

GUWN

Central Loose Tube Cables
Universal – Indoor/Outdoor, Steel Wire Armor (SWA)
A/I-DQ(ZN)HBH
 Full Rodent Protection

Ordering Information

Belden European Part Numbers

Fibre type / count	4	6	8	12	16	24
62.5/125-OM1	GUWN104	GUWN106	GUWN108	GUWN112	GUWN116	GUWN124
50/125-OM2 BW 600/1200	GUWN204	GUWN206	GUWN208	GUWN212	GUWN216	GUWN224
50/125-OM3	GUWN304	GUWN306	GUWN308	GUWN312	GUWN316	GUWN324
50/125-OM2e	GUWN404	GUWN406	GUWN408	GUWN412	GUWN416	GUWN424
50/125-OM2 BW 500/500	GUWN504	GUWN506	GUWN508	GUWN512	GUWN516	GUWN524
50/125-OM4	GUWN604	GUWN606	GUWN608	GUWN612	GUWN616	GUWN624
9/125 ITU G.655	GUWN704	GUWN706	GUWN708	GUWN712	GUWN716	GUWN724
9/125 ITU G.652D-OS2	GUWN804	GUWN806	GUWN808	GUWN812	GUWN816	GUWN824
Std. plywood reel (non-returnable)	Wooden reel Ø 1000 * 588 mm, 50 kg Wooden reel Ø 1400 * 900mm, 120 kg					
Std. delivery length	2100 ± 100m or 4100 ± 100m					

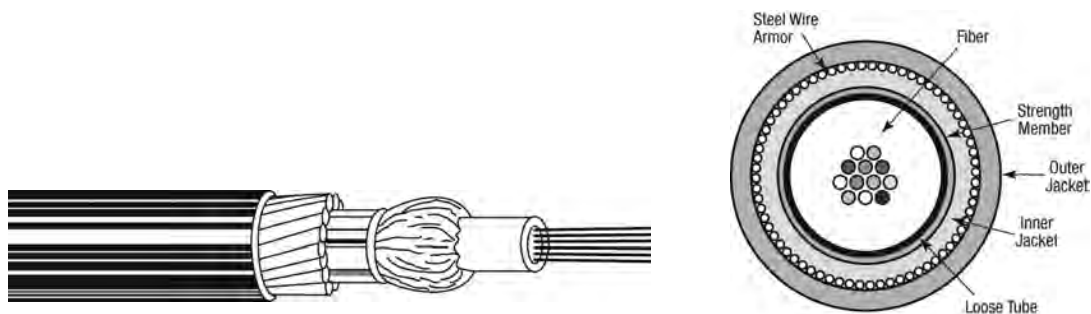
Applications

- For **outdoor and indoor** use in structured (data) wiring systems such as **industrial backbone**, campus backbone, building backbone (riser) and/or horizontal cabling..
- For **outdoor and indoor** use in networks for **industrial**, telecom, cable TV and/or broadcast.
- Suitable for **direct burial** and / or in ducts, tunnels and trenches.

Features & Benefits

- These cables are **halogen-free** (=FRNC and LSNH) and therefore suitable for both outdoor and indoor use. Consequently splicing can be avoided and the installation gets more cost-effective.
- A simple (central tube) cable construction and consequently **more cost-effective up to 24 fibres** than multi-tube cables with a Steel Wire Armouring.
- **Predicted lifetime > 30 years.**

Construction & Dimensions



Cable Specifications (construction in accordance with IEC 60794)

1. Primary coated optical fibres: $\varnothing 250 \pm 15 \mu\text{m}$.
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. Swellable yarns as strength members and for the **longitudinal watertightness**.
4. Halogen-free inner jacket.
5. Steel Wire Armouring (SWA): helical stranded galvanized steel wires of $\varnothing 0.6 \text{ mm}$
6. Black halogen-free (FRNC/LSNH) outer jacket.
Identification: BELDEN OFC – “cable type” – number x type of fibre + date-, meter- and P/N marking.

Mechanical Data

No. of fibres	Max. 24
\varnothing Central tube (mm)	3.2
\varnothing Inner jacket, nom./max. (mm)	5.8 / 6.1
\varnothing Outer jacket, nom./max. (mm)	9.6 / 9.9
Energy of flame (kJ/m)	1509
Weight (kg/km)	237

Optical Characteristics

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

European Partnumber Coding, Position 5	Fibre-Type	Mode-Field /Cladding Diameter (um)	Wave-length (nm)	Attenuation average/ max. (dB/km)	Dispersion (ps/(nm-km))	PMD (ps/km)	Cable Cut-off Wave-length (nm)
8	9/125 G.652D OS2	9.2 ± 0.4 125 ± 0.7	1310 1550	0.32 / 0.40 0.21 / 0.30	≤ 3.5 ≤ 18	≤ 0.2	≤ 1260
7	9/125 G.655	8.4 ± 0.6 125 ± 1	1550	0.25 / 0.30	3.5 – 8.5	≤ 0.1 ^A	≤ 1260

Note A- Link design value

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

European Partnumber Coding, Position 5	Fibre-Type	Mode-Field Diameter (um)	Wave-length (nm)	Attenuation average/ max. (db/km)	Bandwidth (MHz•km)	Ethernet Performance (m)		Num. Apert. (µm)	Refr. Index
						1GBE	10 GBE		
1	62.5/125 OM1	62.5 ± 2.5 125 ± 1	850 1300	2.7 / 3.2 0.6 / 1.1	≥ 200 ≥ 600	275 550	33 n.a.	0.275 ± 0.015	1.495 1.490
5	50/125 OM2	50 ± 2.5 125 ± 1	850 1300	2.4 / 3.0 0.7 / 1.0	≥ 500 ≥ 500	600 600	82 n.a.	0.20 ± 0.015	1.481 1.476
2	50/125 OM2	50 ± 2.5 125 ± 1	850 1300	2.3 / 2.8 0.6 / 0.9	≥ 600 ≥ 1200	600 600	82 n.a.	0.20 ± 0.015	1.481 1.476
4	50/125 OM2e	50 ± 2,5 125 ± 1	850 1300	2,3 / 2,8 0,6 / 0,9	≥ 600 ≥ 1200	750 2000	110 na	0.20 ± 0.015	1.481 1.476
3	50/125 OM3	50 ± 2.5 125 ± 1	850 1300	2.5 / 3.0 0.5 / 1.0	≥ 1500 ≥ 500	900 550	300 n.a.	0.20 ± 0.015	1.482 1.477
6	50/125 OM4	50 ± 2.5 125 ± 1	850 1300	2.5 / 3.0 0.5 / 1.0	≥ 6000 ≥ 500	900 550	550 n.a.	0.20 ± 0.015	1.482 1.477

A test report (attenuation) is supplied with each delivery.

Mechanical, Physical and/or Environmental Characteristics

Requirements		
Temperature range according to IEC 60794-1-2-F1	Transport/storage	-30 to + 70 °C
	Installation	-5 to + 50 °C
	Operation	-30 to + 70 °C
Pulling tension according to IEC 60794-1-2-E1	Long term	≤ 700 N
	Short term	≤1500 N
Bending radii for fibres and tubes		
Installation/operation		>25 mm
Watertightness (core + inner jacket) according to IEC 60794-1-2-F5		Yes
Crush resistance according to IEC 60794-1-2-E3		≤ 30000 N/m
Bending radii cable		
Static according to IEC 60794-1-2-E11		10 x Ø
Dynamic according to IEC 60794-1-2-E6		15 x Ø
Flame retardancy according to IEC 60332-1 (EN 50265-2-1)		Pass
Halogen-free according to IEC 60754-2 (EN 50267-2-2)		
Corrosivity		pH ≥ 3.5 - µS/cm ≤ 100

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.
- 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

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

Revision

Rev.	Description	Date	Init.
1.1	Changed flame retardancy from IEC 332-3C to IEC332-1	02/04/2009	TvR
2.0	OM3+ changed to OM4	12/10/09	JW
3.0	OS2 added	25/11/09	JW
4.0	Extended description watertightness	22/03/10	SN
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			Part Number: GUWN