

GCWF

Multi Loose Tube Cables

Universal – Indoor / Outdoor – Galvanised Steel Wire Armor (SWA)

A/I-DQ(ZN)H(B)H (R0.9vzk)

Full Rodent Protection

Ordering Information

Belden European Part Numbers

Fibre type / count	108	120	132	144
62.5/125-OM1	GCWF108	GCWF120	GCWF132	GCWF144
50/125-OM2 BW 600/1200	GCWF208	GCWF220	GCWF232	GCWF244
50/125-OM3	GCWF308	GCWF320	GCWF332	GCWF344
50/125-OM2e	GCWF408	GCWF420	GCWF432	GCWF444
50/125-OM2 BW 500/500	GCWF508	GCWF520	GCWF532	GCWF544
50/125-OM4	GCWF608	GCWF620	GCWF632	GCWF644
9/125 ITU G.655	GCWF708	GCWF720	GCWF732	GCWF744
9/125 ITU G.652D-OS2	GCWF808	GCWF820	GCWF832	GCWF844
Std. plywood reel (non-returnable)	Ø 1400 * 900 mm 120 kg			
Std. delivery length	2100 ± 100m			

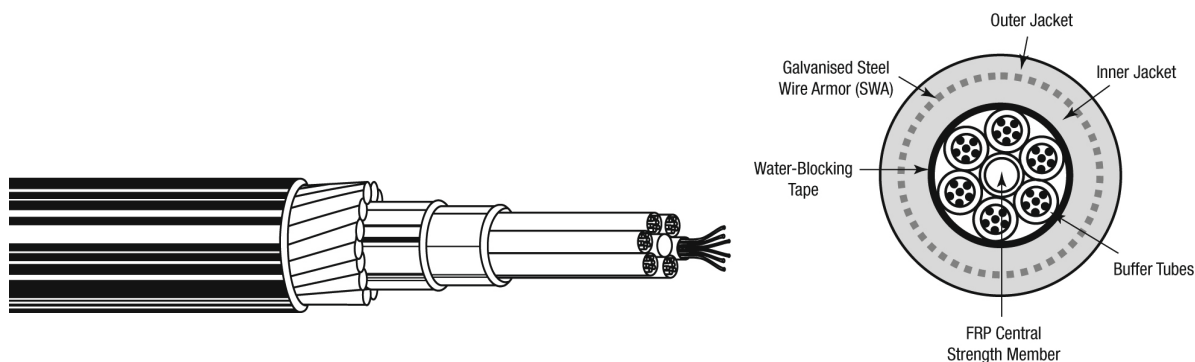
Applications

- 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 by means of compressed air or pulling wire.
- Suitable for direct burial.

Features & Benefits

- **Installation friendly dry interstices** between the loose tubes.
- **High mechanical and full rodent protection** provided by Steel Wire **Armor (SWA)**.
- **Predicted lifetime > 30 years.**

Construction & Dimensions



Cable Specifications (construction in accordance with IEC 60794)

1. Dielectric central element of glass reinforced plastic (GRP), also as protection against kinks, surrounded by swelling yarns.
 2. Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibres ($\varnothing 250 \pm 15 \mu\text{m}$). Individually colour coded optical fibres: red – green – blue – yellow – violet – pink – orange – black – grey – brown – white – turquoise.
 3. The loose tubes are stranded around the central element, if necessary with fillers (PE-natural), surrounded by swelling tape.
Colour coding of the loose tubes: 1. red – 2. green – rest white.
 4. Swellable (for the longitudinal watertightness) aramid yarns as strength members.
 5. FRNC/LSNH inner jacket.
 6. Steel Wire Armouring (SWA): helically stranded galvanized steel wires of $\varnothing 0.9 \text{ mm}$.
 7. Black 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 144
Cable core	12 tubes
$\varnothing$ Central element (mm)	3.0/7.5
$\varnothing$ Loose tube (mm)	2.5
$\varnothing$ nom./max. (mm)	20.2 / 20.5
Energy of flame (kJ/m)	7500
Weight (kg/km)	630

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 h (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 Installation Operation	-30 to + 70 °C -5 to + 50 °C -30 to + 70 °C
Pulling tension according to IEC 60794-1-2-E1 Long term Short term	≤ 4000 N ≤ 8000 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 Armoured Central Loose Tube Cable	≤ 50 KN/m
Bending radii cable Static according to IEC 60794-1-2-E11 Dynamic according to IEC 60794-1-2-E6	15 x Ø 20 x Ø
Flame retardancy according to IEC 60332-3-22 (EN 50266-2-2) IEC 61034 (EN 50268)	Pass 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.
- 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.

Revision

Rev.	Description	Date	Init.
2.0	Remove Circuit Integrity IEC 60331-25	23/05/12	SN
Date: 22/11/2010		Part Number: GCWF	
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Orig.: SN		Review:	