



Pipes for underground **cable protection**



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Pipes for underground cable protection

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– innovative conduit systems for advanced and efficient applications

EVOPIPES offers its customers innovative products for electrical installations, cable protection, construction of rainwater and household wastewater removal infrastructure systems as well as construction of water supply and gas supply infrastructure systems.



EVOcab HARD and FLEX – infrastructure cable conduits.

EVOduct – conduits for optical cable systems.

RIGID MULTI PP – conduits for communication cable systems.

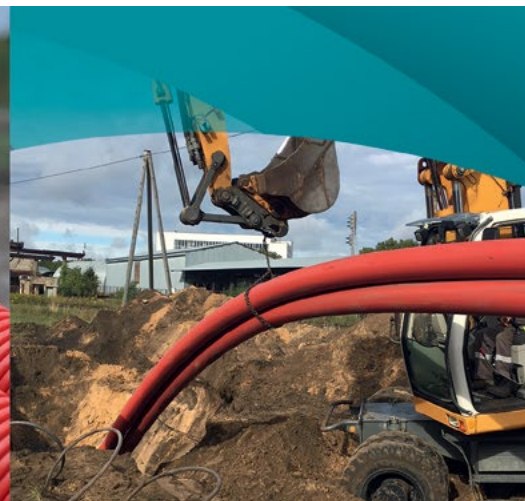
EVOcab SUPERHARD – conduits for high-voltage cable systems.

EVOcab STING – cable conduits for trenchless applications.

EVOcab SPLIT – repair work conduits.

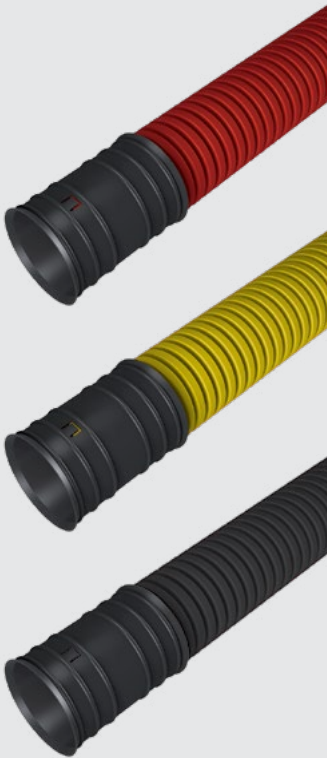
EVOPIPES offers components for all pipe systems – couplings, elbows, covers, sealing rings, and cable chambers up to Class F900 as well as warning tapes, protective tapes, and marking system elements.

In cooperation with the customers, **EVOPIPES** continuously develops new and innovative products to create maximum convenient installation conditions and improve customers productivity.





Pipes for underground cable protection



Compression strength class:
450
750
Impact resistance class: N

EN 61386 - 24

EVOcab HARD corrugated double-wall conduits

This halogen-free cable conduit is made of a HDPE composition and is available in 6 m bars, and each piece comes standard with a sand tight coupler. The conduit has a corrugated outer and a smooth inner surface. Due to this, the conduit features high mechanical and impact strength properties. The conduits fully maintain the strength properties at temperatures between -25 °C and +90 °C. The standard conduit is red (RAL 3020), yellow (RAL 1018) or black (RAL 9005) and other colours are available upon request.

Application area:

The HARD conduits are made of a rigid material and designed to withstand soil and vehicle loads. HARD conduits can be used for underground protection and insulation of cables and are especially suitable for systems requiring high compression strength, i.e. under roads, squares, etc. The use of standard couplers allows convenient rigid coupling of the conduits. Water-resistance (0.5 bar) of joints can be achieved by additional use of sealing rings.

HARD type	Code	50	63	75	90	110	125	160
Outer Ø [mm]		50.0	63.0	75.0	90.0	110.0	125.0	160.0
Inner Ø [mm]		40.7	51.7	62.7	76.2	94.1	106.7	137.0
N 450, 6 m (with coupler)								
Pack [pcs]		151	140	174	115	76	60	52
Pack [m]		906	840	612	690	456	360	312
Truck load [m]		25368	16800	12240	8280	5472	4320	2496
Colour 1: red	121...	...050006RD	...063006RD	...075006RD	...090006RD	...110006RD	...125006RD	...160006RD
Colour 2: black	121...	...050006BK	...063006BK	...075006BK	...090006BK	...110006BK	...125006BK	...160006BK
Colour 3: yellow	121...	...050006YL	...063006YL	...075006YL	...090006YL	...110006YL	...125006YL	...160006YL
N 750, 6 m (with coupler)								
Pack [pcs]		151	140	174	115	76	60	52
Pack [m]		906	840	612	690	456	360	312
Truck load [m]		25368	16800	12240	8280	5472	4320	2496
Colour 1: red	121...	...050006RD750	...063006RD750	...075006RD750	...090006RD750	...110006RD750	...125006RD750	...160006RD750
Colour 2: black	121...	...050006BK750	...063006BK750	...075006BK750	...090006BK750	...110006BK750	...125006BK750	...160006BK750
Colour 3: yellow	121...	...050006YL750	...063006YL750	...075006YL750	...090006YL750	...110006YL750	...125006YL750	...160006YL750



Pipes for underground cable protection



EVOcab FLEX corrugated double-wall conduits

This halogen-free cable conduit is made of a PE composition and is available in rolls. Each roll comes standard with a coupler. The conduit has a corrugated outer and a smooth inner surface. Due to this, the conduit features high mechanical and impact strength properties. The conduit fully maintains the strength properties at temperatures between -25 °C and +90 °C. As a standard, the conduit is red (RAL 3020), yellow (RAL 1021) or black (RAL 9005), other colours are available upon request.

The FLEX type has a metal pulling wire (standard); conduits without the wire are available on request. The use of standard couplers allows convenient rigid coupling of the conduits. Water-resistance (0.5 bar) of joints can be achieved by additional use of sealing rings.

FLEX type	Code	40	50	63	75	90	110	125	160
Outer Ø [mm]		40.0	50.0	63.0	75.0	90.0	110.0	125.0	160.0
Inner Ø [mm]		31.1	39.8	50.9	62.1	75.4	93.1	105.9	136.9
Roll [m]		50	50	50	50	50	50	25	25
Bend radius min. [m]		0.23	0.23	0.23	0.23	0.23	0.23	0.28	0.28
Truck load [m]		22950	16800	9600	7800	6600	3900	3325	1800
Number on a palette (m)		900	700	350	250	250	250	150	125
Colour 1: red	122...	...040050RD	...050050RD	...063050RD	...075050RD	...090050RD	...110050RD	...125025RD	...160025RD
Colour 2: black	122...	...040050BK	...050050BK	...063050BK	...075050BK	...090050BK	...110050BK	...125025BK	...160025BK
Colour 3: yellow	122...	...040050YL	...050050YL	...063050YL	...075050YL	...090050YL	...110050YL	...125025YL	...160025YL

Compression strength class:

450

Impact resistance class: N

EN 61386-24



Halogen free corrugated conduits



Corrugated halogen-free conduits with UV-stabilisation EVOCAB FLEX FR UV 0H

Corrugated double-wall pipes EVOCAB FLEX FR UV 0H for power cables and wire protection and insulation in direct UV exposure and inside the buildings.

Application area:

Mechanical protection and insulation of power cables and wires during the establishment of:

- safe connections and installations at substations;
- cable transition from conduits in buildings, tunnels, basements;
- transition of overhead lines to underground cable networks;
- cable connections between storeys;
- mechanical protection of power cables inside buildings.

Physical properties:

- Long term UV resistance (more than 10 years)
- Self-extinguishing, designed for installations in public buildings
- Increased fire resistance
- Low smoke emission
- Made from flame retarding PP-based compound
- Temperature resistance from -40 °C to +90 °C
- Long-term durability and abrasion resistance
- Pipes provide long-lasting, corrosion-free service
- No need for servicing (repainting, removal of rust)
- Quick and cheap installation
- With pulling wire

EVOCAB FLEX FR UV is produced in coil lengths of 25 and 50 metres with pre-installed pulling wire. Each coil is fixed with polypropylene band. Coils are positioned on pallets and stretchpacked for comfortable handling. The product is additionally labelled with a yellow stripe and product identification information: "FR UV 0H, 750N EN 61386-22".

	Code	75	110	160
Outer Ø [mm]		75.0	110.0	160.0
Inner Ø [mm]		62.1	93.1	136.9
Roll [m]		50	50	25
Bend radius min. [m]		0.23	0.23	0.28
Colour: black	122...	...075050FRUV	...110050FRUV	...160025FRUV
Truck load		7800	3900	1800



Compression strength class:
750N/5cm

EN 61386-22
EN 61386-1
IEC 60754-1
UL94 V2



Cable connection chamber TC906/800/650

Specification:

Cable connection chamber TC 906/800/650 is made of polypropylene (PP). The square base (1000 × 1000 mm) secures the chamber in soil.

According to EN124, chamber is meant for use with:

B125 (125 kN = 12.5 t) cast iron manhole cover.

Suitable for use in the following areas:

- sidewalks,
- pedestrian zones and similar areas,
- parking areas or parking area pavements.

A15 (15 kN = 1.5 t) PE cover.

Suitable for use in following areas:

- pedestrian and cycling zones,
- green area (no traffic).

The chamber cannot be used under streets/roads.

Application:

- Telecommunications networks
- Optical cable lines
- Power cable lines
- Railway signalisation
- Street lighting

System advantages:

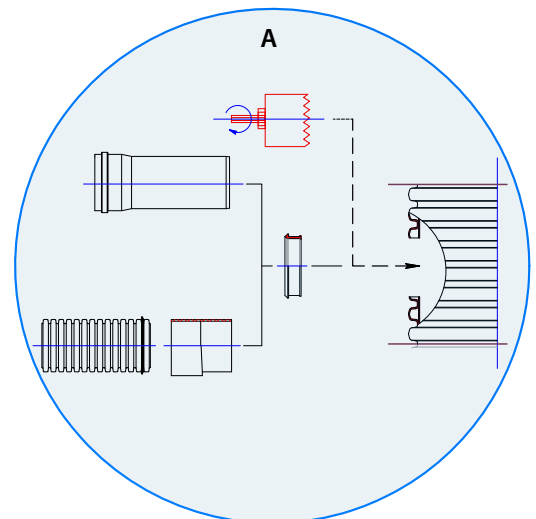
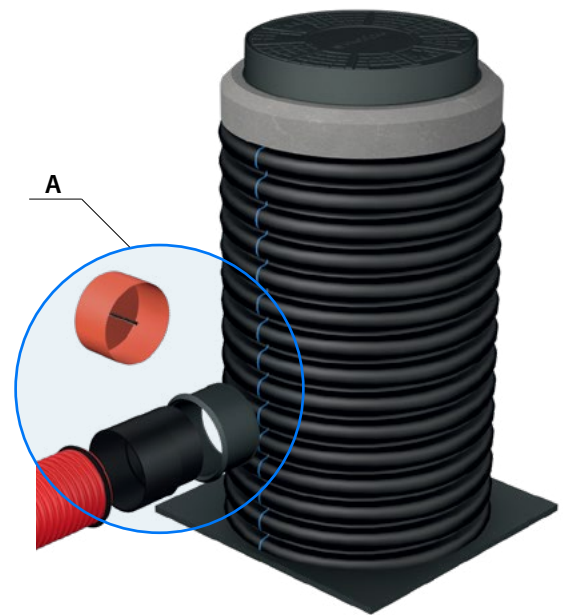
- Large inside diameter (ID 800 mm) gives large work space
- Easy transportation and handling — no need of crane on construction site
- Fast creation of connection holes from inside (crown-drilling)
- Outer and inner surface colour — black
- High resistance to corrosion and chemical substances
- Long service life (>50 years)

Dimensions:

- Outer diameter — 906 mm
- Inner diameter — 800 mm
- Height — 650 mm (any height possible on demand)
- Welded square base (thickness: 8 mm) — 1000 × 1000 mm

Accessories:

- Concrete ring
- Cast iron manhole cover (B125, EN124) or PE cover (A15, EN124)
- Metal fixings and bolts (3 pcs)





Cable connection chamber

Rad Box cable connection chamber

Specification:

Modular design — interconnectable panels allow construction of chambers of any size.

Advantages:

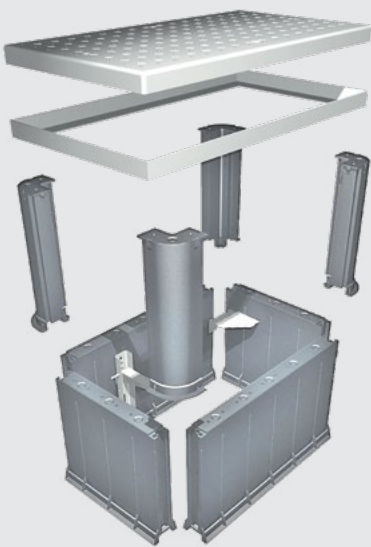
- Quick installation
- Chambers of any size are possible
- Simple design
- No need for lifting machinery for construction
- Convenient packing
- High strength ratio
- Easy installation and sealing of cable inlets
- Excellent chemical durability and resistance to environmental impact

Material:

- High-density polyethylene
- Double wall ensures excellent mechanical protection and impact resistance

Vertical load strength:

- 40 t (12.5 t for 600 x 600 mm and smaller chambers)



Compact packing



Vertical load of up to 40 t



Cable connection chamber

Application:

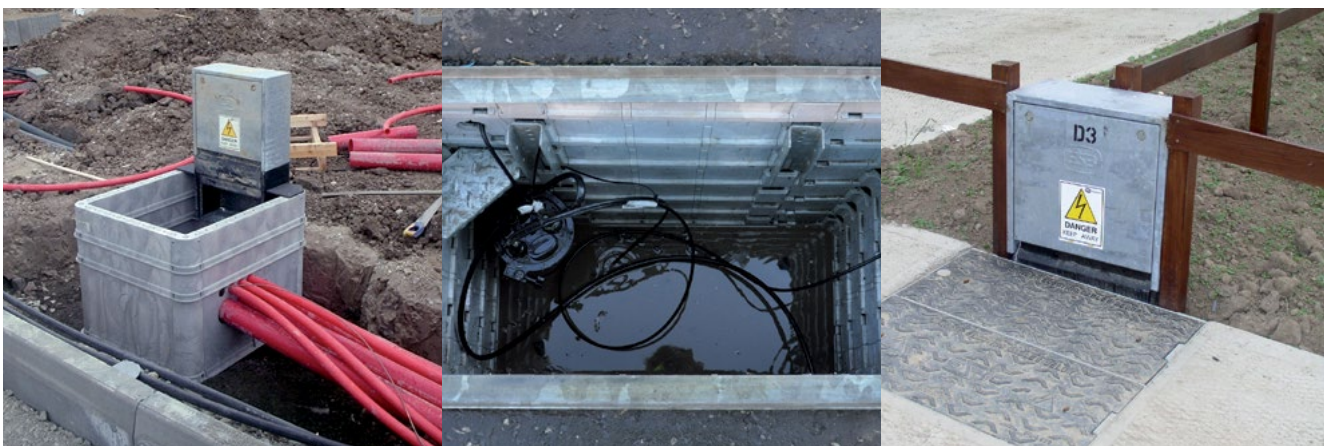
- Connection chambers for various cables
- Perfect for non-standard projects
- Dimensions of standard solutions up to 2 × 2 × 1.5 m, larger sizes available on demand

Size range:

Any combination possible of panels possible in dimensions up to 2 × 2 × 1.5 m (height). Panel height 500 mm or 150 mm. Height of interconnected panels reduces by 30 mm. Larger sizes available on demand.

Chamber inner dimensions (mm)

Solid chamber	450	600	750	900	1050										
Extended chamber	825	975	1125	1200	1275	1350	1425	1500	1575	1650	1725	1800	1875	1950	2025





Accessories for cable protection conduits

Coupling



Code	40	50	63	75	90	110	125	160
12301...	...040	...050	...063	...075	...090	...110	...125	...160

Elbow 0-90

Use for small bend radius when mounting HARD conduits.

Description	Code	DN [mm]	Radius [m]	L [m]
Elbow	1230405000BK	50	0.2	1.0
Elbow	1230407590	75	0.75	1.5
Elbow	1230411045BK	110	0.9	1.5
Elbow	1230416045BK	160	1.1	1.5

Sealing ring



Code	40	50	63	75	90	110	125	160
12302...	...040	...050	...063	...075	...090	...110	...125	...160

Cover



Code	40	50	63	75	90	110	125	160
412...	...40327RDA	...40438RDA	...40600BLC	...40771BLC	...40840BLC	...41030BLC	...41170BLC	...41490BLC

Spacer

Used to ensure equal spaces between the conduits when installing EVO CAB HARD and EVO CAB FLEX type conduits.



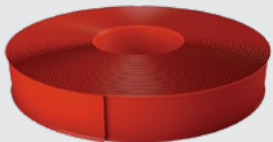
Spacer	Code	75	90	110	125	160
2-piece	12305...	...0752	...0902	...1102	..1252	...1602
4-piece	12305...	...0754	...0904	...1104	..1254	...1604
6-piece	12305...	...0756	...0906	...1106	..1256	...1606
8-piece	12305...	...0758	...0908	...1108		

Protection profile

Red PVC-U or HDPE cable protection profiles are recommended when installing buried high-voltage or low-voltage cables.

EL 125

Type/width	Code	125
Roll 50 m	12310...	...125501
On palette [m]		4200



Warning tape

This LDPE tape is designed for laying in the ground approximately 20–40 cm above buried cable and wire installations to prevent accidental damage. Can be ordered with imprinted "Warning! Cable!" or other text.

Length	Code	Width	Thickness	Colour
250 m	12311040250RD	40 mm	0.15 mm	red
	12311040250YL			yellow
250 m	12311080250RD	80 mm	0.15 mm	red
	12311080250YL			yellow
250 m	12311120250RD	120 mm	0.15 mm	red
	12311120250YL			yellow





Pipes for underground cable protection



RIGID MULTI PP N 750 conduits with moulded coupling and sealing ring

RIGID MULTI PP 3-layer conduit is made of polypropylene with mechanical strength 750 N / 20 cm in compliance with EN 61386-24. Thanks to multilayer extrusion technology, this conduit has excellent impact and load strength properties.

Pipe length — 6 m. Each conduit is equipped with moulded coupling and sealing ring ensuring hermetic connection (0.5 bar).

Temperature resistance: -25 °C to +90 °C.

Red outer layer, white inner layer.

Application:

- RIGID SRS conduit is used for protection and installation of telecommunications, medium voltage and high voltage cables. Especially suited for sites with high traffic intensity.

Advantages:

- Easy and safe connection of cables
- Hermetic conduit system (up to 0.5 bar)
- Chemically inert, with high corrosion resistance
- Service life: minimum 50 years

Compression strength class:

750

Impact resistance class: N

EN 61386-24

	110	160
Outer Ø [mm]	110	160
Inner Ø [mm]	101.2	147.6
Colour	Red outer layer, white inner layer	Red outer layer, white inner layer
Length:	6 m	6 m
Pack [pcs]	50	28
Pack [m]	300	168
Truck load [m]	4800	2688
Code	280110006RD 750	280160006RD 750



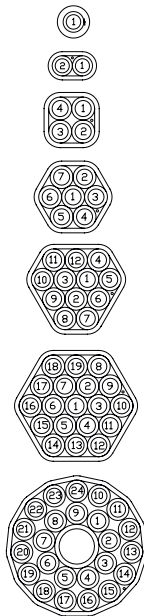
Pipes for underground cable protection

FTTx Microtubing Systems

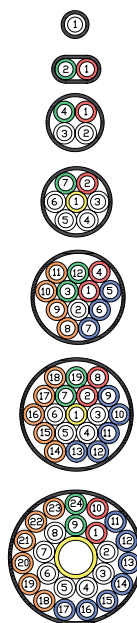
What is FTTx?

FTTx is a generic telecommunication term for optical fibres installation. It refers to all possible optical fibre topologies from a telecom or cable carrier to its customers, based on the location of the fibre termination point.

Low Smoke Zero Halogen



MicroGlide



MiniGlide



Low friction inner coating for enhanced cable blowing performance.



Standard wall		Drum length (m)					
OD (mm)	ID (mm)	500	1000	2000	2500	4000	5000
7	5.5	•	•	•		•	•
10	8	•	•	•	•		
12	10	•	•	•			
14	11	•	•				
14	12	•	•				

Thin wall		Drum length (m)					
OD (mm)	ID (mm)	500	1000	2000	2500	4000	5000
7	3.5	•	•	•		•	•
8	3.5	•	•	•		•	
10	6	•	•	•	•		
14	10	•	•				
16	12	•	•				
16	10	•	•				



Pipes for underground cable protection

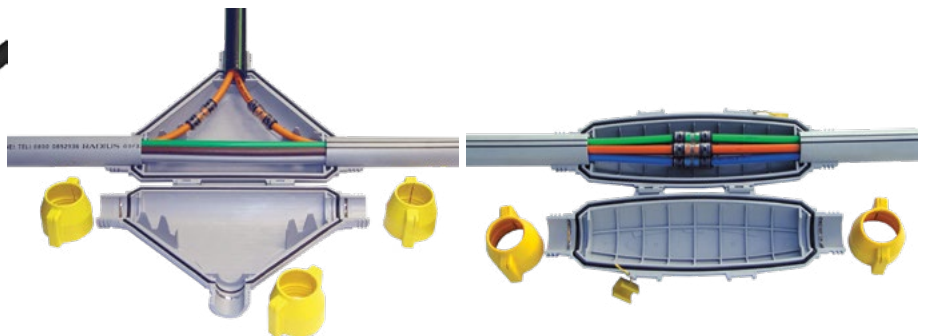
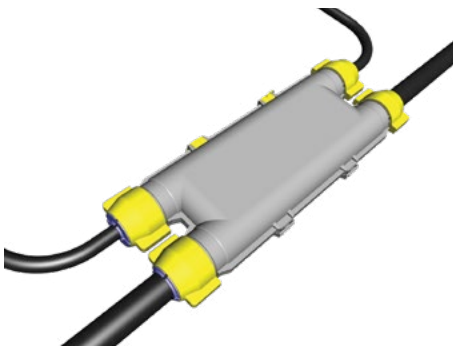
Overground installation



Installation possibilities



Splitters and connectors



For more detailed information on FTTx systems ask for a separate catalogue.



Optical cable connection chamber EVO TC900/700/450

Specification:

Optical cable connection chamber TC900/700/450 with watertight PE cover with rubber sealing for underground installations. Weight of chamber — 21.5 kg.
Color of chamber — orange, black, green or any other colour on demand.

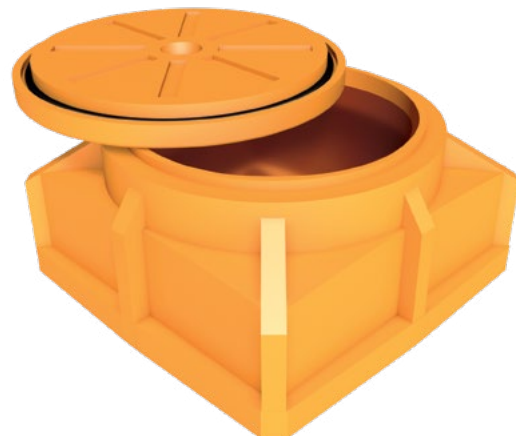
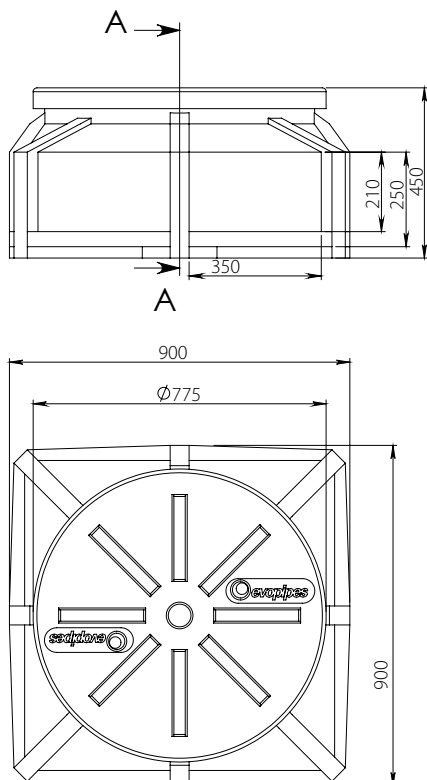
Application:

- Telecommunication networks
- Optical cable lines
- Railway signalisation

System advantages:

- Large inside diameter (900 × 900 × 450 mm) gives large work space
- Wide access hole (700 mm)
- Watertight sealing ring
- Horizontal and vertical ribs — stabilise the chamber in soil and increase mechanical strength
- Easy transportation — no need of crane on construction site
- Fast creation of connection holes
- Bright work space thanks to yellow inside surface
- High resistance to corrosion and chemical substances
- Long service life (> 50 years)

Dimensions: *



* Other sizes available on demand



Pipes for underground cable protection



DIN 8074/8075
EN 61386-24

EVODUCT optical cable conduits

When constructing ground-buried optical cable and communication cable systems, the best solution for ensuring long-term protection of cables is rigid plastic conduits. The conduits can be buried directly in the soil, in concrete, or laid in the water. EVODUCT conduits are used for installation of optical fibre and other cables using traditional installation methods — pulling with a cord or blowing.

Functionality of the conduits:

- Quicker, more convenient, and more cost-effective construction of cable networks and preparation for cable-pulling (with cord or blowing)
- Long-term protection of installed cables
- Quick cable replacement without additional earthwork

Advantages from the use of conduits:

- High strength
- Easy coupling of conduits by means of couplers
- Length-marks on the conduits allow to determine the length of the installation
- High outer and inner pressure resistance
- Thermal resistance (from - 25 °C to + 90 °C)
- The materials used ensure that the conduits are environment friendly and feature long-term resistance against the effects of the aggressive substances present in the soil

Optical cable conduit accessories



Coupler

Polypropylene coupler for hermetic coupling of the smooth HDPE cable conduits.

Size		32	40	50	63
Minimum order [pcs]		20	20	10	10
Code	13601...	...0320	...0400	...0500	...0630



End cup

Polypropylene end cup for sealing the ends of the HDPE cable conduits.

Size		32	40	50	63
Minimum order [pcs]		20	20	10	10
Code	13602...	...0320	...0400	...0500	...0630



Pipes for underground cable protection

Conduit specification:

These rigid, high-density polyethylene (HDPE) cable conduits come standard with a smooth outer surface and one of the following inner surfaces:

- STANDARD: smooth inner surface;
- GROOVE: ribbed inner surface.

The standard conduits are black (RAL 9005) or orange (RAL 2004), with 4 (every 90°) white single or double longitudinal lines along the entire length. The conduits bear a white thermal labelling located at 1 m intervals (minimum symbol height — 4 mm). The labelling includes standard information about the product, the name of the manufacturer and customer. On request, conduits/longitudinal lines of any colour (according to RAL) can be manufactured. Custom-made labelling is also possible. The conduits are manufactured in large and small rolls, and each roll is secured with a polypropylene tape. Rolls are delivered on pallettes. On request, EVODUCT conduit with customer-specified thickness of the wall can be manufactured.

	Code	25	32	32	40	40	50	50	63	63
Outer Ø [mm]		25.0	32.0	32.0	40.0	40.0	50.0	50.0	63.0	63.0
Wall thickness [mm]		2.3	2.2	3.0	3.0	3.7	3.0	4.6	3.6	5.8
STANDARD	1310...	...25211000BK ...25210500BK	...32311000BK ...32310300BK	...32111000BK ...32110300BK	...40110700BK ...40110250BK	...40210700BK ...40210250BK	...05111000BK ...05110300BK	...50210500BK ...50210200BK	...63110400BK ...63110100BK	...63210400BK ...63210100BK
GROOVE	1340...	...25211000BK ...25110500BK	...32211000BK ...32210300BK	...32111000BK ...32110300BK	...40110700BK ...40110250BK	...40210700BK ...40210250BK	...05111000BK ...05110300BK	...50210500BK ...50210200BK	...63110400BK ...63110100BK	...63210400BK ...63210100BK
Rolls										
Roll [m]		500	300	1000	1000	1000	500	500	400	400
On palette [m]		2500	1500	3000						

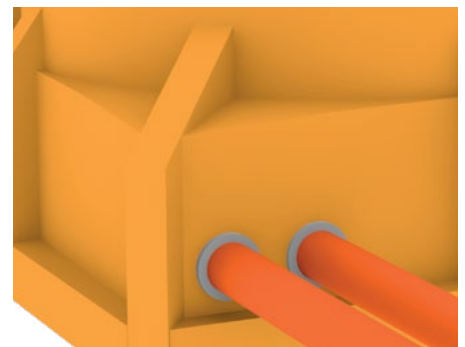
Physical and mechanical properties:

Material: HDPE, high impact strength, temperature resistance from -25 °C to +90 °C, corrosion resistant.

Dimensional stability (temperature shrinkage)	110 °C, 1 h (EN ISO 2505:2005)	≤3%
Compression resistance	Deflection 5% at 15 mm/min (according to EN 61386-24:2011)	≥750N
Impact resistance	-5°/2 h, 5 kg/300 mm (15 J) (according to EN 61386-24:2011)	Normal
Resistance to internal pressure	20 °C, 1.0 MPa (according to EN ISO 1167)	Min 100 h
Installation of the cables by blowing, recommendable conditions	Air pressure range: 0.8–1.2 MPa Air flow rate: 10–12 m ³ /min	
Max. allowable pulling force	20 °C	3,5 kN
Oxidation induction time	200 °C (according to EN 728:1997)	≥ 20 min
Elongation at break	100 mm/min (according to EN ISO 6259-1:2002)	≥350%

Sealing ring (ensuring water tight connection to optical cable chambers)

Code	DN
621060401	40
621060321	40/32





Pipes for underground cable protection



EVOcab STING cable conduits for trenchless installations

Application area:

The STING conduits are made of high density polyethylene (HDPE) and designed so that they can withstand loads caused by soil and vehicles. STING conduits can be used to protect and insulate cables in underground installations made using the method of directional drilling. They are especially suitable for use in systems requiring a high compression strength, e.g. under roads, squares, etc. Conduit for trenchless installations is available in pieces of various lengths and in rolls. Conduit has a smooth inner and outer surface and fully maintains its strength properties throughout the temperature range of -25 °C to +90 °C. The standard conduit outside is red and inner coating — black, with a white marking. Other colours are available on request.

In some projects, depending on the technology of directional drilling, properties of the soil, pulling angle, distance and depth of pulling, project-specific conduit with adapted thickness of the wall can be ordered.

Functionality of the conduits:

- Quicker, more convenient, and more cost-efficient construction of cable networks using the method of horizontal directional drilling
- Long-term protection of installed cables
- Quick cable replacement without additional earthwork

Advantages of trenchless installation conduits:

- High strength
- Easy coupling of conduits using butt fusion method
- Print on the conduits, which includes length-marks, allows to determine the length of the installation
- High outer and inner pressure resistance
- Thermal resistance (from -25 °C to +90 °C)
- The materials used in the production of the conduits, ensure that the conduits are environment friendly and feature long-term resistance against the effects of the aggressive substances present in the soil

Compression strength class:

1250

Impact resistance class: N

DIN 8074/8075

EN 61386-24

MRS class: 10

Materials: PE100

Conformity:

GW 321 (by DVGW)

Requirements for horizontal drilling

DN / OD [mm]	SDR class	Length [m]	Code	Max. admissible pulling strength at 20 °C [kN]
50	17	100	125050030100RD	4.4
63	17	100	125063030100RD	7.1
75	17	100	125075045100RD	10.4
90	17	6/12/50	125090054(120RD/134RD/500RD/100RD)	14.4
110	17.6	6/12/100	125110066(120RD/134RD/250RD/500RD/100RD)	21.4
125	17.6	6/12/50	125125074(120RD/134RD/250RD/500RD/750RD)	27.3
160	17.6	6/12	125160095(120RD/134RD)	44.9
200	17.6	12/13.4	125200118(120RD/134RD)	70.3
250	17.6	12/13.4	125250148(120RD/134RD)	109.4
315	17.6	12/13.4	125315187(120RD/134RD)	174.1
400	17.6	12/13.4	125400240(120RD/134RD)	280.2
500	17.6	12/13.4	125500297(120RD/134RD)	438.8
560	17.6	12/13.4	125560332(120RD/134RD)	549.5
630	17.6	12/13.4	125630332(120RD/134RD)	696.3



Pipes for underground cable protection



EVOCAB SPLIT cable conduits

EVOCAB SPLIT smooth-wall split conduits are designed for repairing power cable, electrical wire, telecommunication, television, and signal cable line ruptures and for mechanical protection and insulation of cables in sections where conduits of other type cannot be used. The conduits are made of PE/PP featuring temperature range between -25 °C and +90 °C and resistance against most acids and alkali. The smooth-wall split cable conduits consist of two sections which are joined by shifting one section against the other. This considerably simplifies the process of installation. EVOCAB SPLIT cable conduits are supplied in straight 3 m bars, packed in wooden frames and secured with a band.

Advantages:

- Considerably shorter cable line rupture repair time and optimised costs
- Easy and safe coupling of split cable conduits
- High strength
- Thermal resistance (from -25 °C to +90 °C)
- The materials used ensure that the conduits are environment friendly and feature long-term resistance against the effects of the aggressive substances present in the soil

Compression strength class:

450

Impact resistance class: N

EN 61386-24

	Code	110	160
Outer diameter, DN/OD [mm]		110	160
Inner diameter, ID [mm]		100	141
Wall thickness [mm]		5	9.5
3 m cable protection pipe			
Pack [pcs]		60	24
Pack [m]		180	72
Truck load [m]		3888	1728
Colour 1: red	124...	...110003RD	...160003RD
Colour 2: yellow	124...	...110003YL	...160003YL



Pipes for underground cable protection

EVOcab SPLIT N 750 cable conduits

Split cable conduits EVOcab SPLIT N750 have integrated connection system and clamps, which ensures quick and convenient connection without any tools.

The split conduits can be used repeatedly, and they can be fully recycled. Conduit length: 1 m, two diameters possible: DN/OD 110/160 mm.

Conduits EVOcab SPLIT N750 feature high compression strength — N 750, according to EN 61386-24.

Application:

Split PP conduits with clamps are designed for repairing cable line ruptures and for mechanical protection of cables in sections where conduits of other type cannot be used. Conduits are suited for both overground and underground installation.

Advantages:

- Integrated and solid connecting
- Bend radius 10°/m
- Convenient dismantling and use of conduits
- Easy to connect to corrugated cable conduit



Compression strength class:

750

Impact resistance class: N

EN 61386-24

Code	Description
12411000101	EVOcab SPLIT N750 conduit 1 m, OD 110 mm, ID 99 mm, wall thickness 5.5 mm, black with red clamps
12416000101	EVOcab SPLIT N750 conduit 1 m, OD 160mm, ID 144 mm, wall thickness 8 mm, black with red clamps
12317110	EVOcab accessories, corrugated conduit connector, 110 mm
12317160	EVOcab accessories, corrugated conduit connector, 160 mm



Pipes for underground cable protection



Compression strength class:
1250

Impact resistance class: N

EN 61386-24

EVOcab SUPERHARD N 1250 reinforced double-wall cable conduits

EVOcab SUPERHARD N 1250 reinforced double-wall cable protection pipes are designed for underground high-voltage cable lines. Due to the physical properties of polypropylene and the special structure of the conduits, these conduits feature high compression strength (1250 N) and high impact strength. EVOcab SUPERHARD N 1250 pipes have structured walls: they have corrugated outside and feature high compression strength properties thanks to their special profile. The smooth inner surface of the conduit ensures easy pulling of cables. Due to their special structural properties, these conduits are lighter, but more rigid, as well as more impact-resistant than the conventional smooth-wall conduits.

The conduit system consists of DN 110, 160, 200, 250, 315, 400 mm conduits (DN=OD, nominal outer diameter) as well as unified connecting elements of the conduit system (couplers, elbows, end covers, reducers).

The conduits are supplied in straight 6 m bars (+ coupler). The standard colour of the conduits is red (RAL 3020). Other colours are available on request. The conduit system ensures water tightness up to 0.5 bar.

Application:

- Long-term protection of cables in high-load conditions.

Advantages:

- High compression strength which allows to install the conduits at shallower depths, thereby shortening the installation time and optimising the costs
- Easy, safe, and fully hermetic coupling of the conduits
- High impact strength is maintained even at the lowest temperatures
- Chemically inert, with high corrosion resistance.
- Service life: minimum 50 years

Physical properties:

- Material polypropylene (PP)
- Compression strength 1250 N
- Impact resistance N
- Thermal resistance -40 °C - +95°C
- Density 900 - 910 kg/m³
- Elasticity modulus 1300 - 1750 MPa
- Thermal conductivity ~0,2 W/m °C (depending on the soil properties)

	110	160	200	250	315	400
Outer Ø [mm]	110	160	200	250	315	400
Inner Ø [mm]	93.8	138.9	174.6	215.9	274.1	349.8
Pack [m]	180	156	192	48	36	18
Truck load [m]	5040	2016	1440	768	432	360
Code	225110006RD	225160006RD	225200006RD	225250006RD	225315006RD	225400006RD



Pipes for underground cable protection



Coupler

(For application with sealing rings on both ends of conduit).

DN/OD	110	160	200	250	315	400
Code	212051100	212051600	212052000	212052500	212053150	212054000

Elbow 15°

DN/OD	110	160	200	250	315	400
Code	2120111015	2120116015	2120120015	2120125015	2120131515	2120140015

Reducer

DN/OD	110	160	200	250	315	400
Information	For connection of EVOcab SUPERHARD N 1250 and smooth-wall trenchless installation conduits of various diameters					

End plug

DN/OD	110	160	200	250	315	400
Code	212061100	212061600	212062000	212062500	212063150	212064000





Information

Properties and applications of cable protection pipes

Parameters	EVOCAB HARD	EVOCAB FLEX	EVODUCT STANDARD	EVODUCT GROOVE	RIGID MULTI PP	EVOCAB STING	EVOCAB SPLIT	EVOCAB SPLIT N 750	EVOCAB SUPERHARD N 1250	EVOCAB FLEX FR UV OH
Material properties										
Material	PE	PE	PE	PE	PP	PE	PE/PP	PP	PP	SpPlas
Halogen-free (according to IEC 60754-1)	⊕	⊕	⊕	⊕	-	⊕	⊕	-	⊕	⊕
Reaction to fire (according to EN 61386)	F									FR
Mechanical properties										
Compression resistance, N	>750	>450	>750	>750	>750	>1250	>450	>750	>1250	>750
Impact resistance*	N	N	N	N	N	N	N	N	N	N
Outer surface structure	Corrugated	Corrugated	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth	Corrugated	Corrugated
Inner surface structure	Smooth	Smooth	Smooth	Ribbed	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth
Assembly										
With coupler	⊕	⊕	-	-	⊕	-	Not REQ.	⊕	⊕	⊕
With sealing ring	-	-	-	-	⊕	-	-	-	⊕	-
Thermal properties										
Temp. MAX, °C	+90	+90	+90	+90	+90	+90	+90	+90	+95	+90
Temp. MIN, °C	-25	-25	-25	-25	-25	-25	-25	-25	-40	-40
Recommended applications										
Installation in trenches	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
Trenchless installation	-	-	⊕	⊕	-	⊕	-	-	-	-
Outdoor installation, exposed to direct UV radiation	-	-	-	-	-	-	-	-	-	⊕
Indoor installation	-	-	-	-	⊕	-	-	-	-	⊕
Installation in concrete of all types (outdoor)	⊕	⊕	⊕	⊕	⊕	⊕	-	-	⊕	⊕
Blowing of optical cable using a piston or parachute	-	-	⊕	-	-	-	-	-	-	-
Blowing of optical cable using compressed air	-	-	-	⊕	-	-	-	-	-	-
Protection, repair of existing cable lines	-	-	-	-	-	-	⊕	⊕	-	-
Protection of high-voltage cables	-	-	-	-	-	⊕	-	-	⊕	-

* Classification code N stands for "normal"

Legend:

SpPlas - Special plastic material

PE - Polyethylene

PP - Polypropylene

F - Flammable

FR - Non-flame propagating, self-extinguishing



Information

Resistance of plastic materials to chemical substances

Chemical substance or product	Temperature	PVC	Polyethylene	Polypropylene	Polycarbonate	Polyamide
	°C	PVC-U	PE	PP	PC	PA
Acetaldehyde, in water (40%)	40	d	*	*	-	d
Acetic acid (< 10%)	40	*	*	*	-	d
Acetic acid (10%–85%)	60	*	*	*	-	-
Acetic acid (85%–95%)	40	*	*	*	-	-
Acetic acid (> 95%)	20	*	*	*	-	-
Acetone (small amount)	20	-	*	*	-	*
Ammonia, liquid water (20%)	40	*	*	*	-	*
Ammonia, dry gas	60	*	*	*	-	*
Ammonium chloride (20%)	20	*	d	d	d	-
Ammonium fluoride (2%)	20	*	d	d	d	-
Ammonium nitrate (20%)	20	*	d	d	d	-
Aniline, saturated liquid	60	d	-	-	-	d
Orthoarsenic acid (< 20%)	60	*	*	*	*	d
Beer	60	*	*	*	d	*
Benzene	20	-	d	d	-	*
Bleach (13%)	40	*	*	*	d	d
Borax, saturated liquid	60	*	*	*	d	d
Bromine acid, liquid (10%)	20	*	*	*	-	-
Butane, gas		*	-	-	*	*
Carbonic acid, dry	40	*	*	*	*	*
Carbonic acid, dry or moist	40	*	*	*	d	*
Carbon tetrachloride	20	-	-	-	-	*
Carbon disulphide	20	d	d	d	-	d
Sodium hydroxide (< 40%)	40	*	*	*	-	*
Sodium hydroxide (40%–60%)	60	*	*	*	-	*
Cement, dry	20	*	*	*	*	*
Cement, mixture	20	*	*	*	-	*
Chlorine, dry or moist gas	20	d	d	d	-	-
Chlorine, liquid water	20	d	-	-	-	-
Chlorinated carbohydrate		-	-	-	-	*
Chlorosulphuric acid (100%)	20	d	d	d	-	-
Chromic acid, liquid water (< 50%)	50	*	*	*	-	-
Chromic acid (20%)		d	d	d	*	-
Chromosulphuric acid (20%)		d	d	d	-	-
Citric acid, saturated liquid	60	*	*	*	*	*
Cresol, liquid (< 90%)	45	d	d	d	-	-
Copper sulphate, saturated liquid	60	*	*	*	*	d
Copper chloride, saturated liquid	60	*	*	*	*	d
Diesel fuel	20	*	*	*	d	*
Photo developers	40	*	*	*	d	*
Dextrin (18%)	20	*	*	*	d	*
Esther		-	-	-	-	*
Ethyl alcohol (< 40%)	40	*	*	*	d	*
Ethyl ether	20	-	d	d	d	*
Butyric acid	20	*	d	d	d	*
Butyric acid	40	*	*	*	d	*
Chlorinated fluorocarbohydrate		*	d	d	*	*
Formaldehyde, liquid	30	*	*	*	d	*
Formic acid (< 30%)	40	*	*	*	d	-
Formic acid, concentrate	20	*	*	*	-	-

Chemical substance or product	Temperature	PVC	Polyethylene	Polypropylene	Polycarbonate	Polyamide
	°C	PVC-U	PE	PP	PC	PA
Glycerine, liquid	60	*	*	*	d	*
Hydrochloric acid, liquid	40	*	*	*	d	-
Hydrochloric acid, concentrate	60	*	*	*	-	-
Hydrochloric acid (40%)	20	*	*	*	-	-
Hydrochloric acid (60%)	20	*	*	*	-	-
Hydrochloric acid (100%)	20	*	*	*	-	-
Hydrogen (100%)	60	*	*	*	*	*
Hydrogen peroxide (20%)	20	*	*	*	d	d
Hydrogen sulphide, dry or moist	60	*	*	*	d	d
Hydrogen sulphide, liquid	40	*	*	*	d	d
Ketone		-	-	-	-	*
Lactic acid (10%-90%)	40	*	*	*	*	*
Methyl alcohol, liquid	40	*	*	*	-	*
Mineral oil	20	*	*	*	d	*
Sodium chlorate, liquid	20	*	*	*	d	*
Sodium hydroxide (<10%)	20	*	*	*	d	*
Nitric acid (<30%)	40	*	*	*	-	-
Nitric acid (30%-45%)	45	*	*	*	-	-
Nitric acid (50%-60%)	20	*	d	d	-	-
Nitrogen gases, dry or moist	60	d	d	d	-	d
Oils and fats	60	*	*	*	-	*
Oxalic acid, liquid (10%)	40	*	*	*	*	d
Oxalic acid, liquid (concentrate)	60	*	*	*	-	-
Oxygen	60	*	*	*	d	*
Ozone	20	*	d	d	-	d
Perchloric acid (10%)	20	*	*	*	d	*
Perchloric acid (70%)	60	-	d	d	-	d
Permanganate (<6%)	20	*	*	*	d	-
Gasoline	60	*	d	d	-	*
Petroleum	20	*	*	*	d	*
Phenol (<90%)	45	d	d	d	-	-
Orthophosphoric acid, liquid (<30%)	40	*	*	*	-	-
Orthophosphoric acid, liquid (>30%)	60	*	*	*	-	-
Potassium nitrate	60	*	*	*	-	*
Potassium chloride	60	*	*	*	-	*
Propane, liquid		*	-	-	*	*
Saline liquid	40	*	*	*	*	*
Seawater	40	*	*	*	d	*
Sulphur dioxide (all states)	40	*	*	*	d	d
Sulphuric acid, liquid (<40%)	40	*	*	*	d	-
Sulphuric acid, liquid (40%-80%)	60	*	*	*	-	-
Sulphuric acid, liquid (80%-90%)	40	*	*	*	-	-
Sulphuric acid, liquid (90%-96%)	20	*	*	*	-	-
Sodium chloride liquid (weak)	40	*	*	*	*	*
Tartaric acid (10%)	60	*	*	*	*	*
Urine	40	*	*	*	*	*
Water	60	*	*	*	*	*
Xylene (100%)	20	-	d	d	-	*
Zinc chloride, liquid (all types)	60	d	*	*	d	-
Zinc chloride, liquid (weak)	60	*	*	*	d	-

Legend:

- * The plastic product is resistant to the chemical substance in the standard burying conditions
- d The plastic product is partially resistant to the chemical substance in the standard burying conditions
- The plastic product does not withstand the chemical substance

CONTACTS

Production and Office

Jelgava, Latvia
Telephone +371 630-943-00
Langervaldes str. 2a,
Jelgava, LV-3002

info@evopipes.lv
www.evopipes.com

