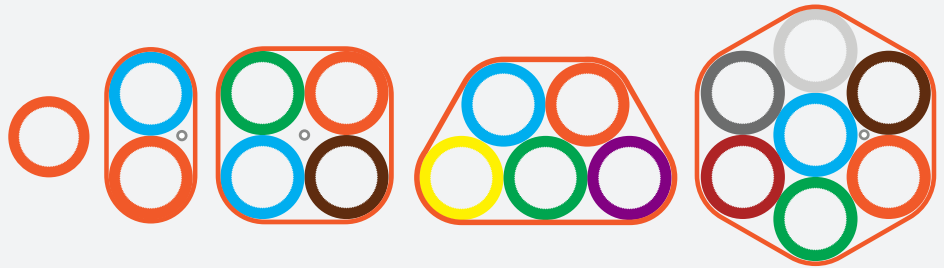


HÖHLE

microduct
single bundles
10/8 mm DI



Höhle microducts are designed for long term protection of fiber optical cables. Direct Install (DI) type of microducts are thin-walled products designed to be installed into a conduit that provides the primary mechanical protection for innerduct and cable pathway.

APPLICATION AREA:

The wall thickness of the microduct and the type of raw material means this bundle can be used in as a **direct install** product, where it is installed into an existing duct.

CONSTRUCTION OF THE PRODUCT:

Höhle microduct bundles are made of high density polyethylene – HDPE. Every microduct has a permanent, co-extruded silicone compound inner liner giving a coefficient of friction of less than 0,1. The inner surface of microduct can be manufactured with longitudinal grooves or with a smooth finish.

The bundle has a sheath suitable for installation, handling and marking.

VISUAL APPEARANCE:

The colours of microducts and the colour of the sheath as well as the placement of coloured microducts in a bundle are fully customizable. Both options – fully coloured microducts or natural colour with coloured stripes – are available.

METALLIC TRACING WIRE IS AVAILABLE AS AN OPTION:

For detecting installed bundle of microducts during its installed lifetime. The inclusion of tracing wire must be specified by the customer when ordering.

| SingleHöhle microduct 10/8 mm net weight 28 gr/m | | | | | |
|--|------------------------------|-----------|----------------------------|--------------------|------------------|
| Duct type | OD | ID | inner clearance test | min bending radius | tensile strenght |
| | mm | mm | % of ID | mm | N |
| 10 / 8 | 10 +/- 0,1 | 8 +/- 0,1 | 85 | 100 | 380 |
| test method | EN 50411-6-1:2011 Annex A:A1 | | IEC 60794-1-21 full lenght | | |

| MultiHöhle microduct bundles 10/8 mm | | | | | |
|--------------------------------------|--------------|--------------|------------------|--------------------|------------------|
| configuration | microduct OD | microduct ID | bundle min x max | min bending radius | tensile strenght |
| | mm | mm | mm | mm | N |
| 2 x 10 / 8 | 10 +/- 0,1 | 8 +/- 0,1 | 12 x 22 | 120 | 760 |
| 3 x 10 / 8 | 10 +/- 0,1 | 8 +/- 0,1 | 21 x 22 | 210 | 1100 |
| 4 x 10 / 8 | 10 +/- 0,1 | 8 +/- 0,1 | 22 x 26 | 220 | 1520 |
| 5 x 10 / 8 | 10 +/- 0,1 | 8 +/- 0,1 | 21 x 32 | 210 | 1900 |
| 7 x 10 / 8 | 10 +/- 0,1 | 8 +/- 0,1 | 30 x 32 | 300 | 2660 |

| Recommendations | | |
|--|-------------------------------|-----------------|
| Temperature ranges | for installation | -15 ... +40°C |
| | transport, storage, operation | -45 ... +55°C |
| Fibre Optical Cable dimensions for blowing | | 2,4 ... 5,6 mm |
| Outdoor exposure without protection | | up to 12 months |

| Mechanical characteristics | | | |
|--------------------------------|-----------------------------|---|-----------------------|
| Criteria | Test Method | Examination | Acceptance criteria |
| Pressure withstand | EN 50411-6-1:2011 Annex B | temp 20°C, duration 30 min; 18 bar | no leaks* |
| Tensile performance | IEC 60794-1-21, Method E1 | test length >1m, tensile load 270N, load 10 min | no damage** |
| Kinking | IEC 60794-1-21, Method E10 | temp 23 +/- 3°C; 20x OD | no kinking, $d=C/\pi$ |
| Crush | IEC 60794-1-21, Method E3A | test length 250mm, load 1kN, duration 1 min, recov 1h | no damage** |
| Impact | IEC 60794-1-21, Method E4 | impact energy 3J, striking surface radius 300mm | no damage** |
| Bending | IEC 60794-1-21, Method E11B | mandrel diam 40x OD, 3 cycles | no damage** |
| Repeated bending | IEC 60794-1-21, Method E6 | bending diam 40x OD, 25 cycles | no damage** |
| Inner clearance test | IEC 60794-1-21, Annex E | to confirm inner diameter with steel ball in diameter 80% | passes full lenght |
| Coefficient of Friction | IEC 62470 | tension around a curve 1040mm | CoF less than 0,1 |

(*) Under visual examination without magnification the microduct shall show no damage

(**) Under visual examination without magnification the microduct shall show no damage and the test piece shall pass inner clearance test after recovery time.

Höhle production quality control plan follows EN 50411-6-1 and IEC 60974-5-10 requirements.

WE VALUE ENVIRONMENTAL AND SUSTAINABLE WAY OF ACTING:

- Our wooden drums could be re-used – please contact Trumlitagastus OÜ www.trumlitagastus.ee
- All plastic materials left would be recycled by Weerec OÜ, www.weerec.ee