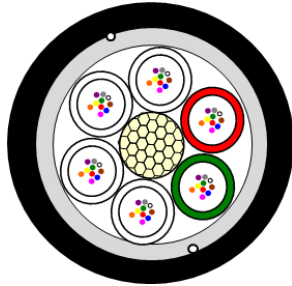


DUCT OPTICAL CABLE – A-DQ(ZN)B2Y

Cable Design

IEC/EN 60794-3-10



-72F version illustrated not to scale -

- **Central Strength Member (CSM):** glass fibres reinforced plastic material (GRP) overheating when needed.
- **Loose Tubes:** thermoplastic material containing up to 12 optical fibres and filled with a suitable water tightness compound.
- **Filler Elements:** thermoplastic rods, where needed.
- **Stranding:** loose tubes, SZ stranded around the CSM.
- **Longitudinal Water Tightness:** water swellable materials (dry core).
- **Peripheral Strength Elements:** glass yarns.
- **Outer Sheath:** HDPE, 2 ripcords beneath.

This dielectric optical cable is designed for duct installation technique.

Technical data

| No. of Fibres | | 4 | 8 | 12 | 16 | 20 | 24 | 6 | 12 | 18 | 24 | 30 | 36 | 48 | | |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| Design | - | 1x4 | 2x4 | 3x4 | 4x4 | 5x4 | 6x4 | 1x6 | 2x6 | 3x6 | 4x6 | 5x6 | 6x6 | 8x6 | | |
| Number of fillers | - | 5 | 4 | 3 | 2 | 1 | - | 5 | 4 | 3 | 2 | 1 | - | - | | |
| Tube diameter - ø | mm | 1.8 | | | | | | | | | | | | | | |
| CSM / Enlargement - ø | mm | 1.8 | | | | | | | | | | | | | | |
| Sheath thickness | mm | 1.3 | | | | | | | | | | | | | | |
| Cable diameter - ø | mm | 8.5 | | | | | | | | | | | | | | |
| Cable weight | Kg/Km | 61 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| No. of Fibres | | 8 | 16 | 24 | 32 | 40 | 48 | 10 | 12 | 24 | 36 | 48 | 60 | 72 | 96 | 144 |
| Design | - | 1x8 | 2x8 | 3x8 | 4x8 | 5x8 | 6x8 | 1x10 | 1x12 | 2x12 | 3x12 | 4x12 | 5x12 | 6x12 | 8x12 | 12x12 |
| Number of fillers | - | 5 | 4 | 3 | 2 | 1 | - | 5 | 4 | 3 | 2 | 1 | - | - | - | - |
| Tube diameter - ø | mm | 1.8 | | | | | | | | | | | | | | |
| CSM / Enlargement - ø | mm | 1.8 | | | | | | | | | | | | | | |
| Sheath thickness | mm | 1.3 | | | | | | | | | | | | | | |
| Cable diameter, max-ø | mm | 8.5 | | | | | | | | | | | | | | |
| Cable weight | Kg/Km | 61 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| No. of Fibres | | 156 | 168 | 180 | 192 | 204 | 216 | 228 | 240 | 252 | 264 | 276 | 288 | | | |
| Design | - | 13x12 | 14x12 | 15x12 | 16x12 | 17x12 | 18x12 | 19x12 | 20x12 | 21x12 | 22x12 | 23x12 | 24x12 | | | |
| Number of fillers | - | 7 | 6 | 5 | 4 | 3 | 2 | 1 | - | 3 | 2 | 1 | - | | | |
| Tube diameter - ø | mm | 1.95 | | | | | | | | | | | | | | |
| CSM / Enlargement - ø | mm | 2.7/- | | | | | | | | | | | | | | |
| Sheath thickness | mm | 1.3 | | | | | | | | | | | | | | |
| Cable diameter, max-ø | mm | 14.2 | | | | | | | | | | | | | | |
| Cable weight | Kg/Km | 150 | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|---------------------|----|-------------------------------------|--|--|--|--|--|-----------------------------|--|--|--|--|--|--------------------------|--|--|--|--|--|
| Min. bending radius | mm | Under Maximum Tension: 20xCable-ø | | | | | | Without Tension: 15xCable-ø | | | | | | | | | | | |
| Temperature range | °C | Transport & Storage : -40 -> +70 | | | | | | Installation: -15 -> +60 | | | | | | Operation: -40 -> +70 | | | | | |

Main characteristics

| Test | Standard | Value | Requirement* |
|---------------------------------|-------------------|--------------------------------|-----------------------------------------------------------|
| Tensile strength - Installation | IEC 60794-1-2-E1 | 4÷72fo 2700N 96÷288fo 3000N | $\Delta l/l$ fibre \leq 0.6%, $\Delta\alpha$ reversible |
| Tensile strength - Operation | IEC 60794-1-2-E1 | 4÷72fo 1350N 96÷288fo 1500N | $\Delta l/l$ fibre \leq 0.2%, $\Delta\alpha$ reversible |
| Crush | IEC 60794-1-2-E3 | 2000N/100mm, max. 5min | $\Delta\alpha \leq$ 0.05 dB under test, no damage |
| Impact | IEC 60794-1-2-E4 | 10 J, 1 impacts, R=300 mm | $\Delta\alpha \leq$ 0.05 dB after the test, no damage |
| Repeated Bending | IEC 60794-1-2-E6 | R=20xOD, 100N, 35 cycles | $\Delta\alpha \leq$ 0.05 dB after the test, no damage |
| Cable Torsion | IEC 60794-1-2-E7 | \pm 180°, 2 m, 5 cycles | $\Delta\alpha \leq$ 0.05 dB after the test, no damage |
| Cable Bend | IEC 60794-1-2-E11 | R=15xOD, 3 cycles, 5 turns | $\Delta\alpha \leq$ 0.05 dB after the test, no damage |
| Temperature Cycling | IEC 60794-1-2-F1 | -40 -> +70 °C, 2 cycles, | $\Delta\alpha \leq$ 0.10 dB/Km, reversible |
| Water Penetration | IEC 60794-1-2-F5B | 3 m sample, 24 h | No water penetration |

* values for single-mode fibres, all optical measurements performed at 1550 nm

Optical Characteristics

See the attached cabled optical fibre data sheet.

Identification

Fibre Colors:

| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-------|-----|-------|------|--------|-------|------|-------|--------|------|-------|--------|------|
| Color | red | green | blue | yellow | white | grey | brown | violet | aqua | black | orange | pink |
| | | | | | | | | | | | | |

Tube Colors:

| Fiber Count | | Elements | | | | | | | | | | | | | | |
|---------------------------------------|-----------------------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| No. of tubes x no. of fibres per tube | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 1 x 4, 1 x 6, 1 x 8, 1 x 12, 1x10 | | RDxT | NF | NF | NF | NF | NF | - | - | - | - | - | - | - | - | - |
| 2 x 4, 2 x 6, 2 x 8, 2 x 12 | | RDxT | GRxT | NF | NF | NF | NF | - | - | - | - | - | - | - | - | - |
| 3 x 4, 3 x 6, 3 x 8, 3 x 12 | | RDxT | GRxT | WHxT | NF | NF | NF | - | - | - | - | - | - | - | - | - |
| 4 x 4, 4 x 6, 4 x 8, 4 x 12 | | RDxT | GRxT | WHxT | WHxT | NF | NF | - | - | - | - | - | - | - | - | - |
| 5 x 4, 5 x 6, 5 x 8, 5 x 12 | | RDxT | GRxT | WHxT | WHxT | WHxT | NF | - | - | - | - | - | - | - | - | - |
| 6 x 4, 6 x 6, 6 x 8, 6 x 12 | | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - | - | - |
| 8 x 6, 8 x 12 | | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - |
| 10 x 12 | | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF | NF | - | - | - |
| 12 x 12 | | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - |
| 13 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - | - |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | NF | NF | NF | NF | NF | NF | NF | - | - |
| 14 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - | - |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF | NF | NF | NF | NF | NF | - | - |
| 15 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - | - |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF | NF | NF | NF | NF | - | - |
| 16 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - | - |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF | NF | NF | NF | - | - |
| 17 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - | - |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF | NF | NF | - | - |
| 18 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - | - |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF | NF | - | - |
| 19 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - | - |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF | - | - |
| 20 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | - | - | - | - | - | - | - | - |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | - |
| 21 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF | NF | NF |
| 22 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF | NF |
| 23 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | NF |
| 24 x 12 | 1 st layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT |
| | 2 nd layer | RDxT | GRxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT | WHxT |

Where: *RDxT*=Red tube with *x* fibres, *GRxT*=Green tube with *x* fibres, *WHxT*=WHITE tube with *x* fibres, *NF* = Natural Filler.

Note: in case of Hybrid cable, the NZD fiber will be placed starting with first tube (the red one).

Sheath Color:

The outer sheath color is black.

Sheath Marking:

The outer sheath is marked in 1 meter intervals by hot print foil method as follows:

PRYSMIAN(S) wwyyyy A-DQ(ZN)B2Y m x n < fibre type> mmmm

where: wwyyyy= week/year, m = no. of tubes, n = no. of fibres, mmmm = Sequential Length Mark
<fibre type> = i.e. G.652D, G.655C, G.657A2, etc.

Logistic

Packing:

Wooden drums with protection.

Delivery Lengths: 2000 ± 100 m; 4000 ± 200 m.

Other lengths available upon agreement, up to a maximum of 10% of the total number of cable lengths could be shorter than nominal values.

© PrysmianGroup 2017, All Rights Reserved

All sizes and values without tolerances are reference values. Specifications are for product as supplied by PrysmianGroup: any modification or alteration afterwards of product may give different result.

The information contained within this document must not be copied, reprinted or reproduced in any form, either wholly or in part, without the written consent of PrysmianGroup. The information is believed to be correct at the time of issue. PrysmianGroup reserves the right to amend this specification without prior notice. This specification is not contractually valid unless specifically authorized by PrysmianGroup.