

## GUSN

### Central Loose Tube Cables (Distribution)

Universal – Indoor/ Outdoor

A/I-DQ(ZN)BH

Standard Rodent Protection

### Ordering Information

#### Belden European Part Numbers

| Fibre type / count                 | 2                                         | 4       | 6       | 8       | 12      | 16      | 24      |
|------------------------------------|-------------------------------------------|---------|---------|---------|---------|---------|---------|
| 62.5/125-OM1                       | GUSN102                                   | GUSN104 | GUSN106 | GUSN108 | GUSN112 | GUSN116 | GUSN124 |
| 50/125-OM2 BW                      | GUSN202                                   | GUSN204 | GUSN206 | GUSN208 | GUSN212 | GUSN216 | GUSN224 |
| 50/125-OM3                         | GUSN302                                   | GUSN304 | GUSN306 | GUSN308 | GUSN312 | GUSN316 | GUSN324 |
| 50/125-OM2e                        | GUSN402                                   | GUSN404 | GUSN406 | GUSN408 | GUSN412 | GUSN416 | GUSN424 |
| 50/125-OM2 BW 500/500              | GUSN502                                   | GUSN504 | GUSN506 | GUSN508 | GUSN512 | GUSN516 | GUSN524 |
| 50/125-OM4                         | GUSN602                                   | GUSN604 | GUSN606 | GUSN608 | GUSN612 | GUSN616 | GUSN624 |
| 9/125 ITU G.655                    | GUSN702                                   | GUSN704 | GUSN706 | GUSN708 | GUSN712 | GUSN716 | GUSN724 |
| 9/125 ITU G.652D-OS2               | GUSN802                                   | GUSN804 | GUSN806 | GUSN808 | GUSN812 | GUSN816 | GUSN824 |
| Std. plywood reel (non-returnable) | Ø800*475mm 7.65 kg<br>Ø1000*530mm 18.0 kg |         |         |         |         |         |         |
| Std. delivery length               | 2100m ± 100m<br>4100m ± 100m              |         |         |         |         |         |         |

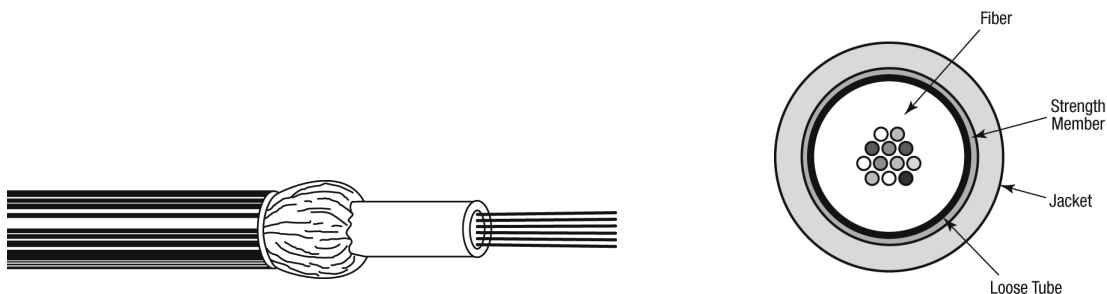
### Applications

- For **outdoor and indoor** use in structured (data) wiring systems such as **campus backbone, building backbone (riser)** and/or Horizontal cabling. Support all computer network applications such as **FDDI, Gigabit Ethernet and ATM**.
- Easy to install** in ducts, tunnels and trenches. Suitable for **direct burial**.

### Features & Benefits

- These cables are **halogen-free** (= FRNC and LSNH) and therefore suitable for both outdoor and indoor use. Consequently splicing can be avoided and the installation gets more cost-effective.
- A simple **all dielectric** cable construction (and consequently **more cost-effective up to 24 fibres** then multi-tube cables) with standard rodent protection.
- Predicted lifetime > 30 years**.

## Construction & Dimensions



### Cable Specifications (construction in accordance with IEC 60794)

- Primary coated optical fibres:  $\varnothing 250 \pm 15 \text{ um}$ .
- Central tube, jelly filled (**non-dripping and silicon-free**) with **up to 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 – grey – orange – turquoise – pink and white  
with rings.
- Swellable (for the longitudinal watertightness) yarns as strength members and for the standard rodent protection.
- Orange** halogen-free (FRNC/LSNH) outer jacket.  
Identification: BELDEN OFC – “cable type” – “number x type of fibre” +date-, meter- and P/N-marking.

### Mechanical Data

| No. of fibres                   | Max. 24   |
|---------------------------------|-----------|
| $\varnothing$ Central tube (mm) | 3.2       |
| $\varnothing$ nom./max. (mm)    | 5.8 / 6.1 |
| Energy of flame (kJ/m)          | 550       |
| Weight (kg/km)                  | 37        |

## 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<br>125 ± 0.7             | 1310<br>1550     | 0.32 / 0.40<br>0.21 / 0.30        | ≤ 3.5<br>≤ 18           | ≤ 0.2              | ≤ 1260                         |
| 7                                      | 9/125 G.655      | 8.4 ± 0.6<br>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<br>125 ± 1    | 850<br>1300      | 2.7 / 3.2<br>0.6 / 1.1            | ≥ 200<br>≥ 600     | 275<br>550               | 33<br>n.a.  | 0.275 ± 0.015    | 1.495<br>1.490 |
| 5                                      | 50/125 OM2   | 50 ± 2.5<br>125 ± 1      | 850<br>1300      | 2.4 / 3.0<br>0.7 / 1.0            | ≥ 500<br>≥ 500     | 600<br>600               | 82<br>n.a.  | 0.20 ± 0.015     | 1.481<br>1.476 |
| 2                                      | 50/125 OM2   | 50 ± 2.5<br>125 ± 1      | 850<br>1300      | 2.3 / 2.8<br>0.6 / 0.9            | ≥ 600<br>≥ 1200    | 600<br>600               | 82<br>n.a.  | 0.20 ± 0.015     | 1.481<br>1.476 |
| 4                                      | 50/125 OM2e  | 50 ± 2.5<br>125 ± 1      | 850<br>1300      | 2.3 / 2.8<br>0.6 / 0.9            | ≥ 600<br>≥ 1200    | 750<br>2000              | 110<br>na   | 0.20 ± 0.015     | 1.481<br>1.476 |
| 3                                      | 50/125 OM3   | 50 ± 2.5<br>125 ± 1      | 850<br>1300      | 2.5 / 3.0<br>0.5 / 1.0            | ≥ 1500<br>≥ 500    | 900<br>550               | 300<br>n.a. | 0.20 ± 0.015     | 1.482<br>1.477 |
| 6                                      | 50/125 OM4   | 50 ± 2.5<br>125 ± 1      | 850<br>1300      | 2.5 / 3.0<br>0.5 / 1.0            | ≥ 6000<br>≥ 500    | 900<br>550               | 550<br>n.a. | 0.20 ± 0.015     | 1.482<br>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<br>Transport/storage<br>Installation<br>Operation     | -30 to + 70 °C<br>-5 to + 50 °C<br>-30 to + 70 °C |
| <b>Pulling tension</b> according to IEC 60794-1-2-E1<br>Long term<br>Short term                              | ≤ 700 N<br>≤ 1500 N                               |
| <b>Bending radii for fibres and tubes</b><br>Installation/operation                                          | >25 mm                                            |
| <b>Watertightness</b> according to IEC 60794-1-2-F5                                                          | Yes                                               |
| <b>Crush resistance</b> according to IEC 60794-1-2-E3<br>Cable                                               | ≤ 15000 N/ m                                      |
| <b>Bending radii cable</b><br>Static according to IEC 60794-1-2-E11<br>Dynamic according to IEC 60794-1-2-E6 | 10 x Ø<br>15 x Ø                                  |
| <b>Flame retardancy</b> according to<br>IEC 60332-1 (EN 50265-2-1)                                           | Pass                                              |
| <b>Halogen-free</b> according to IEC 60754-2 (EN 50267-2-2)<br>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

- Outdoor cables with a black PE outer jacket.
- **Non-standard cable constructions**, colours, details and/or additional information regarding specifications are available on request.

## Revision

| Rev.           | Description                                          | Date                        | Init. |
|----------------|------------------------------------------------------|-----------------------------|-------|
| 1.1            | Changed flame retardancy from IEC 332-3C to IEC332-1 | 02/04/2009                  | TvR   |
| 2.0            | OM3+ changed to OM4                                  | 12/10/09                    | JW    |
| 3.0            | OS2 added                                            | 25/11/09                    | JW    |
| 4.0            | Crush resistance increased                           | 29/03/10                    | SN    |
| Date: 17/02/09 |                                                      | Part Number:<br><b>GUSN</b> |       |
| Page 1 of 1    |                                                      |                             |       |
| Orig.: SN      |                                                      | Review:                     |       |