

## Product Datasheet

Type-12 or  
24PE(SWA)  
Page 1 of 3  
Rev. 16 - 04/16/04

## Outdoor Central tube Optical Fibre Cables

Steel Wire Armouring (SWA)  
max. 12 or 24 fibres



### Application

- For **outdoor** use in structured (data) wiring systems such as **industrial backbone**, **campus backbone**, **building backbone (riser)** and/or horizontal cabling.
- For **outdoor** use in networks for **industrial**, telecom, cable TV and/or broadcast.
- Suitable for **direct burial** and / or in ducts, tunnels and trenches.

### Key features

- A simple (central tube) cable construction and consequently **more cost-effective up to 24 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:  $\text{Ø } 250 \pm 15 \text{ }\mu\text{m}$ .
2. Central tube, jelly filled (**non-dripping and silicon-free**) with **up to 12 or 24 fibres**.  
Individually colour coded optical fibres:  
1-12: red - natural - yellow - blue - green - violet - brown - black - orange - turquoise - pink and white.  
13-24: red - natural - yellow - blue - green - violet - brown - black - orange - turquoise - pink and white  
with black rings.
3. Swellable yarns as strength members and for the **longitudinal watertightness**.
4. Polyethylene (PE) inner jacket.
5. Steel Wire Armouring (SWA): helical stranded galvanised steel wires of  $\text{Ø } 0.9 \text{ mm}$
6. Black PE outer jacket.  
Identification: BELDEN OFC – "cable type" – "number x type of fibre" + date-, meter- and P/N-marking.

#### Mechanical data

Cable-Type-	12PE(SWA)	24PE(SWA)
No. of fibres	max. 12	max. 24
Ø Central tube (mm)	3.2	4.2
Ø Inner jacket, nom./max. (mm)	5.8 / 6.1	8.7 / 9.0
Ø Outer jacket, nom./max. (mm)	10.7 / 11.0	13.5 / 13.8
Weight (kg/km)	200	283

## Optical characteristics

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

Fibre-type	Size ( $\mu\text{m}$ )	Wavelength (nm)	Attenuation average/max. (dB/km)	Bandwidth (MHz $\cdot$ km)	Ethernet Performance (m)		Refractive Index
					1GbE	10Gbe	
<b>62.5/125</b> <b>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</b> <b>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</b> <b>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	n.a.	1,476
<b>50/125</b> <b>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.652B

Fibre-type	Size ( $\mu\text{m}$ )	Wavelength (nm)	Attenuation average/max. (dB/km)	Dispersion (ps/(nm $\cdot$ km))	PMD (ps/ $\sqrt{\text{km}}$ )	Refractive Index
<b>9/125</b> <b>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-12  $\leq$  700 N

Type-24  $\leq$  1400 N

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

Cable  $\leq$  30000 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  $\emptyset$

## 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 a 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

- Cables from **1 to 24 fibres**.
- Halogen-free cables for outdoor and indoor use.
- Non-standard cable constructions, colours, details and/or additional information regarding specifications are available on request.

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Page 3 of 3

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**Ordering information****Belden Europe code**

Cable-type- Fibre-type/-count	<b>12PE(SWA)</b>			
	<b>4</b>	<b>6</b>	<b>8</b>	<b>12</b>
62.5/125-OM1	GOWA104	GOWA106	GOWA108	GOWA112
50/125-OM2	GOWA204	GOWA206	GOWA208	GOWA212
50/125-OM2e	GOWA404	GOWA406	GOWA408	GOWA412
50/125-OM3	GOWA304	GOWA306	GOWA308	GOWA312
9/125-OS1	GOWA904	GOWA906	GOWA908	GOWA912
Std. reel (non-returnable)	wooden reel $\varnothing$ 1000 * 585 mm, weight 47 kg or wooden reel $\varnothing$ 1400 * 900 mm, weight 120 kg			
Std. delivery length(s)	2100 $\pm$ 100 m or 4100 $\pm$ 100 m			

Cable-type- Fibre-type/-count	<b>24PE(SWA)</b>
	<b>24</b>
62.5/125-OM1	GOWB124
50/125-OM2	GOWB224
50/125-OM2e	GOWB424
50/125-OM3	GOWB324
9/125-OS1	GOWB924
Std. reel (non-returnable)	wooden reel $\varnothing$ 1250 * 688 mm, weight 81 kg
Std. delivery length	2100 $\pm$ 100 m