

# FIBER OPTIC CABLES

# 2016

### **INFORMATION**

<b>Application</b>	<i>Page 5</i>
<b>FOC Parameters</b>	<i>Page 5</i>
<b>Low Loss Fibers</b>	<i>Page 6</i>
<b>SM/MM Bendsafe Fibers</b>	<i>Page 7</i>
<b>Fiber and Cables Information</b>	<i>Page 8</i>
<b>Fiber Identification</b>	<i>Page 9</i>
	<i>Page 10</i>

5

### **DATAKOM**

<b>Furcation tube FSMX</b>	<i>Page 16</i>
<b>Buffer BFR</b>	<i>Page 17</i>
<b>Simplex SMX</b>	<i>Page 18</i>
<b>Duplex ZIP</b>	<i>Page 19</i>
<b>LDC</b>	<i>Page 21</i>
<b>LBR</b>	<i>Page 22</i>
<b>DC-PRIM</b>	<i>Page 23</i>
<b>DC-DRIM</b>	<i>Page 24</i>
<b>EXO-CU</b>	<i>Page 25</i>
<b>EXO-CO</b>	<i>Page 26</i>
<b>EXO-CI</b>	<i>Page 27</i>
<b>EXO-GU</b>	<i>Page 28</i>
<b>EXO-GO</b>	<i>Page 29</i>
<b>EXO-GI</b>	<i>Page 30</i>
<b>BDC-MSA</b>	<i>Page 31</i>
	<i>Page 32</i>

16

### **FTTH**

<b>VC-D20</b>	<i>Page 34</i>
<b>VC-D30</b>	<i>Page 35</i>
<b>VC-D40</b>	<i>Page 36</i>
<b>VC-DCY</b>	<i>Page 37</i>
<b>Resibend® Cables</b>	<i>Page 38</i>
<b>VC-D30 Resibend®</b>	<i>Page 39</i>
<b>VC-D30 Resibend Plus®</b>	<i>Page 40</i>
<b>Easy Section Module Cables</b>	<i>Page 41</i>
<b>VC-D30 Easy Section Module</b>	<i>Page 42</i>
<b>VC-D40 Easy Section Module</b>	<i>Page 43</i>
<b>DC-PRIM</b>	<i>Page 44</i>
<b>EAC-RAs</b>	<i>Page 45</i>
<b>EAC-RAm</b>	<i>Page 46</i>
<b>DAC-BURRY</b>	<i>Page 47</i>
<b>VC-T60</b>	<i>Page 48</i>
<b>Aero-DF03</b>	<i>Page 49</i>
	<i>Page 50</i>

34

### **MICRODUCT**

**MK-AX2**

**MK-DX2/25/3**

**MK-LX4**

**MK-LXS6/7/8**

**MK-LXS9/10**

**MK-LX6**

**MK-LX7**

**MK-LX8**

**MK-LX9**

**MK-LX11**

*Page 51*

*Page 53*

*Page 54*

*Page 55*

*Page 56*

*Page 57*

*Page 58*

*Page 59*

*Page 60*

*Page 61*

*Page 62*

**51**

### **TELECOM DUCT**

**BDC-MSA**

**BDC-MIB**

**BDC-C0**

**BDC-CI**

**BDC-CK**

**DDC-SI**

**DDC-CI**

*Page 63*

*Page 64*

*Page 65*

*Page 66*

*Page 67*

*Page 68*

*Page 69*

*Page 70*

**63**

### **TELECOM AERIAL**

**Aero-DF03**

**Aero-AS02 2.0 mm**

**Aero-AS03 2.0 mm**

**Aero-AS03 2.5 mm**

**Aero-AS04 2.0 mm**

**Aero-AS04 2.5 mm**

**Aero-AS06 2.0 mm**

**Aero-AS06 2.5 mm**

**Aero-AS09 2.5 mm**

**Aero-AS12 2.5 mm**

**Aero-AS14 2.5 mm**

*Page 71*

*Page 72*

*Page 73*

*Page 74*

*Page 75*

*Page 76*

*Page 77*

*Page 78*

*Page 79*

*Page 80*

*Page 81*

*Page 82*

**71**

### **SPECIAL CABLE DESIGNS**

**FTTA-DAC**

**BDC-CIP 1.5 mm<sup>2</sup>**

**BDC-CIP 0.5 mm<sup>2</sup> H05V-U**

**BDC-CIP 0.75 mm<sup>2</sup> H05V-U**

**BDC-CIP 1.00 mm<sup>2</sup> H05V-U**

**BDC-DIP 1.50 mm<sup>2</sup> H07V-U**

**BDC-DIP 2.50 mm<sup>2</sup> H05V-U**

**BDC-DID 0.80 mm**

*Page 83*

*Page 84*

*Page 85*

*Page 86*

*Page 87*

*Page 88*

*Page 89*




































*Page 90*

*Page 91*

**83**

Information

# SYMBOLS

Mechanical features	 Basic Rodent Protection	 High Rodent Protection	 Rodent Protection Extreme	 Blowing installation
	 Flexible	 Last mile connection outdoor	 Aerial	 Hi-crush
	 Direct buried	 Duct	 Microduct Generation 1	 ETR
	 Optimal Diameter			
Branch of business	 Industrial	 Mining	 Military	 Oil resistance
	 Ship and offshore	 Robotic	 Windfarms	 Datacenter
	 Datacom	 Telecom	 FTTH	 FTTA
Design features	 Semi-tight	 Easy-strip	 LSOH	 Compact design
	 Flexible	 Multifiber connectors termination	 Easy to terminate	 Last mile connection indoor
	 Bendsafe	 Low Friction	 Hybrid FO + Power	



SINGLE-MODE FIBER TYPES								
Fiber type ITU-IT		Maximum attenuation for uncabled fibers IL [dB/km]						
		1310 nm	1383 nm	1410 nm	1450 nm	1490 nm	1550 nm	1625 nm
<b>G.652D</b>	Standard single mode telecommunication fiber with zero water-peak attenuation	≤0.34	≤0.31	-	-	≤0.24	≤0.20	≤0.23
<b>G.652D LL</b>	Premium single mode fiber low loss with zero water-peak and lower attenuation in whole bandwidth	≤0.32	≤0.31	-	-	≤0.21	≤0.18	≤0.20
<b>G.655 – A,B,C,D</b>	Long distance single mode fiber with non-zero dispersion shifted (NZDSF) for CWDM and DWDM system 10G and future 40G or 100G	-	≤0.40	≤0.32	≤0.26	-	≤0.19	≤0.21
<b>G.656 – A,B,C,D</b>	Long distance single mode fiber with non-zero dispersion shifted (NZDSF) for CWDM and DWDM system 10G and future 40G or 100G	-	≤0.40	≤0.32	≤0.26	-	≤0.19	≤0.21
<b>G.657A1</b>	Bend insensitive fiber fully compatible with G.652D standard, bend radius 10-15 mm	≤0.35	≤0.35	-	-	≤0.24	≤0.20	≤0.23
<b>G.657A2</b>	Bend insensitive fiber fully compatible with G.652D standard, bend radius 7.5 mm	≤0.35	≤0.35	-	-	≤0.24	≤0.20	≤0.23
<b>G.657B3 (A3)</b>	Bend insensitive fiber fully compatible with G.652D standard, bend radius 5 mm	≤0.35	≤0.35	-	-	≤0.24	≤0.20	≤0.23
<b>G.657B3 Plus</b>	Bend insensitive fiber, non-compatible with G.652D standard, for connectorization application, bend radius 2.5 mm	≤0.35	≤0.35	-	-	≤0.24	≤0.21	≤0.23

MULTIMODE FIBER TYPES													
Fiber type ITU-T	Overfilled modal bandwidth [MHz/km]		Fiber Capacity [m]			Attenuation [dB/km]		Bending loss 2 turns [dB]				Bending loss 10 turns [dB]	
	850 nm	1300 nm	1GBase-SR	10GBase-SR	40GBase-SR4/100GBase-SR10	850 nm	1300 nm	Radius = 7.5 mm		Radius = 15 mm		Radius = 30 mm	
								850 nm	1300 nm	850 nm	1300 nm	850 nm	1300 nm
<b>62.5/125 OM1</b>	≥ 160	≥ 500	275	-	-	2.6	0.5	-	-	-	-	-	≥ 0.5
<b>50/125 OM2 Bend Insensitive</b>	≥ 500	≥ 500	600	83	-	2.3	0.5	≥ 0.2	≥ 0.5	≥ 0.1	≥ 0.3	-	-
<b>50/125 OM3 Bend Insensitive</b>	≥ 1500	≥ 500	1000	300	140*	2.4	0.5	≥ 0.2	≥ 0.5	≥ 0.1	≥ 0.3	-	-
<b>50/125 OM4 Bend Insensitive</b>	≥ 3500	≥ 500	1100	550	170*	2.4	0.6	≥ 0.2	≥ 0.5	≥ 0.1	≥ 0.3	-	-

\* Maximum cabled fiber attenuation 3.0 dB/km at 850 nm, maximum total connector loss of 1.0 dB and VCSELs maximum RMS spectral width of 0.29 nm (according to IEEE 10GbE model: [http://grouper.ieee.org/groups/802/3/ae/public/adhoc/serial\\_pmd/documents/10GEPBud3\\_1\\_16a.xls](http://grouper.ieee.org/groups/802/3/ae/public/adhoc/serial_pmd/documents/10GEPBud3_1_16a.xls)).

BENDING LOSS			
<b>G.652D</b>	Mandrel R=30 mm 100 turns 1550/1625 nm ≤0.03 dB	Mandrel R=25 mm 1310/1550 nm 100 turns 0.03 dB	Mandrel R=15 mm 10 turn 1550 nm ≤0.25 dB 1625 nm ≤1.0 dB
<b>G.652D LL</b>	Mandrel R=30 mm 100 turns 1550/1625 nm ≤0.03 dB	Mandrel R=25 mm 1310/1550 nm 100 turns 0.03 dB	Mandrel R=15 mm 10 turn 1550 ≤0.25 dB 1625 nm ≤1.0 dB
<b>G.655 – A.B.C.D</b>	Mandrel R=30 mm 100 turns 1550/1625 nm ≤0.05dB	Mandrel R=15 mm 1550/1625 nm 1 turn ≤0.5 dB	
<b>G.656 – A.B.C.D</b>	Mandrel R=30 mm 100 turns 1550/1625 nm ≤0.05 dB	Mandrel R=15 mm 1550/1625 nm 1 turn ≤0.5 dB	
<b>G.657A1</b>	Mandrel R=15 mm 10 turns 1550nm≥0.20 dB. 1625 nm ≤0.50 dB	Mandrel R=10 mm 1 turn 1550 nm ≥0.50 dB. 1625 nm ≤1.50 dB	
<b>G.657A2</b>	Mandrel R=15 mm 10 turns 1550 nm≥0.03 dB. 1625 nm ≤0.10 dB	Mandrel R=10 mm 1 turn 1550 nm≥0.10 dB. 1625 nm ≤0.2dB;	Mandrel R=7.5 mm 1 turn 1550 nm ≥0.50 dB. 1625 nm ≤1.0 dB
<b>G.657B3 (A3)</b>	Mandrel R=10 mm 1 turn 1550 nm≥0.03 dB. 1625 nm ≤0.10 dB	Mandrel R=7.5 mm 1 turn 1550 nm ≥0.05 dB. 1625 nm ≤0.15 dB	Mandrel R=5 mm 1 turn 1550 nm≥0.10 dB. 1625 nm ≤0.30 dB
<b>G.657B3 Plus</b>	Mandrel R=5 mm 1 turn 1550 nm≥0.10 dB. 1625 nm ≤0.20 dB	Mandrel R=2.5 mm 1 turn 1550 nm ≥0.20 dB. 1625 nm ≤0.30dB	

## ❖ Fiber types and applications

### Tight 900 μm fiber

Possibility to remove the 900 μm coat at the distance of 3-5 cm

### Semi-tight 900 μm fiber

Possibility to remove the 900 μm coat at the distance of 10-20 cm

### Easy strip 900 μm fiber

Possibility to remove the 900 μm coat at the distance of 100-150 cm

## ❖ Available bend radius

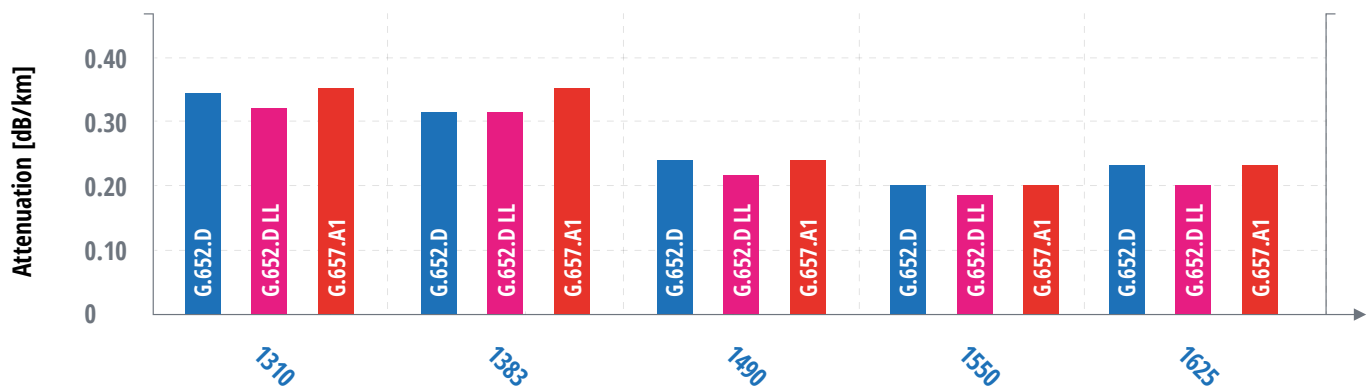


At present, low loss and pure quartz optic fibers with max. 0.17 dB/km attenuation at 1550 nm wavelength and max. 0.31 dB/km at 1310 nm wavelength are ready for use. Low loss and pure quartz optic fibers have at least 0.02 dB/km lower spectral attenuation in comparison to the standard ones G.652D. In such fibers, the retention of flat spectral characteristics within the transmission windows provide the possibility of achieving substantially smaller deviations of attenuation:

- 1310 nm (+ 20 nm / -35 nm) wavelength – max. deviation is 0.03 dB/km
- 1550 nm (+ 25 nm / -25 nm) wavelength – max. deviation is 0.02 dB/km with the retention of 1625 nm attenuation 0.20 dB/km.

The chromatic dispersion complies with ITU-T G.652 and the polarizing at the level of  $\leq 0.04$  ps/ $\sqrt{\text{km}}$  of these fibers provides the possibility of using such fibers in high-speed systems e.g. transmission of 10 GBit/s or even higher. Low loss fibers which are obtained in the pure quartz technology can work properly in telecommunication networks at the distance of even thousand kilometers far, which significantly limits the number of necessary amplifiers and repeaters in a fiber optic connection.

Attenuation / Wavelength

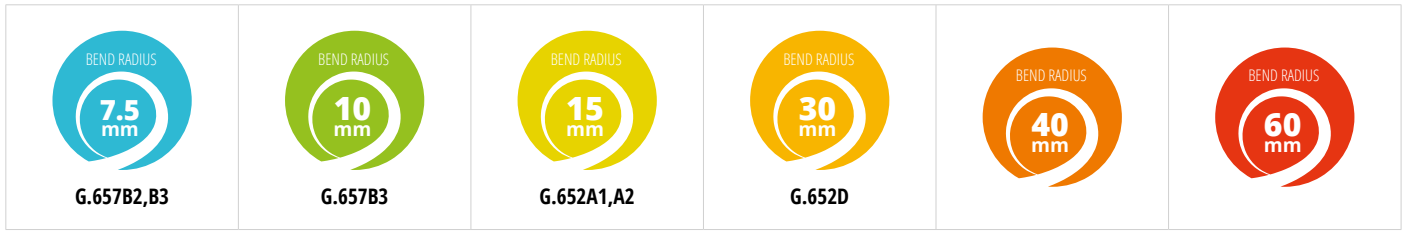


## Performance Specifications

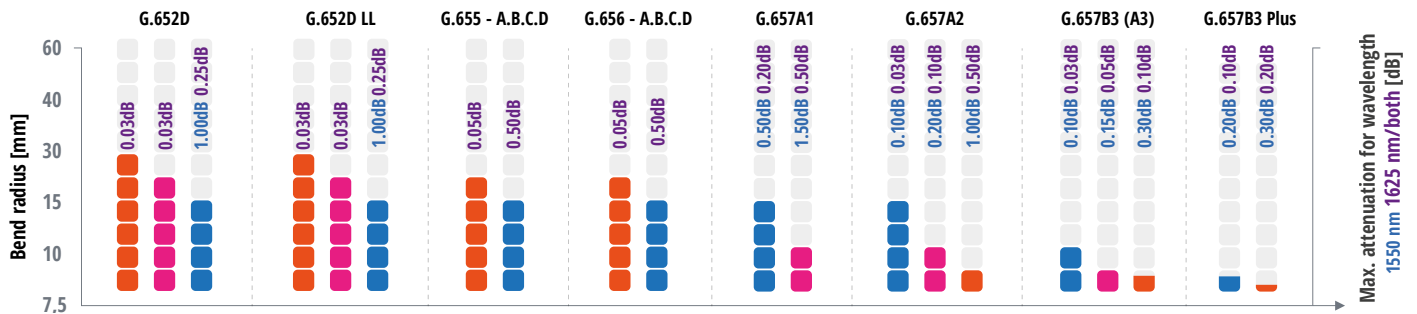
Parameter	Value			
<b>Attenuation [dB/km]</b>				
1310 nm	≤ 0.32			
1383 ± 3 nm	≤ 0.32			
1490 nm	≤ 0.21			
1550 nm	≤ 0.18			
1625 nm	≤ 0.20			
<b>Attenuation Difference [dB/km]</b>				
The attenuation from λ1 [nm] to λ2 [nm] shall not exceed the attenuation at λ3 [nm] by more than Δ	λ1	λ2	λ3	Δ
	1285	1330	1310	0.03
	1525	1575	1550	0.02
<b>Point Discontinuity [dB]</b>				
1310 nm and 1550 nm	≤ 0.05			
<b>Optical Return Loss [dB]</b>				
Absolute value at all points along the fiber	≥ 60			
<b>Attenuation with Bending [dB]</b>	<b>Turns</b>	<b>mm</b>	<b>nm</b>	<b>dB</b>
	1	32	1550	≤ 0.03
	100	50	1310	≤ 0.03
	100	50	1550	≤ 0.03
	100	60	1625	≤ 0.03
<b>Cable Cutoff Wavelength [nm]</b>	≤ 1260			
<b>Mode Field Diameter [μm]</b>				
1310 nm	9.2±0.4			
1550 nm	10.4±0.5			
<b>Dispersion [ps/(nm•km)]</b>				
1550 nm	≤ 18.0			
1625 nm	≤ 22.0			
<b>Zero Dispersion Wavelength - λ<sub>0</sub> [nm]</b>	1304 to 1324			
<b>Zero Dispersion Slope - S<sub>0</sub> [ps/(nm<sup>2</sup>•km)]</b>	≤ 0.092			
<b>Polarization Mode Dispersion (ps/√km)</b>				
Individual fiber	≤ 0.1			
Link value	≤ 0.04			
<b>Environmental / Attenuation Effects (dB/km)</b>	1310 / 1550 / 1625 nm			
Temperature Dependence (-60°C to +85°C)	≤ 0.05			
Temperature-Humidity Cycling (-10°C to +85°C with humidity cycling up to 98% RH)	≤ 0.05			
Dry Heat Soak (85±2°C)	≤ 0.05			
Water Immersion (23±2°C)	≤ 0.05			
Damp Heat Soak (85±2°C, 85% RH, 30 Days)	≤ 0.05			
<b>Fiber Curl</b>	≤ 0.05			
Deflection for 10 mm overhang (μm)	≤ 12.4			
Corresponding radius of curvature (meters)	≥ 4.0			
<b>Minimum Strength (by Proof Test)</b>	0.69 GPa (100 kpsi)			
<b>Operating Temperature Range</b>	-60°C to +85°C			



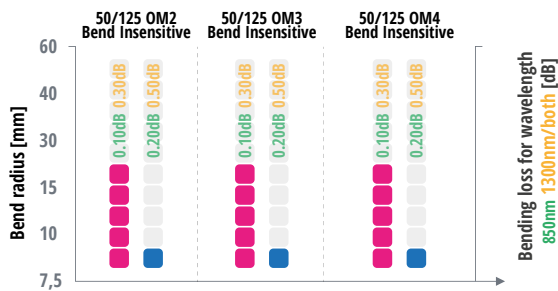
↻ Available bend radius



## Bendsafe SM Fibers



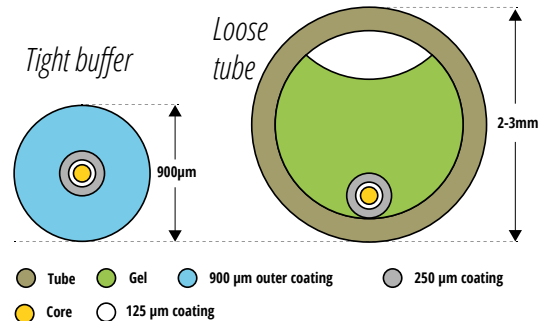
## Bendsafe MM Fibers



## Post-production fiber parameters

Type	Attenuation [dB/km]			
	1310	1550	850	1300
Low Loss (LL)	0.34	0.22	-	-
Telecom	0.35	0.25	-	-
Standard	0.40	0.30	-	-
Datacom	0.40	0.30	3.50	1.50

## Tight buffer vs. Loose tube



## Stripping

### Tight buffer

*Tight 900 µm fiber*

Possibility to remove the 900 µm coat at the distance of 3-5 cm

### Semi-tight

*Semi-tight 900 µm fiber*

Possibility to remove the 900 µm coat at the distance of 10-20 cm

### Easy strip

*Easy strip 900 µm fiber*

Possibility to remove the 900 µm coat at the distance of 100-150 cm.

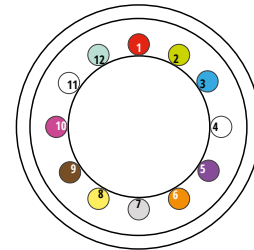


## FIBER COLOR CODES IN LOOSE TUBE CABLE DESIGN

Other colors available on demand

### T-TELECOM (ACCORDING TO IEC 60304)

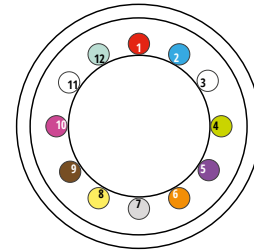
1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Code</b>												
<b>Color</b>	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Code</b>												
<b>Color</b>	red	green	blue	white	violet	orange	grey	yellow	brown	pink	natural	aqua



\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

### T1-TELECOM (ACCORDING TO IEC 60304 TABLE 3 & ZN-11/TPSA-005-02)

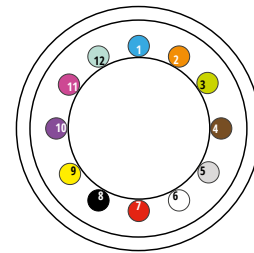
1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Code</b>												
<b>Color</b>	red	blue	white	green	violet	orange	grey	yellow	brown	pink	black	aqua
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Code</b>												
<b>Color</b>	red	blue	white	green	violet	orange	grey	yellow	brown	pink	natural	aqua



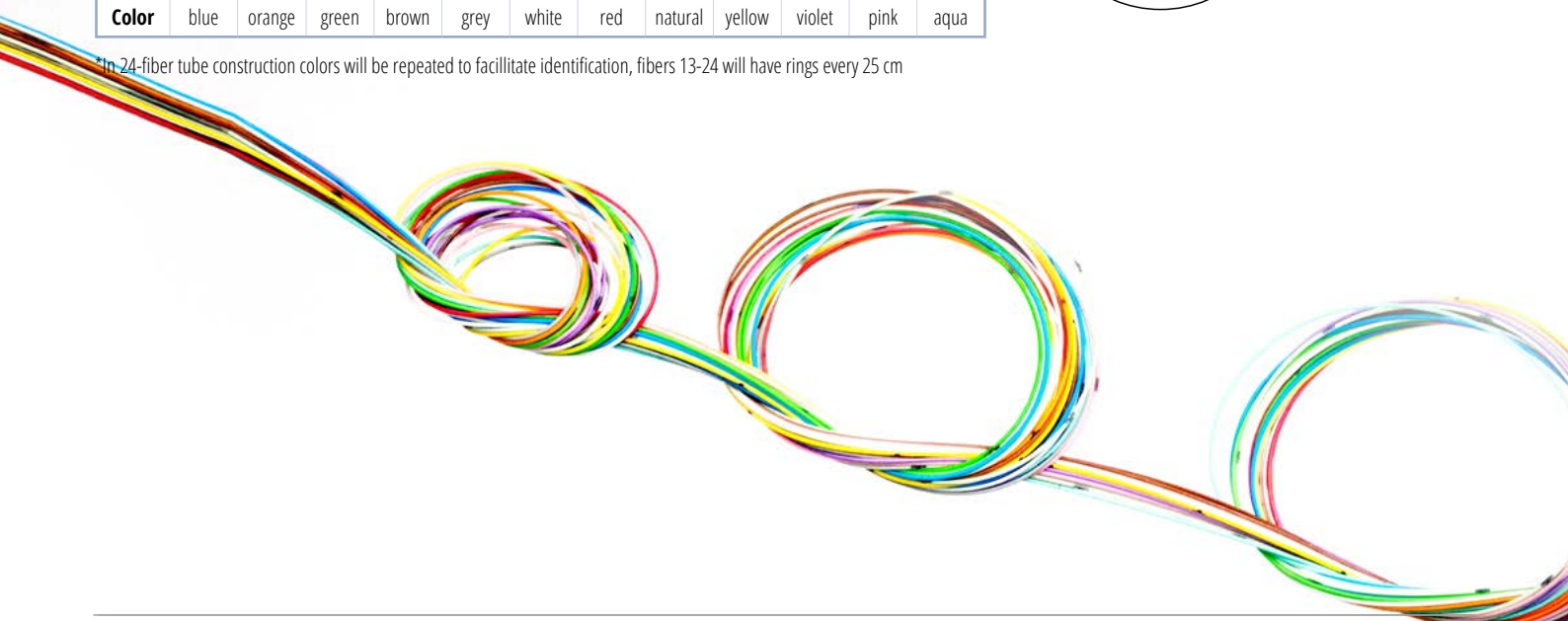
\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

### T2-TELECOM (ACCORDING TO EIA 598A)

1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Code</b>												
<b>Color</b>	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	aqua
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Code</b>												
<b>Color</b>	blue	orange	green	brown	grey	white	red	natural	yellow	violet	pink	aqua















\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm



### LOOSE TUBE COLOR CODES IN LOOSE TUBE CABLE DESIGN

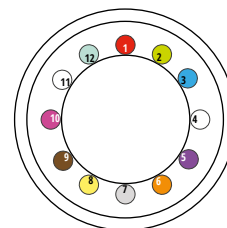
Other colors available on demand

#### T-TELECOM - LOOSE TUBE IN CABLE (ACCORDING TO IEC60304):










Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code												
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*\*In case of lower fiber count some tubes can be replaced by fillers

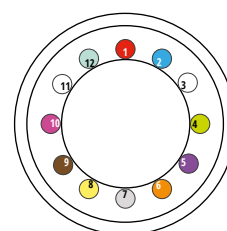


#### T1-TELECOM - LOOSE TUBE IN CABLE (ACCORDING TO IEC 60304 TABLE 3 & ZN-11/TPSA-005-02)













Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code												
Color	red	blue	white	green	violet	orange	grey	yellow	brown	pink	black	aqua

\*\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*\*In case of lower fiber count some tubes can be replaced by fillers

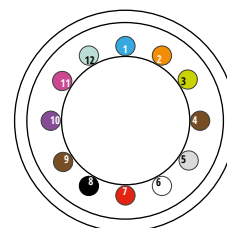


#### T2-TELECOM - LOOSE TUBE IN CABLE (ACCORDING TO EIA 598A)












Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code												
Color	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	aqua

\*\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*\*In case of lower fiber count some tubes can be replaced by fillers

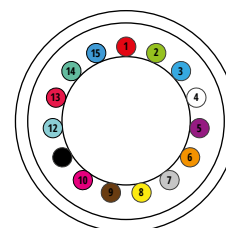


#### T3-TELECOM - LOOSE TUBE IN CABLE ACCORDING TO IEC 60304)













Tube	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Code															
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua	luminous red	patina green	signal blue

\*\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*\*In case of lower fiber count some tubes can be replaced by fillers

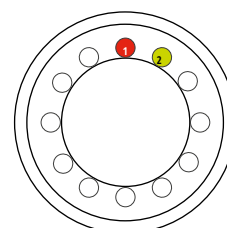


#### E-TELECOM - LOOSE TUBE IN CABLE (ACCORDING TO EIA 598A)

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code												
Color	red	green	white	white	white	white	white	white	white	white	white	white

\*\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*\*In case of lower fiber count some tubes can be replaced by fillers



## FIBER, BUFFER AND TUBES COLOR CODES FOR DATACOM CABLES RANGE

Other colors available on demand

### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304)

#### Fiber in buffer

1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Fiber</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Buffer</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color</b> 250/900/600 μm	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Fiber</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Buffer</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color</b> 250 μm	red	green	blue	yellow	white	grey	brown	violet	aqua	natural	orange	pink
<b>Color*</b> 600/900 μm	red	green	blue	yellow	white	grey	brown	violet	brown	dark green	orange	pink

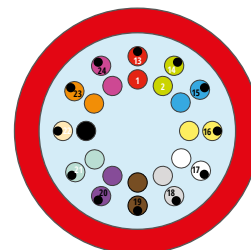
\*Buffer with black mark to identify fibers 13-24



#### Fibers in tubes

1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Code</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color</b>	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Code</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color</b>	red	green	blue	yellow	white	grey	brown	violet	aqua	dark green	orange	pink

\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

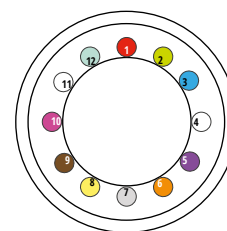


#### Loose tubes in cables

Tube	1	2	3	4	5	6	7	8	9	10	11	12
<b>Code</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color</b>	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*\*In case of lower fiber count some tubes can be replaced by fillers



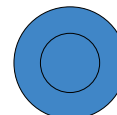
### FIBER AND BUFFER COLOR CODES FOR DATACOM CABLES RANGE

Other colors available on demand

#### D1-DATACOM (ACCORDING TO IEC 60304 ; TIA/EIA 598-A ; TIA/EIA 598-C /DATA CENTER CABLES)

##### Fiber in buffer

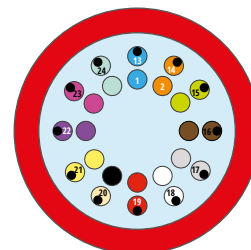
1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Fiber</b>												
<b>Buffer</b>												
<b>Color</b> 250/900/600 μm	blue	orange	green	brown	grey	white	red	natural	yellow	violet	pink	aqua
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Fiber</b>												
<b>Code</b>												
<b>Color</b> 250 μm	blue	orange	green	brown	grey	white	red	natural	yellow	violet	pink	aqua
<b>Color*</b> 600/900 μm	blue	orange	green	brown	grey	white	red	dark green	yellow	violet	pink	aqua



\*Buffer with black mark to identify fibers 13-24

##### Fibers in tubes

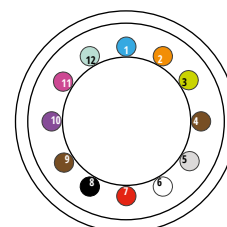
1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Code</b>												
<b>Color</b>	blue	orange	green	brown	grey	white	red	yellow	yellow	violet	pink	aqua
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Code</b>												
<b>Color</b>	blue	orange	green	brown	grey	white	red	natural	yellow	violet	pink	aqua



\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

##### Loose tubes in cables

Tube	1	2	3	4	5	6	7	8	9	10	11	12
<b>Code</b>												
<b>Color</b>	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua



\*\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*\*In case of lower fiber count some tubes can be replaced by fillers

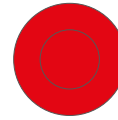


## FIBER AND BUFFER COLOR CODES FOR FTTH CABLES RANGE

Other colors available on demand

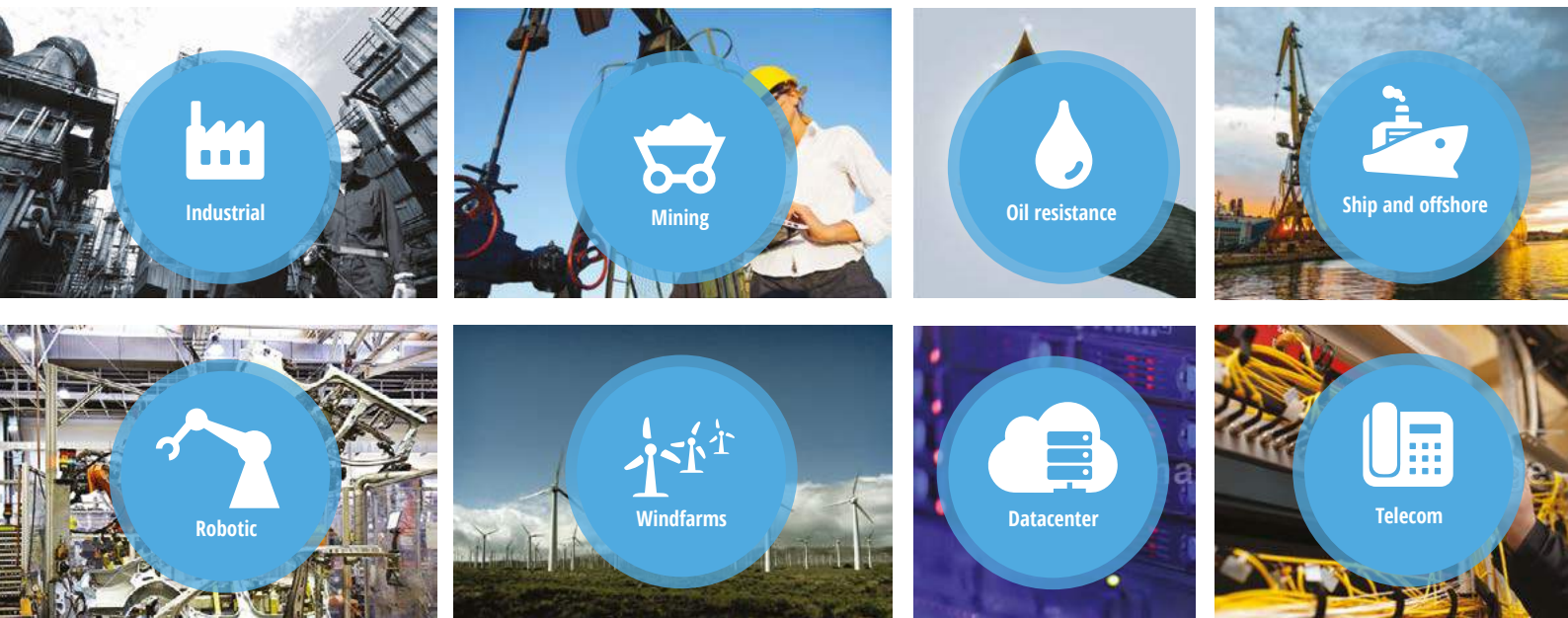
### F-FTTH (ACCORDING TO DIN VDE 0888 & IEC 60304)

1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Fiber</b>												
<b>Buffer</b>												
<b>Color</b> 250 μm	red	blue	green	yellow	violet	white	orange	grey	brown	black	aqua	pink
<b>Color</b> 600/900 μm	red	blue	green	yellow	violet	white	orange	grey	brown	black	aqua	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Fiber</b>												
<b>Code</b>												
<b>Color</b> 250 μm	red	blue	green	yellow	violet	white	orange	grey	brown	black	aqua	pink
<b>Color*</b> 600/900 μm	red	blue	green	yellow	violet	white	orange	grey	brown	dark green	aqua	pink



\*Buffer with black mark to identify fibers 13-24

# FIBRAIN COATINGS



## Physical properties of coatings

### PE *polyethylene*

Mechanical resistance



Temperature resistance



Chemical resistance



### LSOH

Mechanical resistance



Temperature resistance



Chemical resistance



### PVC *polyvinyl chloride*

Mechanical resistance



Temperature resistance



Chemical resistance



### PUR *polyurethane*

Mechanical resistance



Temperature resistance



Chemical resistance



### PA *polyamide*

Mechanical resistance



Temperature resistance



Chemical resistance



### NBR *nitrile rubber*

Mechanical resistance



Temperature resistance



Chemical resistance



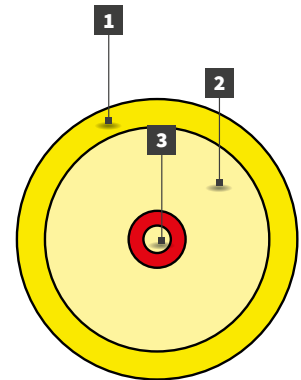
# DATACOM FURCATION TUBE FSMX

Furcation tube FSMX 1.6-2.8 mm



## Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. Central Tube 900 µm



Flexible



Easy to terminate



Bendsafe



## Configuration

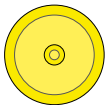
FSMX				
Version	Ø nominal ± 5% [mm]	Nominal weight ± 5% [kg/km]	Max. installation tension (ε=0.5 %) [N]	Crush [N/10 cm]
FSMX 1.8	1.8/0.9/0.5	4	100	200
FSMX 2.8	2.8/0.9/0.5	8	350	300

## Applications

- Distribution systems cable
- For patchcords and pigtaills
- Terminals connection

## Jacket colors

Standard



Yellow RAL 1021



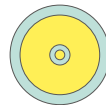
White RAL 9010



Blue RAL 5015



Orange RAL 2003



Aqua RAL 6027



Violet RAL 4003

## Features

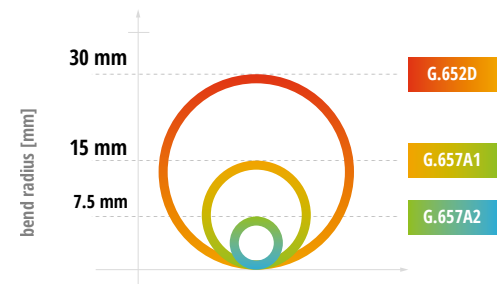
- LSOH with low coefficient of friction
- Aramid yarns
- Central tube 900 µm

## Color codes

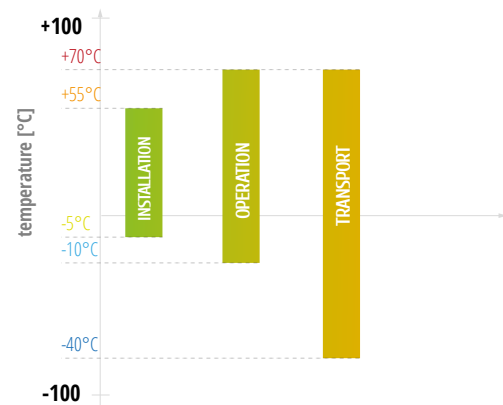
D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers & Buffers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Fiber	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	Black	Orange	Pink
Buffer	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	Black	Orange	Pink
Color 900 µm	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink

## Low-radius bending resistance SM



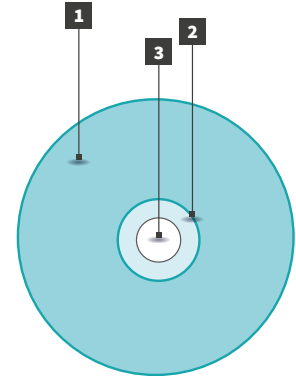
## Operating temperature





### Cable structure

1. Outer Tight Buffer Tube  
600/900 μm (LSOH)
2. Colored coating on fiber 250 μm
3. Optical Fiber with cladding  
125 μm



Flexible



Easy to terminate



Semi-tight



Easy-strip



Bendsafe



### Configuration

BFR				
Version	Fiber qty	Ø nominal ± 5% [mm]	Max. installation tension ± 5% [N]	Crush [N/10cm]
1F	1	0.6	4	200
1F	1	0.9	5	

### Applications

- Distribution systems cable
- For patchcords and pigtails
- Terminals connections

### Available outer jacket colors



SM G.652D  
Yellow RAL 1021



SM G.657  
A1 / A2 / A3  
White RAL 9010



MM 62.5/125 OM1  
Blue RAL 5015



MM 50/125 OM2  
Orange RAL 2003



MM 50/125 OM3  
Aqua RAL 6027



MM 50/125 OM4  
Violet RAL 4003

### Features

- Buffer made of LSOH with low coefficient of friction
- 250 μm fiber
- Variants with different stripability

### Stripping

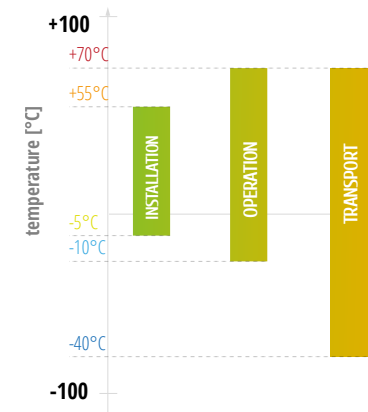
Version	Fiber qty	Stripping	Stripping - length in one piece [cm]
1F	1	TB00 / TB05 / TB10	3-5 / 10-20 / 100-150
1F	1		

### Color codes

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers & Buffers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Fiber	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	Black	Orange	Pink
Buffer	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	Black	Orange	Pink
Color 250/600/900 μm	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink

### Operating temperature



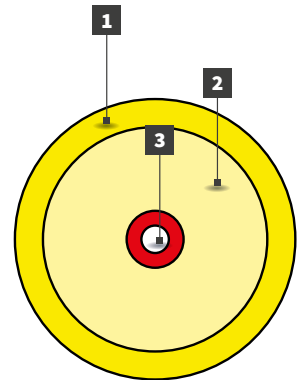
# DATAKOM SIMPLEX SMX CABLE

Simplex SMX 1.2 - 2.8 mm



### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. Central tight buffer Tube 600/900 μm



Flexible



Easy to terminate



Semi-tight



Easy-strip



Bendsafe



### Configuration

SMX				
Version	Fiber qty	Ø nominal ± 5% [mm]	Max. installation tension (ε=0.5 %) [N]	Crush [N/10 cm]
1F	1	1.2	50	200
1F	1	1.6	100	300
1F	1	1.8	150	400
1F	1	2.0	200	500
1F	1	2.8	300	800

### Applications

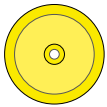
- Distribution systems cable
- For patchcords and pigtails
- Terminals connection

### Features

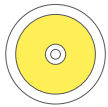
- LSOH with low coefficient of friction
- Aramid yarns
- Central tight buffer tube 600/900 μm
- 250 μm colored fiber

### Jacket colors

#### Standard



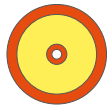
Yellow RAL 1021



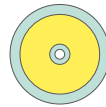
White RAL 9010



Blue RAL 5015



Orange RAL 2003



Aqua RAL 6027



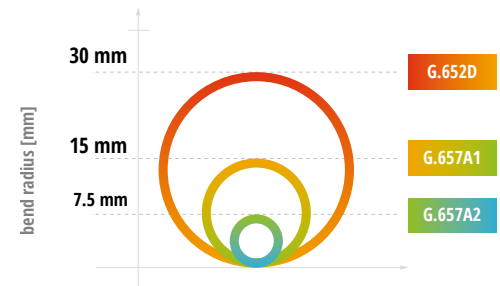
Violet RAL 4003

### Color codes

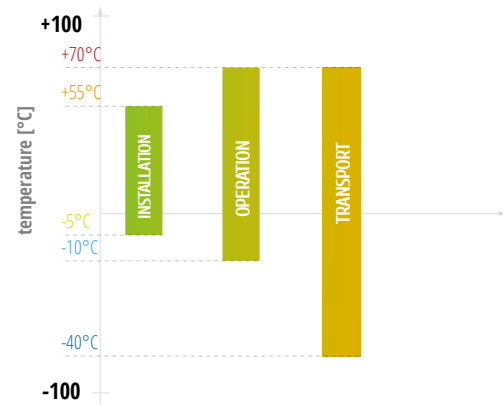
#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers & Buffers

	1-12	1	2	3	4	5	6	7	8	9	10	11	12
Fiber		red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
Buffer		red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
Color 250/600/900 μm		red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink

### Low-radius bending resistance SM



### Operating temperature







# DATA COM CABLES



**Selection of tubes and cables colors**

Other colors available on demand



**orange**



**green**



**grey**



**brown**



**red**



**violet**



**yellow**



**pink**



**black**

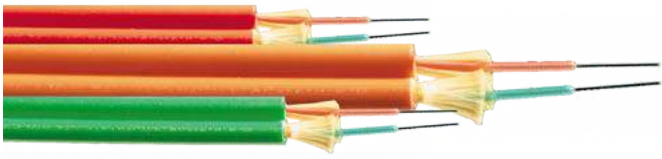


**aqua**



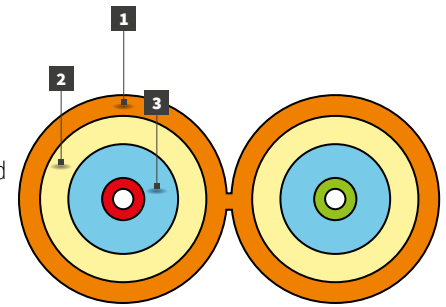
# DATACOM DUPLEX ZIP CABLES

Duplex Zip Cables 1.6 - 2.8 mm



### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. Central tight buffer Tube 600/900 μm with colored fibers 250 μm



LSOH



Bendsafe



Easy to terminate



Easy-strip



Semi-tight

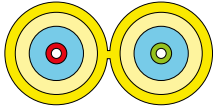


### Configuration

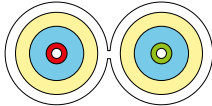
ZIP				
Version	Fiber qty	Dimensions nominal ± 5% [mm]	Max. installation tension (ε=0.5%) [N]	Crush [N/10 cm]
2F	2	1.6 x 3.3	200	500
2F	2	1.8 x 3.7	300	500
2F	2	2.0 x 4.1	400	500
2F	2	2.8 x 5.7	600	1000

### Jacket colors

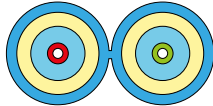
#### Standard



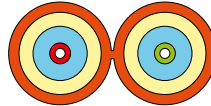
SM G.652D  
Yellow RAL 1021



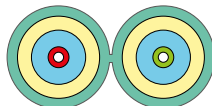
SM G.657  
A1 / A2 / A3  
White RAL 9010



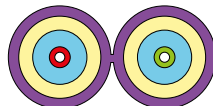
MM 62,5/125 OM1  
Blue RAL 5015



MM 50/125 OM2  
Orange RAL 2003



MM 50/125 OM3  
Aqua RAL 6027



MM 50/125 OM4  
Violet RAL 4003

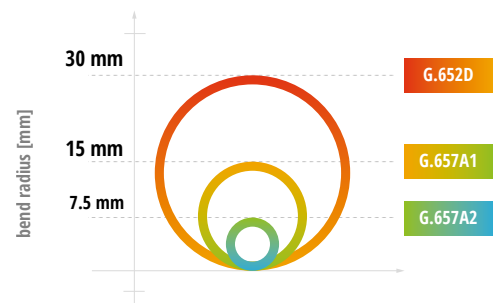
### Applications

- Distribution systems cable
- Patchcords and pigtails
- Terminals connection

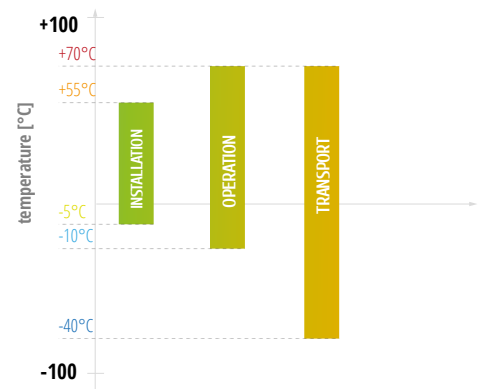
### Structure and composition

- LSOH with low coefficient of friction
- Aramid yarns
- 250 μm colored fibers

### SM low-radius bending resistance



### Operating temperature





### Cable structure

1. Outer jacket LSOH UV Stabilized
2. Tight Tubes 900 μm (LSOH) with colored fibers 250 μm
3. Aramid yarns



LSOH



Bendsafe



Easy to terminate



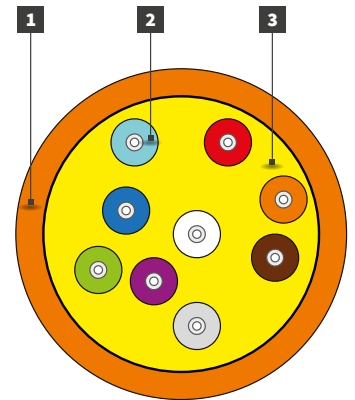
Easy-strip



Semi-tight



Datacenter



### Configuration

LDC						
Version	Tight buffers [pcs]	Ø ± 5% [mm]	Nominal weight LSOH ± 5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
				installation	operation	
2F	2	4.5	21	500	125	500
4F	4	5.0	26			
6F	6	5.5	30			
8F	8	5.5	35			
10F	10	6.5	40	700	175	
12F	12	6.5	45			
16F	16	7.0	50			
24F	24	8.0	65	1000	250	

### Applications

- Indoor/outdoor installations
- Distribution networks in multifamily buildings
- FTTH Connections
- Distribution systems
- Fully dielectric
- LAN and FTTH network
- ODF connection
- Datacenter distribution

### Features

- Compact design
- Lightweight
- Flexible
- Easy to strip
- Fully dielectric
- Reduced diameter
- Direct connectorization

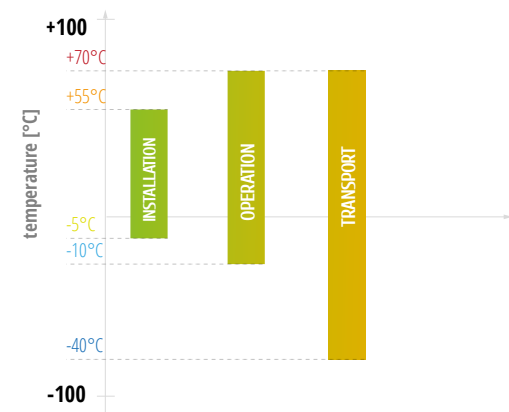
### Jacket colors

#### D-DATAKOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers & Buffers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Fiber	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	Black	Orange	Pink
Buffer	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	Black	Orange	Pink
Color 250/600/900 μm	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Fiber	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	Natural	Orange	Pink
Code	Red	Green	Blue	Yellow	White	Grey	Brown	Violet	Aqua	Natural	Orange	Pink
Color 250 μm	red	green	blue	yellow	white	grey	brown	violet	aqua	natural	orange	pink
Color* 600/900 μm	red	green	blue	yellow	white	grey	brown	violet	brown	dark green	orange	pink

\*Buffer with black mark to identify fibers 13-24

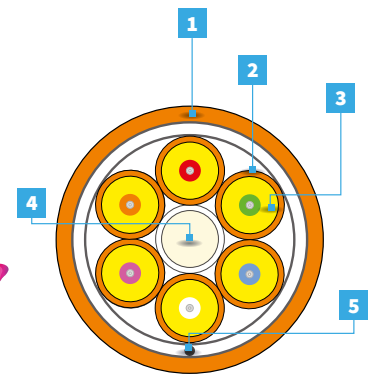
### Operating temperature





### Cable structure

1. Outer jacket LSOH  
UV Stabilized
2. Subcables 1.8 mm with tight tubes 900 μm (LSOH) with 250 μm colored fibers
3. Aramid yarns
4. Central FRP strength member
5. Ripcord



LSOH



Bendsafe



Easy to terminate



Easy-strip



Semi-tight



Datacenter

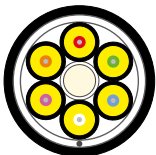
### Configuration

LBR						
Version	Fiber qty	Ø ± 5% [mm]	Nominal weight LSOH ± 5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
				installation	operation	
4F	4	6.5	48	750	250	2000
6F	6	7.5	63	1200	400	
8F	8	8.7	85	1500	500	
12F	12	10.9	131	1500	500	
16F	16	11.3	119	1700	550	
18F	18	11.3	131	1700	550	
24F	24	13.0	179	2000	660	

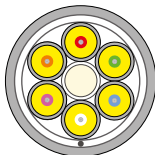
### Applications

- Indoor/outdoor installations
- Distribution networks in multifamily buildings
- FTTH Connections
- Distribution systems
- Fully dielectric
- LAN and FTTH network
- ODF connection
- Datacenter distribution

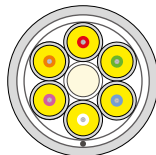
### Standard jacket colors:



PE Black RAL9005

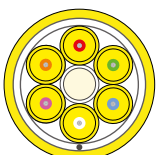


LSOH Grey RAL7022

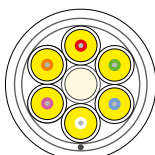


LSOH Light Grey RAL7037

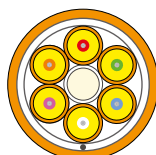
### Outer jacket color options:



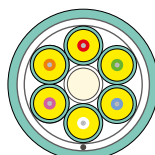
SM G.652D RAL 1021



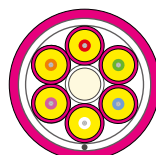
SM G657A1, A2, A3 RAL 9010



MM 50/125 OM2 RAL 2003



MM 50/125 OM3 RAL6027

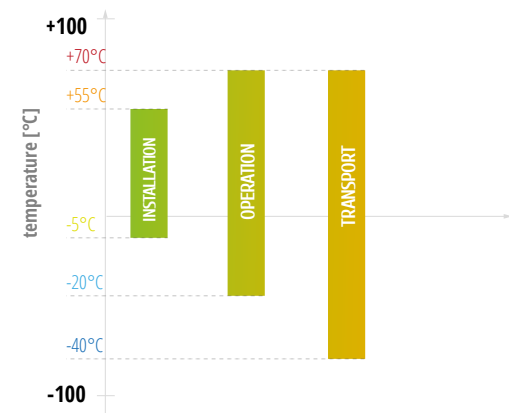


MM 50/125 OM4 RAL4003

### Features

- Simplex sub cable up to 24 fibers
- Fully dielectric cable
- Aramid yarns as tensile elements
- UV Resistant and LSOH flame retardant outer jacket

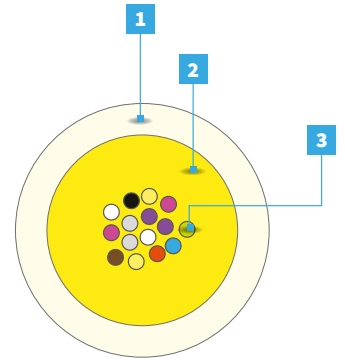
### Operating temperature





### Cable structure

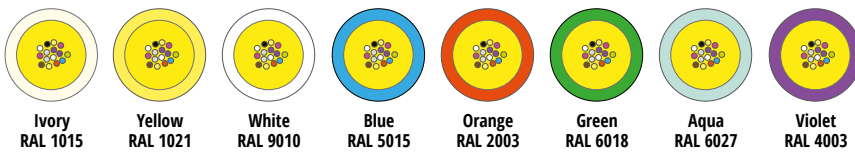
1. LSOH outer jacket
2. Aramid yarns
3. 250 µm optical fibers



### Configuration

DC-PRIM		
No. of fibers	12	24
Outer diameter [mm] (±5%)	3.0	3.5
Max tensile load (ε=0.5%) [N]	350	350
Weight [kg/km] (±10%)	8	9
Crush [N/10 cm]	350	
Min. bend radius [mm]	45 (depends on fiber type)	60 (depends on fiber type)

### Outer jacket color options:



### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

	1-12	1	2	3	4	5	6	7	8	9	10	11	12
Fiber		■	■	■	■	■	■	■	■	■	■	■	■
Color		red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
	13-24	13	14	15	16	17	18	19	20	21	22	23	24
Fiber		■	■	■	■	■	■	■	■	■	■	■	■
Code		■	■	■	■	■	■	■	■	■	■	■	■
Color*		red	green	blue	yellow	white	grey	brown	violet	brown	dark green	orange	pink

\*Fiber with black mark to identify fibers 13-24

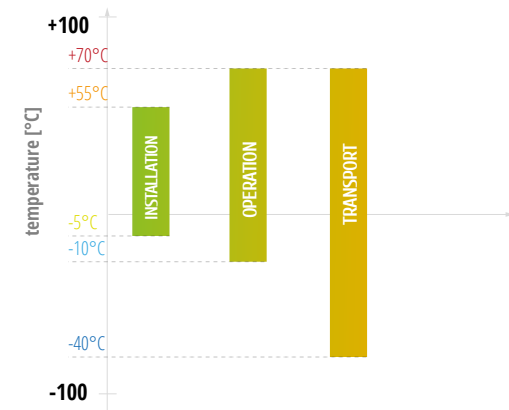
### Applications

- Optical cable with aramid yarns reinforcement
- Customer connection, fully dielectric cable
- MTP/MPO termination cable
- LAN and FTTX networks
- Distribution network
- Inside house OLT connection
- Data Center connections cable

### Features

- Aramid strength element
- 250 µm optical fibers (12-24)
- LSOH outer jacket

### Operating temperature



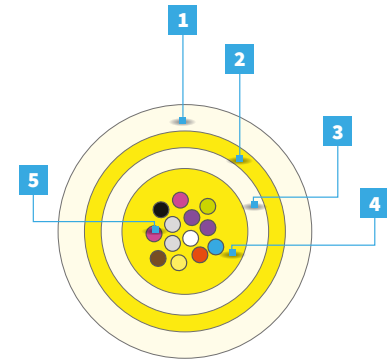
# DATACOM DC-DRIM

## DC-DRIM



### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. LSOH inner jacket
4. Aramid yarns
5. 250 µm optical fibers



LSOH



Bendsafe



Easy to terminate



Datacenter



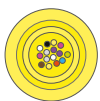
### Configuration

DC-DRIM		
No. of fibers	12	24
Outer diameter [mm] (±5%)	4.5	5.0
Max tensile load (ε=0.5%) [N]	600	600
Weight [kg/km] (±10%)	8	9
Crush [N/10cm]	300	
Min. bend radius [mm]	65 (depends on fiber type)	75 (depends on fiber type)

### Outer jacket color options:



Ivory  
RAL 1015



Yellow  
RAL 1021



White  
RAL 9010



Blue  
RAL 5015



Orange  
RAL 2003



Green  
RAL 6018



Aqua  
RAL 6027



Violet  
RAL 4003

### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Fiber	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Fiber	■	■	■	■	■	■	■	■	■	■	■	■
Code	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
Color*	red	green	blue	yellow	white	grey	brown	violet	brown	dark green	orange	pink

\*Fiber with black mark to identify fibers 13-24

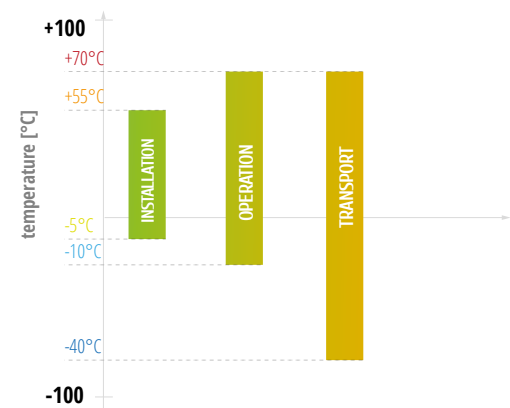
### Applications

- Optical cable with aramid yarns reinforcement
- Customer connection, fully dielectric cable
- MTP/MPO termination cable
- LAN and FTTX networks
- Distribution network
- Inside house OLT connection
- Data Center connections cable

### Features

- Aramid strength element in two layers
- 250 µm optical fibers (12-24)
- LSOH double jacket

### Operating temperature



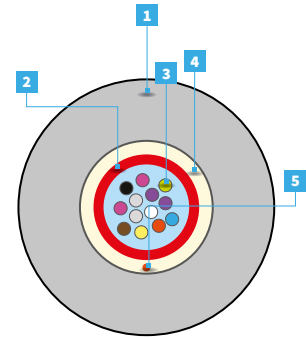
# DATACOM EXO-CU CABLES

## EXO-CU Cables *Loose tube*



### Cable structure

1. LSOH outer jacket
2. Central Loose tube (PBT) with colored fibers in filling compound
3. Optical fibers
4. Fiberglass yarns
5. Ripcord



LSOH Jacket

### Configuration

EXO-CU						
Version	Fiber qty	Ø ± 5% [mm]	Nominal weight LSOH ± 5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
				installation	operation	
1T x 2F	2	6.4	47	1100 (ε=0,33%)	300	700
1T x 4F	4	6.8	48			
1T x 6F	6	6.8	51			
1T x 8F	8	6.8	51			
1T x 12F	12	6.8	52			
1T x 24F	24	7.1	62			

- ### Applications
- Fully dielectric cable
  - Basic rodent protection
  - LAN and FTTX networks
  - Distribution network
  - ODF connections

### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	dark green	orange	pink

- ### Features
- Fiberglass strength element
  - Optical fibers
  - Loose tube with filling compound
  - Loose tube (PBT)
  - Fiberglass as water absorbent and strain relief element
  - LSOH outer jacket

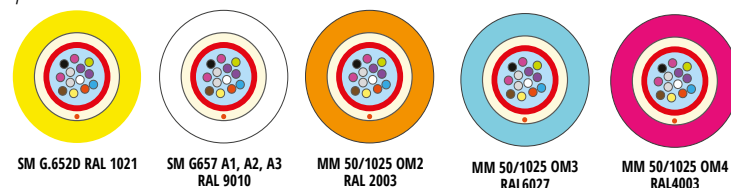
\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

### Jacket colors

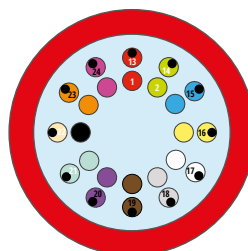
#### Standard



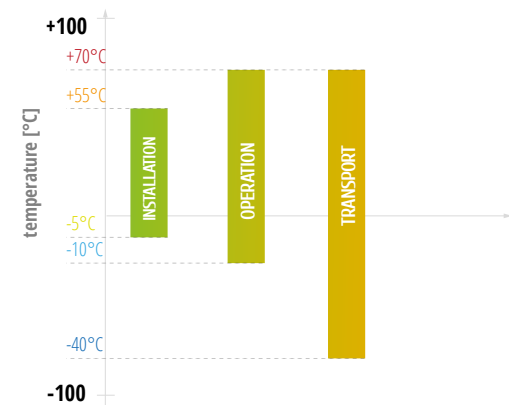
#### Optional



### Fiber identification



### Operating temperature





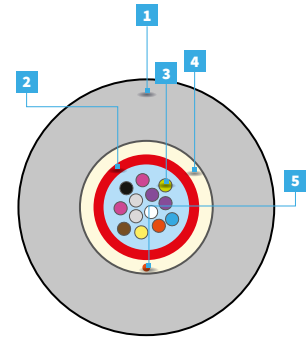
# DATACOM EXO-CO CABLES

## EXO-CO Cables *Loose tube*



### Cable structure

1. LSOH outer jacket
2. Central Loose tube (PBT) with colored fibers in filling compound
3. Optical fibers
4. Fiberglass yarns
5. Ripcord



LSOH Jacket

### Configuration

EXO-CO						
Version	Fiber qty	Ø ± 5% [mm]	Nominal weight LSOH ± 5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
				installation	operation	
1T x 2F	2	6.8	52	1300 (ε=0,33%)	500	1500
1T x 4F	4	7.2	53			
1Tx 6F	6	7.2	57			
1T x 8F	8	7.2	58			
1T x 12F	12	7.2	58			
1T x 16F	16	7.4	62			
1T x 24F	24	7.4	62	1900 (ε=0,5%)		

### Applications

- Fully dielectric cable
- Basic rodent protection
- LAN and FTTX networks
- Distribution network
- ODF connections

### Features

- Fiberglass strength element
- Optical fibers
- Loose tube with filling compound
- Loose tube (PBT)
- Fiberglass as water absorbent and strain relief element
- LSOH outer jacket

### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	dark green	orange	pink

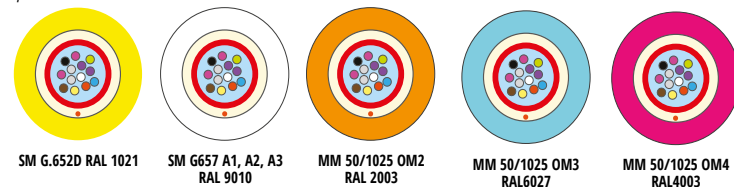
\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

### Jacket colors

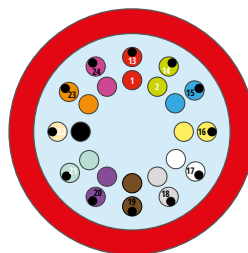
#### Standard



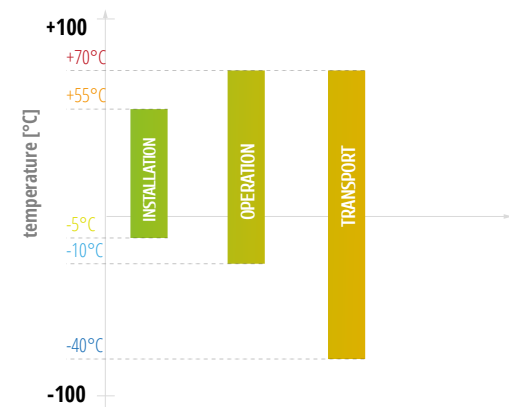
#### Optional



### Fiber identification



### Operating temperature



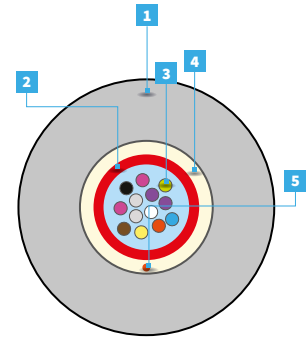
# DATAKOM EXO-CI CABLES

## EXO-CI Cables *Loose tube*



### Cable structure

1. LSOH outer jacket
2. Central Loose tube (PBT) with colored fibers in filling compound
3. Optical fibers
4. Fiberglass yarns
5. Ripcord



LSOH Jacket

### Configuration

EXO-CI						
Version	Fiber qty	Ø ± 5% [mm]	Nominal weight LSOH ± 5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
				installation	operation	
1T x 2F	2	7.1	52	1800 (ε=0,33%)  2700 (ε=0,5%)	1000	1500
1T x 4F	4	7.4	53			
1Tx 6F	6	7.4	57			
1T x 8F	8	7.4	58			
1T x 12F	12	7.4	58			
1T x 16F	16	7.7	62			
1T x 24F	24	7.7	62			

### Applications

- Fully dielectric cable
- Basic rodent protection
- LAN and FTTH networks
- Distribution network
- ODF connections

### Features

- Fiberglass strength element
- Optical fibers
- Loose tube with filling compound
- Loose tube (PBT)
- Fiberglass as water absorbent and strain relief element
- LSOH outer jacket

### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	dark green	orange	pink

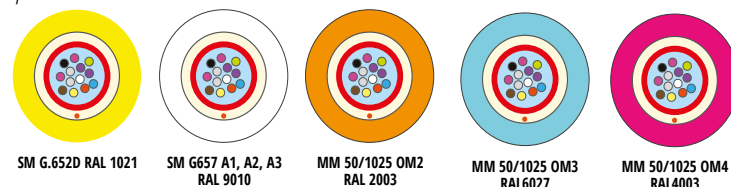
\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

### Jacket colors

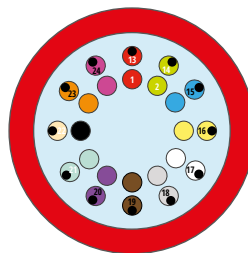
#### Standard



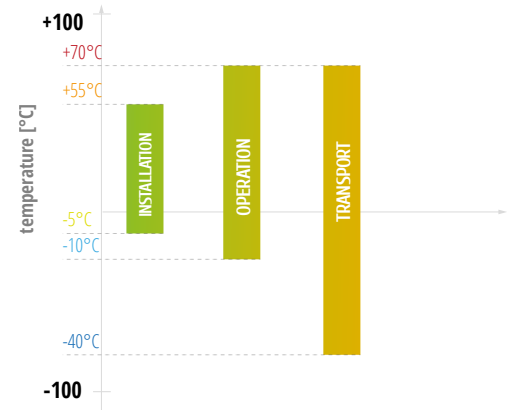
#### Optional



### Fiber identification

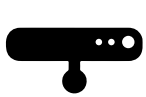


### Operating temperature



# DATACOM EXO-GU CABLES

## EXO-GU Cables *Loose tube*



Datacom



ETR



Compact design



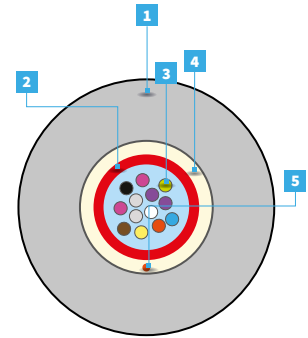
LSOH



Basic Rodent Protection

### Cable structure

1. LSOH outer jacket
2. Central Loose tube (PBT) with colored fibers in filling compound
3. Optical fibers
4. Fiberglass yarns
5. Ripcord



LSOH Jacket

### Configuration

EXO-GU							
Version	Fiber qty	Fibers per tube	Ø ± 5% [mm]	Nominal weight LSOH ± 5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
					installation	operation	
1T x 2F	2	2	5.8	34	1200 (ε=0,33%)  1500 (ε=0,5%)	400	1500
1T x 4F	4	4	5.8	34			
1T x 6F	6	6	5.8	35			
1T x 8F	8	8	5.8	35			
1T x 12F	12	12	5.8	35			
1T x 16F	16	16	5.8	35			
1T x 18F	18	18	5.8	36			
1T x 24F	24	24	5.8	36			

### Applications

- Fully dielectric cable
- Basic rodent protection
- LAN and FTTX networks
- Distribution network
- ODF connections

### Features

- Central Loose tube (PBT) with filling compound
- Optical fibers
- Fiberglass as water absorbent and strain relief element
- LSOH outer jacket

### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	dark green	orange	pink

\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm;

### Jacket colors

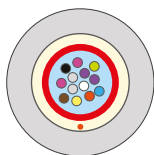
#### Standard



PE Black RAL 9005

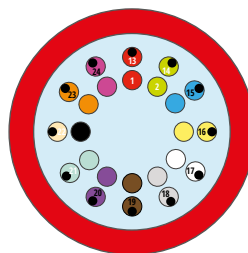


LSOH Grey RAL 7022



LSOH Light Grey RAL 7037

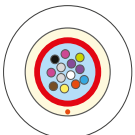
### Fiber identification



#### Optional



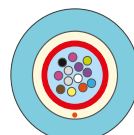
SM G.652D RAL 1021



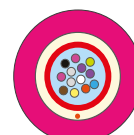
SM G657 A1, A2, A3 RAL 9010



MM 50/1025 OM2 RAL 2003

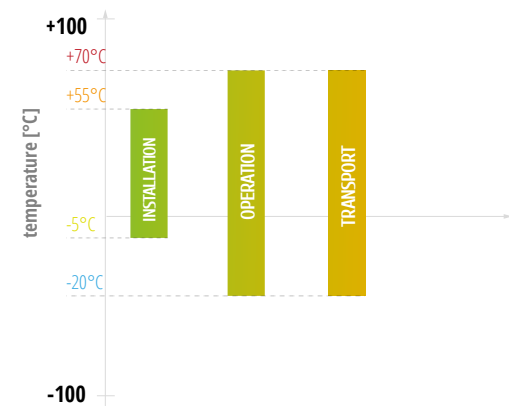


MM 50/1025 OM3 RAL 6027



MM 50/1025 OM4 RAL 4003

### Operating temperature



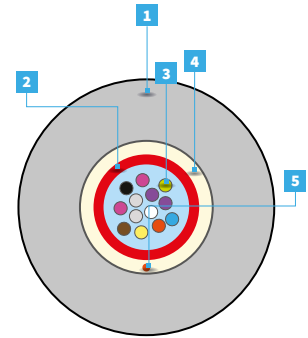
# DATACOM EXO-GO CABLES

## EXO-GO Cables *Loose tube*



### Cable structure

1. LSOH outer jacket
2. Central Loose tube (PBT) with colored fibers in filling compound
3. Optical fibers
4. Fiberglass yarns
5. Ripcord



LSOH Jacket

### Configuration

EXO-GO							
Version	Fiber qty	Fibers per tube	Ø ± 5% [mm]	Nominal weight LSOH ± 5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
					installation	operation	
1T x 2F	2	2	5.9	37	1500 (ε=0,33%)	500	1500
1T x 4F	4	4	5.9	37			
1T x 6F	6	6	5.9	37			
1T x 8F	8	8	5.9	37			
1T x 12F	12	12	5.9	38			
1T x 16F	16	16	5.9	38			
1T x 18F	18	18	5.9	38			
1T x 24F	24	24	5.9	40			

### Applications

- Fully dielectric cable
- Basic rodent protection
- LAN and FTTH networks
- Distribution network
- ODF connections

### Features

- Central Loose tube (PBT) with filling compound
- Optical fibers
- Fiberglass as water absorbent and strain relief element
- LSOH outer jacket

### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	dark green	orange	pink

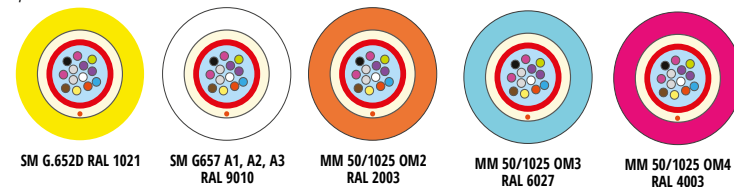
\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm;

### Jacket colors

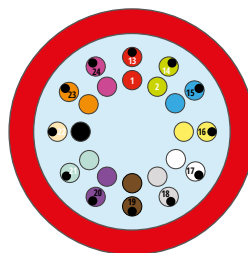
#### Standard



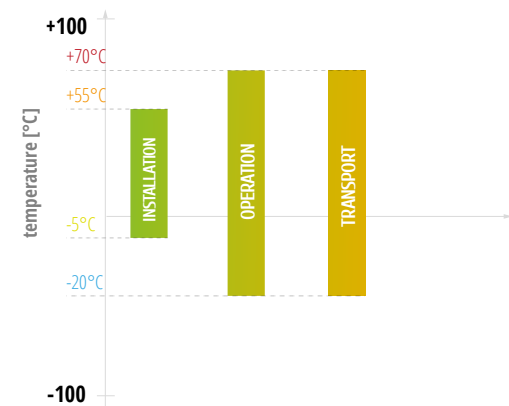
#### Optional



### Fiber identification



### Operating temperature



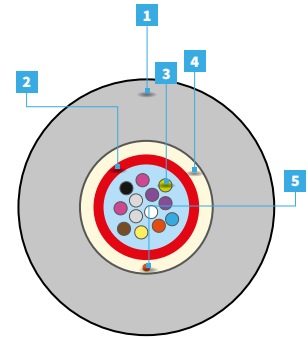
# DATACOM EXO-GI CABLES

## EXO-GI Cables *Loose tube*



### Cable structure

1. LSOH outer jacket
2. Central Loose tube (PBT) with colored fibers in filling compound
3. Optical fibers
4. Fiberglass yarns
5. Ripcord



LSOH Jacket

### Configuration

EXO-GI							
Version	Fiber qty	Fibers per tube	Ø ± 5% [mm]	Nominal weight LSOH ± 5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
					installa-tion	opera-tion	
1T x 2F	2	2	6.1	38	1800 (ε=0,33%)  2700 (ε=0,5%)	600	1500
1T x 4F	4	4	6.1	38			
1T x 6F	6	6	6.1	39			
1T x 8F	8	8	6.1	40			
1T x 12F	12	12	6.1	40			
1T x 16F	16	16	6.1	41			
1T x 18F	18	18	6.1	42			
1T x 24F	24	24	6.1	42			

### Applications

- Fully dielectric cable
- Basic rodent protection
- LAN and FTTX networks
- Distribution network
- ODF connections

### Features

- Central Loose tube (PBT) with filling compound
- Optical fibers
- Fiberglass as water absorbent and strain relief element
- LSOH outer jacket

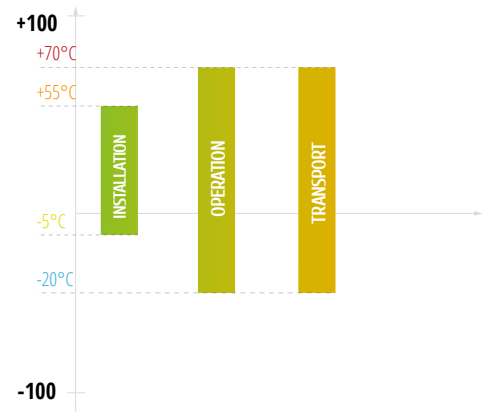
### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	dark green	orange	pink

\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm;

### Operating temperature

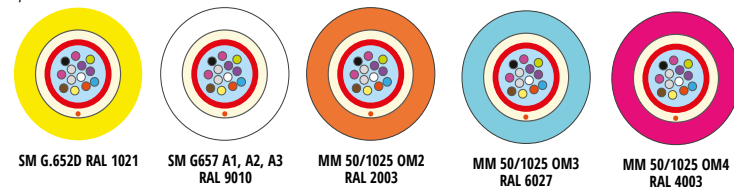


### Jacket colors

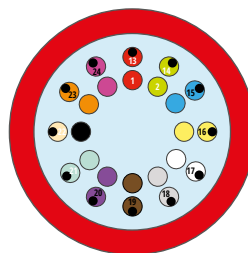
#### Standard



#### Optional



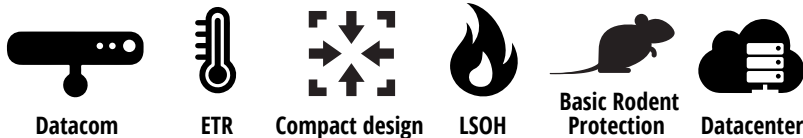
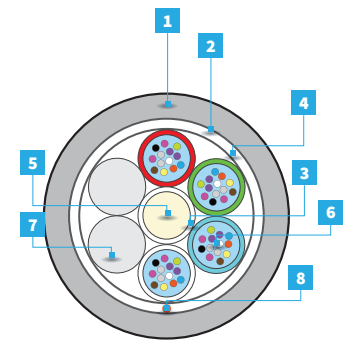
### Fiber identification





### Cable structure

1. LSOH outer jacket
2. Water-blocking fiberglass yarns
3. Water blocking yarns
4. PET tape
5. Central strength member (FRP)
6. Loose tubes (PBT) with colored fibers in filling gel
7. Fillers
8. Ripcord



### Configuration

BDC-MSA										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight PE ±5% [kg/km]	Nominal weight LSOH ±5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								instal-lation	oper-ation	
1T x 12F	12	12	6	1	8.2	50	65	1500	550	1500
2T x 6F	12	6	6	2	8.2	50	65	1550	780	
2T x 12F	24	12	6	2	8.2	51	65	1500	550	
4T x 6F	24	6	6	4	8.2	51	66	1550	780	
3T x 12F	36	12	6	3	8.2	52	67	1500	550	
6T x 6F	36	6	6	6	8.2	53	68	1550	780	
4T x 12F	48	12	6	4	8.2	53	68	1500	550	
5T x 12F	60	12	6	5	8.2	54	69	1500	550	
6T x 12F	72	12	6	6	8.2	54	69	1500	550	
8T x 12F	96	12	8	8	9.3	71	86	1620	750	
12T x 12F	144	12	12	12	11.5	104	126	1620	850	

### Applications

- Fully dielectric cable
- Basic rodent protection
- LAN and FTTH networks
- Distribution network
- ODF connections

### Features

- FRP strength and anti-buckling element
- Optical fibers
- Loose tube with filling compound (PBT Ø 1.8 mm)
- Dry yarns to prevent moisture into the cable
- Fiberglass as water absorbent and strain relief element
- UV stabilized LSOH jacket

### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

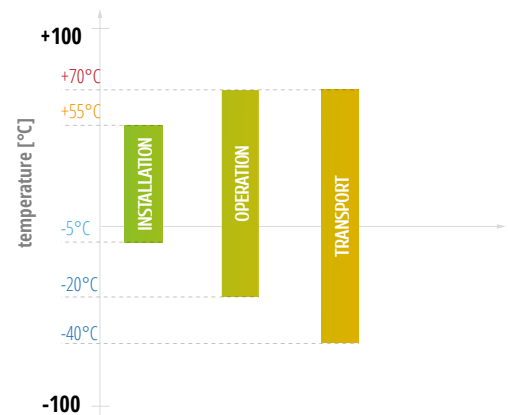
1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink

\*In case of lower fiber count some tubes can be replaced by fillers.

### Operating temperature



# FTTH Cables



# VC-D20/VC-D30 VC-D40/VC-DCY

SOLID CONNECTION TO YOUR PROVIDER



**BEND  
RESISTANCE**



**LSOH  
SAFE COVER**



**EASY TO  
TERMINATE**



**SMALL  
DIMENSIONS**

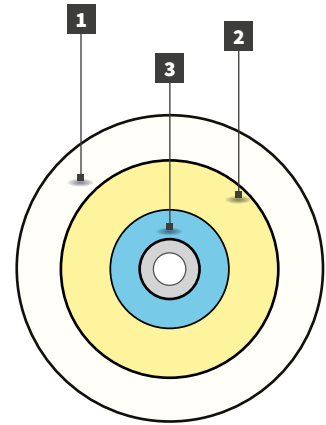


**SAFE  
DAILY USE**



### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. 900  $\mu\text{m}$  central semi tight buffer tube with 250  $\mu\text{m}$  colored fiber



### Configuration

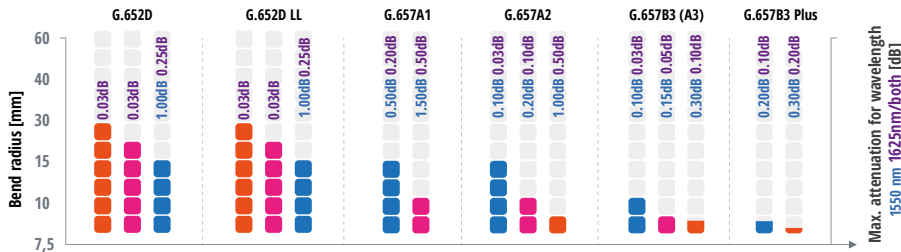
VC-D20	
No. of fibers	1F 900 $\mu\text{m}$
Outer diam [mm]	2.0
Tensile load perm/inst. [N]	75/200
Weight [kg/km]	7
Min. bend radius [mm]	10-60 mm*
Crush [N/10 cm]	300

\*Depends on fiber type

### Applications

- Optical cable with aramid yarns reinforcement
- Customer connection
- Fully dielectric cable
- Last mile connection
- LAN and FTTH networks
- Distribution network
- ODF connections
- Inside house OLT connection

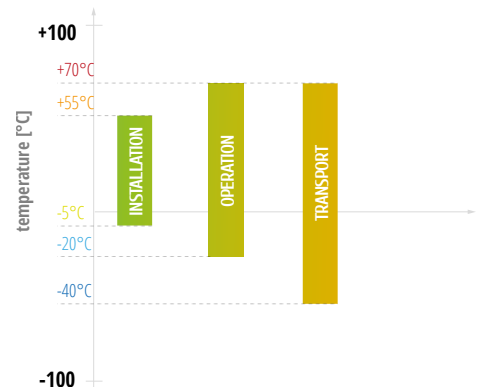
### Bend radius/maximum attenuation



### Features

- Aramid strength element
- Optical 900  $\mu\text{m}$  semi tight tube
- LSOH outer jacket

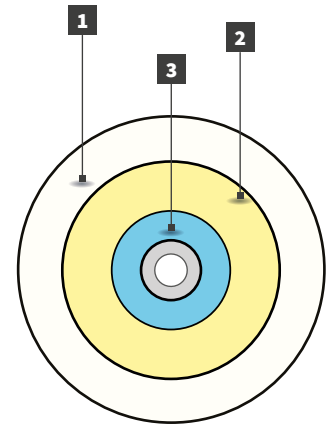
### Operating temperature





### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. 900 µm central semi tight buffer tube with 250 µm colored fiber



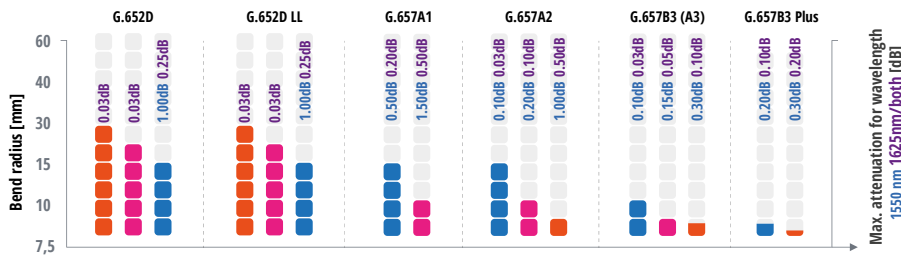
### Configuration

VC-D30	
No. of fibers	1F 900 µm
Outer diam [mm]	3.0
Tensile load perm/inst. [N]	60/170
Weight [kg/km]	8
Min. bend radius [mm]	10-60 mm*
Crush [N/10 cm]	500

\*Depends on fiber type

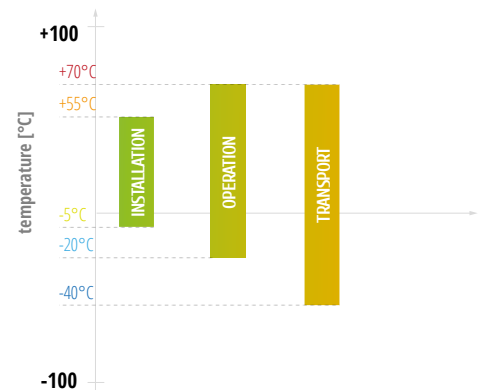
- ### Applications
- Optical cable with aramid yarns reinforcement
  - Customer connection
  - Fully dielectric cable
  - Last mile connection
  - LAN and FTTH networks
  - Distribution network
  - ODF connections
  - Inside house OLT connection

### Bend radius/maximum attenuation



- ### Features
- Aramid strength element
  - Optical 900 µm semi tight tube
  - LSOH outer jacket

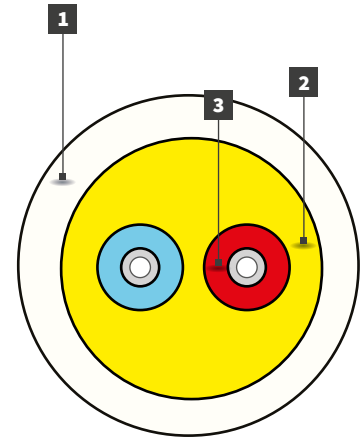
### Operating temperature





### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. 900 µm central semi tight buffer tube with 250 µm colored fiber



### Configuration

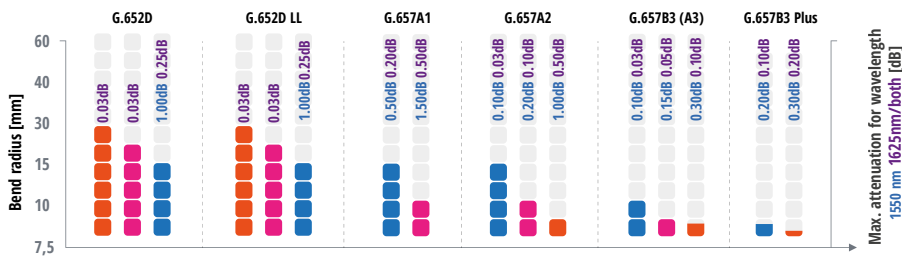
VC-D40	
No. of fibers	1-2F 900 µm
Outer diam [mm]	4,0
Tensile load perm/inst. [N]	150/400
Weight [kg/km]	15
Min. bend radius [mm]	10-60 mm*
Crush [N/10 cm]	1000

\*Depends on fiber type

### Applications

- Optical cable with aramid yarns reinforcement
- Customer connection
- Fully dielectric cable
- Last mile connection
- LAN and FTTH networks
- Distribution network
- ODF connections
- Inside house OLT connection

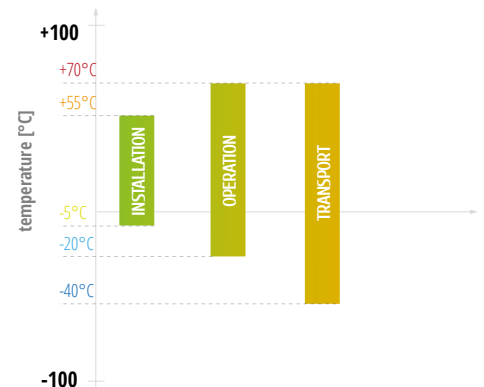
### Bend radius/maximum attenuation



### Features

- Aramid strength element
- Optical 900 µm semi tight tube
- LSOH outer jacket

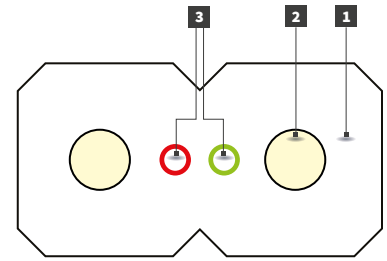
### Operating temperature





### Cable structure

1. LSOH outer jacket (white/ivory/black)
2. FRP rod
3. 250  $\mu$ m optical fibers



### Configuration

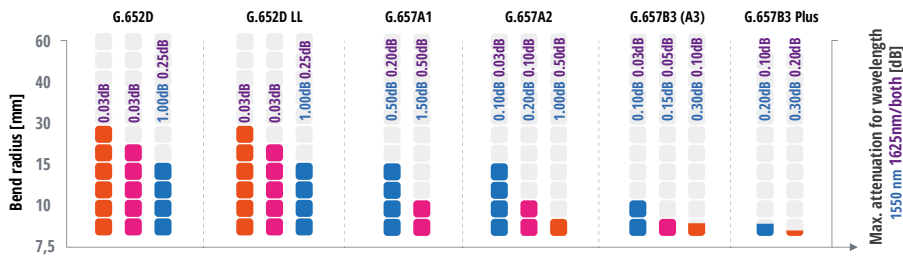
VC-DCY	
No. of fibers	1-4F 900 $\mu$ m
Outer diam [mm]	2.0x3.1 $\pm$ 0.1
Tensile load perm/inst. [N]	50/100
Weight [kg/km]	8.3
Min. bend radius [mm]	15-40 mm*
Crush [N/10 cm]	1000

\*Depends on fiber type

### Applications

- FTTH drop cable reinforced with FRP rods
- Customer connection
- Fully dielectric cable
- Last mile connection
- LAN and FTTH networks
- Distribution network
- ODF connections
- Inside house OLT connection

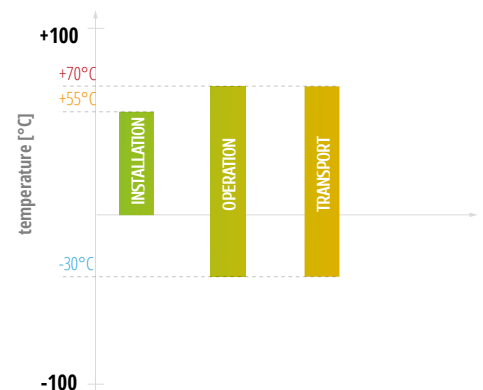
### Bend radius/maximum attenuation



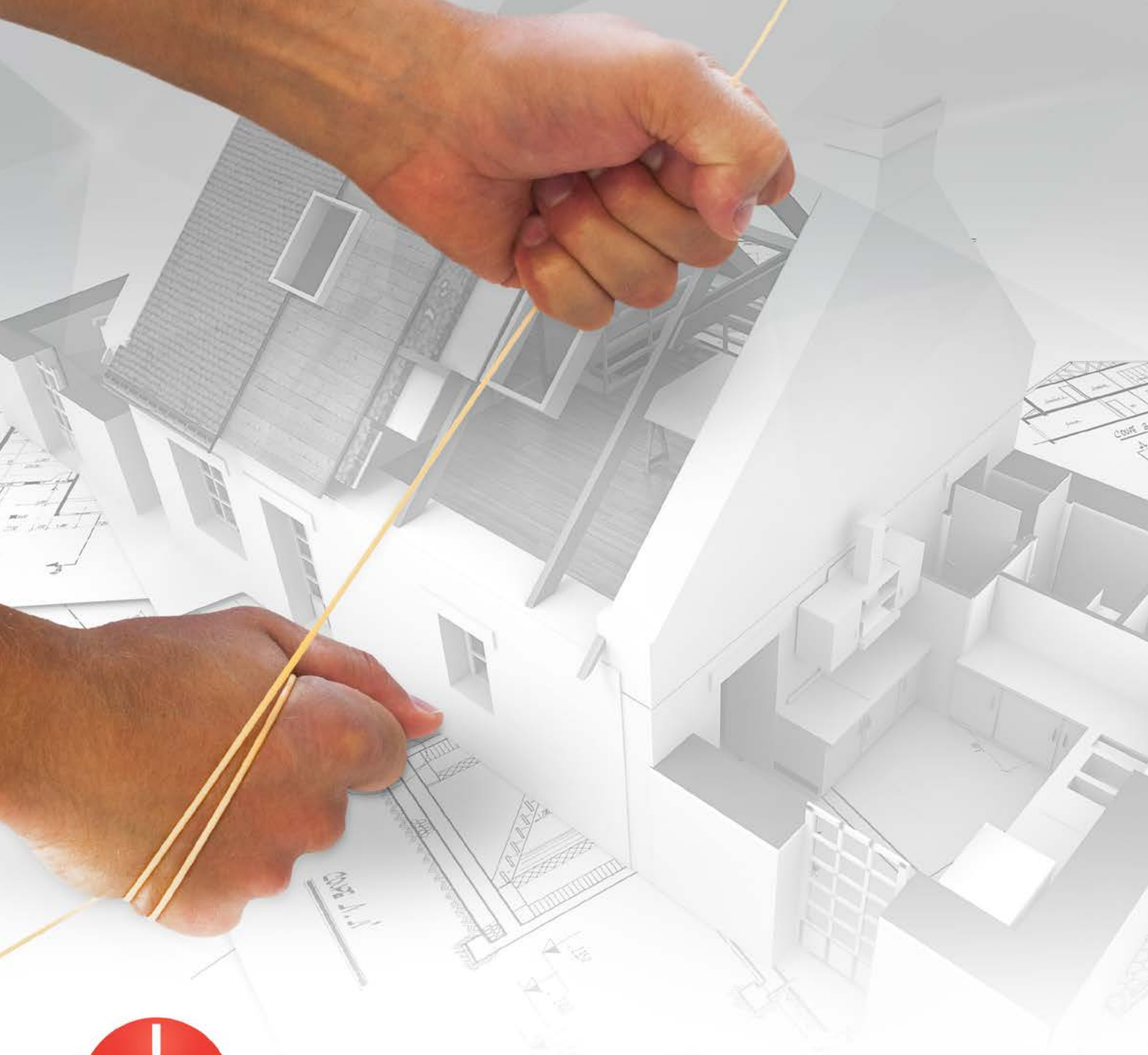
### Features

- FRP rods
- 250  $\mu$ m optical fibers
- LSOH outer jacket

### Operating temperature







**Crushproof**



**Bendproof**



**Knotproof**

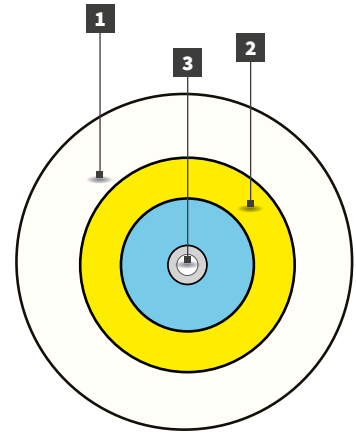
**RESIBEND<sup>®</sup> CABLES**





### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. 900 µm central semi tight buffer tube with 250 µm colored fiber



### Configuration

VC-D30 RESIBEND®	
No. of fibers	1F 900 µm
Outer diam [mm]	3.0
Tensile load perm/inst. [N]	60/170
Weight [kg/km]	8
Min. bend radius [mm]	10
Crush [N/10 cm]	500

### Bend radius/maximum attenuation

G.657B3 (A3)		
Fiber bending radius [mm]	Max. change in attenuation [dB]	
	1550 nm	1625 nm
5	0.10	0.25
7.5	0.05	0.15
10	0.03	0.10

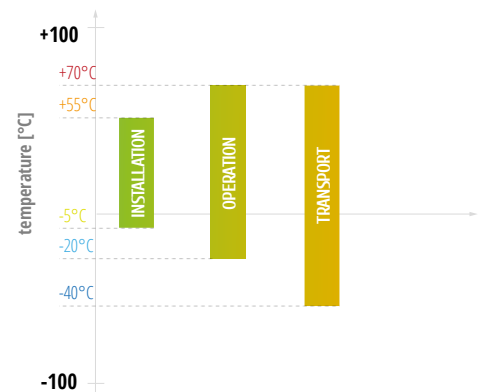
### Applications

- Optical cable with aramid yarns reinforcement
- For customer connection
- Fully dielectric cable
- Last mile connection
- LAN and FTTH networks
- Distribution network
- ODF connections
- Inside house OLT connection

### Features

- Aramid yarns as strain relief
- Optical fiber in 900 µm semi tight buffer
- LSOH outer jacket (various colors available)
- G.657B3 A3 optical fibers

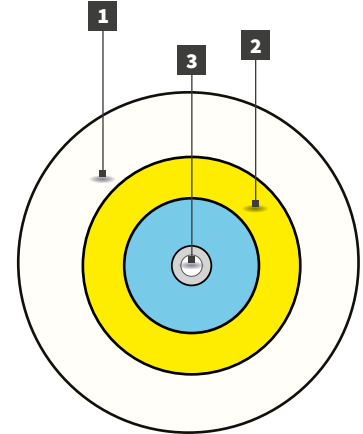
### Operating temperature





### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. 900 µm central semi tight buffer tube with 250 µm colored fiber



### Configuration

VC-D30 RESIBEND PLUS®	
No. of fibers	1F 900 µm
Outer diam [mm]	3.0
Tensile load perm/inst. [N]	60/170
Weight [kg/km]	8
Min. bend radius [mm]	7.5
Crush [N/10 cm]	500

### Bend radius/maximum attenuation

G.657B3 PLUS		
Fiber bending radius [mm]	Max. change in attenuation [dB]	
	1550 nm	1625 nm
2.5	0.20	0.30
5	0.10	0.20

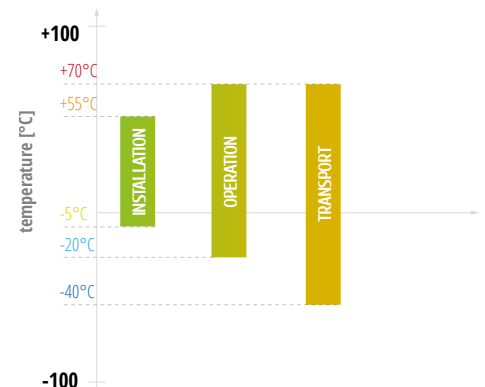
### Applications

- Optical cable with aramid yarns reinforcement
- For customer connection
- Fully dielectric cable
- Last mile connection
- LAN and FTTH networks
- Distribution network
- ODF connections
- Inside house OLT connection

### Features

- Aramid yarns as strain relief
- Optical fiber in 900 µm semi tight buffer
- LSOH outer jacket (various colors available)
- G.657B3 optical fibers

### Operating temperature





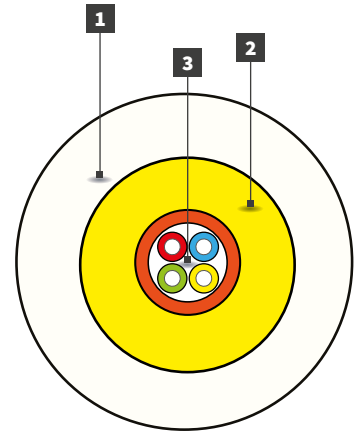
**Easy Section  
Module**

# Easy Section Module



### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. Optical fibers (250 μm) in Easy Section Module



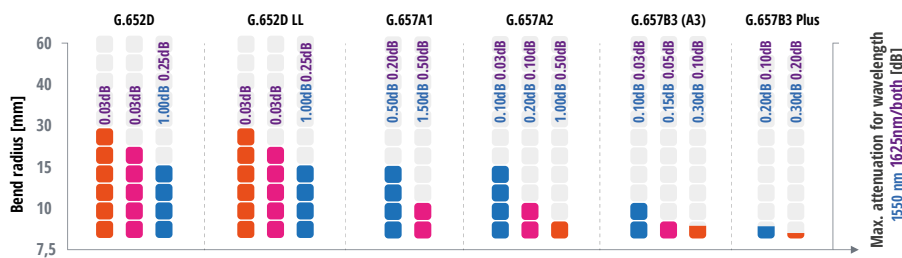
### Configuration

VC-D30 EASY SECTION MODULE									
Version	Fibers	Fibers per module	Total elements	Active modules	Ø ± 5% [mm]	Nominal weight ±5% [kg/km]	Max. tension [N]		Crush [N/10 cm]
							allowed	static	
2F	2	2	1	1	3.1	9	170	60	1000
4F	4	4	1	1	3.1	9			

### Applications

- Optical cable with aramid yarns reinforcement
- For customer connection
- Fully dielectric cable
- Last mile connection
- LAN and FTTH networks
- Distribution network
- ODF connections
- Inside house OLT connection

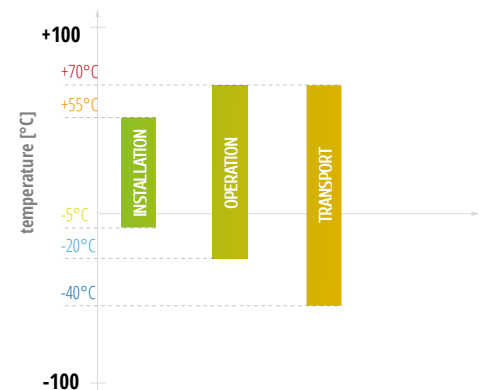
### Bend radius/maximum attenuation



### Features

- Aramid strength element
- Optical fibers (up to 4 pcs) inside 900μm FlexModule
- LSOH outer jacket

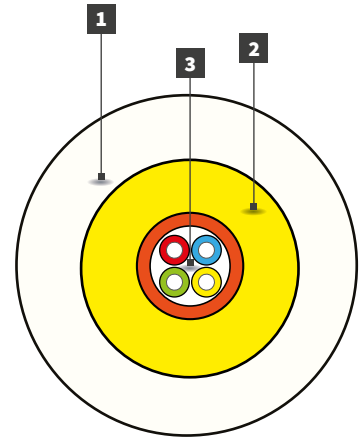
### Operating temperature





### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. Optical fibers (250 μm) in Easy Section Module



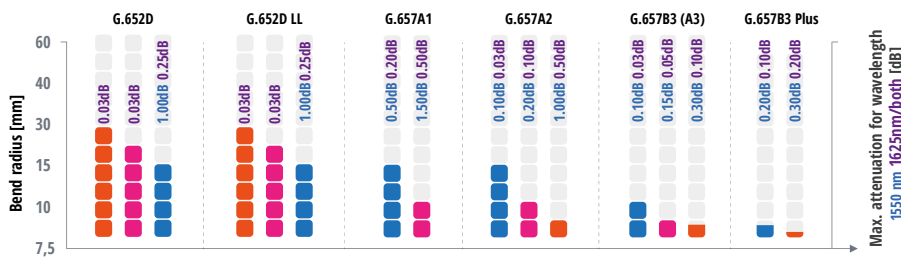
### Configuration

VC-D40 EASY SECTION MODULE									
Version	Fibers	Fibers per module	Total elements	Active modules	Ø ± 5% [mm]	Nominal weight ±5% [kg/km]	Max. tension [N]		Crush [N/10 cm]
							allowed	static	
2F	2	2	1	1	4.1	15	420	150	1000
4F	4	4	1	1	4.1	15			

### Applications

- Optical cable with aramid yarns reinforcement
- For customer connection
- Fully dielectric cable
- Last mile connection
- LAN and FTTH networks
- Distribution network
- ODF connections
- Inside house OLT connection

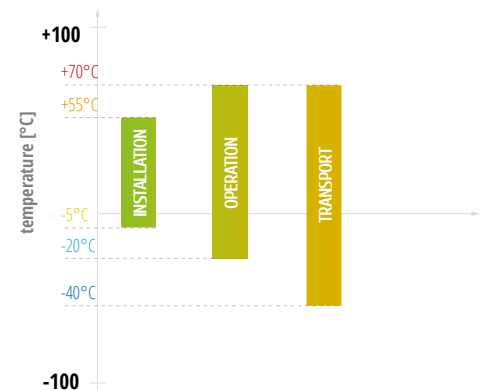
### Bend radius/maximum attenuation



### Features

- Aramid strength element
- Optical fibers (up to 4 pcs) inside 900μm FlexModule
- LSOH outer jacket

### Operating temperature





### Cable structure

1. LSOH outer jacket
2. Aramid yarns
3. 250 µm optical fibers



LSOH



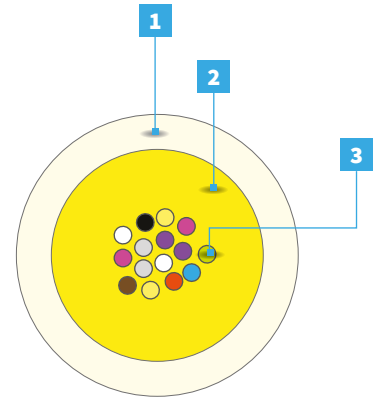
Bendsafe



Easy to terminate



Datacenter



### Configuration

DC-PRIM		
No. of fibers	12	24
Outer diameter [mm]	3.0	3.5
Tensile load perm/inst. [N]	350/150	350/150
Weight [kg/km]	8	9
Min. bend radius [mm]	45 (depends on fiber type)	50 (depends on fiber type)
Min. bend radius [mm]	150	

### Available colors

#### D-DATACOM (ACCORDING TO DIN VDE 0888 & IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Fiber												
Color	red	green	blue	yellow	white	grey	brown	violet	aqua	black	orange	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Fiber												
Code												
Color*	red	green	blue	yellow	white	grey	brown	violet	brown	dark green	orange	pink

\*Fiber with black mark to identify fibers 13-24

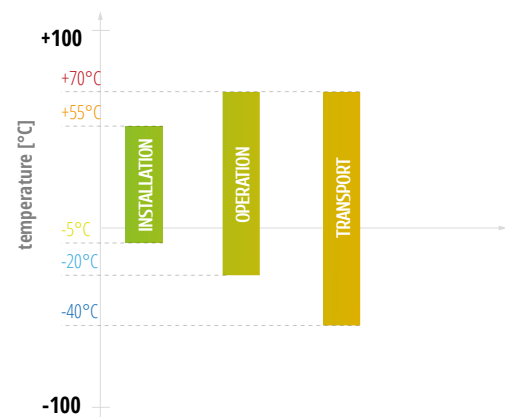
### Applications

- Optical cable with aramid yarns reinforcement
- Customer connection, fully dielectric cable
- MTP/MPO termination cable
- LAN and FTTX networks
- Distribution network
- Inside house OLT connection
- Data Center connections cable

### Features

- Aramid strength element
- 250 µm optical fibers (12-24)
- LSOH outer jacket

### Operating temperature

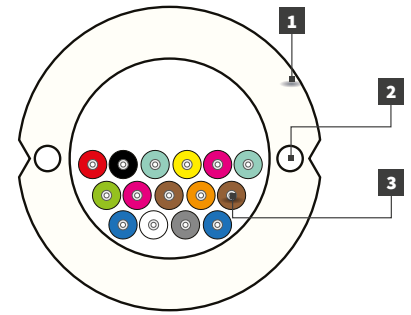






### Cable structure

1. LSOH outer jacket
2. Dielectric strength members
3. 900 µm semi tight buffer (LSOH) with colored 250 µm optical fiber



### Configuration

EAC-RAs						
Version	Fibers	Buffers	Ø ± 5% [mm]	Nominal weight ±5% [kg/km]	Max. tensile load [N]	Crush [N/10 cm]
					installation	
8F	8	8	8.7	68	400	1000
12F	12	12	8.7	72	400	
16F	16	16	12.0	98	600	
24F	24	24	12.0	106	600	

**Applications**

- Distribution cable
- For laying in risers
- FTTH feeder
- Easy access and installation

### Available colors

#### F-FTTH (ACCORDING TO DIN VDE 0888 & IEC 60304)

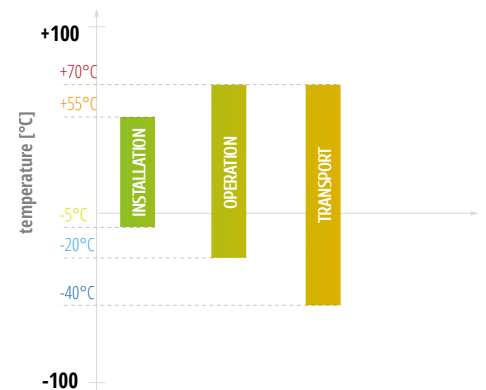
1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Fiber</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Buffer</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color 250 µm</b>	red	blue	green	yellow	violet	white	orange	grey	brown	black	aqua	pink
<b>Color 600/900 µm</b>	red	blue	green	yellow	violet	white	orange	grey	brown	black	aqua	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Fiber</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Code</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color 250 µm</b>	red	blue	green	yellow	violet	white	orange	grey	brown	black	aqua	pink
<b>Color* 600/900 µm</b>	red	blue	green	yellow	violet	white	orange	grey	brown	dark green	aqua	pink

\*Buffer with black mark to identify fibers 13-24

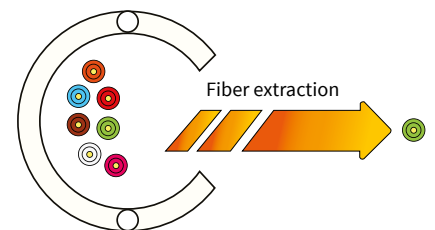
**Features**

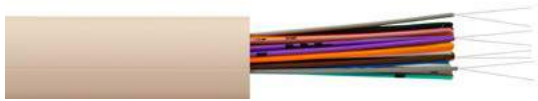
- FRP strength members inside cable jacket
- Optical fibers in bundles
- 2-24 elements in cable
- LSOH UV resistant outer jacket (ivory by default, various colors available)

### Operating temperature



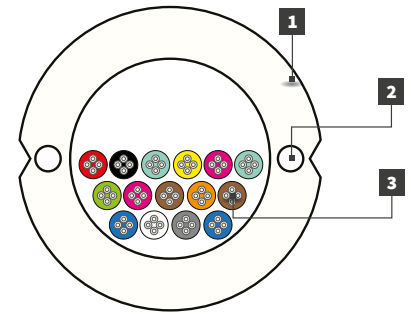
### Fiber extraction up to 25 m





### Cable structure

1. LSOH outer jacket
2. Dielectric strength members
3. FlexModules with 250 µm colored fiber



### Configuration

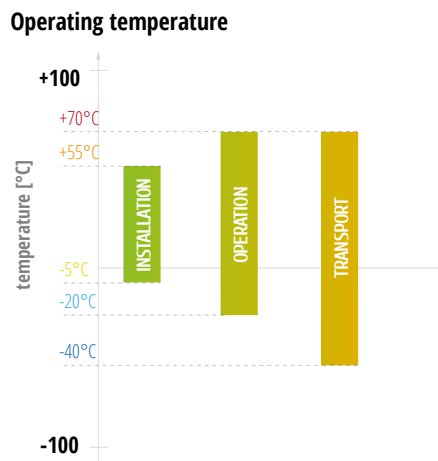
EAC-RAM						
Version	Fibers	FlexModules	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]	Crush [N/10 cm]
					ε=0.6% Δ α≤ 0.1 dB, reversible	
<b>2F FlexModules</b>						
	12-18	6-9	8,7	69	400	500
	20-30	10-15	9,5	79	400	
	32-48	16-24	12,0	106	600	
<b>4F FlexModules</b>						
	16-36	4-9	8,7	70	400	500
	40-48	10-12	9,5	78	400	
	52-60	13-15	10,5	85	400	
	64-96	16-24	12,0	110	600	
<b>6F FlexModules</b>						
	12-24	2-4	8,7	70	400	500
	30-72	5-12	10,5	90	400	
	78-96	13-16	12,0	112	600	
	102-144	17-24	13,0	130	600	
<b>8F FlexModules</b>						
	16-32	2-4	8,7	67	400	500
	40-96	5-12	10,5	89	400	
<b>12F FlexModules</b>						
	24-48	2-4	8,7	70	400	500
	60-120	5-8	10,5	90	400	
	48	9-12	12,0	115	600	

### Applications

- Distribution cable
- For laying in risers
- FTTH feeder
- Easy access and installation

### Features

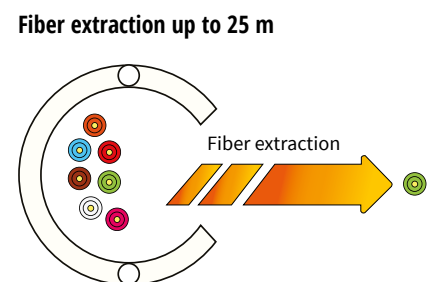
- FRP strength members inside cable jacket
- Optical fibers in bundles
- 2-24 elements in cable
- LSOH UV resistant outer jacket (ivory by default, various color available)



### F-FTTH (ACCORDING TO DIN VDE 0888 & IEC 60304)

1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Fiber</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color 250 µm</b>	red	blue	green	yellow	violet	white	orange	grey	brown	black	aqua	pink
1-12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Module</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color</b>	red	blue	green	yellow	violet	white	orange	grey	brown	black	aqua	pink
13-24	13	14	15	16	17	18	19	20	21	22	23	24
<b>Module</b>	■	■	■	■	■	■	■	■	■	■	■	■
<b>Color*</b>	red	blue	green	yellow	violet	white	orange	grey	brown	dark green	aqua	pink

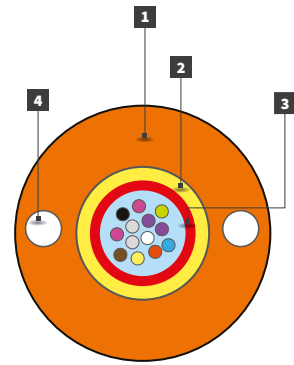
\*Black mark to identify FlexModules 13-24





### Cable structure

1. PP/HDPE outer jacket
2. Aramid yarns
3. Central Loose tube (PBT) with 250 µm colored fibers in filling gel
4. Dielectric strength members in the jacket



### Configuration

DAC-BURRY							
Version	Fibers	Fibers per tube	Ø ± 5% [mm]	Nominal weight PE ± 5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
					installation	operation	
1T x 2F	2	2	6.2	32	650	250	3500
1T x 4F	4	4	6.2	32			
1Tx 6F	6	6	6.2	32			
1T x 8F	8	8	6.2	32			
1T x 12F	12	12	6.2	32			

### Applications

- Optical access cable with aramid yarns reinforcement
- Direct buried design
- Fully dielectric cable
- Last mile connection
- High crush resistance (3,5kN)
- Installation into existing ducts or direct buried

### Available colors

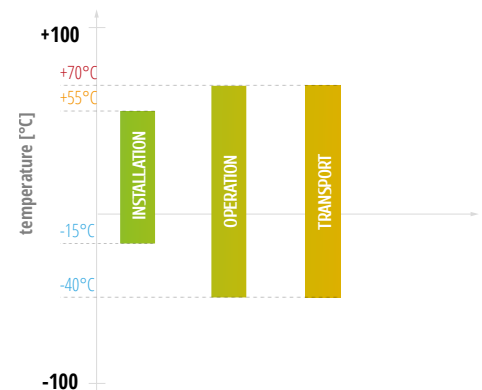
#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers in tube

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

### Features

- Central Loose tube (PBT) with filling compound
- Up to 12 optical fibers (250 µm)
- Aramid yarns as strain relief and water absorbent
- Embedded FRP strength members
- Highly resistant outer jacket made of hard polyolefin material, UV resistant

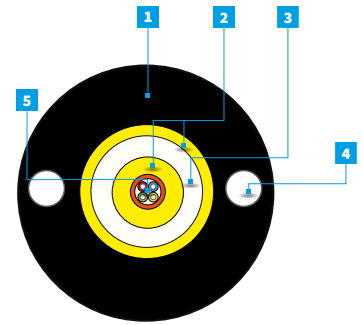
### Operating temperature





### Cable structure

1. HDPE UV resistant outer jacket
2. Aramid yarns
3. Inner LSOH jacket
4. FRP rods
5. Module with optical fibers



LSOH



Bendsafe



Easy to terminate



Easy-strip



Semi-tight



Datacenter



### Configuration

VC-T60								
Version	Fibers	Fibers per module	Total elements	Ø ± 5% [mm]	Nominal weight ±5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
						allowed	static	
1-4F	1-4	1-4	1	5.6	30	1200	400	2000

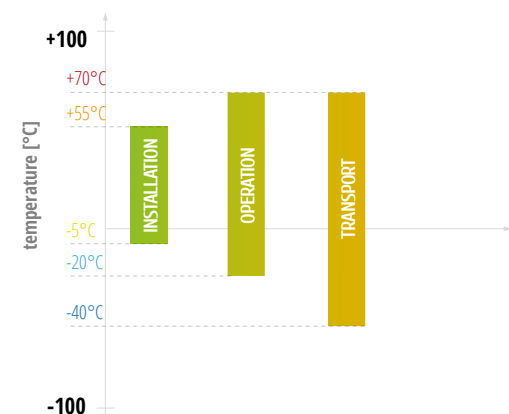
### Applications

- Drop cable for FTTH networks
- Optical access cable with aramid yarns reinforcement
- Direct buried construction
- Fully dielectric cable
- Last mile connection

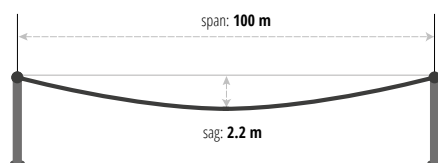
### Features

- Aramid yarns as strength and water absorbent elements
- Easy strip buffer or modules with optical fibers
- Embedded strength members (FRP)
- Highly resistant outer jacket made of HDPE material
- UV stabilized

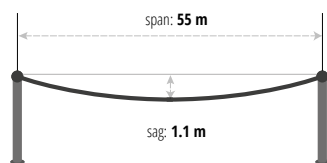
### Operating temperature



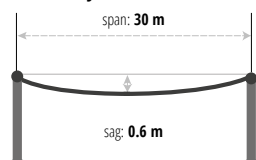
#### NESC Light



#### NESC Medium

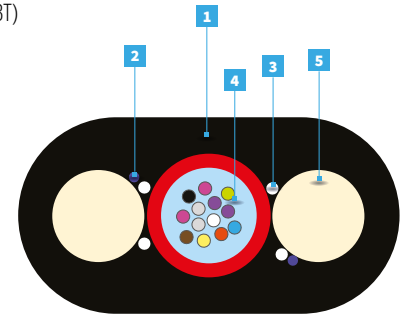


#### NESC Heavy



### Cable structure

1. PE jacket
2. Ripcord
3. Water blocking yarns
4. Central Loose tube (PBT) with 250 μm colored fibers in filling gel
5. FRP strength member



### Cable variants

Version	AERO-DF03	AERO-DF03
Fiber count	1-12	16-24
Cable dimensions [mm]	8.3 x 4.6 (±3%)	8.7 x 5.0 (-3%)
Cable weight [kg/km]	37	38
Max. installation tension[N]	1300	1300

### Mechanical and environmental characteristics

Parameter	
Crush performance	5000 N
Bending performance	10 cycles [20 x D]
Water Penetration	3 m sample, 1 m head, 24 h

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers in tube

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	natural	aqua

\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

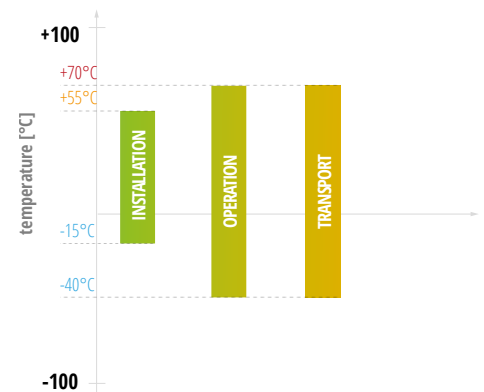
### Applications

- Installation on poles or walls
- Can be installed in pipelines
- Fully dielectric cable

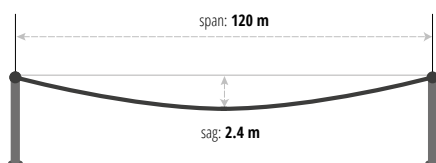
### Features

- Loose tube with filling compound (PBT)
- Up to 24 fibers in a cable
- Two FRP strength elements
- Dry yarns to prevent moisture into cable
- Ripcord yarns For easy jacket removal
- PE UV resistant Jacket

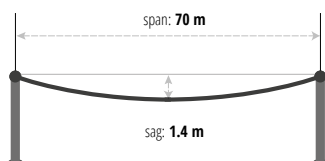
### Operating temperature



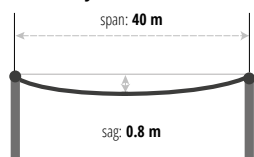
#### NESC Light



#### NESC Medium



#### NESC Heavy



Microduct



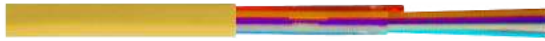


# TRENCH MICROCABLES



# MICRODUCT MK-AX2

# MICRODUCT MK-AX2



## Cable structure

1. Polymeric jacket with low coefficient of friction
2. 250  $\mu$ m colored fibers



Microduct Generation 1



FTTH



Last mile connection outdoor



Blowing installation



Flexible



Compact design



Bendsafe

## Configuration

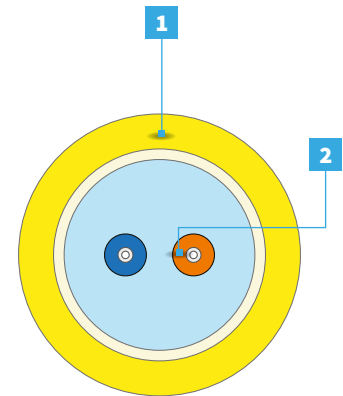
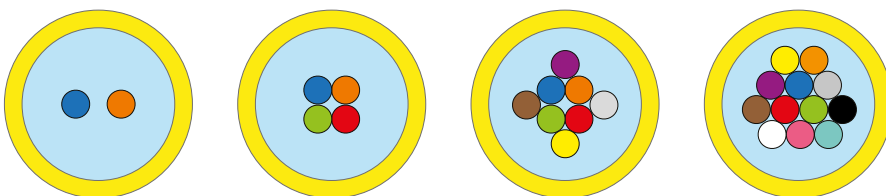
METROJET MK-AX2					
Version	Fibers	$\varnothing$ $\pm$ 5% [mm]	Nominal weight $\pm$ 10% [kg/km]	Max. install. tension [N]	Crush [N/10 cm]
1T x 2F	2	1.1	1.2	15	100
1T x 4F	4	1.1	1.4		
1T x 6F	6	1.5	1.6		
1T x 8F	8	1.5	1.8		
1T x 10F	10	1.6	2.0		
1T x 12F	12	1.6	2.2		

## Compatibility table

STANDARD MICRODUCT				
Version	Outer $\varnothing$ [mm]	Inner $\varnothing$ [mm]	MK-AX2	
			2-4F	6-12F
3/2.1	3	2.1	☑	-
5/3.5	5	3.5	☑	☑
7/5.5	7	5.5	☑	☑
10/8	10	8		
12/10	12	10		
14/12	14	12		
Fiber qty			2-12	

DIRECT BURIED DUCTS				
Version	Outer $\varnothing$ [mm]	Inner $\varnothing$ [mm]	MK-AX2	
			2-4F	6-12F
7/3.5	7	3.5	☑	
7/3.8	7	3.8	☑	
7/4	7	4	☑	
10/5.5	10	5.5	☑	
12/8	12	8	-	
14/10	14	10	-	
Fiber qty			2-12	

## Available colors



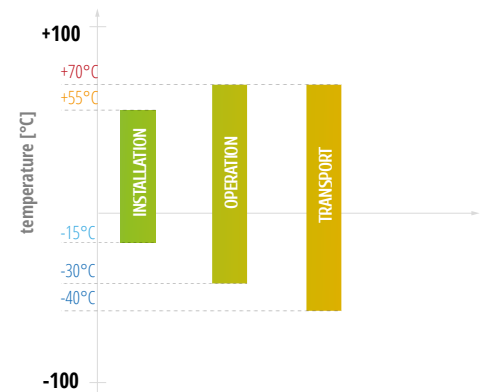
## Applications

- Microduct air-blowing application
- Metro networks
- Flexible network design
- Distribution network

## Features

- Polymeric jacket with low coefficient of friction
- Central tube without gel
- 250  $\mu$ m colored fibers

## Operating temperature



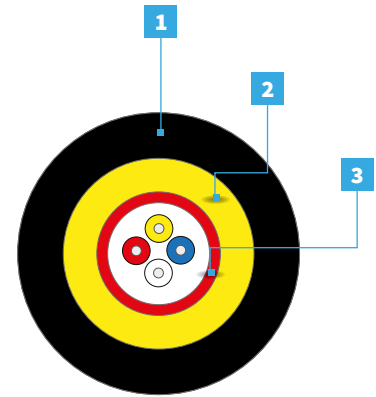
# MICRODUCT MK-DX2/25

# MICRODUCT MK-DX2/25



### Cable structure

1. HDPE with low coefficient of friction
2. Aramid yarns
3. Central Loose tube (PBT) with 250 µm colored fibers in filling gel



### Applications

- Microduct cabling system
- FTTH & Distribution networks
- Flexible network design
- Last mile connection
- Blowing & pulling installation method

### Features

- HDPE with low coefficient of friction
- Aramid yarns
- Central tube with gel
- 250 µm colored fibers
- Microbending resistant fiber G657A1 as standard

METROJET MK-DX2/25					
Version	Fibers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. installation tension [N]	Crush [N/10 cm]
1T x 2F	2	2.0	3,9	300	500
1T x 4F	4	2.0	3,9		
1T x 6F	6	2.3	4,4		
1T x 8F	8	2.3	4,5		
1T x 10F	10	2.3	4,6		
1T x 12F	12	2.3	4,6		

### Compatibility table

STANDARD MICRODUCT				
Version	Outer Ø [mm]	Inner Ø [mm]	MK-DX2	MK-DX25
3/2.1	3	2.1	-	-
5/3.5	5	3.5	☑	-
7/5.5	7	5.5	☑	☑
10/8	10	8	☑	☑
12/10	12	10	-	-
14/12	14	12	-	-
Fiber qty			2-4	4-12

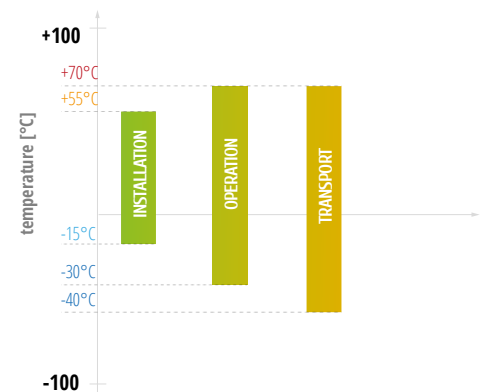
DIRECT BURIED DUCTS				
Version	Outer Ø [mm]	Inner Ø [mm]	MK-DX2	MK-DX25
7/3.5	7	3.5	☑	-
7/3.8	7	3.8	☑	☑
7/4	7	4	☑	☑
10/5.5	10	5.5	☑	☑
12/8	12	8	☑	☑
14/10	14	10	-	-
Fiber qty			2-4	4-12

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers in tube

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

### Operating temperature



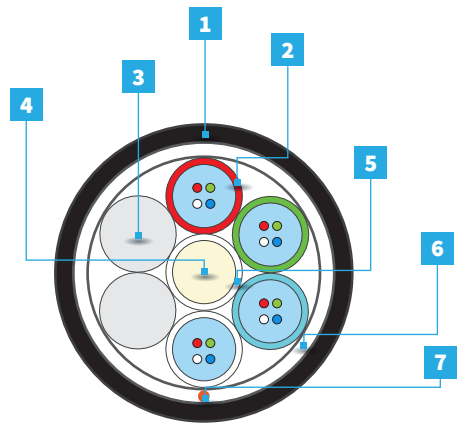
# MICRODUCT MK-LX4

# MICRODUCT MK-LX4



### Cable structure (MK-LX4)

1. HDPE outer jacket
2. Loose tubes (PBT) with colored fibers in filling gel
3. Fillers
4. Central strength member (FRP)
5. Water blocking yarns
6. Water blocking yarns on strand element
7. Ripcord



Optimal Diameter



Low Friction



Telecom



Blowing installation



Microduct Generation 1

### Configuration

METROJET MK-LX4										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								instal-lation	oper-ation	
1T x 4F	4	4	6	1	5	4.2	8	250	150	500
2T x 4F	6	4	6	2	4	4.2	8			
3T x 4F	12	4	6	3	3	4.2	9			
4T x 4F	16	4	6	4	2	4.2	9			
5T x 4F	20	4	6	5	1	4.2	10			
6T x 4F	24	4	6	6	0	4.2	10			

Other fiber counts available on demand

### Compatibility table

STANDARD MICRODUCT			
Version	Outer Ø [mm]	Inner Ø [mm]	MK-LX4
3/2.1	3	2.1	-
5/3.5	5	3.5	-
7/5.5	7	5.5	☑
10/8	10	8	☑
12/10	12	10	☑
14/12	14	12	-
Fiber qty			4-24

DIRECT BURIED DUCTS			
Version	Outer Ø [mm]	Inner Ø [mm]	MK-LX4
7/3.5	7	3.5	-
7/3.8	7	3.8	-
7/4	7	4	-
10/5.5	10	5.5	☑
12/8	12	8	☑
14/10	14	10	☑
Fiber qty			4-24

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4
Code	■	■	■	■
Color	red	green	blue	white

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6
Code	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange

\*In case of lower fiber count some tubes can be replaced by fillers.

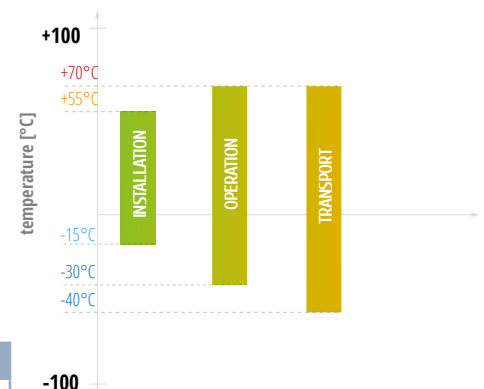
### Applications

- Microduct cabling air-blowing system
- Metro networks
- Flexible network design
- Distribution network

### Features

- HDPE, UV stabilized outer jacket with low friction
- Loose tubes (and fillers), SZ stranded around the CSM
- PBT tubes containing up to 4 optical fibers
- Smallest outer diameter for blowing into 5.5 mm (ID) ducts

### Operating temperature



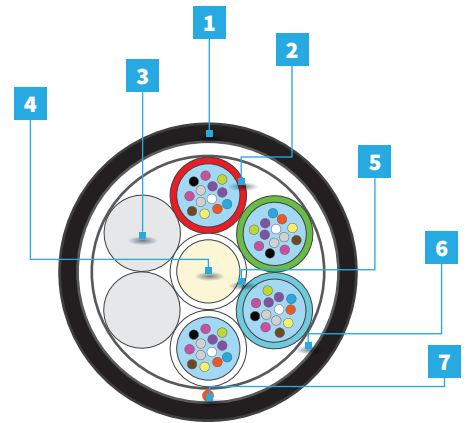
# MICRODUCT MK-LXS6/7/8

MICRODUCT MK-LXS6/7/8



## Cable structure (MK-LXS6)

1. HDPE outer jacket
2. Loose tubes (PBT) with colored fibers in filling gel
3. Fillers
4. Central strength member (FRP)
5. Water blocking yarns on FRP
6. Water blocking yarns on strand element
7. Ripcord



Optimal Diameter



Low Friction



Telecom



Blowing installation



Microduct Generation 1

## Configuration

METROJET MK-LXS6										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								installation	operation	
6T x 4F	24	4	6	6	0	5.3	18	650	200	500
6T x 6F	36	6	6	6	0	5.3	18			
6T x 8F	48	8	6	6	0	5.3	19			
6T x 10F	60	10	6	6	0	5.3	19			
4T x 12F	48	10	6	4	2	5.3	20			
6T x 12F	72	12	6	6	0	5.3	21			

METROJET MK-LXS7										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								installation	operation	
8T x 4F	32	4	8	8	0	6.2	28	1200	350	500
8T x 6F	48	6	8	8	0	6.2	28			
8T x 8F	64	8	8	8	0	6.2	29			
8T x 10F	80	10	8	8	0	6.2	30			
8T x 12F	96	12	8	8	0	6.2	31			

METROJET MK-LXS8										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								installation	operation	
12T x 4F	48	4	12	12	0	7.8	47	1500	550	500
12T x 6F	72	6	12	12	0	7.8	48			
12T x 8F	96	8	12	12	0	7.8	49			
12T x 10F	120	10	12	12	0	7.8	50			
12T x 12F	144	12	12	12	0	7.8	52			

Other fiber counts available on demand

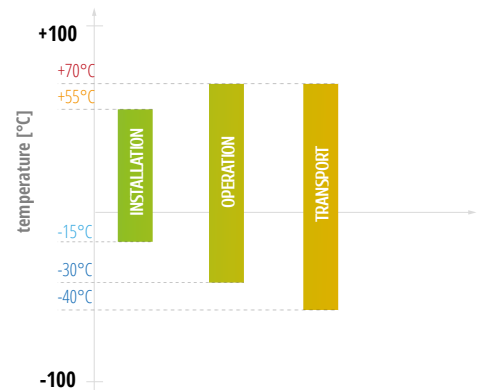
## Applications

- Microduct cabling air-blowing system
- Metro networks
- Flexible network design
- Distribution network

## Features

- HDPE, UV stabilized outer jacket with low coefficient of friction
- Loose tubes (and fillers), SZ stranded around the CSM
- PBT tubes containing up to 12 optical fibers

## Operating temperature



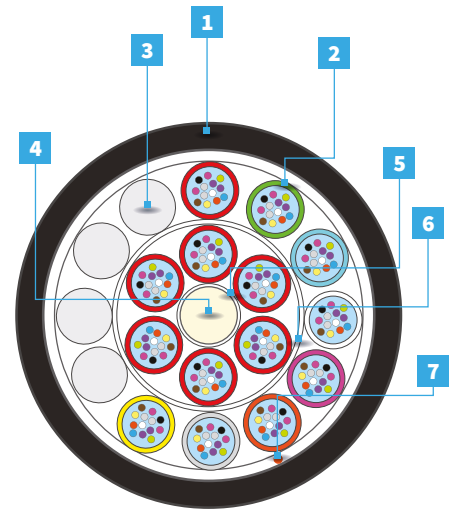
# MICRODUCT MK-LXS9/10

# MICRODUCT MK-LXS9/10



### Cable structure (MK-LX9)

1. HDPE outer jacket
2. Loose tubes (PBT) with colored fibers in filling gel
3. Fillers
4. Central strength member (FRP)
5. Water blocking yarns on FRP
6. Water blocking tape on strand element
7. Ripcord



Optimal Diameter



Low Friction



Telecom



Blowing installation



Microduct Generation 1

### Configuration

METROJET MK-LXS9										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								installation	operation	
14T x 12F	168	12	18	14	4	8.7	53	650	200	500
16T x 12F	192	12	18	16	2	8.7	54			
18T x 12F	216	12	18	18	0	8.7	55			

METROJET MK-LXS10										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								installation	operation	
24T x 12F	288	12	24	24	0	9.4	72	1000	250	500

Other fiber counts available on demand

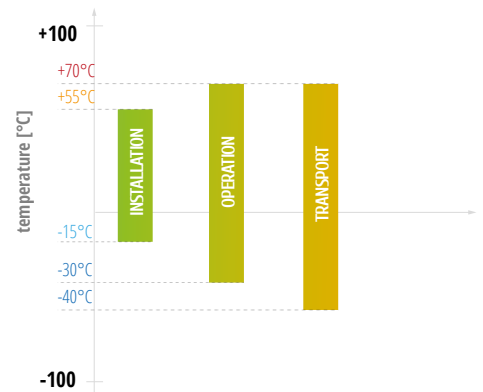
### Applications

- Microduct cabling air-blowing system
- Metro networks
- Flexible network design
- Distribution network

### Features

- HDPE, UV stabilized outer jacket with low coefficient of friction
- Loose tubes (and fillers), SZ stranded around the CSM
- PBT tubes containing up to 12 optical fibers

### Operating temperature





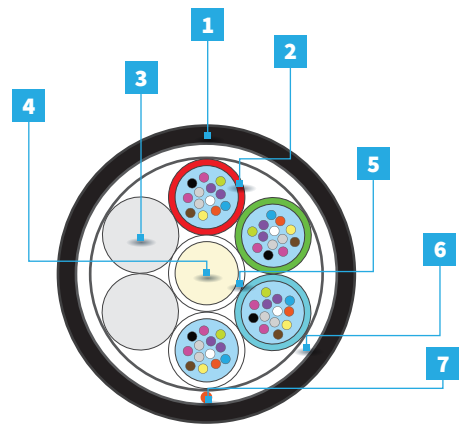
# MICRODUCT MK-LX6

# MICRODUCT MK-LX6



### Cable structure (MK-LX6)

1. HDPE outer jacket
2. Loose tubes (PBT) with colored fibers in filling gel
3. Fillers
4. Central strength member (FRP)
5. Water blocking yarns on FRP
6. Water blocking yarns on strand element
7. Ripcord



Optimal Diameter



Low Friction



Telecom



Blowing installation



Microduct Generation 1

### Configuration

METROJET MK-LX6										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								instal-lation	opera-tion	
1T x 4F	4	4	6	1	5	5.6	28	750	250	1000
1T x 6F	6	6	6	1	5	5.6	28			
1T x 8F	8	8	6	1	5	5.6	28			
2T x 6F	12	6	6	2	4	5.6	29			
4T x 6F	24	6	6	4	2	5.6	29			
6T x 6F	36	6	6	6	0	5.6	29			
1T x 12F	12	12	6	1	5	5.6	30			
2T x 12F	24	12	6	2	4	5.6	30			
3T x 12F	36	12	6	3	3	5.6	30			
4T x 12F	48	12	6	4	2	5.6	31			
5T x 12F	60	12	6	5	1	5.6	32			
6T x 12F	72	12	6	6	0	5.6	33			

Other fiber counts available on demand

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6
Code	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange

\*In case of lower fiber count some tubes can be replaced by fillers.

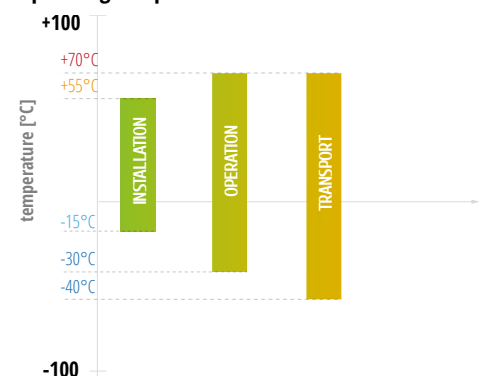
### Applications

- Microduct cabling air-blowing system
- Metro networks
- Flexible network design
- Distribution network

### Features

- HDPE, UV stabilized outer jacket with low friction
- Loose tubes (and fillers), SZ stranded around the CSM
- PBT tubes containing 4-12 optical fibers
- Smallest diameter for blowing into 8 mm (ID) ducts

### Operating temperature



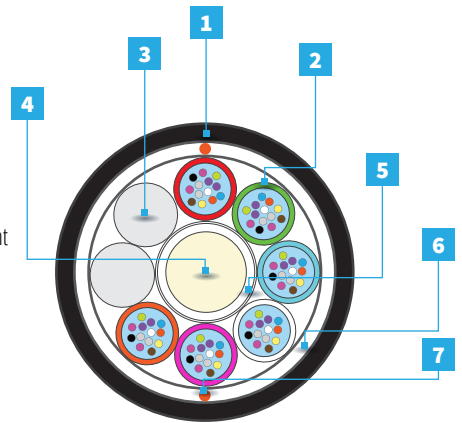
# MICRODUCT MK-LX7

# MICRODUCT MK-LX7



### Cable structure (MK-LX7)

1. HDPE outer jacket
2. Loose tubes (PBT) with colored fibers in filling gel
3. Fillers
4. Central strength member (FRP)
5. Water blocking yarns on FRP
6. Water blocking yarns on strand element
7. Ripcord



Optimal Diameter



Low Friction



Telecom



Blowing installation



Microduct Generation 1

### Configuration

METROJET MK-LX7										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								instal-lation	opera-tion	
8T x 4F	32	4	8	8	0	6.7	36	1600	600	1000
8T x 6F	48	6	8	8	0	6.7	37			
8T x 8F	64	8	8	8	0	6.7	38			
8T x 12F	96	12	8	8	0	6.7	39			

Other fiber counts available on demand

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8
Code	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow

\*In case of lower fiber count some tubes can be replaced by fillers.

### Applications

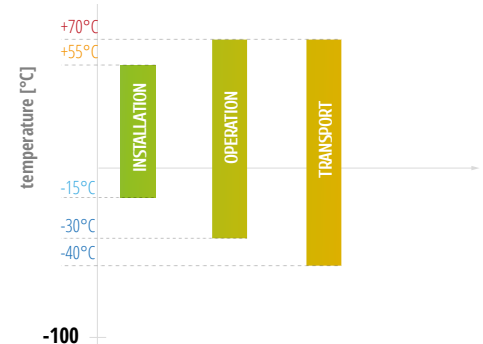
- Microduct cabling air-blowing system
- Metro networks
- Flexible network design
- Distribution network

### Features

- HDPE, UV stabilized outer jacket with low friction
- Loose tubes (and fillers), SZ stranded around the CSM
- PBT tubes containing 4-12 optical fibers
- Smallest diameter for blowing into 8\* and 10 mm (ID) ducts

\* - blowing range may be lower

### Operating temperature



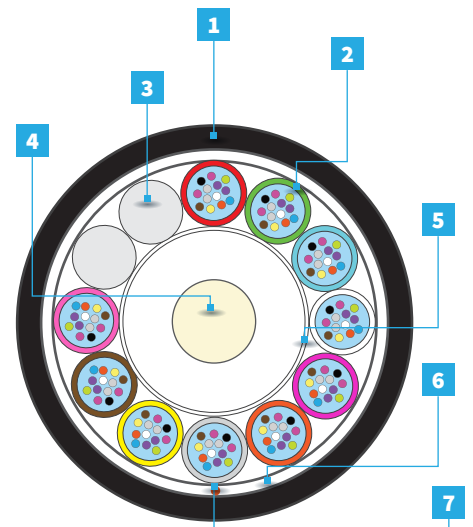
# MICRODUCT MK-LX8

# MICRODUCT MK-LX8



### Cable structure

1. HDPE outer jacket
2. Loose tubes (PBT) with colored fibers in filling gel
3. Fillers
4. Central strength member (FRP)
5. Water blocking yarns on FRP
6. Water blocking yarns on strand element
7. Ripcord



Optimal Diameter



Low Friction



Telecom



Blowing installation



Microduct Generation 1

### Configuration

METROJET MK-LX8										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								instal-lation	opera-tion	
1T x 12F	12	12	12	1	11	8.6	53	2500	600	1000
2T x 12F	24	12	12	2	10	8.6	54			
3T x 12F	36	12	12	3	9	8.6	55			
4T x 12F	48	12	12	4	8	8.6	56			
5T x 12F	60	12	12	5	7	8.6	57			
6T x 12F	72	12	12	6	6	8.6	57			
8T x 12F	96	12	12	8	4	8.6	59			
12T x 12F	144	12	12	12	0	8.6	62			

Other fiber counts available on demand

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In case of lower fiber count some tubes can be replaced by fillers.

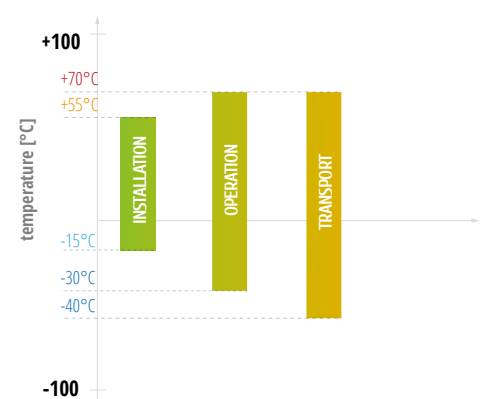
### Applications

- Microduct cabling air-blowing system
- Metro networks
- Flexible network design
- Distribution network

### Features

- HDPE, UV stabilized outer jacket with low friction
- Loose tubes (and fillers), SZ stranded around the CSM
- PBT tubes containing 4-12 optical fibers
- Smallest diameter for blowing into 12 mm (ID) ducts

### Operating temperature



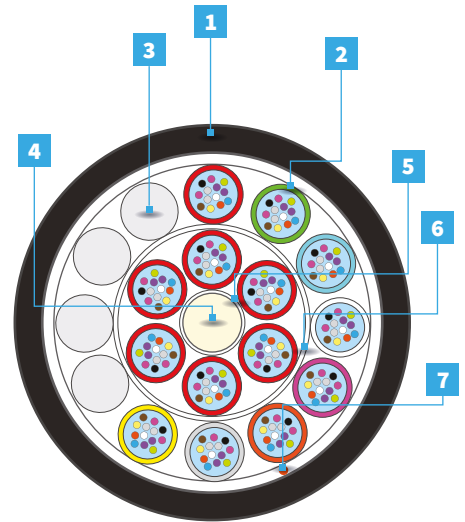
# MICRODUCT MK-LX9

# MICRODUCT MK-LX9



### Cable structure

1. HDPE outer jacket
2. Loose tubes (PBT) with colored fibers in filling gel
3. Fillers
4. Central strength member (FRP)
5. Water blocking yarns on FRP
6. Water blocking yarns on strand element
7. Ripcord



Optimal Diameter



Low Friction



Telecom



Blowing installation



Microduct Generation 1

### Configuration

METROJET MK-LX9										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								installation	operation	
14T x 12F	168	12	18	14	4	9.2	62	750	250	1000
16T x 12F	192	12	18	16	2	9.2	63			
18T x 12F	216	12	18	18	0	9.2	64			

Other fiber counts available on demand

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*In case of lower fiber count some tubes can be replaced by fillers

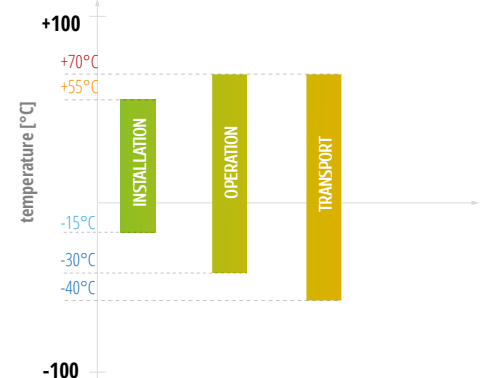
### Applications

- Microduct cabling air-blowing system
- Metro networks
- Flexible network design
- Distribution network

### Features

- HDPE, UV stabilized outer jacket with low friction
- Loose tubes (and fillers), SZ stranded around the CSM
- PBT tubes containing up to 12 optical fibers
- Smallest diameter for blowing into 12 mm (ID) ducts

### Operating temperature



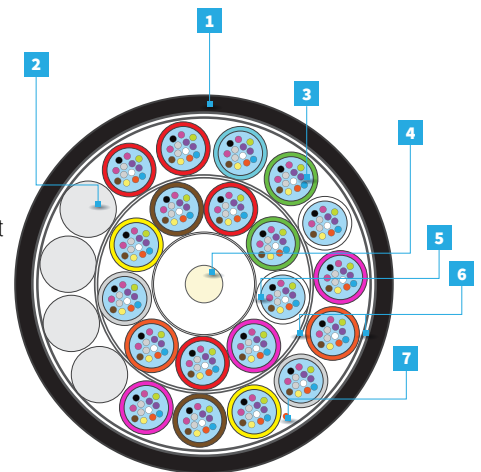
# MICRODUCT MK-LX11

# MICRODUCT MK-LX11



### Cable structure

1. HDPE outer jacket
2. Fillers
3. Loose tubes (PBT) with colored fibers in filling gel
4. Central strength member (FRP)
5. Water blocking yarns on FRP
6. Water blocking yarns on strand element
7. Ripcord



Optimal Diameter



Low Friction



Telecom



Blowing installation



Microduct Generation 1

### Configuration

METROJET MK-LX11										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Fillers	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
								instal-lation	opera-tion	
20T x 12F	240	12	24	20	4	10.8	85	900	350	1000
22T x 12F	264	12	24	22	2	10.8	86			
24T x 12F	288	12	24	24	0	10.8	87			

Other fiber counts available on demand

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*In case of lower fiber count some tubes can be replaced by fillers

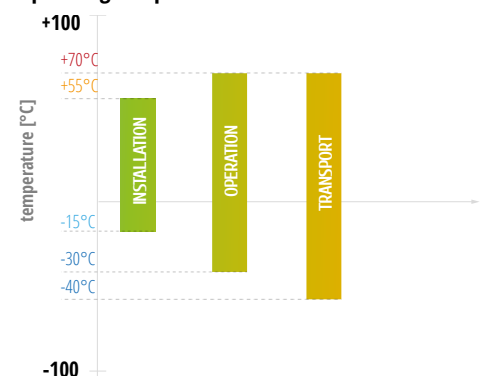
### Applications

- Microduct cabling air-blowing system
- Metro networks
- Flexible network design
- Distribution network

### Features

- HDPE, UV stabilized outer jacket with low friction
- Loose tubes (and fillers), SZ stranded around the CSM
- PBT tubes containing up to 12 optical fibers
- Smallest outer diameter for blowing into 12 mm (ID) ducts

### Operating temperature



# Telecom Duct



# TELECOM DUCT BDC-MSA



Telecom



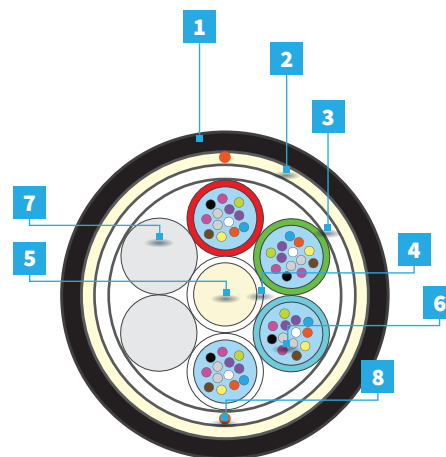
Basic Rodent Protection



Duct

## Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. PET tape
4. Water blocking yarns on FRP
5. Central strength member (FRP)
6. Loose tubes (PBT) with colored fibers in filling gel
7. Fillers
8. Ripcord



## Configuration

TELECOM DUCT BDC-MSA									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight PE ±5% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							installation	operation	
1T x 12F	12	12	6	1	8.2	50	1500	550	1500
1-6T x 4F	4-24	4	6	1-6	8.2	50	1550	780	
1T x 6F	6	6	6	1	8.2	50	1550	780	
2T x 6F	12	6	6	2	8.2	50	1550	780	
2T x 12F	24	12	6	2	8.2	51	1500	550	
4T x 6F	24	6	6	4	8.2	51	1550	780	
3T x 12F	36	12	6	3	8.2	52	1500	550	
6T x 6F	36	6	6	6	8.2	53	1550	780	
4T x 12F	48	12	6	4	8.2	53	1500	550	
5T x 12F	60	12	6	5	8.2	54	1500	550	
6T x 12F	72	12	6	6	8.2	54	1500	550	
8T x 4F	48	4	8	8	9.3	70	1650	750	
8T x 12F	96	12	8	8	9.3	71	1620	750	
11T x 12F	132	12	12	11	11.5	102	1620	850	
12T x 12F	144	12	12	12	11.5	104	1620	850	
13T x 12F	156	12	14	13	12.6	126	2100	850	
14T x 12F	168	12	14	14	12.6	126	2100	850	

Other fiber counts available on demand

## Available colors

### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In case of lower fiber count some tubes can be replaced by fillers.

# TELECOM DUCT BDC-MSA

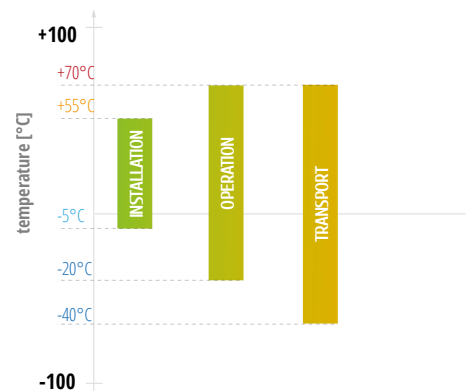
## Applications

- Installation into existing ducts
- High tensile and crush performance
- Fully dielectric cable

## Features

- HDPE outer jacket
- Optical fibers
- Jelly into the Loose tube
- Loose tubes (PBT Ø 1.8 mm) with filling compound
- PET tape to prevent moisture into the cable

## Operating temperature





Telecom



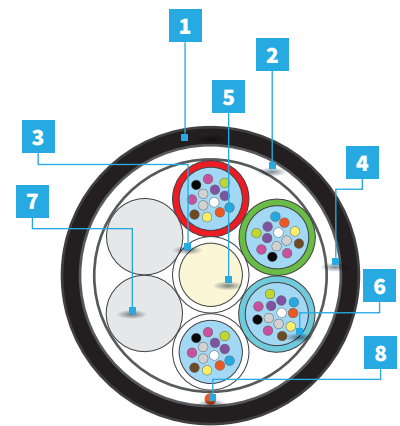
Basic Rodent Protection



Duct

### Cable structure

1. HDPE outer jacket
2. Water blocking fiberglass yarns
3. Water blocking yarns
4. Water blocking tape
5. Central strength member (FRP)
6. Loose tubes (PBT) with colored fibers in filling gel
7. Fillers
8. Ripcord



### Configuration

TELECOM DUCT BDC-MIB									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							instal-lation	opera-tion	
1-6T x 6F	6-36	6	6	1-6	8.8	63	2800	1500	1500
1-6T x 12F	12-72	12	6	1-6	8.8	66	2800	1000	
8T x 6F	48	6	8	8	10.0	77	2800	1500	
8T x 12F	96	12	8	8	10.0	82	2800	1000	
12T x 12F	144	12	12	12	12.2	117	2800	1000	
16-18T x 12F	192-216	12	18	16-18	12.6	122	2800	1000	
20-24T x 12F	240-288	12	24	20-24	14.2	156	2800	1000	

Other fiber counts available on demand

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	<span style="color: red;">■</span>	<span style="color: green;">■</span>	<span style="color: blue;">■</span>	<span style="color: white;">■</span>	<span style="color: purple;">■</span>	<span style="color: orange;">■</span>	<span style="color: grey;">■</span>	<span style="color: yellow;">■</span>	<span style="color: brown;">■</span>	<span style="color: pink;">■</span>	<span style="color: black;">■</span>	<span style="color: aqua;">■</span>
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	<span style="color: red;">■</span>	<span style="color: green;">■</span>	<span style="color: blue;">■</span>	<span style="color: white;">■</span>	<span style="color: purple;">■</span>	<span style="color: orange;">■</span>	<span style="color: grey;">■</span>	<span style="color: yellow;">■</span>	<span style="color: brown;">■</span>	<span style="color: pink;">■</span>	<span style="color: black;">■</span>	<span style="color: aqua;">■</span>
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*In case of lower fiber count some tubes can be replaced by fillers

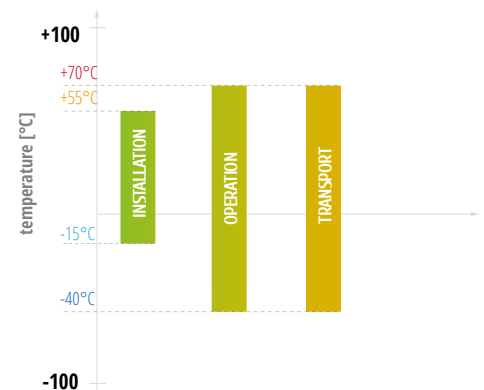
### Applications

- For installation into existing duct or directly buried
- Fully dielectric cable
- Basic rodent protection

### Features

- FRP strength and anti-buckling rod
- Dry yarns to prevent moisture into the cable
- Loose tubes (PBT Ø 1,8mm) with filling compound
- Optical fibers
- Fibreglass yarns as tensile elements
- UV stabilized HDPE jacket

### Operating temperature



# TELECOM DUCT BDC-C0

## TELECOM DUCT BDC-C0



Telecom



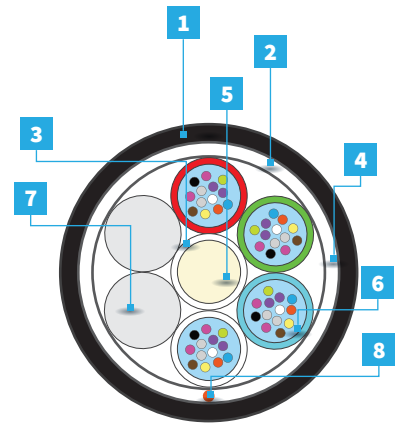
Basic Rodent Protection



Duct

### Cable structure

1. HDPE outer jacket
2. Water blocking fiberglass yarns
3. Water blocking yarns
4. Water blocking tape
5. Central strength member (FRP)
6. Loose tubes (PBT) with colored fibers in filling gel
7. Fillers
8. Ripcord



### Configuration

TELECOM DUCT BDC-C0									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							installation	operation	
1T x 4F	4	4	6	1	10.0	71	2100	1300	2000
1T x 6F	6	6	6	2	10.0	71	2100	1300	
2T x 6F	12	6	6	2					
4T x 6F	24	6	6	4					
1T x 12F	12	12	6	1	10.0	74	2000	1000	2000
2T x 12F	24	12	6	2					
3T x 12F	36	12	6	3					
4T x 12F	48	12	6	4					
5T x 12F	60	12	6	5					
6T x 12F	72	12	6	6					
8T x 12F	96	12	8	8	11.3	97	2100	1000	
12T x 12F	144	12	12	12	13.8	144	2200	1100	
16T x 12F	192	12	18	16	14.2	148	2200	1100	
18T x 12F	216	12	18	18	14.2	150	2200	1100	
24T x 12F	288	12	24	24	16.2	190	2500	1200	

Other fiber counts available on demand

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*In case of lower fiber count some tubes can be replaced by fillers

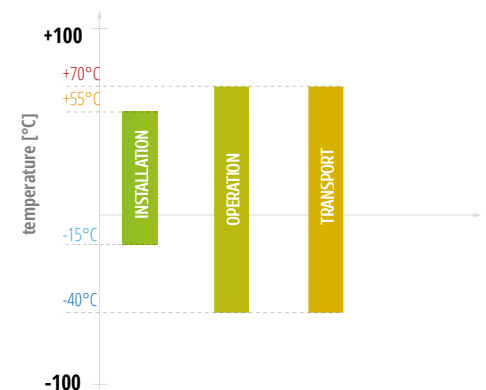
### Applications

- Installation into existing ducts
- High tensile and crush performance
- Fully dielectric cable
- Basic rodent protection

### Features

- FRP strength and anti-buckling element
- Optical fibers
- Loose tube with filling compound (PBT Ø 2.0 mm)
- Dry yarns to prevent moisture into the cable
- Fiberglass yarns as tensile elements
- UV stabilized HDPE jacket

### Operating temperature



# TELECOM DUCT BDC-CI

TELECOM BDC-CI



Telecom



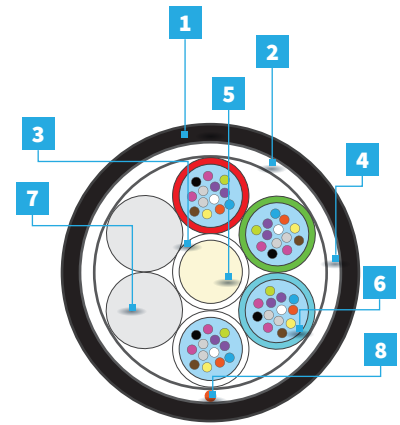
Basic Rodent Protection



Duct

## Cable structure

1. HDPE outer jacket
2. Water blocking fiberglass yarns
3. Water blocking yarns
4. Water blocking tape
5. Central strength member (FRP)
6. Loose tubes (PBT) with colored fibers in filling gel
7. Fillers
8. Ripcord



## Configuration

TELECOM DUCT BDC-CI										
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]	
							installation	operation		
1T x 4F	4	4	6	1	10.0	74	2800	1700	2000	
1T x 6F	6	6	6	1	10.0	74	2800	1700		
2T x 6F	12	6	6	2						
1T x 12F	12	12	6	1	10.0	73	2700	1200		
4Tx 6F	24	6	6	4	10.0	74	2800	1600		
2T x 12F	24	12	6	2	10.0	75	2700	1200		
3Tx 12F	36	12	6	3						
4T x 12F	48	12	6	4	10.0	82	2700	1200		
6T x 12F	72	12	6	6						
8T x 12F	96	12	8	8	11.4	101	2700	1200		
12T x 12F	144	12	12	12	13.8	146	2700	1200		
13T x 12F	156	12	18	13	14.2	149	2900	1400		
14T x 12F	168	12	18	14	14.2	150				
15T x 12F	180	12	18	15	14.2	151				
16T x 12F	192	12	18	16	14.2	152				
17T x 12F	204	12	18	17	14.2	153				
18T x 12F	216	12	18	18	14.2	154				
24T x 12F	288	12	24	24	16.3	191			2900	1400

Other fiber counts available on demand

## Available colors

### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	<span style="color: red;">■</span>	<span style="color: green;">■</span>	<span style="color: blue;">■</span>	<span style="color: white;">■</span>	<span style="color: purple;">■</span>	<span style="color: orange;">■</span>	<span style="color: grey;">■</span>	<span style="color: yellow;">■</span>	<span style="color: brown;">■</span>	<span style="color: pink;">■</span>	<span style="color: black;">■</span>	<span style="color: aqua;">■</span>
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	<span style="color: red;">■</span>	<span style="color: green;">■</span>	<span style="color: blue;">■</span>	<span style="color: white;">■</span>	<span style="color: purple;">■</span>	<span style="color: orange;">■</span>	<span style="color: grey;">■</span>	<span style="color: yellow;">■</span>	<span style="color: brown;">■</span>	<span style="color: pink;">■</span>	<span style="color: black;">■</span>	<span style="color: aqua;">■</span>
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*In case of lower fiber count some tubes can be replaced by fillers

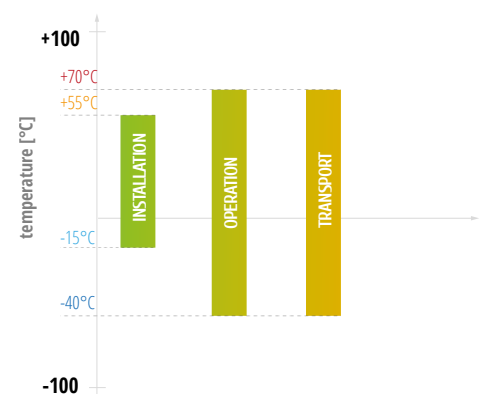
## Applications

- Installation into existing ducts
- High tensile and crush performance
- Fully dielectric cable
- Basic rodent protection

## Features

- FRP strength and anti-buckling element
- Optical fibers
- Loose tube with filling compound (PBT Ø 2.0 mm)
- Dry yarns to prevent moisture into the cable
- Fiberglass yarns as tensile elements
- UV stabilized HDPE jacket

## Operating temperature



# TELECOM DUCT BDC-CK

# TELECOM DUCT BDC-CK



Telecom



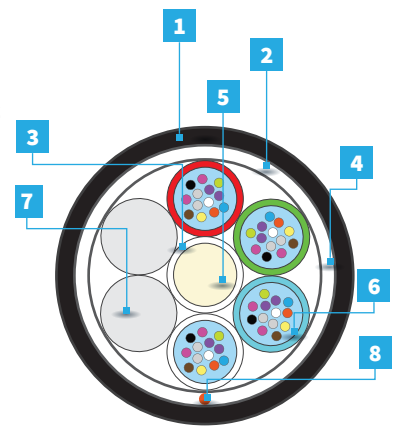
Basic Rodent Protection



Duct

## Cable structure

1. HDPE outer jacket
2. Water blocking fiberglass yarns
3. Water blocking yarns
4. Water blocking tape
5. Central strength member (FRP)
6. Loose tubes (PBT) with colored fibers in filling gel
7. Fillers
8. Ripcord



## Configuration

TELECOM DUCT BDC-CK									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							instal-lation	opera-tion	
1T x 4F	4	4	6	1	10.1	77	4000	2400	2000
1T x 6F	6	6	6	1	10.1	78			
1T x 8F	8	8	6	1	10.1	79			
1T x 10F	10	10	6	1	10.1	80			
1T x 12F	12	12	6	1	10.2	81	4100	2000	
2T x 6F	12	6	6	2	10.1	78	4000	2400	
2T x 12F	24	12	6	2	10.2	81	4100	2000	
4T x 6F	24	6	6	4	10.1	79	4000	2400	
3T x 12F	36	12	6	3	10.2	82	4100	2000	
6T x 6F	36	6	6	6	10.1	82	4000	2400	
4T x 12F	48	12	6	4	10.2	83	4100	2000	
8T x 6F	48	6	8	8	11.4	98	4100	2700	
5T x 12F	60	12	6	5	10.2	84	4100	2000	
6T x 12F	72	12	6	6	10.2	85			
8T x 12F	96	12	8	8	11.4	104	4200	2300	
12T x 12F	144	12	12	12	13.9	151	4200	2000	
16T x 12F	192	12	18	16	14.1	191	4100	1800	
18T x 12F	216	12	18	18	14.1	191			
24T x 12F	288	12	24	24	15.9	240			

Other fiber counts available on demand

## Available colors

### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	<span style="color: red;">■</span>	<span style="color: green;">■</span>	<span style="color: blue;">■</span>	<span style="color: white;">■</span>	<span style="color: purple;">■</span>	<span style="color: orange;">■</span>	<span style="color: grey;">■</span>	<span style="color: yellow;">■</span>	<span style="color: brown;">■</span>	<span style="color: pink;">■</span>	<span style="color: black;">■</span>	<span style="color: aqua;">■</span>
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	<span style="color: red;">■</span>	<span style="color: green;">■</span>	<span style="color: blue;">■</span>	<span style="color: white;">■</span>	<span style="color: purple;">■</span>	<span style="color: orange;">■</span>	<span style="color: grey;">■</span>	<span style="color: yellow;">■</span>	<span style="color: brown;">■</span>	<span style="color: pink;">■</span>	<span style="color: black;">■</span>	<span style="color: aqua;">■</span>
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*In case of lower fiber count some tubes can be replaced by fillers

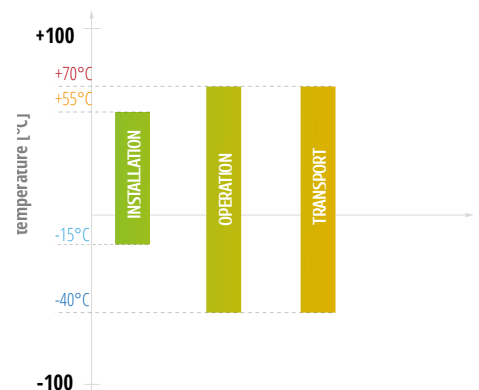
## Applications

- Installation into existing ducts
- High tensile and crush performance
- Fully dielectric cable
- Basic rodent protection

## Features

- FRP strength and anti-buckling element
- Optical fibers
- Loose tube with filling compound (PBT Ø 2.0 mm)
- Dry yarns to prevent moisture into the cable
- Fiberglass yarns as tensile elements
- UV stabilized HDPE jacket

## Operating temperature



# TELECOM DUCT DDC-SI

# TELECOM DUCT DDC-SI



## Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. HDPE inner jacket
4. Water blocking yarns
5. Central strength member (FRP)
6. Loose tubes (PBT) with colored fibers in filling gel
7. Fillers
8. Ripcords



Telecom



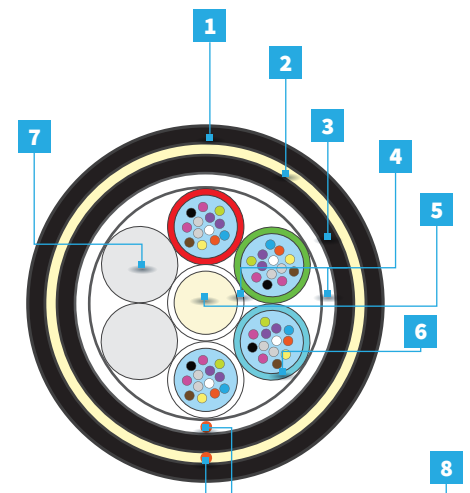
High Rodent Protection



Duct



Direct buried



## Configuration

TELECOM DUCT DDC-SI									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							al- lowed	static	
1-6T x 4F	4-24	4	6	1-6	9.3	67	2800	800	2000
8T x 4F	32	4	8	8	10.3	83	2700	650	
1-6T x 6F	6-36	6	6	1-6	9.4	68	2800	800	
8T x 6F	48	6	8	8	10.4	85	2800	800	
1-6T x 12F	12-72	12	6	1-6	9.4	73	2700	650	
8T x 12F	96	12	8	8	10.4	88	2700	670	
12T x 12F	144	12	12	12	12.3	122	2800	670	

Other fiber counts available on demand

## Available colors

### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*In case of lower fiber count some tubes can be replaced by fillers

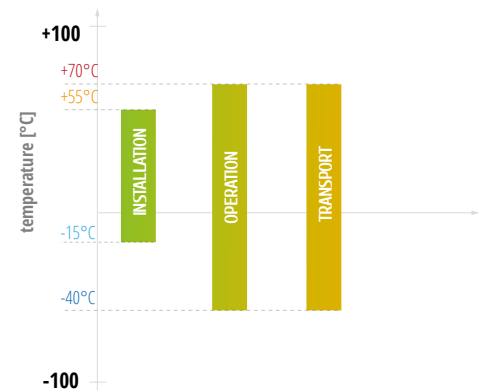
## Applications

- Installation into existing ducts
- High tensile and crush performance
- Fully dielectric cable
- High rodent protection

## Features

- FRP strength and anti-buckling element
- Optical fibers
- Loose tube (PBT Ø 1.6mm) with filling compound
- Dry yarns to prevent moisture into the cable
- Fiberglass yarns as tensile and water absorbent elements
- Double HDPE jacket
- LSOH, PA etc. outer jacket option

## Operating temperature





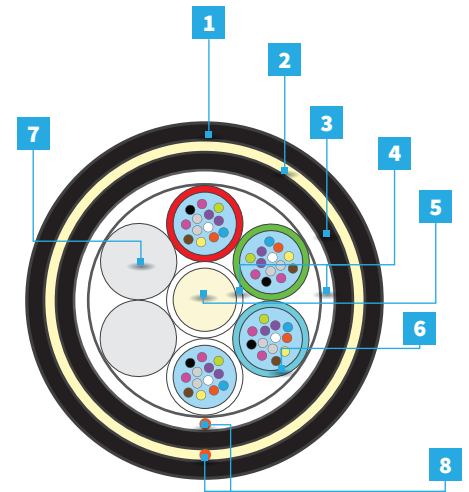
# TELECOM DUCT DDC-CI

# TELECOM DUCT DDC-CI



### Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. HDPE inner jacket
4. Water blocking yarns
5. Central strength member (FRP)
6. Loose tubes (PBT) with colored fibers in filling gel
7. Fillers
8. Ripcords



Telecom



High Rodent Protection



Duct



Direct buried



Hi-crush

### Configuration

TELECOM DUCT DDC-CI									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							al- lowed	static	
1-6T x 4F	4-24	4	6	1-6	11.7	73	4400	2600	3500
1-6T x 6F	6-36	6	6	1-6	11.7	73	4400	2600	
1-6T x 12F	12-72	12	6	1-6	11.8	105	4100	2000	
8T x 6F	48	6	8	8	13.0	124	4100	2300	
8T x 12F	96	12	8	8	13.0	128	4100	2000	
12T x 12F	144	12	12	12	15.5	180	4600	2200	
16T x 12F	192	12	16	16	15.9	185	4600	2200	
18T x 12F	216	12	18	18	15.9	187	4600	2200	
24T x 12F	288	12	24	24	17.9	193	5000	2600	

Other fiber counts available on demand

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In cable with a multi-layer construction color of the tubes will be repeated in second layer

\*\*In case of lower fiber count some tubes can be replaced by fillers

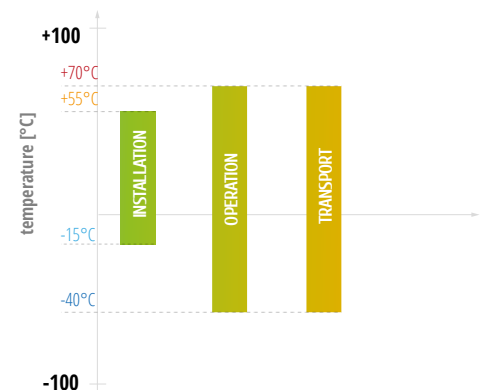
### Applications

- Installation into existing ducts
- High tensile and crush performance
- Fully dielectric cable
- High rodent protection

### Features

- FRP strength and anti-buckling element
- Optical fibers
- Loose tube with filling compound (PBT Ø 2.0 mm)
- Dry yarns and tape to prevent moisture into the cable
- Glass yarns as tensile elements
- Double HDPE jacket
- LSOH, PA etc. outer jacket option

### Operating temperature

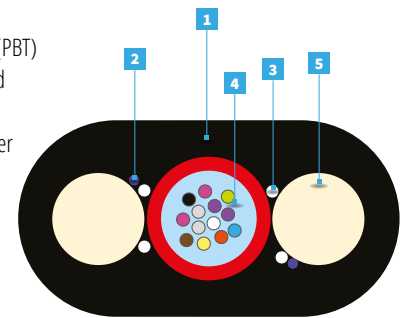


# Telecom Aerial



### Cable structure

1. PE jacket
2. Ripcord
3. Water blocking yarns
4. Central Loose tube (PBT) with 250 µm colored fibers in filling gel
5. FRP strength member



### Cable variants

Version	AERO-DF03	AERO-DF03
Fiber count	1-12	16-24
Cable dimensions [mm]	8.3 x 4.6 (±3%)	8.7 x 5.0 (-3%)
Cable weight [kg/km]	37	38
Max. installation tension[N]	1300	1300

### Mechanical and environmental characteristics

Parameter	
Crush performance	5000 N
Bending performance	10 cycles [20 x D]
Water Penetration	3 m sample, 1 m head, 24 h

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers in tube

1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	natural	aqua

\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

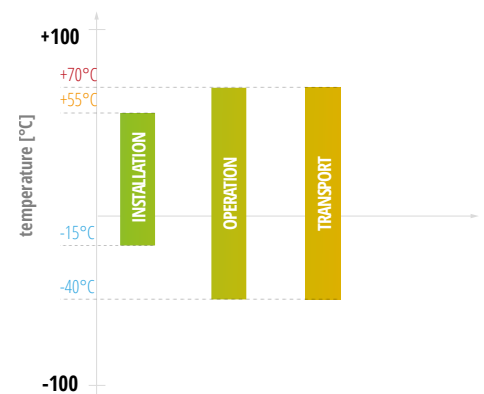
### Applications

- Installation on poles or walls
- Can be installed in pipelines
- Fully dielectric cable

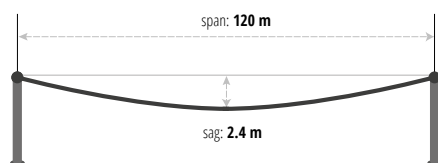
### Features

- Loose tube with filling compound (PBT)
- Up to 24 fibers in a cable
- Two FRP strength elements
- Dry yarns to prevent moisture into cable
- Ripcord yarns For easy jacket removal
- PE UV resistant Jacket

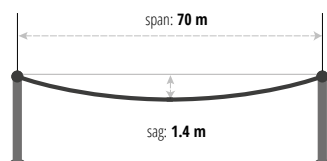
### Operating temperature



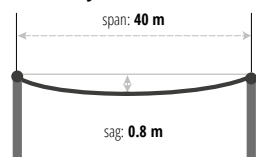
#### NESC Light



#### NESC Medium



#### NESC Heavy





Telecom



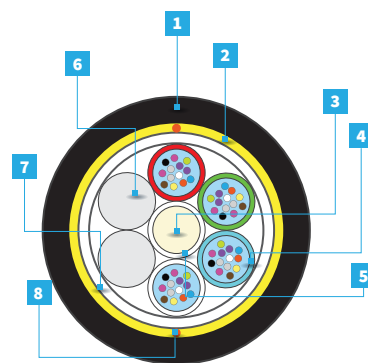
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS02 PBT TUBES 2.0 MM									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Tensile load [N]		Crush [N/10 cm]
							allowed	static	
1-6T x 6F	6-36	6	6	1-6	10.0	73	2200	1200	2000
1-6T x 12F	12-72	12	6	1-6	10.0	75	2100	1000	
8T x 12F	96	12	8	8	11.3	98	2200	1100	
12T x 12F	144	12	12	12	13.8	143	2100	1000	

Other fiber counts available on demand

### Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements

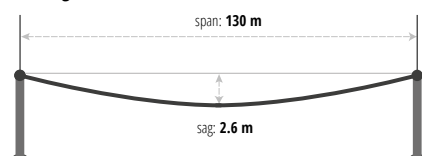
### Features

- FRP strength and anti-buckling element
- Dry yarns to prevent moisture into the cable
- Loose tube (PBT Ø 2.0 mm) with filling compound
- 6-12 elements SZ stranded cable core
- Optical fibers
- Fillers (if applicable)
- Water-swellaable tape
- Aramid yarns as strain relief and water absorbent
- UV stabilized HDPE jacket

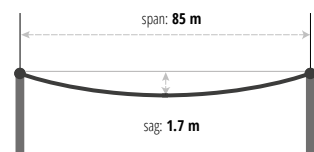
### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



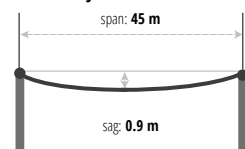
#### NESC Light



#### NESC Medium



#### NESC Heavy





Telecom



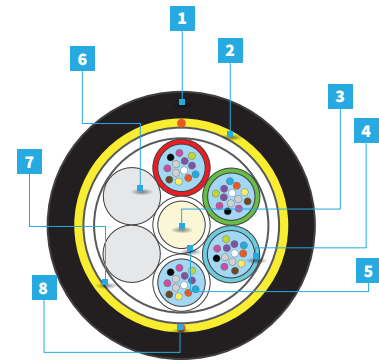
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS02 PBT TUBES 2.0 MM									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Tensile load [N]		Crush [N/10 cm]
							allowed	static	
1-6T x 6F	6-36	6	6	1-6	10.0	75	3200	1800	2000
1-6T x 12F	12-72	12	6	1-6	10.1	77	3100	1500	
8T x 12F	96	12	8	8	11.3	100	3100	1500	
12T x 12F	144	12	12	12	13.8	146	3100	1500	

Other fiber counts available on demand

### Available colors

#### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

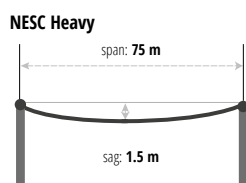
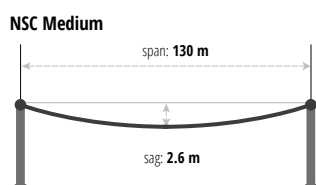
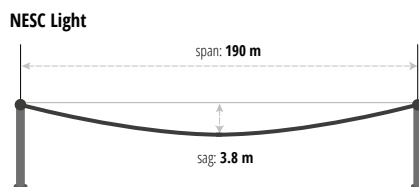
1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

#### T-TELECOM (ACCORDING TO IEC 60304) - Tubes

Tube	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua

\*In case of lower fiber count some tubes can be replaced by fillers.

### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



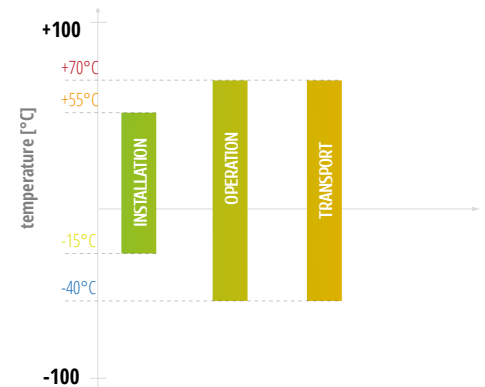
### Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements

### Features

- FRP strength and anti-buckling element
- Dry yarns to prevent moisture into the cable
- Loose tube (PBT Ø 2.0 mm) with filling compound
- 6-12 elements SZ stranded cable core
- Optical fibers
- Fillers (if applicable)
- Water-swellaable tape
- Aramid yarns as strain relief and water absorbent
- UV stabilized HDPE jacket

### Operating temperature





Telecom



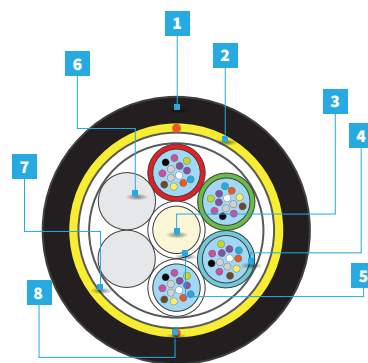
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS03 PBT TUBES 2.5 MM									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							installation	operation	
1-6T x 6F	6-36	6	6	1-6	11.4	97	3300	2200	3000
1-6T x 12F	12-72	12	6	1-6	11.4	98	3200	2100	
8T x 12F	96	12	8	8	13.0	127	3200	2100	
12T x 12F	144	12	12	12	16.1	193	3300	2200	

Other fiber counts available on demand

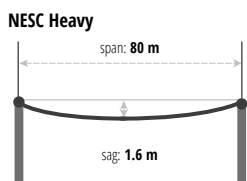
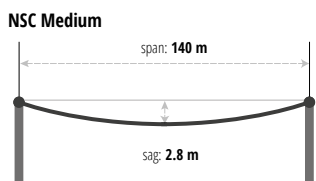
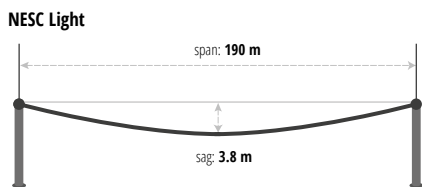
### Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements

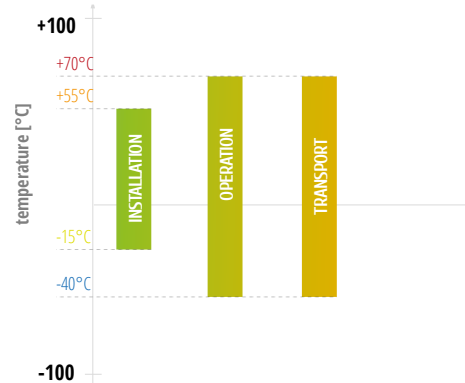
### Features

- FRP strength and anti-buckling element
- Dry yarns to prevent moisture into the cable
- Loose tube (PBT Ø 2.0 mm) with filling compound
- 6-12 elements SZ stranded cable core
- Optical fibers
- Fillers (if applicable)
- Water-swellaable tape
- Aramid yarns as strain relief and water absorbent
- UV stabilized HDPE jacket

### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



### Operating temperature







Telecom



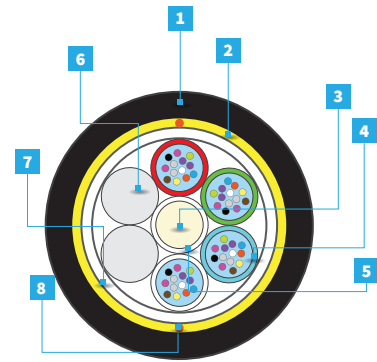
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS04 PBT TUBES 2.0 MM									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							installation	operation	
1T x 12F	12	12	6	1	10,1	75	4000	2000	2000
2T x 6F	12	6	6	2	10,1	75	4100	2400	
2T x 12F	24	12	6	2	10,1	76	4000	2000	
4T x 6F	24	6	6	4	10,1	76	4100	2400	
3T x 12F	36	12	6	3	10,1	80	4000	2000	
6T x 6F	36	6	6	6	10,1	76	4100	2400	
4T x 12F	48	12	6	4	10,1	80	4000	2000	
8T x 6F	48	6	8	8	11,3	97	4200	2500	
6T x 12F	72	12	6	6	10,1	82	4000	2000	
8T x 12F	96	12	8	8	11,4	103	4200	2100	
12T x 12F	144	12	12	12	13,9	149	4100	2000	

Other fiber counts available on demand

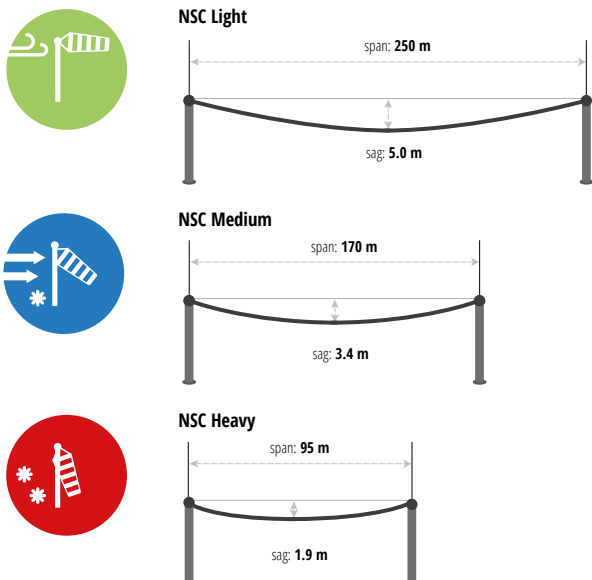
### Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements

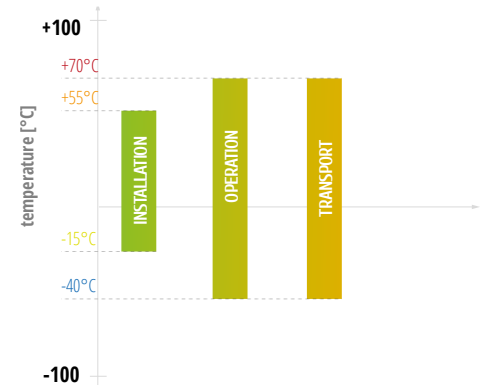
### Features

- FRP strength and anti-buckling element
- Dry yarns to prevent moisture into the cable
- Loose tube (PBT Ø 2.0 mm) with filling compound
- 6-12 elements SZ stranded cable core
- Optical fibers
- Fillers (if applicable)
- Water-swellaable tape
- Aramid yarns as strain relief and water absorbent
- UV stabilized HDPE jacket

### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



### Operating temperature





Telecom



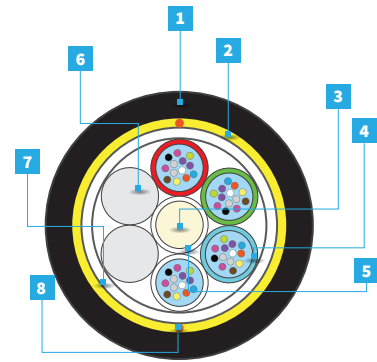
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS04 PBT TUBES 2.5 MM									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							installation	operation	
1-6T x 6F	6-36	6	6	1-6	11.4	98	4200	2900	3000
1-6T x 12F	12-72	12	6	1-6	11.4	99	4100	2600	
8T x 12F	96	12	8	8	13.1	128	4200	2800	
12T x 12F	144	12	12	12	16.2	194	4100	2700	

Other fiber counts available on demand

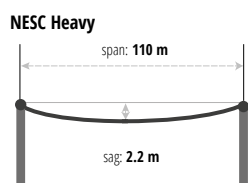
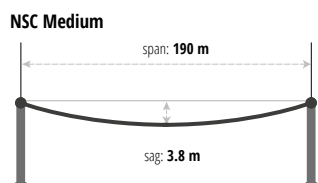
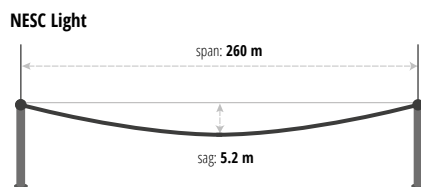
### Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements

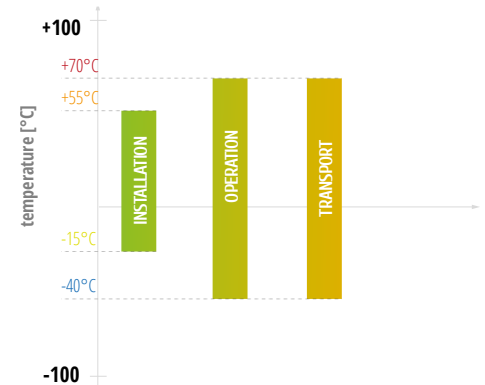
### Features

- FRP strength and anti-buckling element
- Dry yarns to prevent moisture into the cable
- Loose tube (PBT Ø 2.0 mm) with filling compound
- 6-12 elements SZ stranded cable core
- Optical fibers
- Fillers (if applicable)
- Water-swellaable tape
- Aramid yarns as strain relief and water absorbent
- UV stabilized HDPE jacket

### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



### Operating temperature





Telecom



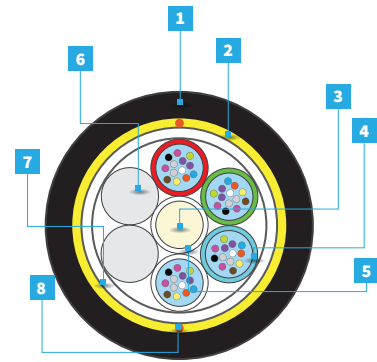
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS06 PBT TUBES 2.0 MM									
Version	Qty			Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
	Fibers	Fibers per tube	Total elements				installation	operation	
1-6T x 6F	6-36	6	6	1-6	10.2	82	6100	3600	2000
1-6T x 12F	12	12	6	1-6	10.3	88	6200	3000	
8T x 12F	96	12	8	8	11.5	110	6200	2800	
12T x 12F	144	12	12	12	13.9	154	6100	3000	

Other fiber counts available on demand

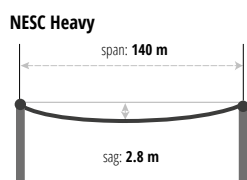
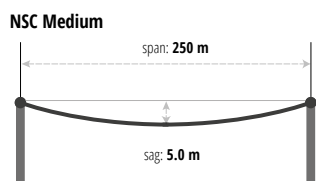
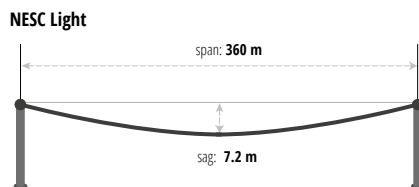
### Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements

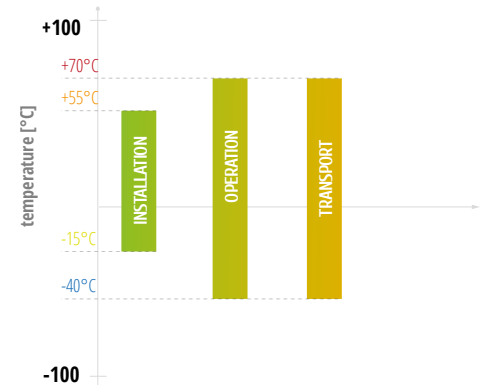
### Features

- FRP strength and anti-buckling element
- Dry yarns to prevent moisture into the cable
- Loose tube (PBT Ø 2.0 mm) with filling compound
- 6-12 elements SZ stranded cable core
- Optical fibers
- Fillers (if applicable)
- Water-swellaable tape
- Aramid yarns as strain relief and water absorbent
- UV stabilized HDPE jacket

### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



### Operating temperature





Telecom



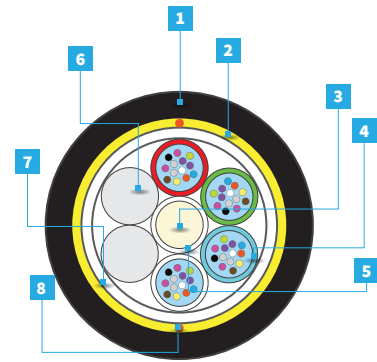
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS06 PBT TUBES 2.5 MM									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							installation	operation	
1-6T x 6F	6-36	6	6	1-6	11.6	101	6100	4200	3000
1-6T x 12F	12-72	12	6	1-6	11.6	104	6300	4100	
8T x 12F	96	12	8	8	13.2	132	6100	4000	
12T x 12F	144	12	12	12	16.2	198	6100	4000	

Other fiber counts available on demand

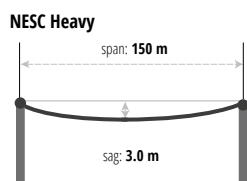
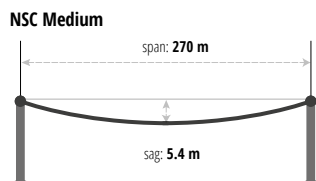
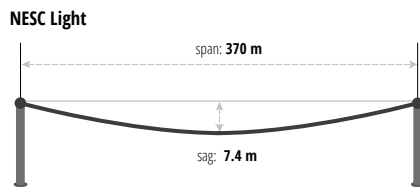
### Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements

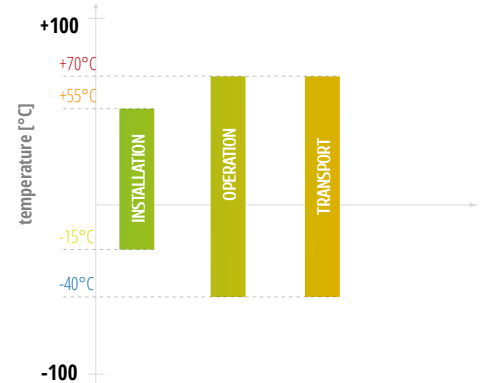
### Features

- FRP strength and anti-buckling element
- Dry yarns to prevent moisture into the cable
- Loose tube (PBT Ø 2.5 mm) with filling compound
- 6-12 elements SZ stranded cable core
- Optical fibers
- Fillers (if applicable)
- Water-swellaable tape
- Aramid yarns as strain relief and water absorbent
- UV stabilized HDPE jacket

### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



### Operating temperature





Telecom



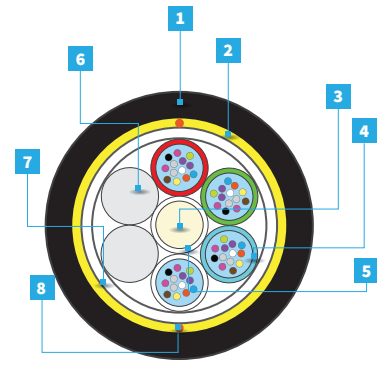
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS09 PBT TUBES 2.5 MM									
Version	Qty			Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
	Fibers	Fibers per tube	Total elements				installation	operation	
1-6T x 6F	6-36	6	6	1-6	11.6	101	9300	6600	3000
1-6T x 12F	12-72	12	6	1-6	11.7	104	9200	6000	
8T x 12F	96	12	8	8	13.2	138	9200	6100	
12T x 12F	144	12	12	12	16.2	203	9200	6100	

Other fiber counts available on demand

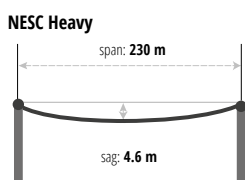
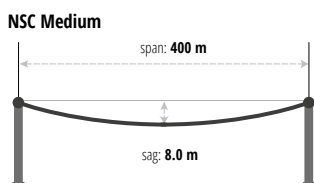
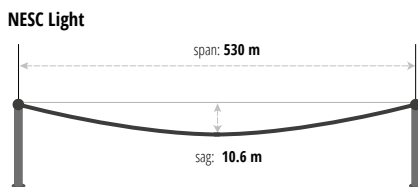
### Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements
- UV resistant

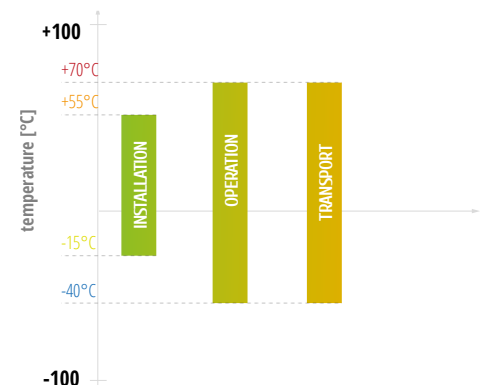
### Features

- FRP strength and anti-buckling element Ø 2.5 mm
- Optical fibers
- Loose tube with filling compound (PBT Ø 2.5 mm)
- 6-12 elements SZ stranded cable core
- Dry yarns to prevent moisture into cable
- Aramid yarns as tensile elements

### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



### Operating temperature





Telecom



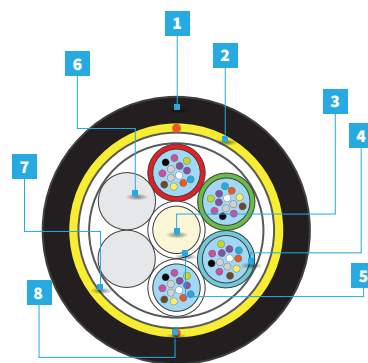
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS12 PBT TUBES 2.5 MM									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							instal-lation	opera-tion	
1-6T x 6F	6-36	6	6	1-6	11.7	106	12700	9000	3000
1-6T x 12F	12-72	12	6	1-6	11.8	110	12500	8000	
8T x 12F	96	12	8	8	13.3	143	12200	7800	
12T x 12F	144	12	12	12	16.3	208	12100	8000	

Other fiber counts available on demand

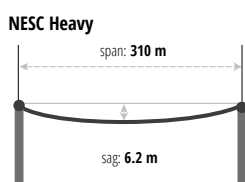
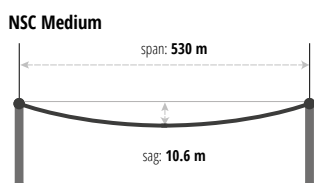
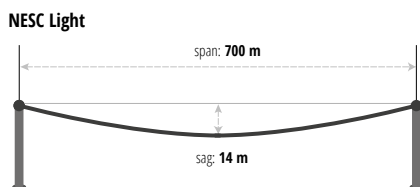
### ❖ Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements
- UV resistant

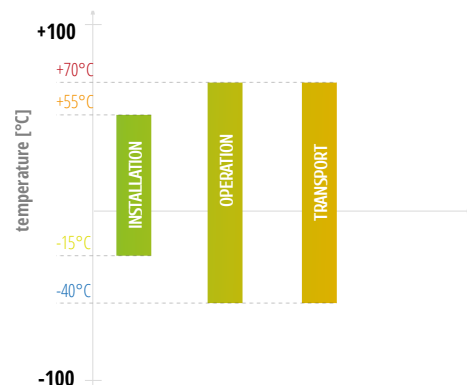
### 📏 Features

- FRP strength and anti-buckling element
- Optical fibers
- Loose tube with filling compound (PBT Ø 2.5 mm)
- 6-12 elements SZ stranded cable core
- Dry yarns to prevent moisture into cable
- Aramid yarns as tensile elements

### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



### Operating temperature





Telecom



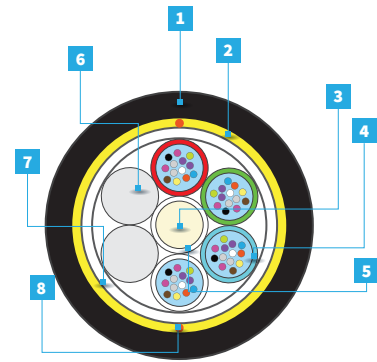
Aerial



FTTH

### Cable structure

1. HDPE outer jacket
2. Aramid yarns
3. Central strength member (FRP)
4. Loose tubes (PBT) with colored fibers in filling gel
5. Water blocking yarns
6. Fillers
7. Water blocking tape
8. Ripcord



### Configuration

AERO-AS14 PBT TUBES 2.5 MM									
Version	Qty			Active tubes	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
	Fibers	Fibers per tube	Total elements				installation	operation	
1-6T x 6F	6-36	6	6	1-6	11.8	109	14400	10100	3000
1-6T x 12F	12-72	12	6	1-6	11.8	113	14500	9400	
8T x 12F	96	12	8	8	13.4	147	14200	9100	
12T x 12F	144	12	12	12	16.4	211	14000	9200	

Other fiber counts available on demand

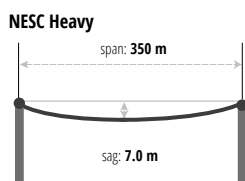
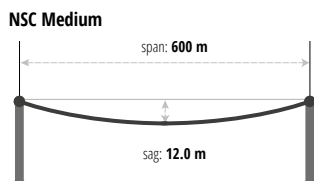
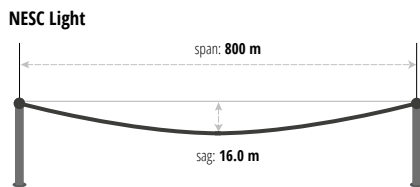
### ❖ Applications

- Duct & pole mount
- High tensile and crush performance
- Fully dielectric cable
- Self-supported aerial cable with aramid reinforcements
- UV resistant

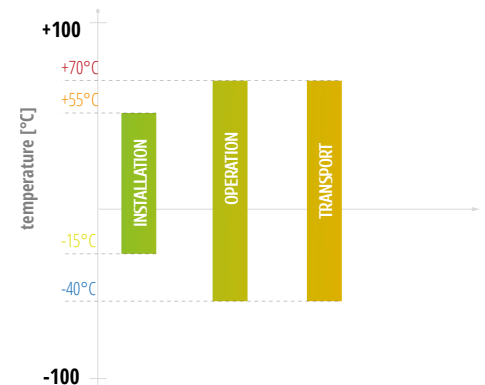
### 📏 Features

- FRP strength and anti-buckling element
- Optical fibers
- Loose tube with filling compound (PBT Ø 2.5 mm)
- 6-12 elements SZ stranded cable core
- Dry yarns to prevent moisture into cable
- Aramid yarns as tensile elements

### APPLICATION AND CABLE SPAN CHARACTERISTIC (for 6 tubes construction)



### Operating temperature





# Special Cable Designs

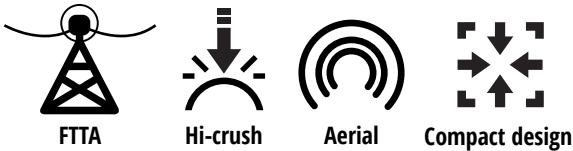
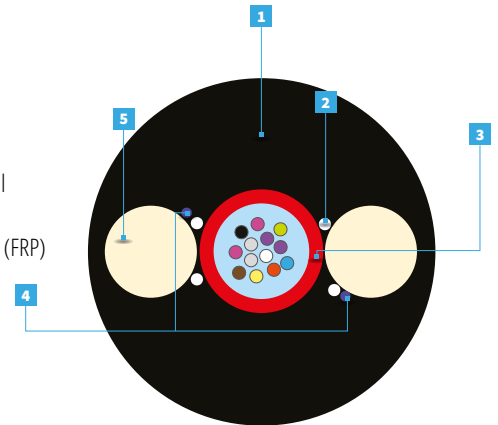
# SPECIAL DESIGN FTTA-DAC

# SPECIAL DESIGN FTTA-DAC



## Cable structure

1. Outer jacket PE
2. Fiberglass yarns
3. Loose tube (PBT) with colored fibers in filling gel
4. Ripcords
5. Embedded strength members (FRP)



## Configuration

FTTA-DAC							
Version	Fibers	Fibers per tube	Ø ± 5% [mm]	Nominal weight ±10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
					installation	operation	
1T x 2F	2	2	5.8	31	800 (ε=0.33%)  1200 (ε=0.50%)	250	3500
1T x 4F	4	4	5.8	31			
1T x 6F	6	6	5.8	31			
1T x 8F	8	8	5.8	32			
1T x 12F	12	12	5.8	32			
1T x 24F	24	24	6.3	38			

### ❖ Applications

- Fiber to the antenna system ( FTTA)
- Optical access cable with fiber glass yarns reinforcement
- Direct buried construction
- Fully dielectric cable
- Last mile connection

## Available colors

### T-TELECOM (ACCORDING TO IEC 60304) - Fibers

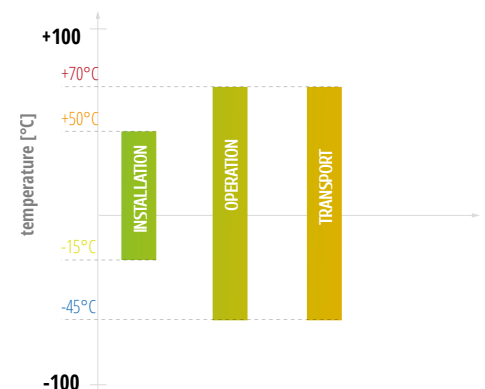
1-12	1	2	3	4	5	6	7	8	9	10	11	12
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	black	aqua
13-24	13	14	15	16	17	18	19	20	21	22	23	24
Code	■	■	■	■	■	■	■	■	■	■	■	■
Color	red	green	blue	white	violet	orange	grey	yellow	brown	pink	natural	aqua

\*In 24-fiber tube construction colors will be repeated to facilitate identification, fibers 13-24 will have rings every 25 cm

### ⚙️ Features

- Fiberglass yarns as water-blocking and strain relief elements
- Loose tube (PBT) with filling compound
- Optical fibers
- Embedded strength members (FRP)

## Operating temperature



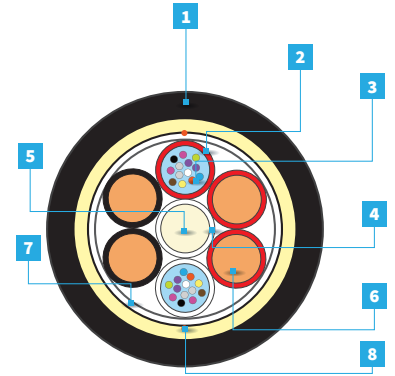
# HYBRID POWER+FO BDC-CIP 1.5 MM<sup>2</sup>

HYBRID CABLES *BDC-CIP*



### Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. Loose tubes (PBT) with colored fibers in filling gel
4. Water blocking yarns on FRP
5. Water blocking tape
6. Central strength member (FRP)
7. 1.5 mm<sup>2</sup> Cu – insulated copper wire
8. Ripcord



FTTH



Duct



Basic Rodent Protection



Hybrid FO + Power

### Configuration

BDC-CIP 1.5 MM <sup>2</sup>									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ± 10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							allowed	static	
1T x 12F +2x1.5 mm <sup>2</sup>	12	12	6	1	10.7	127	2700	1300	2700
1T x 12F +4x1.5 mm <sup>2</sup>	12	12	6	1	10.7	170	2700	1300	
2T x 12F +1x1.5 mm <sup>2</sup>	24	12	6	2	10.7	107	2700	1300	
2T x 12F +2x1.5 mm <sup>2</sup>	24	12	6	2	10.7	128	2700	1300	
2T x 12F +4x1.5 mm <sup>2</sup>	24	12	6	2	10.7	171	2700	1300	
3T x 12F +2x1.5 mm <sup>2</sup>	36	12	6	3	10.7	129	2700	1300	
4T x 12F +2x1.5 mm <sup>2</sup>	48	12	6	4	10.7	130	2700	1300	
1T x 12F +6x1.5 mm <sup>2</sup>	12	12	8	1	12.1	231	2700	1300	
2T x 12F +6x1.5 mm <sup>2</sup>	24	12	8	2	12.1	232	2700	1300	
3T x 12F +4x1.5 mm <sup>2</sup>	36	12	8	3	12.1	190	2700	1300	
4T x 12F +4x1.5 mm <sup>2</sup>	48	12	8	4	12.1	191	2700	1300	

Other fiber and copper wire counts available on demand

### Technical copper wire characteristics

Max DC resistance	12,1±0,2 Ω/km@20°C
Electric strength	3400 V DC/1 minute
Current carrying capacity	7A
Operating voltage	65V AC/DC
Conductor material	Bare copper
Conductor cross section	1,5mm <sup>2</sup>
Insulated conductor dia.	2,2mm
Insulation material	PVC

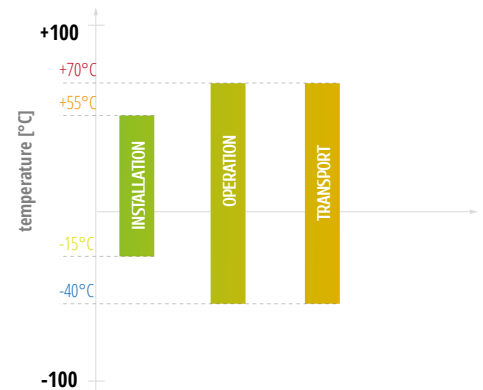
### Applications

- Installation into existing ducts or directly buried
- High tensile and crush performance

### Features

- FRP strength and anti-buckling element
- Loose tube with filling compound (PBT Ø 2.2mm)
- Tubes with copper core
- Dry yarns to prevent moisture into the cable
- UV stabilized HDPE jacket
- LSOH, PA etc Jacket option

### Operating temperature



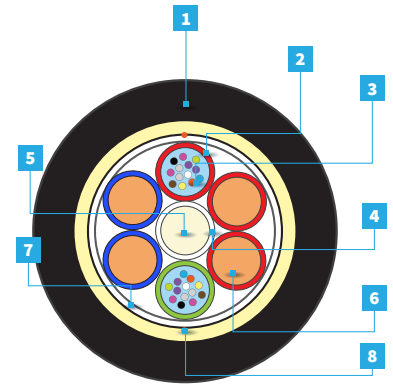
# HYBRID POWER+FO BDC-CIP 0.5 MM<sup>2</sup> H05V-U

HYBRID CABLES *BDC-CIP*



### Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. Loose tubes (PBT) with colored fibers in filling gel
4. Water blocking yarns on FRP
5. Water blocking tape
6. Central strength member (FRP)
7. 0.5 mm<sup>2</sup> Cu – insulated copper wire
8. Ripcord



FTTH



Duct



Basic Rodent Protection



Hybrid FO + Power

### Configuration

BDC-CIP 0.5 MM <sup>2</sup> H05V-U									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ± 10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							allowed	static	
1T x 12F +2x0.5 mm <sup>2</sup>	12	12	6	1	10.1	89	2700	1000	2700
1T x 12F +4x0.5 mm <sup>2</sup>	12	12	6	1	10.1	105	2700	1000	
1T x 12F +5x0.5 mm <sup>2</sup>	12	12	6	1	10.1	113	2700	1000	
2T x 12F +2x0.5 mm <sup>2</sup>	24	12	6	2	10.1	90	2700	1000	
2T x 12F +4x0.5 mm <sup>2</sup>	24	12	6	2	10.1	106	2700	1000	
3T x 12F +2x0.5 mm <sup>2</sup>	36	12	6	3	10.1	91	2700	1000	
4T x 12F +2x0.5 mm <sup>2</sup>	48	12	6	4	10.1	92	2700	1000	
5T x 12F +1x0.5 mm <sup>2</sup>	60	12	6	5	10.1	85	2700	1000	
1T x 12F +6x0.5 mm <sup>2</sup>	12	12	8	1	11.4	127	2800	1100	
2T x 12F +6x0.5 mm <sup>2</sup>	24	12	8	2	11.4	128	2800	1100	
4T x 12F +4x0.5 mm <sup>2</sup>	48	12	8	4	11.4	120	2800	1100	

Other fiber and copper wire counts available on demand

### Technical copper wire characteristics

Max DC resistance	36,0 Ω/km@20°C
Conductor material	Bare copper
Conductor cross section	0.5 mm <sup>2</sup>
Insulated conductor dia.	2.0 mm
Insulation material	PVC

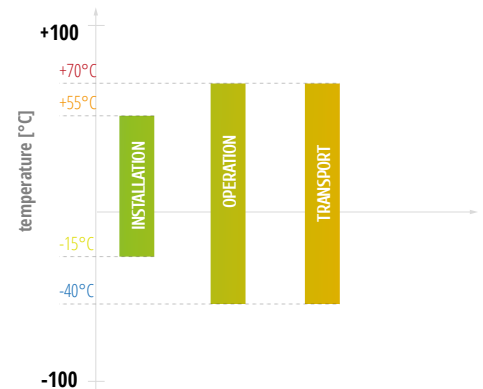
### Applications

- For installation into existing duct or directly buried
- High tensile and crush performance

### Features

- FRP strength and anti-buckling element
- Insulated copper cores 0.5 mm<sup>2</sup> (Ø 2.0 mm)
- Loose tubes with filling compound (PBT Ø 2.0 mm)
- Tape and dry yarns to prevent moisture into the cable
- Fiberglass yarns as strain relief elements
- UV stabilized HDPE outer jacket
- Other outer jackets materials available

### Operating temperature



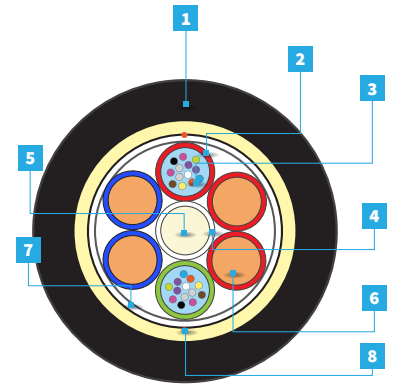
# HYBRID POWER+FO BDC-CIP 0.75 MM<sup>2</sup> H05V-U

HYBRID CABLES *BDC-CIP*



### Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. Loose tubes (PBT) with colored fibers in filling gel
4. Water blocking yarns on FRP
5. Water blocking tape
6. Central strength member (FRP)
7. 0.75 mm<sup>2</sup> Cu – insulated copper wire
8. Ripcord



FTTH



Duct



Basic Rodent Protection



Hybrid FO + Power

### Configuration

BDC-CIP 0.75 MM <sup>2</sup> H05V-U									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ± 10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							allowed	static	
1T x 12F +2x0.75 mm <sup>2</sup>	12	12	6	1	10.7	99	2700	1300	2700
1T x 12F +4x0.75 mm <sup>2</sup>	12	12	6	1	10.7	114	2700	1300	
2T x 12F +2x0.75 mm <sup>2</sup>	24	12	6	2	10.7	100	2700	1300	
2T x 12F +4x0.75 mm <sup>2</sup>	24	12	6	2	10.7	115	2700	1300	
3T x 12F +2x0.75 mm <sup>2</sup>	36	12	6	3	10.7	101	2700	1300	
4T x 12F +2x0.75 mm <sup>2</sup>	48	12	6	4	10.7	102	2700	1300	
1T x 12F +6x0.75 mm <sup>2</sup>	12	12	8	1	12.1	147	2700	1300	
2T x 12F +6x0.75 mm <sup>2</sup>	24	12	8	2	12.1	148	2700	1300	
3T x 12F +4x0.75 mm <sup>2</sup>	36	12	8	3	12.1	134	2700	1300	
4T x 12F +4x0.75 mm <sup>2</sup>	48	12	8	4	12.1	135	2700	1300	

Other fiber and copper wire counts available on demand

### Technical copper wire characteristics

Max DC resistance	24.0 Ω/km@20°C
Conductor material	Bare copper
Conductor cross section	0.75 mm <sup>2</sup>
Insulated conductor dia.	2.2 mm
Insulation material	PVC

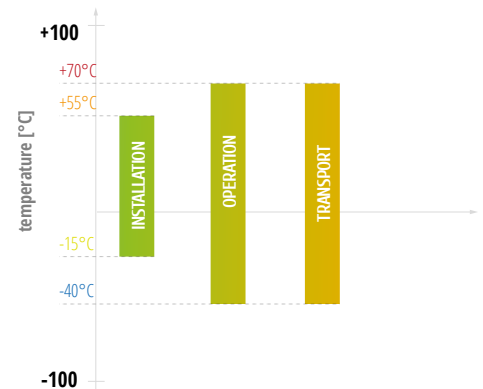
### Applications

- For installation into existing duct or directly buried
- High tensile and crush performance

### Features

- FRP strength and anti-buckling element
- Insulated copper cores 0.75mm<sup>2</sup> (Ø 2.2mm)
- Loose tubes with filling compound (PBT Ø 2.2mm)
- Tape and dry yarns to prevent moisture into the cable
- Fiberglass yarns as strain relief elements
- UV stabilized HDPE outer jacket
- Other outer jackets materials available

### Operating temperature



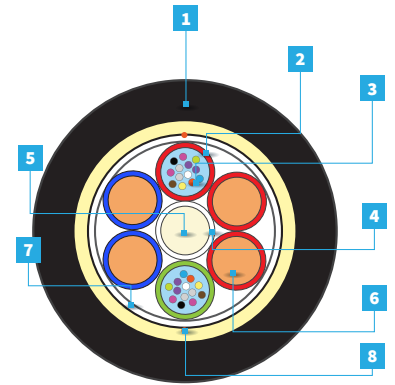
# HYBRID POWER+FO BDC-CIP 1.00 MM<sup>2</sup> H05V-U

HYBRID CABLES *BDC-CIP*



### Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. Loose tubes (PBT) with colored fibers in filling gel
4. Water blocking yarns on FRP
5. Water blocking tape
6. Central strength member (FRP)
7. 1.0 mm<sup>2</sup> Cu – insulated copper wire
8. Ripcord



FTTH



Duct



Basic Rodent Protection



Hybrid FO + Power

### Configuration

BDC-CIP 1.0 MM <sup>2</sup> H05V-U									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ± 10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							allowed	static	
1T x 12F +2x1.00 mm <sup>2</sup>	12	12	6	1	10.7	104	2700	1300	2700
1T x 12F +4x1.00 mm <sup>2</sup>	12	12	6	1	10.7	124	2700	1300	
2T x 12F +2x1.00 mm <sup>2</sup>	24	12	6	2	10.7	105	2700	1300	
2T x 12F +4x1.00 mm <sup>2</sup>	24	12	6	2	10.7	125	2700	1300	
3T x 12F +2x1.00 mm <sup>2</sup>	24	12	6	2	10.7	125	2700	1300	
4T x 12F +2x1.00 mm <sup>2</sup>	48	12	6	4	10.7	107	2700	1300	
5T x 12F +1x1.00 mm <sup>2</sup>	60	12	6	5	10.7	98	2700	1300	
1T x 12F +6x1.00 mm <sup>2</sup>	12	12	8	1	12.1	162	2700	1300	
1T x 12F +6x1.00 mm <sup>2</sup>	12	12	8	1	12.1	162	2700	1300	
2T x 12F +6x1.00 mm <sup>2</sup>	24	12	8	2	12.1	163	2700	1300	
3T x 12F +4x1.00 mm <sup>2</sup>	36	12	8	3	12.1	144	2700	1300	
3T x 12F +4x1.00 mm <sup>2</sup>	36	12	8	3	12.1	144	2700	1300	
4T x 12F +4x1.00 mm <sup>2</sup>	48	12	8	4	12.1	145	2700	1300	

Other fiber and copper wire counts available on demand

### Technical copper wire characteristics

Max DC resistance	18.1 Ω/km@20°C
Conductor material	Bare copper
Conductor cross section	1.00 mm <sup>2</sup>
Insulated conductor dia.	2.3 mm
Insulation material	PVC

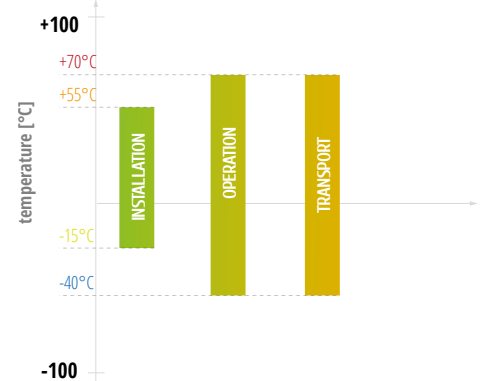
### Applications

- For installation into existing duct or directly buried
- High tensile and crush performance

### Features

- FRP strength and anti-buckling element
- Insulated copper cores 1.00 mm<sup>2</sup> (Ø 2.3 mm)
- Loose tubes with filling compound (PBT Ø 2.2 mm)
- Tape and dry yarns to prevent moisture into the cable
- Fiberglass yarns as strain relief elements
- UV stabilized HDPE outer jacket
- Other outer jackets materials available

### Operating temperature



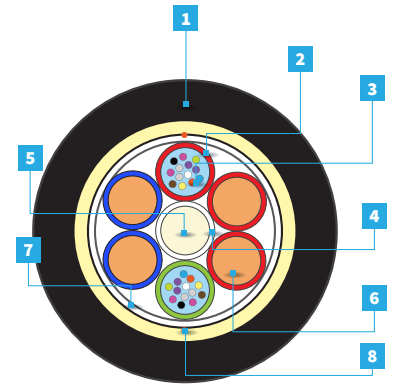
# HYBRID POWER+FO BDC-DIP 1.5 MM<sup>2</sup> H07V-U

HYBRID CABLES *BDC-DIP*



### Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. Loose tubes (PBT) with colored fibers in filling gel
4. Water blocking yarns on FRP
5. Water blocking tape
6. Central strength member (FRP)
7. 1.5 mm<sup>2</sup> Cu – insulated copper wire
8. Ripcord



FTTH



Duct



Basic Rodent Protection



Hybrid FO + Power

### Configuration

BDC-DIP 1.5 MM <sup>2</sup> H07V-U									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ± 10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							allowed	static	
1T x 12F +2x1.5 mm <sup>2</sup>	12	12	6	1	12.4	137	2700	1500	2700
1T x 12F +4x1.5 mm <sup>2</sup>	12	12	6	1	12.4	166	2700	1500	
2T x 12F +2x1.5 mm <sup>2</sup>	24	12	6	2	12.4	138	2700	1500	
2T x 12F +4x1.5 mm <sup>2</sup>	24	12	6	2	12.4	167	2700	1500	
3T x 12F +2x1.5 mm <sup>2</sup>	36	12	6	3	12.4	140	2700	1500	
4T x 12F +2x1.5 mm <sup>2</sup>	48	12	6	4	12.4	141	2700	1500	
5T x 12F +1x1.5 mm <sup>2</sup>	60	12	6	5	12.4	128	2700	1500	
1T x 12F +6x1.5 mm <sup>2</sup>	12	12	8	1	14.2	228	3000	1800	
2T x 12F +6x1.5 mm <sup>2</sup>	24	12	8	2	14.2	229	3000	1800	
3T x 12F +4x1.5 mm <sup>2</sup>	36	12	8	3	14.2	202	3000	1800	
4T x 12F +4x1.5 mm <sup>2</sup>	48	12	8	4	14.2	203	3000	1800	

Other fiber and copper wire counts available on demand

### Technical copper wire characteristics

Max DC resistance	12.1 Ω/km@20°C
Conductor material	Bare copper
Conductor cross section	1.5 mm <sup>2</sup>
Insulated conductor dia.	2.8 mm
Insulation material	PVC

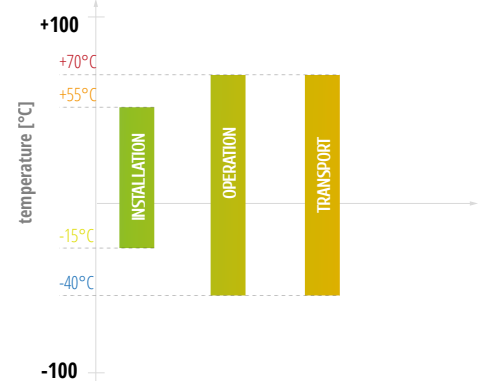
### Applications

- For installation into existing duct or directly buried
- High tensile and crush performance

### Features

- FRP strength and anti-buckling element
- Insulated copper cores 1.50 mm<sup>2</sup> (Ø 2.8 mm)
- Loose tubes with filling compound (PBT Ø 2.8 mm)
- Tape and dry yarns to prevent moisture into the cable
- Fiberglass yarns as strain relief elements
- UV stabilized HDPE outer jacket
- Other outer jackets materials available

### Operating temperature





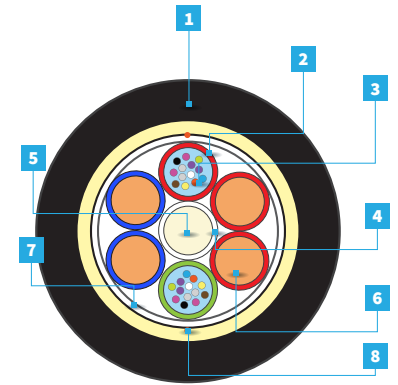
# HYBRID POWER+FO BDC-DIP 2.5 MM<sup>2</sup> H07V-U

HYBRID CABLES *BDC-DIP*



### Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. Loose tubes (PBT) with colored fibers in filling gel
4. Water blocking yarns on FRP
5. Water blocking tape
6. Central strength member (FRP)
7. 2.5 mm<sup>2</sup> Cu – insulated copper wire
8. Ripcord



FTTH



Duct



Basic Rodent Protection



Hybrid FO + Power

### Configuration

BDC-DIP 2.5 MM <sup>2</sup> H07V-U									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ± 10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							allowed	static	
1T x 12F +2x2.5 mm <sup>2</sup>	12	12	6	1	13.7	175	2800	1700	2700
1T x 12F +4x2.5 mm <sup>2</sup>	12	12	6	1	13.7	223	2800	1700	
2T x 12F +2x2.5 mm <sup>2</sup>	24	12	6	2	13.7	177	2800	1700	
2T x 12F +4x2.5 mm <sup>2</sup>	24	12	6	2	13.7	225	2800	1700	
3T x 12F +2x2.5 mm <sup>2</sup>	36	12	6	3	13.7	179	2800	1700	
4T x 12F +2x2.5 mm <sup>2</sup>	48	12	6	4	13.7	180	2800	1700	
5T x 12F +1x2.5 mm <sup>2</sup>	60	12	6	5	13.7	158	2800	1700	
1T x 12F +6x2.5 mm <sup>2</sup>	12	12	8	1	15.7	311	2800	1700	
2T x 12F +6x2.5 mm <sup>2</sup>	24	12	8	2	15.7	313	2800	1700	
3T x 12F +4x2.5 mm <sup>2</sup>	36	12	8	3	15.7	267	2800	1700	
4T x 12F +4x2.5 mm <sup>2</sup>	48	12	8	4	15.7	268	2800	1700	

Other fiber and copper wire counts available on demand

### Technical copper wire characteristics

Max DC resistance	7.41 Ω/km@20°C
Conductor material	Bare copper
Conductor cross section	2.5 mm <sup>2</sup>
Insulated conductor dia.	3.3 mm
Insulation material	PVC

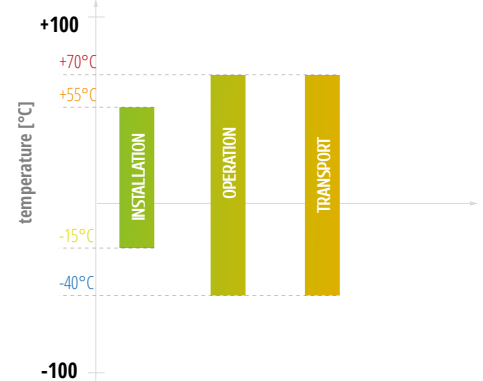
### Applications

- For installation into existing duct or directly buried
- High tensile and crush performance

### Features

- FRP strength and anti-buckling element
- Insulated copper cores 2.50 mm<sup>2</sup> (Ø 3.3 mm)
- Loose tubes with filling compound (PBT Ø 3.2 mm)
- Tape and dry yarns to prevent moisture into the cable
- Fiberglass yarns as strain relief elements
- UV stabilized HDPE outer jacket
- Other outer jackets materials available

### Operating temperature



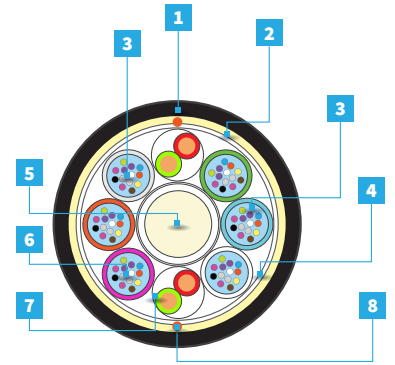
# HYBRID POWER+FO BDC-DID 0.8 MM

HYBRID CABLES *BDC-DID*



### Cable structure

1. HDPE outer jacket
2. Fiberglass yarns
3. Loose tubes (PBT) with colored fibers in filling gel
4. Water blocking yarns on FRP
5. Water blocking tape
6. Central strength member (FRP)
7. 2x Ø 0.8/1.3 insulated Cu pair
8. Ripcord



FTTH



Duct



Basic Rodent Protection



Hybrid FO + Power

### Configuration

BDC-DID 0.8 MM									
Version	Fibers	Fibers per tube	Total elements	Active tubes	Ø ± 5% [mm]	Nominal weight ± 10% [kg/km]	Max. tensile load [N]		Crush [N/10 cm]
							allowed	static	
1T x 12F + 7x2x0,8Cu	12	12	8	1	13.1	162	2900	1900	2000
2T x 12F + 6x2x0,8Cu	24	12	8	2	13.1	161			
3T x 12F + 5x2x0,8Cu	36	12	8	3	13.1	160			
4T x 12F + 4x2x0,8Cu	48	12	8	4	13.1	158			
5T x 12F + 3x2x0,8Cu	60	12	8	5	13.1	157			
6T x 12F + 2x2x0,8Cu	72	12	8	6	13.1	156			
7T x 12F + 1x2x0,8Cu	84	12	8	7	13.1	154			

Other fiber and copper wire counts available on demand

Technical copper wire characteristics	
Standard	PN-EN 50290-1-1:2002
Maximum resistance of wire loop	75 Ω/km@20°C
Insulation resistance	1500 MΩ·km
Material of conductor	Copper
Nominal diameter of conductor	0.8 mm
Nominal diameter of insulation	1.3 mm
Insulation material	PE

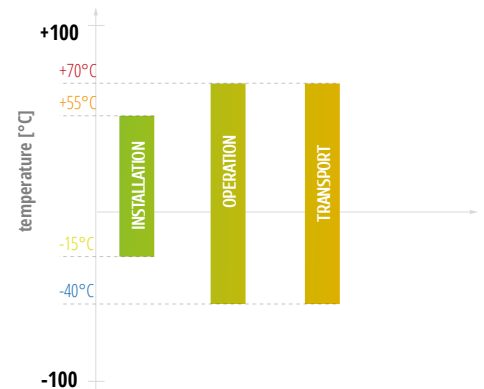
### Applications

- For installation into existing duct or directly buried
- High tensile and crush performance

### Features

- FRP strength and anti-buckling element
- Insulated copper pairs 2xØ 0.8/1.3 mm
- Loose tubes with filling compound (PBT Ø 2.5 mm)
- Tape and dry yarns to prevent moisture into the cable
- Fiberglass yarns as strain relief elements
- UV stabilized HDPE outer jacket
- Other outer jackets materials available

### Operating temperature





# NOTES

A series of horizontal dashed lines for writing notes.

# NOTES

A series of horizontal dashed lines for taking notes.

# NOTES

A series of horizontal dashed lines providing a template for handwritten notes.

## **FIBRAIN SP. Z O.O.**

Rogoźnica 312  
36-060 Głogów Małopolski  
Poland

phone: (+48) 17 866-08-14

fax: (+48) 17 866-08-11

e-mail: [info@fibrain.com](mailto:info@fibrain.com)

## **FIBRAIN MÉXICO**

Paseo de la Reforma 250 / Piso 9  
Esquina c/Niza, Col. Juárez  
Del. Cuahémoc  
México D.F. 06600

phone: (+52) 55 3600 7546

e-mail: [info@fibrain.com.mx](mailto:info@fibrain.com.mx)

[www.fibrain.com](http://www.fibrain.com)

**FIBRAIN** ®  
Fiber Optic Solutions