

Microduct DuraMicro DB 16/10 mm - SK

DESCRIPTION, APPLICATION

Microduct DuraMicro Direct Bury (DB) is designed for the protection of optical microcables. Outer layer (1) is smooth, made of high density polyethylene (HDPE). Co-extruded smooth inner core (2), is made of Silicore™ permanently solid lubricant significantly reducing the surface friction. Strong mechanical properties of the microduct make it suitable for placing into the ground; details of installation methods and conditions are provided in respective Installation Manuals. Microcables can be installed into the microduct by pulling or blowing; the microduct is designed to withstand inner pressure of minimum 20 bars applied during actual cable installation. The microduct can also be supplied as a part of DuraMulti or DuraFlat bundles.



STANDARDS

- DURA-LINE CT's quality system is certified according to EN ISO 9001:2009, EN ISO 14001:2005 and OHSAS 18001:2008
- The microduct does not contain chemicals in accordance to the Directive of the European Parliament and the Commission no. 2006/1907/EC (REACH)
- The microduct meets requirements of the Directive of the European Parliament and the Commission no. 2011/65/EU (RoHS), as amended on January 3, 2013 (RoHS II).

MATERIAL MODIFICATION

The microduct can be supplied in various material modifications for specific applications, containing different types of additives or their combinations:

- **Standard** is made of virgin HDPE material that is suitable for most telecom applications;
- **UV stabilized additives** increase material resistance to ultraviolet radiation. Storage time of UV stabilized products in open air can be prolonged up to 24 months at Central Europe's outdoor climatic conditions. The storage time can be further prolonged with increased dosing of UV stabilizers based on customers' specifications.
- **Antistatic additives** decrease microduct's electrical surface resistance
- **Anti-rodent additives**, based on special repellents, increase product resistance to rodents.

MARKING

Microducts are printed along the entire length with text according to the customer's requirements. Printing colour is in contrast to the microduct colour. Printing scheme is repeated each 1 meter along the microduct, unless specified otherwise.

Example of the printing scheme:

DURA-LINE CT DuraMicro DB 16/10 mm SILICORE 12/2014 LOT No 12345678 0000 m >K

COLOR LIST

Microducts can be manufactured in natural translucent colour, or in wide range of solid-body colours. For standard range of colours, see the table of RAL swatch; additional colours are available on request.

| | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 2009 | 2003 | 3020 | 6029 | 6018 | 6017 | 6001 | 6027 | 5015 | 5021 |
| 1016 | 1018 | 1021 | 3015 | 4003 | 4006 | 8015 | 8017 | 9017 | 1015 |
| 7045 | 9003 | tran | | | | | | | |

* Additional colours are available at request.

Microduct DuraMicro DB 16/10 mm - SK

PACKING AND STORAGE

The microduct is supplied wound on plywood disposable drums with cardboard cores (MTBxx) of appropriate size. Upon customer request, other drums for shipping and handling the microduct can be used (plastic, wooden etc.). The winding ends app. 10mm below the flange edge, and is completely wrapped by a black stretch foil for UV protection.

Ends of the microduct are sealed with plastic caps preventing ingress of impurities into the microduct. Identification stickers are placed on the drum flange.

Additional information on suitable drum types for this product, drum dimensions and its other parameters can be found in **TDS DuraMicro packaging**

MATERIAL PARAMETERS

| Parameter | Value | Standard, conditions |
|---|-------------------------|--------------------------|
| Material Density | ≥ 950 kg/m ³ | ISO 1183 |
| OIT Stability | ≥ 60 minutes | EN 728, 190°C |
| Environmental stress crack resistance, ESCR | ≥ 1 000 hours | ASTM D 1693, Condition A |

MECHANICAL PARAMETERS

Detailed description of methods to determine mechanical parameters are in company working standards CWS 103-2014 and CWS 104-2014 (LSHF).

| Parameter | Value | Standard, conditions |
|--|--|--|
| Outer diameter (OD) | 16±0,1 mm | CWS 103-2014 |
| Inner diameter (ID) | min. 9,9 mm | CWS 103-2014 |
| Wall thickness (WT) | min. 2,9 mm | CWS 103-2014 |
| Ovality | max. 5% | CWS 103-2014 , before coiling |
| Blown ball test (BB test) | pass | CWS 103-2014 , ball diameter 10,0 mm |
| Inner coefficient of friction | max. 0,1 | CWS 103-2014 |
| Burst pressure | min. 40 bar | EN ISO 1167-1, 2 |
| Crush - residual deformation | max. 15% OD = max. 2,4 mm | EN 60794-1-2, E3, sample 200mm, active 100mm, force 1 400 N, 3 mm/min., action 60 s, recovery 20 s |
| Crush - pressure force | min. 1 000 N | EN 60794-1-2, E3, sample 200mm, active 100mm, ID deformation by 15%, speed 3 mm/min. |
| Impact | no damage after the test, dimens. in tolerances after recovery | EN 60794-1-2, method E4, striking surface radius 10 mm, impact energy 15 J, recovery time 1 h |
| Bending stiffness | min. 0,94 N.m ² | CWS 103-2014 |
| Thermal expansion | *1,6.10 ⁻⁴ K ⁻¹ | ISO 11359-2, temperature range from -20°C to +70°C |
| Longitudinal reversion | max. 3% | EN ISO 2505, oven, 110°C, 60 min. |
| Elongation at break | ≥ 450 % | ISO 527 |
| Percentage deflection | ≤ 3% | ISO 2505+70°C |
| Pipe stiffness | ≥ 1 250 N | EN IEC 61386-24 |
| Determination of friction | ≤ 0,1 | British Telecom specifications LN 461 D, LN 650 |
| Yield Point | ≥ 18 MPa | ISO 527 |
| Standard Dimension Ratio (SDR = OD/W1) | *8 | - |
| Weight | *119 kg/km | - |
| Transport and storage temperatures | from -40°C to +70°C | - |
| Installation temperatures | from -20°C to +70°C | - |
| Operating temperatures | from -40°C to +70°C | - |
| Installation tensile force | max. 1 770 N | - |
| Recommended cable dimens. for blowing | from 3,6 to 8,4 mm | - |
| Minimum bending radius | 160 mm | - |
| Blowing pressure | max. 20 bar | max. 2 hours at max. +50°C |
| Outdoor exposure limit | max. 12 months | Central Europe conditions |
| Product lifetime when buried | at least 50 years | - |

* informative value