

MICRODUCT PRODUCTS



MEMBER OF OPTOKON GROUP

MICRODUCT

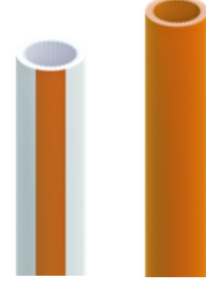
Microduct Single

Product Overview

Direct Bury Microduct is designed for direct burial by having thicker inner tube.

Microduct

Inner Surface	Ribbed wall for optimal blowing performance
Diameter Standard	DIN 8074
Ovality	max 5%
Colour	Fully Coloured or Natural with two stripes
Material	HDPE 100
Density	min 0.940 g/cm ³ (ISO 1183)
Storage Temperatures	-40° C to +60° C
Installation Pressure	16 bar



Overall

Size	Outer Diameter (mm)	Thickness (mm)	Weight (kg/m)	Bend Radius (mm)	Tensile Force (N)	Length per drum (m)	Drum Size (mm) Height x Width	Quantity per Container
7/3.5	7 ± 0.15	1.75 ± 0.1	0.028	110	275	2000	900 x 430	96
7/4	7 ± 0.15	1.5 ± 0.1	0.025	110	245	2000	900 x 430	96
10/6	10 ± 0.15	2 ± 0.1	0.048	150	470	2000	970 x 520	66
12/8	12 ± 0.15	2 ± 0.1	0.060	170	590	2000	1100 x 520	60
14/10	14 ± 0.15	2 ± 0.1	0.073	200	715	1500	1100 x 520	60
16/12	16 ± 0.15	2 ± 0.1	0.084	220	823	1000	1100 x 520	60
20/16	20 ± 0.15	2 ± 0.1	0.107	270	1050	2000	1650 x 720	21
20/15	20 ± 0.15	2.5 ± 0.1	0.130	270	1275	2000	1650 x 720	21

Test Compliance

Tensile Performance	(IEC 60794-1-2 E1)
Bend Radius	(IEC 60794-1-2 E11)
Crush	(IEC 60794-1-2 E3)
Kink	(IEC 60794-1-2 E10)
Impact	(IEC 60794-1-2 E4)
Pressure Withstand	(IEC 60794-1-2 F13)
Inner Clearance Test	(IEC 60794-1-21 Annex E)

Marking

Standard marking is as follows and can be customized on request:
Microduct 14/10 PE-HD Production Date Lot No 0000m

Packing

Microduct is wound on Plywood Drum and wrapped by black stretch film. Bundle's ends are protected by plastic caps protecting them from impurities penetrating into microducts. Drums are placed on a wooden pallet and fastened tightly.

Connection

These connectors are developed to connect microducts with each other. Our system enables an easy, fast connection and disconnection of microduct. Connector, Reducer and End Stop models can be used.



Internationally Certified

Certified by TUV Austria, TSE, CE, ISO 9001, ISO 14001 and ISO 18001.

OPTOKON Elektronik 7/3,5mm MICRODUCT SINGLE – OPK ELEKTRONİK-SO-VODA-1WAY- 7/3.5mm

OVERVIEW

Microducts are the most commonly used underground and are packaged in continuous lengths on reels or coils allowing for fast installation with minimum joints. Micro ducts can be installed via trenching, micro trenching and plowing. Microducts are available in numerous colors and stripe combinations for easy identification. There are numerous wall thicknesses available as required to meet the particular installation methods and ground conditions.

Overall

Product Weight	28 kg / km
Metal Free	Yes
Inner Surface	Ribbed Wall
Identification	Color, with optional stripe
Test Compliance	Tensile Performace : 270 N (IEC 60794-1-2 E1) Bending Radius : 80 mm (IEC 60794-1-2 E11) Crush Test : 500 N (IEC 60794-1-2 E3) Kink Test : No Damage (IEC 60794-1-2 E10) Impact Test : No Damage (IEC 60794-1-2 E4) Pressure Withstand: No Damage (IEC 60794-1-2 F13) Inner Clearance Test: Pass (IEC 60794-1-21 Annex E)
Material	100% virgin HDPE 100 material
Density	min 0.940 g/cm ³
Transport and Storage Temperatures	from -40° C to +60° C
Installation Temperatures	from -10° C to +50° C
Outdoor Exposure Limit in Central Europe	max. 12 months
Blowing Pressure	max 16 bar
Burst Pressure	min 40 bar
UV Stabilization	Optional, with Black Color, 2 years

Microduct

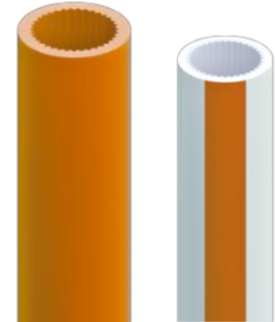
Diameter Standard	DIN 8074
Microduct OD	min 6.9 mm
Thickness	1.75 (-0.05 / +0.1) mm
Ovality	max 5%

Marking

Operator Name OPTOKON Elektronik Microduct 7/3.5 PE-HD 01.01.2022 12.00 0000 m

Packing

Plywood Drums
Length/Drum: 2500 m • Drum Size(mm): 1000 x 356 • Number of Drums in 40': 110



Note1: Diameters and thicknesses are measured to nearest 0.1 mm
Note2: All dimensions and weight are 'nominal'
Note3: 'nominal' data is based on middle-spec, and is for information only, not for inspection purposes.

OPTOKON Elektronik 7-WAY 7/3,5 MICRODUCT MULTI – OPK-ELEKTRONIK-SO-VODA-7WAY- 7/3.5MM

Product Overview

Direct Bury Microduct is designed for direct burial by having thicker inner tube. It has advantage for easy and fast termination with thin outer sheath. The thickness of each inner tube allows individual tubes to be used direct buried solution.

Application

This item is suitable for any construction sites such as open cut, Micro trenching, Mini trenching. This product is usually recommended to the site which requires fast and easy sheath cutting during fiber branch off from the FCP

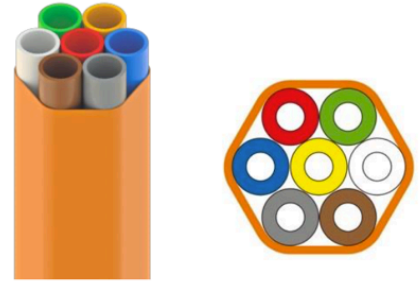
Overall

Product Diameter	23.0 x 21.0 mm
Product Weight	0.258 kg /m
Colour Code (DIN)	Red, Green, Blue, Yellow, White, Gray, Brown
Test Compliance (According to IEC 60794-5)	Tensile Performance: 2500 N (IEC 60794-1-2 E1) Bend Radius: 260 mm (IEC 60794-1-2 E11) Crush: 2000 N (IEC 60794-1-2 E3) Kink: No Damage (IEC 60794-1-2 E10) Impact: No Damage (IEC 60794-1-2 E4) Pressure Withstand (IEC 60794-1-2 F13) Inner Clearance Test (IEC 60794-1-21 Annex E)

Material	HDPE 100,
Density	min 0.940 g/cm ³
Transport and Storage Temperatures	from -40° C to +60° C
Installation Temperatures	from -10° C to +50° C
Outdoor Exposure Limit in Central Europe	max. 12 months
Installation Pressure	max 16 bar

Microduct

Diameter Standard	DIN 8074
Microduct OD	min 6.9 mm
Thickness	1.75 (-0.05 / +0.1) mm
Ovality	max 5%
Outer Sheath	min 0.75 mm, orange



Marking Example

OPTOKON Elektronik MICRODUCT 7x7/3,5 PE-HD 01.01.2022 00:00 0000m

Packing

2000 m per Reel • Reel Size 1650x720 • Number of Drums in 40': 21
Bundle is wound on Metal Drum and wrapped by balloon stretch film. Bundle's ends are protected by plastic caps protecting them from impurities penetrating into microducts. Drums are placed on a wooden pallet and fastened tightly.

OPTOKON Elektronik 16/12 MM MICRODUCT – OPK-ELEKTRONIK-SO-VODA-1WAY- 16/12mm

PRODUCT OVERVIEW

Microducts are the most commonly used underground and are packaged in continuous lengths on reels or coils allowing for fast installation with minimum joints. Micro ducts can be installed via trenching, micro trenching and plowing. Microducts are available in numerous colors and stripe combinations for easy identification. There are numerous wall thicknesses available as required to meet the particular installation methods and ground conditions.

Overall

Product Weight	82 kg / km
Metal Free	Yes
Inner Surface	Ribbed Wall
Identification	Color, with optional stripe

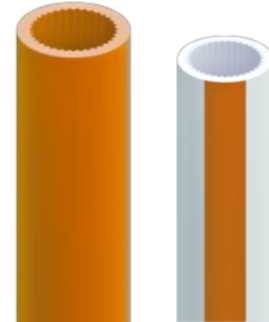
Test Compliance	Tensile Performace : 800 N Bending Radius : 160 mm Crush Test : 500 N Kink Test : No Damage Impact Test : No Damage Pressure Withstand Inner Clearance Test: Pass	(IEC 60794-1-2 E1) (IEC 60794-1-2 E11) (IEC 60794-1-2 E3) (IEC 60794-1-2 E10) (IEC 60794-1-2 E4) (IEC 60794-1-2 F13) (IEC 60794-1-21 Annex E)
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Material	100% virgin HDPE 100 material
Density	min 0.940 g/cm ³

Transport and Storage Temperatures	from -40° C to +60° C
Installation Temperatures	from -10° C to +50° C
Outdoor Exposure Limit in Central Europe	max. 12 months
Blowing Pressure	16 bar
Burst Pressure	min 40 bar

Microduct

Diameter Standard	DIN 8074
Microduct OD	min 11.9 mm
Thickness	2 (-0.1 / +0.1) mm
Ovality	max 5%



Marking	Operator Name OPTOKON Elektronik Microduct 16x2.0 HDPE 01.01.2019 12.00 232m
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Packing

Plywood Drums
Length/Drum: 1100 m • Drum Size(mm): 1150 x 370 • Number of Drums in 40': 100

Note1: Diameters and thicknesses are measured to nearest 0.1 mm
Note2: All dimensions and weight are 'nominal'
Note3: 'nominal' data is based on middle-spec, and is for information only, not for inspection purposes.

OPTOKON Elektronik 20/16 MM MICRODUCT – OPK-ELEKTRONIK-SO-VODA-1WAY- 20/16mm

PRODUCT OVERVIEW

Microducts are the most commonly used underground and are packaged in continuous lengths on reels or coils allowing for fast installation with minimum joints. Micro ducts can be installed via trenching, micro trenching and plowing. Microducts are available in numerous colors and stripe combinations for easy identification. There are numerous wall thicknesses available as required to meet the particular installation methods and ground conditions.

Overall

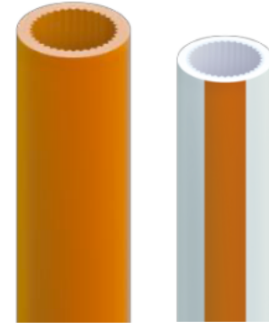
Product Weight	107 kg / km	
Metal Free	Yes	
Inner Surface	Ribbed Wall	
Identification	Color, with optional stripe	
Test Compliance	Tensile Performace : 1050 N	(IEC 60794-1-2 E1)
	Bending Radius : 200 mm	(IEC 60794-1-2 E11)
	Crush Test : 500 N	(IEC 60794-1-2 E3)
	Kink Test : No Damage	(IEC 60794-1-2 E10)
	Impact Test : No Damage	(IEC 60794-1-2 E4)
	Pressure Withstand	(IEC 60794-1-2 F13)
	Inner Clearance Test: Pass	(IEC 60794-1-21 Annex E)

Material	100% virgin HDPE 100 material
Density	min 0.940 g/cm3

Transport and Storage Temperatures	from -40° C to +60° C
Installation Temperatures	from -10° C to +50° C
Outdoor Exposure Limit in Central Europe	max. 12 months
Blowing Pressure	16 bar
Burst Pressure	min 40 bar

Microduct

Diameter Standard	DIN 8074
Microduct OD	min 15.9 mm
Thickness	2 (-0.1 / +0.1) mm
Ovality	max 5%



Marking	Operator Name	OPTOKON Elektronik Microduct	20x2.0	HDPE	01.01.2019	232m
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Packing

Plywood Drums
Length/Drum: 2000 m • Drum Size(mm): 1650 x 720 • Number of Drums in 40': 21

Note1: Diameters and thicknesses are measured to nearest 0.1 mm

Note2: All dimensions and weight are 'nominal'

Note3: 'nominal' data is based on middle-spec, and is for information only, not for inspection purposes.

CONNECTOR
&
END CAP

MICRODUCT CONNECTORS

Series V4000

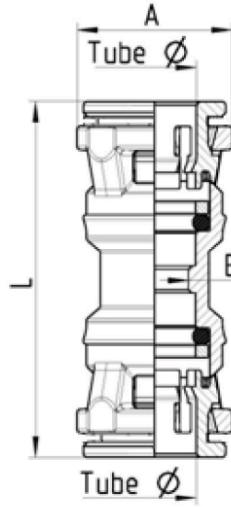


FEATURES AND FUNCTIONAL SPECIFICATIONS:

- For Standard and Direct Buried Applications
- Compact Size
- No metal parts
- Push-Fit
- No tooling
- Secure clip that is fixed before/after installation of the tube
- Transparent body to allow verification of the position of microduct and the trough of the fibre
- Working pressure: 20 bar using for blowing system
- Working temperature: -20° / +50°C
- Fluid: Compressed air with blowing system
- Microduct to connect: Polyethylene HDPE
- According to Standards: CEI EN 50411-2-8
- Protection class: IP68
- Year esteemed of life: 25 years

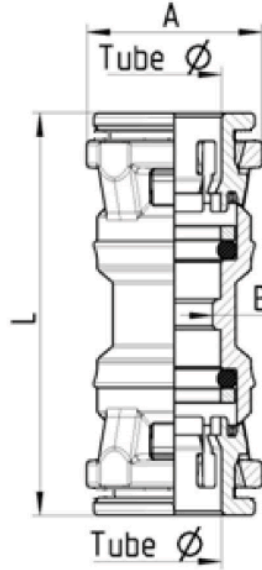
All straight connectors, endstop connectors and reducing straight connectors are made with plastic materials compatible with the substances present in the ground (substances and percentage values in accordance with the Standard CEI EN 50411-2-8).

To interventions on the system, after years of installation, during which maintenance and/or disconnection of the Microduct from connectors is required, we recommend using of the Protection Cap Mod.4708.



STRAIGHT CONNECTOR V4580

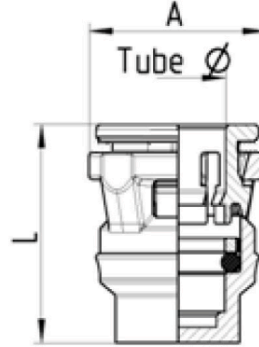
Mod.	Tube Ø	A	B	L	Weight (g)
V4580 3/2.1	3	10±0.2	2.1±0.12	30.0±0.5	1.5
V4580 4/2.5	4	10±0.2	2.5±0.12	30.0±0.5	1.5
V4580 5/3.5	5	12.4±0.2	3.5±0.12	39.0±0.5	3
V4580 7/5.5	7	16.3±0.2	5.5±0.12	41.5±0.5	5
V4580 8/6	8	17.7±0.2	6.0±0.12	43.0±0.5	6
V4580 8.5/6	8.5	17.7±0.2	6.0±0.12	43.0±0.5	6
V4580 10/8	10	20.2±0.2	8.0±0.12	48.0±0.5	8
V4580 12/10	12	23.0±0.2	10.0±0.12	51.7±0.5	10
V4580 12.7/10	12.7	23.0±0.2	10.0±0.12	51.7±0.5	10
V4580 14/11	14	25.6±0.2	11.0±0.12	59.2±0.5	15
V4580 14/12	14	25.6±0.2	12.0±0.12	59.2±0.5	15
V4580 15/12	15	27.2±0.2	12.0±0.12	59.7±0.5	17
V4580 16/14	16	30.0±0.2	14.0±0.12	66.0±0.5	23
V4580 18/15	18	33.5±0.2	15.0±0.12	77.0±0.5	34



STRAIGHT CONNECTOR V4581

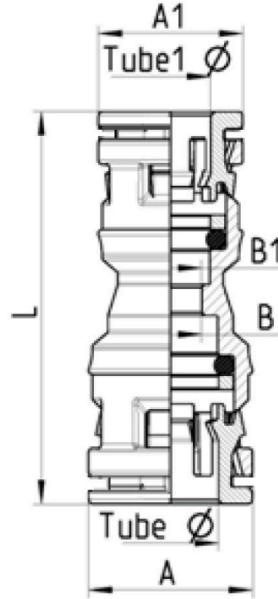
Microduct for DB (Direct Buried) use

Mod.	Tube Ø	A	B	L	Weight (g)
V4581 5/2.1	5	12.4±0.2	2.1±0.12	39.0±0.5	3
V4581 7/3.5	7	16.3±0.2	3.5±0.12	41.2±0.5	5
V4581 7/4	7	16.3±0.2	4.0±0.12	41.2±0.5	5
V4581 8/5	8	17.7±0.2	5.0±0.12	43.0±0.5	6
V4581 10/5.5	10	20.2±0.2	5.5±0.12	48.0±0.5	8
V4581 10/6	10	20.2±0.2	6.0±0.12	48.0±0.5	8
V4581 12/8	12	23.0±0.2	8.0±0.12	51.7±0.5	10
V4581 14/10	14	25.6±0.2	10.0±0.12	59.2±0.5	15
V4581 16/12	16	30.0±0.2	12.0±0.12	66.0±0.5	23
V4581 18/12	18	33.5±0.2	12.0±0.12	77.0±0.5	35
V4581 18/14	18	33.5±0.2	14.0±0.12	77.0±0.5	34



ENDSTOP CONNECTOR V4750

Mod.	Tube Ø	A	L	Weight (g)
V4750 3	3	10.0±0.2	16.5±0.3	1
V4750 4	4	10.0±0.2	16.5±0.3	1
V4750 5	5	12.4±0.2	21.5±0.3	2
V4750 7	7	16.3±0.2	22.6±0.3	3
V4750 8	8	17.7±0.2	23.6±0.3	3
V4750 8.5	8.5	17.7±0.2	23.6±0.3	3
V4750 10	10	20.2±0.2	26.0±0.3	4
V4750 12	12	23.0±0.2	27.8±0.3	6
V4750 12.7	12.7	23.0±0.2	27.8±0.3	6
V4750 14	14	25.6±0.2	32.6±0.3	8
V4750 15	15	27.2±0.2	32.9±0.3	9
V4750 16	16	30.0±0.2	36.0±0.3	13
V4750 18	18	33.5±0.2	42.0±0.3	18



REDUCING STRAIGHT CONNECTOR V4582

Mod.	Tube Ø	Tube1 Ø	A	A1	B	B1	L	Weight (g)
V4582 5/3.5-3/2.1	5	3	16.3±0.2	10.0±0.2	3.5±0.12	2.1±0.12	35.0±0.5	4
V4582 7-5/3.5	7	5	16.3±0.2	12.4±0.2	3.5±0.12	3.5±0.12	40.3±0.5	4
V4582 10-7/5.5	10	7	20.3±0.2	16.3±0.2	5.0±0.12	5.0±0.12	44.8±0.5	6
V4582 10/5.5-8/5	10	8	20.3±0.2	17.5±0.2	5.5±0.12	5.0±0.12	45.8±0.5	7
V4582 12-10/8	12	10	23.0±0.2	20.3±0.2	8.0±0.12	8.0±0.12	50.0±0.5	9
V4582 14-12/10	14	12	25.6±0.2	23.0±0.2	10±0.12	10±0.12	55.8±0.5	13

MICRODUCT CONNECTORS



These connectors were developed to connect microducts with each other. Our system enables an easy, fast connection and disconnection of the microduct.

The connectors' robust construction includes IP68 water ingress protect on and resistance to high pressure forces, allowing them to be used in direct buried (DB) applications. The transparent body enables easy visual inspect on of the cable within the connector. The straight push-in and endstop connectors have a fully plastic design utilising non-conductive parts only and are also free from metal parts.

The connectors are made in accordance with Standard CEI EN 50411-2-8. In addition, the uniformity of production is ensured by an external, recognised quality assurance program, TÜV Süd.

External diameters :

3, 4, 5, 7, 8, 8.5, 10, 12, 12.7, 14, 16, 18, 20 mm;

Versions :

Straight Connector, Reducing Connector, Endstop Connector

END CAPS

End caps are used to seal Microducts of 4 mm up to 50 mm.

It s made of flexibel PVC material and provides optimal protection against water, oil, greases and acids.

Features :

Dirt and splash water tight
Durable seal due to quality PVC material
Suitable for new construction





**OPTOKON Elekttronik
Limited Şirketi**

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