Armored Loose Tube Fiber

Single Armor · Single Jacket · OSP Rated · Direct Burial — 12 to 144 Strand

DIRECT BURIAL | OSP RATED | GEL-FREE DRY BLOCK | OS2 / OM4

CST / IAC	≥2,200 N/cm
Armor Type	Crush Rating
-40°C to 70°C	**12–144F**
Temp Range	Strand Range

PRODUCT OVERVIEW

Mirabel Energy USA Armored Loose Tube fiber optic cable is designed for OSP installation in demanding environments requiring mechanical protection. Single interlocked aluminum (IAC) or corrugated steel tape (CST) armor provides crush resistance and rodent protection for direct burial, underground conduit, and exposed industrial raceway. Gel-free dry-block water-blocking eliminates gel cleanup at splice points. Available in OS2 single-mode and OM4 multimode with fiber counts from 12 to 144 strands.

APPLICATIONS

- Direct burial inter-building campus runs
- Underground utility substation fiber
- Renewable energy site fiber infrastructure
- Industrial cable tray and raceway runs
- Mining facility communications fiber
- Data center OSP entry and campus backbone
- Exposed runs requiring rodent protection

CONSTRUCTION DESCRIPTION

Fiber Element: 250µm coated OS2 or OM4, gel-free buffer tube
Buffer Tube: Loose tube, 6 or 12 fibers per tube
Water Block: Dry-block tape / super-absorbent yarn — no gel
Strength Members: Central FRP rod, aramid yarn
Armor: Interlocked Al (IAC) or corrugated steel tape (CST)
Inner Jacket: Polyethylene (PE) — black, UV-stable
Outer Jacket: HDPE — NEC/NESC direct burial rated
Color Code: TIA-598-C 12-color, sequential per tube

TECHNICAL SPECIFICATIONS

PARAMETER	SPECIFICATION — OS2	SPECIFICATION — OM4
Fiber Type	OS2 9/125µm ITU-T G.652.D	OM4 50/125µm IEC 60793-2-10
Attenuation @ 1310nm	≤0.40 dB/km	—
Attenuation @ 1550nm	≤0.40 dB/km	—
Attenuation @ 850nm	—	≤3.0 dB/km
Crush Resistance (IAC)	≥2,200 N/cm	≥2,200 N/cm
Crush Resistance (CST)	≥3,000 N/cm	≥3,000 N/cm
Min. Bend Radius	20× cable OD (installation)	20× cable OD (installation)
Tensile Strength	2,700 N short-term	2,700 N short-term
Operating Temperature	-40°C to +70°C	-40°C to +70°C
Jacket Material	HDPE black, UV-stable	HDPE black, UV-stable
Burial Rating	Direct burial — no conduit req.	Direct burial — no conduit req.
Standards	Telcordia GR-20, IEC 60794-3	Telcordia GR-20, IEC 60794-3

STOCKING LOCATIONS
Reno, NV · Houston, TX | Project-phased delivery available

OEM REPRESENTATIVE
GCP Energy LLC — Salt Lake City, UT | portal.gcpenergy.us

FIBER COUNT	AVAILABILITY	OD (mm)	WEIGHT (kg/km)	MBR (mm)	ORDER CODE

Armored Ribbon Fiber Optic

Single Armor · Rollable Ribbon · OSP Rated · Direct Burial — 12 to 144 Strand

DIRECT BURIAL | MASS-FUSION READY | GEL-FREE | OS2

CST / IAC	~30 sec/rib
Armor Type	Splice Time
-40°C to 70°C	**12–144F**
Temp Range	Strand Range

PRODUCT OVERVIEW

Mirabel Energy USA Armored Ribbon Fiber combines the high-density mass-fusion splice advantage of rollable ribbon construction with full single-armor mechanical protection for OSP and direct burial deployment. Rollable ribbon units allow compact cable cross-section during installation while fanning flat for ultra-fast 12-fiber mass-fusion splicing (~30 seconds per ribbon). Single corrugated steel tape (CST) or interlocked aluminum (IAC) armor provides crush and rodent protection. Gel-free dry-block eliminates cleanup.

APPLICATIONS

- High-count direct burial campus backbone
- Utility ROW fiber — mass-splice efficiency
- Telecom feeder with conduit size constraints
- Underground inter-building high-density runs
- Substation and transmission fiber
- Municipal fiber-to-premises FTTP builds
- Armored OSP runs needing fast restoration

CONSTRUCTION DESCRIPTION

Fiber Element: 250µm coated OS2 9/125µm
Ribbon Unit: 12-fiber rollable ribbon, flat fan-out capable
Water Block: Gel-free dry-block tape between ribbons
Strength Members: Central FRP rod, aramid over-wrap
Armor: Interlocked Al (IAC) or corrugated steel tape (CST)
Inner Jacket: Polyethylene (PE) — black
Outer Jacket: HDPE direct burial rated, UV-stable
Splice Prep: Fan-out flat for 12-fiber mass fusion

TECHNICAL SPECIFICATIONS

PARAMETER	STANDARD RIBBON	ROLLABLE RIBBON
Fiber Type	OS2 9/125µm G.652.D	OS2 9/125µm G.652.D
Attenuation @ 1310nm	≤0.40 dB/km	≤0.40 dB/km
Attenuation @ 1550nm	≤0.35 dB/km	≤0.35 dB/km
Ribbon Width	12-fiber flat	12-fiber rollable
Splice Time / Ribbon	~45 seconds	~30 seconds
Crush Resistance (CST)	≥3,000 N/cm	≥3,000 N/cm
Crush Resistance (IAC)	≥2,200 N/cm	≥2,200 N/cm
Water Blocking	Dry-block (gel-free)	Dry-block (gel-free)
Operating Temperature	-40°C to +70°C	-40°C to +70°C
Jacket Material	HDPE black, UV-rated	HDPE black, UV-rated
Burial Rating	Direct burial OK	Direct burial OK
Standards	Telcordia GR-20, IEC 60794-3, TIA-598	Same

STOCKING LOCATIONS
Reno, NV · Houston, TX | Project-phased delivery available

OEM REPRESENTATIVE
GCP Energy LLC — Salt Lake City, UT | portal.gcpenergy.us

FIBER COUNT	AVAILABILITY	OD (mm)	WEIGHT (kg/km)	MBR (mm)	ORDER CODE

All-Dielectric Loose Tube

All-Dielectric · Single Jacket · OSP Rated · No Metal Components — 12 to 144

ALL-DIELECTRIC | NO METAL | HV CORRIDOR SAFE | OS2 / OM4

FRP/Aramid	No Ground Req.
Strength Members	HV ROW Safe
-40°C to 70°C	**12–144F**
Temp Range	Strand Range

PRODUCT OVERVIEW

Mirabel Energy USA All-Dielectric Loose Tube fiber optic cable contains no metallic components — eliminating induced voltage concerns on high-voltage transmission and distribution corridors, near high-power equipment, and in lightning-prone environments. FRP central member and aramid yarn strength members provide tensile and compressive load resistance without requiring grounding. Gel-free dry-block water blocking and a rugged PE outer jacket provide full OSP moisture and UV protection for duct, lashed aerial, and conduit installations.

APPLICATIONS

- Utility substation and transmission conduit runs
- SCADA / relay fiber on HV corridors (no grounding)
- Underground conduit in electrical substations
- Lashed aerial on distribution pole lines
- Lightning-prone areas — no ground potential transfer
- Renewable energy site OSP fiber in conduit
- Campus OSP runs in duct or conduit

CONSTRUCTION DESCRIPTION

Fiber Element: 250µm coated OS2 or OM4, per buffer tube
Buffer Tube: Loose tube, 6 or 12 fibers per tube
Water Block: Dry-block tape — gel-free, clean termination
Central Strength: FRP (Fiberglass Reinforced Plastic) rod
Outer Strength: Aramid yarn over-wrap — no metal
Jacket: Polyethylene (PE) black — OSP/UV-rated
Cert.: No metallic components — all-dielectric
Color Code: TIA-598-C 12-color sequential

TECHNICAL SPECIFICATIONS

PARAMETER	SPECIFICATION — OS2	SPECIFICATION — OM4
Fiber Type	OS2 9/125µm ITU-T G.652.D	OM4 50/125µm IEC 60793-2-10
Attenuation @ 1310nm	≤0.40 dB/km	—
Attenuation @ 1550nm	≤0.40 dB/km	—
Attenuation @ 850nm	—	≤3.0 dB/km
Metallic Components	None — fully dielectric	None — fully dielectric
Strength Members	FRP central rod + aramid yarn	FRP central rod + aramid yarn
Tensile Strength	2,700 N (installation)	2,700 N (installation)
Min. Bend Radius	20× cable OD (installation)	20× cable OD (installation)
Operating Temperature	-40°C to +70°C	-40°C to +70°C
Jacket Material	HDPE black, UV-stable	HDPE black, UV-stable
Installation Method	Duct / conduit / lashed aerial	Duct / conduit / lashed aerial
Standards	Telcordia GR-20, IEC 60794-2	Telcordia GR-20, IEC 60794-2

STOCKING LOCATIONS
Reno, NV · Houston, TX | Project-phased delivery available

OEM REPRESENTATIVE
GCP Energy LLC — Salt Lake City, UT | portal.gcpenergy.us

FIBER COUNT	AVAILABILITY	OD (mm)	WEIGHT (kg/km)	MBR (mm)	ORDER CODE

All-Dielectric Ribbon Fiber

All-Dielectric · Rollable Ribbon · OSP Rated · No Metal — 12 to 144 Strand

ALL-DIELECTRIC | MASS-FUSION READY | HV CORRIDOR SAFE | OS2

FRP/Aramid	~30 sec/rib
Strength Members	Splice Time
-40°C to 70°C	**12–144F**
Temp Range	Strand Range

PRODUCT OVERVIEW

Mirabel Energy USA All-Dielectric Ribbon Fiber cable combines rollable ribbon mass-splice efficiency with a fully non-metallic construction — ideal for installation on energized utility corridors, in conduit with lightning exposure, or anywhere grounding of metallic components is not feasible. Rollable ribbon units allow a compact cable cross-section and enable rapid 12-fiber mass-fusion splicing (~30 seconds per ribbon), significantly reducing field splice time on high-count runs. FRP central member and aramid yarn provide tensile strength without any metallic components.

APPLICATIONS

- HV corridor conduit — no grounding required
- High-count substation fiber — fast restoration
- Utility ROW mass-splice backbone conduit runs
- Telecom / ISP high-fiber-count conduit builds
- Municipal FTTP / FTTH infrastructure
- Hyperscale campus OSP — space-constrained conduit
- Renewable energy — lightning-prone areas

CONSTRUCTION DESCRIPTION

Fiber Element: 250µm coated OS2 9/125µm
Ribbon Unit: 12-fiber rollable ribbon — flat fan-out
Water Block: Gel-free dry-block tape — no cleanup
Central Strength: FRP rod — non-metallic
Outer Strength: Aramid yarn — no metallic components
Jacket: HDPE black, OSP/UV-rated — single jacket
Dielectric Cert.: No metallic components throughout
Splice Prep: Fan-out flat for 12-fiber mass fusion

TECHNICAL SPECIFICATIONS

PARAMETER	STANDARD RIBBON	ROLLABLE RIBBON
Fiber Type	OS2 9/125µm G.652.D	OS2 9/125µm G.652.D
Attenuation @ 1310nm	≤0.40 dB/km	≤0.40 dB/km
Attenuation @ 1550nm	≤0.35 dB/km	≤0.35 dB/km
Metallic Components	None — fully dielectric	None — fully dielectric
Ribbon Width	12-fiber flat	12-fiber rollable (compact)
Splice Time / Ribbon	~45 seconds	~30 seconds
Strength Members	FRP central + aramid yarn	FRP central + aramid yarn
Water Blocking	Gel-free dry-block	Gel-free dry-block
Operating Temperature	-40°C to +70°C	-40°C to +70°C
Jacket Material	HDPE black, UV-rated	HDPE black, UV-rated
Standards	Telcordia GR-20, IEC 60794-2, TIA-598	Same

STOCKING LOCATIONS
Reno, NV · Houston, TX | Project-phased delivery available

OEM REPRESENTATIVE
GCP Energy LLC — Salt Lake City, UT | portal.gcpenergy.us

FIBER COUNT	AVAILABILITY	OD (mm)	WEIGHT (kg/km)	MBR (mm)	ORDER CODE
12 Strand	**IN STOCK — Reno/Houston**	9.8	88	196	MIR-ADR-012

1¼" HDPE Innerduct — Smo

Orange · Smooth Wall · High-Density Polyethylene — Fiber Optic Cable

SMOOTH WALL | ORANGE — FIBER STD. | HDPE | DIRECT BURIAL RATED

1.315"	1.049"
Outside Diameter	Inside Diameter (Nom.)
HDPE	**500 / 1,000 ft**
Material	Stock Reel Lengths

PRODUCT OVERVIEW

Mirabel Energy USA 1-1/4 inch HDPE smooth wall innerduct is the standard subduct for fiber optic cable protection inside larger conduit systems, direct in underground structures, and in cable trays. The smooth-wall interior provides the lowest friction coefficient for cable pulling, maximizing pull length and minimizing installation force compared to corrugated alternatives. Orange is the universally recognized fiber optic pathway color per ANSI/TIA-758 and utility industry practice. HDPE construction provides chemical resistance, impact strength, and UV stability for long-term OSP performance.

APPLICATIONS

- Fiber optic subduct inside 2"-4" main conduit
- Direct buried innerduct for fiber cable protection
- OSP underground cable pathway management
- Utility substation cable tray fiber separation
- Data center campus OSP duct entry subduct
- Telecommunications outside plant innerduct
- Renewable energy site fiber cable protection

PRODUCT FEATURES

Color: Orange — fiber optic standard per ANSI/TIA-758
Wall Type: Smooth wall — minimum pull friction
Material: High-Density Polyethylene (HDPE)
UV Rating: UV-stabilized for outdoor/OSP exposure
Flexibility: Coilable — ships on reel for easy deployment
Chemical Res.: Resistant to soils, chemicals, fuels
Temp Range: -40°C to +60°C (installation/service)
End Fittings: Compatible with standard 1.25" conduit fittings

TECHNICAL SPECIFICATIONS

PARAMETER	SPECIFICATION	TEST / STANDARD
Nominal Size	1-1/4 inch (1.25")	Trade size designation
Outside Diameter (OD)	1.315" (33.4 mm)	ASTM D3035
Inside Diameter (ID)	1.049" (26.6 mm) nominal	ASTM D3035
Wall Thickness	0.133" (3.4 mm) nominal	ASTM D3035
Material	High-Density Polyethylene (HDPE)	ASTM D3350
Color	Orange — UV-stabilized pigment	ANSI/TIA-758 fiber standard
Wall Type	Smooth wall (non-corrugated)	—
Min. Bend Radius	6" (152 mm) installed	Mfr. specification
Tensile Strength	≥24 MPa (HDPE base resin)	ASTM D638
UV Resistance	UV-stabilized — HDPE OSP grade	ASTM D4355
Operating Temp.	-40°C to +60°C	ASTM D648
Reel Lengths	500 ft and 1,000 ft standard	—

STOCKING LOCATIONS
Reno, NV · Houston, TX | Project-phased delivery available

OEM REPRESENTATIVE
GCP Energy LLC — Salt Lake City, UT | portal.gcpenergy.us

COMPATIBLE FIBER CABLE — PULL-IN CAPACITY (70% FILL RATIO)

CABLE TYPE	MAX CABLE OD	TYPICAL FIBER COUNT	NOTES