

## GCWD

### 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	12	24	36	48	60	72
62.5/125-OM1	GCWD112	GCWD124	GCWD136	GCWD148	GCWD160	GCWD172
50/125-OM2 BW 600/1200	GCWD212	GCWD224	GCWD236	GCWD248	GCWD260	GCWD272
50/125-OM3	GCWD312	GCWD324	GCWD336	GCWD348	GCWD360	GCWD372
50/125-OM2e	GCWD412	GCWD424	GCWD436	GCWD448	GCWD460	GCWD472
50/125-OM2 BW 500/500	GCWD512	GCWD524	GCWD536	GCWD548	GCWD560	GCWD572
50/125-OM4	GCWD612	GCWD624	GCWD636	GCWD648	GCWD660	GCWD672
9/125 ITU G.655	GCWD712	GCWD724	GCWD736	GCWD748	GCWD760	GCWD772
9/125 ITU G.652D	GCWD812	GCWD824	GCWD836	GCWD848	GCWD860	GCWD872
Std. plywood reel (non-returnable)	Ø 1250 * 688 mm 93 kg					
Std. delivery length	2100 ± 100m					

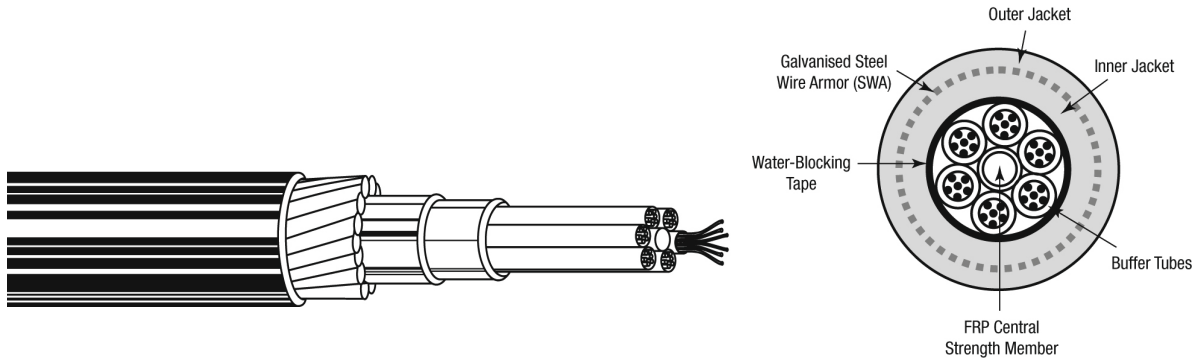
## Applications

- 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. 72
Cable core	6 tubes
$\varnothing$ Central element (mm)	2.7
$\varnothing$ Loose tube (mm)	2.5
$\varnothing$ nom./max. (mm)	15.5 / 15.8
Energy of flame (kJ/m)	4100
Weight (kg/km)	390

## 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 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	
<b>Temperature range</b> according to IEC 60794-1-2-F1 Transport/storage Installation Operation	-30 to + 70 °C -5 to + 50 °C -30 to + 70 °C
<b>Pulling tension</b> according to IEC 60794-1-2-E1 Long term Short term	≤ 4000 N ≤ 8000 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 Armoured Central Loose Tube Cable	≤ 50 KN/m
<b>Bending radii cable</b> Static according to IEC 60794-1-2-E11 Dynamic according to IEC 60794-1-2-E6	15 x Ø 20 x Ø
<b>Flame retardancy</b> according to IEC 60332-3-22 (EN 50266-2-2) IEC 61034 (EN 50268)	Pass 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.
- 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: 22/11/10		Part Number: <b>GCWD</b>	
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Orig.: SN		Review:	