



10 Optical Fiber

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Please refer to "Terms of Use of Master Catalog" on page 22.22

Cable Selection Guide

Introduction

The Belden line of Optical Fiber Cables represents a new selection of the best optical fiber cable products offered by the consolidated resources of the Belden organization. The unmatched resources of Belden have now generated a complete line of indoor and outdoor cable products in tight buffered and loose tube constructions. This offering now expands the available applications for Belden optical fiber cable.

Customer Service

Most of our optical fiber cables are available from stock. Many of these are available off-the-shelf from distributors. If you have a new or unusual application, or you cannot find a optical fiber cable in this catalog section that meets your technical requirements, contact Technical Support at 1-800-BELDEN-1 for additional information.

Cable Selection Guide

Optical Fiber

Fiber Selection Chart

| Type | Grade | Fiber Size (μ) | Standards Compliance | Link Length (m) | Data Rate (Gb) |
|----------------|----------|-------------------------|---|-----------------|----------------|
| Multimode | 6 | 50/125 | exceeds TIA/EIA-568-B.3-1 ISO 11801 OM3 | 500 | 10 |
| | 5 | 50/125 | TIA/EIA-568-B.3-1 ISO 11801 OM3 | 300 | 10 |
| | 4 | 50/125 | TIA/EIA-568-B.3 | 600 | 1 |
| | 3 | 62.5/125 | TIA/EIA-568-B.3 | 1,000 | 1 |
| | 2 | 62.5/125 | TIA/EIA-568-B.3 | 550 | 1 |
| 1 [▲] | 62.5/125 | FDDI grade [†] | — | — | — |
| Single-mode | — | — | ITU G.652.c/d ^{††} | — | — |

[▲] Grade 1 fibers are available upon request.

[†] Used in most current cable plants, but not recommended for future installations, except as patch cordage

^{††} Low water peak fiber with advantages for CWDM applications

Color Code Charts

Jacket Color Chart

| Cable Type | Jacket Color |
|-----------------------------------|--------------|
| Loose Tube & Outside Plant Cables | Black |
| Industrial Tray Cables | Orange |
| Tight Buffered Cables | |
| Grades 2,3,4 | Orange |
| Grades 5,6 | Aqua |
| Single-mode | Yellow |

Nonstandard jacket colors are available upon request.

Fiber Sub-unit Color Code Chart*

| Fiber/Tube No. | Color | Fiber/Tube No. | Color |
|----------------|--------|----------------|--------|
| 1 | Blue | 7 | Red |
| 2 | Orange | 8 | Black |
| 3 | Green | 9 | Yellow |
| 4 | Brown | 10 | Violet |
| 5 | Slate | 11 | Rose |
| 6 | White | 12 | Aqua |

*Per EIA/TIA 598-A

Optical Specifications

| Grade: | 2 | 3 | 4 | 5 | 6 | Single-mode Enhanced [§] |
|--|-----------|-----------|-----------|------------------------|------------------------|-----------------------------------|
| Glass Type: | 62.5/125μ | 62.5/125μ | 50/125μ | 50/125μ | 50/125μ | |
| Operating Wavelength (nm) | 850/1300 | 850/1300 | 850/1300 | 850/1300 | 850/1300 | 1310/1550 |
| Min. OFL ¹ Bandwidth (MHz-km) | 200/500 | 200/500 | 500/500 | 1500/500 | 3000/500 | — |
| Min. Laser ² Bandwidth (MHz-km) | 220/500 | 385/500 | 510/500 | 2000/500 | 4000/500 | — |
| Max. Attenuation Loose Tube (dB/km) | 3.25/1.0 | 3.25/1.0 | 3.0/1.0 | 3.0/1.0 | 3.0/1.0 | 0.40/0.30 |
| Max. Attenuation Tight Buffered ³ (dB/km) | 3.50/1.25 | 3.50/1.25 | 3.50/1.25 | 3.50/1.25 | 3.50/1.25 | 0.80/0.50 |
| 100 Mb Fast Ethernet Min. Link Length (meters S/L ⁴) | 300/2000 | 300/2000 | 300/2000 | 300/2000 | 300/2000 | —/5000 |
| 1 Gb Ethernet Min. Link Length (meters S/L ⁴) | 300/550 | 500/1000 | 600/600 | 1000 ⁵ /600 | 1000 ⁵ /600 | —/5000 |
| 10 Gb Ethernet Min. Link Length (meters S/L ⁴) | 35/300 | 35/300 | 85/300 | 300/300 | 500/300 | —/10,000 |

¹ OFL = Overfilled Launch

² Effective Modal Bandwidth, determined by RML or DMD performance specifications

³ Max. Attenuation for Tight Buffered, Ribbon, Micro-Loose Tube and Loose Tube Plenum Cables

⁴ S/L = Short wavelength (850 nm) / Long wavelength (1310 nm)

⁵ >2000 meters for engineered links

⁶ Low water peak Single-Mode suitable for CWDM use complies with ITU G.652.c/d

Interconnect Cable — Simplex and Duplex

Tight Buffer — Riser & Plenum Rated

Applications

- Patch panels
- Workstation equipment connections
- Horizontal distribution in open office environments

Product Description

Interconnect Cables are designed for low fiber-count premises environments. They are small and very flexible, making them ideal for confined spaces. Their aesthetic appearance makes these cables suitable for use in open office environments. Available in 1 or 2 fibers. One sub-unit is marked to permit easy identification of transmit and receive fibers. Length markings to facilitate installation.

| | |
|----------------------------------|----------------------------------|
| Jacket Material | PVC |
| Tight Buffer | PVC |
| Strength Member | Aramid Yarn |
| Color Code (Tight Buffer) | Per EIA/TIA 598-A, see page 10.2 |
| Jacket Color | |
| Single-mode | Yellow |
| 62.5/125 μm | Orange |
| 50/125 μm / 1 Gbe | Orange |
| 50/125 μm / 10 Gbe | Aqua |

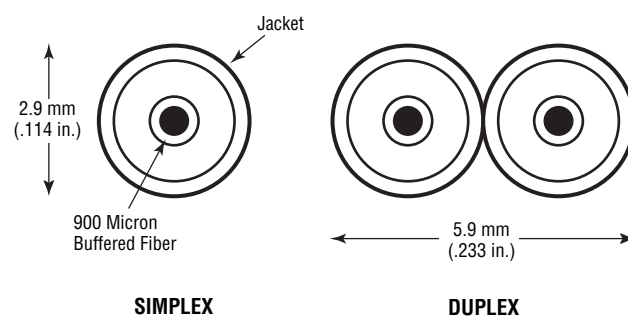
Ratings

| | |
|------------------|----------|
| Riser | |
| UL Type | OFNR |
| cUL Type | OFN FT4 |
| Flame Resistance | UL 1666 |
| Plenum | |
| UL Type | OFNP |
| cUL Type | OFN FT6 |
| Flame Resistance | NFPA 262 |

Specifications

| | |
|---------------------------------------|----------------------|
| Temperature Range | |
| Storage | -40 to +70°C |
| Operating | -20 to +70°C |
| Crush Resistance (EIA-455-41) | 200 N/cm |
| Impact Resistance (EIA-455-25) | 20 Impacts @ 1.0 N-m |
| Cyclic Flexing (EIA-455-104) | 2000 cycles, min. |
| Min. Bend Radius | |
| Installation | 15 x OD |
| Long Term | 10 x OD |
| Optical Specifications | See page 10.2 |

Fiber Bundle Detail



| No. of Fibers | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|---------------------------|-------------------------|--------------------------|----------------------|------------------|----|------------|-------|-------------------|---|
| | 62.5 / 125μm Std. / 1 Gbe | 50 / 125μm Std. / 1 Gbe | 50 / 125μm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Interconnect Cable Series

| Riser (NEC/CEC OFNR/OFN FT4) | | | | | | | | | | |
|-------------------------------|--------|--------|--------|--------|-------------|-----------|----|----|-----|-----|
| 1 | M97112 | M9A001 | M9C001 | M9W001 | 0.114 | 2.9 | 6 | 9 | 90 | 400 |
| 2 | M96915 | M9A002 | M9C002 | M9W002 | 0.11 x 0.23 | 2.9 x 5.9 | 12 | 18 | 180 | 801 |
| Plenum (NEC/CEC OFNP/OFN FT6) | | | | | | | | | | |
| 1 | M98086 | M9A003 | M9C003 | M9W003 | 0.114 | 2.9 | 6 | 9 | 90 | 400 |
| 2 | M96919 | M9A004 | M9C004 | M9W004 | 0.11 x 0.23 | 2.9 x 5.9 | 13 | 19 | 180 | 801 |

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

Distribution Cable

Tight Buffer — Indoor Riser, Plenum & LSZH Rated

Applications

- Low to high fiber count requirements
- In-building backbone
- Fiber-to-the-desk applications
- Computer room

Product Description

Flexible thermoplastic jacket provides excellent handling characteristics. Fibers and cable sub-units are color coded for easy identification. Length markings in meters for easy determination of cable length. Full dielectric construction, no grounding required. For Riser offering, MSHA approved cables are available.

Jacket Material

| | |
|-----------------------------|------|
| Riser & Non-unitized Plenum | PVC |
| Unitized Plenum | PVDF |
| Low Smoke Zero Halogen | LSZH |

Tight Buffer

| | |
|------------------------|------|
| Riser & Plenum | PVC |
| Low Smoke Zero Halogen | LSZH |

Strength Member

Aramid Yarn

Color Code (Tight Buffer)

Per EIA/TIA 598-A, see page 10.2

Jacket Color

| | |
|-------------------------|------------------------------|
| Single-mode | Yellow |
| 62.5/125 μ m | Orange (Green for LSZH only) |
| 50/125 μ m / 1 Gbe | Orange |
| 50/125 μ m / 10 Gbe | Aqua |

Ratings

Riser

| | |
|------------------|---------|
| UL Type | OFNR |
| cUL Type | OFN FT4 |
| Flame Resistance | UL 1666 |

Plenum

| | |
|------------------|----------|
| UL Type | OFNP |
| cUL Type | OFN FT6 |
| Flame Resistance | NFPA 262 |

Low Smoke Zero Halogen

| | |
|------------------|---------|
| UL Type | OFNR |
| cUL Type | OFN FT4 |
| Flame Resistance | UL 1666 |

Specifications

Temperature Range

| | |
|-----------|--------------|
| Storage | -40 to +80°C |
| Operating | -20 to +70°C |

Crush Resistance (EIA-455-41) 2000 N/cm

Impact Resistance (EIA-455-25) 2000 Impacts @ 1.6 N-m

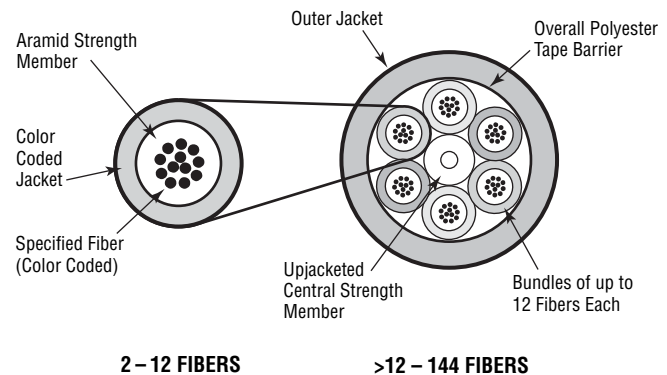
Cyclic Flexing (EIA-455-104) 2000 cycles, min.

Min. Bend Radius

| | |
|--------------|---------|
| Installation | 15 x OD |
| Long Term | 10 x OD |

Optical Specifications See page 10.2

Fiber Bundle Detail



Distribution Cable

Tight Buffer — Indoor Riser, Plenum & LSZH Rated (*continued*)

| No. of Fibers | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|------------------------------|----------------------------|-----------------------------|-------------------------|------------------|----|------------|-------|-------------------|---|
| | 62.5 / 125µm Std. / 1 Gbe | 50 / 125µm Std. / 1 Gbe | 50 / 125µm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Distribution Cable Series

Riser (NEC/CEC OFNR/OFN FT4)

| | | | | | | | | | | |
|-----|---------|---------|---------|---------|-------|-------|-----|-----|------|-------|
| 2 | M9B037 | M9A037 | M9C037 | M9W037 | 0.184 | 4.67 | 13 | 19 | 180 | 801 |
| 4 | M9B038 | M9A038 | M9C038 | M9W038 | 0.200 | 5.08 | 16 | 24 | 195 | 867 |
| 6 | M9B039 | M9A039 | M9C039 | M9W039 | 0.220 | 5.59 | 19 | 28 | 270 | 1201 |
| 8 | M9B040 | M9A040 | M9C040 | M9W040 | 0.235 | 5.97 | 22 | 33 | 270 | 1201 |
| 12 | M9B042 | M9A042 | M9C042 | M9W042 | 0.255 | 6.48 | 27 | 40 | 300 | 1334 |
| 24 | M9B601* | M9A601* | M9C601* | M9W601* | 0.325 | 8.26 | 42 | 63 | 390 | 1735 |
| 24 | M9B602 | M9A602 | M9C602 | M9W602 | 0.496 | 12.60 | 83 | 124 | 960 | 4270 |
| 36 | M9B604 | M9A604 | M9C604 | M9W604 | 0.644 | 16.36 | 137 | 204 | 1440 | 6405 |
| 48 | M9B606 | M9A606 | M9C606 | M9W606 | 0.627 | 15.93 | 131 | 195 | 945 | 4203 |
| 72 | M9B609 | M9A609 | M9C609 | M9W609 | 0.750 | 19.10 | 195 | 290 | 1350 | 6005 |
| 96 | M9B622 | M9A622 | M9C622 | M9W622 | 0.895 | 22.70 | 290 | 432 | 1983 | 8820 |
| 144 | M9B619 | M9A619 | M9C619 | M9W619 | 0.964 | 24.49 | 314 | 467 | 2745 | 12210 |

Composite Riser Cables

6xSM/12x62.5 M96992

12xSM/12x62.5 M96963

6xSM/12x50 M96909

12xSM/12x50 M96908

Plenum (NEC/CEC OFNP/OFN FT6)

| | | | | | | | | | | |
|-----|---------|---------|---------|---------|-------|-------|-----|-----|------|-------|
| 2 | M9B043 | M9A043 | M9C043 | M9W043 | 0.184 | 4.67 | 14 | 21 | 180 | 801 |
| 4 | M9B044 | M9A044 | M9C044 | M9W044 | 0.174 | 4.42 | 13 | 19 | 195 | 867 |
| 6 | M9B045 | M9A045 | M9C045 | M9W045 | 0.190 | 4.83 | 16 | 24 | 270 | 1201 |
| 8 | M9B046 | M9A046 | M9C046 | M9W046 | 0.222 | 5.64 | 19 | 28 | 270 | 1201 |
| 12 | M9B048 | M9A048 | M9C048 | M9W048 | 0.225 | 5.72 | 22 | 33 | 300 | 1334 |
| 24 | M9B611* | M9A611* | M9C611* | M9W611* | 0.330 | 8.38 | 40 | 60 | 390 | 1735 |
| 24 | M9B612 | M9A612 | M9C612 | M9W612 | 0.493 | 12.52 | 89 | 132 | 1263 | 5618 |
| 36 | M9B614 | M9A614 | M9C614 | M9W614 | 0.594 | 15.09 | 134 | 199 | 1913 | 8509 |
| 48 | M9B616 | M9A616 | M9C616 | M9W616 | 0.599 | 15.21 | 131 | 195 | 1245 | 5538 |
| 72 | M9B620 | M9A620 | M9C620 | M9W620 | 0.754 | 19.15 | 197 | 293 | 2093 | 9310 |
| 96 | M9B623 | M9A623 | M9C623 | M9W623 | 0.904 | 22.96 | 268 | 399 | 2160 | 9608 |
| 144 | M9B621 | M9A621 | M9C621 | M9W621 | 1.047 | 26.59 | 365 | 543 | 3645 | 16213 |

Composite Plenum Cables

6xSM/6x62.5 M97174

6xSM/12x62.5 M97041

12xSM/12x62.5 M97219

6xSM/6x50 M97412

6xSM/12x50 M97411

12xSM/12x50 M96780

LSZH (NEC/CEC OFNR/OFN FT4)

| | | | | | | | | | | |
|-----|--------|--------|--------|--------|-------|-------|-----|-----|------|------|
| 2 | M9B100 | M9A100 | M9C100 | M9W100 | 0.184 | 4.70 | 15 | 22 | 180 | 800 |
| 4 | M9B101 | M9A101 | M9C101 | M9W101 | 0.200 | 5.10 | 17 | 25 | 195 | 867 |
| 6 | M9B102 | M9A102 | M9C102 | M9W102 | 0.220 | 5.60 | 21 | 31 | 270 | 1201 |
| 8 | M9B103 | M9A103 | M9C103 | M9W103 | 0.235 | 6.00 | 24 | 36 | 270 | 1201 |
| 12 | M9B104 | M9A104 | M9C104 | M9W104 | 0.255 | 6.50 | 29 | 43 | 300 | 1334 |
| 16 | M9B105 | M9A105 | M9C105 | M9W105 | 0.347 | 8.80 | 43 | 63 | 315 | 1400 |
| 24 | M9B107 | M9A107 | M9C107 | M9W107 | 0.386 | 9.80 | 54 | 79 | 450 | 2000 |
| 36 | M9B111 | M9A111 | M9C111 | M9W111 | 0.798 | 20.00 | 214 | 313 | 1619 | 7200 |
| 48 | M9B112 | M9A112 | M9C112 | M9W112 | 0.835 | 21.20 | 237 | 347 | 1619 | 7200 |
| 72 | M9B114 | M9A114 | M9C114 | M9W114 | 0.883 | 22.40 | 270 | 395 | 1619 | 7200 |
| 96 | M9B116 | M9A116 | M9C116 | M9W116 | 0.973 | 24.70 | 364 | 532 | 1619 | 7200 |
| 144 | M9B120 | M9A120 | M9C120 | M9W120 | 1.087 | 27.60 | 384 | 561 | 1619 | 7200 |

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.
Construction for LSZH cables differs from the drawing. Alternative fiber counts are available.

*Single jacket design.

BELDEN

For more information, contact Belden Technical Support: 1-800-BELDEN-1 • www.belden.com

Belden114@CableCon.kr / 0707-434-7704 / Fax. 02-744-0909 / www.CableCon.co.kr

Breakout Style Cable

Tight Buffer — Indoor Riser, Plenum & LSZH Rated

Applications

- Low to medium fiber count requirements
- In-building backbone or horizontal deployment
- Office wiring
- Factory floor automation and harsh environment installations

Product Description

Full dielectric construction, no grounding required. Available with 2 to 36 fibers. Fiber subunits are color coded for easy identification. Length markings in meters for easy determination of cable length. For Riser offering, MSHA approved cables are available.

Outer Jacket Material

| | |
|------------------------|------|
| Riser & Plenum | PVC |
| Plenum | PVDF |
| Low Smoke Zero Halogen | LSZH |

Sub-unit Jacket Material

| | |
|------------------------|------|
| Riser & Plenum | PVC |
| Low Smoke Zero Halogen | LSZH |

Tight Buffer

| | |
|------------------------|------|
| Riser & Plenum | PVC |
| Low Smoke Zero Halogen | LSZH |

Strength Member

Aramid Yarn

Color Code (Tight Buffer) Per EIA/TIA 598-A, see page 10.2

Jacket Color

| | |
|-------------------------|------------------------------|
| Single-mode | Yellow |
| 62.5/125 μ m | Orange (Green for LSZH only) |
| 50/125 μ m / 1 Gbe | Orange |
| 50/125 μ m / 10 Gbe | Aqua |

Ratings

Riser

| | |
|------------------|---------|
| UL Type | OFNR |
| cUL Type | OFN FT4 |
| Flame Resistance | UL 1666 |

Plenum

| | |
|------------------|----------|
| UL Type | OFNP |
| cUL Type | OFN FT6 |
| Flame Resistance | NFPA 262 |

Low Smoke Zero Halogen

| | |
|------------------|---------|
| UL Type | OFNR |
| cUL Type | OFN FT4 |
| Flame Resistance | UL 1666 |

Specifications

Temperature Range

| | |
|-----------|--------------|
| Storage | -40 to +80°C |
| Operating | -20 to +70°C |

Crush Resistance (EIA-455-41) 2000 N/cm

Impact Resistance (EIA-455-25) 2000 Impacts @ 1.6 N-m

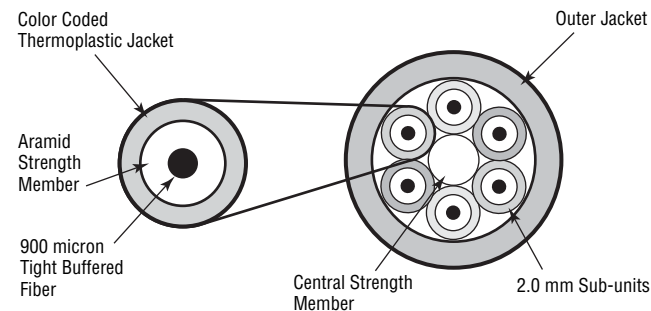
Cyclic Flexing (EIA-455-104) 2000 cycles, min.

Min. Bend Radius

| | |
|--------------|---------|
| Installation | 15 x OD |
| Long Term | 10 x OD |

Optical Specifications See page 10.2

Fiber Bundle Detail



Breakout Style CableTight Buffer — Indoor Riser, Plenum & LSZH Rated (*continued*)

| No. of Fibers | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|---------------------------|-------------------------|--------------------------|----------------------|------------------|----|------------|-------|-------------------|---|
| | 62.5 / 125µm Std. / 1 Gbe | 50 / 125µm Std. / 1 Gbe | 50 / 125µm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Breakout Cable Series

| Riser (NEC/CEC OFNR/OFN FT4) | | | | | | | | | | |
|--------------------------------------|--------|--------|--------|--------|-------|-------|-----|-----|-----|------|
| 2 | M9B005 | M9A005 | M9C005 | M9W005 | 0.260 | 6.60 | 24 | 36 | 180 | 801 |
| 4 | M9B006 | M9A006 | M9C006 | M9W006 | 0.321 | 8.15 | 35 | 52 | 345 | 1535 |
| 6 | M9B007 | M9A007 | M9C007 | M9W007 | 0.358 | 9.09 | 54 | 80 | 543 | 2415 |
| 8 | M9B008 | M9A008 | M9C008 | M9W008 | 0.405 | 10.29 | 69 | 103 | 600 | 2700 |
| 10 | M9B009 | M9A009 | M9C009 | M9W009 | 0.455 | 11.56 | 86 | 128 | 600 | 2700 |
| 12 | M9B010 | M9A010 | M9C010 | M9W010 | 0.514 | 13.06 | 110 | 164 | 600 | 2700 |
| 18 | M9B011 | M9A011 | M9C011 | M9W011 | 0.520 | 13.21 | 104 | 155 | 600 | 2700 |
| 24 | M9B012 | M9A012 | M9C012 | M9W012 | 0.590 | 14.99 | 135 | 201 | 600 | 2700 |
| 36 | M9B083 | M9A083 | M9C083 | M9W083 | 0.680 | 17.27 | 168 | 250 | 600 | 2700 |
| Plenum (NEC/CEC OFNP/OFN FT6) | | | | | | | | | | |
| 2 | M9B013 | M9A013 | M9C013 | M9W013 | 0.230 | 5.84 | 20 | 30 | 180 | 801 |
| 4 | M9B014 | M9A014 | M9C014 | M9W014 | 0.263 | 6.68 | 30 | 45 | 345 | 1535 |
| 6 | M9B015 | M9A015 | M9C015 | M9W015 | 0.309 | 7.85 | 41 | 61 | 465 | 2068 |
| 8 | M9B016 | M9A016 | M9C016 | M9W016 | 0.336 | 8.53 | 55 | 82 | 600 | 2700 |
| 10 | M9B017 | M9A017 | M9C017 | M9W017 | 0.385 | 9.78 | 73 | 109 | 600 | 2700 |
| 12 | M9B018 | M9A018 | M9C018 | M9W018 | 0.391 | 9.93 | 65 | 97 | 600 | 2700 |
| 18 | M9B019 | M9A019 | M9C019 | M9W019 | 0.456 | 11.58 | 89 | 132 | 600 | 2700 |
| 24 | M9B020 | M9A020 | M9C020 | M9W020 | 0.544 | 13.82 | 117 | 174 | 600 | 2700 |
| 36 | M9B082 | M9A082 | M9C082 | M9W082 | 0.612 | 15.54 | 154 | 229 | 600 | 2700 |
| LSZH (NEC/CEC OFNR/OFN FT4) | | | | | | | | | | |
| 2 | M9B130 | M9A130 | M9C130 | M9W130 | 0.290 | 7.37 | 39 | 57 | 270 | 1200 |
| 4 | M9B131 | M9A131 | M9C131 | M9W131 | 0.351 | 8.92 | 38 | 55 | 285 | 1268 |
| 6 | M9B132 | M9A132 | M9C132 | M9W132 | 0.358 | 9.09 | 52 | 76 | 543 | 2415 |
| 8 | M9B133 | M9A133 | M9C133 | M9W133 | 0.405 | 10.29 | 67 | 98 | 600 | 2700 |
| 10 | M9B134 | M9A134 | M9C134 | M9W134 | 0.455 | 11.56 | 110 | 162 | 600 | 2700 |
| 12 | M9B135 | M9A135 | M9C135 | M9W135 | 0.514 | 13.06 | 110 | 161 | 600 | 2700 |
| 18 | M9B136 | M9A136 | M9C136 | M9W136 | 0.520 | 13.21 | 103 | 151 | 600 | 2700 |
| 24 | M9B137 | M9A137 | M9C137 | M9W137 | 0.590 | 14.99 | 138 | 202 | 600 | 2700 |
| 36 | M9B138 | M9A138 | M9C138 | M9W138 | 0.680 | 17.27 | 171 | 250 | 600 | 2700 |

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.
2.5 mm Breakout Cables are also available.

Industrial Armored Cable

Tight Buffer — Riser & Plenum Rated

Applications

- Industrial environments
- Rugged installations
- Manufacturing plants
- Mining operations
- Telecommunications and data trunk
- Inter- and intra-building installations

Product Description

Heavy duty construction with interlocking aluminum armor (steel available on request) provides excellent mechanical protection from cutting or crushing and eliminates need for innerduct. Rodent resistant. Also available for outside plant. Loose tube design available on request.

| | | |
|--------------------------------|---|------------------------------------|
| Jacket Material | Riser & Plenum | PVC |
| Buffer Tube | | PVC |
| Strength Member | | Aramid Yarn |
| Central Strength Member | | E-Glass |
| Armor | | Aluminum |
| Color Code (Buffer) | | Per EIA/TIA 598-A, see page 10.2 |
| Jacket Color | Single-mode 62.5/125 μm 50/125 μm / 1 Gbe 50/125 μm / 10 Gbe | Yellow Orange Orange Aqua |

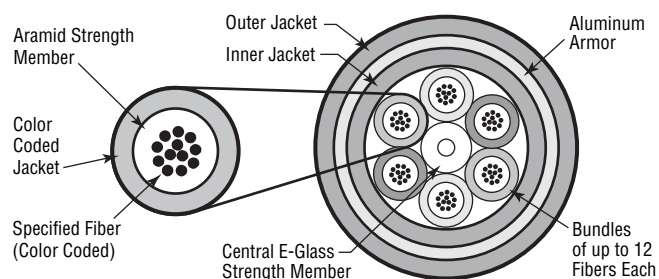
Ratings

| | | |
|---------------|------------------|----------|
| Riser | UL Type | OFRC |
| | cUL Type | OFC FT4 |
| | Flame Resistance | UL 1666 |
| Plenum | UL Type | OFCP |
| | cUL Type | OFC FT6 |
| | Flame Resistance | NFPA 262 |

Specifications

| | | |
|---------------------------------------|--------------|------------------------|
| Temperature Range | Storage | -40 to +70°C |
| | Operating | -20 to +70°C |
| Crush Resistance (EIA-455-41) | | 2000 N/cm |
| Impact Resistance (EIA-455-25) | | 2000 Impacts @ 3.0 N-m |
| Min. Bend Radius | Installation | 20 x OD |
| | Long Term | 15 x OD |
| Optical Specifications | | See page 10.2 |

Fiber Bundle Detail



| No. of Fibers | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|------------------------------|----------------------------|-----------------------------|-------------------------|------------------|----|------------|-------|-------------------|---|
| | 62.5 / 125μm Std. / 1 Gbe | 50 / 125μm Std. / 1 Gbe | 50 / 125μm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Industrial Armored Series

| Riser (NEC/CEC OFCR/OFC FT4) | | | | | | | | | | |
|-------------------------------|---------|---------|---------|---------|-------|-------|-----|------|-----|------|
| 6 | M9B230 | M9A230 | M9C230 | M9W230 | 0.570 | 14.50 | 126 | 188 | 270 | 1201 |
| 12 | M9B231 | M9A231 | M9C231 | M9W231 | 0.620 | 15.70 | 149 | 222 | 300 | 1334 |
| 24 | M9B232* | M9A232* | M9C232* | M9W232* | 0.670 | 17.00 | 179 | 266 | 390 | 1735 |
| 24 | M9B233 | M9A233 | M9C233 | M9W233 | 0.845 | 21.46 | 263 | 391 | 600 | 2700 |
| 36 | M9B234 | M9A234 | M9C234 | M9W234 | 0.970 | 24.64 | 368 | 548 | 600 | 2700 |
| 48 | M9B235 | M9A235 | M9C235 | M9W235 | 0.970 | 24.64 | 368 | 548 | 600 | 2700 |
| 72 | M9B236 | M9A236 | M9C236 | M9W236 | 1.095 | 27.82 | 481 | 716 | 600 | 2700 |
| 96 | M9B237 | M9A237 | M9C237 | M9W237 | 1.245 | 31.62 | 625 | 930 | 600 | 2700 |
| 144 | M9B238 | M9A238 | M9C238 | M9W238 | 1.320 | 33.55 | 675 | 1005 | 600 | 2700 |
| Plenum (NEC/CEC OFCP/OFC FT6) | | | | | | | | | | |
| 6 | M9B240 | M9A240 | M9C240 | M9W240 | 0.471 | 12.00 | 87 | 129 | 270 | 1201 |
| 12 | M9B241 | M9A241 | M9C241 | M9W241 | 0.506 | 12.90 | 103 | 153 | 300 | 1334 |
| 24 | M9B242* | M9A242* | M9C242* | M9W242* | 0.631 | 16.00 | 151 | 225 | 390 | 1735 |
| 24 | M9B243 | M9A243 | M9C243 | M9W243 | 0.781 | 19.84 | 289 | 430 | 600 | 2700 |
| 36 | M9B244 | M9A244 | M9C244 | M9W244 | 0.881 | 22.38 | 309 | 460 | 600 | 2700 |
| 48 | M9B245 | M9A245 | M9C245 | M9W245 | 0.906 | 23.01 | 320 | 476 | 600 | 2700 |
| 72 | M9B246 | M9A246 | M9C246 | M9W246 | 1.056 | 26.82 | 451 | 671 | 600 | 2700 |
| 96 | M9B247 | M9A247 | M9C247 | M9W247 | 1.256 | 31.90 | 608 | 905 | 600 | 2700 |
| 144 | M9B248 | M9A248 | M9C248 | M9W248 | 1.331 | 33.81 | 687 | 1022 | 600 | 2700 |

Additional optical fiber cable constructions are available upon request. All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

*Single jacket design.

Tactical Cable

Tight Buffer — Outdoor

Applications

- ENG vehicles
- Outdoor news, sporting or other events
- Digital camera transmission
- Military communications
- Re-deployable communications

Product Description

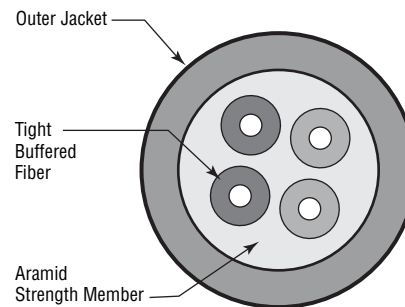
Small and lightweight with a rugged jacket, Tactical Cable provides a durable design for repeated deployment and retrieval cycles and a superior level of crush resistance. Designed to military standards. 50/125 micron fiber available on request.

| | |
|---|----------------------------------|
| Jacket Material | UV-resistant PU |
| Buffer | Polyester |
| Strength Member | Aramid Yarn |
| Color Code (Jacket & Fibers) | Per EIA/TIA 598-A, see page 10.2 |

Specifications

| | |
|---------------------------------------|-----------------------|
| Temperature Range | |
| Storage | -70 to +85°C |
| Operating | -55 to +85°C |
| Crush Resistance (EIA-455-41) | 440 N/cm |
| Impact Resistance (EIA-455-25) | 200 Impacts @ 2.2 N-m |
| Cyclic Flexing (EIA-455-104) | 2000 cycles, min. |
| Min. Bend Radius | |
| Installation | 15 x OD |
| Long Term | 8 x OD |
| Optical Specifications | See page 10.2 |

Fiber Bundle Detail



| No. of Fibers | Belden Part Number | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|---------------------------|----------------------|------------------|----|------------|-------|-------------------|---|
| | 62.5 / 125µm Std. / 1 Gbe | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Tactical Series

| Outdoor | | | | | | | | |
|---------|---------------|---------------|-------|-----|----|----|-----|------|
| 2 | M96571 | M96566 | 0.217 | 5.5 | 19 | 28 | 330 | 1468 |
| 4 | M96551 | M96639 | 0.225 | 5.7 | 21 | 31 | 330 | 1468 |
| 6 | M96572 | M96567 | 0.236 | 6.0 | 23 | 34 | 330 | 1468 |
| 8 | M96573 | M96568 | 0.250 | 6.3 | 26 | 39 | 330 | 1468 |
| 10 | M96574 | M96569 | 0.265 | 6.7 | 28 | 42 | 330 | 1468 |
| 12 | M96575 | M96570 | 0.280 | 7.1 | 31 | 46 | 330 | 1468 |

Please contact the Technical Support Group for proper connectivity integration and installation guidance. All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

Ribbon Cable

Riser and Plenum Rated

Applications

- Inter-equipment connections
- NEBS applications

Product Description

Small size is ideal for connections in tight spaces. Color coded fibers. Suitable for use with standard ribbon connectors. Flexible, with half-inch minimum bend radius. Tight center-to-center tolerances. Optional identification printing available.

| | |
|---|----------------------------------|
| Jacket Material | PVC |
| Strength Member | Aramid Yarn |
| Color Code (Jacket & Fibers) | Per EIA/TIA 598-A, see page 10.2 |
| Jacket Color | |
| Single-mode | Yellow |
| 62.5/125µm | Orange |
| 50/125 µm / 1 Gbe | Orange |
| 50/125 µm / 10 Gbe | Aqua |

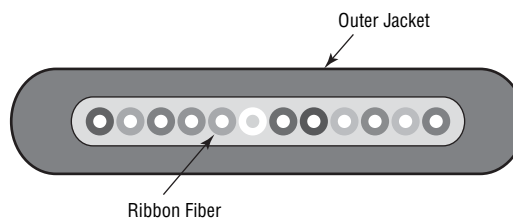
Ratings

| | |
|------------------|----------|
| Riser | |
| UL Type | OFNR |
| cUL Type | OFN FT4 |
| Flame Resistance | UL 1666 |
| Plenum | |
| UL Type | OFNP |
| cUL Type | OFN FT6 |
| Flame Resistance | NFPA 262 |

Specifications

| | |
|---------------------------------------|------------------------|
| Temperature Range | |
| Storage | -40 to +80°C |
| Operating | -20 to +70°C |
| Crush Resistance (EIA-455-41) | 2000 N/cm |
| Impact Resistance (EIA-455-25) | 2000 Impacts @ 1.6 N-m |
| Cyclic Flexing (EIA-455-104) | 2000 cycles, min. |
| Min. Bend Radius | |
| Installation | 15 x OD |
| Long Term | 10 x OD |
| Optical Specifications | See page 10.2 |

Fiber Bundle Detail



| No. of Fibers | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|------------------------------|----------------------------|-----------------------------|-------------------------|------------------|----|------------|-------|-------------------|---|
| | 62.5 / 125µm Std. / 1 Gbe | 50 / 125µm Std. / 1 Gbe | 50 / 125µm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Ribbon Series

| Riser (NEC/CEC OFNR/OFN FT4) | | | | | | | | | | |
|--------------------------------------|--------|--------|--------|--------|--------------|-----------|---|----|-----|-----|
| 2 | M9B630 | M9A630 | M9C630 | M9W630 | 0.114 | 2.9 | 5 | 7 | 100 | 444 |
| 4 | M9B631 | M9A631 | M9C631 | M9W631 | 0.78 x 0.115 | 2.0 x 2.9 | 4 | 6 | 100 | 444 |
| 6 | M9B632 | M9A632 | M9C632 | M9W632 | 0.78 x 0.137 | 2.0 x 3.5 | 6 | 9 | 100 | 444 |
| 8 | M9B633 | M9A633 | M9C633 | M9W633 | 0.78 x 0.158 | 2.0 x 4.0 | 6 | 9 | 100 | 444 |
| 12 | M9B634 | M9A634 | M9C634 | M9W634 | 0.78 x 0.180 | 2.0 x 4.6 | 7 | 10 | 100 | 444 |
| Plenum (NEC/CEC OFNP/OFN FT6) | | | | | | | | | | |
| 2 | M9B640 | M9A640 | M9C640 | M9W640 | 0.114 | 2.9 | 5 | 7 | 100 | 444 |
| 4 | M9B641 | M9A641 | M9C641 | M9W641 | 0.78 x 0.115 | 2.0 x 2.9 | 4 | 6 | 100 | 444 |
| 6 | M9B642 | M9A642 | M9C642 | M9W642 | 0.78 x 0.137 | 2.0 x 3.5 | 6 | 9 | 100 | 444 |
| 8 | M9B643 | M9A643 | M9C643 | M9W643 | 0.78 x 0.158 | 2.0 x 4.0 | 6 | 9 | 100 | 444 |
| 12 | M9B644 | M9A644 | M9C644 | M9W644 | 0.78 x 0.180 | 2.0 x 4.6 | 7 | 10 | 100 | 444 |

Fiber Ribbon Cable is to be sold as bulk cable and has not been qualified for field connectorization.

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

Single Jacket, All Dielectric Cable

Loose Tube — Outdoor, and Indoor/Outdoor Riser Rated

Applications

- Medium to high fiber count requirements
- Inter-building duct installations
- Lashed aerial
- Indoor/outdoor
- Industrial outside plant

Product Description

Gel-filled buffer tube prevents water migration. All-dielectric strength member. Available as Riser rated cable, thereby eliminating the need for service entrance splicing to in-building cable. Full dielectric construction, no grounding required. Available with up to 216 fibers. Length markings in meters for easy determination of cable length.

| | |
|--------------------------------|----------------------------------|
| Jacket Material | |
| Outdoor | PE |
| Riser | PVC |
| Buffer Tube | PBT |
| Strength Member | Aramid Yarn |
| Central Strength Member | E-Glass |
| Color Code (Buffer) | Per EIA/TIA 598-A, see page 10.2 |
| Jacket Color | Black |

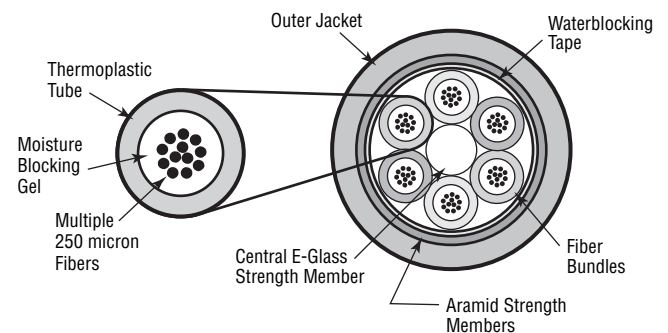
Ratings

| | |
|------------------|---------|
| Riser | |
| UL Type | OFNR |
| cUL Type | OFN FT4 |
| Flame Resistance | UL 1666 |

Specifications

| | |
|---|------------------------|
| Temperature Range (Outdoor Series) | |
| Storage | -50 to +80°C |
| Operating | -40 to +70°C |
| Temperature Range (Riser Series) | |
| Storage | -40 to +80°C |
| Operating | -40 to +70°C |
| Crush Resistance (EIA-455-41) | 2000 N/cm |
| Impact Resistance (EIA-455-25) | 2000 Impacts @ 1.6 N-m |
| Min. Bend Radius | |
| Installation | 20 x OD |
| Long Term | 15 x OD |
| Optical Specifications | See page 10.2 |

Fiber Bundle Detail



| No. of Fibers | Fibers Per Tube | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|-----------------|---------------------------|-------------------------|--------------------------|----------------------|------------------|----|------------|-------|-------------------|---|
| | | 62.5 / 125µm Std. / 1 Gbe | 50 / 125µm Std. / 1 Gbe | 50 / 125µm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Loose Tube Series

| Outdoor | | | | | | | | | | | |
|-------------------------------------|----|---------|---------|---------|---------|------|-------|-----|-----|-----|------|
| 6 | 6 | M9B510T | M9A510T | M9C510T | M9W510T | 0.38 | 9.65 | 44 | 65 | 600 | 2700 |
| 12 | 6 | M9B511T | M9A511T | M9C511T | M9W511T | 0.38 | 9.65 | 44 | 65 | 600 | 2700 |
| 24 | 6 | M9B500T | M9A500T | M9C500T | M9W500T | 0.38 | 9.65 | 45 | 67 | 600 | 2700 |
| 36 | 6 | M9B502T | M9A502T | M9C502T | M9W502T | 0.38 | 9.65 | 47 | 70 | 600 | 2700 |
| 48 | 12 | M9B505T | M9A505T | M9C505T | M9W505T | 0.48 | 12.19 | 70 | 104 | 600 | 2700 |
| 72 | 12 | M9B507T | M9A507T | M9C507T | M9W507T | 0.48 | 12.19 | 70 | 104 | 600 | 2700 |
| 96 | 12 | M9B513T | M9A513T | M9C513T | M9W513T | 0.55 | 13.89 | 93 | 138 | 600 | 2700 |
| 144 | 12 | M9B509T | M9A509T | M9C509T | M9W509T | 0.70 | 17.78 | 149 | 222 | 600 | 2700 |
| 216 | 12 | M9B520T | M9A520T | M9C520T | M9W520T | 0.72 | 18.16 | 148 | 220 | 600 | 2700 |
| Riser (NEC/CEC OFNR/OFN FT4) | | | | | | | | | | | |
| 6 | 6 | M9B810 | M9A810 | M9C810 | M9W810 | 0.38 | 9.65 | 63 | 94 | 600 | 2700 |
| 12 | 6 | M9B811 | M9A811 | M9C811 | M9W811 | 0.38 | 9.65 | 62 | 92 | 600 | 2700 |
| 24 | 6 | M9B812 | M9A812 | M9C812 | M9W812 | 0.38 | 9.65 | 61 | 91 | 600 | 2700 |
| 36 | 6 | M9B813 | M9A813 | M9C813 | M9W813 | 0.38 | 9.65 | 60 | 89 | 600 | 2700 |
| 48 | 12 | M9B814 | M9A814 | M9C814 | M9W814 | 0.48 | 12.20 | 89 | 132 | 600 | 2700 |
| 72 | 12 | M9B815 | M9A815 | M9C815 | M9W815 | 0.48 | 12.20 | 87 | 129 | 600 | 2700 |
| 96 | 12 | M9B816 | M9A816 | M9C816 | M9W816 | 0.55 | 13.89 | 114 | 170 | 600 | 2700 |
| 144 | 12 | M9B817 | M9A817 | M9C817 | M9W817 | 0.70 | 17.78 | 187 | 278 | 600 | 2700 |

Alternative fiber counts are available.

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

Single Jacket, All Dielectric Cable

Loose Tube — Indoor/Outdoor Plenum Rated

Applications

- Medium to high fiber count requirements
- Inter-building duct installations
- Lashed aerial
- Indoor/outdoor
- Campus backbones
- Data Centers
- High Density Cable Trays

Product Description

Dry waterblocking technology used within tubes and under jacket. Available as Plenum rated cable, thereby eliminating the need for service entrance splicing to in-building cable. Small diameter and bend radius facilitate installation in tight spaces. Full dielectric construction, no grounding required. Available with up to 144 fibers. Fibers grouped into sets of 12 for maximum density. Length markings in meters for easy determination of cable length.

| | | |
|--------------------------------|-------------------------------------|------|
| Jacket Material | PVC Non-unitized Unitized | PVDF |
| Buffer Tube | PVC | |
| Strength Member | E-Glass and Aramid Yarn | |
| Central Strength Member | Upjacketed | |
| Color Code (Buffer) | Per EIA/TIA 598-A, see page 10.2 | |
| Jacket Color | Black | |

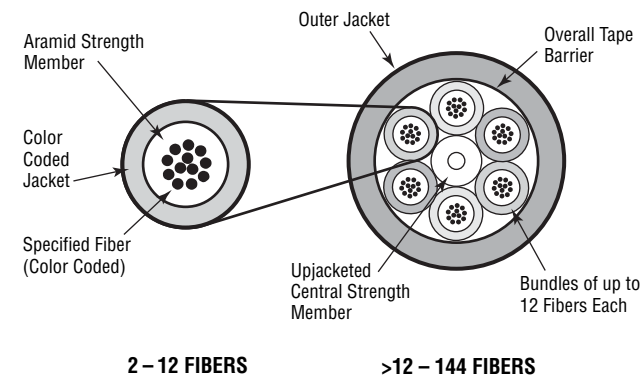
Ratings

| | |
|------------------|----------|
| Plenum | OFNP |
| UL Type | OFNP |
| cUL Type | OFN FT6 |
| Flame Resistance | NFPA 262 |

Specifications

| | |
|---------------------------------------|------------------------|
| Temperature Range | |
| Storage | -40 to +80°C |
| Operating | -40 to +70°C |
| Installation | 0 to +60°C |
| Crush Resistance (EIA-455-41) | 2000 N/cm |
| Impact Resistance (EIA-455-25) | 2000 Impacts @ 1.6 N-m |
| Cyclic Flexing (EIA-455-104) | 2000 cycles, min. |
| Min. Bend Radius | |
| Installation | 20 x OD |
| Long Term | 15 x OD |
| Optical Specifications | See page 10.2 |

Fiber Bundle Detail



| No. of Fibers | Fibers Per Tube | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|-----------------|---------------------------|-------------------------|--------------------------|----------------------|------------------|----|------------|-------|-------------------|---|
| | | 62.5 / 125µm Std. / 1 Gbe | 50 / 125µm Std. / 1 Gbe | 50 / 125µm 10 Gbe - 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Loose Tube Series

| Plenum (NEC/CEC OFNP/OFN FT6) | | | | | | | | | | | |
|-------------------------------|----|--------|--------|--------|--------|-------|-------|-----|-----|------|------|
| 6 | 6 | M9B202 | M9A202 | M9C202 | M9W202 | 0.265 | 6.70 | 33 | 49 | 320 | 1423 |
| 12 | 12 | M9B204 | M9A204 | M9C204 | M9W204 | 0.265 | 6.70 | 33 | 49 | 320 | 1423 |
| 24 | 12 | M9B205 | M9A205 | M9C205 | M9W205 | 0.359 | 9.12 | 47 | 70 | 405 | 1801 |
| 36 | 12 | M9B206 | M9A206 | M9C206 | M9W206 | 0.359 | 9.12 | 47 | 70 | 405 | 1801 |
| 48 | 12 | M9B207 | M9A207 | M9C207 | M9W207 | 0.359 | 9.12 | 48 | 71 | 405 | 1801 |
| 72 | 12 | M9B209 | M9A209 | M9C209 | M9W209 | 0.429 | 10.90 | 71 | 106 | 585 | 2602 |
| 96 | 12 | M9B211 | M9A211 | M9C211 | M9W211 | 0.501 | 12.73 | 105 | 156 | 903 | 4017 |
| 144 | 12 | M9B215 | M9A215 | M9C215 | M9W215 | 0.665 | 16.89 | 189 | 281 | 1263 | 5618 |

Alternative fiber counts and hybrid constructions are available.

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

Double Jacket, Armored Cable

Loose Tube – Outdoor, and Indoor/Outdoor Riser Rated

Applications

- Direct burial
- Low to high fiber count requirements
- Inter-building duct installations
- Indoor/outdoor
- Industrial outside plant

Product Description

Gel-filled buffer tube prevents water migration. Available as Riser rated cable, thereby eliminating the need for service entrance splicing to in-building cable. Rodent resistant. Available in sizes up to 216 fibers. Length markings in meters for easy determination of cable length.

| | |
|--------------------------------|----------------------------------|
| Jacket Material | |
| Outdoor | PE |
| Riser | PVC |
| Buffer Tube | |
| Outdoor | PBT |
| Riser | PVC |
| Strength Member | |
| | Aramid Yarn |
| Central Strength Member | |
| | E-Glass |
| Armor | |
| | Corrugated Steel Tape |
| Color Code (Buffer) | |
| | Per EIA/TIA 598-A, see page 10.2 |
| Jacket Color | |
| | Black |

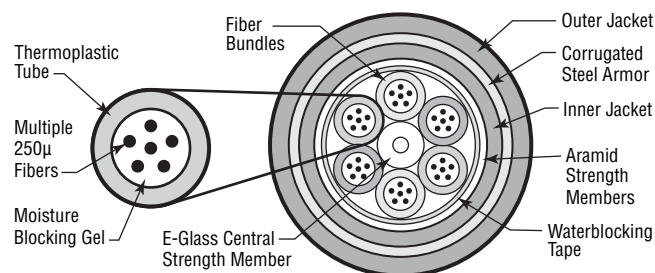
Ratings

| | |
|------------------|---------|
| Riser | |
| UL Type | OFCR |
| cUL Type | OFC FT4 |
| Flame Resistance | UL 1666 |

Specifications

| | |
|---------------------------------------|------------------------|
| Temperature Range (Outdoor) | |
| Storage | -50 to +80°C |
| Operating | -40 to +70°C |
| Temperature Range (Riser) | |
| Storage | -40 to +80°C |
| Operating | -40 to +70°C |
| Crush Resistance (EIA-455-41) | |
| | 2000 N/cm |
| Impact Resistance (EIA-455-25) | |
| | 2000 Impacts @ 1.6 N-m |
| Min. Bend Radius | |
| Installation | 20 x OD |
| Long Term | 15 x OD |
| Optical Specifications | |
| | See page 10.2 |

Fiber Bundle Detail



| No. of Fibers | Fibers Per Tube | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|-----------------|---------------------------|-------------------------|--------------------------|----------------------|------------------|----|------------|-------|-------------------|---|
| | | 62.5 / 125µm Std. / 1 Gbe | 50 / 125µm Std. / 1 Gbe | 50 / 125µm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Loose Tube Series — Armored

| Outdoor | | | | | | | | | | | |
|------------------------------|----|---------|---------|---------|---------|------|-------|-----|-----|-----|------|
| 6 | 6 | M9B381T | M9A381T | M9C381T | M9W381T | 0.53 | 13.46 | 101 | 150 | 600 | 2700 |
| 12 | 6 | M9B382T | M9A382T | M9C382T | M9W382T | 0.53 | 13.46 | 102 | 152 | 600 | 2700 |
| 24 | 6 | M9B384T | M9A384T | M9C384T | M9W384T | 0.53 | 13.46 | 103 | 153 | 600 | 2700 |
| 36 | 6 | M9B386T | M9A386T | M9C386T | M9W386T | 0.53 | 13.46 | 103 | 153 | 600 | 2700 |
| 48 | 12 | M9B389T | M9A389T | M9C389T | M9W389T | 0.65 | 16.51 | 144 | 214 | 600 | 2700 |
| 72 | 12 | M9B391T | M9A391T | M9C391T | M9W391T | 0.65 | 16.51 | 142 | 211 | 600 | 2700 |
| 96 | 12 | M9B398T | M9A398T | M9C398T | M9W398T | 0.69 | 17.53 | 168 | 250 | 600 | 2700 |
| 144 | 12 | M9B393T | M9A393T | M9C393T | M9W393T | 0.87 | 22.10 | 241 | 359 | 600 | 2700 |
| 216 | 12 | M9B400T | M9A400T | M9C400T | M9W400T | 0.87 | 22.10 | 241 | 359 | 600 | 2700 |
| Riser (NEC/CEC OFCR/OFC FT4) | | | | | | | | | | | |
| 6 | 6 | M9B890 | M9A890 | M9C890 | M9W890 | 0.54 | 13.72 | 138 | 205 | 600 | 2700 |
| 12 | 6 | M9B891 | M9A891 | M9C891 | M9W891 | 0.54 | 13.72 | 137 | 204 | 600 | 2700 |
| 24 | 6 | M9B892 | M9A892 | M9C892 | M9W892 | 0.54 | 13.72 | 136 | 202 | 600 | 2700 |
| 36 | 6 | M9B893 | M9A893 | M9C893 | M9W893 | 0.54 | 13.72 | 135 | 201 | 600 | 2700 |
| 48 | 12 | M9B894 | M9A894 | M9C894 | M9W894 | 0.66 | 16.76 | 176 | 262 | 600 | 2700 |
| 72 | 12 | M9B895 | M9A895 | M9C895 | M9W895 | 0.66 | 16.76 | 172 | 256 | 600 | 2700 |
| 96 | 12 | M9B896 | M9A896 | M9C896 | M9W896 | 0.70 | 17.78 | 206 | 307 | 600 | 2700 |
| 144 | 12 | M9B897 | M9A897 | M9C897 | M9W897 | 0.88 | 22.35 | 302 | 449 | 600 | 2700 |

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

Double Jacket, Heavy-Duty Cable

Loose Tube — Outdoor

Applications

- Direct burial
- Harsh environments
- Applications requiring good ozone-, moisture- and weather-resistance

Product Description

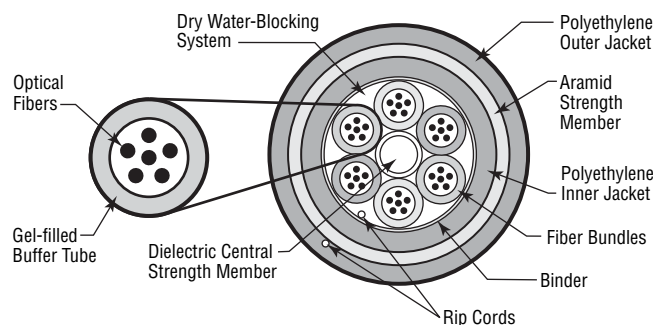
Gel-filled buffer tube prevents water migration.
Available with up to 216 fibers.

| | |
|--------------------------------|-------------------------------------|
| Jacket Material | |
| Outer Jacket: | PE |
| Inner Jacket: | PE |
| Buffer Tube | |
| | PBT |
| Strength Member | |
| | Aramid Yarn |
| Central Strength Member | |
| | E-Glass |
| Core Wrap | |
| | Water Swellable Tape |
| Color Code (Buffer) | |
| | Per EIA/TIA 598-A, see page 10.2 |
| Jacket Color | |
| | Black |

Specifications

| | |
|---------------------------------------|------------------------|
| Temperature Range | |
| Storage | -50 to +80°C |
| Operating | -40 to +70°C |
| Crush Resistance (EIA-455-41) | |
| | 2000 N/cm |
| Impact Resistance (EIA-455-25) | |
| | 2000 Impacts @ 1.6 N-m |
| Min. Bend Radius | |
| Installation | 20 x OD |
| Long Term | 15 x OD |
| Optical Specifications | |
| | See page 10.2 |

Fiber Bundle Detail



| No. of Fibers | Fibers Per Tube | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|-----------------|---------------------------|-------------------------|--------------------------|----------------------|------------------|----|------------|-------|-------------------|---|
| | | 62.5 / 125µm Std. / 1 Gbe | 50 / 125µm Std. / 1 Gbe | 50 / 125µm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Loose Tube Series — Heavy Duty

| Outdoor | | | | | | | | | | | |
|---------|----|--------|--------|--------|--------|------|-------|-----|-----|-----|------|
| 2 | 2 | M9B840 | M9A840 | M9C840 | M9W840 | 0.44 | 11.18 | 60 | 89 | 600 | 2700 |
| 4 | 4 | M9B841 | M9A841 | M9C841 | M9W841 | 0.44 | 11.18 | 60 | 89 | 600 | 2700 |
| 6 | 6 | M9B842 | M9A842 | M9C842 | M9W842 | 0.44 | 11.18 | 60 | 89 | 600 | 2700 |
| 8 | 4 | M9B843 | M9A843 | M9C843 | M9W843 | 0.44 | 11.18 | 60 | 89 | 600 | 2700 |
| 12 | 6 | M9B844 | M9A844 | M9C844 | M9W844 | 0.44 | 11.18 | 60 | 89 | 600 | 2700 |
| 18 | 6 | M9B845 | M9A845 | M9C845 | M9W845 | 0.44 | 11.18 | 60 | 89 | 600 | 2700 |
| 24 | 6 | M9B846 | M9A846 | M9C846 | M9W846 | 0.44 | 11.18 | 60 | 89 | 600 | 2700 |
| 36 | 6 | M9B847 | M9A847 | M9C847 | M9W847 | 0.44 | 11.18 | 60 | 89 | 600 | 2700 |
| 48 | 12 | M9B848 | M9A848 | M9C848 | M9W848 | 0.54 | 13.72 | 136 | 202 | 600 | 2700 |
| 72 | 12 | M9B849 | M9A849 | M9C849 | M9W849 | 0.54 | 13.72 | 136 | 202 | 600 | 2700 |
| 96 | 12 | M9B820 | M9A820 | M9C820 | M9W820 | 0.61 | 15.37 | 152 | 226 | 600 | 2700 |
| 144 | 12 | M9B821 | M9A821 | M9C821 | M9W821 | 0.76 | 19.30 | 255 | 379 | 600 | 2700 |
| 216 | 12 | M9B822 | M9A822 | M9C822 | M9W822 | 0.76 | 19.30 | 255 | 379 | 600 | 2700 |

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

Central Tube Cable

Loose Tube—Outdoor, and Outdoor Armored

Applications

- Campus OSP backbones
- Drop cable
- Telecommunications and data trunk
- Direct burial (armored only)
- Lashed aerial

Product Description

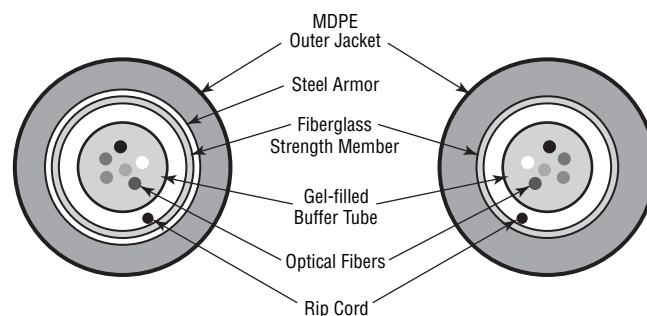
Economical option for low fiber counts. Quick and easy end preparation. Fully waterblocked with gel-filled buffer tube. No rods – easy handling. Crush, impact and abrasion resistant.

| | |
|-------------------------------|----------------------------------|
| Jacket Material | PE |
| Buffer Tube | PBT |
| Core Wrap | Water Swellable Tape |
| Strength Member | Fiberglass |
| Armor | Corrugated Steel |
| Color Codes (Jacket & Fibers) | Per EIA/TIA 598-A, see page 10.2 |
| Jacket Color | Black |

Specifications

| | |
|---------------------------------------|------------------------|
| Temperature Range | |
| Storage | -40 to +70°C |
| Operating | -40 to +70°C |
| Crush Resistance (EIA-455-41) | 2000 N/cm |
| Impact Resistance (EIA-455-25) | 2000 Impacts @ 1.6 N-m |
| Min. Bend Radius | |
| Installation | 20 x OD |
| Long Term | 15 x OD |
| Optical Specifications | See page 10.2 |

Fiber Bundle Detail



SINGLE ARMOR

ALL DIELECTRIC

| No. of Fibers | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|---------------|------------------------------|----------------------------|-----------------------------|-------------------------|------------------|----|------------|-------|-------------------|---|
| | 62.5 / 125µm Std. / 1 Gbe | 50 / 125µm Std. / 1 Gbe | 50 / 125µm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |

Central Tube Series

| Outdoor | | | | | | | | | | |
|-----------------|--------|--------|--------|--------|-------|-------|----|-----|-----|------|
| 2 | M9B150 | M9A150 | M9C150 | M9W150 | 0.325 | 8.26 | 36 | 54 | 600 | 2700 |
| 4 | M9B151 | M9A151 | M9C151 | M9W151 | 0.325 | 8.26 | 36 | 54 | 600 | 2700 |
| 6 | M9B152 | M9A152 | M9C152 | M9W152 | 0.325 | 8.26 | 36 | 54 | 600 | 2700 |
| 8 | M9B153 | M9A153 | M9C153 | M9W153 | 0.325 | 8.26 | 36 | 54 | 600 | 2700 |
| 10 | M9B154 | M9A154 | M9C154 | M9W154 | 0.325 | 8.26 | 36 | 54 | 600 | 2700 |
| 12 | M9B155 | M9A155 | M9C155 | M9W155 | 0.325 | 8.26 | 36 | 54 | 600 | 2700 |
| Outdoor Armored | | | | | | | | | | |
| 2 | M9B170 | M9A170 | M9C170 | M9W170 | 0.410 | 10.41 | 72 | 108 | 600 | 2700 |
| 4 | M9B171 | M9A171 | M9C171 | M9W171 | 0.410 | 10.41 | 72 | 108 | 600 | 2700 |
| 6 | M9B172 | M9A172 | M9C172 | M9W172 | 0.410 | 10.41 | 72 | 108 | 600 | 2700 |
| 8 | M9B173 | M9A173 | M9C173 | M9W173 | 0.410 | 10.41 | 72 | 108 | 600 | 2700 |
| 10 | M9B174 | M9A174 | M9C174 | M9W174 | 0.410 | 10.41 | 72 | 108 | 600 | 2700 |
| 12 | M9B175 | M9A175 | M9C175 | M9W175 | 0.410 | 10.41 | 72 | 108 | 600 | 2700 |

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

Micro Loose Tube Breakout Style Cable

Loose Tube – Outdoor, Indoor/Outdoor OFN & Indoor/Outdoor Riser Rated

Applications

- Ducts between buildings (above or below frost lines)
- Lashed aerial
- Telecommunications and data trunk

Product Description

Easy handling and termination of a breakout style cable. Loose buffer dimensions compatible with standard connectors (900 µm). Waterblocking gel for moisture protection. Breakout kits not required for connectorization.

Jacket Material

| | |
|-----------------|-----|
| Outdoor | PE |
| Riser | PVC |
| General Purpose | TPE |

Buffer tube

| | |
|-----------------|-----|
| Outdoor + Riser | PBT |
|-----------------|-----|

Strength Elements

Aramid Yarn

Strength Member(s)

Upjacketed Aramid

Color Codes (Jacket & Fibers)

Per EIA/TIA 598-A,
see page 10.2

Jacket Color

Black

Ratings

Riser

| | |
|------------------|---------|
| UL Type | OFNR |
| cUL Type | OFN FT4 |
| Flame Resistance | UL 1666 |

General Purpose

| | |
|------------------|---------|
| UL/cUL Type | OFN |
| Flame Resistance | UL 1581 |

Specifications

Temperature Range

| | |
|-----------|--------------|
| Storage | -40 to +70°C |
| Operating | -20 to +70°C |

Crush Resistance (EIA-455-41)

600 N/cm

Impact Resistance (EIA-455-25)

20 Impacts @ 1.0 N-m

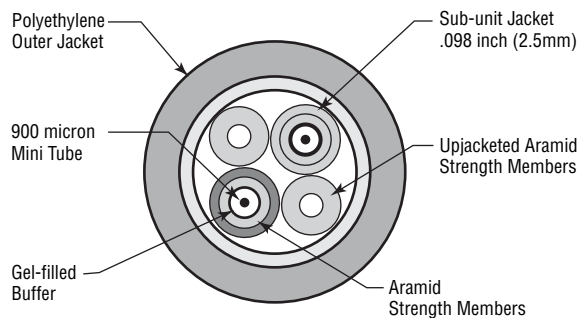
Min. Bend Radius

| | |
|--------------|---------|
| Installation | 20 x OD |
| Long Term | 15 x OD |

Optical Specifications

See page 10.2

Fiber Bundle Detail



Micro Loose Tube Breakout Style Cable

Loose Tube – Outdoor, Indoor/Outdoor OFN & Indoor/Outdoor Riser Rated (*continued*)

| No. of Fibers | Belden Part Number | | | | Outside Diameter | | Weight | | Max. Install Load | |
|--------------------------------|------------------------------|----------------------------|-----------------------------|-------------------------|------------------|-------|------------|-------|-------------------|------|
| | 62.5 / 125µm Std. / 1 Gbe | 50 / 125µm Std. / 1 Gbe | 50 / 125µm 10 Gbe – 300M | Single-mode Enhanced | Inch | mm | Lbs./1000' | kg/km | Lbs. | N |
| Micro Loose Tube Series | | | | | | | | | | |
| Outdoor | | | | | | | | | | |
| 1 | M9B700 | M9A700 | M9C700 | M9W700 | 0.340 | 8.64 | 41 | 61 | 330 | 1468 |
| 2 | M9B701 | M9A701 | M9C701 | M9W701 | 0.360 | 9.14 | 41 | 61 | 345 | 1535 |
| 4 | M9B702 | M9A702 | M9C702 | M9W702 | 0.360 | 9.14 | 39 | 58 | 285 | 1267 |
| 6 | M9B703 | M9A703 | M9C703 | M9W703 | 0.418 | 10.62 | 54 | 80 | 405 | 1801 |
| 8 | M9B704 | M9A704 | M9C704 | M9W704 | 0.478 | 12.14 | 76 | 113 | 600 | 2700 |
| 12 | M9B705 | M9A705 | M9C705 | M9W705 | 0.614 | 15.60 | 129 | 192 | 600 | 2700 |
| Indoor/Outdoor OFN | | | | | | | | | | |
| 1 | M9B720 | M9A720 | M9C720 | M9W720 | 0.344 | 8.74 | 50 | 74 | 330 | 1468 |
| 2 | M9B721 | M9A721 | M9C721 | M9W721 | 0.364 | 9.25 | 51 | 76 | 345 | 1535 |
| 4 | M9B722 | M9A722 | M9C722 | M9W722 | 0.364 | 9.25 | 49 | 73 | 285 | 1267 |
| 6 | M9B723 | M9A723 | M9C723 | M9W723 | 0.424 | 10.72 | 68 | 101 | 405 | 1801 |
| 8 | M9B724 | M9A724 | M9C724 | M9W724 | 0.482 | 12.24 | 77 | 115 | 600 | 2700 |
| 12 | M9B725 | M9A725 | M9C725 | M9W725 | 0.618 | 15.70 | 130 | 193 | 600 | 2700 |
| Indoor/Outdoor Riser | | | | | | | | | | |
| 1 | M9B740 | M9A740 | M9C740 | M9W740 | 0.352 | 8.94 | 54 | 80 | 330 | 1468 |
| 2 | M9B741 | M9A741 | M9C741 | M9W741 | 0.372 | 9.45 | 55 | 82 | 345 | 1535 |
| 4 | M9B742 | M9A742 | M9C742 | M9W742 | 0.372 | 9.45 | 51 | 76 | 285 | 1267 |
| 6 | M9B743 | M9A743 | M9C743 | M9W743 | 0.432 | 10.97 | 74 | 110 | 405 | 1801 |
| 8 | M9B744 | M9A744 | M9C744 | M9W744 | 0.490 | 12.45 | 94 | 140 | 600 | 2700 |
| 12 | M9B745 | M9A745 | M9C745 | M9W745 | 0.626 | 15.90 | 151 | 229 | 600 | 2700 |

Please contact the Technical Support Group for proper connectivity integration and installation guidance.

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

TrayOptic® Heavy-Duty, All Dielectric Cable

Loose Tube — Indoor/Outdoor Riser Rated

Applications

- Industrial and other harsh environment applications
- Factory automation
- Direct burial

Product Description

Laser Optimized Fiber to handle Gigabit Ethernet light sources and expanded bandwidth requirements. Passes IEEE 383-2003 flame test. Waterblocking agent for moisture protection. CPE outer jacket option provides extra chemical or abrasion resistance.

| | |
|-----------------|-------------|
| Fiber Type | 62.5/125μ |
| Jacket Material | PVC or CPE |
| Strength Member | Aramid Yarn |
| Jacket Color | Orange |

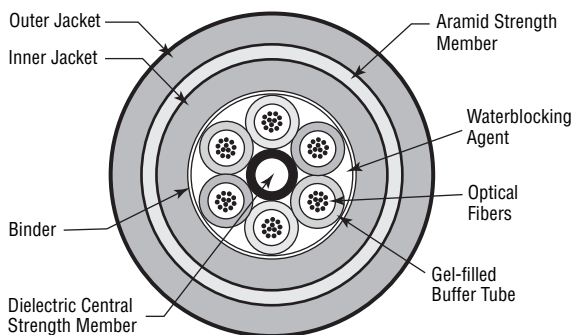
Ratings

| | |
|------------------|---------------|
| Riser | |
| UL Type | OFNR |
| cUL Type | OFN FT4 |
| Flame Resistance | IEEE 383-2003 |

Specifications

| | |
|---------------------------------------|---|
| Temperature Range | |
| Storage | -40 to +70°C |
| Operating | -40 to +70°C |
| Crush Resistance (EIA-455-41) | 2000 N/cm |
| Impact Resistance (EIA-455-25) | 2000 impacts @ 1.6N-m |
| Cyclic Flexing (EIA-455-104) | 25 cycles, 12 lbs., 20 x OD radius min. |
| Min. Bend Radius | |
| Installation | 20 x OD |
| Long Term | 15 x OD |
| Maximum Installation Load | 600 lbs. (2700 N) |
| Optical Specifications | See page 10.2 |

Fiber Bundle Detail



| No. of Fibers | Fibers Per Tube | Outside Diameter | | PVC Jacket | | | CPE Jacket | | |
|---------------|-----------------|------------------|----|-----------------|-------------------|--------------|-----------------|-------------------|--------------|
| | | Inches | mm | Belden Part No. | Weight Lbs./1000' | Weight kg/km | Belden Part No. | Weight Lbs./1000' | Weight kg/km |

TrayOptic Series

| Riser (NEC/CEC OFNR/OFN FT4) | | | | | | | | | |
|------------------------------|----|-------|-------|---------|-----|-----|---------|-----|-----|
| 2 | 2 | 0.440 | 11.18 | I100255 | 88 | 131 | I100266 | 83 | 124 |
| 4 | 4 | 0.440 | 11.18 | I100455 | 88 | 131 | I100466 | 83 | 124 |
| 6 | 6 | 0.440 | 11.18 | I100655 | 88 | 131 | I100666 | 83 | 124 |
| 8 | 4 | 0.440 | 11.18 | I400855 | 88 | 131 | I400866 | 83 | 124 |
| 12 | 6 | 0.440 | 11.18 | I601255 | 88 | 131 | I601266 | 83 | 124 |
| 18 | 6 | 0.440 | 11.18 | I601855 | 88 | 131 | I601866 | 83 | 124 |
| 24 | 6 | 0.440 | 11.18 | I602455 | 88 | 131 | I602466 | 83 | 124 |
| 36 | 6 | 0.440 | 11.18 | I603655 | 88 | 131 | I603666 | 83 | 124 |
| 48 | 12 | 0.540 | 13.72 | I604855 | 136 | 202 | I604866 | 129 | 192 |
| 60 | 12 | 0.540 | 13.72 | I606055 | 136 | 202 | I606066 | 129 | 192 |
| 72 | 12 | 0.540 | 13.72 | I607255 | 136 | 202 | I607266 | 129 | 192 |

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.