

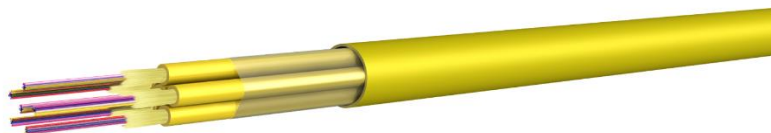
## Fiber Optic Cables

**OptiRibbon Breakout 4 x 2.0mm LSFH Ø 6.6mm B2ca**

48-12...R/(ZN)SNH-...20#B

**Properties**

- Metal free indoor cable
- Strain relieved with aramide yarn
- Ripcord for easy jacked removal
- Low smoke, halogen free and self-extinguishing
- Cable with improved fire performance



Jacket colour

**General data**

|                 |                 |              |
|-----------------|-----------------|--------------|
| Fiber           | Quantity: up to | 48           |
| Strength member | Quantity        | 1 pcs        |
|                 | Type            | central      |
| Strain relief   | Type            | aramide yarn |
|                 | Quantity        | 4 pcs        |
| Inner jacket    | Type            | Fiber bundle |
|                 | Diameter        | 2mm          |
|                 | Quantity        | 1 pcs        |
| Tape            | Type            | Tape         |
|                 | Quantity        | 1 pcs        |
| Rip Cord        | Quantity        | 1 pcs        |
| Outer Jacket    | Material        | LSFH         |
|                 | Diameter        | 6.6mm        |

**Environmental data**

|                   |                     |                            |
|-------------------|---------------------|----------------------------|
| CPR class         | Standard            | EN 50575:2014+A1:2016      |
|                   | Class               | B2ca-s1b,d0,a1             |
| Temperature       | Standard            | IEC 60794-1-22 F12         |
|                   | During installation | -10°C ... 60°C             |
|                   | In service          | -20 °C ... 70 °C           |
|                   | In storage          | -40 °C ... 70 °C           |
| Flame propagation | Standard            | IEC 60332-1-2              |
|                   | Condition           | On a vertical single cable |
|                   | Standard            | IEC 60332-3-25             |
|                   | Condition           | On a vertical cable bundle |

## Fiber Optic Cables

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48-12...R/(ZN)SNH-...20#B

**Environmental data**

|                      |                                    |                                                    |
|----------------------|------------------------------------|----------------------------------------------------|
| Fire characteristics | Standard Condition Characteristics | IEC 61034-2<br>Cable<br>Smoke density              |
|                      | Standard Condition Characteristics | IEC 60754-1<br>Jacket material<br>Halogen acid gas |
|                      | Standard Condition Characteristics | IEC 60754-2<br>Cable<br>Degree of acidity          |

**Mechanical data**

|                     |                     |                    |
|---------------------|---------------------|--------------------|
| Weight              |                     | Approx. 45 g/m     |
| Tensile strength    | Standard            | IEC 60794-1-2 E1   |
|                     | During installation | 1500 N             |
|                     | In service          | 400 N              |
| Min. bending radius | Standard            | IEC 60794-1-2 E11  |
|                     | During installation | 90 mm              |
|                     | In service          | 60 mm              |
| Crush resistance    | Standard            | IEC 60794-1-2 E3   |
|                     | During installation | 5000 N/dm          |
|                     | In service          | 1000 N/dm          |
| Impact resistance   | Standard            | IEC 60794-1-21 E4  |
|                     | Energy              | 1 J                |
|                     | Cycles              | 50                 |
| Kink resistance     | Standard            | IEC 60794-1-21 E10 |
|                     | Radius              | 20 mm              |

**Colours**

|                               |                          |
|-------------------------------|--------------------------|
| Fiber                         | According to colour code |
| Inner jacket                  | Numbered, E9: YE         |
| Standard outer jacket colours | Yellow                   |

**Type of fiber**

| Fiber type | Fiber standard                                        |
|------------|-------------------------------------------------------|
| E9/125A2   | according to IEC 60793-2-50 B-657.A2 + ITU-T G.657.A2 |

**Fiber colour code**

|     | 1    | 2      | 3     | 4     | 5    | 6     | 7   | 8     | 9      | 10     | 11             | 12        |
|-----|------|--------|-------|-------|------|-------|-----|-------|--------|--------|----------------|-----------|
| TIA | Blue | Orange | Green | Brown | Grey | White | Red | Black | Yellow | Violet | Heather violet | Turquoise |

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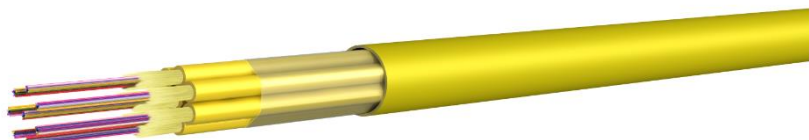
## Fiber Optic Cables

**OptiRibbon Breakout 8 x 2.0mm LSFH Ø 9.6mm B2ca**

96-12...R/(ZN)SNH-...20#B

**Properties**

- Metal free indoor cable
- Strain relieved with aramide yarn
- Ripcord for easy jacked removal
- Low smoke, halogen free and self-extinguishing
- Cable with improved fire performance



Jacket colour

**General data**

|                 |                 |              |
|-----------------|-----------------|--------------|
| Fiber           | Quantity: up to | 96           |
| Strength member | Quantity        | 1 pcs        |
|                 | Type            | central      |
| Strain relief   | Type            | aramide yarn |
| Inner jacket    | Quantity        | 8 pcs        |
|                 | Type            | Fiber bundle |
|                 | Diameter        | 2mm          |
| Tape            | Quantity        | 1 pcs        |
|                 | Type            | Tape         |
| Rip Cord        | Quantity        | 1 pcs        |
| Outer Jacket    | Material        | LSFH         |
|                 | Diameter        | 9.6mm        |

**Environmental data**

|                   |                     |                            |
|-------------------|---------------------|----------------------------|
| CPR class         | Standard            | EN 50575:2014+A1:2016      |
|                   | Class               | B2ca-s1b,d0,a1             |
| Temperature       | Standard            | IEC 60794-1-22 F12         |
|                   | During installation | -10°C ... 60°C             |
|                   | In service          | -20 °C ... 70 °C           |
|                   | In storage          | -40 °C ... 70 °C           |
| Flame propagation | Standard            | IEC 60332-1-2              |
|                   | Condition           | On a vertical single cable |
|                   | Standard            | IEC 60332-3-25             |
|                   | Condition           | On a vertical cable bundle |

## Fiber Optic Cables

**OptiRibbon Breakout 8 x 2.0mm LSFH Ø 9.6mm B2ca**

96-12...R/(ZN)SNH-...20#B

**Environmental data**

|                      |                                    |                                                    |
|----------------------|------------------------------------|----------------------------------------------------|
| Fire characteristics | Standard Condition Characteristics | IEC 61034-2<br>Cable<br>Smoke density              |
|                      | Standard Condition Characteristics | IEC 60754-1<br>Jacket material<br>Halogen acid gas |
|                      | Standard Condition Characteristics | IEC 60754-2<br>Cable<br>Degree of acidity          |

**Mechanical data**

|                     |                     |                    |
|---------------------|---------------------|--------------------|
| Weight              |                     | Approx. 93 g/m     |
| Tensile strength    | Standard            | IEC 60794-1-2 E1   |
|                     | During installation | 2000 N             |
|                     | In service          | 800 N              |
| Min. bending radius | Standard            | IEC 60794-1-2 E11  |
|                     | During installation | 130 mm             |
|                     | In service          | 90 mm              |
| Crush resistance    | Standard            | IEC 60794-1-2 E3   |
|                     | During installation | 5000 N/dm          |
|                     | In service          | 1000 N/dm          |
| Impact resistance   | Standard            | IEC 60794-1-21 E4  |
|                     | Energy              | 1 J                |
|                     | Cycles              | 50                 |
| Kink resistance     | Standard            | IEC 60794-1-21 E10 |
|                     | Radius              | 25 mm              |

**Colours**

|                               |                          |
|-------------------------------|--------------------------|
| Fiber                         | According to colour code |
| Inner jacket                  | Numbered, E9: YE         |
| Standard outer jacket colours | Yellow                   |

**Type of fiber**

| Fiber type | Fiber standard                                        |
|------------|-------------------------------------------------------|
| E9/125A2   | according to IEC 60793-2-50 B-657.A2 + ITU-T G.657.A2 |

**Fiber colour code**

|     | 1    | 2      | 3     | 4     | 5    | 6     | 7   | 8     | 9      | 10     | 11             | 12        |
|-----|------|--------|-------|-------|------|-------|-----|-------|--------|--------|----------------|-----------|
| TIA | Blue | Orange | Green | Brown | Grey | White | Red | Black | Yellow | Violet | Heather violet | Turquoise |

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