



Multiple 4-ways 14/10 mm DB

Höhle microducts are designed for long term protection of fiber optical cables. Direct Bury (DB) type of microducts are thick wall products that attain their mechanical robustness and functional performance through their intrinsic thick walls and need no further protection at underground installations.

MULTIPLE 4-ways is a bundle made of 4 Singleton's sheathed with high density polyethylene (HDPE) material. Every Singleton has co-extruded silicone core inner liner together with longitudinal grooves obtaining coefficient of friction less than 0,1.

INFORMATIVE VALUES:

- **maximum dimension of cross section:** 36 mm
- **minimum dimension of cross section:** 29,5 mm
- **sheath thickness:** 0,8 mm
- **minimum bending radius:** 20x dimension
- **tracer wire (optional):** PVC isolated copper wire with cross-section 0,5 mm² (diameter 0,8mm)

DIMENSIONAL REQUIREMENTS FOR SINGLETON:

- **criteria:** required value or tolerance / standard
- **outer diameter:** min 13,8 mm and max 14,2 mm / EN 50411 - 6 - 1: 2011 (test method Annex A: A1)
- **inner diameter:** min 9,9 mm / EN 50411 - 6 - 1: 2011 (test method Annex A: A2)
- **wall thickness:** min 1,95 mm / EN 50411 - 6 - 1: 2011
- **ovality before coiling:** 5% / EN 50411 - 6 - 1: 2011 ((ODmax- ODmin)/ODmean)x100%
- **inner clearance test:** 8,5 mm sphere through all length of coil / IEC 60974 -1-21 Method E23

PERFORMANCE REQUIREMENTS FOR SINGLETON:

- **criteria:** requirement / standard
- **burst pressure:** no damage, no leaks at 18 bar at water 20 degrees Celcius for 30 min / EN 50411 - 6 - 1: 2011 (test method Annex B);
- **tensile performance:** no damage after load 720 N for 10 min test / IEC 60794 - 1-21, Method E1;
- **kinking:** no damage or kinking during loop min diameter (20x OD) of the microduct / EN 60794 - 1-2, Method E10;
- **crush:** no damage after load of 2000 N for 1 min / IEC 60794 - 1-21, Method E3;
- **impact:** no damage after strike with energy of 15J / IEC 60794 - 1 - 21, Method E4;
- **bending:** no damage after the bending 3x around 40x OD U-shape (180 degrees) / IEC 60794 - 1- 2, Method E11B
- **ageing:** to meet burst pressure and dimensional requirements after test / EN 60793 - 1 - 51 dry heat;
- **inner clearance test:** to confirm 85% inner diameter of short length of test piece / IEC 60794-1-21 Annex E;
- **coefficient of friction:** tension around a curve 1040 mm according to IEC 62470, CoF less than 0,1

OTHER INFORMATION:

- **marking** is printed in whole length of the product after every 1 meters according to customer specification. Standard text: HÖHLE silicone core microduct MULTIPLE 4x 14/10 mm DB date batch nr length in meters;
- **colours:** orange sheathing with blue, orange, green, brown Singleton's; Singleton might be in plain colour or natural white with coloured stripes; depends on customer specification
- **packing:** 3000 meters on wooden drum with dimensions 2200 x 1150 mm and wrapped with UV resistant film. Bundle ends are sealed with plastic caps to protect from impurities penetrating into microducts.
- **the square shape** configuration of 4 microducts is unstable and might transform to diamond shape. This transformation would not influence the quality and properties of microducts in the bundle.
- **transport and storage temperatures:** from -40 C to +70 C
- **installation temperatures:** from -10 C to + 50 C
- **recommended cable dimensions for blowing:** from 3,0 to 7,0 mm
- **for outdoor storage:** with UV protection film as packed in factory.

WE VALUE ENVIRONMENTAL AND SUSTAINABLE WAY OF ACTING:

- our wooden drums could be reused – contact Versowood Estonia OÜ, versowood.fi
- all plastic materials left would be recycled by Weerec OÜ, weerec.ee