



TIÚ – PLAST a.s.

areál SPOLANA a.s.
ul. Práce 657
CZ-27711 Neratovice
ISO 9001:2016



HDPE Ducts for mounting and protection of Cables

Product Specification acc. to CS (Company Standard) 64-004-99: PE-HD protection tubes

The HDPE ducts are used for mounting metallic and fiber optic cables. They protect cables against mechanical and chemical damage. They also enable to exchange cables repeatedly. The HDPE cable ducts generally apply to the ground or to interiors. Both duct ends are sealed by plastic caps as standard to protect the inside of a duct before the installation. HDPE ducts are made from Linear Polyethylene (PE-HD) together with other additives as pigments, UV stabilizations, etc.

We produce the types **d 25-32 and d40mm** as 2-layer or 3-layer type as standard. The 2-layer type has thin outer layer colored by an identification color and black inner layer as base material. The 3-layer type consists of two layers mentioned above and of inner polymeric lubrication layer.

The friction coefficient complies with value up to 0.1.

The design life of the ducts in the ground is 50 years.

1. HDPE ducts dimensions

Type	Outer Diameter OD and Tolerance (mm)	Wall Thickness S and Tolerance (mm)
20/16	20,0 + 0,3 - 0,1	2,0 + 0,3 - 0
25/21	25,0 + 0,3 - 0,1	2,0 + 0,3 - 0
25/20	25,0 + 0,3 - 0,1	2,5 + 0,4 - 0
25/20,4	25,0 + 0,3 - 0,1	2,3 + 0,4 - 0
25/19,4		2,8 + 0,4 - 0
32/27	32,0 + 0,3 - 0,1	2,5 + 0,4 - 0
32/26		3,0 + 0,4 - 0
37/32	37,0 + 0,4 - 0,1	2,5 + 0,4 - 0
37/31		3,0 + 0,4 - 0
40/35	40,0 + 0,4 - 0,1	2,5 + 0,4; - 0
40/33		3,5 + 0,4; - 0
50/41,6	50,0 + 0,5 - 0,1	4,2 + 0,5; - 0
50/40,8		4,6 + 0,5; - 0
75/66	75,0 + 0,5 - 0,1	4,5 + 0,6; - 0
75/61,4		6,8 + 0,8; - 0
110/96,8	110,0 + 0,7 - 0,1	6,6 + 0,8; - 0



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2. External and Internal Surface

External Surface: smooth with no scraps cracks and grooves

- single-colored with no stripes
- 4x1 linear color stripes (regularly over all circumference for 90°)
- 4x2 linear color stripes (regularly over all circumference for 90°)

Inner Surface:

- smooth and lubricated by special silicon oil
- smooth with inner polymeric–lubrication layer
- grooved

3. Colours

Here are 12 colour's standards of the outer layer. Other colours are available according to the customer demand.

1. white	RAL 9003
2. grey	RAL 7004
3. yellow	RAL 1018
4. orange	RAL 2004
5. red	RAL 3020
6. violet	RAL 4005
7. blue light	RAL 5015
8. blue dark	RAL 5003
9. green light	RAL 6018
10. green dark	RAL 5021
11. brown	RAL 8004
12. black	RAL 9017

4. Marking, Printing

The ducts are contrast printed by (INK-JET) with basic identification – length, producer name, seller name, type, dimension, date and time of the production (see example). The printing is possible to change according to customer demand.

Printing example

>1000 m< TIU-PLAST SITEL 40/33 HDPE LUBRICATION 16/04/2014 7:42 F

>0468 m< TIU-PLAST SITEL 40/32 HDPE LUBRICATION 05/10/2013 22:42 F

5. Quality

The specification of the raw materials for ducts production complies with guaranty of use and installation. The HDPE ducts are described by the Company Standard "CS 64-004-99: PE-HD protection tubes".

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The quality control is periodically carried out directly during the production and also in the producer laboratory, see below Table I. The wall thickness and outer diameter measurement is continual. The minimal inner diameter monitoring is also continual.

Table I. **Other HDPE Ducts properties**

Property	Value	Guaranteed Value	Test method
External and internal design	-	No cracks, deformations, scraps, grooves	DIN 8074, EN 12201
Ovality before coiling - max.	%	3	CS 64-004-99
The length of 1 meter - min.	cm	100.0	Specifications
Yield stress/ elongation - min. (tube)	MPa / %	15 / 350	ISO 6259-3
Impact resistance on drop-tester (-20°C, 9 kg, 0,9 m for OD40 mm / 0,7 m for OD32 and OD37 mm)	-	0-2 cracks from 10 pcs	EN 744
Longitudinal reversion of thermopl. pipes (110°C, 60 min/after 2,5 hours cooling)	%	3	EN ISO 2505
Resistance to internal pressure at constant temperature (+23°C, 1 hour)	MPa	2	EN ISO 1167-1,-2
Resistance to internal pressure at constant temperature (+60°C, 0,5 hours)	MPa	1.3	EN ISO 1167-1,-2
Informative value		Informative value	
Crush resistance (15% deflection)	dimension - kPa	40/33 1800 40/32 2000 32/27 1400 32/26 2300	

6. Packaging

HDPE Ducts are in general delivered on wooden drums or in coils. The identification card in the protection case is enclosed in both wooden drums and coils.

Diameters of drums: height 2,25 m; width 1,10 m; core 0,81 m

Maximal length per drum:

- 3200 m for OD 32 mm
- 2700 m for OD 37 mm
- 2000 m for OD 40 mm
- 1100 m for OD 50 mm

Maximal length per coil for all dimensions: 200 m to 1000 m



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7. Storage

Storage conditions comply with EN ISO 8331. It is necessary to protect the HDPE ducts from the longtime daylight heating radiation, mechanical failure, effect of organic solvents, etc.

The HDPE ducts wound on the drums or in coils are stored only for necessary time before the installation, maximally 1 year from the production date.

The coils (without drums) are stored in horizontal position on each other bedded on palettes, maximal height 2 m.

Recommended temperature for the storage is from -40°C to $+55^{\circ}\text{C}$. Distance from the heating source has to be minimally 1 m.

HDPE material of ducts is classified as the "F" level flammability according to the EN 13501-1.

Recommended extinguishers fire: water, foam, powder, CO_2 .

8. Transportation

HDPE ducts are transported conventionally. No special instructions are necessary. It is recommended to fix drums or coils by fixing belts on a truck during the transportation.

9. Manipulation

The drum with wound duct is necessary to pick-up only on the wood side of the drum! No contacts between the outside of drums and ducts are allowed!

The recommended temperature range for the installation: $+5^{\circ}\text{C}$ to $+50^{\circ}\text{C}$.

The ducts are at temperature below $+5^{\circ}\text{C}$ less flexible and at more flexion they could crack. Nevertheless by the careful handling is possible to make installation up to -5°C without damage.

During the installation it is necessary to keep the outer and inner surface clean and dry.

Minimal radius during the installation is recommended in the range about 20 to 18 multiple of the outer diameter of the duct (18-20x OD), exceptionally 15 x OD.

Average length expansion coefficient is $1.6 \cdot 10^{-4} \text{K}^{-1}$ in the temperature range: -20°C to $+70^{\circ}\text{C}$ (see ISO 11359-2).

10. Environment

The waste from ducts is a green product. Standard is recyclable and it is used for secondary class products. Disposal is also possible by burning in a special crematorium or by a transport to the dumping place.

User can order a disposal at the nearest recycling company or at the producer.

Generic mark of ducts material is according to EN ISO 11469 > **PE-HD** < (see the **printing**).

11. Safety

Safety conditions for manipulation with coils and drums are based on the „Standard manipulation with heavy weight“. It is necessary to be careful during recoiling the first row from the drum or coil. An



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Unfasten end of the tube could shot and cause injury. Ducts are not dangerous in any case for user and environment.

Ing.Z.Černá 12.11.2007,

Ing.P.Gerstenbergerová R5 17.7.2014. Ing.Richterová R6 4.1.2016. Ing.Richterova R7 28.7.2016, Ing.Richterová R8 5.2.2019