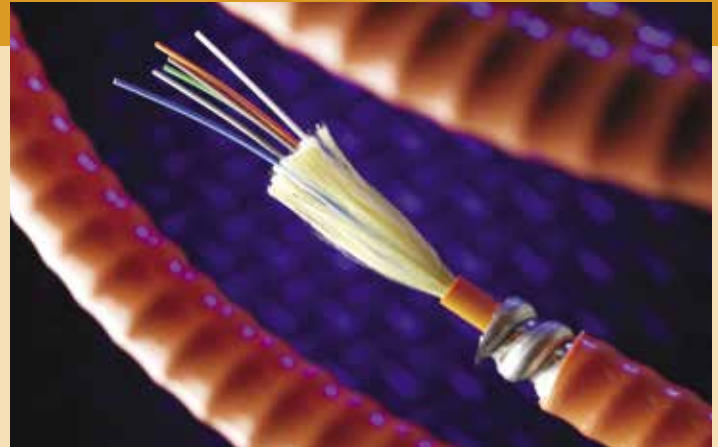


Optical Fiber

General Cable, Corning® Optical Fiber. Names that are synonymous with cable and fiber combine to create the ultimate in fiber optics. General Cable partners with Corning Optical Fiber to deliver the world's most reliable and technologically advanced optical fiber cables.



Singlemode

Standard

General Cable utilizes Corning® SMF-28e+™ fiber as its standard singlemode offering. This is a full-spectrum fiber that is fully backward-compatible with legacy singlemode fiber. It enables increased optical launch power of legacy singlemode fiber, improved macrobend specifications from 0.05 dB to 0.03 dB, and tighter zero dispersion wavelength (λ_0) tolerance from a range of ± 10 nm to ± 7 nm. This fiber supports all broadband applications and complies with the most stringent industry standards, such as:

- ITU-T G.652 (Tables A, B, C and D)
- IEC 60793-2-50 Type B1.3
- ISO 11801 052
- TIA/EIA 492-CAAB
- Telecordia GR-20-CORE

Long-Haul

For long-haul applications, rely on General Cable's long history of cable experience and the technology of Corning® LEAF® fiber. This is the most widely deployed non-zero dispersion shifted (NZ-DSF) fiber in the world and the first low water peak NZ-DSF fiber. Its large effective area and industry-leading polarization mode dispersion (PMD) specifications enable 10 Gb/s and 40 Gb/s network systems of the future.

ClearCurve® ZBL

General Cable, utilizing Corning® ClearCurve® ZBL Optical Fiber, delivers the best macrobending performance in the industry while maintaining compatibility with current optical fibers, equipment, practices and procedures. This full-spectrum singlemode optical fiber, when subjected to smaller radii bends, experiences virtually no signal loss. ClearCurve fiber exceeds the most stringent bend performance requirements of ITU-T Recommendations G.657.B3 while remaining fully compliant with ITU-T Recommendation G.652.D and the installed base of Corning SMF-28e® and SMF-28e+® fiber.

Multimode

ClearCurve® Multimode Fiber

Corning® ClearCurve® ultra-bendable laser-optimized™ multimode optical fiber delivers the best macrobending performance in the industry while maintaining compatibility with current optical fibers, equipment, practices and procedures. ClearCurve OM3/OM4 multimode fiber is designed to withstand tight bends and challenging cable routes with substantially less signal loss than conventional multimode fiber.

These fibers have superior measurement technology and manufacturing control, and industry-leading CPC® coatings for superior microbend and environmental performance. ClearCurve fiber performance is ensured by minEMBc, the industry's leading standards-approved bandwidth measurement for OM3 fibers. ClearCurve fibers are the only ones to use this measurement to ensure 10 Gb/s performance.

50 micron

These fibers support data rates of 10 Gb/s at 850 nm. They also comply with the most stringent industry standards, such as:

- ISO/IEC 11801, type OM2, OM3 and OM4* fibers
- IEC 60793-2-10, type A1a.1, A1a.2 and A1a.3* fibers
- TIA/EIA, 492AAAB, 492AAAC-A and 492AAAD

* Assumes IEC draft standard is harmonized with 492AAAD, which was approved by TIA

62.5 micron

These fibers support data rates of 1 Gb/s in both the 850 nm and 1300 nm windows. They comply with the most stringent industry standards, such as:

- ISO/IEC 11801, type OM1 fiber
- IEC 60793-2-10, type A1b fiber
- TIA/EIA, 492AAAA-A

Optical Fiber Code Cross-Reference

Fiber Type	General Cable	Corning® Optical Fiber	Description
Standard Loose Tube SM	AQ	SMF-28® Ultra	Full spectrum, low water peak singlemode, ITU-T Recommendation G.657.A1, IEC 60793-2-50 for B1.3 and B6_a1 class fibers, TIA/EIA-492CAAB and Telcordia GR-20-CORE, Issue 3
Performance Loose Tube SM	AT	SMF-28® Ultra	Full spectrum, high performance low water peak singlemode with 0.35/0.25 attenuation, ITU-T Recommendation G.657.A1, IEC 60793-2-50 for B1.3 and B6_a1 class fibers, TIA/EIA-492CAAB and Telcordia GR-20-CORE, Issue 3
Tight Buffer SM	AP	SMF-28® Ultra	Full spectrum, low water peak singlemode with 900 µm PVC buffer, ITU-T Recommendation G.657.A1, IEC 60793-2-50 for B1.3 and B6_a1 class fibers, TIA/EIA-492CAAB and Telcordia GR-20-CORE, Issue 3
Long-Haul SM	AL	LEAF® Fiber	Large A _{eff} , low water peak, NZ-DSF singlemode, ITU-T G.655
Bendable SM	AY	ClearCurve® LBL	Full spectrum with best macrobending performance, ITU-T G.652.D and ITU-T G.657.A21B2
Ultra-Bendable SM	AZ	ClearCurve® ZBL	Full spectrum with best macrobending performance, ITU-T G.652.D and ITU-T G.657.A
62.5 µm MM	CG	InfiniCor® 300 Fiber	1 Gb/s ≤ 300 m at 850 nm, OM1* 1 Gb/s ≤ 550 m at 1300 nm
62.5 µm MM	CL	InfiniCor® CL™ 1000 Fiber	1 Gb/s ≤ 500 m at 850 nm, OM1* 1 Gb/s ≤ 1000 m at 1300 nm
Ultra-Bendable 50 µm MM	BI	ClearCurve® OM2 Fiber	10 Gb/s ≤ 150 m at 850 nm, OM2* 1 Gb/s ≤ 750 m at 850 nm
Ultra-Bendable 50 µm MM	BE	ClearCurve® OM3 Fiber	10 Gb/s ≤ 300 m at 850 nm, OM3* 1 Gb/s ≤ 1000 m at 850 nm
Ultra-Bendable 50 µm MM	BL	ClearCurve® OM4 Fiber	10 Gb/s ≤ 550 m at 850 nm, OM4* 1 Gb/s ≤ 1100 m at 850 nm
Ultra-Bendable 50 µm MM	BM	ClearCurve® OM4 Fiber	10 Gb/s ≤ 600 m at 850 nm, OM4+* 1 Gb/s ≤ 1100 m at 850 nm

* Designation per ISO 11801 Fiber Standards

SMF-28e+ is a trademark and Corning, LEAF, InfiniCor and Plus Corning Optical Fiber are registered trademarks of Corning Incorporated, Corning, NY, U.S.A.

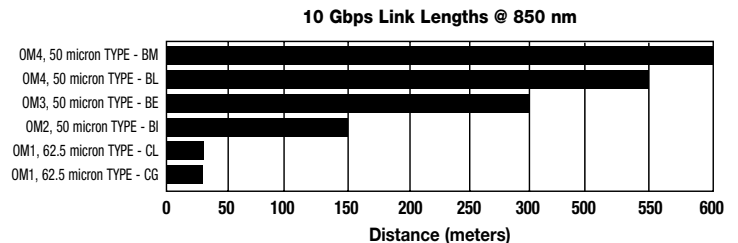
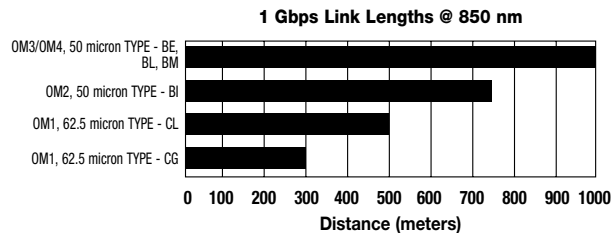
Fiber Specification and Selection

1

MULTIMODE FIBER SELECTION GUIDE

Optical Characteristics:		50/125 PRODUCT FAMILY				62.5/125 PRODUCT FAMILY		UNITS
		OM2 Type-BI	OM3 Type-BE	OM4 Type-BL	OM4 Type-BM	OM1 Type-CG	OM1 Type-CL	
Maximum Finished Cable Attenuation Coefficient	@850 nm	3.0	3.0	3.0	3.0	3.5	3.5	dB/km
	@1300 nm	1.0	1.0	1.0	1.0	1.0	1.0	dB/km
Overfill Launch Bandwidth	@850 nm	700	1500	1500	1500	200	200	MHz.km
	@1300 nm	500	500	500	500	500	500	MHz.km
Laser Bandwidth	@850 nm	850	2000	4700	5350*	220	385	MHz.km
Gigabit Ethernet Link Length (1 Gbps)	1000 BASE-SX (850 nm)	750	1000	1100	1100	300	500	meters
	1000 BASE-LX (1300 nm)	550	550	550	550	550	1000	meters
10 Gigabit Ethernet Link Length (10 Gbps)	10G BASE-SR (850 nm)	150	300	550	600	33	33	meters

* Using 3.0 dB cable attenuation and 0.7 dB connector allocation



SINGLEMODE FIBER SELECTION GUIDE

FIBER DESCRIPTION	FIBER TYPE	TYPICAL ATTENUATION (dB/km)				GIGABIT ETHERNET DISTANCE (METERS)	10 GIGABIT ETHERNET DISTANCE (METERS)	
		1310 nm	1383 nm	1550 nm	1625 nm	1310 nm	1310 nm	1550 nm
OS2 Singlemode - Loose Tube								
Premium	AQ	0.40	0.40	0.30	0.35	10,000	5,000	30,000
High Performance	AT	0.35	0.35	0.25	0.30	10,000	5,000	30,000
OS2 Singlemode - Tight Buffer								
Distribution	AP	0.65	–	0.65	–	10,000	5,000	30,000
Breakout	AP	1.00	–	1.00	–	10,000	5,000	30,000

SPECIALTY FIBERS – SINGLEMODE

FIBER DESCRIPTION	FIBER TYPE	TYPICAL ATTENUATION (dB/km)				TYPICAL APPLICATION
		1310 nm	1383 nm	1550 nm	1625 nm	
Singlemode (NZDS)						
Large Effective Area	AL	–	–	0.30	0.30	DWDM
Singlemode						
Bend-Insensitive	AZ	0.40	0.40	0.30	0.30	SMALL BEND RADIUS

Use the code in the “Fiber Type” column to replace the XX notation in the catalog number shown on the catalog page. This identifies the fiber that will be provided with the cable choice.

The fibers in all completed cables are tested 100% at the factory for attenuation, and each fiber must meet the minimum requirements specified by the customer.

Fiber Optic Ordering Information

2

We strive to have a variety of cables in stock for immediate delivery to our customers. Should the cable not be in stock, it will be manufactured to your specifications.

To choose a fiber optic cable, you need to know the following:

1) What type and grade of fiber is required?

The system designer will have identified the fiber that is required for the network. Find the fiber type that is needed from the Fiber Specification and Selection Guide. Use the two-digit NextGen® Fiber Type code to identify the fiber. This code becomes the first two digits of the catalog part number, replacing the XX notation.

2) How many fibers are required?

The system designer will also have identified the number of fibers that will be in each cable. Fibers are usually cabled in groups of 6 or 12.

3) What cable construction is needed?

The cable construction that is needed is based on a variety of factors. We have a full range of products for premises, outside plant and indoor/outdoor to solve nearly every application need. Using the catalog as a guide, identify the cable type and construction that is needed.

With the cable construction decided, move down the table on the catalog page to find the number of fibers required. The first column of that row is the catalog part number. Simply replace the XX at the beginning of the catalog number shown with the Fiber Type code found in step 1, and the part number is complete.

Fiber Optic Part Number System

Example: AP0121PNU-ILPA

Singlemode, 12 Fibers, Tight Buffer Distribution Plenum, Interlock Armor Plenum Aluminum

A	P	0	1	2	1	P	N	U	ILPA
1	2	3	4	5	6	7	8	9	[SUFFIX]

Fiber Grade

Position 1, 2

In position 1

A: Singlemode (sm)

B: 50 MM Multimode (mm)

C: 62.5 MM Multimode (mm)

For position 2, reference pages 2 and 3
for fiber specifications and grades.

Requested Fiber Count

Position 3, 4, 5

Standard Offerings:

6 12 24 36 48 72

Buffer Construction

Position 6

1) Tight Buffer; 3) Single Fiber Loose Tube

4) Multi-Fiber Loose Tube 6) Bare/Ribbon

Note: 2) Quick Strip and 5) Loose Buffer no longer available

Suffixes

- **BK** Black Jacket (UV Resistant)
- **DWB** Dry Water Block Cable Core
- **DT** Dry Tube
- **ILP** Interlock Armor Plenum Steel
- **ILPA** Interlock Armor Plenum Aluminum
- **ILPS** Interlock Armor Plenum Steel w/Sub-Units
- **ILPAS** Interlock Armor Plenum Aluminum w/Sub-Units
- **ILR** Interlock Armor Riser Steel
- **ILRA** Interlock Armor Riser Aluminum
- **ILRS** Interlock Armor Riser Steel w/Sub-Units
- **ILRAS** Interlock Armor Riser Aluminum w/Sub-Units
- **RIP** Ripcord

Series Type

Position 7, 8, 9

Outdoor:

E1S: Loose Tube TJ Dual Armor

H1A: Loose Tube DJ

H1F: Loose Tube DJ Armored

H1S: Loose Tube DJ Dual Armor

M1A: Loose Tube SJ

M1F: Loose Tube SJ Armored

M1N: Loose Tube SJ Armored Self-Supporting

M1Y: Loose Tube SJ Self-Supporting

R1A: Loose Tube SJ Ribbon cable

U1A: All-Dielectric Flat Drop Cable

U1A.TF: Toneable Flat Drop Cable

U2A: Mini (Figure-8) Drop Cable

UNFC: Compact Central Loose Tube Drop Cable

UNFS: Central Tube SJ Armored

Indoor:

B3D: Tight Buffer Breakout Plenum

B3R: Tight Buffer Breakout Riser

PNR/P1R: Tight Buffer Distribution Riser

PNU/P1D: Tight Buffer Distribution Plenum

PNZ/P1Z: Tight Buffer Distribution LSZH

RNP: Tight Buffer Distribution Ribbon Plenum

Indoor/Outdoor:

ANR/A1R: Tight Buffer Distribution Riser

ANU/A1D: Tight Buffer Distribution Plenum

M1D: Loose Tube SJ Plenum

M1M: Loose Tube SJ Riser

M1Z: Loose Tube SJ LSZH

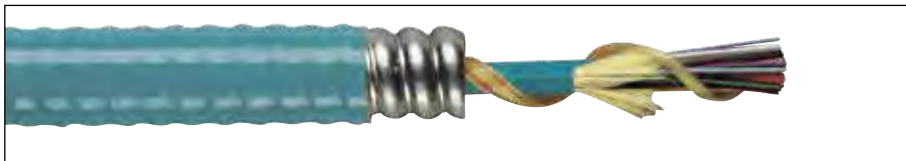
Specialty:

GNC: Military Tactical Distribution Cable

Note: DJ = Dual Jacket
SJ = Single Jacket
TJ = Triple Jacket

Tight Buffer Distribution Interlock Armored Plenum Cable

Type OFCP, CSA FT6

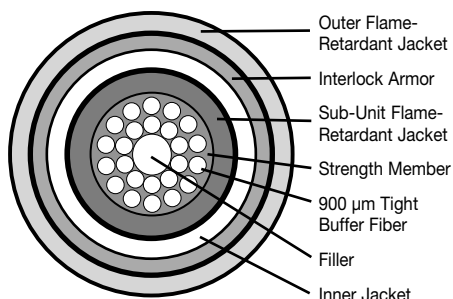


CATALOG NUMBER	FIBER COUNT	NO. OF SUB-UNITS	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
			IN	mm	LBS/1000'	kg/km	INSTALLATION		IN-SERVICE	
XX0021PNU-ILPA	2	—	0.42	11	76	114	550	2447	165	734
XX0041PNU-ILPA	4	—	0.42	11	78	117	550	2447	165	734
XX0061PNU-ILPA	6	—	0.42	11	80	120	550	2447	165	734
XX0121PNU-ILPA	12	—	0.47	12	100	149	550	2447	165	734
XX0241PNU-ILPA	24	—	0.61	16	130	194	550	2447	165	734
XX0241PNU-ILPAS	24	4	0.70	18	136	202	1000	4448	300	1334
XX0361PNU-ILPAS	36	6	0.73	19	158	235	1000	4448	300	1334
XX0481PNU-ILPAS	48	4	0.80	20	209	311	1000	4448	300	1334
XX0601PNU-ILPAS	60	5	0.85	22	187	278	1000	4448	300	1334
XX0721PNU-ILPAS	72	6	0.95	24	273	406	1000	4448	300	1334
XX0961PNU-ILPAS	96	8	1.05	27	328	488	1000	4448	335	1490
XX1201PNU-ILPAS	120	10	1.10	28	372	554	1000	4448	335	1490
XX1441PNU-ILPAS	144	12	1.20	31	386	574	1000	4448	335	1490

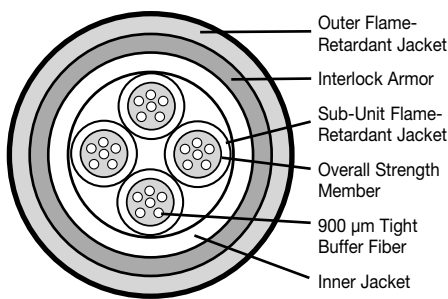
XX Denotes glass type.

A complete listing of NextGen® Brand glass types is specified on page 3 of this catalog.

Typical Cross-Sections



PNU-ILPA ≤ 24 Fiber



PNU-ILPAS ≥ 24 Fiber

Hybrid designs (containing singlemode and multimode fiber) and composite designs (containing copper conductors) are also available.

Ordering Part Number Example

BE0241PNU-ILPA or BE0241PNU-ILPAS

50 μm multimode, 24 fibers, tight buffer distribution interlock armor plenum
Please see pages 4 and 5 for a complete guide on part number selection and ordering information.

Product Construction:

Fiber:

- 4–144 fibers
- 900 μm tight buffer
- Color-coding per TIA/EIA 598 B

Overall Strength Member:

- Aramid fiber yarn

Inner Jacket:

- Flame-retardant compound

Armor:

- Interlock aluminum (-ILPA)

Outer Jacket:

- Flame-retardant compound
- Sequential footage markings*
- Orange jacket—multimode fibers (except 10 Gbps)
- Aqua jacket—10 Gbps multimode fibers
- Yellow jacket—singlemode fibers

Features:

- Interlock armor provides outstanding mechanical protection
- Interlock armor is flexible and easy to use
- Tight buffer provides individual fiber protection
- Sub-units are numbered for identification

Performance:

- Temperature:
Storage -40°C (-40°F) to +70°C (+158°F)
Installation 0°C (+32°F) to +50°C (+122°F)
Operating -20°C (-4°F) to +70°C (+158°F)
- Minimum Bend Radius
20 X OD—Installation
10 X OD—In-Service
- Maximum Crush Resistance:
1,500 lbs/in (2,627 N/cm)

Applications:

- Harsh premises environments requiring heavy-duty protection
- ETL Type OFCP for installation in any premises location when installed in accordance with NEC article 770.154 and 770.179

Compliances:

- ETL Listed Type OFCP
- CSA FT6
- TIA 568 C.3
- ICEA S-83-596
- GR-409
- RoHS Compliant Directive 2011/65/EU

Note:

Armored cable without an outer jacket available upon request (-IL)

*Sequential meter markings available upon request