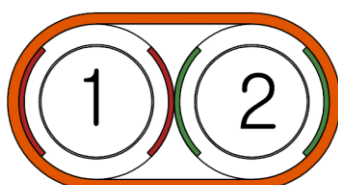


# LGCE Thick Walled Microduct Assemblies

2 x 14/10mm



## 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 |               |
| 14/10 | 14                 | ±0.1      | 10                 | ±0.1      | 1.9                | 0.15    | 16            |

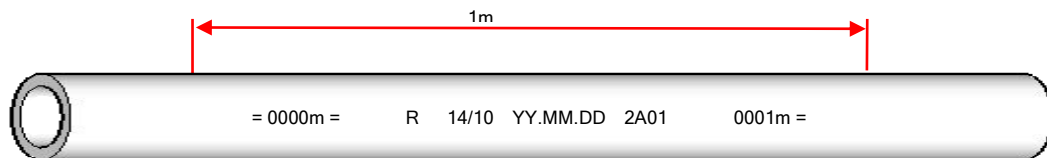
### 2-2 Marking

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

- Tube type(e.g. R)
- Product spec.(e.g 14/10mm)
- 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) |
|--------------|------|--------------------|-----------------------|------------------|----------------|----------------------|-----------|
| TWD14/10-2   | 2    | 30.0 x 16.0        | 1                     | 2,110            | 216            | 200                  | 2,000     |

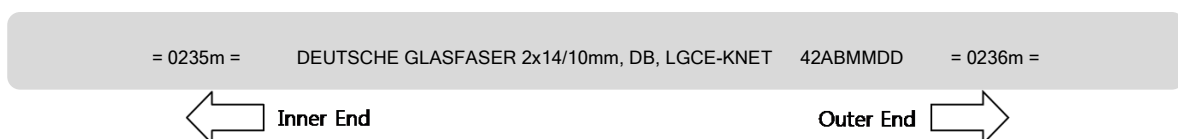
### 3-2 Marking

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

- Project Name(e.g. DEUTSCHE GLASFASER)
- Item(e.g. TWD)
- Product spec.(e.g. 2x14/10mm DB)
- Manufacturer(e.g. LGCE-KNET)
- Manufactured code(e.g. 42ABMMDD)
- Length marking(e.g. = 0235m =)

※ Other markings are available upon customer requests.

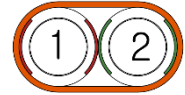
※ **Example**



## 4. Configuration & Color

### 4-1 Configuration

- Microduct(primary tube) : Transparent Polyethylene tube with color code according to paragraph 4-2  
Silicone coating and straight ribbed inner surface
- Sheath : Polyethylene with Orange color (RAL 2009)
- Tracer wire : Available upon customer request
- Ripcords : One ripcord under the outer sheath
- Other colors are available upon the customer request.



### 4-2 Color code

| Position          | 1   | 2     |
|-------------------|-----|-------|
| TWO Stripes Color | Red | Green |

## 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<br>Max. Sphere size : 85% of nom. ID                                                                                                                                                                       | Pass :<br>Pass through the primary tube.                                                                                                                                                                                                                                                               |
| Tensile Strength      | IEC 60794-5-10&20      | Tube length under tension: >1m<br>Max. Tensile load: 1 x 9.8 x W*[N]<br>Duration of max. load: 10 min<br>*W = mass of 1km of component in kg                                                                                | Pass:<br>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<br>Load: 1,000N<br>Duration of Max. load: 1 minute<br>Recovery time: 1hr                                                                                                                              | Pass:<br>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<br>Impact: 3 J<br>Number of impact: 3<br>Recovery time: 1hr                                                                                                                                  | Pass:<br>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:<br>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<br>Mandrel diameter: ≤ 24 xOD<br>Number of cycles: 3                                                                                                                                                     | Pass:<br>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<br>Mandrel diameter: 750mm<br>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:<br>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<br>Max. Sphere size : 85% of nom. ID                                                                                          | Pass :<br>Pass through the primary tube.                                                                                                                                                                                                                                                                    |
| Tensile Strength      | IEC 60794-5-10&20      | Tube length under tension: >1m<br>Max. Tensile load: 1.1 x 9.8 x W*[N]<br>Duration of max. load: 10 min<br>*W = mass of 1km of component in kg | Pass:<br>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<br>Load: 3,000N<br>Duration of Max. load: 1 minute<br>Recovery time: 1hr                                                 | Pass:<br>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<br>Impact: 5 J<br>Number of impact: 3<br>Recovery time: 1hr                                                     | Pass:<br>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:<br>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<br>Mandrel diameter: $\leq 24 \times OD$<br>Number of cycles: 3                                                             | Pass:<br>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 drum.

| Product Code | Length/drum(m) | Drum size(H x W) | Gross weight(kg) | Number of Drums in 40'(EA) |
|--------------|----------------|------------------|------------------|----------------------------|
| TWD14/10-2   | 3,000          | 1,980 x 740      | 731              | 18                         |

## 7. Internationally Certified

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



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