.



### KOPODREN - drainage pipe

	
yellow	PE

				
	mm	m	m	kg
<b>KOPODREN 50</b>	50	50	50	7
<b>KOPODREN 65</b>	65	50	50	10
<b>KOPODREN 80</b>	80	50	50	15,5
<b>KOPODREN 100</b>	100	50	50	21
<b>KOPODREN 125</b>	125,5	50	50	30,5
<b>KOPODREN 160</b>	159,5	50	50	49
<b>KOPODREN 200</b>	199,5	45	45	55,8

KOPODREN pipeline is used in all areas of drain technics, e.g. draining of buildings, deep engineering constructions, sport places building, in agriculture, gardens, to drain areas of use, or to temporary draining of work sites.


The pipes have low weight and high chemical resistance.

The construction of the pipe ensures high flexibility. This is a major advantage when installing as well as meeting the requirement of small bend radius.

The pipe joints are protected against pull-off and are designed to join using a snap.

Accessories per order only.

### KOPODREN drainage pipe accessories

	reducer	coupling	branch pipe 45°	bend 90°	elbow 90°	T-piece	plug	terminal flap
50	KN-R 65/50	KN-S 50	KN-OD45 50	KN-OB90 50		KN-T 50	KN-Z 50	KN-KK 50
65	KN-R 80/65	KN-S 65	KN-OD45 65	KN-OB90 65		KN-T 65	KN-Z 65	KN-KK 65
80	KN-R 100/80	KN-S 80	KN-OD45 80	KN-OB90 80	KN-K90 80	KN-T 80	KN-Z 80	KN-KK 80
100	KN-R 125/100	KN-S 100	KN-OD45 100	KN-OB90 100	KN-K90 100	KN-T 100	KN-Z 100	KN-KK 100
125,5	KN-R 160/125	KN-S 125	KN-OD45 125		KN-K90 125	KN-T 125	KN-Z 125	KN-KK 125
159,5	KN-R 200/160	KN-S 160	KN-OD45 160		KN-K90 160	KN-T 160	KN-Z 160	KN-KK 160
199,5		KN-S 200	KN-OD45 200		KN-K90 200	KN-T 200	KN-Z 200	KN-KK 200

## Wiring pipes - number of cables to put in

		CYKY 2 x 1,5	CYKY 3 x 1,5	CYKY 4 x 1,5	CYKY 3 x 2,5	CYKY 5 x 1,5	CYKY 4 x 2,5	CYKY 5 x 2,5	CYKY 4 x 4	CYKY 5 x 4	CYKY 4 x 6	CYKY 5 x 6
cable diameter (mm)	6	8,3	8,7	9,5	10	10,3	10,9	12,3	13,2	14,4	14,4	16
FLEXIBLE PIPES												
XX16E - EN	1	1	1	X	X	X	X	X	X	X	X	X
XX20 - EN	2 (3)	1	1	1	1	1	1	X	X	X	X	X
XX25 - EN	4	2	2	1	1	1	1	1	1	1	1	X
XX32 - EN	8	4	4	3	3	3	2	1	1	1	1	1
XX40 - EN	13	7	6	5	5	4	4	3	3	2	2	1
XX50 - EN	21	11	10	8	7	7	6	5	4	4	4	3
XX13 - ČSN	2	1	1	1	1	1	1	X	X	X	X	X
XX16 - ČSN	3	1 (2)	1	1	1	1	1	1	1	X	X	X
XX23 - ČSN	7	4	3	3	2	2	1 (2)	1	1	1	1	1
XX29 - ČSN	11	6	5	4	4	4	3	3	2	1	1	1
XX36 - ČSN	17	9	8	7	6	6	5	4	3	3	3	2
SF16	3	1	1	1	1	1	1	1	1	X	X	X
SF20	5	3	2	1 (2)	1	1	1	1	1	1	1	1
SF25	8	4	4	3	3	3	2 (3)	1 (2)	1	1	1	1
SF32	13	7	6	5	5	5	4	3	3	2 (3)	2 (3)	1 (2)
KF 09040	13	7	6	5	5	5	4	3	3	2	2	2
KF 09050	22	11	10	9	8	7	7	5	5	4	4	3
KF 09063	35	18	17	14	13	12	11	8	7	6	6	5
KF 09075	49	25	23	19	18	17	15	12	10	8	8	7
KF 09090	74	38	35	29	27	25	22	18	15	13	13	10
KF 09110	116	60	55	46	42	39	35	28	24	20	20	16
KF 09120	131	68	62	52	47	44	40	31	27	23	23	18
KF 09125	153	80	73	61	55	52	46	36	32	27	27	21
KF 09160	242	127	115	97	87	82	73	58	50	42	42	34
KF 09175	295	154	140	117	106	100	89	70	61	51	51	41
RIGID PIPES												
XX16E - EN	1 (2)	1	1	1	1	1	X	X	X	X	X	X
XX20 - EN	2 (3)	1	1	1	1	1	1	1	1	X	X	X
XX25 - EN	6	3	3	2	1 (2)	1 (2)	1	1	1	1	1	1
XX32 - EN	9	5	4	4	3	3	23	2	1	1	1	1
XX40 - EN	15	8	7	6	6	5	5	4	3	3	3	1 (2)
XX50 - EN	24	13	12	10	9	8	7	6	5	4	4	3
XX63 - EN	43	22	20	17	15	14	13	10	9	7	7	6
6013 - ČSN	4	2	1 (2)	1	1	1	1	1	1	1	1	X
6016 - ČSN	2 (3)	3	3	1 (2)	1	1	1	1	1	1	1	1
6021 - ČSN	9	5	4	3	3	3	3	1 (2)	1	1	1	1
6029 - ČSN	15	8	7	6	6	5	5	4	3	3	3	2
6036 - ČSN	25	13	12	10	9	9	8	6	5	4	4	4
6042 - ČSN	34	18	16	14	12	12	10	8	7	6	6	5
6016E - EN	3	1	1	1	1	1	1	1	X	X	X	X
6020 - EN	4	2	1 (2)	1	1	1	1	1	1	1	1	X
6025 - EN	7	3	3	3	2	2	1	1	1	1	1	1
6032 - EN	11	6	5	5	4	4	3	3	2	1	1	1
6040 - EN	19	10	9	7	7	6	6	4	4	3	3	3
6050 - EN	30	15	14	12	11	10	9	7	6	5	5	4
6063 - EN	48	25	23	19	17	16	15	11	10	8	8	7
KD 09040	13	7	6	5	5	5	4	3	3	2	2	2
KD 09050	22	11	10	9	8	7	7	5	5	4	4	3
KD 09063	35	18	17	14	13	12	11	8	7	6	6	5
KD 09075	49	25	23	19	18	17	15	12	10	8	8	7
KD 09090	74	38	35	29	27	25	22	18	15	13	13	10
KD 09110	116	60	55	46	42	39	35	28	24	20	20	16
KD 09120	131	68	62	52	47	44	40	31	27	23	23	18
KD 09125	153	80	73	61	55	52	46	36	32	27	27	21
KD 09160	242	127	115	97	87	82	73	58	50	42	42	34
KD 09175	295	154	140	117	106	100	89	70	61	51	51	41
KD 09200	401	209	191	160	144	136	121	95	83	70	70	56

The table is based on 60% cross-section usage of the pipes.