

Introduction Cables

Advanced Networks Need Advanced Technology

Today's advanced networks are diverse and very varied and almost always complex. The right way ahead is to future-proof these networks and take precautions to protect them against anything that will create problems, damage or disrupt. That means matching the right hardware with the right cabling to guarantee performance – and that means choosing fiber optic cable. This type of cable has become essential for bringing light-speed communication to hospitals, corporate campuses, educational facilities and other projects.

Key Applications

- Closed circuit television
- Network circuitry
- Factory automation
- Major commercial networks
- Video conferencing
- Medical imaging
- CAD/CAM

Special Features

• Interconnect Cables

Featuring semi-tight buffer and tight buffer technology for easy cable preparation during termination.

- Semi-tight buffered fiber cables are available in dry or jelly-filled constructions; both have excellent strippability properties (≤ 100 cm).
- Tight-buffered fiber cables are dry constructions and designed for easy stripping in cable preparation (≤ 10 cm).

• Breakout Cables (BO)

Breakout cables are the preferred choice for direct termination methods. Each numbered fiber subunit is protected by a layer of aramid yarn and encased in a FRNC/LSNH jacket. The individual subunits are cabled and then jacketed with a flame resistant FRNC/LSNH compound. Each fiber uses either the tight buffer technology or semi-tight buffer technology for excellent fiber stripping.

• Belden's Mini-Breakout

This cables offer dry constructions with semi-tight or tight buffer technology for easier fiber stripping during cable preparation. They are perfect for both indoor and indoor/outdoor use.

• Mobile Fiber Cables

Mobile fiber cable is a special cable in the range is Belden's mobile fiber cable. The semi-tight buffer technology is designed for rugged field applications and will withstand temperature extremes and vehicle traffic. Repeating bending is > 500000 times according to IEC 60794-1-2-E6. For indoor use, it has flame retardancy acc. IEC 60332-2.

• Central Loose Tube Cables (CLT)

Central loose tube cables are designed either for indoor/outdoor application or outdoor use only as direct burial, duct and outside tray. For better performance, Belden only uses (non-dripping and silicone-free) jelly-filled loose tubes. The central loose tube series has a polyethylene or halogen-free jacket. These cables have been updated with a longitudinal watertightness swellable yarn for weather-resistance.

- Standard and improved rodent protection designs are available with up to 24 fiber counts.
- Central loose tube cables are also available with Corrugated Steel Tape (CST), Steel Wire Armor (SWA) or Fiber Reinforced Plastic armor (FRP) to protect the whole cable from mechanical damage and rodents.

• Multi Loose Tube Cables (MLT)

Multi loose tube cables, with no aquagel between the tubes (dry core) or with jelly-filled cable core, are designed for direct burial, duct, outside tray and aerial applications. For better performance, Belden only uses (non dripping and silicone-free) jelly-filled loose tubes. Tubes and (when necessary) blind elements are S-Z stranded around the central element. The multi loose tube series has a High-Density-Polyethylene (HDPE) or halogen-free jacket. These cables have been updated with water-blocking aramid or glass yarn. Standard and improved rodent protection designs are available with high fiber counts up to 432 fibers.

- The multi loose tube cables are also available either with Corrugated Steel Tape armor (CST) or with galvanized Steel Wire Armor (SWA) for total protection.
- Longitudinal watertightness: to guarantee longitudinal watertightness acc. to IEC 60793-1-2-F5, Belden uses swellable yarns and/or tapes or filling compound.

Options:

- All loose tube cables with additional PA (nylon) jacket for termite/rodent protection, improved chemical resistance and reduced friction.
- Replace PE jacket by Orgalloy to improve chemical resistance.

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• Belden's Universal Cables

Belden's universal cables provide a unique combination of construction and performance characteristics that make them ideal for both outdoor and indoor use. The advantage is that splicing is not necessary when running cable from outside to inside.

- Because all fibers show surface imperfections, Belden exclusively uses fibers with proof test-level $\geq 8.8 \text{ N} / \geq 1\%$ ($\geq 100 \text{ kpsi}$). This means the expected life of the optical fiber cable is > 30 years.

• Belden Halogen-Free Optical Fiber Cables

This cables meet the most important international standards. The jacketing material is suitable for outdoor use, such as direct burial. Compared with other products containing halogens (such as PVC), Belden halogen-free materials offer considerable advantages in the event of a fire:

- Better vision
- Minimal poisonous gases
- No release of highly caustic acids
- Greater safety for people, materials and the environment

Belden's halogen-free optical fiber cables are both FRNC (Flame-Retardant, Non-Corrosive) and LSNH (Low-Smoke, Non-Halogen) according to recognized standards.

• Direct Burial Cables

In general loose tube cables are suitable for direct burial. However, in case of rocky soil armored cables are recommended.

• Belden Optical Fiber Cables

All cable constructions are in accordance with IEC 60793, and have been tested according to IEC 60794.

Rodent Protection

The Belden fiber optic cable line offers two different kind of rodent protection:

- Standard Rodent Protection
Optical fiber cables with glass reinforced yarns for strength also provide normal protection against rodents.
- Improved Rodent Protection
Belden offers cables with improved rodent protection. These have extra glass reinforced yarns or an extra layer of nylon (polyamide). The idea behind this is that rodents will look for the easiest route. Rodents will bite anything in order to keep their teeth in proper shape but will only continue if they feel comfortable. With the nylon layer or "glass" yarns they will normally stop and move elsewhere.

It is important to note that non-armored cable never guarantees a 100% protection against rodents.

Armored cables (CST, SWA, FRP) are heavy rodent protected.

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Guide to Installation and Handling

General

When laying and installing optical fiber 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.

If a cable needs to be fastened, constrictions ≥ 1 mm (multi-tube cable) or ≥ 0.3 mm (central-tube cable, distribution cable) must be prevented.

Outdoor/Universal Cables

It is advisable to cap the cable-ends during outdoor storage.

- **Outdoor/Universal Loose Tube Cables**

- 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.
- The jelly-filling inside the tubes can be removed using a tissue soaked in turpentine.

Indoor Cables

Indoor optical fiber cables have been designed for use inside buildings. Consequently they are not longitudinally watertight.

- **Indoor Interconnection (Simplex, Duplex) Cables**

- In cable with jelly-filled semi-tight buffered optical fibers the primary and secondary coating are separated by means of a very thin layer of jelly. Consequently the strippability is very good. If necessary the jelly can be removed using a tissue soaked in turpentine, for example.
- Interconnection optical fiber cables have been designed for short distance applications (tens of meters) inside buildings.

- **Pigtails**

(Semi-) Tight-buffered optical fibers have been designed for short distance (≤ 10 m) applications

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Part Number Coding (except Plenum Optical Fiber)

1	2	Product	3	Type	4	Construction	5	Quality	6	Fiber Count (mm)	7	Fiber Count
G	A	Messenger figure 8	A	Aramid	A	CLT T12 [1x12]	1	62.5/125-OM1	A	Simplex Duplex 1.6 mm		
	B	Outdoor Dry MLT	B	Breakout	B	CLT T24 [1x24]	2	50/125-OM2	B	Simplex Duplex 1.8 mm		
	C	Universal Dry MLT	C	CST Single sheath	C	MLT T48 [6x8] (helical)	3	50/125-OM3	C	Simplex Duplex 2.0 mm		
	D	Outdoor Filled MLT	D	CST Double Sheath	D	MLT T72 [6x12]	4	50/125-OM2e	D	Simplex Duplex 2.4 mm		
	E	Universal Filled MLT	F	FRP	E	MLT T96 [8x12]	5	50/125-OM2	E	Simplex Duplex 2.8 mm		
	I	Indoor	L	AL/PE Sheath	F	MLT T144 [12x12]	6	50/125-OM3+	F	Simplex Duplex 3.0 mm		
	M	Mobile	M	Mini-Breakout	G	MLT T36 [6x6]	7	9/125-G655	0-9	Part of Fibercount	0-9	Part of Fibercount
	O	Outdoor Dry	O	Pigtail	H	MLT T24 [6x4]	8	9/125-G652D				
	U	Universal Dry	P	Patchcord	I	MLT T192 [8x24]	9	9/125-G652B				
			R	Improved RP	J	MLT T288 [12x24]	0	No Fiber, APF				
			S	Standard RP	K	Semi-Tight (dry)						
			X	Mini-BO+RP	L	MLT T432 [18x24]						
			W	SWA	M	MLT T216 [18x12]						
					S	Semi-Tight (Jelly-Filled)						
					T	Tight						

RP = Rodent Protection • SWA = Galvanised Steel Wire Armor • CST = Corrugated Steel Tape • FRP = Fiber Reinforced Plastic Armor

To specify Part Number

1. Example: GIBT412

1	2	3	4	5	6	7
G	I	B	T	4	1	2
Fiber	Indoor	Breakout	Tight Buffer	50/125-OM2e	12	

2. Example: GDDF744

1	2	3	4	5	6	7
G	D	D	F	7	4	4
Fiber	MLT Outdoor Filled SZ	CST Double Sheat	MLT144 (12x12)	9/125-G655	144	

Optical Characteristics

European Part Number Coding (position 5)	Fiber-Type	Mode-Field Diameter / Cladding Diameter (µm)	Wavelength (nm)	Dispersion (ps / (nm • km))	PMD (ps / √km)	Cable Cut-off Wavelength (nm)	Refractive Index	Attenuation	
								Loose Tube Cables average/max. (dB / km)	(Semi-) Tight average/max. (dB / km)
Characteristics (Cabled) Single-Mode – Matched-Cladded Optical Fibers according to ITU-G.652									
9	9/125-OS1 ITU-G.652B	9.2 ± 0.4 125 ± 1	1310 1550	≤ 3.5 ≤ 18	≤ 0.2	≤ 1260	1.467 1.467	0.32/0.4 0.21/0.3	0.35/0.5 0.21/0.3
8	9/125-OS1 ITU-G.652D	9.2 ± 0.4 125 ± 0.7	1310 1550	≤ 3.5 ≤ 18	≤ 0.2	≤ 1260	1.467 1.467	0.32/0.4 0.21/0.3	0.35/0.5 0.21/0.3
Characteristics (Cabled) Single-Mode – Matched-Cladded Optical Fibers According to ITU-G.655									
7	9/125	8.4 ± 0.6/125 ± 1	1550	3.5 - 8.5	≤ 0.1 ^A	≤ 1260	1.470	0.25/0.3	0.25/0.28

Note A: Link design value

European Part Number Coding (position 5)	Fiber-Type	Core / Cladding Diameter (µm)	Wavelength (nm)	Bandwidth (MHz • km)	Ethernet Performance (m)		Numerical Aperture (µm)	Refractive Index	Attenuation	
					1GbE	10GbE			Loose Tube Cables average/max. (dB / km)	(Semi-) Tight average/max. (dB / km)
Characteristics (Cabled) Multimode – Graded-Index Optical Fibers According to IEC 60793										
1	62.5/125 OM1	62.5 ± 2.5 125 ± 1	850 1300	≤ 200 ≤ 600	275 550	33 N.A.	0.275 ± 0.015	1.495 1.490	2.7/3.2 0.6/1.1	3.0/3.2 0.7/0.9
5	50.0/125 OM2	50.0 ± 2.5 125 ± 1	850 1300	≤ 500 ≤ 500	600 600	82 N.A.	0.200 ± 0.015	1.481 1.476	2.4/3.0 0.7/1.0	2.6/2.8 0.6/0.9
2	50.0/125 OM2	50.0 ± 2.5 125 ± 1	850 1300	≤ 600 ≤ 1200	600 600	82 N.A.	0.200 ± 0.015	1.481 1.476	2.3/2.8 0.6/0.9	2.6/2.8 0.6/0.9
4	50.0/125 OM2e	50.0 ± 2.5 125 ± 1	850 1300	≤ 600 ≤ 1200	750 2000	110 N.A.	0.200 ± 0.015	1.481 1.476	2.3/2.8 0.6/0.9	2.6/2.8 0.6/0.9
3	50.0/125 OM3	50.0 ± 2.5 125 ± 1	850 1300	≤ 1500 ≤ 500	900 550	300 N.A.	0.200 ± 0.015	1.482 1.477	2.5/3.0 0.5/1.0	2.6/2.8 0.6/0.9
6	50.0/125 OM3+	50.0 ± 2.5 125 ± 1	850 1300	≤ 3500 ≤ 500	900 550	550 N.A.	0.200 ± 0.015	1.482 1.477	2.5/3.0 0.5/1.0	2.6/2.8 0.6/0.9

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Cable Finder Guide Optical Fibers

Part No.	Description	Buffer	Construction	Remarks	Fiber Size μm	Application	VDE	Page
Intex, Indoor and Mobile Cables with (Semi-) Tight-Buffered Optical Fibers								
Interconnect Cables								
GIOK	Pigtails	Semi-Tight	Dry	Excellent Strippability, LSNH	245	Indoor	I-K	16.25
GIPS	Simplex	Semi-Tight	Jelly-Filled	Excellent Strippability, FRNC/LSNH	245	Indoor	I-W(ZN)H	16.25
GIPS	Simplex, furcation tube	–	Dry	Empty Tube, PUR	–	Indoor	–	16.32
GIPS	Duplex	Semi-Tight	Jelly-Filled	Excellent Strippability, FRNC/LSNH, Figure 8	245	Indoor	I-W(ZN)H	16.26
GIPK	Heavy Duplex	Semi-Tight	Dry	Excellent Strippability, FRNC/LSNH, flat	245	Indoor	I-K(ZN)HH	16.26
GIPT	Mini-Zip	Tight	Dry	FRNC/LSNH, Figure 8	280	Indoor	I-V(ZN)H	16.27
Breakout Cables								
GIBT	2-24 Fibers	Tight	Dry	FRNC/LSNH	280	Indoor	I-V(ZN)HH	16.28
GIBK	2-12 Fibers	Semi-Tight	Dry	FRNC/LSNH	245	Indoor	I-K(ZN)HH	16.28
Mini-Breakout Cables (Distribution)								
GIMT	2-24 Fibers	Tight	Dry	FRNC/LSNH	280	Indoor	I-V(ZN)H	16.29
GIMK	2-8 Fibers	Semi-Tight	Dry	FRNC/LSNH	245	Indoor	I-K(ZN)H	16.29
GUMT	4-24 Fibers	Tight	Dry	FRNC/LSNH	280	In/Outdoor	A/I-VQ(ZN)H	16.30
GUXT	4-24 Fibers	Tight	Dry	FRNC/LSNH, Improved Rodent Protection	280	In/Outdoor	A/I-VQ(ZN)BH	16.31
GMMT	4-8 Fibers	Tight	Dry	Intex Mobile, PUR	280	In/Outdoor	A/I-VQ(ZN)11Y	16.32
Universal and Outdoor Cables with Loose Tubes								
Central Loose Tube Cables (CLT)								
GOSA	2-12 Fibers	–	Dry	PE, Standard Rodent Protection	250	Outdoor	A-DQ(ZN)2Y	16.33
GOSB	2-24 Fibers	–	Dry	PE, Standard Rodent Protection	250	Outdoor	A-DQ(ZN)2Y	16.33
GORA	2-12 Fibers	–	Dry	PE, Improved Rodent Protection	250	Outdoor	A-DQ(ZN)B2Y	16.34
GORB	2-24 Fibers	–	Dry	PE, Improved Rodent Protection	250	Outdoor	A-DQ(ZN)B2Y	16.34
GOFB	2-24 Fibers	–	Dry	PE, Full Rodent Protection, Armored (FRP)	250	Outdoor	A-DQB2Y (FRP1.0)	16.35
GOWB	2-24 Fibers	–	Dry	Double PE, Full Rodent Protection, Armored (SWA)	250	Outdoor	A-DQ(ZN)2YB2Y (R0.63vzk)	16.35
GOCB	2-24 Fibers	–	Dry	PE, Full Rodent Protection, Armored (CST)	250	Outdoor	A-DQ(ZN)(SR)2Y	16.36
GODA	2-12 Fibers	–	Dry	Double PE, Full Rodent Protection, Armored (CST)	250	Outdoor	A-DQ(ZN)2Y(SR)2Y	16.36
GODB	2-24 Fibers	–	Dry	Double PE, Full Rodent Protection, Armored (CST)	250	Outdoor	A-DQ(ZN)2Y(SR)2Y	16.36
GUSA	2-12 Fibers	–	Dry	FRNC/LSNH, Standard Rodent Protection	250	In/Outdoor	A/I-DQ(ZN)H	16.37
GUSB	2-24 Fibers	–	Dry	FRNC/LSNH, Standard Rodent Protection	250	In/Outdoor	A/I-DQ(ZN)H	16.37
GURA	2-12 Fibers	–	Dry	FRNC/LSNH, Improved Rodent Protection	250	In/Outdoor	A/I-DQ(ZN)BH	16.38
GURB	2-24 Fibers	–	Dry	FRNC/LSNH, Improved Rodent Protection	250	In/Outdoor	A/I-DQ(ZN)BH	16.38
GUCB	2-24 Fibers	–	Dry	FRNC/LSNH, Full Rodent Protection, Armored (CST)	250	In/Outdoor	A/I-DQ(ZN)(SR)H	16.39
GUWB	2-24 Fibers	–	Dry	Double FRNC/LSNH, Full RP, Armored (SWA)	250	In/Outdoor	A/I-DQ(ZN)HBH (R0.63vzk)	16.40
GUDA	2-12 Fibers	–	Dry	Double FRNC/LSNH, Full RP, Armored (CST)	250	In/Outdoor	A/I-DQ(ZN)H(SR)H	16.39
GUDB	2-24 Fibers	–	Dry	Double FRNC/LSNH, Full RP, Armored (CST)	250	In/Outdoor	A/I-DQ(ZN)H(SR)H	16.39
Multi Loose Tube Cables (MLT)								
GBA	4-432 Fibers	–	Dry	HDPE	250	Outdoor	A-DQ(ZN)2Y	16.41
GDA	4-432 Fibers	–	Filled	HDPE	250	Outdoor	A-DF(ZN)2Y	16.42
GBR	4-432 Fibers	–	Dry	HDPE, Improved Rodent Protection	250	Outdoor	A-DQ(ZN)B2Y	16.43
GDR	4-432 Fibers	–	Filled	HDPE, Improved Rodent Protection	250	Outdoor	A-DF(ZN)B2Y	16.44
GBD	4-432 Fibers	–	Dry	HDPE, Full Rodent Protection, Armored (CST)	250	Outdoor	A-DQ(ZN)2Y(SR)2Y	16.45
GDD	4-432 Fibers	–	Filled	HDPE, Full Rodent Protection, Armored (CST)	250	Outdoor	A-DF(ZN)2Y(SR)2Y	16.46
GBW	4-432 Fibers	–	Dry	HDPE, Full Rodent Protection, Armored (SWA)	250	Outdoor	A-DQ2YB2Y (R1.0vzk)	16.47
GDW	4-432 Fibers	–	Filled	HDPE, Full Rodent Protection, Armored (SWA)	250	Outdoor	A-DF2YB2Y (R1.0vzk)	16.48
GALH	4-24 Fibers	–	Filled	PE, Steel Wire Messenger, Figure 8	250	Aerial-Outdoor	A-DSF(L)2YT	16.49
GALD	12-72 Fibers	–	Filled	PE, Steel Wire Messenger, Figure 8	250	Aerial-Outdoor	A-DSF(L)2YT	16.49
GAAD	12-72 Fibers	–	Filled	PE, Dielectric Messenger, Figure 8	250	Aerial-Outdoor	A-DF(ZN)2YT	16.50
GCA	4-432 Fibers	–	Dry	LSZH	250	In/Outdoor	A/I-DQ(ZN)H	16.51
GEA	4-432 Fibers	–	Filled	LSZH	250	In/Outdoor	A/I-DF(ZN)H	16.52
GCR	4-432 Fibers	–	Dry	LSZH, Improved Rodent Protection	250	In/Outdoor	A/I-DQ(ZN)BH	16.53
GER	4-432 Fibers	–	Filled	LSZH, Improved Rodent Protection	250	In/Outdoor	A/I-DF(ZN)BH	16.54
GCD	4-432 Fibers	–	Dry	LSZH, Full Rodent Protection, Armored (CST)	250	In/Outdoor	A/I-DQ(ZN)H(SR)H	16.55
GED	4-432 Fibers	–	Filled	LSZH, Full Rodent Protection, Armored (CST)	250	In/Outdoor	A/I-DF(ZN)H(SR)H	16.56
GCW	4-432 Fibers	–	Dry	LSZH, Full Rodent Protection, Armored (SWA)	250	In/Outdoor	A/I-DQHBH (R1.0vzk)	16.57
GEW	4-432 Fibers	–	Filled	LSZH, Full Rodent Protection, Armored (SWA)	250	In/Outdoor	A/I-DFHBH (R1.0vzk)	16.58

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Color Codes

Interconnect Cables

Fiber No.	Color (Sec. Coating)
SM 9/125	Yellow
MM 50/125	Green
MM 62.5/125	Blue

Breakout Cables

Fiber No.	Color (Sub-unit Jacket)
1-24 (MM)	Orange
1-24 (SM)	Yellow

Mini-Breakout Cables

Fiber No.	Color (Sec. Coating)
1	White
2	Red
3	Blue
4	Yellow
5	Green
6	Violet
7	Brown
8	Black
9	Orange
10	Turquoise
11	Pink
12	Grey

Fiber No.	Color (Prim. Coating*)
13	White
14	Red
15	Blue
16	Yellow
17	Green
18	Violet
19	Brown
20	Black
21	Orange
22	Turquoise
23	Pink
24	Grey

* secondary coating is transparent

Central Loose Tube Cables*

Fiber No.	Color
1	Red
2	Green
3	Blue
4	Yellow
5	White
6	Grey
7	Brown
8	Violet
9	Turquoise
10	Black
11	Orange
12	Pink

Fiber No.	Color
13	Red/Black
14	Green/Black
15	Blue/Black
16	Yellow/Black
17	White/Black
18	Grey/Black
19	Brown/Black
20	Violet/Black
21	Turquoise/Black
22	Natural/Black
23	Orange/Black
24	Pink/Black

* fiber color code according to IEC 60304; different color coding available on request

Multi Loose Tube Cables*

Fiber No.	Color
1	Red
2	Green
3	Blue
4	Yellow
5	White
6	Grey
7	Brown
8	Violet
9	Turquoise
10	Black
11	Orange
12	Pink

Fiber No.	Color
13	Red/Black
14	Green/Black
15	Blue/Black
16	Yellow/Black
17	White/Black
18	Grey/Black
19	Brown/Black
20	Violet/Black
21	Turquoise/Black
22	Natural/Black
23	Orange/Black
24	Pink/Black

* fiber color code according to IEC 60304; different color coding available on request

Color Code Tubes

Tube No.	Color
1	Red
2	Green
Rest	White

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Cable Selection Guide Plenum

Optical Fiber Selection

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	1000	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 ⁶
Glass Type:	62.5/125 μ	62.5/125 μ	50/125 μ	50/125 μ	50/125 μ	
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	–/10000

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

Availability

Many of these are available off the shelf from distributors. If you have a new or unusual application or you cannot find a fiber cable in this catalog section that meets your technical requirements contact technical support at +31-77-3875-414 or techsupport.venlo@belden.com.