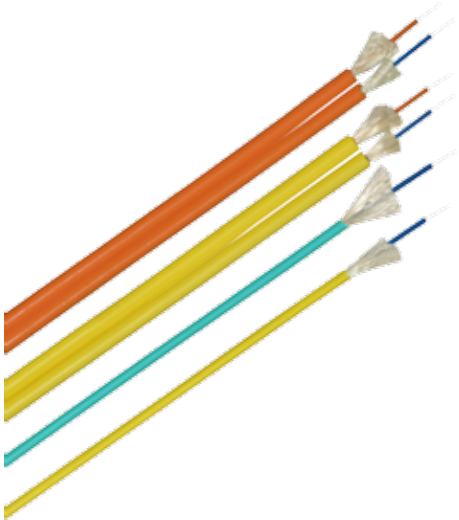




A Furukawa Company

Fiber Optic Interconnect Cordage

Durable, Flexible Cordage Surpasses Industry Strength Standards for Interconnect Cables



Features and Benefits

- Available in riser, plenum and dual-rated low smoke, non-halogen rated designs
- Simplex and duplex zipcord constructions offered in a wide range of fiber types
- Exceptional tight buffering
- Cordage outer jacket color-coded for easy identification of fiber type
- Complies with Telcordia Technologies GR-409
- RoHS compliant and environmentally friendly; free of heavy metals and halogenated materials
- Available with a full range of OFS optical fibers including AllWave® FLEX+ ZWP Single-Mode Optical Fibers and LaserWave® FLEX Multimode Optical Fiber

Product Description

OFS Fiber Optic Interconnect Cordage offers outstanding optical performance through our expertise in optical design and manufacturing, and the use of durable, flexible and reliable materials. Choosing the right fiber optic cordage should be based on much more than merely price comparisons. Understanding application requirements and how materials interact when connectorized is critical to product selection.

Why not help reduce the chance of connector fiber breaks by specifying a product that offers excellent bend performance, negligible buffer shrinkage and a tensile rating three times the ICEA industry standard?

OFS Cordage is available in Simplex and Duplex constructions, with your choice of Riser, Plenum, Non-Halogen and Dual Riser/LSZH ratings, all in a full range of fiber types.

Why OFS Interconnect Cordage?

Optical Fiber: OFS develops and produces world-class optical fibers with precise geometries for a broad range of global applications.

Strength: OFS fiber cordage is designed to exceed industry tensile standards and features extra yarn in each cordage for added strength.

Jacket and Buffer Performance: Controlling cordage shrinkage is key to delivering a high-performance connectorized product. OFS' extensive knowledge of materials allows us to design and produce cordages that help ensure reliable performance by limiting coating shrink back.

Depth of Offer: Riser, Plenum, Non-Halogen and Dual Riser/LSZH Rated jackets; a full range of simplex and duplex cordage constructions in 1.6, 2.0, and 3.0 diameters

Environmentally Friendly: RoHS compliant and free of heavy metals.

Why Materials are Critical to Optical Performance

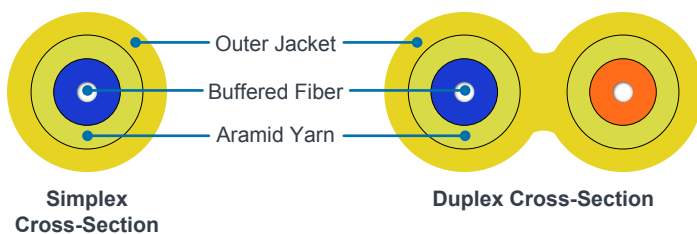
Optical Fiber

Selecting the right optical fiber for your application is key to successful cordage performance. Central Offices, Data Centers, in-home wiring (FTTx) and traditional local area network (LAN) applications all have differing needs. OFS offers you flexibility with a full array of optical fiber types including bend-insensitive fiber for stringent needs along with our advanced Full Spectrum Fibers.

Jacket and Tight Buffer

Cordage materials lie at the foundation of any cable assembly connectorization point. Telcordia Technologies' GR testing puts cable assemblies through rigorous thermal tests to ensure the compatibility and life cycling of all materials. The right materials are critical to ensuring that shrinkage between the optical fiber and cordage layers is precisely controlled. It is common knowledge in the fiber optic industry that excess cordage jacket shrinkage can cause terminated product failures due to internal fiber buckling induced from shrinkage. Unlike some other interconnect cordages, OFS' total cordage constructions are specifically designed to limit this type of hazardous shrinkage.

Specifications - All Cordages



Key Outer Diameter Dimensions (mm)			
Simplex Cordages			
Reference	Average Range	Nominal	
1.6	1.6 - 1.9	1.75	
2.0	1.9 - 2.2	2.00	
3.0	2.8 - 3.0	2.90	

Key Outer Diameter Dimensions (mm)			
Duplex Cordages			
Reference	Average Length	Average Height	Nominal
1.6	3.38 - 4.14	1.6 - 1.9	1.75 x 3.76
2.0	3.74 - 4.50	1.9 - 2.2	2.0 x 4.12
3.0	6.28 - 6.68	2.8 - 3.0	2.9 - 6.48

Cordage Materials			
Component	Riser OFNR	Plenum OFNP	Non-Halogen CPR: Eca
Jacket	PVC	PVC	Non-Halogen
Tight Buffer (900 µm)	PVC	PVC	UV-Cured
Strength Members	Aramid	Aramid	Aramid
DoP Lookup: www.ofs-sales.com/cpr/			9U16-D 9U20-D 9U30-D

1.6 mm Fiber Optic Cordages Ordering Information

Example: 9P16-002C-WRY-4¹

Part Number: AAAA - NNN B - X Y Z - V

AAAA = Cordage Type
9P16 = 1.6 mm Cordage w/ 900 µm LSPVC Buffers (Riser and Plenum Only)
9U16 = 1.6 mm Cordage w/ 900 µm UV Buffers (Dual-Rated LSZH Only)

NNN = Fiber Count
001 = Simplex
002 = Duplex

B = Cordage Version
C = Riser or Plenum
E = Dual-Rated, Low Smoke Zero Halogen

X = Fiber Type
W = AllWave® FLEX+ ZWP Bend-Optimized Single-Mode Optical Fiber (G.657.A2)
9 = AllWave FLEX Max Bend-Optimized Single-Mode Optical Fiber (G.657.B3 & G.652.D)
5 = LaserWave® FLEX 550 Multimode Optical Fiber (OM4)
3 = LaserWave® FLEX 300 Multimode Optical Fiber (OM3)
K = LaserWave® FLEX G+ Multimode Optical Fiber (OM2)

Y = Jacket Material
R = Riser
P = Plenum
D = Dual-Rated LSZH (UL 1666 & CPR: Eca)

Z = Jacket Color²
Y = Yellow (Single-Mode)
O = Orange (50/125 µm, OM2)
A = Aqua (LaserWave FLEX)

V = Maximum Cable Attenuation³
4 = Single-Mode Optical Fibers (AllWave FLEX+ and EZ-Bend Optical Fibers)
G = LaserWave FLEX G+, LaserWave FLEX 300 and LaserWave FLEX 550 Optical Fibers

1.6 mm Cordage Weights

Reference	Simplex	Duplex
Riser	2.9 kg/km (1.9 lb/kft)	5.7 kg/km (3.9 lb/kft)
Plenum	3.5 kg/km (2.4 lb/kft)	7.0 kg/km (4.7 lb/kft)
Dual-Rated LSZH	2.5 kg/km (1.7 lb/kft)	5.0 kg/km (3.4 lb/kft)

¹ Part Number shown is for a 1.6 mm AllWave FLEX+ ZWP Riser (OFNR) Duplex Cordage with Low Smoke PVC Buffers and featuring a yellow jacket and with a Maximum Attenuation of 0.40 dB/km @ 1300 nm and 0.30 dB/km @ 1550 nm and standard print.

OFS INTERCONNECT ALLWAVE® FLEX+ ZWP BIF G.657.A2 OPTICAL CABLE -C- 9P16-002C-WRY-4 9/125 C (UL) US TYPE OFNR OFW CSA OFN FT4] [MM/YY] [LOT NO] [LENGTH IN FEET]

² Alternate jacket colors are available upon request.

³ See maximum attenuation table for values.

⁴ Contact OFS Order Management for information on other cable variations including additional fiber types, fiber counts, attenuation and custom cable print.

2.0 mm Fiber Optic Cordages Ordering Information

Example: **9P20-001C-3PA-G¹**

Part Number: **AAAA - NNN B- X Y Z - V**

AAAA = Cordage Type
9P20 = 2.0 mm Cordage w/ 900 µm LSPVC Buffers (Riser and Plenum Only)
9U20 = 2.0 mm Cordage w/ 900 µm UV Buffers (Dual-Rated LSZH Only)

NNN = Fiber Count
001 = Simplex
002 = Duplex

B = Cordage Version
C = Riser or Plenum
E = Dual-Rated, Low Smoke Zero Halogen

X = Fiber Type
W = AllWave® *FLEX+* ZWP Bend-Optimized Single-Mode Optical Fiber (G.657.A2)
9 = AllWave *FLEX* Max Bend-Optimized Single-Mode Optical Fiber (G.657.B3 & G.652.D)
5 = LaserWave® *FLEX* 550 Multimode Optical Fiber (OM4)
3 = LaserWave® *FLEX* 300 Multimode Optical Fiber (OM3)
K = LaserWave® *FLEX* G+ Multimode Optical Fiber (OM2)

Y = Jacket Material
R = Riser
P = Plenum
D = Dual-Rated LSZH (UL 1666 & CPR: Eca)

Z = Jacket Color²
Y = Yellow (Single-Mode)
O = Orange (50/125 µm, OM2)
A = Aqua (LaserWave *FLEX*)

V = Maximum Cable Attenuation³
4 = Single-Mode Optical Fibers (AllWave *FLEX+* and EZ-Bend Optical Fibers)
G = LaserWave *FLEX* G+, LaserWave *FLEX* 300 and LaserWave *FLEX* 550 Optical Fibers

2.0 mm Cordage Weights

Reference	Simplex	Duplex
Riser	3.7 kg/km (2.5 lb/kft)	7.4 kg/km (5.0 lb/kft)
Plenum	4.0 kg/km (2.7 lb/kft)	8.0 kg/km (5.4 lb/kft)
Dual-Rated LSZH	3.6 kg/km (2.5 lb/kft)	7.2 kg/km (4.9 lb/kft)

¹ Part Number shown is for a 2.0 mm LaserWave *FLEX* 300 Simplex Plenum (OFNP) Cordage with UV Buffers and featuring an aqua jacket and with a Maximum Attenuation of 3.5 dB/km @ 850 nm and 1.5 dB/km @ 1300 nm and standard print:

OFS INTERCONNECT LASERWAVE® FLEX 300 OM3 BIF OPTICAL CABLE -C- 9P20-001C-3PA-G 50/125 C (UL) US TYPE OFNP [CSA OFN FT4 FT6] [MM/YY] [LOT NO] [LENGTH IN FEET]

² Alternate jacket colors are available upon request.

³ See maximum attenuation table for values.

⁴ Contact OFS Order Management for information on other cable variations including additional fiber types, fiber counts, attenuation and custom cable print.

3.0 mm Fiber Optic Cordages Ordering Information

Example: **9P30-001C-WRY-4¹**

Part Number: **AAAA - NNN B- X Y Z - V**

AAAA = Cordage Type
9P30 = 3.0 mm Cordage w/ 900 µm LSPVC Buffers
9U30 = 3.0 mm Cordage w/ 900 µm UV Buffers
9N30 = 3.0 mm Cordage w/ 900 µm Nylon (Dual-Rated LSZH Only)

NNN = Fiber Count
001 = Simplex
002 = Duplex Zipcord

B = Cordage Version
C = Riser or Plenum
D = Dual-Rated, LSZH (2-fiber Duplex only with 9N30)
E = Dual-Rated, LSZH (1-fiber Simplex only with 9U30)

X = Fiber Type
W = AllWave® *FLEX+* ZWP Bend-Optimized Single-Mode Optical Fiber (G.657.A2)
9 = AllWave *FLEX* Max Bend-Optimized Single-Mode Optical Fiber (G.657.B3 & G.652.D)
5 = LaserWave® *FLEX* 550 Multimode Optical Fiber (OM4)
3 = LaserWave® *FLEX* 300 Multimode Optical Fiber (OM3)
K = LaserWave® *FLEX* G+ Multimode Optical Fiber (OM2)

Y = Jacket Material
R = Riser
P = Plenum
D = Dual-Rated LSZH (UL 1666 & CPR: Eca)

Z = Jacket Color²
Y = Yellow (Single-Mode)
O = Orange (50/125 µm, OM2)
A = Aqua (LaserWave *FLEX*)

V = Maximum Cable Attenuation³
4 = Single-Mode Optical Fibers (AllWave *FLEX+* and EZ-Bend Optical Fibers)
G = LaserWave *FLEX* G+, LaserWave *FLEX* 300 and LaserWave *FLEX* 550 Optical Fibers

3.0 mm Cordage Weights

Reference	Simplex	Duplex
Riser	7.6 kg/km (5.2 lb/kft)	15.2 kg/km (10.4 lb/kft)
Plenum	8.1 kg/km (5.5 lb/kft)	16.2 kg/km (11 lb/kft)
Dual-Rated LSZH	8.5 kg/km (5.7 lb/kft)	17.0 kg/km (11.4 lb/kft)

¹ Part Number shown is for a 3.0 mm AllWave *FLEX+* ZWP Simplex Riser (OFNR) Duplex Cordage with Low Smoke PVC Buffers and featuring a yellow jacket and with a Maximum Attenuation of 0.40 dB/km @ 1300 nm and 0.30 dB/km @ 1550 nm and standard print.

OFS INTERCONNECT ALLWAVE® FLEX+ ZWP BIF G.657.A2 OPTICAL CABLE -C- 9P30-001C-WRY-4 9/125 C (UL) US TYPE OFNR [CSA OFN FT4] [MM/YY] [LOT NO] [LENGTH IN FEET]

² Alternate jacket colors are available upon request.

³ See maximum attenuation table for values.

⁴ Contact OFS Order Management for information on other cable variations including additional fiber types, fiber counts, attenuation and custom cable print.

Minimum Bend Radius - All Cordages				
Cordages	All Standard Multimode Cables (including cables with standard LaserWave Multimode Fiber)		AllWave FLEX+ ZWP Bend-Optimized Single-Mode Cable	
	Installation (Short Term)	After Installation (Long Term)	Installation (Short Term)	After Installation (Long Term)
1.6 mm Simplex and Duplex	38 mm (1.5 in.)	25 mm (1.0 in.)	38 mm (1.5 in.)	10 mm (0.4 in.)
2.0 mm Simplex and Duplex	38 mm (1.5 in.)	25 mm (1.0 in.)	38 mm (1.5 in.)	10 mm (0.4 in.)
3.0 mm Simplex and Duplex	64 mm (2.5 in.)	32 mm (1.25 in.)	64 mm (2.5 in.)	10 mm (0.4 in.)

Performance Standards

Maximum Cable Attenuation*			
Single-mode Optical Fiber (dB/km)	1310 nm	1550 nm	MAC (V)*
AllWave® FLEX+ ZWP Bend-Optimized Optical Fiber	0.4	0.3	4
AllWave FLEX Max Bend-Optimized Optical Fiber	0.4	0.3	4
EZ-Bend Ultra-Bend Insensitive Optical Fiber	0.4	0.3	4
Multimode Optical Fiber (dB/km)	850 nm	1300 nm	MAC (V)*
LaserWave® FLEX Optical Fibers	3.5	1.5	G

* Installed attenuation values shall be at or below those listed above

	Riser-Rated (OFNR UL)	Plenum-Rated (OFNP UL)
Certificate Testing	UL Test	UL Test
Specific Test	UL 1666	NFPA 262 (UL 910)
Sheath Marking	OFNR	OFNP
NEC Compliance	NEC Article 770	NEC Article 770

Handling

Load (Rated per ICEA-S-83-596 Standard)		
Load	OFS 1.6 and 2.0 mm Simplex	OFS 3.0 mm Simplex
Standard 220 N (50 lbf)	-	220N (50 lb)
Small Form Factor (≤ 2.0 mm) 49 N	133 N (30 lbf) ~ 3x Standard	-

Compressive Loading Test (FOTP-41)	
ICEA-S-83-596 Standard	All Cordages
Compressive Load	35 N/cm (3.5 N/mm)
Impact Resistance	0.74 N/m impact energy

Temperature (all cordages)	
Installation	-20 to 60 °C (-4 to 140 °F)
Operation	-20 to 70 °C (-4 to 158 °F)
Storage	-40 to 70 °C (-40 to 158 °F)

For additional information please contact your sales representative.

You can also visit our website at www.ofsoptics.com or call 1-888-fiberhelp (1-888-342-3743) USA or 1-770-798-5555 outside the USA.



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