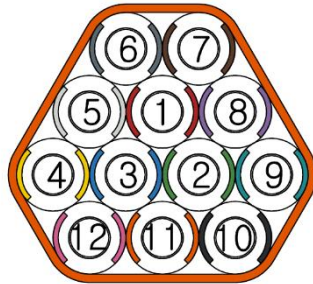


LGCE Thick Walled Microduct Assemblies

12 x 7/4 mm



1. General Description

LGCE Thick Walled Microduct Assemblies are designed for direct burial and have superior blowing characteristics. Thanks to the sufficient thickness of the wall, it exempts this type of microduct from additional protective ducts. Thick Walled Microduct Assemblies can be branched off easily and the primary tube can be directly buried as a single microduct. Also, this solution makes network distribution possible with a simple connector.

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	
7/4	7	±0.1	4	±0.1	1.4	0.15	16

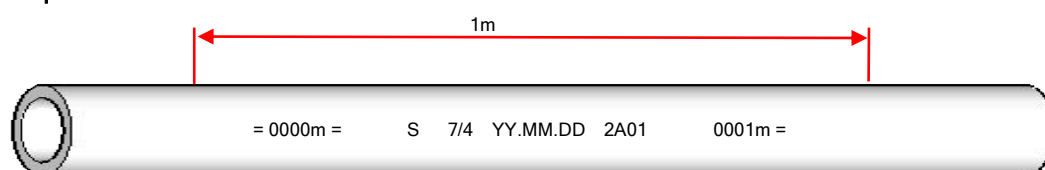
2-2 Marking

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

- Tube type(e.g. S or R)
- Product spec.(e.g 7/4mm)
- Manufactured code(e.g YY.MM.DD 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)	Sheath Thickness (mm)	Max. Tensile (N)	Weight (kg/km)	Min.Bend Radius (mm)	Crush (N)
TWD7/4-12	12	29.6 x 26.8	0.8	3,920	364	330	2,000

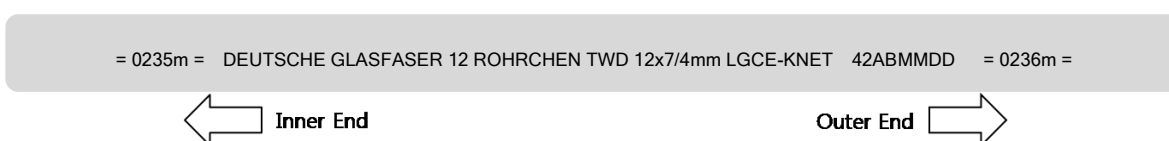
3-2 Marking

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

- Project Name (e.g DEUTSCHE GLASFASER 12 ROHRCHEN)
- Item(e.g. TWD)
- Product spec.(e.g. 12x7/4mm)
- Manufacturer (e.g LGCE-KNET)
- Manufactured code(e.g. 42ABMMDD)
- Length marking(e.g. = 0235m =)

※ Other markings are available upon customer requests.

※ **Example**



4. Configuration & Color

4-1 Configuration

- Microduct(primary tube) : Transparent polyethylene tube with color code according to paragraph 4-2
Silicone coating and smooth inner surface
- Sheath : Polyethylene with orange color (RAL 2009)
- Tracer wire & Ripcords : Two ripcords under the outer sheath
- 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
TWO Stripes Color	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	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 : 250 mm Load: 1500 N Duration of Max. load: 1 min Recovery time: 1 h	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: 3 J Number of impact: 3 Recovery time: 1 h	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: $\leq 20 \times OD$	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: 4 Mandrel diameter: $\leq 24 \times OD$ 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%.
Friction	Telcordia GR 356	Sample length: 3.5m Mandrel diameter: 750mm The sample length is secured with 450wrap around the mandrel with one end of the tube hanging downwards, the other end pointing horizontally towards the tensile machine.	Pass: A 6.8kg weight shall be pulled at 500m/min and travel 150mm. An average force of 5 pulls shall be recorded to give a coefficient of friction less than 0.1.

5-2 Microduct 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: $1.1 \times 9.8 \times W^*[N]$ 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 : 250 mm Load: 2,000 N Duration of Max. load: 1 min Recovery time: 1 h	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: 5 J Number of impact: 3 Recovery time: 1 h	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: $\leq 20 \times OD$	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: 4 Mandrel diameter: $\leq 12 \times OD$ 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)
TWD7/4-12	2,000	1,980 x 740	803	18

7. Internationally Certified

LGCE Microduct Assemblies has been rigorously tested by Telcordia Technologies and found to be compliant with Telcordia GR-3155-CORE.



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