evopipes

Increase your efficiency!

2014

Plastic Conduits for Cable Protection

Table of Contents



evopipes – innovative conduit systems for advanced and efficient applications

EVOPIPES offers the widest range of conduits for electrical installation and cable protection solutions in Europe.

EVOPIPES products are designed for safe electrical installation systems and aimed at increasing customers' efficiency and decreasing the total costs of construction work.

EVOPIPES offers products for each specific solution in construction to ensure a safe and long-lasting cable system protection.

SMART

EVOPIPES SMART product line is an innovative solution in the protection of electrical installations which ensures a higher degree of safety of people in case of fire and offers an essential saving of resources to electrical installation companies during the installation work.

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.

EVOEL F and **S –** Electrical installation protection conduits from **PVC.**

SMART

EVOEL SMART –
halogen-free electrical installation conduits with a special gliding layer for easier and quicker cable-pulling and a special outer sheath for additional safety.

SMART PRE W

EVOEL SMART PRE WIRED –
halogen-free electrical installation conduits with industrially pre-wired power or telecommunication cables.

EVOCAB HARD and **FLEX** – infrastructure cable conduits.

EVODUCT –conduits for optical cable systems.

EVOTEL – conduits for communication cable systems.

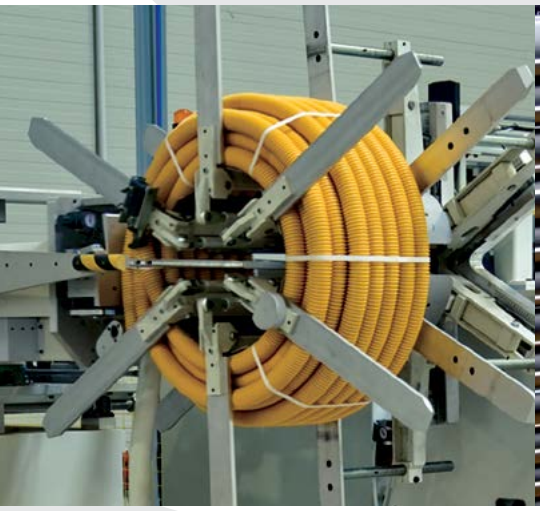
EVOCAB SUPERHARD – for high-voltage cable systems.

EVOCAB STING – cable conduits specially developed for trenchless applications in construction.

EVOCAB SPLIT – repair work conduits.

EVOPIPES offers system development elements for all 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 co-operation with the customers, **EVOPIPES** continuously develops new and innovative products to create maximum convenient installation conditions and improve customers' productivity.

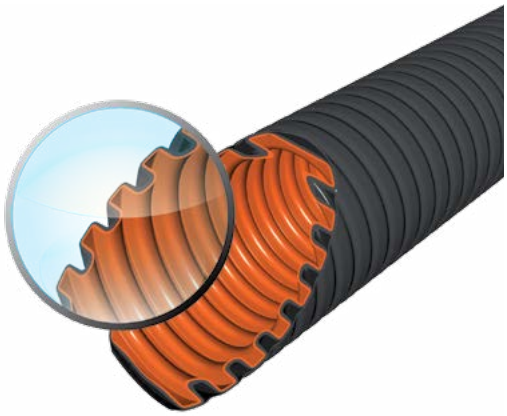


Corrugated halogen –free conduits for electrical installations

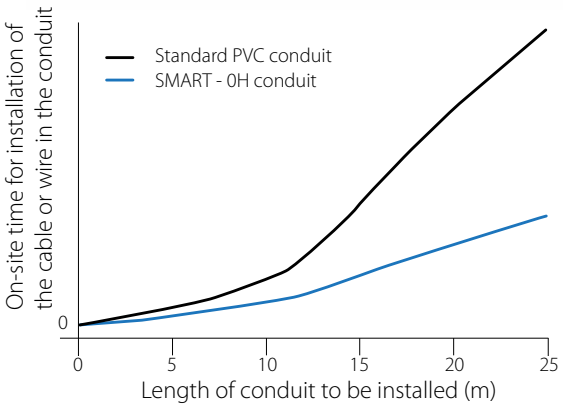
SMART is an Evopipes label for multiple-layer halogen-free conduits. These conduits consist of 2 or 3 layers which supplement each other to ensure conduit properties which satisfy the highest demands. SMART conduits are made of a special, halogen-free material.

SmArT

SMART conduits have a co-extruded inner gliding layer made of a special material with very high gliding properties.



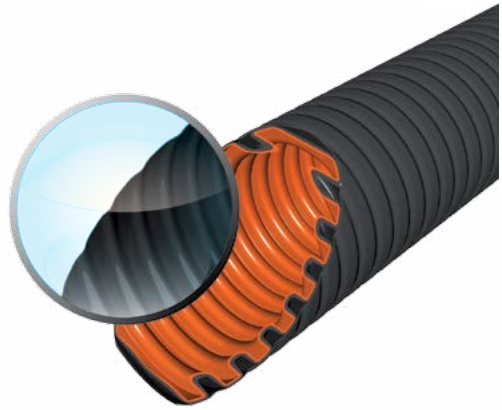
This layer considerably reduces friction between the cable and the inner surface of the conduit, allowing to pull the cable for larger distances. Cable-pulling is thereby more efficient, and the time necessary for the installation and the costs of labour are decreased. An additional benefit is decreased costs of transportation, construction technology and tool rental, administration, and on-site time.



EVOEL SMART corrugated halogen – free conduits for electrical installations

sMaRt

The flexible outer sheath provides extra protection to conduits installed in concrete or subject to intensive UV rays.

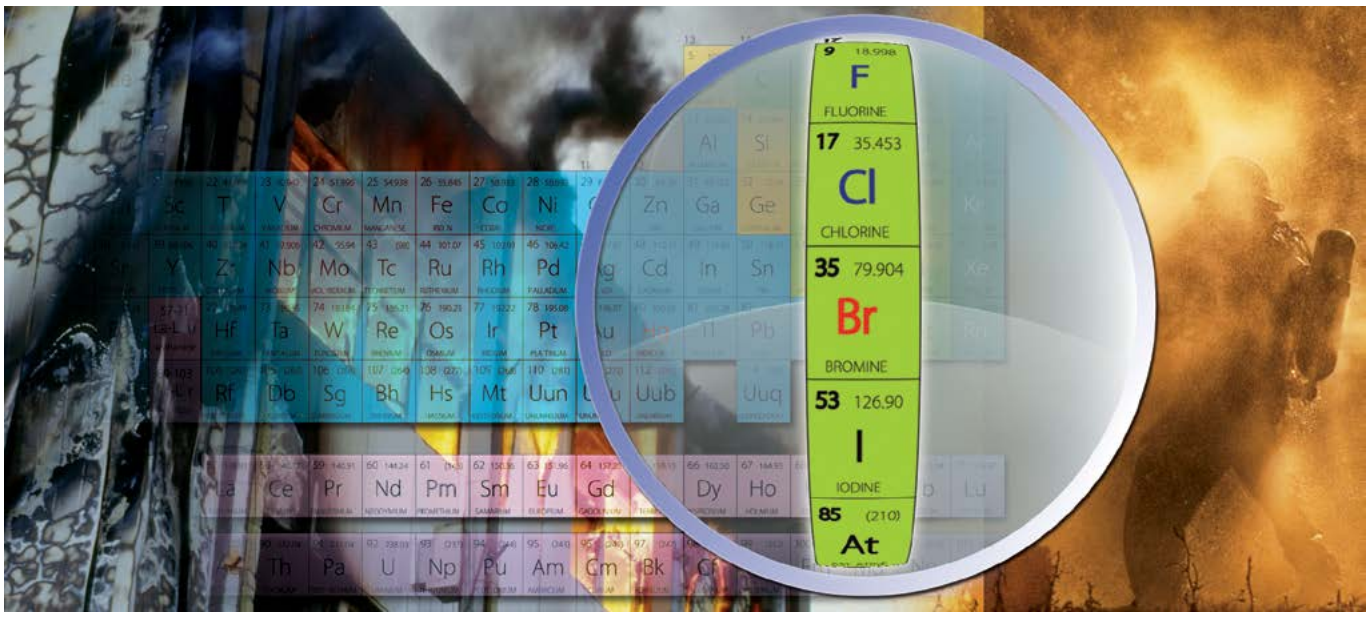


SMART conduits are halogen-free. During combustion, they create almost no smoke. For this reason, they are extensively used in poorly ventilated places, in places with a high concentration of people, limited number of escape routes, and areas where protection of sensitive and valuable hardware needs to be guaranteed. SMART conduits are designed for installations in public buildings: schools, kindergartens, hospitals, hotels, theatres, cinemas, museums, stadiums, arenas, shopping-centres, airports, railway terminals, and office buildings. Due to the fire-safety requirements for protection against smoke, halogen-free conduits are also recommended for use in multi-apartment buildings.

HAZARDS OF MATERIALS CONTAINING HALOGENS

Halogens are five non-metallic elements of Group 7 in the Periodic System. The term "halogen" means "creating salts", and elements which contain halogens are "salts". Halogens are: fluorine, chlorine, bromine, iodine, astatine.

During fire, materials which contain halogens discharge hydrogen chloride, a colourless and corrosive gas. In contact with water, it creates hydrochloric acid, a corrosive which presents serious hazards to human eyes, respiratory system, and internal organs. When inhaled, hydrogen chloride causes spasms and suffocation.
The bearing structures of the building are also affected – if corrosion reaches the reinforcement of the concrete, the structures loose their strength and are no longer able to withstand the designed load.
PVC smoke causes corrosion in the microchips of the electrical system, resulting in permanent damage to some data and telecommunication control centres.
The smoke of burning PVC is very thick and considerably reduces visibility. Thereby, finding escape routes is difficult.



EVOEL SMART PRE-WIRED corrugated halogen-free conduits for electrical installations

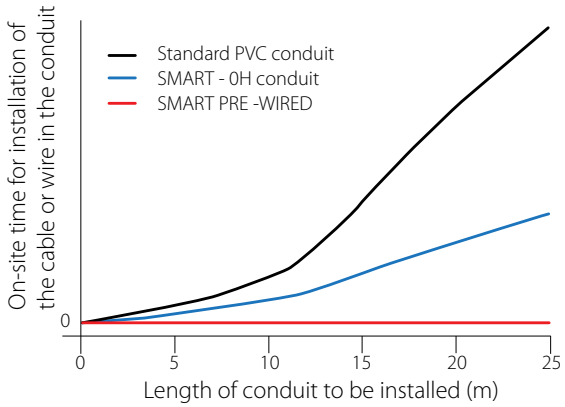
SMART PRE-WIRED are conduits with pre wired power or telecommunication cables or wires. The installation of the conduits is much quicker and simpler because cables are already pre wired at the factory and do not need to be pulled on-site. This reduces the total costs of installation. Due to the halogen-free material, SMART PRE-WIRED are suitable for installations in public buildings: schools, kindergartens, hospitals, hotels, theatres, cinemas, museums, stadiums, arenas, shopping-centres, airports, railway terminals, office buildings. Due to the fire-safety requirements for protection against smoke, halogen-free conduits are also recommended for use in multi-apartment buildings.

The SMART conduits are manufactured in compliance with standards EN 61386-22; EN 50267-2-2; EN 61034-2; 60332-1-2, and EN 60332-1-3.

Advantages:
- Time saving (no pulling of cables into conduits required)
- Cost saving (less man-hours required for the work)
- Halogen-free material for conduits and cables
- The gliding inner layer allows quick and easy addition of wires or cables also after installation
- Due to better heat exchange, more load can be applied to the wires

Technical information:
- Wires: 3x1.5mm^2; 4x1.5mm^2 ; 3x2.5mm^2 ; 5x1.5mm^2 ; 5x2.5 mm^2, etc.
- Cables : 3x1.5mm^2; 3x2.5mm^2 ; 5x1.5mm^2 ; 5x2.5 mm^2 ; telecommunication cables
- Easy identification of wires due to the colour coding according to the European standard
- Temperature resistance of the conduit: from -25°C to +105°C
- Available sizes: 16, 20, 25, 32, 40, 50 mm
- Available in rolls of 100 m and 50 m, depending on the diameter of the conduit

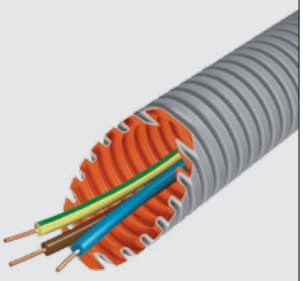
* Cable and wire specification available on request.
** Lengths of 500-3000 m (depending on the diameter of the conduit) on wooden reels can be produced at request.



EVOEL SMART PRE-WIRED corrugated halogen-free conduits for electrical installations

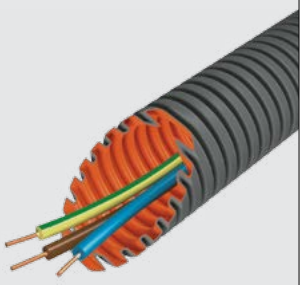
Product types

EVOEL FL-0H-SMART PREWIRED



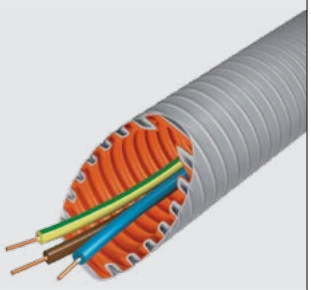
Type of conduit	Recommended application	Type	DN16	DN20		DN25		DN32
FL-0H-SMART base layer + gliding layer	- In hollow walls - Under plastering - In suspended ceilings	**Wires**	2;3x1,5	3x1,5	3x2,5	3x2,5	3x4	7x2,5
			3x2,5	4x1,5	3x4	5x2,5	7x2,5	
			4;5x1,5	5x1,5				
				7x1,5				
		Cables	3x1,5	3x1,5	3x2,5	3x2,5	3x4	7x2,5
			2x1,5	5x1,5	5x2,5	5x2,5	7x2,5	
		Communications	On request					

EVOEL FM-0H-SMART PREWIRED



Type of conduit	Recommended application	Type	DN16	DN20		DN25		DN32
FM-0H-SMART base layer + gliding layer	- Installation on plastering - In floors - In dry concrete - In keramzite concrete	**Wires**	2;3x1,5	3x1,5	3x2,5	3x2,5	3x4	7x2,5
			3x2,5	4x1,5	3x4	5x2,5	7x2,5	
			4;5x1,5	5x1,5				
				7x1,5				
		Cables	3x1,5	3x1,5	3x2,5	3x2,5	3x4	7x2,5
			2x1,5	5x1,5	5x2,5	5x2,5	7x2,5	
		Communications	On request					

EVOEL FMs-0H-SMART PREWIRED



Type of conduit	Recommended application	Type	DN16	DN20		DN25		DN32
FMs-0H-SMART base layer + gliding layer + sheath	- In all types of concrete	**Wires**	2;3x1,5	3x1,5	3x2,5	3x2,5	3x4	7x2,5
			3x2,5	4x1,5	3x4	5x2,5	7x2,5	
			4;5x1,5	5x1,5				
				7x1,5				
		Cables	3x1,5	3x1,5	3x2,5	3x2,5	3x4	7x2,5
			2x1,5	5x1,5	5x2,5	5x2,5	7x2,5	
		Communications	On request					

EVOEL FHs-UV-0H-SMART PREWIRED

Type of conduit	Recommended application	Type	DN16	DN20		DN25		DN32
FHs-UV-0H-SMART base layer + gliding layer + sheath	- Outside, in direct UV rays	**Wires**	2;3x1,5	3x1,5	3x2,5	3x2,5	3x4	7x2,5
			3x2,5	4x1,5	3x4	5x2,5	7x2,5	
			4;5x1,5	5x1,5				
				7x1,5				
		Cables	3x1,5	3x1,5	3x2,5	3x2,5	3x4	7x2,5
			2x1,5	5x1,5	5x2,5	5x2,5	7x2,5	
		Communications	On request					

Plastic conduits for electrical installations

EVOEL FL low compression strength corrugated conduits

Classification: 22212

A flexible, light grey (RAL 7035), polyvinylchloride (PVC) electrical installation conduit. The conduit features a low compression strength and a very high flexibility at constant cross-section parameters.

Physical properties:
Material: PVC-U, low compression strength, low impact strength, temperature resistance from -5°C to +60°C, withstands temperature (temporarily) up to 70ºC, self-extinguishing, corrosion-resistant.

Application area:
The conduits are ideal for simple concealed electrical cable installations as well as for cables installed in hollow walls, partitions, suspended ceilings, and plastering.

* Also available with a metal wire for pulling of cables to ensure a quicker installation.

Compression strength:
320 N/5cm

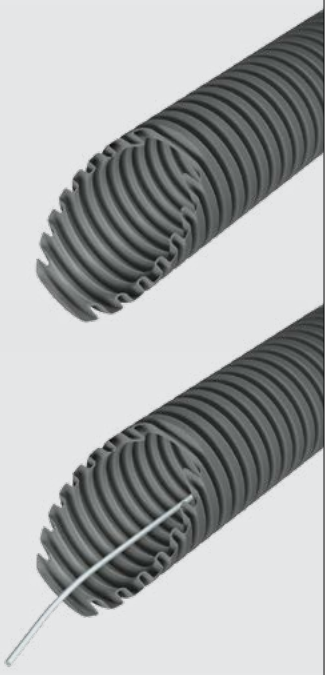
EN 61386-22
Classification: 22212

	Code	16	20	25	32	40	50	63
Outer Ø [mm]		16.0	20.0	25.0	32.0	40.0	50.0	63.0
Inner Ø [mm]		12.1	15.1	18.9	24.2	31.5	40.3	52.8
Roll [m]		100	50	50	50	25	25	25
On palette [m]		3800	2100	1500	800	500	400	250
Bend radius ≥ [mm]		60	80	100	130	170	220	250
Colour: light grey without wire	11101...	...016100LTGY	...02050LTGY	...02550LTGY	...03250LTGY	...04025LTGY	...05025LTGY	...06325LTGY
Colour: light grey with wire	11101...	...016100LTGYS	...02050LTGYS	...02550LTGYS	...03250LTGYS	...04025LTGYS	...05025LTGYS	...06325LTGYS

Plastic conduits for electrical installations

EVOEL FM medium compression strength corrugated conduits

Classification: 33412



A flexible, grey (RAL 7037), polyvinylchloride (PVC) electrical installation conduit. The conduit features a medium compression strength and a high flexibility at constant cross-section parameters.

Physical properties:
Material: PVC-U, medium compression strength, medium impact strength, temperature resistance from -25°C to +60°C, withstands temperature (temporarily) up to 70°C, self-extinguishing, corrosion-resistant.

Application area:
The conduits are ideal for exposed and concealed cable installations as well as for installations in plastering; may also be used for installations in dry concrete.

* Also available with a metal wire for pulling of cables to ensure a quicker installation.

Compression strength:
750 N/5cm

EN 61386-22
Classification: 33412

	Code	16	20	25	32	40	50	63
Outer Ø, [mm]		16.0	20.0	25.0	32.0	40.0	50.0	63.0
Inner Ø [mm]		11.1	14.2	18.2	23.7	31.1	39.9	52.5
Roll [m]		100	50	50	50	25	25	25
On palette [m]		3800	2100	1500	800	500	400	250
Bend radius ≥ [mm]		70	90	110	130	170	220	300
Colour: grey without wire	11102...	...016100GY	...02050GY	...02550GY	...03250GY	...04025GY	...05025GY	...06325GY
Colour: grey with wire	11102...	...016100GYS	...02050GYS	...02550GYS	...03250GYS	...04025GYS	...05025GYS	...06325GYS

Plastic conduits for electrical installations

EVOEL FL-0H-SMART low compression strength corrugated halogen-free conduits

Classification: 22432

A flexible, halogen-free electrical installation conduit made of a special light grey (RAL 7035) plastic material, with an orange inner gliding layer.

The conduit features a low mechanical resistance, a high thermal resistance, and a high flexibility at constant cross-section parameters. The special structure of the inner surface of the conduit with outstanding gliding properties allows to considerably extend the cable-pulling distances and reduce the length of installation work.

Physical properties:
Material: a special plastic, low compression strength, low impact strength, temperature-resistance from -25°C to +105°C, self-extinguishing, halogen-free, corrosion-resistant.

Application area:
Due to the use of the halogen-free, thermally resistant material, the conduits are suitable for simple concealed installations as well as for installations in hollow walls, partitions, and suspended ceilings in public buildings: schools, kindergartens, hospitals, hotels, theatres, cinemas, museums, stadiums, arenas, shopping-centres, airports, railway terminals, and office buildings

* Available with a metal wire for pulling of cables.

Compression strength:
320 N/5cm

EN 61386-22
EN 50267-2-2
EN 61034 -2
Classification: 22432

	Code	16	20	25	32	40	50
Outer Ø, [mm]		16.0	20.0	25.0	32.0	40.0	50.0
Inner Ø, [mm]		10.1	14.4	19.1	24.6	31.5	40.2
Roll [m]		100	50	50	50	25	25
On palette [m]		3800	2100	1500	800	500	400
Bend radius ≥ [mm]		60	80	100	130	170	220
Colour: light grey	11111...	...016100LTGY	...02050LTGY	...02550LTGY	...03250LTGY	...04025LTGY	...05025LTGY

Plastic conduits for electrical installations

EVOEL FM-0H-SMART medium compression strength corrugated halogen-free conduits

Classification: 33432

A flexible, reinforced, halogen-free electrical installation conduit made of a special grey (RAL 7037) plastic material, with an orange inner gliding layer.

The conduit features a medium mechanical resistance, a high thermal resistance, and a very high flexibility at constant cross-section parameters. The special structure of the inner surface of the conduit with outstanding gliding properties allows to considerably extend the cable-pulling distances and reduce the length of installation work.

Physical properties:
Material: a special plastic, medium compression strength, medium impact strength, temperature-resistance from - 25°C to +105°C, self-extinguishing, halogen-free, corrosion-resistant.

Application area:
Due to the use of the halogen-free, thermally resistant material, the conduits are suitable for simple concealed installations as well as for installations in hollow walls, partitions, and suspended ceilings in public buildings: schools, kindergartens, hospitals, hotels, theatres, cinemas, museums, stadiums, arenas, shopping-centres, airports, railway terminals, and office buildings

* Available with a metal wire for pulling of cables.

Compression strength:
750 N/5cm

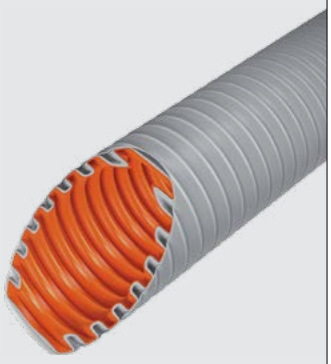
EN 61386-22
EN 50267-2-2
EN 61034 -2
Classification: 33432

	Code	16	20	25	32	40	50
Outer Ø, [mm]		16.0	20.0	25.0	32.0	40.0	50.0
Inner Ø, [mm]		11.4	14.2	18.4	23.9	30.7	39.4
Roll [m]		100	50	50	50	25	25
On palette [m]		3800	2100	1500	800	500	400
Bend radius ≥ [mm]		70	90	110	130	170	220
Colour: grey	11112...	...016100GY	...02050GY	...02550GY	...03250GY	...04025GY	...05025GY

Plastic conduits for electrical installations

EVOEL FMs-0H-SMART sheathed medium compression strength corrugated halogen-free conduits

Classification: 33432



A flexible conduit made of a special, halogen-free material, ideally suitable for installations in concrete. The conduit has a sheath made of a plasticised material and therefore features a medium impact strength and water resistance. The special structure of the inner surface of the conduit with outstanding gliding properties allows to considerably extend the cable-pulling distances and reduce the length of installation work.
The colour of the cable sheath is light grey (RAL 7035) with an orange inner gliding layer.

Physical properties:
Material: a special plastic, medium compression strength, medium impact strength, temperature-resistance from - 25°C to +105°C, self-extinguishing, halogen-free.

Application area:
The conduits are specifically recommended for installations in concrete, can be used for installations in hollow walls, partitions, or suspended ceilings. Conduits of this type are the best solution for exposed and concealed installations, underground installations, connection of equipment or machine tools in schools, kindergartens, hospitals, hotels, theatres, cinemas, museums, stadiums, arenas, shopping-centres, airports, railway terminals, and office buildings.

* Available with a metal wire for pulling of cables.

Compression strength:
750 N/5cm

EN 61386-22
EN 50267-2-2
EN 61034 -2
Classification: 33432

	Code	16	20	25	32	40	50
Outer Ø [mm]		16.0	20.0	25.0	32.0	40.0	50.0
Inner Ø [mm]		11.4	14.2	18.4	23.9	30.7	39.4
Roll [m]		50	50	50	50	25	25
On palette [m]		2400	1500	1000	600	350	300
Bend radius ≥ [mm]		70	90	110	130	170	220
Colour: light grey	11202...	...016050LTGY	...020050LTGY	...025050LTGY	...032025LTGY	...040025LTGY	...050025LTGY

Plastic conduits for electrical installations

EVOEL FHs-UV-0H-SMART corrugated halogen-free conduits with UV-stabilisation

Classification: 44432

A flexible electrical installation conduit made of a special, halogen-free material and ideally suitable for outdoor installations exposed to direct sunlight. The conduit has a sheath made of a plasticised material which is specially modified for resistance against UV radiation. The conduit features the highest degree of impact strength. The special structure of the inner surface of the conduit with outstanding gliding properties allows to considerably extend the cable-pulling distances and reduce the length of installation work.
The colour of the sheath of the conduits is black (RAL 9004), with an orange inner gliding layer.

Physical properties:
Material: a special, halogen-free material, high limit load, high impact strength, temperature resistance from - 25°C to +105°C, UV-stabilised, self-extinguishing, corrosion-resistant.

Application area:
The conduits are specifically recommended for outdoor installations, can be used for installations in hollow walls, partitions, or suspended ceilings in public buildings: schools, kindergartens, hospitals, hotels, theatres, cinemas, museums, stadiums, arenas, shopping-centres, airports, railway stations, and office buildings. The conduit withstands long-term exposure to sunlight. UV-resistance is guaranteed for 10 years. Especially suitable for protection of facade lighting cables.

Compression strength:
1250 N/5cm

EN 61386-22
EN 50267-2-2
EN 61034 -2
Classification: 44432

	Code	16	20	25	32	40	50
Outer Ø [mm]		16.0	20.0	25.0	32.0	40.0	50.0
Inner Ø [mm]		10.8	13.6	17.8	23.1	30.0	38.4
Roll [m]		50	50	50	50	25	25
On palette [m]		2400	1500	1000	600	350	300
Bend radius ≥ [mm]		110	140	160	180	200	300
Colour: black	11223...	...01650BK	...02050BK	...02550BK	...03225BK	...04025BK	...05025BK

Plastic conduits for electrical installations

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

Corrugated one-wall and double-wall pipes **EVOCAB FLEX FR UV 0H** for power cables and wires 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 electric power substations;
- Cable connections between storeys;
- Connections of buildings to electrical power networks;
- Transition of overhead lines to underground cable networks;
- 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 corrugated double-wall pliable pipe produced in coil lengths of 25 and 50 metres with pre-installed pulling wire. Each coil is fixated with polypropylene band. Coils are positioned on pallets and stretch-packed for comfortable handling. The product is additionally labeled with a yellow stripe and product identification information: "FR UV 0H, 750N EN 61386-22".

Compression strength:
750N/5cm

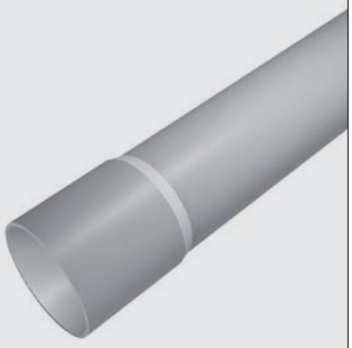
EN 61386-22
EN 61386-1
IEC 60754-1
UL94 V2

	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 diameter ≥ [m]		0.600	0,800	1,200
Colour: black	122...	...075050FRUV	...110050FRUV	...160025FRUV
Truck load [m]		7800	3900	1800

Plastic conduits for electrical installations

EVOEL SL smooth low compression strength conduits

Classification: 22211



A rigid electrical installation conduit made of light grey (RAL 7035), non-plasticised PVC. The conduit is manufactured in straight 3 m bars, with a moulded-on coupling for quick connection. The conduit features a low mechanical resistance.

Physical properties:
Material: PVC-U, low compression strength, low impact strength, temperature resistance from - 5°C to +60°C, withstands temperature (temporarily) up to +70°C, self-extinguishing, corrosion-resistant.

Application area:
The conduits are recommended for simple exposed installations.

Compression strength:
320 N/5cm

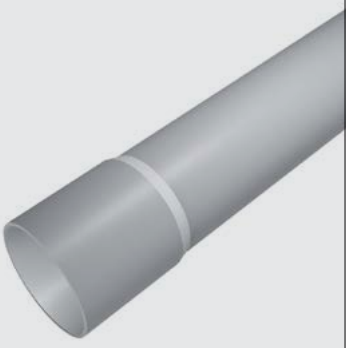
EN 61386-21
Classification: 22211

	Code	16	20	25	32	40	50	63
Outer Ø, [mm]		16.0	20.0	25.0	32.0	40.0	50.0	63.0
Inner Ø, [mm]		14.3	18.3	22.6	29.4	36.8	46.0	59.0
Pack [m]		111	111	57	57	21	21	21
On palette [m]		7992	4995	3135	2052	1407	798	504
Colour: light grey	11301...	...016003LTGY	...020003LTGY	...025003LTGY	...032003LTGY	...040003LTGY	...050003LTGY	...063003LTGY

Plastic conduits for electrical installations

EVOEL SM smooth medium compression strength conduits

Classification: 33411



A rigid, increased-load electrical installation conduit made of light grey (RAL 7035), non-plasticised PVC . The conduit is manufactured in straight 3 m bars, with a moulded-on coupling for quick connection.
The conduit features a medium mechanical resistance.

Physical properties:
Material: PVC-U, medium compression strength, medium impact strength, temperature resistance from - 25°C to +60°C, withstands temperature (temporarily) up to +70°C, self-extinguishing, corrosion-resistant.

Application area:
The conduits are recommended for safe exposed installations in industrial buildings as well as for use in engineering and anywhere with aggressive substances in the atmosphere.

Compression strength:
750 N/5cm

EN 61386-21
Classification: 33411

	Code	16	20	25	32	40	50	63
Outer Ø, [mm]		16.0	20.0	25.0	32.0	40.0	50.0	63.0
Inner Ø, [mm]		13.4	17.2	21.6	28.4	36.0	46.0	59.0
Pack [m]		111	111	57	57	21	21	21
On palette [m]		7992	4995	3135	2052	1407	798	504
Colour: light grey	11302...	...016003LTGY	...020003LTGY	...025003LTGY	...032003LTGY	...040003LTGY	...050003LTGY	...063003LTGY

Plastic conduits for electrical installations

EVOEL SM-0H smooth medium compression strength halogen-free conduits

Classification: 33431

A rigid, halogen-free electrical installation conduit made of a special, grey (RAL 7037) plastic. The conduit is manufactured in straight 3 m bars. The conduit features a medium compression strength.

Physical properties:
Material: a special plastic, medium compression strength, medium impact strength, temperature resistance from - 25°C to +105°C, self-extinguishing, halogen-free, corrosion-resistant.

Application area:
The conduits are recommended for safe exposed installations in industrial buildings as well as for use in engineering and anywhere with aggressive substances in the atmosphere. The conduits are specifically recommended for use in low temperatures as well as in public buildings: schools, kindergartens, hospitals, hotels, theatres, cinemas, museums, stadiums, arenas, shopping-centres, airports, railway terminals, and office buildings.

Compression strength:
750 N/5cm

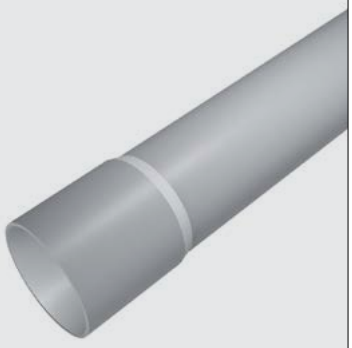
EN 61386-21
EN 50267-2-2
EN 61034 -2
Classification: 33431

	Code	20	25	32	40	50	63
Outer Ø, [mm]		20.0	25.0	32.0	40.0	50.0	63.0
Inner Ø, [mm]		16.8	21.5	28.0	35.5	45.2	57.8
Pack [m]		111	57	57	21	21	21
On palette [m]		4440	2850	1995	1386	777	630
Colour: grey	11312...	...020003GY	...025003GY	...032003GY	...040003GY	...050003GY	...063003GY

Plastic conduits for electrical installations

EVOEL SM-UV smooth conduits with UV-stabilisation

Classification: 44411



A rigid, reinforced, UV-stabilised electrical installation conduit made of a modified, light grey (RAL 7035) PVC. The conduit is manufactured in straight 3 m bars, with a moulded-on coupling for quick connection. The conduit features a high compression strength.

Physical properties:
Material: PVC-U, high compression strength , high impact strength, temperature resistance from - 25°C to +60°C, corrosion-resistant.

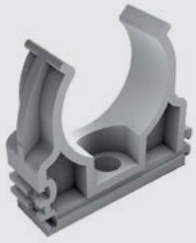
Application area:
The conduits are specifically recommended for outdoor installations, feature a long-term resistance against UV radiation. The conduits may be exposed to direct sunlight for extended periods. Specifically suitable for protection of vertical power cables on facades. UV-resistance is guaranteed for 5 years.

Compression strength:
1250 N/5cm

EN 61386-21
Classification: 44411

	Code	16	20	25	32	40	50	63
Outer Ø, [mm]		16.0	20.0	25.0	32.0	40.0	50.0	63.0
Inner Ø, [mm]		12.8	16.4	20.8	27	34.2	43.2	55.2
Pack [m]		111	57	57	21	21	21	21
On palette [m]		7992	4995	3135	2052	1407	798	504
Colour: light grey	11321..	...016003LTGY	...020003LTGY	...025003LTGY	...032003LTGY	...040003LTGY	...050003LTGY	...063003LTGY

Cable conduit accessories



Holding clamp HB

This holding clamp is made of a special plastic and designed for use with installation conduits of all types, except UV-stabilised conduits.

Type		16	20	25	32	40	50	63
Minimum order quantity [pcs]		100	100	100	50	50	25	10
Code	11410...	...1016	...1020	...1025	...1032	...1040	...1050	...1063

Holding clamp UV

This holding clamp is made of a special plastic and designed for use with UV-stabilised installation conduits of all types.

Type		16	20	25	32	40	50	63
Minimum order quantity [pcs]		50	50	50	50	50	25	10
Code	11420...	...1016	...1020	...1025	...1032	...1040	...1050	...1063

Elbow

This PVC elbow is designed for use with EVOEL, SL, and SM installation conduits.

Type		16	20	25	32	40	50	63
Minimum order quantity [pcs]		50	50	40	20	25	10	5
Code	11400...	...3016	...3020	...3025	...3032	...3040	...3050	...3063

Elbow HB

This elbow is made of a special plastic and designed for use with EVOEL SL-0H, and SM-0H installation conduits.

Type		16	20	25	32	40	50	63
Minimum order quantity [pcs]		50	50	25	25	25	10	5
Code	11400...	...3016	...3020	...3025	...3032	...3040	...3050	...3063

Elbow UV

This elbow is made of a special plastic and designed for use with EVOEL SH-UV installation conduits.

Type		16	20	25	32	40	50	63
Minimum order quantity [pcs]		50	50	50	50	25	10	5
Code	11420...	...3016	...3020	...3025	...3032	...3040	...3050	...3063

Coupling

This PVC coupling is designed for use with EVOEL FL, FM, SL, SM installation conduits.

Type		16	20	25	32	40	50	63
Minimum order quantity [pcs]		100	100	40	40	20	10	10
Code	11400...	...4016	...4020	...4025	...4032	...4040	...4050	...4063

Coupling HB

This coupling is made of a special plastic and designed for use with SMART corrugated halogen-free installation conduits of all types.

Type		16	20	25	32	40	50	63
Minimum order quantity [pcs]		100	100	40	40	20	10	10
Code	11410...	...4016	...4020	...4025	...4032	...4040	...4050	...4063

Coupling UV

This coupling is made of a special plastic and designed for use with UV-stabilised corrugated installation conduits of all types.

Type		16	20	25	32	40	50	63
Minimum order quantity [pcs]		25	50	50	25	25	10	5
Code	11424...	...016	...020	...025	...032	...040	...050	...063

Flexible coupling (long)

This corrugated coupling is made of PVC and designed for coupling straight EVOEL SL, EVOEL SM conduits in places where obstacles need to be bypassed or unconventional bends are to be made.

Type		16	20	25	32			
Minimum order quantity [pcs]		40	40	40	20			
Length [mm]		200	275	365	350			
Code	1140081...	...016	...020	...025	...032			

Notes

Underground Cable protection
Conduits

Underground Cable protection Conduits

These rigid double-wall cable conduits are manufactured in accordance with EN 61386 and other applicable standards and norms.

EVOCAB HARD corrugated double-wall conduits

This halogen-free cable conduit is made of a PEHD composition and is available in in 3 m and 6 m bars, and each piece 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 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 a high compression strength, i.e. under roads, squares, etc. The use of standard couplers allows a convenient rigid coupling of the conduits. Water-resistance (0.5 bar) of joints can be achieved by additional use of the sealing rings.

Compression strength:
750 N/450 N

EN 61386-24

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
Bend radius [≥ m]		1,300	1,600	1,900	2,300	2,800	3,100	4,000
450 N, 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	...1600060RD
Colour 2: black	121...	...050006BK	...063006BK	...075006BK	...090006BK	...110006BK	...125006BK	...1600060BK
Colour 3: yellow	121...	...050006YL	...063006YL	...075006YL	...090006YL	...110006YL	...125006YL	...1600060YL
750 N, 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

Underground Cable protection Conduits

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 1018) or black (RAL 9005); other colours 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 a convenient rigid coupling. Water-resistance (0.5 bar) of joints can be achieved by additional use of the 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 diameter [≥ m]		0,350	0,400	0,500	0,600	0,600	0,800	1,000	1,200
Truck load [m]		22950	16200	9600	7750	6600	3900	3325	2050
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:
450 N

EN 61386-24

Cable conduit accessories

Coupler

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

Elbow

Used for small bend radiuses when installing HARD type cable conduits.

Description	Code		Angle	Radius [m]	L [m]
Elbow	1230407545	DN 75	45 °	0.75	0.9
	1230407590		90 °	0.75	1.5
Elbow	1230409045	DN 90	45 °	0.9	1.0
	1230409090		90 °	0.9	1.8
Elbow	1230411045	DN 110	45 °	0.9	1.0
	1230411090		90 °	0.9	1.8
Elbow	1230412545	DN 125	45 °	1.1	1.1
	1230412590		90 °	1.1	2.0
Elbow	1230416045	DN 160	45 °	1.1	1.2
	1230416090		90 °	1.1	2.1

Sealing ring

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

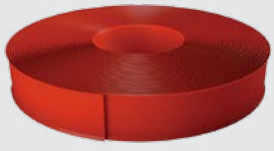
End cover

Code	40	50	63	75	90	110	125	160
12303...	...040	...050	...063	...075	...090	...110	...125	...160

Spacer

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

Spacer	DN 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	...1258	...1608



Protection profile

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

EL 125

Type/width	Code	125	170			
Roll 50 m	12310...	...125500	...170500			
On palette [m]		4200	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

Underground Cable protection Conduits

EVODUCT optical cable conduits

When constructing ground-buried optical cable and communication cable systems, the best solution in ensuring a long-term protection of the cables is rigid plastic conduits. The conduits can be buried directly in the soil, in concrete, or through water barriers, in concrete pipes, channels and blocks, along bridges and flyovers. The conduits are used for the installation of optical fibre cables employing 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 the conduits:

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

DIN 8074/8075
EN 61386-24

Coupler

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

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

Underground Cable protection Conduits

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 90º) 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 the 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. The rolls are delivered on palettes. On request, EVODUCT conduit with customer-specified thickness of the wall can be manufactured.

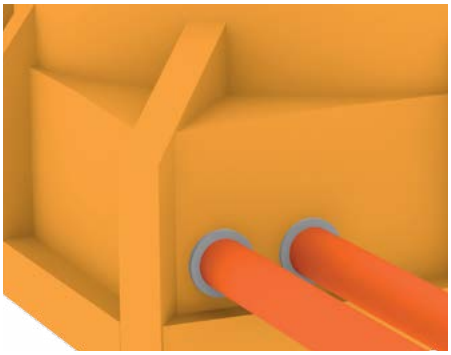
	Code	25	32	32	40	40	50	50	63	63
Outer Ø [mm]		25.0	32.0	32.0	40.0	40.0	50.0	50.0	63.0	63.0
Wall thickness [mm]		2.3	2.2	3.0	3.0	3.7	3.0	4.6	3.6	5.8
STANDARD	1310...	...25211000BK ...25210500BK	...32311000BK ...32310300BK	...32111000BK ...32110300BK	...40110700BK ...40110250BK	...40210700BK ...40210250BK	...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

Dimensional stability (temperature shrinkage)	110° C, 1h (according to EN ISO 2505:2005)	≤3%
Resistance to compression	Deflection 5% at 15mm/min (according to EN 61386-24:2011)	≥750N
Impact resistance	-5°/2h, 5 kg/300mm (15J) (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 m3/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	100mm/min (according to EN ISO 6259-1:2002)	≥350%

Sealing ring (ensuring hermetic connection of optical cable chambers)

Code	DN
621060401	40



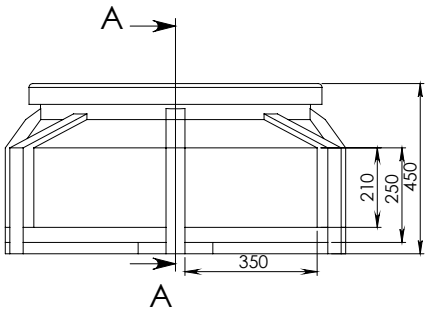
Optical cable connection chamber EVO TC900/700/450

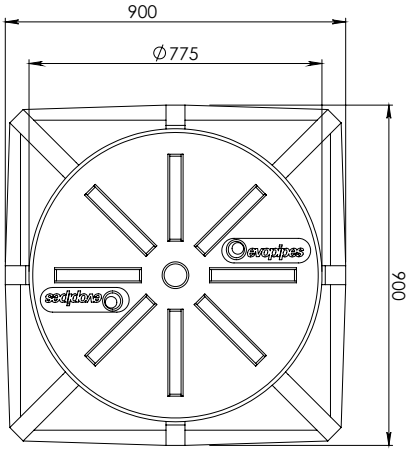
Specification:
Optical cable connection chamber TC900/700/450 with watertight PE cover with rubber sealing for underground installations.
It is made of polyethylene (100% virgin material without recycling content).
Chamber weight – 21.5 kg.
Chamber color – orange, black, green or any other color on demand.

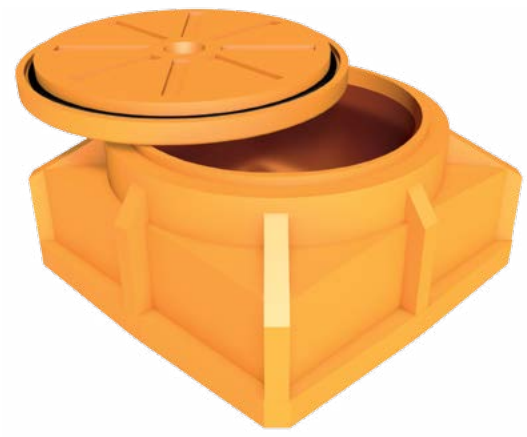
Application area:
- Telecommunication networks
- Optical cable lines
- Railroad signalization

System advantages:
- Large inside diameter gives large work space
- Wide access hole (700mm)
- Watertight sealing ring
- Horizontal and vertical ribs – stabilize 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 orange colour of inside surface
- High resistance to corrosion and chemical substances
- Long service life (>50 years)

Dimensions:







Underground Cable protection Conduits

EVOTEL telecommunication cable conduits

EVOTEL rigid, double-wall cable conduits are designed for mechanical protection and insulation of ground-buried telecommunication cables as well as power cables and signal cables. Conduits are made of PEHD featuring temperature range between -25°C and +90°C and excellent chemical resistance.
The end of each bar of EVOTEL conduits has a sealing ring which ensures water tightness of the joints between the conduits.

Functionality
- Long-term protection of cables
- Quicker, more convenient, and more cost efficient construction of cable networks and preperation for cable-pulling

Advantages
- Easy and safe coupling of the conduits
- Hermetic conduit system (up to 0,5 bar)
- Chemical inertness, high corrosion-resistance
- Service life not less than 50 years

EVOTEL cable conduits are supplied in straight 6 m bars. Conduits are packed in wooden frames. The standard conduits are gray (RAL 7037).

Compression strength:
750 N

EN 61386-24

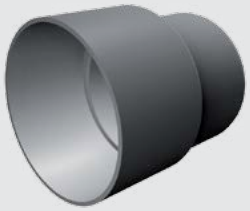
	50	**110**
Outer Ø [mm]	50	110
Wall thickness [mm]	5.0	8.5
Inner Ø [mm]	40	93
Pack [pcs]	151	76
Pack [m]	906	456
Code	142110060GY	142050060GY

Telecommunication cable conduit accessories

Variable angle elbow

Code	DN	Angle	L [m]
1430205108	50	15°- 90°	0.8
1430210120	110	15°- 90°	2

Adaptor



Description	Code	100/110
EVOTEL/EVOCAB adaptor	14303010000	100/110

End cover

Code	DN
41240438RDA	50
41240973RDC	110

Underground Cable protection Conduits

EVOCAB STING cable conduits for trenchless installations

EVOCAB STING cable conduits for trenchless installations are made of a high density polyethylene (HDPE). Special manufacturing processes ensure high compression and impact strength properties.

Compression strength:
1250 N

DIN 8074/8075
EN 61386-24

Application area:
The STING conduits are made of a rigid material and designed so that they can withstand loads caused by soil and vehicles. The 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. The conduit for trenchless installations is available in pieces of various length and in rolls. The conduit has a smooth inner and outer surface and fully maintains its strength properties throughout the temperature range of -25ºC to +90ºC. The standard conduit is red, with a white marking. Other colours are available on request. The conduits are designed for cable protection using the conventional method of installation – pulling by wire. In some projects, depending on the technology of directional drilling, properties of the soil, angle of pulling, 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 the installed cables
- Quick replacement of cables without additional earthwork

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

DN / OD [mm]	Wall thickness [mm]	ID [mm]	Length [m]	Code	Max. admissible pulling strength at 20°C [kN]
75	4.5	66	100	125075045100RD	10.4
90	5.4	79.2	12/13.4/50/100	125090054(120RD/134RD/500RD/100RD)	14.4
110	6.6	96.8	12/13.4/50/100	125110066(120RD/134RD/250RD/500RD/100RD)	21.4
125	7.4	110.2	12/13.4/50/75	125125074(120RD/134RD/250RD/500RD/750RD)	27.3
160	9.5	141	12/13.4	125160095(120RD/134RD)	44.9
200	11.8	176.4	12/13.4	125200118(120RD/134RD)	70.3
250	14.8	220.4	12/13.4	125250148(120RD/134RD)	109.4
315	18.7	277.6	12/13.4	125315187(120RD/134RD)	174.1
400	24.0	352	12/13.4	125400240(120RD/134RD)	280.2
500	29.7	352	12/13.4	125500297(120RD/134RD)	438.8

Underground Cable protection Conduits

EVOCAB SPLIT split cable conduits

EVOCAB SPLIT smooth-wall split conduits are designed for reparation of 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 types cannot be used. The conduits are made of PE/PP featuring temperature range between -25ºC and +90ºC 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 reparation time and optimised costs
- Easy and safe coupling of split cable conduits
- Thermal resistance (from -25ºC to +90ºC)
- The materials used ensure that the conduits are environment-friendly and feature a long-term resistance against the effects of the aggressive substances present in the soil

Compression strength:
450 N

EN 61386-24

	Code	110	160
Outer Ø [mm]		110	160
Inner Ø [mm]		100	141
Wall thickness [mm]		5	9.5
3 m conduit			
Pack [pcs]		54	24
Pack [m]		162	72
Colour 1: red	124...	...110003RD	...160003RD
Colour 2: yellow	124...	...110003YL	...160003YL

Underground Cable protection Conduits

EVOCAB SUPERHARD 1250N reinforced double-wall cable conduits

Compression strength:
1250 N

EN 61386-24

EVOCAB SUPERHARD 1250N reinforced double-wall cable conduits 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 a high compression strength (1250N) and a high impact strength.
EVOCAB SUPERHARD 1250N conduits have structured walls: they have a corrugated outside and feature high compression strength properties due 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, 500 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.

Functionality

- Long-term protection of high-voltage cables in high-load conditions, e.g. installations under traffic lanes
- Quicker, more convenient, and more cost-effective construction of high-voltage cable networks

Advantages:

- High compression strength which allows to install the conduits at smaller depths, thereby shortening the installation time and optimising the costs
- Easy, safe, and fully hermetic coupling of the conduits
- A high impact strength is maintained even at the lowest temperatures
- Chemical inertness, high corrosion-resistance
- Service life not less than 50 years

Physical properties:

- Material — polypropylene (PP)
- Compression strength — 1250N
- Thermal resistance — -40°C to +95°C
- Density — 900 - 910 kg/m^3
- Elasticity modulus — 1300 - 1750 MPa
- Thermal conductivity — ~0.2 W/m °C (depending on the properties of the soil)

	110	160	200	250	315	400	500
Outer Ø [mm]	110	160	200	250	315	400	500
Inner Ø [mm]	93.8	138.9	174.6	215.9	274.1	349.8	439.6
Pack [m]	180	168	120	48	36	18	12
Truck load [m]	5040	2016	1440	768	432	360	240
Code	225110006RD	225160006RD	225200006RD	225250006RD	225315006RD	225400006RD	225500006RD

Cable conduit accessories

Coupler

	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD
Code	**110**	**160**	**200**	**250**	**315**	**400**	**500**
	212051100	212051600	212052000	212052500	212053150	212054000	212055000

Elbow 15°

	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD
Code	**110**	**160**	**200**	**250**	**315**	**400**	**500**
15º	2120111015	2120116015	2120120015	2120125015	2120131515	2120140015	2120150015

Reducer

	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD
	110	**160**	**200**	**250**	**315**	**400**	**500**
	For coupling of EVOCAB SUPERHARD 1250N and smooth-wall trenchless installation conduits of various diameters						

End plug

	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD
	110	**160**	**200**	**250**	**315**	**400**	**500**
	+	+	+	+	+	+	+

Information

EVOEL classification codes according to EN 61386

Codification number	Digit in the classification code									
	1		2		3		4		5	
	Compression strength		Impact strength		Minimum operating temperature		Maximum operating temperature		Flexibility	
	1	125N very low	**1**	0,5J (0,5 kg/100mm) very low	**1**	+5°C	**1**	+ 60°C	**1**	Rigid
	2	320N low	**2**	1J (1,0 kg/100mm) low	**2**	- 5°C	**2**	+ 90°C	**2**	Pliable
	3	750N medium	**3**	2J (2,0 kg/100mm) medium	**3**	- 15°C	**3**	+ 105°C	**3**	Pliable/Self-recovering
	4	1250N high	**4**	6J (2,0 kg/300mm) high	**4**	- 25°C	**4**	+ 125°C	**4**	Flexible
	5	4000N very high	**5**	20,4J (6,8 kg/300mm) very high	**5**	- 45°C	**5**	+ 150°C		
							6	+ 250°C		
							7	+ 400°C		

3	3	4	1	2

Example: electrical installation conduit with **medium** compression strength (3), **medium** impact strength (3), **minimum** operating temperature -25°C (4), **maximum** operating temperature +60°C (1), **pliable** (2).

Standards applicable to cable conduit systems

Number	Title
EN 61386-1	Conduit systems for cable management - Part 1: General requirements.
EN 61386-21	Conduit systems for cable management - Part 21: Particular requirements. Rigid conduit systems.
EN 61386-22	Conduit systems for cable management - Part 22: Particular requirements. Pliable conduit systems.
EN 61386-23	Conduit systems for cable management - Part 23: Particular requirements. Flexible conduit systems.
EN 50267-2-2	Common test methods for cables under fire conditions - Test on gases evolved during combustion of materials from cables. Part 2-2: Procedures. Determination of degree of acidity of gases for materials by measuring pH and conductivity.
EN 61034-2	Measurement of smoke density of cables burning under defined conditions. Part 2: Test procedure and requirements.
EN 60332-1-2	Tests on electric and optical fibre cables under fire conditions. Part 1-2: Test for vertical flame propagation for a single insulated wire or cable. Procedure for 1 kW pre-mixed flame.
EN 60332-1-3	Tests on electric and optical fibre cables under fire conditions. Part 1-3: Test for vertical flame propagation for a single insulated wire or cable. Procedure for determination of flaming droplets/particles.
EN 61386-24	Conduit systems for cable management - Parts 24: Particular requirements for conduit systems buried underground.

Information

Properties and application of electrical installation conduits

Parameters	Unit	EVOEL FL	EVOEL FM	EVOEL FL-0H-SMART	EVOEL FM-0H-SMART	EVOEL FMs-0H-SMART	EVOEL FHs-UV-0H-SMART	EVOCAB FLEX FR UV 0H	EVOEL SL	EVOEL SM	EVOEL SL-0H	EVOEL SM-0H	EVOEL SH-UV
Classification according to EN 61386		22212	33412	22432	33432	33432	44432	33424	22211	33411	22431	33431	44411
Material properties													
Material		PVC-U	PVC-U	SpPlas	SpPlas	SpPlas	SpPlas	SpPlas	PVC-U	PVC-U	SpPlas	SpPlas	PVC-U
Halogen-free (according to IEC 60754-1)		-	-	®	®	®	®	®	-	-	®	®	-
Behaviour in fire (according to EN 61386)	Non-flame propagating, self-extinguishing												
Additional properties													
Guaranteed UV-resistance		-	-	-	-	-	10 years	10 years	-	-	-	-	5 years
Outer sheath		-	-	-	-	®	®	®	-	-	-	-	-
Inner gliding layer		-	-	®	®	®	®	®	-	-	-	-	-
Mechanical properties													
Impact resistance, J at °C	J, °C	>1J, -5°C	>2J, -25°C	>1J, -25°C	>2J, -25°C	>2J, -25°C	>6J, -25°C	>2J, -25°C	>1J, -5°C	>2J, -25°C	>1J, -25°C	>2J, -25°C	>6J, -25°C
Compression strength	N/5cm	>320	>750	>320	>750	>750	>1250	>750	>320	>750	>320	>750	>1250
Flexibility		Pliable	Pliable	Pliable	Pliable	Pliable	Pliable	Pliable	Rigid	Rigid	Rigid	Rigid	Rigid
Thermal properties													
Temp. MAX	°C	+60	+60	+105	+105	+105	+105	+90	+60	+60	+105	+105	+60
Temp. MIN	°C	-5	-25	-25	-25	-25	-25	-40	-5	-25	-25	-25	-25
Application areas													
Installations in hollow walls		®	®	®	®	®	®	®	®	®	®	®	®
Concealed installations		®	®	®	®	®	®	®	®	®	®	®	®
Exposed installations		-	®	-	®	®	®	®	-	®	-	®	®
Installations in wooden floors		-	®	-	®	®	®	®	-	®	-	®	®
Installations in dry concrete		-	®	-	®	®	®	®	-	®	-	®	®
Installations in keramzite		-	®	-	®	®	®	®	-	®	-	®	®
Installations in concrete of all types		-	-	-	-	®	®	®	-	-	-	-	-
Outdoor installations exposed to direct UV radiation		-	-	-	-	-	®	®	-	-	-	-	®
Installations in arctic climate		-	-	-	-	-	-	-	-	-	-	-	-
Power distribution rooms and substations		®	®	®	®	®	®	®	®	®	®	®	®
Private buildings		®	®	®	®	®	®	®	®	®	®	®	®
Multi-apartment buildings, up to 5 floors		®	®	®	®	®	®	®	®	®	®	®	®
Industrial buildings		-	®	-	®	®	®	®	-	®	-	®	®
Public buildings		-	-	®	®	®	®	®	-	-	®	®	-
Multi-apartment buildings, more than 5 floors		-	-	®	®	®	®	®	-	-	®	®	-

Information

Properties and applications of cable conduits

Parameters	Unit	EVOCAB HARD	EVOCAB FLEX	EVODUCT STANDARD	EVODUCT GROOVE	EVOTEL	EVOCAB STING	EVOCAB SPLIT	EVOCAB SUPERHARD 1250N
Material properties									
Material		PE/PP	PE	PE	PE	PE	PE	PE/PP	PP
Halogen-free (according to IEC 60754-1)		®	®	®	®	®	®	®	®
Behaviour in fire (according to EN 61386)		Self-extinguishing							
Mechanical properties									
Compression strength	N	>750	>450	>750	>750	>750	>1250	>450	>1250
Outer surface structure		Corrugated	Corrugated	Smooth	Smooth	Corrugated	Smooth	Smooth	Corrugated
Inner surface structure		Smooth	Smooth	Smooth	Grooved	Smooth	Smooth	Smooth	Smooth
Components									
With coupler		®	®	-	-	®	-	Not needed	®
With sealing ring		-	-	-	-	®	-	-	®
Thermal properties									
MAX temp.	°C	+90	+90	+90	+90	+90	+90	+90	+95
MIN temp.	°C	-25	-25	-25	-25	-25	-25	-25	-40
Recommended applications									
Installations in trenches		®	®	®	®	®	®	®	®
Trenchless installations		-	-	®	®	-	®	-	-
Outdoor installations exposed to direct UV radiation		-	-	-	-	-	-	-	-
Indoor installations		-	-	-	-	®	-	-	-
Installations in concrete of all types (outdoor)		®	®	®	®	®	®	-	®
Blasting of optical cable using a piston or parachute		-	-	®	-	-	-	-	-
Blasting of optical cable using compressed air		-	-	-	®	-	-	-	-
Protection, reparation of existing cable lines		-	-	-	-	-	-	®	-
Protection of high-voltage cables		-	-	-	-	-	®	-	®

Information

Resistance of plastic materials against chemical substances

Chemical substances		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, water liquid (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, water liquid	20	d	-	-	-	-
Chlorinated carbohydrate		-	-	-	-	®
Chlorosulphuric acid (100%)	20	d	d	d	-	-
Chromic acid, water liquid (<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	®
	40	®	®	®	d	®
Chlorinated fluorocarbohydrate		®	d	d	®	®
Formaldehyde, liquid	30	®	®	®	d	®
Formic acid (<30%)	40	®	®	®	d	-
Formic acid, concentrate	20	®	®	®	-	-

Chemical substances		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	®	®	®	-	-
Hydrofluoric acid (40%)	20	®	®	®	-	-
Hydrofluoric acid (60%)	20	®	®	®	-	-
Hydrofluoric 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 against the chemical substance in the standard burying conditions

d - The plastic product is partially resistant against the chemical substance in the standard burying conditions

- - The plastic product does not withstand the chemical substance

CONTACTS

Production and Office

Jelgava, Latvia
Langervaldes street 2a,
Jelgava, LV-3002

Phone: +371 630-943-00
Fax: +371 630-943-01

info@evopipes.lv
www.evopipes.lv