

## GUWA

**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
62.5/125-OM1	GUWA104	GUWA106	GUWA108	GUWA112
50/125-OM2 BW 600/1200	GUWA204	GUWA206	GUWA208	GUWA212
50/125-OM3	GUWA304	GUWA306	GUWA308	GUWA312
50/125-OM2e	GUWA404	GUWA406	GUWA408	GUWA412
50/125-OM2 BW 500/500	GUWA504	GUWA506	GUWA508	GUWA512
50/125-OM4	GUWA604	GUWA606	GUWA608	GUWA612
9/125 ITU G.655	GUWA704	GUWA706	GUWA708	GUWA712
9/125 ITU G.652D-OS2	GUWA804	GUWA806	GUWA808	GUWA812
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			

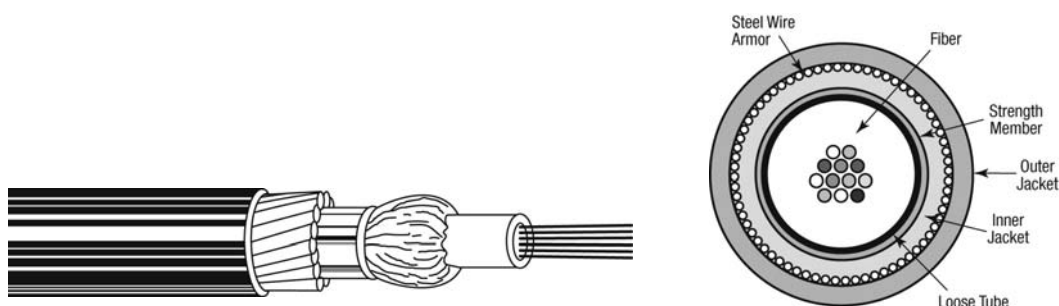
### Applications

- 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 12** 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 12 fibres**.  
Individually colour coded optical fibres:  
1 – 12: red – natural – yellow – blue – green – violet – brown – black – orange – turquoise – pink and white.
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  $\varnothing 0.9 \text{ mm}$
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. 12
$\varnothing$ Central tube (mm)	3.2
$\varnothing$ Inner jacket, nom./max. (mm)	5.8 / 6.1
$\varnothing$ Outer jacket, nom./max. (mm)	10.7 / 11.0
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 <sup>A</sup>	≤ 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		
<b>Temperature range</b> according to IEC 60794-1-2-F1	Transport/storage	-30 to + 70 °C
	Installation	-5 to + 50 °C
	Operation	-30 to + 70 °C
<b>Pulling tension</b> according to IEC 60794-1-2-E1	Long term	≤ 700 N
	Short term	≤ 1500 N
<b>Bending radii for fibres and tubes</b>	Installation/operation	>25 mm
<b>Watertightness (core + inner jacket)</b>	according to IEC 60794-1-2-F5	Yes
<b>Crush resistance</b> according to IEC 60794-1-2-E3		≤ 30000 N/m
<b>Bending radii cable</b>	Static according to IEC 60794-1-2-E11	10 x Ø
	Dynamic according to IEC 60794-1-2-E6	15 x Ø
<b>Flame retardancy</b> according to IEC 60332-3C (EN 50266-2-4)		Pass
<b>Halogen-free</b> 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.
02	OM3+ changed to OM4	12/10/09	JW
03	OS2 added	25/11/09	JW
04	Extended description watertightness	22/03/10	SN
Date: 08/07/08		Page 1 of 1	Part Number:
Orig.: SN		Review:	<b>GUWA</b>