

## GCDE

Multi Loose Tube Cables  
 Universal – Indoor / Outdoor - Corrugated Steel Tape Armor (CST)  
 A/I-DQ(ZN)H(SR)H  
 Full Rodent Protection

### Ordering Information

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Belden European Part Numbers

Fibre type / count	84	96
62.5/125-OM1	GCDE184	GCDE196
50/125-OM2 BW 600/1200	GCDE284	GCDE296
50/125-OM3	GCDE384	GCDE396
50/125-OM2e	GCDE484	GCDE496
50/125-OM2 BW 500/500	GCDE584	GCDE596
50/125-OM4	GCDE684	GCDE696
9/125 ITU G.655	GCDE784	GCDE796
9/125 ITU G.652D-OS2	GCDE884	GCDE896
Std. plywood reel (non-returnable)	Ø 1250 * 688 mm 93 kg	
Std. delivery length	2100 ± 100m	

### Applications

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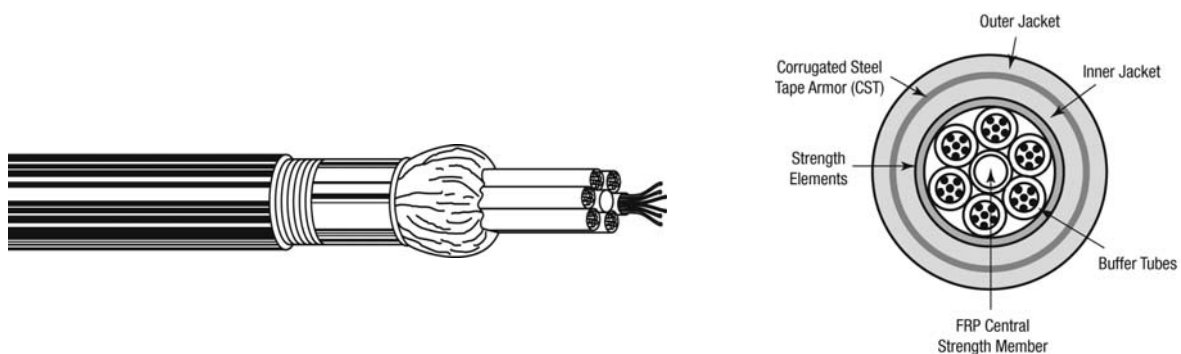
- For **outdoor and indoor** use in structured (data) wiring systems such as (**campus backbone**).
- For **outdoor and indoor** use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire.
- Suitable for direct burial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

### Features & Benefits

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- **Installation friendly dry interstices** between the loose tubes.
- **High mechanical and full rodent protection** provided by corrugated steel tape (**CST**) armor.
- **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 ( $\text{Ø } 250 \pm 15 \mu\text{m}$ ). 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. Corrugated Steel Tape Armoring (CST): longitudinally applied steel tape (0.155 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. 96
Cable core	8 tubes
Ø Central element (mm)	3.0/4.3
Ø Loose tube (mm)	2.5
Ø nom./max. (mm)	17.4 / 17.7
Energy of flame (kJ/m)	4700
Weight (kg/km)	340

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## 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		≤ 4000 N
Short term		≤ 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		15 x Ø
Dynamic according to IEC 60794-1-2-E6		20 x Ø
<b>Flame retardancy</b> according to		
IEC 60332-3-22 (EN 50266-2-2)		Pass
IEC 61034 (EN 50268)		Pass
IEC 60331-25		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.
02	Extended description watertightness	22/03/10	SN
03	Changed energy	22/11/10	TvR
Date: 17/12/09		Page 1 of 1	
Orig.: SN		Review:	
			Part Number: <b>GCDE</b>