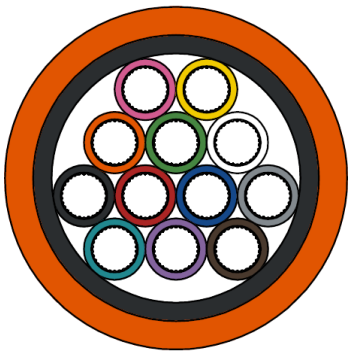
BluLight® Direct Bury High Strength Microduct Assemblies

5/3.5mm x 12ways



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1. General Description

BluLight® Direct Bury High Strength Microduct Assemblies consist of tubes with a smooth or ribbed inner surface that enables an air blown installation of micro cables. The microduct is sheathed with two layers without moisture barrier. It provides excellent protection from the physical environment withstanding significant amount of pressure by pulling and it is easy to branch off for network expansion.

2. Primary Tubes Technical Details

2-1 Dimension

Item	Outer diameter(mm)		Inner diameter(mm)		Wall thickness(mm)		Pressure(bar)
	Nominal	Tolerance	Nominal	Tolerance	Min.	silicon	
5/3.5	5	±0.1	3.5	±0.1	0.65	0.15	15

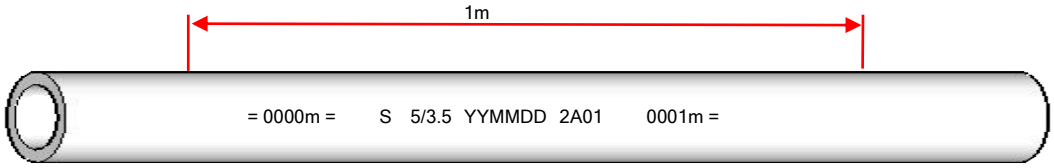
2-2 Marking

The microduct marking shall include the following information: (Frequency - repeated every 1meter)

- Tube type(e.g. S or R)
- Product spec.(e.g 5/3.5mm)
- Manufactured code(e.g YYMMDD 2A01)
- Length marking(e.g. = 0001m =)

※ Other markings are available upon customer requests.

※ **Example**



3.Microduct Assemblies Technical Details

3-1 Technical details

Product Code	Ways	Nom. OD (WxH) (mm)	1st sheath Thickness (mm)	2nd sheath Thickness (mm)	Max. Tensile (N)	Weight (kg/km)	Min.Bend Radius (mm)	Crush (N)
DBHS5/3.5-12	12	27.9	1.5	2.3	3,770	385	340	3,000

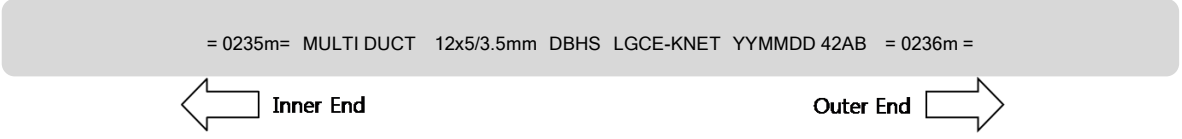
3-2 Marking

The microduct assemblies shall be include the following information; (Frequency - repeated every 1meter)

- Item(e.g. MULTI DUCT)
- Product spec.(e.g. 12x5/3.5mm DBHS)
- Manufacturer (e.g LGCE-KNET)
- Manufactured code(e.g. YYMMDD 42AB)
- Length marking(e.g. = 0235m =)

※ Other markings are available upon customer requests.

※ **Example**



4. Configuration & Color

4-1 Configuration

- Microduct(primary tube) : Polyethylene tube with color code according to paragraph 4-2(IEC60304)
  Silicone coating and smooth inner surface
- Inner sheath : Polyolefin with Black color
- Outer sheath : Polyethylene with Orange color
- Tracer wire & Ripcords : Available upon customer request
- Other colors are available upon the customer request.

4-2 Color code

Position	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Turquoise	Black	Orange	Pink
Position	13	14	15	16	17	18	19	20	21	22	23	24
Color	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Turquoise	Black	Orange	Pink

5. Mechanical Performance test

5-1 Microduct(Primary tubes)

Mechanical properties	International standard	Test conditions	Performance
Inner clearance	IEC 60794-5-10 Annex E	Pressure : 12bar Max. Sphere size : 85% of nom. ID	Pass : Pass through the primary tube.
Tensile Strength	IEC 60794-5-10&20	Tube length under tension: >1m Max. Tensile load: 1 x 9.8 x W*[N] Duration of max. load: 10 min *W = mass of 1km of component in kg	Pass: Under visual examination without magnification, There shall be no damage and no reduction of diameter greater than 15%.
Crush	IEC 60794-5-10&20	Sample length : 250mm Load: 700N Duration of Max. load: 1 minute Recovery time: 1 hr	Pass: The outer and inner diameter of the microduct shall show, under visual examination without magnification no damage and no reduction of inner diameter greater than 15%.
Impact	IEC 60794-5-10&20	Striking surface radius: 300mm Impact: 1 J Number of impact: 3 Recovery time: 1 hr	Pass: Under visual examination without magnification, there shall be no damage to the microduct. There shall be no residual deformation greater than 15% of the inner diameter and no splitting or permanent damage. The imprint of the anvil on the sheath is not considered as mechanical damage.
Kink	IEC 60794-5-10&20	Diameter: ≤ 20 x OD	Pass: The outer and inner diameter of the microduct shall show, under visual examination without magnification no damage and no reduction of diameter greater than 15%.
Bend	IEC 60794-5-10&20	Number of turns: 5 Mandrel diameter: ≤ 24 x OD Number of cycles: 3	Pass: The outer and inner diameter of the microduct shall show, under visual examination without magnification no damage and no reduction of diameter greater than 15%.

5-2 Microuct Assemblies

Mechanical properties	International standard	Test conditions	Performance
Inner clearance	IEC 60794-5-10 Annex E	Pressure : 12bar Max. Sphere size : 85% of nom. ID	Pass : Pass through the primary tube.
Tensile Strength	IEC 60794-5-10&20	Tube length under tension: >1m Max. Tensile load: 1 x 9.8 x W*[N] Duration of max. load: 10 min *W = mass of 1km of component in kg	Pass: Under visual examination without magnification, There shall be no damage and no reduction of diameter greater than 15%.
Crush	IEC 60794-5-10&20	Sample length : 250mm Load: 3,000N Duration of Max. load: 1 minute Recovery time: 1 hr	Pass: The outer and inner diameter of the microducts shall show, under visual examination without magnification no damage and no reduction of diameter greater than 15%.
Impact	IEC 60794-5-10&20	Striking surface radius: 300mm Impact: 10 J Number of impact: 3 Recovery time: 1 hr	Pass: Under visual examination, without magnification, there shall be no damage to the microduct. There shall be no residual deformation greater than 15% of the microduct diameter and no splitting or permanent damage. The imprint of the anvil on the sheath is not considered as mechanical damage.
Kink	IEC 60794-5-10&20	Diameter: ≤ 20 x OD	Pass: The outer and inner diameter of the primary tubes shall show, under visual examination without magnification no damage and no reduction of diameter greater than 15%.
Bend	IEC 60794-5-10&20	Number of turns: 5 Mandrel diameter: ≤ 24 x OD Number of cycles: 3	Pass: The outer and inner diameter of the microducts shall show, under visual examination without magnification no damage and no reduction of diameter greater than 15%.

6. Packing

Microduct assemblies are delivered on steel drum.

Product Code	Length/drum(m)	Drum size(H x W)	Gross weight(kg)	Number of Drums in 40'(EA)
DBHS5/3.5-12	500	1,150 x 630	195	60

7. Internationally Certified

KNET has met and maintains the rigorous standards required to become a Certified ISO 9001, ISO 14001 and TL9000 manufacturer. KNET Microduct Assemblies has been rigorously tested by Telcordia Technologies and found to be compliant with Telcordia GR-3155-CORE.