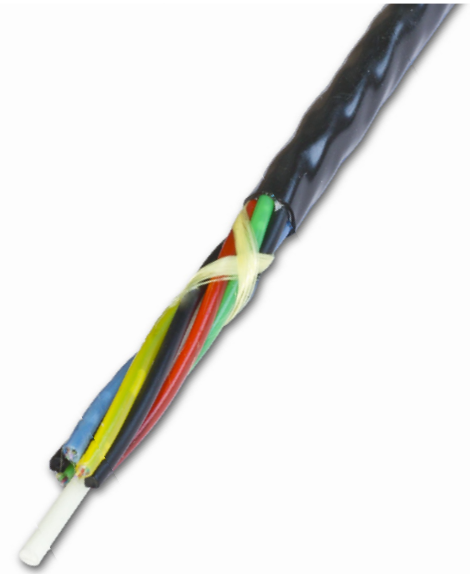


## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC 12 A1CH1X12H

### DESCRIPTION

Lightwin® mini cable, A-DQ(ZN)2Y HDPE, 12 fibres, G.657.A1  
 Sheath material: HDPE (High Density Polyethylene)  
 Fiber: Singlemode, bend insensitive G.657A1 fiber  
 Bundling: 1x12  
 outer diameter: 5,4mm  
 weight/km: 26kg  
 optimal for installation by blowing into microduct systems  
 Cable Sheath Marking:  
 LIGHTWIN - LTMC 12x SM G.657.A1 (1x12) 250µm HDPE COATING {Batch} {Length}  
 Colour code fibres and bundles according to data sheet  
 Length on drum: 4km



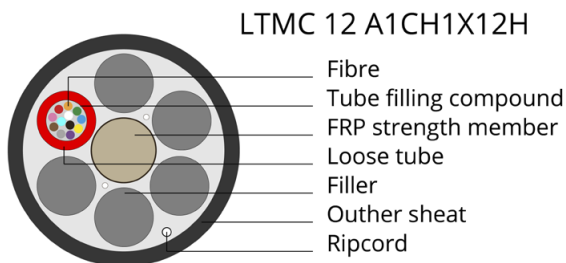
Note: Colour code of tubes following colour table in this datasheet

### GENERAL DESIGN

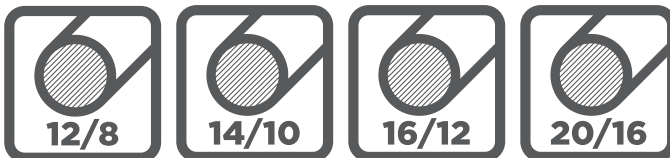
Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds. FRP is applied as central strength member. Loose tubes are SZ-stranded around the strength member. Water blocking yarns are used in and over the cable core to prevent it from water ingress. Polyethylene sheath is applied over the cable core as the outer sheath.

### CONSTRUCTION

Cross Section of Cable



### SUITABLE FOR FOLLOWING MICRODUCT DIAMETERS



EAN number	9120042366740
Packaging	Disposable wooden drum
Weight	26 kg/km

### PART NUMBER

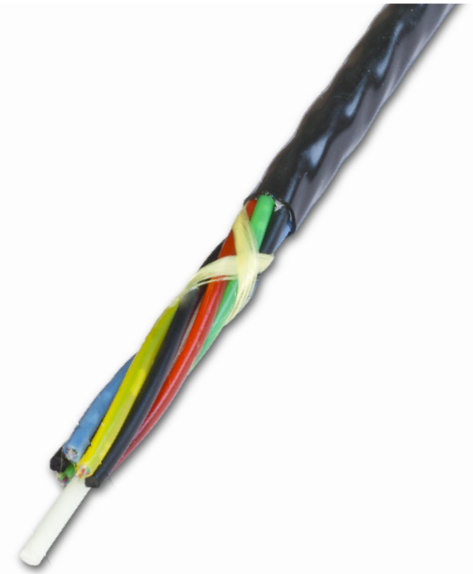
LTMC 12 A1CH1X12H

## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC 24 A1CH2X12H

### DESCRIPTION

Lightwin® mini cable, A-DQ(ZN)2Y HDPE, 24 fibres, G.657.A1  
 Sheath material: HDPE (High Density Polyethylene)  
 Fiber: Singlemode, bend insensitive G.657A1 fiber  
 Bundling: 2x12  
 outer diameter: 5,4mm  
 weight/km: 26kg  
 optimal for installation by blowing into microduct systems  
 Cable Sheath Marking:  
 LIGHTWIN - LTMC 2x12x SM G.657.A1 (2x12) 250µm HDPE COATING {Batch} {Length}  
 Colour code fibres and bundles according to data sheet  
 Length on drum: 4km



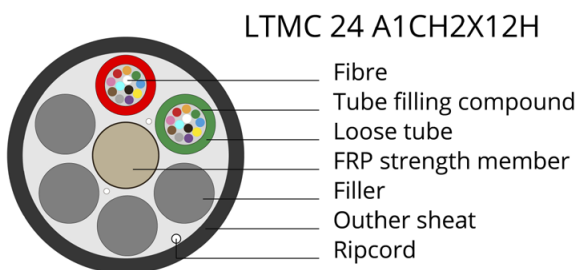
Note: Colour code of tubes following colour table in this datasheet

### GENERAL DESIGN

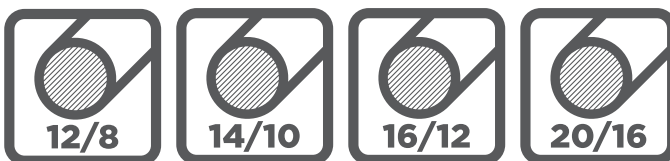
Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds. FRP is applied as central strength member. Loose tubes are SZ-stranded around the strength member. Water blocking yarns are used in and over the cable core to prevent it from water ingress. Nylon 12 sheath is applied over the cable core as the outer sheath.

### CONSTRUCTION

Cross Section of Cable



### SUITABLE FOR FOLLOWING MICRODUCT DIAMETERS



EAN number	9120042366757
Packaging	Disposable wooden drum
Weight	26 kg/km

### PART NUMBER

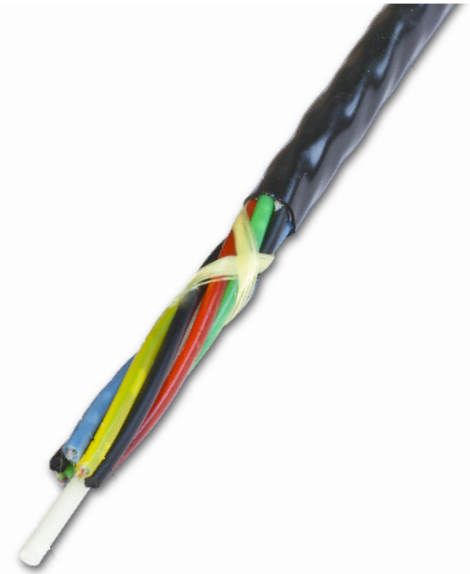
LTMC 24 A1CH2X12H

## LIGHTWIN® MICRO DUCT CABLE WITH NYLON SHEATH FOR INSTALLATION BY BLOWING

LTMC 48 A1DIN4X12H

### DESCRIPTION

Lightwin® mini cable, A-DQ(ZN)2Y HDPE, 48 fibres, G.657.A1  
 Sheath material: HDPE (High Density Polyethylen)  
 Fiber: Singlemode, bend insensitive G.657A1 fiber  
 Bundling: 4x12  
 outer diameter: 5,4mm  
 weight/km: 26kg  
 optimal for installation by blowing into microduct systems  
 Cable Sheath Marking:  
 LIGHTWIN - LTMC 4x12 SM G.657.A1 (4x12) 250µm HDPE COATING {Batch} {Länge}  
 Colour code fibres and bundles according to data sheet  
 Length on drum: 4km



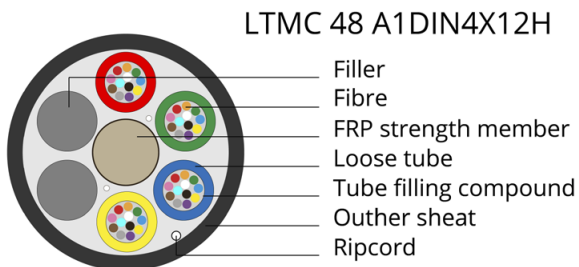
Note: Colour code of tubes following colour table in this datasheet

### GENERAL DESIGN

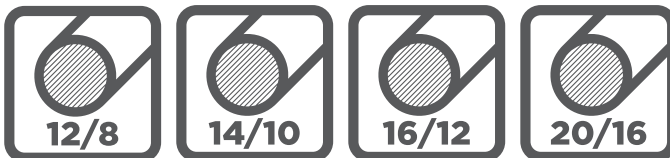
Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds. FRP is applied as central strength member. Loose tubes are SZ-stranded around the strength member. Water blocking yarns are used in and over the cable core to prevent it from water ingress. Nylon 12 sheath is applied over the cable core as the outer sheath.

### CONSTRUCTION

Cross Section of Cable



### SUITABLE FOR FOLLOWING MICRODUCT DIAMETERS



EAN number	9120042366924
Packaging	Disposable wooden drum
Weight	26 kg/km

### PART NUMBER

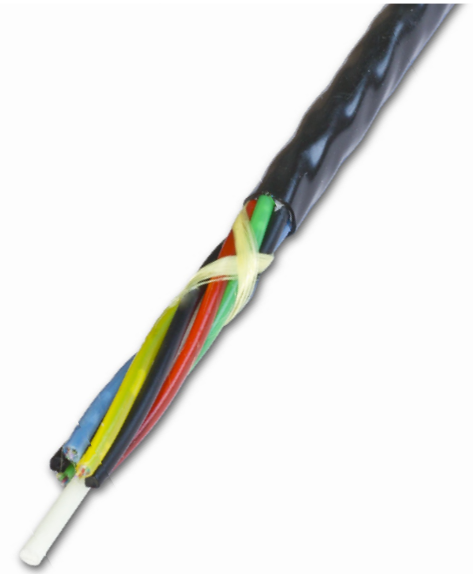
LTMC 48 A1DIN4X12H

## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC 72 A1DIN6X12H

### DESCRIPTION

Lightwin® mini cable, A-DQ(ZN)2Y HDPE, 72 fibres, G.657.A1  
 Sheath material: HDPE (High Density Polyethylen)  
 Fiber: Singlemode, bend insensitive G.657A1 fiber  
 Bundling: 6x12  
 outer diameter: 5,4mm  
 weight/km: 26kg  
 optimal for installation by blowing into microduct systems  
 Cable Sheath Marking:  
 LIGHTWIN - LTMC 6x12 SM G.657.A1 (6x12) 250µm HDPE COATING {Batch} {Länge}  
 Colour code fibres and bundles according to data sheet  
 Length on drum: 4km



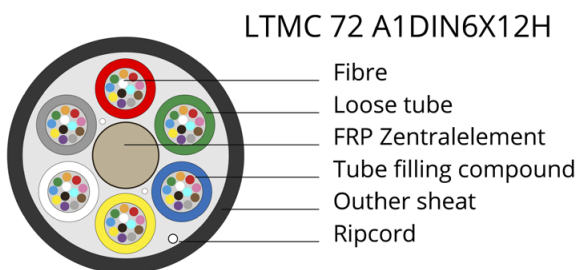
Note: Colour code of tubes following colour table in this datasheet

### GENERAL DESIGN

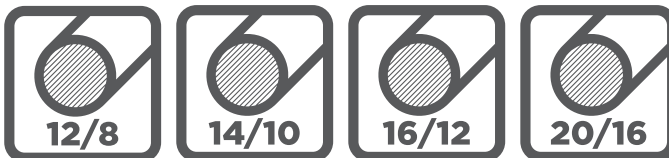
Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds.  
 FRP is applied as central strength member.  
 Loose tubes are SZ-stranded around the strength member.  
 Water blocking yarns are used in and over the cable core to prevent it from water ingress.  
 Nylon 12 sheath is applied over the cable core as the outer sheath.

### CONSTRUCTION

Cross Section of Cable



### SUITABLE FOR FOLLOWING MICRODUCT DIAMETERS



EAN number	9120046980720
Packaging	Disposable wooden drum
Weight	26 kg/km

### PART NUMBER

LTMC 72 A1DIN6X12H

## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC 96 A1DIN8X12H

### DESCRIPTION

Lightwin® mini cable, A-DQ(ZN)2Y HDPE, 96 fibres, G.657.A1  
 Sheath material: HDPE (High Density Polyethylene)  
 Fiber: Singlemode, bend insensitive G.657A1 fiber  
 Bundling: 8x12  
 outer diameter: 6,1mm  
 weight/km: 36kg  
 optimal for installation by blowing into microduct systems  
 Cable Sheath Marking:  
 LIGHTWIN - LTMC 8x12 SM G.657.A1 (8x12) 250µm HDPE COATING {Batch} {Länge}  
 Colour code fibres and bundles according to data sheet  
 Length on drum: 4km



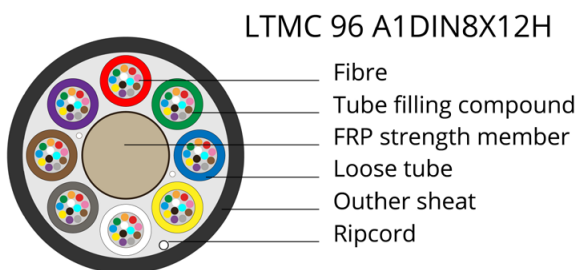
Note: Colour code of tubes following colour table in this datasheet

### GENERAL DESIGN

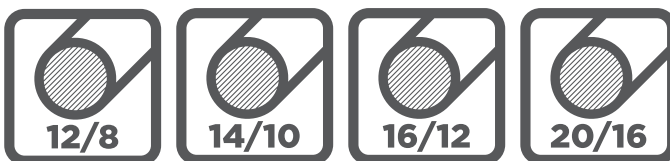
Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds. FRP is applied as central strength member. Loose tubes are SZ-stranded around the strength member. Water blocking yarns are used in and over the cable core to prevent it from water ingress. Nylon 12 sheath is applied over the cable core as the outer sheath.

### CONSTRUCTION

Cross Section of Cable



### SUITABLE FOR FOLLOWING MICRODUCT DIAMETERS



EAN number	9120046985596
Packaging	Disposable wooden drum
Weight	36 kg/km

### PART NUMBER

LTMC 96 A1DIN8X12H

## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC 144 A1DIN12X12H

### DESCRIPTION

Lightwin® mini cable, A-DQ(ZN)2Y HDPE, 144 fibres, G.657.A1  
 Sheath material: HDPE (High Density Polyethylene)  
 Fiber: Singlemode, bend insensitive G.657A1 fiber  
 Bundling: 12x12  
 outer diameter: 7,9mm  
 weight/km: 52kg  
 optimal for installation by blowing into microduct systems  
 Cable Sheath Marking:  
 LIGHTWIN - LTMC 12x12 SM G.657.A1 (12x12) 250µm HDPE COATING {Batch} {Länge}  
 Colour code fibres and bundles according to data sheet  
 Length on drum: 4km



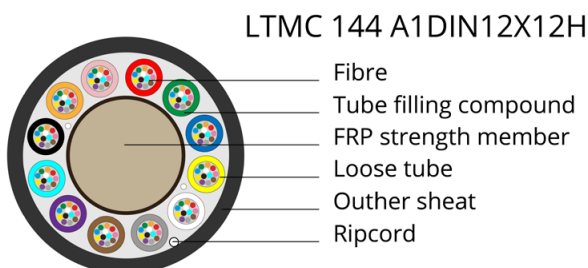
Note: Colour code of tubes following colour table in this datasheet

### GENERAL DESIGN

Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds. FRP is applied as central strength member. Loose tubes are SZ-stranded around the strength member. Water blocking yarns are used in and over the cable core to prevent it from water ingress. Nylon 12 sheath is applied over the cable core as the outer sheath.

### CONSTRUCTION

Cross Section of Cable



### SUITABLE FOR FOLLOWING MICRODUCT DIAMETERS



EAN number	9120072486333
Packaging	Disposable wooden drum
Weight	52 kg/km

### PART NUMBER

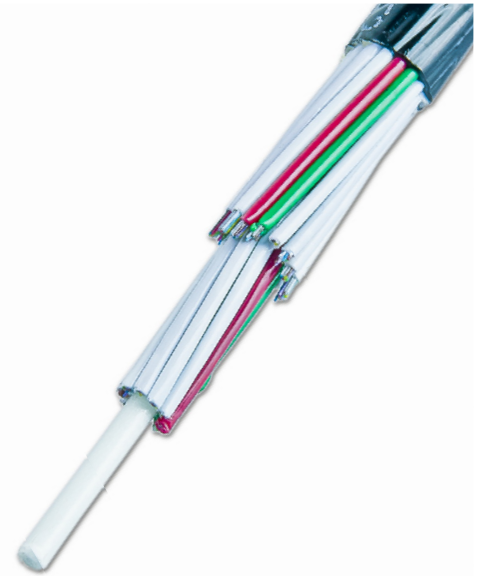
LTMC 144 A1DIN12X12H

## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC 192 A1DIN16X12H

### DESCRIPTION

Lightwin® mini cable, A-DQ(ZN)2Y HDPE, 192 fibres, G.657.A1  
 Sheath material: HDPE (High Density Polyethylene)  
 Fiber: Singlemode, bend insensitive G.657A1 fiber  
 Bundling: 16x12  
 outer diameter: 7,9mm  
 weight/km: 52kg  
 optimal for installation by blowing into microduct systems  
 Cable Sheath Marking:  
 LIGHTWIN - LTMC 16x12 SM G.657.A1 (16x12) 250µm HDPE COATING {Batch} {Länge}  
 Colour code fibres and bundles according to data sheet  
 Length on drum: 6km



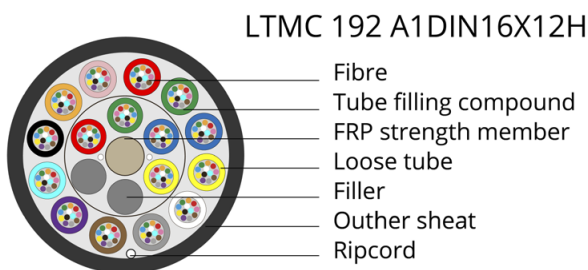
Note: Colour code of tubes following colour table in this datasheet

### GENERAL DESIGN

Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds. FRP is applied as central strength member. Loose tubes are SZ-stranded around the strength member. Water blocking yarns are used in and over the cable core to prevent it from water ingress. Nylon 12 sheath is applied over the cable core as the outer sheath.

### CONSTRUCTION

Cross Section of Cable



### SUITABLE FOR FOLLOWING MICRODUCT DIAMETERS



EAN number	9120072486401
Packaging	Disposable wooden drum
Weight	52 kg/km

### PART NUMBER

LTMC 192 A1DIN16X12H

## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC 216 A1DIN18X12H

### DESCRIPTION

Lightwin® mini cable, A-DQ(ZN)2Y HDPE, 216 fibres, G.657.A1  
 Sheath material: HDPE (High Density Polyethylene)  
 Fiber: Singlemode, bend insensitive G.657A1 fiber  
 Bundling: 18x12  
 outer diameter: 7,9mm  
 weight/km: 52kg  
 optimal for installation by blowing into microduct systems  
 Cable Sheath Marking:  
 LIGHTWIN - LTMC 18x12 SM G.657.A1 (18x12) 250µm HDPE COATING {Batch} {Länge}  
 Colour code fibres and bundles according to data sheet  
 Length on drum: 6km



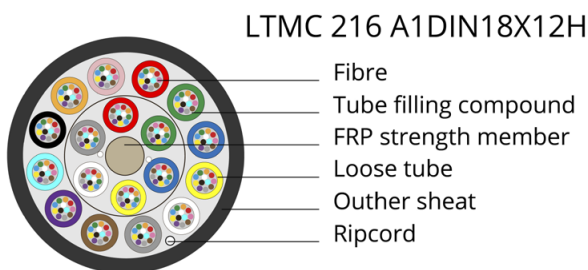
Note: Colour code of tubes following colour table in this datasheet

### GENERAL DESIGN

Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds. FRP is applied as central strength member. Loose tubes are SZ-stranded around the strength member. Water blocking yarns are used in and over the cable core to prevent it from water ingress. Nylon 12 sheath is applied over the cable core as the outer sheath.

### CONSTRUCTION

Cross Section of Cable



### SUITABLE FOR FOLLOWING MICRODUCT DIAMETERS



EAN number	9120072486432
Packaging	Disposable wooden drum
Weight	52 kg/km

### PART NUMBER

LTMC 216 A1DIN18X12H

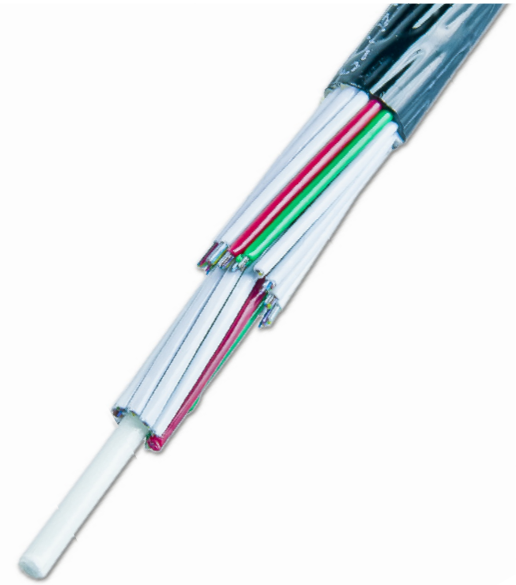


## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC 288 A1DIN24X12H

### DESCRIPTION

Lightwin® mini cable, A-DQ(ZN)2Y HDPE, 288 fibres, G.657.A1  
 Sheath material: HDPE (High Density Polyethylene)  
 Fiber: Singlemode, bend insensitive G.657A1 fiber  
 Bundling: 24x12  
 outer diameter: 9,3mm  
 weight/km: 80kg  
 optimal for installation by blowing into microduct systems  
 Cable Sheath Marking:  
 LIGHTWIN - LTMC 24x12 SM G.657.A1 (24x12) 250µm HDPE COATING {Batch} {Länge}  
 Colour code fibres and bundles according to data sheet  
 Length on drum: 6km



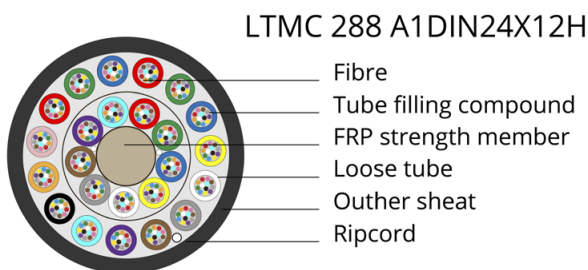
Note: Colour code of tubes following colour table in this datasheet

### GENERAL DESIGN

Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds. FRP is applied as central strength member. Loose tubes are SZ-stranded around the strength member. Water blocking yarns are used in and over the cable core to prevent it from water ingress. Nylon 12 sheath is applied over the cable core as the outer sheath.

### CONSTRUCTION

Cross Section of Cable



### SUITABLE FOR FOLLOWING MICRODUCT DIAMETERS



EAN number	9120072486470
Packaging	Disposable wooden drum
Weight	80 kg/km

### PART NUMBER

LTMC 288 A1DIN24X12H

## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC 288 A1DIN24X12H

### GENERAL DESIGN

Optical fibers are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds. FRP is applied as central strength member.

Loose tubes are SZ-stranded around the strength member.

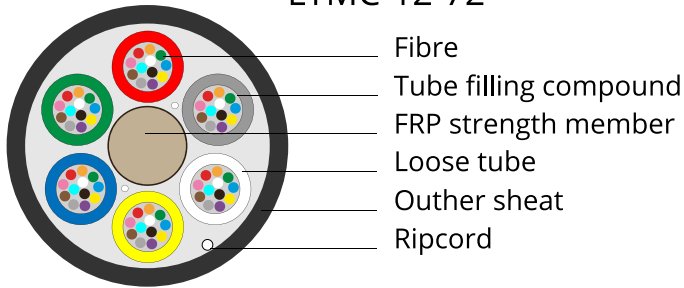
Water blocking yarns are used in and over the cable core to prevent it from water ingress.

Polyethylene sheath is applied over the cable core as the outer sheath.

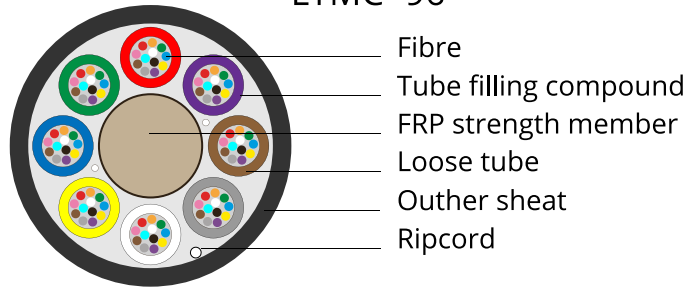
### CONSTRUCTION

Cross Section of Cable

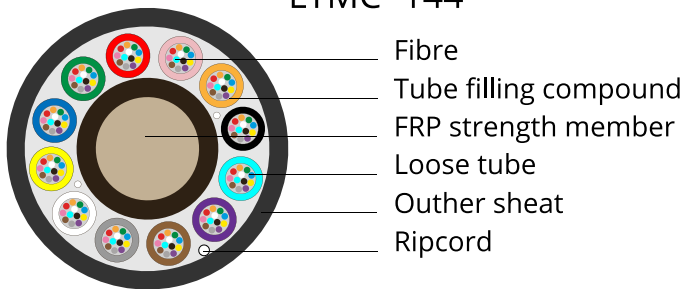
LTMC-12-72



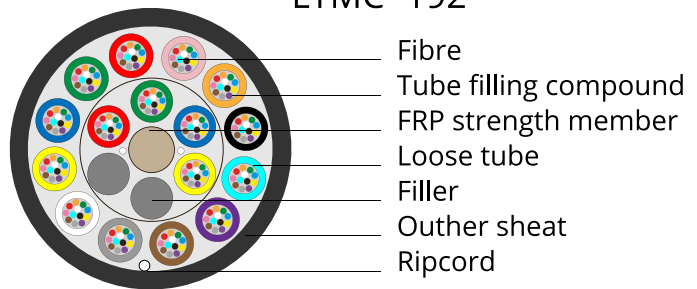
LTMC -96



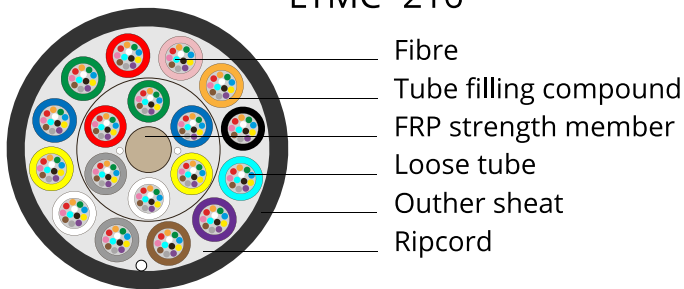
LTMC -144



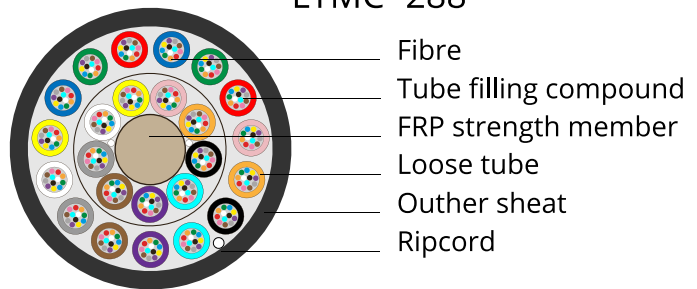
LTMC -192



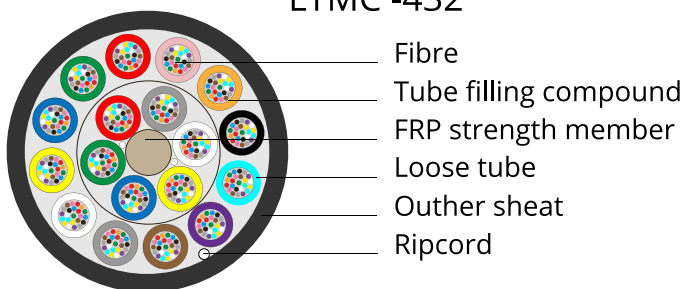
LTMC -216



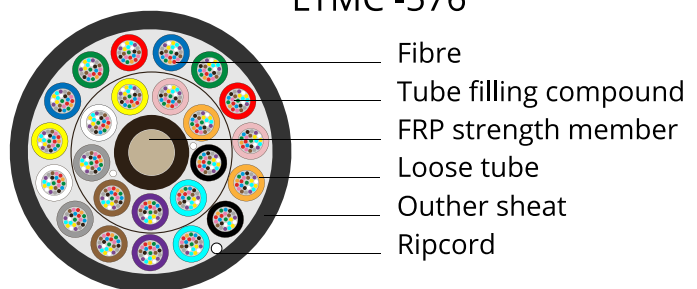
LTMC -288



LTMC -432



LTMC -576



## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC xxx A1DINxxXxxH

### DIMENSIONS AND DESCRIPTIONS OF CABLE CONSTRUCTIONS

Item	contents	Value																
		12	24	36	24	48	72	96	144	192	216	288	144	192	288	432	576	
Loose tube	Number	2	4	6	2	4	6	8	12	16	18	24	6	8	12	18	24	
	Outer diameter ±0.1mm	1.2			1.45						2.1							
Filler	Number	4	2	0	4	2	0	0	0	2	0	0	0					
fiber counts per tube	G.657.A1	6			12						24							
Central strength member	Material	FRP																
	Diameter (mm)	1.2			1.6			2.4	2.4	1.6	2.8	2.25	2.8	2.8	2.25	2.8		
	Diameter of PE lay	/			/			/	4.1	/	/	/	3.5	6.1	/	4.1		
Outer sheath	Material	Nylon 12																
	Color	Black or orange																
	Thickness (mm)	Approx.0.45																
Cable diameter(±0.2mm)		4.5			5.4			6.1	7.9			9.3	7.3	8.8	11.4	11.5	13.4	
For micro -duct inside (mm)		6-8			8-12			8-12	10-14			12-14	10-14	12-14	14-16		16-20	
Max. tensile strength (N)		200			600			800		600		1000	800	1000	1200	1000	1200	
Crush(N/100mm)		Short term: 500    Long term: 200																
Cable weight(kg/km) Approx.		16			26			36	52	52		80	42	76	110	105	140	

### CABLE SHEATH MARKING

Unless otherwise specified, the cable sheath marking shall be as follows:

- Color: white or black
- Contents: LIGHTWIN, the year of manufacture, the type of cable, length marking
- Interval: 1m

### REEL LENGTH

Standard reel length  
 12-144 Fiber cable 4 km/drum  
 192-288 Fiber cable 6km / drum  
 432 & 576 Fiber cable 6km / drum  
 Other lengths available on request

### CABLE DRUM

The cables are packed in wooden drums

### LABELING

The direction of rotation of the color scheme is shown by marking the clockwise and anti-clockwise ends with red and green adhesive tape respectively.

The markings are on both sides of the flanges as follows:

- Cable Type/Size
- Cable Length
- Gross Weight
- Production date
- Charge number

### CABLE PACKING

Both cable ends are provided with protections against water penetration and firmly secured to the drum, so the cable cannot move and the turns cannot slide when it is moved, handled or laid. the inner end is available for testing.

## LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH FOR INSTALLATION BY BLOWING

LTMC xxx A1DINxxXxxH

### COLOR CODE OF THE FIBER

Each fiber can be identifiable throughout the length of the cable in accordance with the following color sequence. Fiber color in each tube starts from No. 1 Red.

Color code of Fibers according to DIN color code.

No.	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Grün	Blue	Yellow	White	Grey	Brown	Violett	Aqua	Black	Orange	Pink
No.	13	14	15	16	17	18	19	20	21	22	23	24
Color	Red	Grün	Blue	Yellow	White	Grey	Brown	Violett	Aqua	Black	Orange	Pink

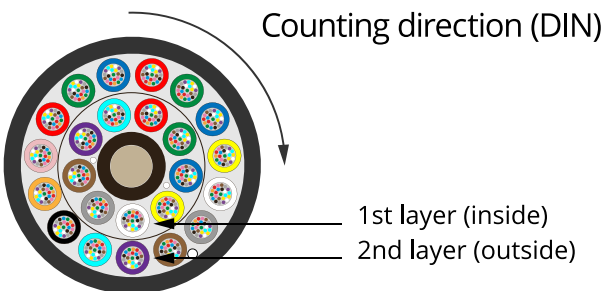
Ring marks width 2±1.5mm, Color ring intervals 60±10mm.

### COLOR CODE OF THE LOOSE TUBE

According to following Color code

No.	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Blue	Yellow	White	Grey	Brown	Violett	Aqua	Schwarz	Orange	Pink

### COUNTING DIRECTION OF THE LOOSE TUBES



**LIGHTWIN® MICRO DUCT CABLE WITH HDPE SHEATH  
FOR INSTALLATION BY BLOWING**

LTMC xxx A1DINxxXxxH

**MECHANICAL, ELECTRICAL AND ENVIRONMENTAL TEST CHARACTERISTICS**

The finished cables can be subjected to the following mechanical, electrical and environmental conditions.

Item	Test Method	Requirements
Tensile performance	IEC 60794-1-2-E1 Load: according to short term tensile described in 3.2.2 Cable length under tension: Not less than 50m. Duration of load sustain: 1min. Velocity of transfer device: 10mm/min	The maximum fiber strain less than 0.6% under maximum tensile short term load. The maximum increase in attenuation less than 0.1dB. No change in attenuation after test at 1550nm. Under visual examination without magnification, no damage to the sheath or to the cable elements after test.
Crush	IEC 60794-1-2-E3 Load: 500N Duration of load: 1min	No change in attenuation after test at 1550nm. Under visual examination without magnification, no damage to the sheath or to the cable elements. The imprint of the striking surface on the sheath is not considered mechanical damage.
Bend	IEC 60794-1-2-E11A Mandrel radius: 10 times cable diameter Turns:10 Cycles:5	No change in attenuation at 1550nm after test. Under visual examination without magnification, no damage to the sheath or to the cable elements.
Repeated bending	IEC 60794-1-2-E6 Bending radius: 20 times cable diameter Cycles: 25 Load: 25N Duration of cycle: Approximately 2s.	No change in attenuation at 1550nm after test. Under visual examination without magnification, no damage to the sheath or to the cable elements.
Torsion	IEC 60794-1-2-E7 Cycles:5 Length under test: 1m Turns: ±180° Load: 40N	The variation on attenuation for each fiber less than 0.05dB at 1550nm Under visual examination without magnification, no damage to the sheath or to the cable elements. No permanent change in attenuation after test
Temperature cycling	IEC 60794-1-2-F1 Sample length: at least 1000m Temperature range: -30°C+70°C Cycles: 2 Temperature cycling test dwell time: 12 hours	There is no change in attenuation coefficient at 1550nm after the test.
Water Penetration	IEC 60794-1-2-F5B Time : 24 hours Sample length : 3m Water height : 1m	No water leakage
Compound flow	IEC 60794-1-2-E14 Sample count:5 Sample length:300 ±5 mm, Remove length: 130 ±2,5 mm, Time:24h	No filling compound dripped.
Other parameters	According to IEC 60794 ,YD/T 1460.4-2006	

Remark: "No attenuation changes" is considered as the attenuation changes ≤ 0.05 dB.