

GUCB

Central Loose Tube Cables

Universal – Indoor / Outdoor - Corrugated Steel Tape Armor (CST)

A/I-DQ(ZN)(SR)H

Full Rodent Protection

2017-07-05 v18.0

Ordering Information

Belden European Part Numbers

Fibre Description / count	2	4	6	8	12	16	24
62.5/125-OM1	GUCB102	GUCB104	GUCB106	GUCB108	GUCB112	GUCB116	GUCB124
50/125-OM2 BI	GUCB202	GUCB204	GUCB206	GUCB208	GUCB212	GUCB216	GUCB224
50/125-OM3 BI	GUCBD02	GUCBD04	GUCBD06	GUCBD08	GUCBD12	GUCBD16	GUCBD24
50/125-OM4 BI	GUCBE02	GUCBE04	GUCBE06	GUCBE08	GUCBE12	GUCBE16	GUCBE24
9/125 ITU G.655 C&D	GUCB702	GUCB704	GUCB706	GUCB708	GUCB712	GUCB716	GUCB724
9/125 ITU G.652D & G.657A1 BI	GUCB802	GUCB804	GUCB806	GUCB808	GUCB812	GUCB816	GUCB824
9/125 ITU G.657A2 BI	GUCBF02	GUCBF04	GUCBF06	GUCBF08	GUCBF12	GUCBF16	GUCBF24
9/125 ITU G.657B3 BI	GUCBI02	GUCBI04	GUCBI06	GUCBI08	GUCBI12	GUCBI16	GUCBI24
Std. plywood reel (non-returnable)	Ø1000*530mm 18 kg						
Std. delivery length	2100 ± 105m						

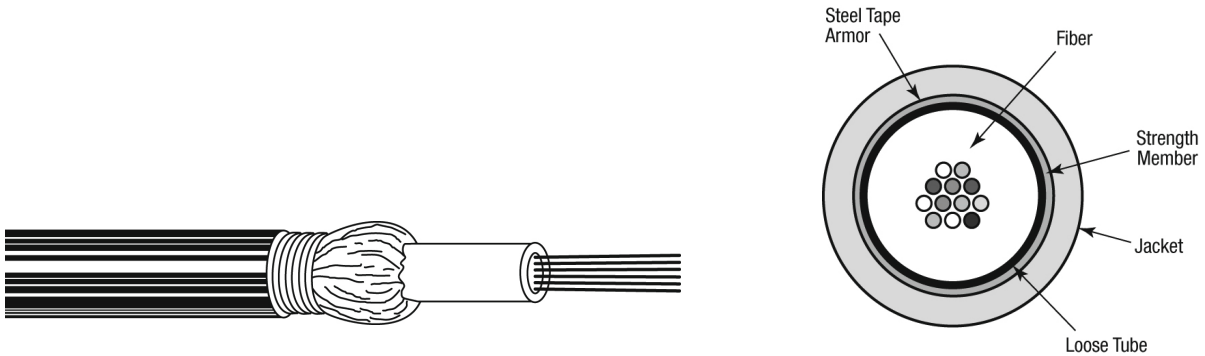
Applications

- For **outdoor and indoor** use in structured (data) wiring systems such as (**campus backbone**).
- For **outdoor and indoor** use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches. Suitable for direct burial (crush ≤ 400 N/cm).

Features & Benefits

- A simple cable construction and consequently **more cost-effective up to 24 fibres** than multi-tube cables.
- **High mechanical and full rodent protection** provided by corrugated steel tape (**CST**) armour.
- **The cable has been designed to meet the requirements of LUL 1-085 standard.**
- **Predicted lifetime > 30 years.**

Construction & Dimensions



Cable Specifications (construction in accordance with IEC 60794)

1. Primary coated optical fibres: $\varnothing 250 \pm 15 \text{ um}$.
2. Central tube, jelly filled (**non-dripping and silicon-free**) with **up to 24 fibres**.
Individually colour coded optical fibres:
1 – 12: red – natural – yellow – blue – green – violet – brown – black – orange - turquoise – pink and white.
13 – 24: red – natural – yellow – blue – green – violet – brown – grey – orange – turquoise – pink and white
with rings.
3. Water swellable E-glass yarns as strength members and for the **longitudinal watertightness**, surrounded by swelling tape
4. Corrugated Steel Tape Armouring (CST): longitudinally applied steel tape (0.155 mm).
5. UV resistant FRNC/LSNH outer jacket.
Identification: BELDEN OFC – “cable type” – “number x fibre type” + date-, meter- and P/N marking.

Mechanical Data

No. of fibres	Max. 24
\varnothing Central tube (mm)	4.0
\varnothing nom./max. (mm)	10.6 / 10.9
Energy of flame (kJ/m)	1308
Weight (kg/km)	148

Optical Characteristics

Characteristics Single-Mode – Matched-Cladded optical fibres according to ITU.

European P/N Coding, Position 5	Fibre-Type	Mode-Field /Cladding Diameter (um)	Wave-length (nm)	Attenuation ^B typical/ max. (dB/km)	Dispersion (ps/(nm·km))	PMD ^A (ps/km)	Cable Cut-off Wave-length (nm)
7	9/125 G.655 C&D	8.4 ± 0.6 125 ± 0.7	1550 1625	0.2 / 0.22 0.21 / 0.24	≤ 4.5 ≤ 7.9	≤ 0.04	≤ 1260
8	9/125 G.652D & G.657A1 BI OS2	9.2 ± 0.4 125 ± 0.7	1310 1550 1625	0.33 / 0.34 0.18 / 0.19 0.20 / 0.24	≤ 3.2 ≤ 17	≤ 0.06	≤ 1260
F	9/125 G.657A2 BI	8.9 ± 0.4 124.8 ± 0.3	1310 1550 1625	0.34 / 0.35 0.19 / 0.21 0.20 / 0.24	≤ 3.5 ≤ 18	≤ 0.2	≤ 1260
I	9/125 G.657B3 BI	8.8 ± 0.4 125 ± 0.4	1310 1550 1625	0.34 / 0.35 0.19 / 0.21 0.20 / 0.23	≤ 3.5 ≤ 18	≤ 0.06	≤ 1260

Note A- Link design value

Note B- Due to cabling the optical attenuation values can increase with max. 0.05 dB/km

Characteristics Multi-Mode Graded-Index optical fibres according to IEC 60793

European P/N Coding, Position 5	Fibre-Type	Core/ Cladding Diameter (um)	Wave-length (nm)	Attenuation ^C typical/ max. (dB/km)	Bandwidth (MHz·km)	Ethernet Performance (m)		Num. Apert. (µm)
						1 GBE	10 GBE	
1	62.5/125 OM1	62.5 ± 2.5 125 ± 1	850 1300	2.7 / 3.0 0.7 / 0.8	≥ 200 ≥ 600	220 550	33 300	0.275 ± 0.015
2	50/125 OM2 BI	50 ± 2.5 125 ± 1	850 1300	2.3 / 2.5 0.5 / 0.6	≥ 500 ≥ 500	600 600	83 300	0.20 ± 0.015
D	50/125 OM3 BI	50 ± 2.5 125 ± 1	850 1300	2.3 / 2.5 0.5 / 0.6	≥ 1500 ≥ 500	1000 550	300 300	0.20 ± 0.015
E	50/125 OM4 BI	50 ± 2.5 125 ± 1	850 1300	2.3 / 2.5 0.5 / 0.6	≥ 3500 ≥ 500	1100 550	550 300	0.20 ± 0.015

Note C- Due to cabling the optical attenuation values can increase with max. 0.4 dB/km

Macro Bending Performance Fibers

Maximum attenuation increase for Bend Insensitive Single Mode fibers in dB depending on turns and radius.

European P/N Coding, Position 5	Fibre-Type	Wave-length (nm)	Turns 100 Radius 30 mm (dB)	Turns 10 Radius 15 mm (dB)	Turn 1 Radius 16 mm (dB)	Turn 1 Radius 10 mm (dB)	Turn 1 Radius 7.5 mm (dB)	Turn 1 Radius 5 mm (dB)
7	9/125 G.655 C & D	1550 1625	0.05 0.05		0.5 0.5			
8	9/125 G.652D & G.657A1 BI OS2	1550 1625	0.03 0.03	0.25 1.0		0.75 1.5		
F	9/125 G.657A2 BI	1550 1625		0.03 0.1		0.1 0.2	0.5 1.0	
I	9/125 G.657B3 BI	1550 1625				0.03 0.1	0.08 0.25	0.15 0.45

Maximum attenuation increase for Bend Insensitive Multi Mode fibers in dB depending on turns and radius.

European P/N Coding, Position 5	Fibre-Type	Wave-length (nm)	Turns 100 Radius 37.5 mm (dB)	Turns 2 Radius 15 mm (dB)	Turns 2 Radius 7.5 mm (dB)
1	62.5/125 OM1	850 1300	0.5 0.5		
2	50/125 OM2 BI	850 1300	0.5 0.5	0.1 0.3	0.2 0.5
D	50/125 OM3 BI	850 1300	0.5 0.5	0.1 0.3	0.2 0.5
E	50/125 OM4 BI	850 1300	0.5 0.5	0.1 0.3	0.2 0.5

Mechanical, Physical and/or Environmental Characteristics

Description:	Tested according to:	Requirement:	According to Family specification:
Storage Temperature Range	IEC 60794-1-22-F1	-30 to +70 °C	IEC 60794-3-10
Installation Temperature Range		-5 to +40 °C	
Operating Temperature Range		-30 to +70 °C	
Bending Radius Tube (Installation and Operation)		> 25 mm	
Cable Water Blocking	IEC 60794-1-22-F5	Pass	
Cable Min. Bend Radius Operation (Long Term)	IEC 60794-1-21-E11	20 x Cable Diam.	IEC 60794-3-10
Cable Min. Bend Radius Installation (Short Term)	IEC 60794-1-21-E6	20 x Cable Diam.	
Cable Max. Tensile Strength Operation (Long Term)	IEC 60794-1-21-E1	1330 N	IEC 60794-3-10
Cable Max. Tensile Strength Installation (Short Term)		3990 N	
Cable Max. Crush Resistance Operation (Long Term)	IEC 60794-1-21-E3	11 kN/m	IEC 60794-3-10
Cable Max. Crush Resistance Installation (Short Term)		22 kN/m	

Safety

	Testing standard	Description / Value
Reaction to fire	IEC 60332-1 IEC 60332-3-22 IEC 60332-3-25 EN 50575	40 min 20 min ; acc. to LUL 1-085 Cca-s2,d1,a1
Circuit Integrity	IEC 60331-25 EN 50200	E120: duration of test 120 minutes PH120: duration of test 120 minutes including shocks
Toxicity	NF X 70-100-2 LUL 1-085	
Smoke density	IEC 61034-2 LUL 1-085	
Halogen acid gas content	IEC 60754-1	Zero
Degree of acidity of gases	IEC 60754-2 IEC 60754-2	Min. 4.3 pH Max. 10 µS/mm

Guide to installation and handling

- When laying and installing optical fibre cables it is **vitaly important not to exceed the specified values** set for pulling tension, bending radii and temperature. The installation methods have to be in accordance with the common standards.
- To ease insertion into tubes by means of compressed air or pulling wire, certified lubricants (e.g. paraffin) may be used. The use of soap or similar substances as lubricants is strictly prohibited.
- If a cable needs to be fastened, constrictions > 0.3 mm must be prevented.
- The jelly filling inside the tubes can be removed using a tissue soaked in turpentine.
- It is advisable to cap the cable-ends during storage.

Options

- Cables for outdoor use only.
- **Non-standard cable constructions**, colours, details and/or additional information regarding specifications are available on request.