

## Application

- For **outdoor and indoor** use in structured (data) wiring systems (**campus backbone**) and/or in networks for telecom, cable TV and/or broadcast.
- **Easy to install** in ducts, tunnels, trenches and/or tubes (by means of compressed air or pulling wire). Suitable for **direct burial** (crush  $\leq 150$  N/cm).

## Key features

- **Installation friendly dry interstices** between the loose tubes.
- **Halogen-free** and **all dielectric** cables with standard rodent protection.
- **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 tape.
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 – natural – yellow – blue – green – violet – brown – black – orange – turquoise – pink and white.
3. The loose tubes are stranded around the central element, if necessary with blind elements (black tubes without fibres). Colour coding of the loose tubes: 1. red – 2. white – rest yellow (9/125) or green (50/125) or blue (62.5/125).
4. Swellable (for the longitudinal watertightness) yarns as strength members and for the standard rodent protection.
5. **Orange** halogen-free (FRNC/LSNH) outer jacket.  
Identification: BELDEN OFC – "cable type" – "number x 9/125" + date-, meter- and P/N-marking.

### Mechanical data

Cable-type-	48dcNH				
<b>No. of fibres</b>	<b>12</b>	<b>24</b>	<b>32</b>	<b>36</b>	<b>48</b>
Cable core	6*2	6*4	4*8	6*6	6*8
Ø Central element (mm)	2,1				
Ø Loose tube (mm)	2,1				
Ø nom./max. (mm)	9,8 / 10,1				
Weight (kg/km)	107				
Energy of flame (kJ/m)	1470				

Cable-type-	72dcNH					96dcNH	144dcNH
<b>No. of fibres</b>	<b>24</b>	<b>36</b>	<b>48</b>	<b>60</b>	<b>72</b>	<b>96</b>	<b>144</b>
Cable core	2*12	3*12	4*12	5*12	6*12	8*12	12*12
Ø Central element (mm)	2,6					2,6 / 4,3	3,5 / 7,6
Ø Loose tube (mm)	2,6					2,6	2,6
Ø nom./max. (mm)	11,0 / 11,3					12,7 / 13,0	16,0 / 16,3
Weight (kg/km)	130					167	255
Energy of flame (kJ/m)	1945					2391	3427

## Optical characteristics

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

	Size ( $\mu\text{m}$ )	Wavelength (nm)	Attenuation average/max. (dB/km)	Bandwidth (MHz•km)	Ethernet Performance (m)		Refractive Index
					1GbE	10Gbe	
<b>62.5/125 OM1</b>	62.5 $\pm$ 2.5	850	3.0 / 3.2	$\geq$ 200	275	33	1.495
	125 $\pm$ 1	1300	0.6 / 0.8	$\geq$ 600	550	n.a.	1.490
<b>50/125 OM2</b>	50 $\pm$ 2.5	850	2.5 / 2.7	$\geq$ 600	550	82	1.481
	125 $\pm$ 1	1300	0.5 / 0.8	$\geq$ 1200	550	n.a.	1.476
<b>50/125 OM2e</b>	50 $\pm$ 2.5	850	2.5 / 2.7	$\geq$ 600	750	110	1.481
	125 $\pm$ 1	1300	0.5 / 0.8	$\geq$ 1200	2000	na	1.476
<b>50/125 OM3</b>	50 $\pm$ 2.5	850	2.5 / 2.7	$\geq$ 1500	900	300	1.482
	125 $\pm$ 1	1300	0.5 / 0.8	$\geq$ 500	550	n.a.	1.477

### Characteristics (cabled) Single-Mode - Matched-Cladded optical fibres according to ITU-G.652D

Fibre-type	Size ( $\mu\text{m}$ )	Wavelength (nm)	Attenuation average/max. (dB/km)	Dispersion (ps/(nm•km))	PMD (ps/ $\sqrt{\text{km}}$ )	Refractive Index
<b>9/125 OS1</b>	9.2 $\pm$ 0.4	1310	0.33 / 0.38	$\leq$ 3.5		1.467
	125 $\pm$ 1	1550	0.20 / 0.25	$\leq$ 18	$\leq$ 0.2	1.467

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

## Mechanical, physical and/or environmental

**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

**Watertightness** according to IEC 60794-1-2-F5

**Pulling tension** according to IEC 60794-1-2-E1  
 Type-48 and Type-72  $\leq$  3000 N  
 Type-96 and Type-144  $\leq$  4000 N

**Crush resistance** according to IEC 60794-1-2-E3

Loose tube  $\leq$  4000 N/m  
 Type-48 and Type-72  $\leq$  15000 N/m  
 Type-96 and Type-144  $\leq$  20000 N/m

**Bending radii for fibres and tubes**  
 Installation/operation > 25 mm

**Bending radii cable**  
 Static according to IEC 60794-1-2-E11 - 10 x  $\emptyset$   
 Dynamic according to IEC 60794-1-2-E6 - 15 x  $\emptyset$

**Halogen-free** according to IEC 60754-2 (HD 602)  
 Corrosivity pH  $\geq$  3.5 -  $\mu\text{S/cm}$   $\leq$  100

**Flame retardancy** according to IEC 60332-3C

## Guide to installation and handling

- When laying and installing optical fibre cables **it is vitally 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  $\geq$  1 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

- Universal cables with improved rodent protection and Outdoor cables with a PE outer jacket.
- **Non-standard cable constructions** like different types of fibres in one cable, colours, details and/or additional information regarding specifications are available on request.

## Ordering information

### Belden European Part Numbers

Cable-type-	48dcNH			
Fibre-type/-count	12	24	36	48
62.5/125-OM1	GUSC112	GUSC124	GUSC136	GUSC148
50/125-OM2	GUSC212	GUSC224	GUSC236	GUSC248
50/125-OM2e	GUSC412	GUSC424	GUSC436	GUSC448
50/125-OM3	GUSC312	GUSC324	GUSC336	GUSC348
9/125-OS1	GUSC812	GUSC824	GUSC836	GUSC848
Std. Reel (non-returnable)	wooden reel Ø 1250 * 688 mm, weight 81 kg			
Std. delivery length	4100 ± 100 m			

Cable-type-	72dcNH				
Fibre-type/-count	24	36	48	60	72
62.5/125-OM1	GUSD124	GUSD136	GUSD148	GUSD160	GUSD172
50/125-OM2	GUSD224	GUSD236	GUSD248	GUSD260	GUSD272
50/125-OM2e	GUSD424	GUSD436	GUSD448	GUSD460	GUSD472
50/125-OM3	GUSD324	GUSD336	GUSD348	GUSD360	GUSD372
9/125-OS1	GUSD824	GUSD836	GUSD848	GUSD860	GUSD872
Std. reel (non-returnable)	wooden reel Ø 1250 * 688 mm, weight 81 kg				
Std. delivery length	2100 ± 100 m				

Cable-type-	96dcNH	144dcNH
Fibre-type/-count	96	144
62.5/125-OM1	GUSE196	GUSF144
50/125-OM2	GUSE296	GUSF244
50/125-OM2e	GUSE496	GUSF444
50/125-OM3	GUSE396	GUSF344
9/125-OS1	GUSE896	GUSF844
Std. reel (non-returnable)	wooden reel Ø 1250 * 688 mm, weight 81 kg	
Std. delivery length	2100 ± 100 m	