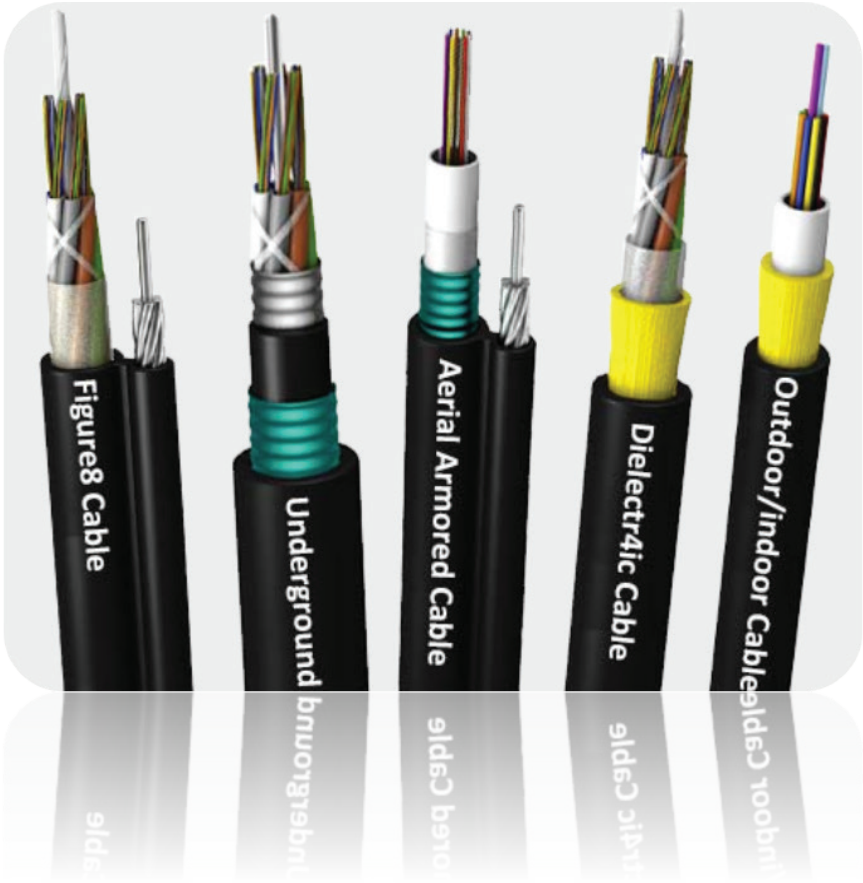
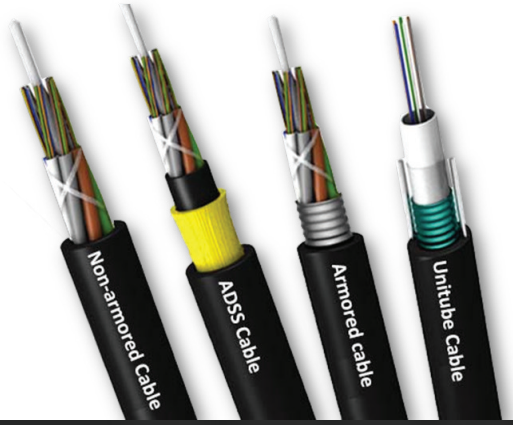
Setting the Standards

OXIN



Fiber Optic Cable

Catalogue



About Oxin Group

Oxin is a leading provider of fiber optic connectivity products used in data communications and Telecommunication networks.

The Company designs, develops, manufactures and sells fiber optic cabling, connectivity, management and systems solutions. It offers a broad range of products directly and through distributors, installers and OEM partners.

Oxin's growth has been founded on quality products, rapid response and excellent customer service. The Company is ISO9001:2000 approved and provides products conformant to international standards. Oxin is dedicated to value and continuous improvement of all its products and services.

With headquarters in Paris, Oxin has manufacturing activities in the France, China and US operations. The Company has both volume and quick response manufacturing capabilities and is able to support the global logistics requirements of its customers. Oxin provides customised and customer branded products for OEM customers.

Oxin products are available directly from Oxin or from our worldwide distribution partners.

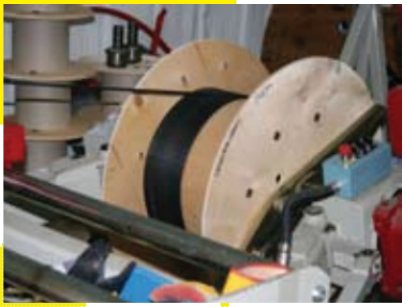
Setting the Standards

The Oxin fiber optic cable range includes simplex, suplex and flat ribbon patchcords, tight buffered, single loose tube and multi-loose tube distribution cables for internal and external applications as well as many variations of armoured, aerial, rodent resistant and water blocked cables.

The Oxin range has the solution for almost any application and can offer a cut to length service for specific fiber optic cables.

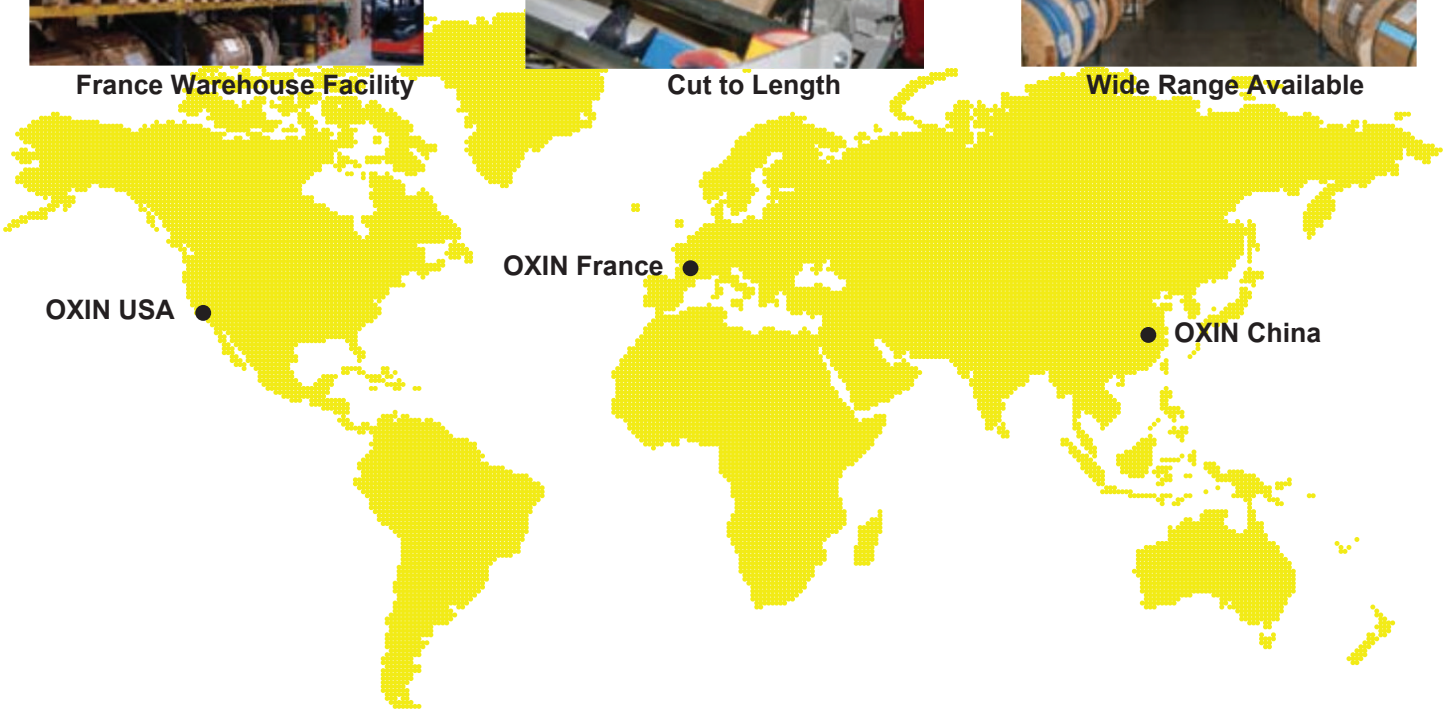
Please call the sales team for more information.

France Warehouse Facility



Cut to Length

Wide Range Available



Technical References

Cable Jacket Classification

Poly Vinyl Chloride (PVC) Cable
Cables with Poly Vinyl Chloride (PVC) jacket are the most commonly used and are often referred to as general purpose cables. These types of cables are intended for installations with no particular fire safety code requirements. In a fire, PVC-coated wires can form HCL fumes; the chlorine serves to scavenge free radicals and is the source of the material's fire retardance. While HCL fumes can also pose a health hazard in their own right, HCL breaks down on surfaces. Particularly in areas where the air is cool enough to breathe, and is not available for inhalation.

High Devcity Polyethylene (HDPE) Cable
HDPE is the high dencity version of PE plastic. It is harder, stronger and a little heavier than LDPE, but less ductile. The use of UV-stabiliser (carbon black) improves its weather resistance but turns it black. HDPE is also more opaque and it can withstand rather higher temperatures (120°C for short periods, 110°C continusly). HDPE has many advantages: chemical and corrosion-resistant, light-weight, low moisture absorption, non-staining, thermoforming performance, non-toxic and high tensile strength.

Fire Retardant Polyvinylchloride (FR-PVC) Cable
FR-PVC insulation has better fire retardant properties than normal PVC. It has significant advantages in terms of lower acid emissions and smoke generation. The amount of chlorine in the flame-retardant PVC (FRPVC) jacket cable is significantly higher (5%) than the conventional PVC jacket cable. FRPVC has good electrical insulation properties below 100°C.

Low Smoke ZeroHalogen (LSZH) Cable
Cables with LSZH jacket are intended for applications where both low smoke and low corrosive gases are needed. Used in shipboard applicatios and computer networking rooms where toxic or acidic smoke and fumes can injure peaple and/or equipment. Examples of Halogens include Flurine, Chlorine, Bromine, and Iodine. These materials when burned produce acidic smoke that can harm people and computer equipment. These cables will self extinguish but cannot pass UL-910 or UL-1666 for a plenum or riser rating. However, LSZH cables have not been specified by NEC for use in installations in the US, these cables are used primarily in Europe.

General Purpose (CM, CMG, CMX) Cable
Communications cable used for general purpose. Intended for general use within buildings in accordance with the NEC Articlae 800.53(E)(1). These cables do not spread flame to the top of a tray in the Vertical-Tray Flame Test. As a general rule, CM and CMG cables are suitable for installation in cable trays and other non-plenum, non-riser areas. These cables will burn and partially self extinguish. Often these cables are used for workstation cables and patch cords. These cables comply with UL-1581 testing.

Riser (CMR) Cable
Cable that is suitable for use in a riser application. In commercial buildings, a riser is space used by telecommunications infrastructure, connecting from one floor to another. Defined for usage in vertical tray applications such as cable runs between floors through cable risers or in elevator shafts in accordance with Section 800:53(B) of NEC. These cables must traveling up the cable in a vertical burn test. These cables comply with UL-1666.

Plenum (CMR) Cable
Cables with plenum rated jackets are intended for installations where cables are routed through an air handling conduit, often called a plenum. Plenum cables must self extingluish and not reignite. They also produce less smoke than traditional PVC cables. The smoke and fumes are toxic.
This requirement is usually imposed by fire safety codes and is related to the stringent burn test that this type of cable must meet. These cables comply with NFPA-262 and UL-910.

Polyethilen (PE) Cable
PE is a semi-crystal thermoplastic material and one of the most commonly used plastics. It is generally ductile, flexible and has low strength. There are two basic families: LDPE (Low Dencity Polyethylene), and HDPE (High Devcity Polyethylene).

Technical References

Cable Armour

Metallic Armour
Metallic armour provides a tough protective covering for wires and cables. The type, thickness, and kind of metal used to make the armour depend on three factors:
1. The use of the conductors
2. the environment where the conductors are to be used
3. the amount of rough treatment that is expected

Steel Tape Armour
Steel tape covering is wrapped around the cable and then covered with a serving of jute. There are two types of steel tape armour: onterlocking armour and flat-band armour.

Interlocked Armour
Interlocking Armour is applied by wrapping the tape around the cable so that each turns is overlapped by the next and is locked in place. Galvanized steel or aluminium are the typical materials used for interlocking armour. However, other metals are sometimes used for specialized applications. The metals are sometimes used for specialized applications. The interlocking construction protects the cable from damage during and after installation. The armour may be applied directly over the insulation for over an inner jacket. Materials and costruction generally comply with the requirements of UL, CSA and/or ICEA.

Flat-Band Armour
Flat-Band armour consists of two layers of steel tape. The first layer is wrapped around the cable but is not overlapped. The second layer is then wrapped around the cable covering the area that was not covered by the first layer.

Continuosly Corrugated and Welded (CCW)
CCW armour is made by forming an aluminium strip into a circle along its length and then welding it at the seam. This smooth tube is then rolled or crimped to form ridges to prevent kinking while bending. This type of sheath provides an impervious seal against moisture and other chemicals as well as physical protection.

Wire Armour
Wire armour is a layer of wound metal wire wrapped around the cable. Wire armour is usually made of galvanized steel and can be used with the sheath as a buried cable where moisture is a concern or without the sheath

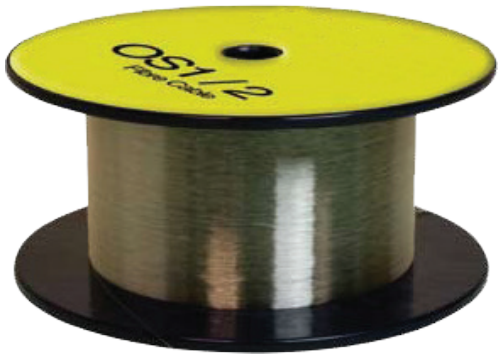
Wire Braid Armour
Wire-braid armour also known as basket0weave armour, is used when light and flexible protection is needed. Wire braid is constructed much like fibrous braid. The metal is woven directly over the cable as the outer covering. The metal used in this braid is galvanized steel, bronze, copper or aluminium. Wire-braid armour is mainly used for shipboards, because it provides the mechanical protection of an armoured cable, yet is much lighter in weight than other types of armoured coverings. Materials and construction generally comply with the requirements of IEEE Standard 45 and various military specifications.

Lead Sheath
For underground installations in conduits, ducts and raceways, a lead sheath may be used to protect insulated cables from moisture. In locations where corrosive conditions may be encountered, a jacket over the lead is recommended. Commercially pure lead is used on some lead-covered cables, which conforms to the requirements of ASTM B29 and ICEA S-19-81. Lead alloy sheaths, containing added tin or antimony are used where a harder sheath is desired or where vibration may be encountered.

Wire Serve
Wire serve armour is most commonly found on submarine cable because it provides excellent phycical protection from boat anchors, sharp rocks, sharks, etc. this type of armour normally consists of 1/8 to 1/4 inch diameter solid steel wires which are laid helically around the cicumference of the cable. Tar or asphalt (bitumen) is placed over and around the steel wires to reduce the effects of corrosion.

OS2 ITU-T G.657.A1 Bending-loss Insensitive Fiber (BIF) Singlemode Optical Fiber

OS 2 G.657.A1



Description	ITU T G.657 Fiber Characteristics of a bending-loss insensitive single-mode optical fiber and cable for the Access network, the ITU recently adopted the G.657 standard to describe single-mode fibers with improved bending performance that are suitable for use in access networks. ITU-T G.657 optical fiber cable offers flexible characteristics for easier deployment in streets, buildings and homes. ITU-T G.657 optical fiber cable reduces the roll-out cost for operators and the total cost of ownership (TCO) of an FTTH network. Increased flexibility in optical fiber cables, allowing improved installation in tight corners of buildings. Smaller cabinets, pedestals, enclosures and terminations, which are important where space is at a premium. (e.g., in apartment buildings). More engineer-friendly installation leading to less re-work.	
Features and Benefits	1. Completely overcomes the attenuation of water peak at 1383 nm and can thereby operate over the entire wavelength from 1260 nm to 1625 nm 2. Excellent bending performance, applicable to occasion with special requirement of bending radius 3. Fully and completely compatible with G.652.D 4. Outstanding optical performance supports high-speed transmission requirement of DWDM and CWDM 5. Compatible with existing 1310 nm equipment 6. Accurate geometrical parameters ensures low splicing loss and high splicing efficiency 7. Excellent PMD performance supports high-speed and long repeater spacing transmission	
Applications	• For optical cord and cable for FTTH / LAN / Premises • Highly reliable low water peak characteristic • Excellent splice ability with conventional SM/LWP Fiber	
Certification and Compliance	ISO/IEC 11801 OS-2	Information technology - Generic cabling for customer premises
	IEC 60793-2-50 type B1.3 and B6.a	Sectional specification for category B1 & B6 single mode fibers
	Telcordia GR-20-CORE	Generic Requirements for Optical Fiber and Optical Fiber Cable
	ITU-T G.652D	Characteristics of Low Water Peak (LWP) Single Mode Optical Fiber
	ITU-T G.657.A1	Characteristics of a bending-loss insensitive single-mode optical fiber and cable for the Access network
	ANSI/ICEA S-87-2-50	Standard for Optical Fiber Outside Plant

OS 2 G.657.A1

OS2 ITU-T G.657.A1 Bending-loss Insensitive Fiber (BIF) Singlemode Optical Fiber

	Parameter		Value
Geometrical Characteristics	Mode field diameter	@ 1310 nm	9.0 ± 0.4 μm
		@ 1550 nm	10.1 ± 0.5 μm
	Cladding diameter		124.8 ± 0.9 μm
	Cladding non circularity		≤ 0.7 %
	Coating non circularity		≤ 6.0 %
	Core/cladding concentricity error		≤ 0.5 μm
	Coating/cladding concentricity error		≤ 12 μm
	External diameter (uncoloured)		242 ± 10 μm
	Fiber curl radius		≥ 4 m

	Parameter		Value
Transmission Characteristics	Maximum attenuation fiber	@ 1310 nm	≤ 0.35 dB/km
		@ 1550 nm	≤ 0.21 dB/km
		@ 1625 nm	≤ 0.23 dB/km
	Maximum attenuation cabled	@ 1310 nm#	≤ 0.38 dB/km
		@ 1550 nm#	≤ 0.25 dB/km
		@ 1625 nm¤	≤ 0.28 dB/km
	Typical attenuation cabled	@ 1310 nm#	≤ 0.34 dB/km
		@ 1550 nm#	≤ 0.19 dB/km
		@ 1625 nm¤	≤ 0.25 dB/km
	Chromatic dispersion	@ 1310 nm	≤ 3.00 ps/(nm·km)
		@ 1550 nm	≤ 18.00 ps/(nm·km)
		@ 1625 nm	≤ 22.00 ps/(nm·km)
	Cabled cut off wavelength λ_{ccf}		≤ 1260 nm
	Zero dispersion wavelength λ_0		≥ 1300 nm , ≤ 1322 nm
	Zero dispersion slope S_0		≤ 0.090 ps/(nm^2·km)
	Numerical aperture (NA)		0.015 ± 0.14
	Polarization mode dispersion (PMD)		≤ 0.2 ps/$\sqrt{}$km
	Group refractive index	@ 1310 nm	1.4660-1.4677
		@ 1550 nm	1.4670-1.4682
		@ 1625 nm	1.4670-1.4682
	Fiber irregularities point and whole length	@ 1310 nm	≤ 0.05 dB
		@ 1550 nm	

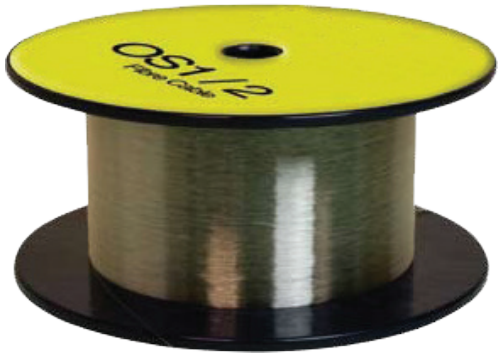
Standard OTDR testing wavelengths
¤ Testing at 1625nm on request

	Parameter	Value
Environmental Characteristics	Fiber temperature dependence -60°C to 85+°C	≤ 0.05 dB/km
	Fiber temperature and humidity cycling -10°C to 85+°C, %98 R.H.	≤ 0.05 dB/km
	Fiber water soak dependence 23°C for 30 days	≤ 0.05 dB/km
	Damp heat dependence 85+°C, %85 R.H. for 30 days	≤ 0.05 dB/km
	Dry heat dependence 85+°C	≤ 0.05 dB/km

	Parameter		Value
Mechanical Characteristics	Proof test		1 %
	Bending dependence 100turns	@1550nm	≤ 0.05 dB
	50mm diameter	@1625nm	≤ 0.05 dB
	Bending dependence 10turns 30mm	@1550nm	≤ 0.1 dB
	diameter	@1625nm	≤ 0.3 dB
	Typical mean coating strip force		1.0 to 3.0 N

OS2 ITU-T G.657.A2 Bend-Tolerant Fiber Singlemode Optical Fiber

OS 2 G.657.A2



Description	ITU T G.657 Fiber Characteristics of a bending-loss insensitive single-mode optical fiber and cable for the Access network, the ITU recently adopted the G.657 standard to describe single-mode fibers with improved bending performance that are suitable for use in access networks. ITU-T G.657 optical fiber cable offers flexible characteristics for easier deployment in streets, buildings and homes. ITU-T G.657 optical fiber cable reduces the roll-out cost for operators and the total cost of ownership (TCO) of an FTTH network. Increased flexibility in optical fiber cables, allowing improved installation in tight corners of buildings. Smaller cabinets, pedestals, enclosures and terminations, which are important where space is at a premium. (e.g., in apartment buildings). More engineer-friendly installation leading to less re-work.	
Features and Benefits	1. Completely overcomes the attenuation of water peak at 1383 nm and can thereby operate over the entire wavelength from 1260 nm to 1625 nm 2. Excellent bending performance, applicable to occasion with special requirement of bending radius 3. Fully and completely compatible with G.652.D 4. Outstanding optical performance supports high-speed transmission requirement of DWDM and CWDM 5. Compatible with existing 1310 nm equipment 6. Accurate geometrical parameters ensures low splicing loss and high splicing efficiency 7. Excellent PMD performance supports high-speed and long repeater spacing transmission system	
Applications	• For optical cord and cable for FTTH / LAN / Premises • Highly reliable low water peak characteristic • Excellent spliceability with conventional SM/LWP Fiber	
Certification and Compliance	ISO/IEC 11801 OS-2	Information technology - Generic cabling for customer premises
	IEC 60793-2-50 type B1.3 and B6.a	Sectional specification for category B1 & B6 single mode fibers
	Telcordia GR-20-CORE	Generic Requirements for Optical Fiber and Optical Fiber Cable
	ITU-T G.652D	Characteristics of Low Water Peak (LWP) Single Mode Optical Fiber
	ITU-T G.657.A2	Characteristics of a bending-loss insensitive single-mode optical fiber and cable for the Access network
	ANSI/ICEA S-87-2-50	Standard for Optical Fiber Outside Plant

OS 2 G.657.A2

OS2 ITU-T G.657.A2 Bend-Tolerant Fiber Singlemode Optical Fiber

	Parameter		Value
Geometrical Characteristics	Mode field diameter	@ 1310 nm	9.0 ± 0.4 μm
		@ 1550 nm	10.1 ± 0.5 μm
	Cladding diameter		124.8 ± 0.7 μm
	Cladding non circularity		≤ 0.7 %
	Coating non circularity		≤ 6.0 %
	Core/cladding concentricity error		≤ 0.5 μm
	Coating/cladding concentricity error		≤ 12 μm
	External diameter (uncoloured)		245 ± 5 μm
	Fiber curl radius		≥ 4 m

	Parameter		Value
Transmission Characteristics	Maximum attenuation fiber	@ 1310 nm	≤ 0.35 dB/km
		@ 1550 nm	≤ 0.21 dB/km
		@ 1625 nm	≤ 0.23 dB/km
	Maximum attenuation cabled	@ 1310 nm#	≤ 0.38 dB/km
		@ 1550 nm#	≤ 0.25 dB/km
		@ 1625 nm¤	≤ 0.28 dB/km
	Typical attenuation cabled	@ 1310 nm#	≤ 0.34 dB/km
		@ 1550 nm#	≤ 0.19 dB/km
		@ 1625 nm¤	≤ 0.25 dB/km
	Chromatic dispersion	@ 1310 nm	≤ 3.00 ps/(nm·km)
		@ 1550 nm	≤ 18.00 ps/(nm·km)
		@ 1625 nm	≤ 22.00 ps/(nm·km)
	Cabled cut off wavelength λ_{ccf}		≤ 1260 nm
	Zero dispersion wavelength λ_{0}		≥ 1300 nm , ≤ 1324 nm
	Zero dispersion slope S_{0}		≤ 0.092 ps/(nm^2·km)
	Numerical aperture (NA)		0.14 ± 0.015
	Polarization mode dispersion (PMD)		≤ 0.2 ps/$\sqrt{}$km
	Group refractive index	@ 1310 nm	1.466-1.467
		@ 1550 nm	1.467-1.468
		@ 1625 nm	1.467-1.468
	Fiber irregularities point and whole length	@ 1310 nm	≤ 0.05 dB
		@ 1550 nm	

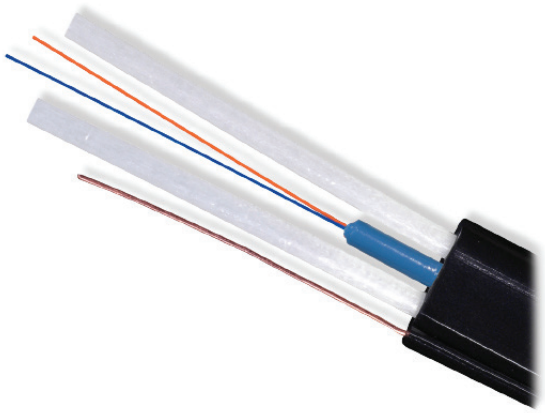
Standard OTDR testing wavelengths
¤ Testing at 1625nm on request

	Parameter	Value
Environmental Characteristics	Fiber temperature dependence -60°C to +85°C	≤ 0.05 dB/km
	Fiber temperature and humidity cycling -10°C to +85°C, 98% R.H.	≤ 0.05 dB/km
	Fiber water soak dependence 23°C for 30 days	≤ 0.05 dB/km
	Damp heat dependence +85°C, %85 R.H. for 30 days	≤ 0.05 dB/km
	Dry heat dependence +85°C	≤ 0.05 dB/km

	Parameter		Value
Mechanical Characteristics	Proof test		1 %
	Bending dependence 100turns 50mm diameter	@1550nm	≤ 0.03 dB
		@1625nm	≤ 0.1 dB
	Bending dependence 10turns 30mm diameter	@1550nm	≤ 0.2 dB
		@1625nm	≤ 0.5 dB
	Typical mean coating strip force		1.0 to 3.0 N

Outdoor Fiber Optic Drop Cable

Description	Two or four core flat drop cable for Fiber To The Home (FTTH) application, the cable is constructed with two or four single mode fibers protected by dielectric strength member made of fiber reinforced plastic (FRP) strength member and LSZH outer jacket. It is very light in construction and easy to install, generally used for connecting Main distribution frame to consolidation point in home, apartment or offices. Industry standard connectors can be used for direct termination because of standard 250µm fiber size.
Features and Benefits	1. Individually colored optical fibers 2. Notched construction for easy stripping 3. Black armoured jacket for external use
Applications	• External FTTH applications horizontal and riser
Certification and Compliance	ISO/IEC 11801, ISO/IEC 24702
	IEE 802.3z Gigabit Ethernet
	ANSI/TIA/EIA 568C.3
	ITU-T G.652.B OS1
	ITU-T G.652.D/G655/G657.A1/ G657.A2 OS2
	ROHS compliant Directive 95/2002/EC



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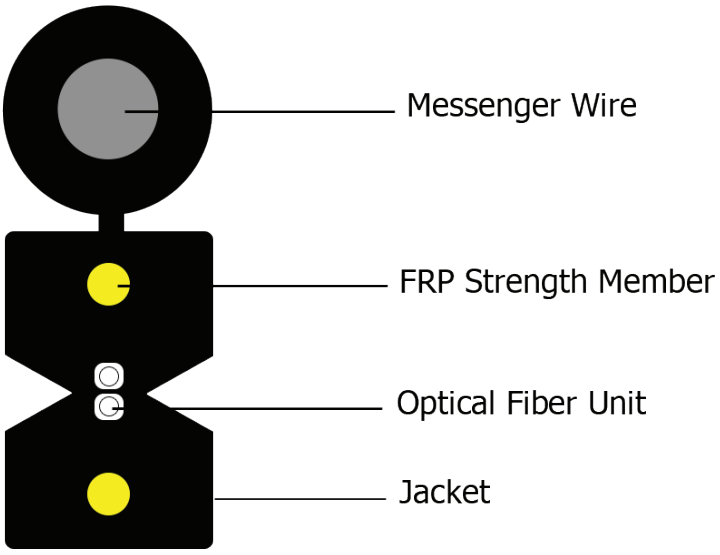
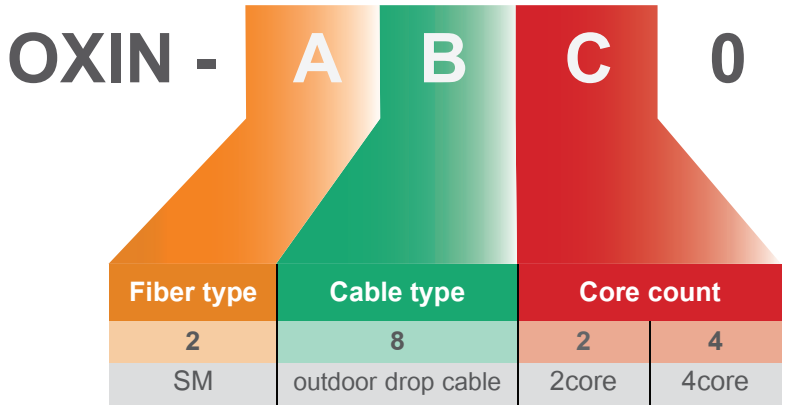


Fire Retardant

External Use

Outdoor Fiber Optic Drop Cable

Oxin Fiber Optic Cable
Part Number Builder



Indoor Drop Cable Part Number	Core	SM
	2 core	OXIN-2820
	4 core	OXIN-2840

	Parameter		Value
Geometrical Characteristics	Mode Field Diameter @1310 nm		8.6 ± 0.4 μm
	Cladding diameter		125 ± 0.1 μm
	Cladding non circularity		≤ 1.0 %
	Primary coating diameter		250 ± 15 μm
	Core concentricity error		≤ 0.6 μm
	Coating/cladding concentricity error		≤ 12.5 up
	Fiber bend radius		≥ 4 m
	Parameter		**Value**
Transmission Characteristics	Attenuation	@ 1310 nm	≤ 0.40 dB/km
		@ 1550 nm	≤ 0.30 dB/km
	Zero dispersion wavelength		1300-1324 nm
	Zero dispersion slope		≤ 0.092 ps/(nm^2·km)
	Chromatic dispersion	@ 1310 nm	≤ 3.5 ps/(nm·km)
		@ 1550 nm	≤ 18 ps/(nm·km)
	Cable cut off wavelength		≤ 1260 nm
	Parameter		**Value**
Environmental Characteristics	Temperature		-20°C to +60°C
	Parameter		**Value**
Mechanical Characteristics	Macro-bending loss Φ 30 mm @ 10 turns at 1550 nm		≤ 0.50 dB
	Proof level		≥ 1.5 % strain
	Tensile load		80 N

Setting the Standards

Oxin Group S.A.

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