

# LUMIFIBER FIBER OPTIC SOLUTION



## 18/14MM-3MM 7-WAYS MICRODUCT

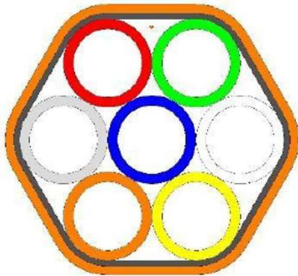
### 1. General Description

This microduct are compose by 7-ways 18/14mm PE inner micro ducts, with low friction performance. The outer sheath is HDPE material with a colored sheath making the microduct suitable for direct buried application.

### 2. Raw Material

No.	Characteristic	Test Method	Acceptance Criteria
1	Bundle is manufactured with 100% virgin HDPE		
2	Melt Flow index	ASTM D1238 190°C @ 2.16Kg Load	≤ 0.40g / 10min
3	Density	ASTM D792	0.940 ~ 0.958 g/cm <sup>3</sup>
4	Environmental stress crack resist (F50)	ISO 4599	Min. 96hour

### 3. Duct configuration & Dimension



<b>Sheath:</b>	Orange, Blue or customized
<b>Thickness of sheath:</b>	3.0mm
<b>Ripcord:</b>	Available upon customer request
<b>Tracing wire:</b>	Available upon customer request

	Outer Diameter (mm)		Wall Thickness (mm)	
	Nominal		Nominal	Nominal
<b>Tube bundle</b>	60.0 x 58.2		3.0	± 0.2

### Mechanical performance

Items	Standards	Test Method	Performance
<b>Inner Diameter Clearance</b>	IEC 60794-5-10 Annex E	Pressure: 12bar Max. Sphere size: 85% of nominal ID	Pass through the each inner micro duct
<b>Tensile strength at yield (sheathing)</b>	IEC 60794-5-10 & 20	Rate of extension: 100mm/min	≥ 21.0Mpa
<b>Elongation (Sheathing)</b>	IEC 60794-5-10 & 20	Rate of extension: 100mm/min	≥ 500%
<b>Crush</b>	IEC 60794-5-10 & 20	Sample length: 250mm Load: 4000N Duration of Max. load: 1min Recovery time: 1hour	Under visual examination there is no damage to the tube bundle, and inner diameter clearance test can be passed.
<b>Impact</b>	IEC 60794-5-10 & 20	Striking surface radius: 200mm Impact energy: 5.0J Recovery time: 1hour	Under visual examination there is no damage to the tube bundle, and inner diameter clearance test can be passed.
<b>Mi. Bending Radius</b>	IEC 60794-5-10 & 20	≤16x O.D.	Under visual examination there is no damage to the micro duct, and inner diameter clearance test can be passed.

#### 4. Inner Micro Duct

##### Dimension

	Outer Diameter (mm)		Wall Thickness (mm)		Inner diameter (mm)	Pressure
	Nominal	Tolerance	Nominal	Tolerance	Minimum	(bar)
<b>18/14mm</b>	18.0	0.15	2.0	0.15	13.8	16

##### Marking

The inner micro duct marking includes the following information and repeated every one meter:

- Product Specification
- Coil number
- Manufactured date
- Length Marking (e.g. 1234m)
- Other markings are available upon customer requests.

##### Mechanical performance

Items	Standards	Test Method	Performance
<b>Inner Diameter Clearance</b>	IEC 60794-5-10 Annex E	Pressure: 12bar Max. Sphere size: 85% of nominal ID	Pass through the micro duct
<b>Tensile strength</b>	IEC 60794-5-10 & 20	Rate of extension: 100mm/min	≥ 1810N
<b>Elongation</b>	IEC 60794-5-10 & 20	Rate of extension: 100mm/min	≥ 500%
<b>Crush</b>	IEC 60794-5-10 & 20	Sample length: 200mm Load: 1050N Rate of compression: 10mm/min	Under visual examination there is no damage to the tube bundle, and inner diameter clearance test can be passed.
<b>Impact</b>	IEC 60794-5-10 & 20	Striking surface radius: 20mm Impact energy: 1.5J Recovery time: 1hour	Under visual examination there is no damage to the tube bundle, and inner diameter clearance test can be passed.
<b>Kink</b>	IEC 60794-5-10 & 20		≤10x outer diameter
<b>Mi. Bending Radius</b>	IEC 60794-5-10 & 20	≤16x O.D.	Under visual examination there is no damage to the micro duct, and inner diameter clearance test can be passed.
<b>Friction</b>		Mandrel diameter: 750mm Cable diameter: 2.8mm Load: 5.0Kg  The sample duct is secured with 450°wrap around the mandrel. A 5.0kg weight shall be pulled at 500mm/min and travel 200mm.	≤0.1

#### 5. Packing



All microduct bundle are delivered on iron drum. The drums protected with black plastics foil and both end of the bundle are sealed with end cap to ensure that the inner micro duct will not be affected by water and dust.

#### 6. Remarks

Completed packages of the HDPE micro duct on drum can be stored outdoor max. 6 months upon the date of production.

Storage Temperature: -40°C – 70°C

Installation Temperature: -30°C – 50°C

Operating Temperature: -40°C – 70°C