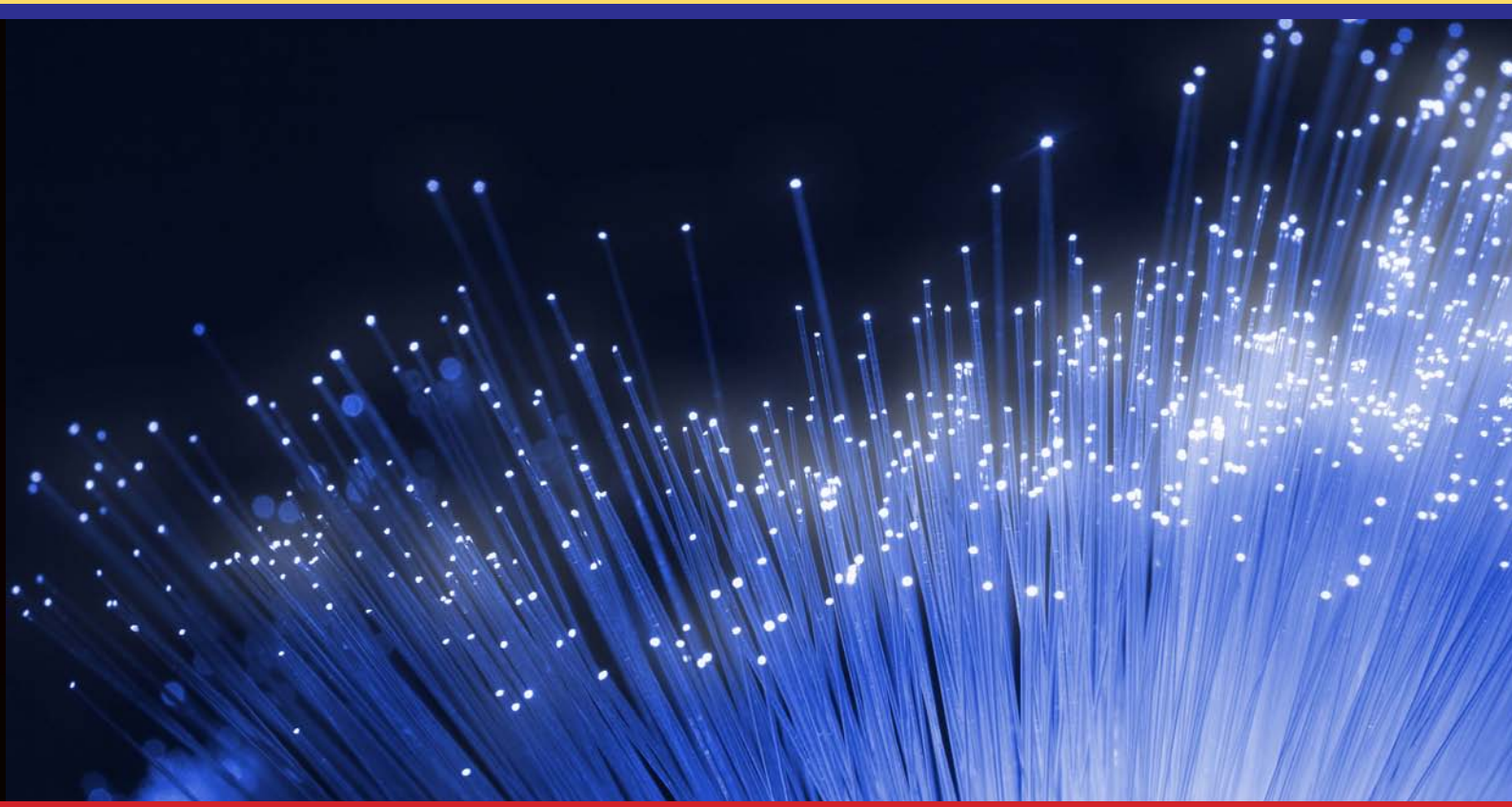
TELDOR
Cables & Systems Ltd.



TELDOR... The Best Connection™

Fiber Optic Cables

Outdoor	Aerial	Microduct	FTTx
Distribution	Breakout	DNV-M.O.G.	Tactical

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TELDOR CABLES & SYSTEMS Ltd.

Company Profile

TELDOR is a world-class cable manufacturer committed to innovation and excellence. We have continually lived up to that commitment with the help of the best personnel, the latest equipment and future-oriented management. Today, *TELDOR* is recognized as a leading cable manufacturer in almost all the markets where cables are sold and installed. The company was established in 1966, with the intent of manufacturing power and telecommunication cables. Over the years it has diversified to additional fields, always seeking the most competitive and profitable markets.

TELDOR products are sold and distributed in more than 25 countries on all 5 continents, Fifty-five percent (55%) of all sales are exported. *TELDOR* cables can be found in the most prestigious cabling projects all around the world, marked either with the *TELDOR* brand name or with one of the many international cabling companies to whom we provide cable with a private label. *TELDOR* is a certified supplier to many companies and organizations such as Panduit, Hubbell, RIT, Leviton, RW-Data, Israeli Air Force, Israels Department of Defense, ECI Telecom, and more.

TELDOR also anticipates the demands of future markets with progressive research and development. The company continuously monitors and interprets industry trends, and uses state-of-the-art R&D methods to introduce innovative new products that meet the needs of the rapidly changing market.

TELDOR utilizes the most advanced marketing methods, including a state-of-the-art Internet site at *www.teldor.com*. *TELDOR*'s engineers lecture in international seminars and training sessions all over the world. They also represent Israel in international standardization organizations such as ISO/IEC, IEC, and IEEE.

TELDORs quality system is approved to conform to the requirements of ISO-9001:2008. In addition, many of *TELDOR*'s products are approved and verified by national and international certification bodies such as UL, ETL and SII .

Engineering

- Product development management (from DRD to FDR)
- Consulting (materials, processing, applications, standards)
- Custom design (technical specs., drawings, modeling, prototype)
- Product verification (test regimes, standards conformance, simulations)
- Senior engineers with expertise in polymers, conductors, strength elements, advanced transmission systems
- Technology forecasting (based on active participation in all major national and international standards organizations)
- Rapid turnover, full NDA's, ISO 9001:2008 certified

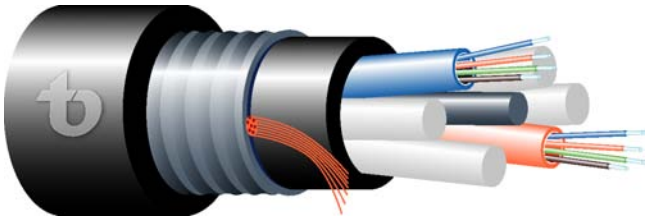
Processing

- Drawing, stranding and insulation of conductors
- Precise twinning and cabling (twist, planetary, reverse oscillating)
- Extrusion of polymers (thermoplastics, thermosets, PVC, HFFR, TPU, TPE,PEE and many more)
- Armoring and shielding (wire braid, served wire, Moisture Barrier, corrugated steel,dielectric materials)
- Polymer compounding and granulation
- Precise process control
- Winding, spooling and packaging

Testing

- Fully equipped hi-frequency laboratory
- OTDR and OLS-PM testing for all major optical fibers and wavelengths
- Fully equipped mechanical testing laboratory
- Fully equipped chemical and materials testing laboratory
- Electric testing laboratory (up to 50 kV)
- Environmental testing (Temperature, Permeability, UV, Flame, Aging)
- Issuing of C.O.Cs and C.O.Ts

LD Series



APPLICATIONS

- Long-distance outside plant telephony, CATV as well as data communications
- Direct burial and installation in ducts either by pulling or blowing methods
- Aerial installation using the Figure-8 self supporting option
- High fiber count indoor installations

CABLE DESCRIPTION

The cable consists of 5 to 36 elements stranded in up to 3 layers around a central strength member and bound in a jacket. The elements are usually fiber-containing tubes, however fillers are also used when needed, to preserve cable geometry. The cables can be ordered with a central member either made of a dielectric FRP, solid or stranded steel coated with polyethylene. The tubes and fibers are color coded.

Two to 24 color-coded fibers are loosely laid in each tube. Maximum fiber count is 864. Standard tube diameters are:

- 2.1 mm - up to 12 fibers/tube - **LDB** sub-series
- 2.5 mm - up to 24 fibers/tube - **LDC** sub-series
- 2.8 mm - up to 24 fibers/tube - **LDD** sub-series
- 3.1 mm - up to 24 fibers/tube - **LDE** sub-series

In addition to our **All-Dry** (gel-free) **DRC Cables**, a variety of cable water-blocking options is available: gel filling in the tubes, core and/or between jacket layers, or dry water-blocking tapes or yarns in the tubes, core and/or between jacket layers. A ripcord is located under each jacket layer to facilitate its removal.

A wide range of jacket and armoring options is available: PE, FR-LSZH (HFFR) materials, corrugated steel armoring, steel wire and steel braid armoring, fiberglass armoring, aramid yarns, anti-termite etc.

A Fig-8 self-supporting design is also available for all fiber-counts.

MECHANICAL PROPERTIES

Some typical properties are provided in the following pages. Actual properties depend on the cable construction and can be found in the data specification sheet of a particular product.

OPTICAL PROPERTIES

See the Optical Properties Page at the end of this brochure.

MATERIALS

See information about the materials used in the Teldor FiberOptic Cables at the end of this brochure.

STANDARDS

- Cables are tested according to TIA/EIA-455 and IEC-60794-1-2x. For details see Test Methods Table
- Cables meet or exceed Telcordia (Bellcore) requirements for outside plant cables (GR-20 CORE) when the appropriate options are chosen
- Cables ordered with HFFR jackets meet the IEC-60332-1 standard. On request cables meeting the IEC-60332-3 can be supplied

MARKING

Cables are marked as follows

Teldor- Fiberoptic Cable- P/N and cable description code- Meter marking

CABLE DIMENSIONS AND WEIGHTS

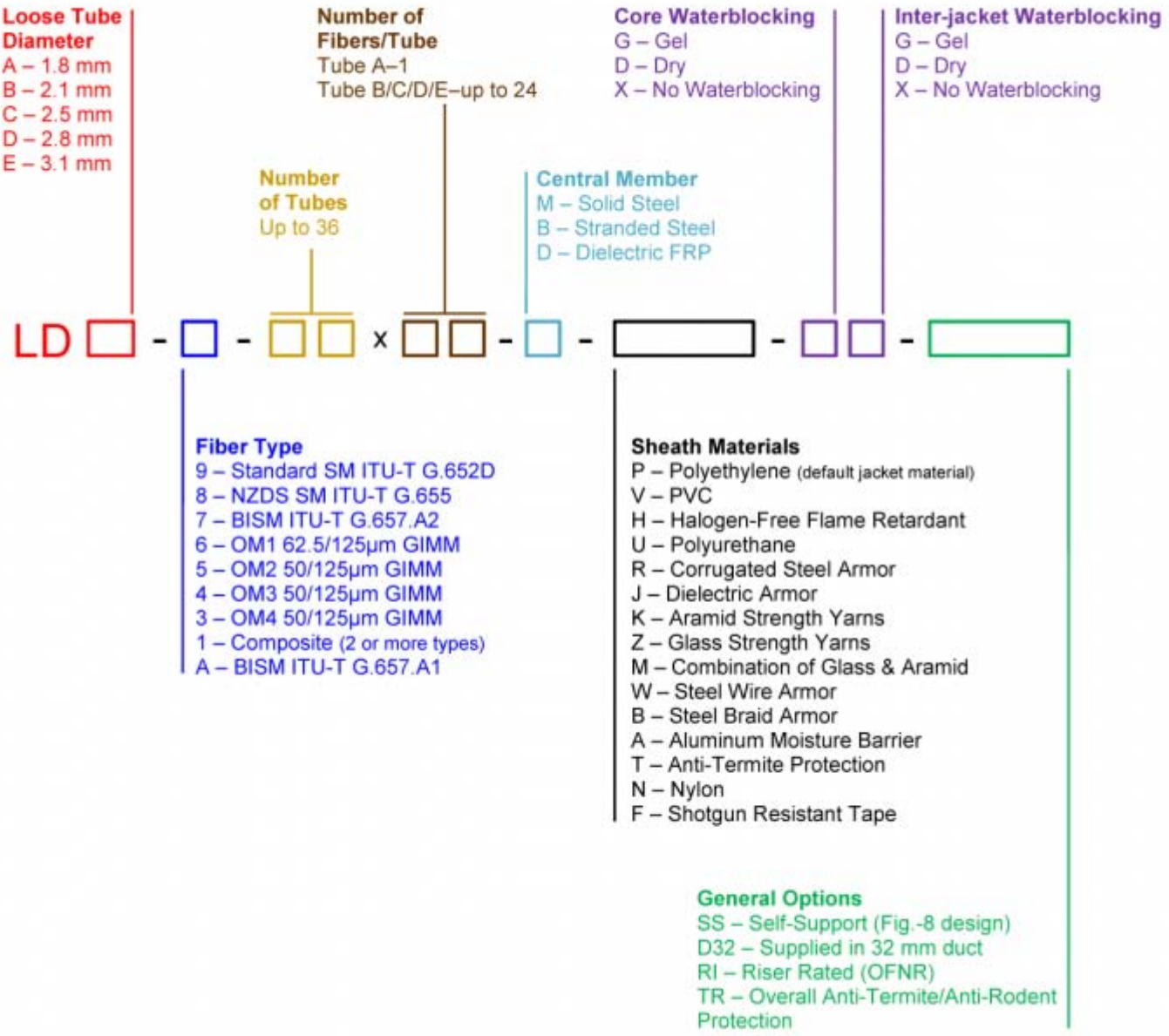
See the tables of some examples of the most commonly ordered cables on the next few pages.

ORDERING

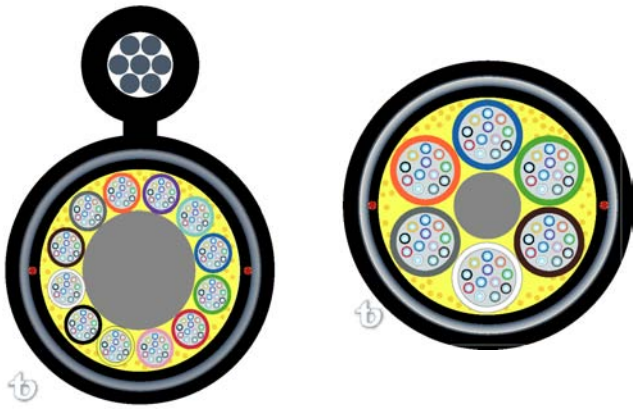
Standard cable lengths vary with cable diameter. Other constructions, color codes and materials may be available. For **DNV** certified LD Cables, please see the DNV chapter of this catalog.

LD Series

LD Cable Series Design Options and the Teldor Product Description



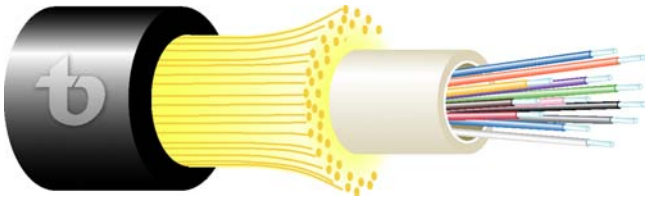
LD Series



Some Examples of Teldor Outside Plant Cables

Teldor P/N	Product Description	Outer Dia. (mm)	Weight (kg/km)	Tensile (N)
F902402J1B	DRC-9-02x12-D-ZV-D-OFNR UV BK	10.5	120	2700
F902402J2B	DRC-9-02x12-D-H-D UV BK LSZH	10.0	110	1350
F904804Q5B	DRC-9-04x12-D-ZV-D-OFNR UV BK	10.5	115	2700
F904804Q6B	DRC-9-04x12-D-H-D UV BK LSZH	10.0	110	1350
F90040146B	LDB-9-01x04-D-ZPWP-GD- BK	12.5	250	12000
F70060106B	LDB-7-01x06-D-HRP-D BK	11.5	155	1500
F90080217B	LDB-9-02x04-D-KPWP-DD#S BK	18.5	540	42000
F50120207B	LDB-5-02x06-D-ZHRP-GX BK	13.5	200	2700
F90240267B	LDB-9-02x12-D-ZRP-D BK	12.0	140	1500
F60240207B	LDC-6-02x12-D-ZV-D OFNR	10.5	100	2000
F90240233C	LDB-9-02x12-D-JH-D#S	10.0	95	2700
F40320400B	LDB-4-04x08-D-KH BK	9	80	1500
F90240619O	LDC-9-06x04-D-ZPT-D OG	13.4	145	2700
F60480802B	LDB-6-08x06-D-PWH-GD XL BK	14.5	360	8000
F92160900B	LDD-9-09x24-D-P-D BK	13.5	150	2000
F938416011	LDC-9-16x24-D-ZHRH-DD	24.5	700	4000
F94321801B	LDD-9-18x24-D-ZRP-D BK	20.5	400	3800
F96242600C	LDC-9-26x24-D-ZPTP-D	21.0	380	4000
F97203001B	LDC-9-30x24-M-PWP-D BK	27.6	590	8000

SL Series



APPLICATIONS

· Both indoor and outdoor

· Ducts, aerial installations and direct burial

· Distribution and general purpose cables

CABLE DESCRIPTION

The cable consists of a single tube containing 2 to 24 fibers, either filled with water-blocking gel or using a gel-free, dry water-blocking design. When the cable contains more than 12 fibers, they are divided in two groups. A colored thread identifies each group. Physical protection and tensile strength are provided by aramid or fiberglass yarns stranded around the tube.

A wide range of jacket and armoring options is available: UV-stabilized PVC, FR-LSZH (HFFR) materials, PE, corrugated anti-rodent steel, sealed aluminum moisture barrier tape, dielectric armor etc.. A ripcord is located under the jacket to facilitate its removal.

A Fig-8 self-supporting cable is available in all fiber-counts for aerial applications.

MECHANICAL PROPERTIES

Some typical properties are provided in the following pages. Actual properties depend on the cable construction and can be found in the data specification sheet of a particular product.

OPTICAL PROPERTIES

See the Optical Properties Page at the end of this brochure.

STANDARDS

· Cables are tested according to TIA/EIA-455 and IEC-60794-1-2x

· Cables meet or exceed Telcordia (Bellcore) requirements for outside plant cables (GR-20) when the appropriate options are chosen

· Cables ordered with HFFR jackets meet the IEC-60332-1 standard

· On request cables meeting the IEC-60332-3 Fire Safety Standard can be supplied

CABLE DIMENSIONS AND WEIGHTS

See the tables of some examples of the most commonly ordered cables on the next few pages.

ORDERING

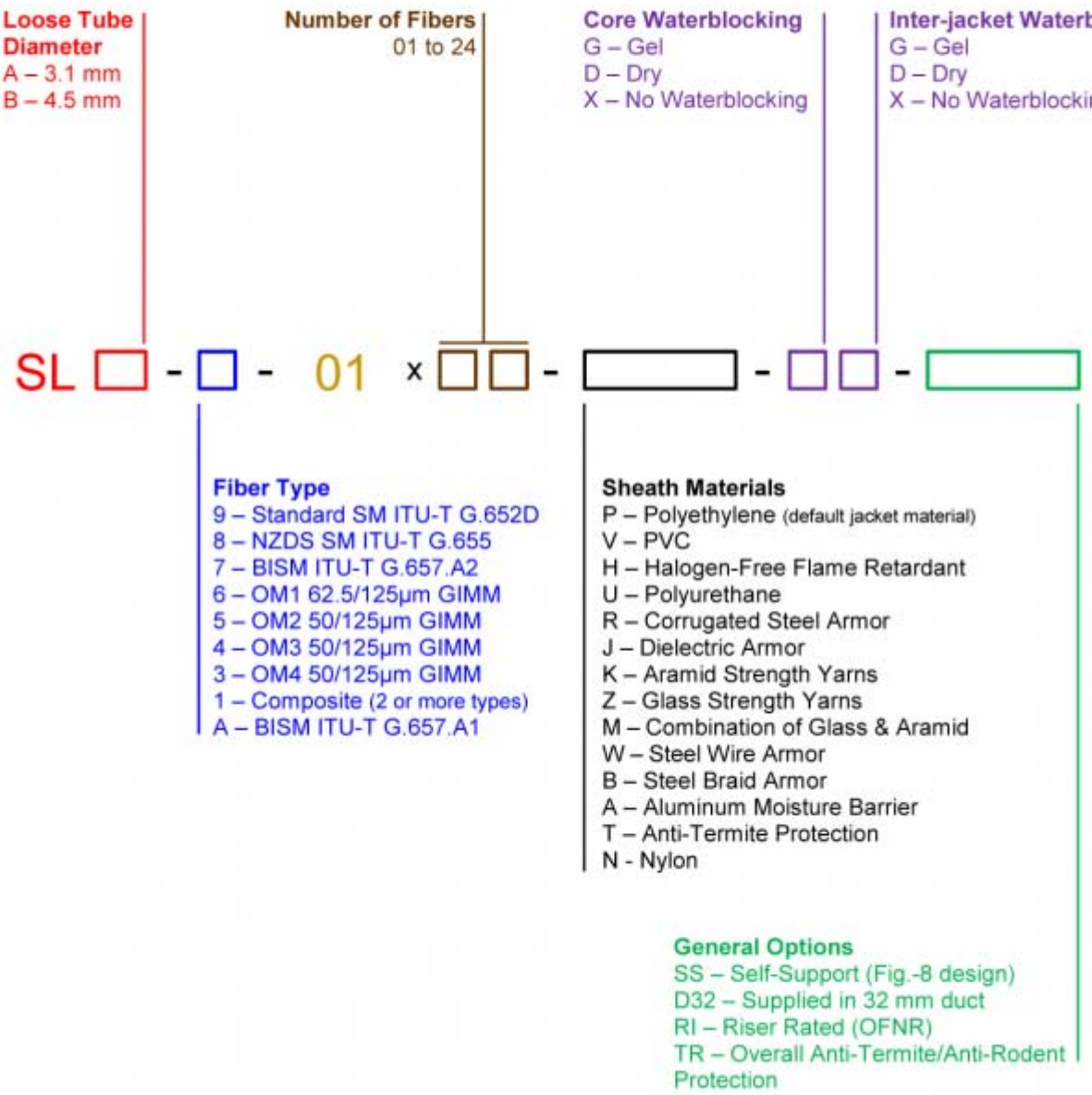
Standard cable lengths vary with cable diameter. Other constructions, color codes and materials may be available.

For our Micro SL (**MSL**) Cables, see the FTTx Family chapter in this catalog.

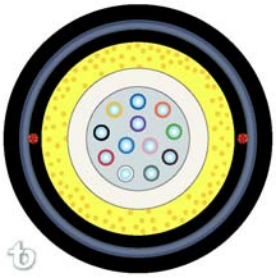
For **DNV** certified SL Cables, please see the DNV chapter of this catalog.

SL Series

SL Cable Series Design Options and the Teldor Product Description



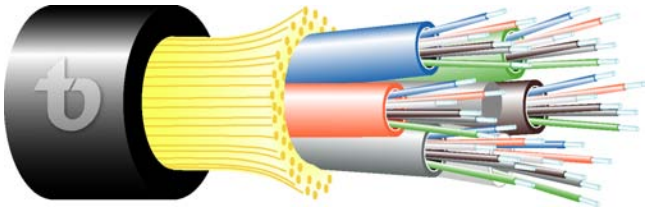
SL Series



Some Examples of SL Cables

Teldor P/N	Product Description	Outer Dia. (mm)	Weight (kg/km)	Tensile (N)
F40040105B	SLA-4-01x04-ZH-D BK	7.5	60	1500
F90040112B	SLA-9-01x04-ZRP-D BK	9.6	100	1800
F900401A0B	SLA-9-01x04-2M-ZRP-D DROP	9.5	110	2700
F50060107B	SLA-5-01x06-ZRP-D BK	9.6	100	1500
F60060149B	SLA-6-01x06-JP-D BK	7.2	37	1500
F60060143B	SLA-6-01x06-ZV-D OFNR BK	8.5	90	1500
F90060184B	SLA-9-01x06-ZV-D BK OFNR	8.5	90	1500
F30080103Z	SLA-3-01x08-ZH-D TZ	7.5	60	1500
F50080128B	SLA-5-01x08-ZRP-D BK	9.6	100	1500
F90080156B	SLA-9-01x08-2M-ZRH-D DROP	9.5	130	2700
F900601B8B	SLD-9-01x12-ZP-D#S BK	6	35	1350
F901201A9B	SLA-9-01x12-ZV-D BK OFNR	8.5	80	1500
F70120114B	SLA-7-01x12-ZP-D BK	7.0	36	1500
F60120142B	SLA-6-01x12-ZV-D OFNR BK	8.5	90	1500
F502401A4B	SLB-5-01x24-JH-D BK XLHFFR	8.5	75	1800
F60120146B	SLA-6-01x12-ZPRHT-D BK	12.0	155	2500
F60120151B	SLA-6-01x12-ZHRH-D BK	11	180	2700
F60120162B	SLA-6-01x12-JP-FRP-P-DD BK	11.5	140	3500
F50120104B	SLA-5-01x12-ZH-D BK	6	45	1200

ADS Series



APPLICATIONS

Teldor's **A**ll **D**ielectric **S**elf-**S**upporting (ADSS) cables are designed for aerial self-supporting applications requiring short, medium and long span distances.

Our ADSS cables offer a rapid and economical means for deploying optical fiber cables along existing aerial rights-of-way. They are deployed by cable television operators, telephone companies, municipalities and emerging network operators, in addition to electric power utilities.

CABLE DESCRIPTION

The ADSS cable consists of a number of tubes/elements according to the specified number of fibers. The elements are usually fiber-containing tubes; however fillers may be used to preserve the cable geometry.

Two to 24 color-coded fibers are loosely laid in each tube containing a water-blocking gel. The tubes are stranded around a dielectric central strength member and a water-swelling tape is helically wrapped around the cable core.

Aramid yarn strength members are helically laid to provide the required tensile performance of the cable. The outer jacket is tightly bound over the aramid yarn layer. For long span applications a double jacket design can be considered. A ripcord is located under each jacket layer to facilitate its removal.

STANDARDS

· Cables are designed for aerial installation according to IEC 60794-4-20 and IEEE-P1222

· Cables are tested according to TIA/EIA-455 and IEC-60794-1-2x

· Cables meet or exceed Telcordia (Bellcore) requirements for outside plant cables (GR-20) when the appropriate options are chosen

OPTICAL PROPERTIES

See the Optical Properties Page at the end of this brochure.

MARKING

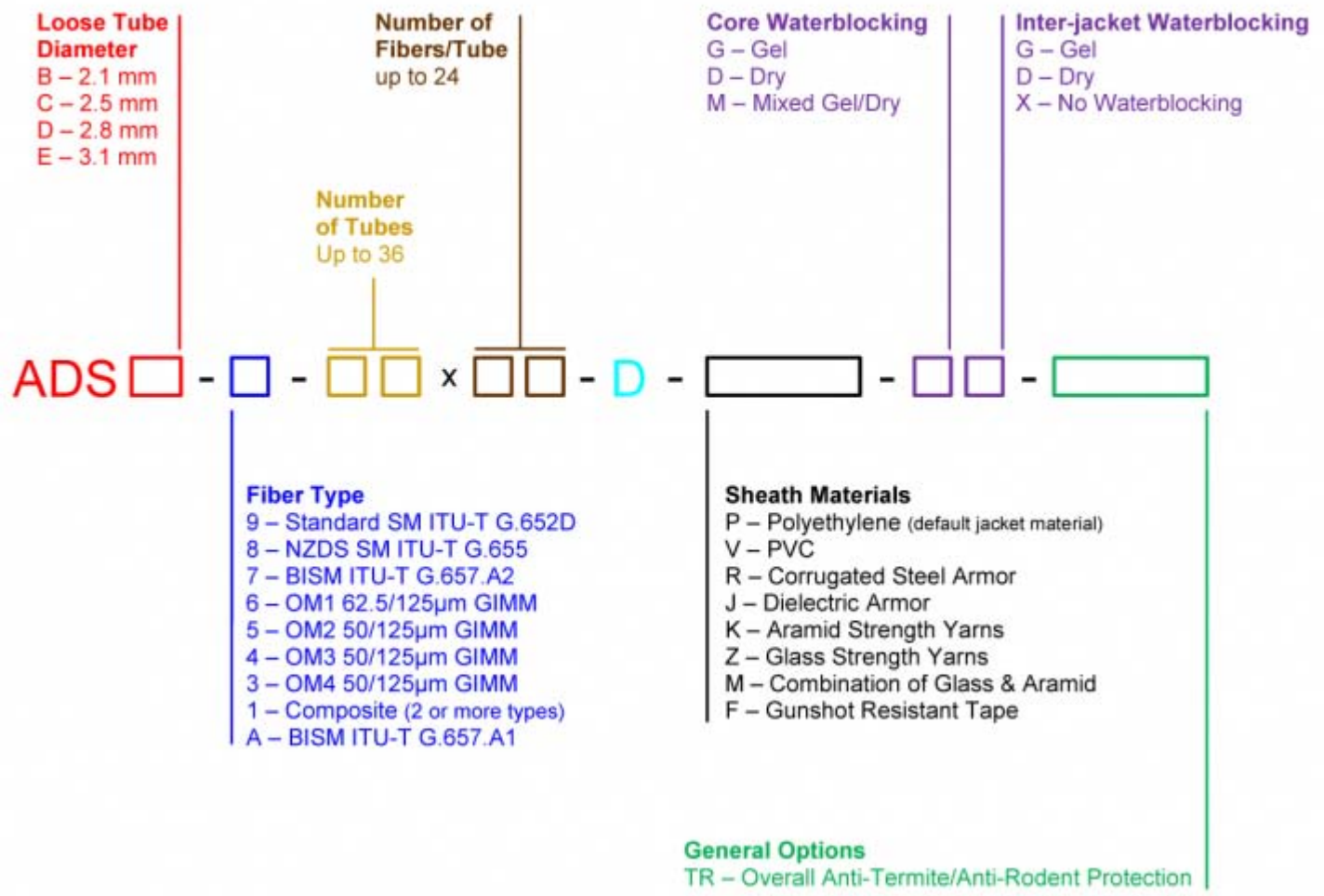
Cables are marked as follows: Teldor- Fiberoptic Cable- P/N and cable description code- Meter marking

ORDERING

Standard cable lengths vary with cable diameter. Other constructions, color codes and materials may be available.

ADS Series

ADS Cable Series Design Options and the Teldor Product Description



ADS Series

Some Examples of ADSS Cables

Teldor P/N	Product Description	Outer Dia. (mm)	Weight (kg/km)	Max. Span (m)
F901201C4B	ADSC-9-01x12-D-KP-D	10.8	85	120
F90120245B	ADSC-9-02x06-D-PKP-DX BK	12.7	121	300
F90120274B	ADSC-9-02x06-D-PKP-DX BK	14.5	165	1000
F90240232B	ADSC-9-02x12-D-KP-D BK	11.6	100	200
F90240472B	ADSC-9-04x06-D-PKP-D	14	151	
F90240476B	ADSC-9-04x06-D-KP-D BK	11.6	100	200
F90240487B	ADSC-9-04x06-D-KP2FP-D BK	16.5	200	380
F90240471B	ADSC-9-04x06-D-PKP-D	15.4	183	500
F90240470B	ADSC-9-04x06-D-PKP-D	17.3	230	1200
F90320418B	ADSC-9-04x08-D-PKP-D BK	13.7	142	80
F904804N6B	ADSC-9-04x12-D-PKP-D BK	11.8	105	100
F50120600B	ADSC-5-06x02-D-KP-D	11.5	120	60
F90480629B	ADSC-9-06x12-D-PKP-DD BK	14.0	150	122
F91280801B	ADSC-9-08x16-D-KP BK	12.5	120	70
F91441246B	ADSC-9-12x12-D-PKP-D	18.9	250	100
F91441266B	ADSC-9-12x12-D-PKP-D BK	18.6	250	200
F92561603B	ADSC-9-16x16-D-KP BK	15.4	195	70
F95123201B	ADSC-9-32x16-D-KP BK	20.7	345	70
F904804H4B	ADSC-9-04x12-D-PKP-DX BK	14	149	150
F907206E6B	ADSC-9-06X12-D-PKP-DX BK	13.1	131	250

Joint Boxes

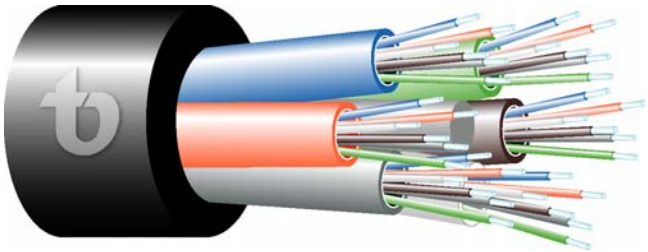
Suspension Units

Dead End Units

Spiral Vibration Dampers

For more information, contact the Teldor Sales Department.

For Blown Installation in Microducts



APPLICATIONS

· FTTP applications – low installation cost, short to medium reach in fiber-to-the-home (FTTH), fiber-to-the building (FTTB) or fiber-to-the-Cabinet (FTTCab) applications

· For blown installation into suitable, protected micro-ducts only

CABLE DESCRIPTION

The cable consists of 6 to 36 elements stranded in up to 3 layers around a dielectric central strength member and bound in a jacket. The elements are usually downsized fiber-containing tubes, however fillers are also used when needed, to preserve cable geometry. Each tube can contains 2 to 24 fibers.· The tubes are filled with a waterblocking gel to prevent the ingress of water. Tubes and fibers are color coded for easy identification. Dry water-swelling materials are applied between and around the cable core in order to provide full water-blocking. A ripcord is laid under the jacket to aid in cable preparation. A black, UV resistant, low-friction HDPE jacket is extruded over the cable core.

+STANDARDS

· Cables are tested according to TIA/EIA-455 and IEC-60794-1-2x

· Cables comply with IEC-60794-5

MARKING

Cables are marked as follows: Teldor- Fiberoptic Cable- P/N and cable description code- Meter marking

CABLE DIMENSIONS AND WEIGHTS

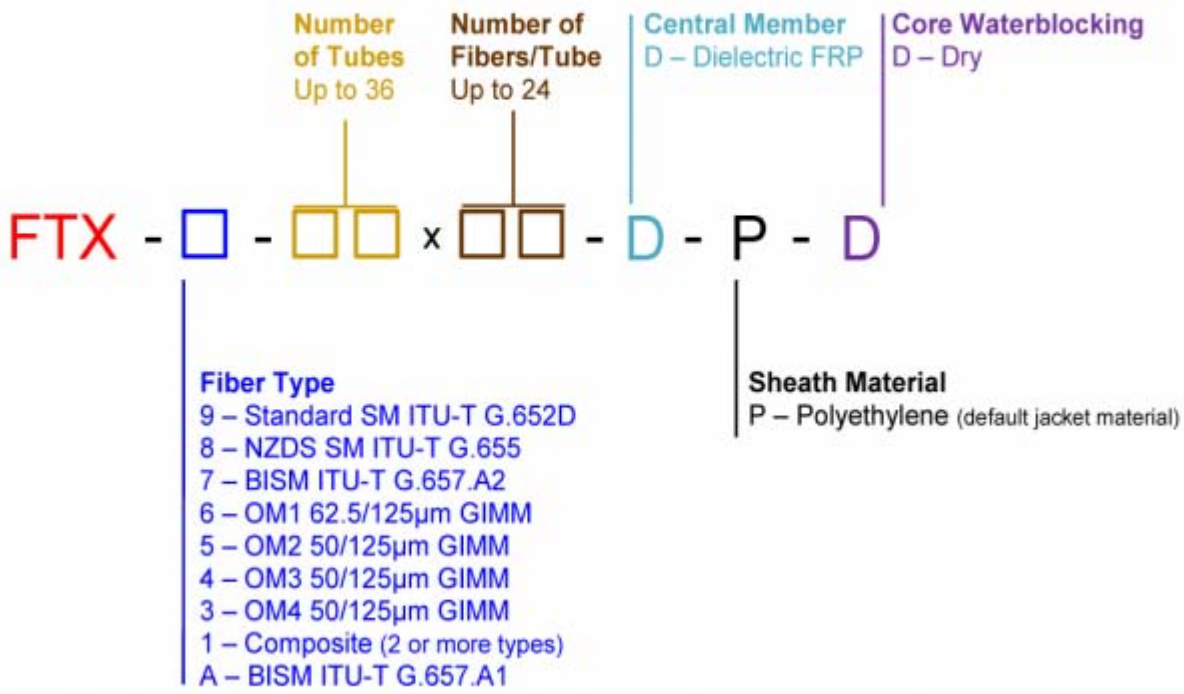
On the next page you can see examples of typical FTX designs. Additional constructions are also available.

ORDERING

Standard cable lengths vary with cable diameter. Other constructions, color codes and materials may be available.

For Blown Installation in Microducts

FTX Cable Series Design Options and the Teldor Product Description

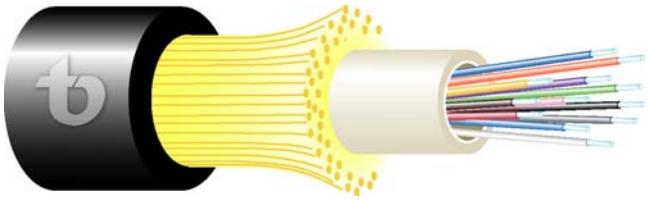


For Blown Installation in Microducts

Some Examples of FTX Cables

Teldor P/N	Product Description	Outer Dia. (mm)	Weight (kg/km)	Tensile (N)
F60080206B	FTX-6-02x04-D-P-D-BK	5.8	28	700
F30240205B	FTX-3-02x12-D-P-D BK	5.8	28	700
F60240209B	FTX-6-02x12-D-P-D BK	5.8	28	700
F70080200B	FTX-7-02x04-D-P-D BK	5.8	28	700
F70240201B	FTX-7-02x12-D-P-D BK	5.8	28	700
F70480414B	FTX-7-04x12-D-KP-D BK	5.8	28	1000
F90960411B	FTX-9-04x24-D-P-D BK	8.0	54	1500
F70480600B	FTX-7-06x08-D-P	5.8	28	700
F70720601B	FTX-7-06x12-D-P-D BK	5.8	28	700
F91440607B	FTX-9-06x24-D-P-D BK	8.0	58	1500
F70640800B	FTX-7-08x08-D-P	6.8	42	1000
F90960860O	FTX-9-08x12-D-P-D OG	7.0	42	1000
F91920801B	FTX-9-08x24-D-P-D BK	9.7	68	2000
F914412B6B	FTX-9-12x12-D-P-D#1 BK	8.5	70	1500
F72642200B	FTX-7-22x12-D-P-D	10.0	100	1000
F92882404B	FTX-9-24x12-D-P-D	10.4	110	1000
F72882400O	FTX-7-24x12-D-P-D OG	10.4	110	1000
FH0401000B	HYB-0-B-06X04+6-04X04+2X4X1X28#-T-BP-D	8.6	75	500

Cables for the Last Mile



Teldor offers you a variety of cable designs optimized for FTTx applications. From the SLA and MSL "drop" designs to connect to the aerial infrastructure in the "Last Mile", through the Micro SL and Retractable cables for Multi-dwelling Units and the DBF design for Fiber-to-the-Desk, you can combine fiber types, jacket materials and mechanical requirement to meet your needs.

Fiber Types:

- Graded Index Multimode 62.5/125 µm (OM1)
- Graded Index Multimode 50/125 µm (OM1, OM2)
- LASER optimized Graded Index Multimode 50/12µm (OM3, OM4)
- Non-Zero Dispersion Shifted Single-mode (ITU-T G.652 C/D or IEC 60793-2-50 B.3)
- Bend Insensitive Single-mode (ITU-T G.657 or IEC 60793-2-50 B.6)

Design Options:

- Single Loose-tube ,standard (SLA) or miniaturized (MSL) with Drop and Self-Support options
- Retractable cables (RET) in standard and Self-Support constructions
- Flexible Fiber-to-the-Desk (DBF) designs
- PE, LSZH, PU jackets available, all with Flame Retardant options
- Special Jacket Removal Tools for RET cables available on request

Intended Applications:

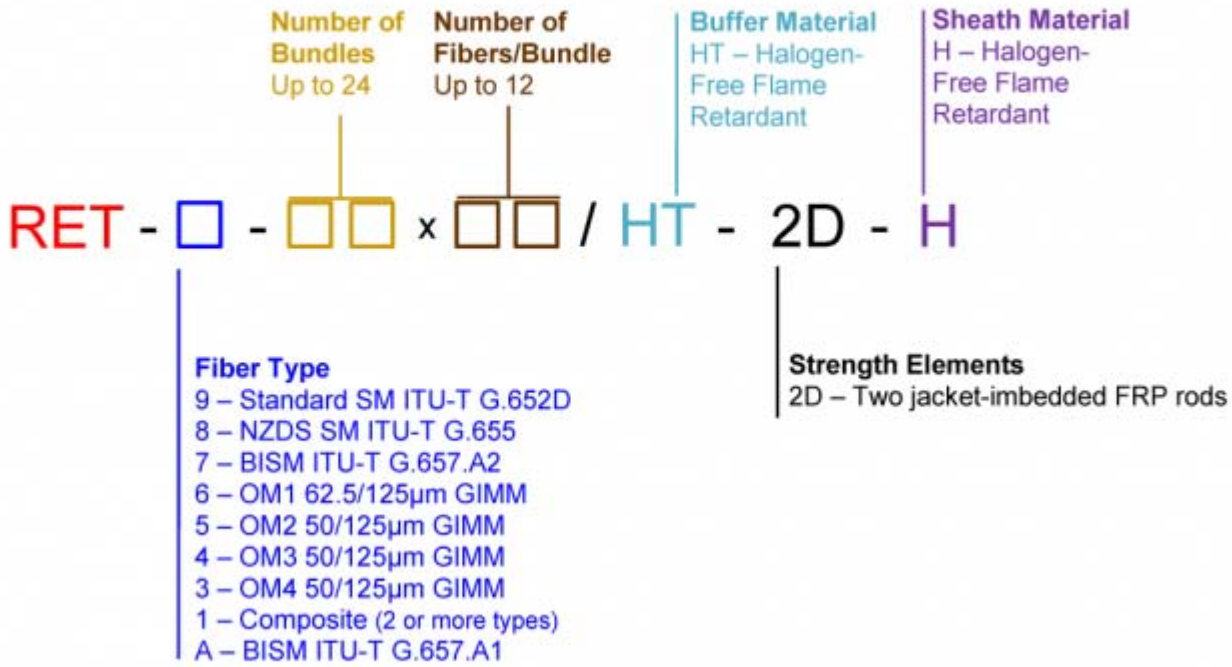
- Fiber-to-the-Curb
- Fiber-to-the-Building
- Fiber-to-the-Home
- Fiber-to-the-Desk

Cable Performance:

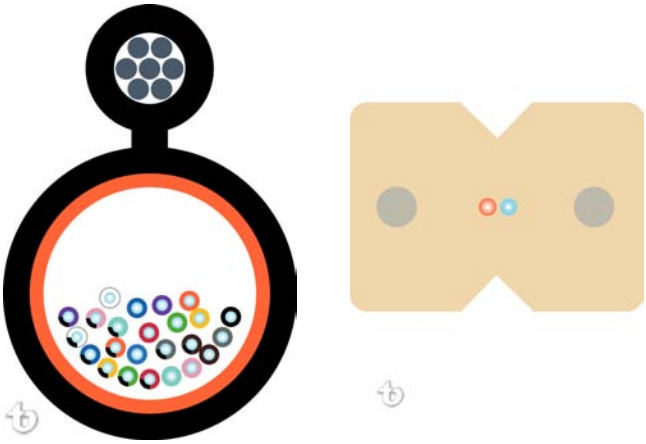
- Fully Complaint with all relevant IEC 60794-1-2x standards
- Flame Retardance: IEC 60332-3-24, IEC 60754-2, IEC 61034-1/2
- Waterblocking options available
- Corrugated steel armor available for outdoor and indoor/outdoor applications

Cables for the Last Mile

RET Cable Series Design Options and the Teldor Product Description



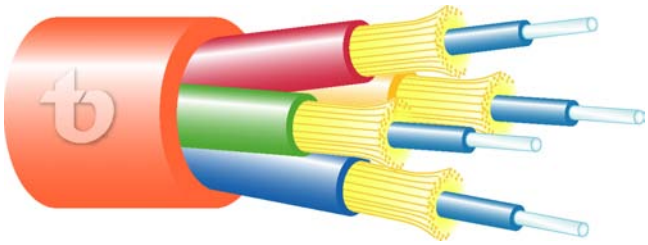
Cables for the Last Mile



Some Examples of FTTx Cables

Teldor P/N	Product Description	Outer Dia. (mm)	Weight (kg/km)	Jacket Material
F70161603O	RET-7-16X01/HT-2D-H#S OG	10.0	67	HFFR
F70121209O	RET-7-12X01/HT-2D-H#S OG	8.5	54	HFFR
F70121211B	RET-7-12X01/HT-HP-SS#S BK		200	PE
F70242402O	RET-7-24X01/HT-2D-H#S OG	12.0	86	HFFR
F70242405B	RET-7-24X01/HT-HP-SS#S BK		210	PE
F70480801B	RET-7-08X06/HT-2D-H BK	10.0	66	HFFR
FA0640800Y	RET-A-08X08/HT-2D-H#S YO	8.5	60	HFFR
F70020210C	DBF-7-02-H		11	FR-LSZH
F70120111B	MSL-7-01x12-KP-D	2.5	6	PE
F30120128B	MSL-3-01x12-KH-X BK	3.1	11	HFFR
FA0240202B	MSL-A-02x12-KH BK-FIG8		17.5	HFFR
F70040100B	MSL-7-01x04-KH-D	4.0	16	FR-LSZH
F90040124B	MSL-9-01x04-ZP-D BK	5.5	22	PE
F90240192B	SLA-9-01x24-2M-ZRP-D DROP BK	9.5	110	PE
F60060161B	MSL-6-01x06-2M-ZRP-D DROP BK	8.5	110	PE
F40060123B	MSL-4-01x06-ZH-D BK	5.2	35	HFFR
F50060109B	MSL-5-01x06-ZP-D BK	5.5	22	PE
F90080156B	SLA-9-01x08-2M-ZRH-D DROP BK	9.5	130	HFFR
FA0120104B	MSL-A-01x12-2D-H DROP (1.6) BK	7.2	52	HFFR
F901201E0B	SLA-9-01x12-2D-H DROP (1.6) BK	8.5	80	HFFR
F90040192B	MSL-9-01x04-KU-D BK	5.9	31	FR-PU
F70240104Y	MSL-7-01x24-ZHRP-DD YO	9.5	120	PE

Breakout Design



APPLICATIONS

· Short-distance, indoor and protected environments

· Breakout design permitting routing to different locations and direct termination of fibers in the field

· Centralized cabling

· For riser, or general purpose applications

· For multi-fiber pre-terminated cable assemblies

BENEFITS

· Rugged construction

· Easy termination, rugged cable-connector interface

· Individual color-coded minicables allow fast and convenient routing

· Can be installed in air-handling spaces and plenums due to its fire retardant and all-dielectric construction

· Available as OFNR (UL listed Riser rated)

CABLE DESCRIPTION

The cable contains 2 to 48 fibers which are individually buffered to 0.9 mm in a tight or semi-tight construction.

Each fiber is individually protected in a mini-cable consisting of aramid yarn applied around the fiber, and a PVC or halogen-free flame-retardant sheath. Different mini-cable outer diameters are available upon request.

The color-coded minicables are stranded around a central strength member made of either a semi-rigid FRP or flexible yarns, and protected with a PVC or a halogen-free, flame-retardant outer jacket. Fillers are used, as needed, to preserve the cable geometry.

A corrugated steel armored option is available in conjunction with polyethylene or HFFR jackets. A ripcord is located under the jacket to facilitate removal. For **DNV** certified SD Cables, please see the DNV chapter of this catalog.

STANDARDS

· Cables tested according to TIA/EIA-455 and IEC-60794-1-2x

· Cables meet or exceed Telcordia (Bellcore) requirements for indoor plant cables (GR-409)

· Cables ordered with HFFR jackets meet the IEC-60332-1 standard.

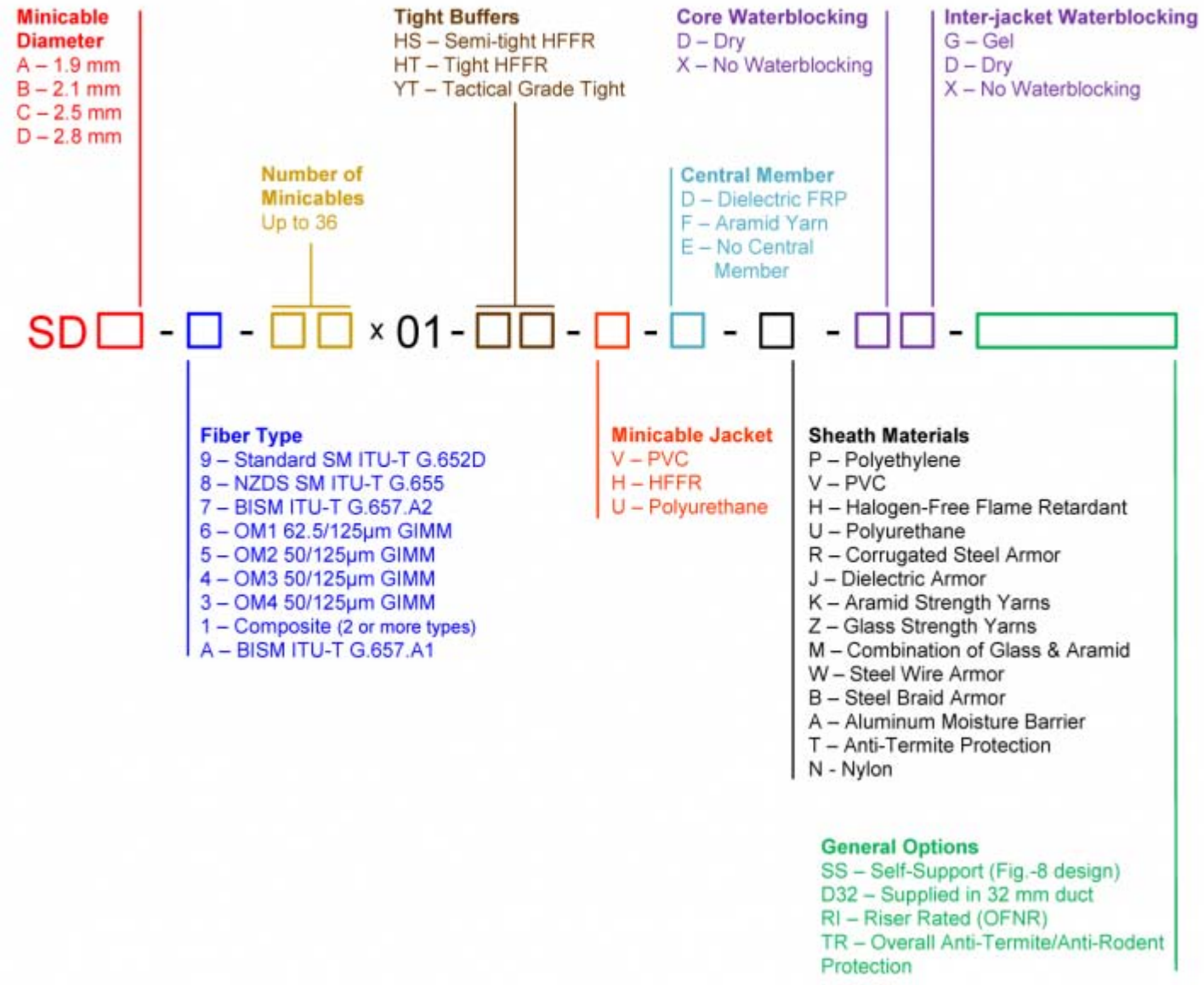
· On request cables meeting the IEC-60332-3 and UL 1666 (Riser rating) standards can be supplied.

MARKING

Cables are marked as follows: Teldor- Fiberoptic Cable- P/N and cable description code- Meter marking

Breakout Design

SD Cable Series Design Options and the Teldor Product Description

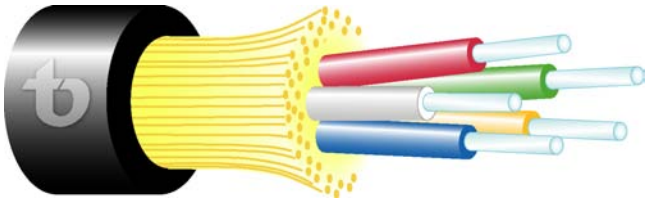


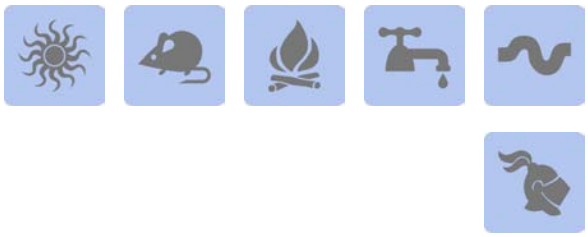
Breakout Design

Some Examples of Breakout Cables

Teldor P/N	Product Description	Outer Dia. (mm)	Weight (kg/km)	Tensile (N)
F20020200B	SDA-2-02VT/V-E-KV-X	5.5	38	500
F60020218B	SDA-6-02HS\H-E-KH-D BK	6.8	46	1250
F50020220B	SDB-5-02HT/H-E-KH-D	6.8	47	1250
F90040463C	SDA-9-04HT/H-E-H-X (TB-COLOR)	6	40	700
F50040437B	SDA-5-04HT\H-E-KU-HFFR	6.8	40	800
F60040410X	SDA-6-04VT\V-F-KVRH-DD	12.5	195	1900
F60040451B	SDC-6-04HT/H-D-HBU-D#NUOG BK	11.7	190	2000
F60040452B	SDA-6-04YT\U-F-KU-D#S BK	11.5	120	4800
F60060609B	SDA-6-06VT\V-F-KVRH-DD BK	14.0	190	1500
F50080827C	SDB-5-08HS/H-D-H	9.4	88	1500
F60080830B	SDA-6-08YT\U-D-VRP-DD BK	16.3	250	2500
F90121243Y	SDA-9-12HS/H-D-H-X	12	150	2000
F90161606B	SDA-9-16HT\H-F-H-X	12	120	1200
F60161607O	SDA-6-16HT\H-F-H-X#NU OG	11.0	112	2700
F40161605B	SDA-4-16HT\H-D-JH-D BK	13	175	3000
F90252500Y	SDA-9-25HT\H-F-H-X	13.6	170	
F30484800Z	SDA-3-48HT/H-D-KH	18.4	264	2300
F60181800B	SDA-6-18YT\U-F-KU-D#S BK	12.8	145	4800
F70727200B	SDA-7-72HT\H-D-JH-D BK	25	565	6000

MT Cables





APPLICATIONS

· Short and medium distance, indoor and protected environments

· As a riser, or general purpose cable

· Interconnection of distribution boxes, of the distribution boxes and customer equipment, and between floors

CABLE DESCRIPTION

The cable contains 4 to 288 fibers individually buffered to 0.9 mm in a tight or semi-tight construction and coded. The cable structure depends on the number of fibers:

In the 4-to-24-fiber cables (MTA series), the individual fibers are stranded and protected by aramid yarns and a PVC or HFFR jacket.
When more than 24 fibers are required sub-units are employed which are laid helically along the cable axis. Each sub-unit contains 4 to 12 fibers, aramid yarns and a PVC or halogen-free flame-retardant sheath. The sub-units are then stranded around a central element made either of additional sub-units or a central filler.

- MTA - up to 24 fibers without sub-units
- MTB - 26-96 fibers in 4 fiber sub-units
- MTC - 98-144 fibers in 6 fiber sub-units
- MTD - 146-192 fibers in 8 fiber sub-units
- MTE - 194-288 fibers in 12 fiber sub-units

A wide range of jacket and armoring options is available: PVC, HFFR, corrugated steel , fiberglass, aramid yarn, and more. The steel armored option is available in conjunction with a PE or HFFR jacket. A ripcord is located under the jacket to facilitate removal.

BENEFITS

· Cost efficient multi-fiber cable

· Compact and flexible construction especially suitable for indoor installations

· Available in a UL listed Riser rated construction

MECHANICAL PROPERTIES

Typical properties are given in the Mechanical Properties Table. Actual properties depend on the cable construction.

STANDARDS

· Cables tested according to TIA/EIA-455 and IEC-60794-1-2. For details see Test Methods Table

· Cables ordered with HFFR jackets meet IEC-60332-1 standard

· Cables meet or exceed Telcordia (Bellcore) requirements for indoor plant cables (GR-409)

· On request cables meeting the IEC-60332-3 can be supplied

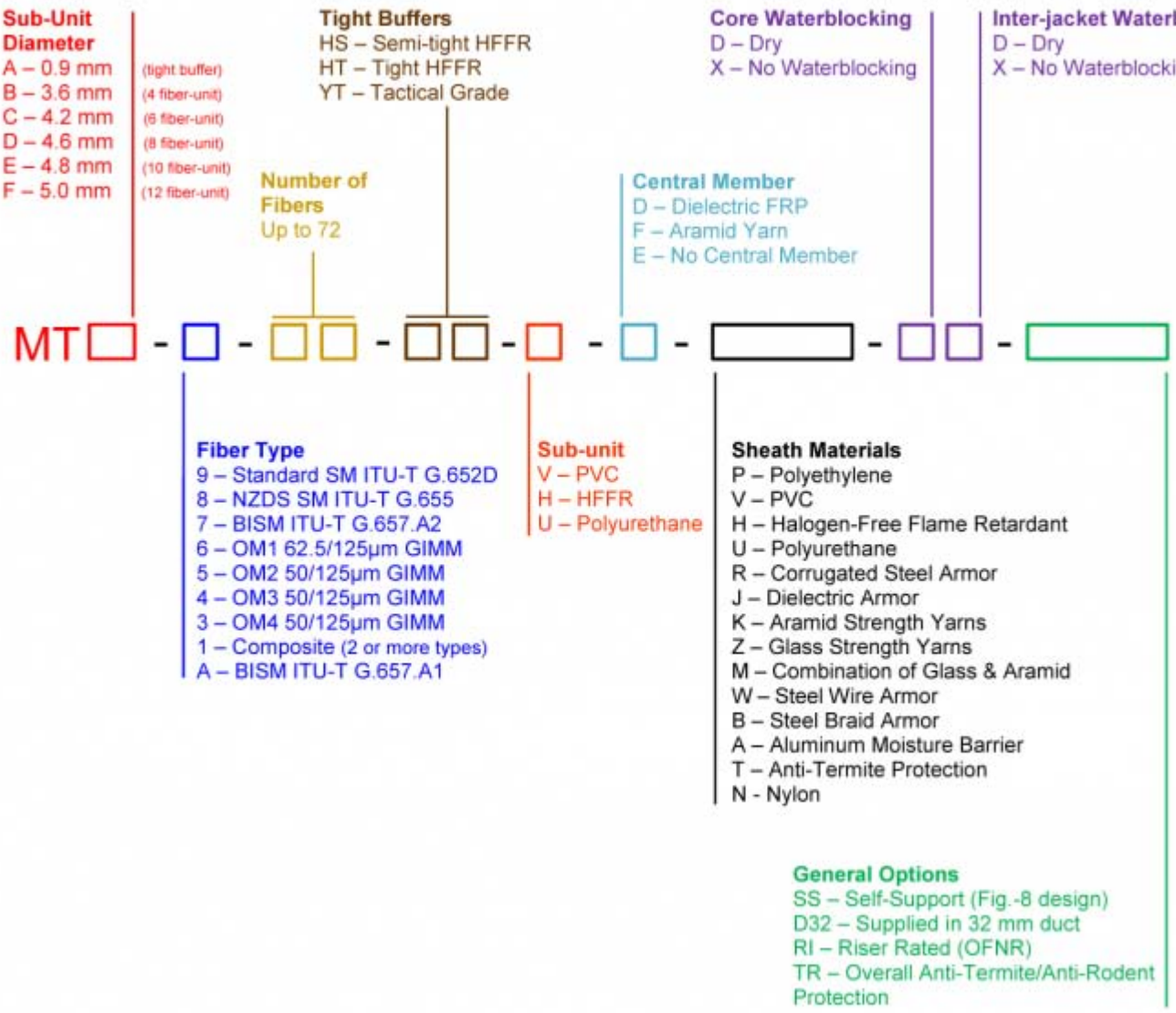
· Available in constructions meeting UL 1666 (Riser rating)

DNV Certified MT Cables

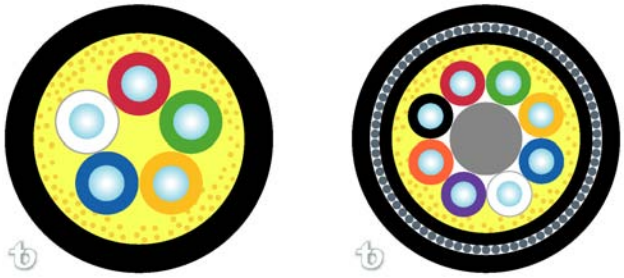
For **DNV** certified MT Cables, please see the DNV chapter of this catalog.

MT Cables

MT Cable Series Design Options and the Teldor Product Description



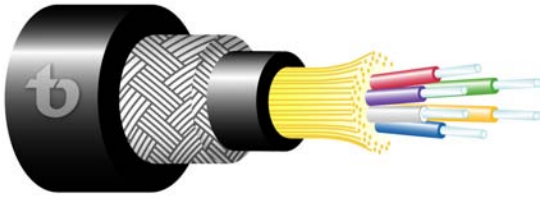
MT Cables



Some Examples of Multi-tight Distribution Cables

Teldor P/N	Product Description	Outer Dia. (mm)	Weight (kg/km)	Tensile (N)
F70020227C	MTA-7-02HT-E-KH-D	3.0	9.5	300
FA0020200I	MTA-A-02HT-E-KH-D IY	4	17	365
F40020205B	MTA-4-02HT-E-KH-D BK	4.5	22	900
F90020231B	MTA-9-02HT-E-KHRH-DD	9.5	140	1500
F700404NNC	MTA-7-04HT-E-KH 400N	4.0	18.0	400
F40040404B	MTA-4-04HT-E-KH-D	4.9	25	900
F904804D3Y	MTF-9-04X12VT/V-D-V OFNR	15.0	196	2200
FA0480402B	MTE-A-04X12HT/H-F-KH-D	15	170	2500
F30060600Z	MTA-3-06HT-E-KH-D TZ	5.5	32	1000
F60060614O	MTA-6-06HT-E-KH-D OG	5.5	32	1000
F50060621C	MTA-5-06VT-D-KVRP-DD	9.6	123	1250
F40060615C	MTA-4-06HS-E-JH-D	6.8	50	2000
F60040441B	MTA-9-06HT-E-KHJH	7.4	77	2000
F60080817C	MTA-6-08HT-D-KVRP-DD	11.2	140	2700
FA0121200C	MTA-A-12HT-E-KH-D	6.0	40	1000
F50121204B	MTA-5-12HT-E-KH-D BK	6.0	40	1000
F90121259C	MTA-9-12HT-D-KH-D	7.0	60	1200
F60121238B	MTA-6-12VT-E-KV-D OFNR BK	6.9	47	1500
F90242405C	MTA-9-24VT-D-KV-X	10.8	125	1500
F60242409C	MTA-6-24HT-D-KH-D	11.0	134	1500
F90242429C	MTA-9-24HT-F-KH-D OFNR	8.0	70	1600
F90242428Y	MTA-9-24VT-F-KV YO RISER	8.5	85	1780

DNV Cables



With over 40 years of cable design and manufacturing experience catering to the most discerning of industry professionals, Teldor has the capability of providing a complete portfolio of DNV approved FiberOptic cables for ships, light and high-speed marine craft and offshore installations. In the following pages we have put together a small sampling of the hundreds of products available. For a more complete and detailed view, please visit or contact us at our website: www.teldor.com. Common ranges of Teldor DNV approved FiberOptic cables:

Fiber Types:

- Graded Index Multimode 62.5/125 µm (OM1)
- Graded Index Multimode 50/125 µm (OM1, OM2)
- LASER optimized Graded Index Multimode 50/12µm (OM3, OM4)
- Non-Zero Dispersion Shifted Single-mode (Zero Water Peak)
- Dispersion Shifted Single-mode

Design Options:

- Multi or Single Loose-tube, Distribution or Breakout Tight Buffer construction
- Armoring: Galvanized Steel Wire, Bronze wire, Corrugated Steel Tape or Non-Armored
- Dielecetric or Steel Central Strength members
- Aramid or Glass yarn peripheral strength members
- Special UV Resistant Cross-linked Flame Retardant Low Smoke Zero Halogen Jacket materials

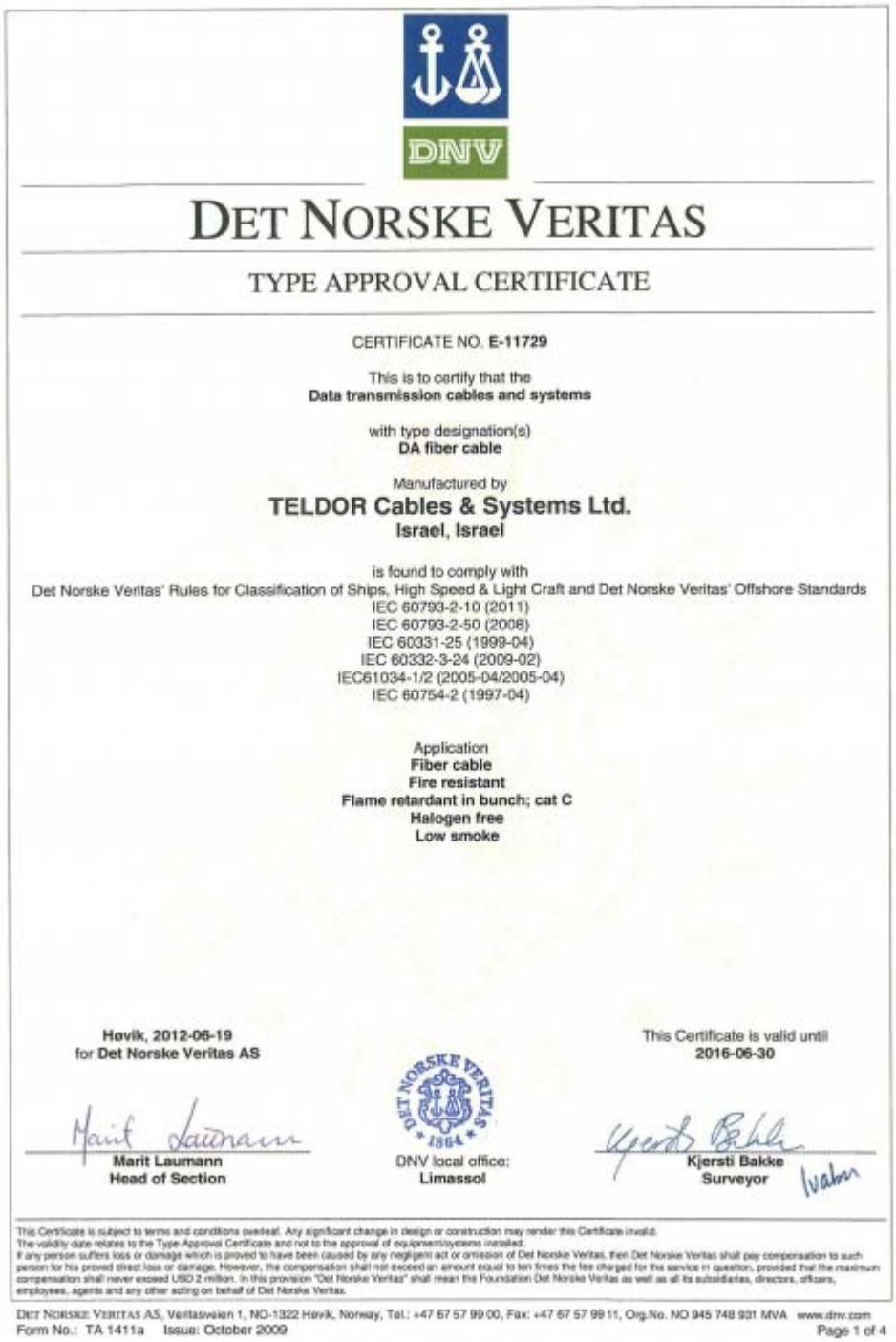
Intended Applications:

- Shipboard
- Offshore rigs
- Engine Rooms
- Shipyards
- Light and High-speed Marine Craft

Cable Performance:

- Fully Complaint with all relevant DNV and IEC 60794 standards
- Suitable for "Mission Critical" applications
- Temperature Range -40°C to +80°C
- Flame Retardance: IEC 60331-25, IEC 60332-3-24, IEC 60754-2, IEC 61034-1/2
- Fully waterblocked

DNV Cables



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **E-11729**

This is to certify that the
Data transmission cables and systems

with type designation(s)
DA fiber cable

Manufactured by
TELDOR Cables & Systems Ltd.
Israel, Israel

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards
IEC 60793-2-10 (2011)
IEC 60793-2-50 (2008)
IEC 60331-25 (1999-04)
IEC 60332-3-24 (2009-02)
IEC61034-1/2 (2005-04/2005-04)
IEC 60754-2 (1997-04)

Application
Fiber cable
Fire resistant
Flame retardant in bunch; cat C
Halogen free
Low smoke

Høvik, 2012-06-19
for **Det Norske Veritas AS**

Marit Laumann
Head of Section

DNV local office:
Limassol

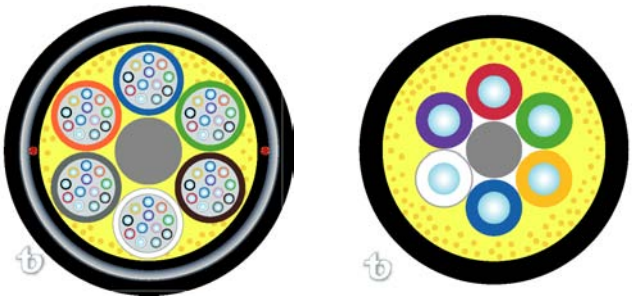
This Certificate is valid until
2016-06-30

Kjersti Bakke
Surveyor

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Det Norske Veritas AS, Veritasveien 1, NO-1322 Høvik, Norway, Tel.: +47 67 57 99 00, Fax: +47 67 57 99 11, Org.No. NO 945 748 931 MVA www.dnv.com
Form No.: TA 1411a Issue: October 2009 Page 1 of 4

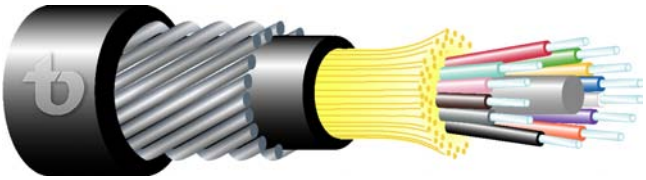
DNV Cables

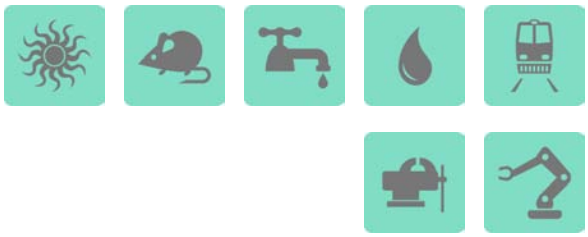


Some Examples of DNV Certified Cables

Teldor P/N	Product Description	Outer Dia. (mm)	Weight (kg/km)	Jacket Material
F50020255B	DNV-N-MTA-5-02HT-E-KH-D XLHF	5.8	36	XL-HFFR
F60040447B	DNV-A-MTA-6-04HT-E-KHBH-D	9.3	145	XL-HFFR
F50080829B	DNV-A-MTA-5-08HT-E-KHBH-D XLHF	10.2	155	XL-HFFR
F50121240B	DNV-A-MTA-5-12HT-E-KHBH-D XLHF	11	192	XL-HFFR
F60121261B	DNV-A-MTA-6-12HT-E-KHBH-D XLHF	11	192	XL-HFFR
F90242423B	DNV-A-MTA-9-24HT-D-KHBH-D XLHF	15.2	344	XL-HFFR
F60020238B	DNV-N-SDB-6-02HT/H-E-KH-D	7.8	60	XL-HFFR
F60020257B	DNV-A-SDB-6-02HT/H-E-KHBH-D	10.7	172	XL-HFFR
F60040449B	DNV-A-SDB-6-04HT/H-E-KHBH-D	11.4	202	XL-HFFR
F60060641B	DNV-N-SDB-6-06HT/H-E-KH-D	9.8	92	XL-HFFR
F60121256B	DNV-N-SDB-6-12HT/H-E-H-D	11.4	124	XL-HFFR
F60040157B	DNV-A-SLA-6-01x04-ZHBH-DD XLHF	10.8	135	XL-HFFR
F50060138B	DNV-N-SLA-5-01x06-ZH-D XLHF	7.7	65	XL-HFFR
F60060159B	DNV-A-SLA-6-01x06-ZHRH-DD XLHF	11.9	190	XL-HFFR
F60120157B	DNV-N-SLA-6-01x012-ZH-D XLHF	7.7	65	XL-HFFR
F50120160B	DNV-A-SLA-5-01x12-ZHRH-DD XLHF	11.9	190	XL-HFFR
F502401A7B	DNV-A-SLA-5-01x24-ZHRH-DD XLHF	11.9	190	XL-HFFR
F50360301B	DNV-N-5-03x12-D-ZH-D XLHF	10.0	100	XL-HFFR
F90360360B	DNV-A-9-03x12-ZHRH-DD XLHF	13.9	245	XL-HFFR
F50480411B	DNV-N-5-04x12-D-ZH-D XLHF	10.0	100	XL-HFFR
F91441289B	DNV-N-9-12x12-D-ZH-D XLHF	13.8	180	XL-HFFR

Tactical Ruggedized Cables





APPLICATIONS

· Multiple/Rapid deployment and retrieval in indoor and outdoor environments

· Extreme harsh environments

· Military tactical use

· Industrial environments where chemical resistance of the cable is a requirement

BENEFITS

· Very rugged yet lightweight and flexible

· Withstands Multiple/Rapid deployment and retrieval without loss of properties

· Excellent resistance to oils, solvents, fuels and acids

· Suitable for direct connectorization to tactical fiberoptic connectors where high cable retention force is needed

CABLE DESCRIPTION

Two basic cable constructions are available:

·TAC-A where the cable core is constructed of up to 12 color-coded tight-buffered fibers (Multi-tight) surrounded by aramid yarn strength members. In cables containing 6 fibers or more, the tight-buffered fibers are helically stranded around a flexible central member.

·TAC-B the cable core is constructed of up to 12 color-coded minicables (Breakout) surrounded by aramid yarn strength members. In cables containing 6 fibers or more, the minicables are helically stranded around a flexible central member.

STANDARDS

Cables are tested according to TIA/EIA-455, IEC-60794-1-2x or DOD-STD-1678

MECHANICAL PROPERTIES

Some typical properties are provided in the following pages. Actual properties depend on the cable construction and can be found in the data specification sheet of a particular product.

OPTICAL PROPERTIES

See the Optical Properties Page at the end of this brochure.

MATERIALS

See information about the materials used in the Teldor FiberOptic Cables at the end of this brochure.

MARKING

Cables are marked as follows
Teldor- Fiberoptic Cable- P/N and cable description code- Meter marking

CABLE DIMENSIONS AND WEIGHTS

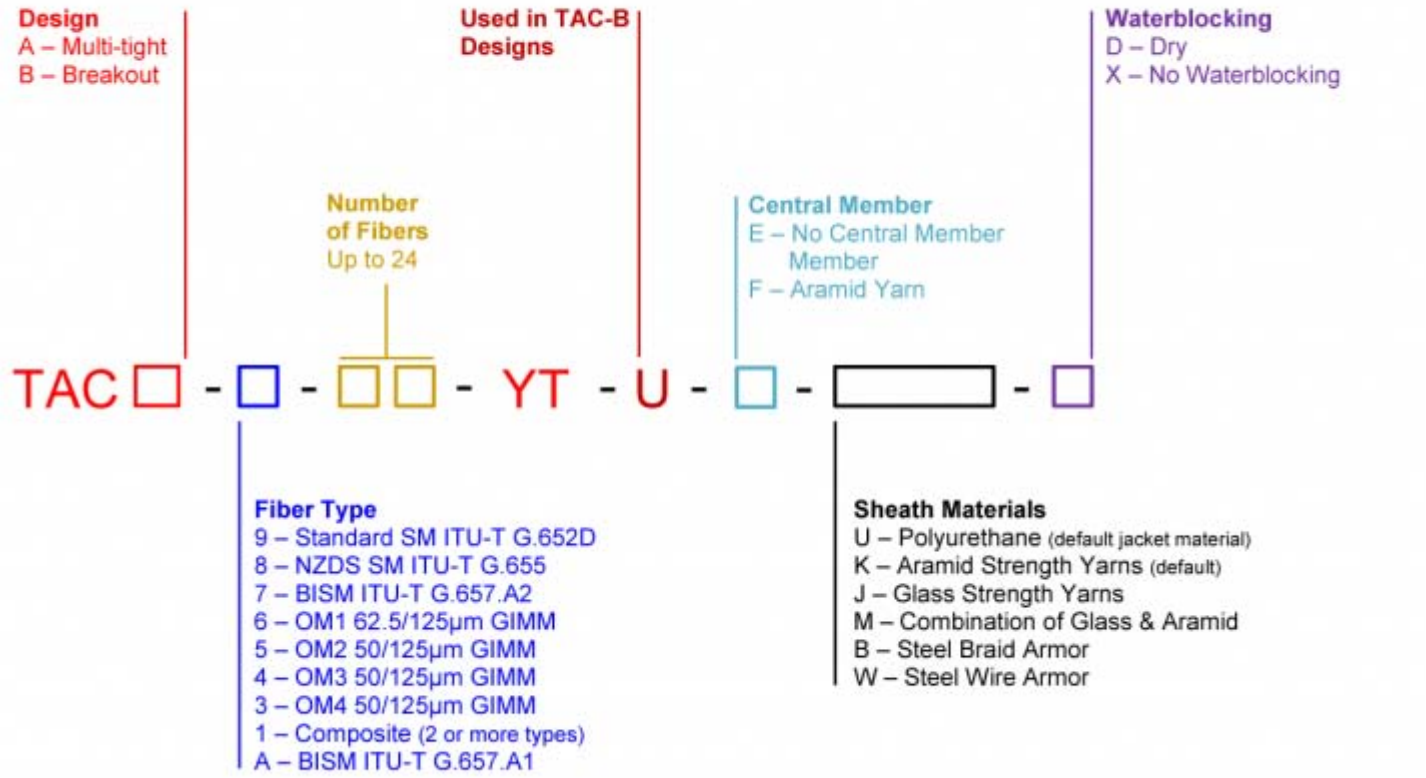
See the tables of some examples of the most commonly ordered cables on the next few pages.

ORDERING

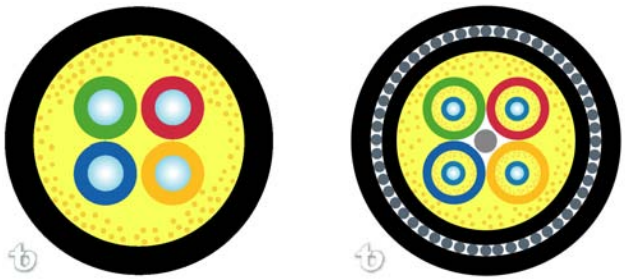
Standard cable lengths vary with cable diameter. Other constructions, color codes and materials may be available.

Tactical Ruggedized Cables

TAC Cable Series Design Options and the Teldor Product Description



Tactical Ruggedized Cables



Some Examples of Tactical / Ruggedized Cables

Teldor P/N	Product Description	Outer Dia. (mm)	Tensile (N)	Bend Radius (mm)
F60010120E	TAC-A-6-01YT-KU-X GN	4.0	500	30
F60020208B	TAC-A-6-02YT-E-KU-D	6	2000	25
F70040408B	TAC-A-7-04YT-E-KU-D BK	6.1	2500	30
F50040428B	TAC-A-5-04YT-E-KU-D	6.1	2500	46
F70060607B	TAC-A-7-06YT-E-KU-D BK	6.1	2500	30
F70121205B	TAC-A-7-12YT-E-KU-D BK	7.6	2500	60
F60121230B	TAC-A-6-12YT-E-KU-D BK	7.6	2500	61
F60121212B	TAC-A-6-12YT-E-KU-X	8	2100	40
F90121238B	TAC-A-9-12YT-F-KU-D	8.0	2400	64
F60161608B	TAC-A-6-16YT-F-KUWU-D BK	9	2500	56
F70242408B	TAC-A-7-24YT-F-KU-D BK	9.0	2500	45
F70040400B	TAC-A-7-04YT-E-KUWU-D	7.4	2500	40
F90040430B	TAC-A-9-04YT-E-KUWU-D	7.4	2500	56
F90040431B	TAC-A-9-04YT-E-KUBU-D	8.2	2500	65
F40040422B	TAC-A-4-04YT-E-KUWU-D	8.5	2500	65
F50010113B	TAC-B-5-01YT/U-KU-D BK	5.0	1500	25
F50020259B	TAC-B-5-02YT\U-E-KU-D	7.0	2500	104
F60080820B	TAC-B-6-08YT/U-E-KU-D BK	9.5	2500	76
FF02424NNC	TAC-B-F-24YT/U-F-KU-D # NU	14.2	1800	71

Warranty Applicable to Products Sold by Teldor Cables & Systems Ltd. ("Teldor")

1. Teldor warrants that the products, under normal use, shall meet in all material respects the specifications of Teldor for such products as reflected in the respective Teldor Data Specifications Sheet, for the following periods of time from the time of completion of production (the "Warranty Period"):
A Warranty Period of 15 years shall apply to the products expressly listed below only:

- Data transmission cables with 100 Ω characteristic impedance, made of twisted pairs, designated as Category 5, Category 5e, Category 6, Category 6_A, Category 7, Category 7_A, or "Category 8"
- Data transmission cables made of optical fibers
- Instrumentation, Control and signal cables made of copper conductors
- Telecom cables made of twisted pairs of copper conductors
- Low voltage electric power cables
- Coaxial, Twinaxial and Triaxial cables
- Electronic and Audio cables for analog and/or digital transmission
- Industrial Ethernet or Industrial BUS cables

A Warranty Period of one year shall apply to all products, other than those expressly listed above.

2. Teldor warrants further that at the time of delivery the products shall be adequately contained, packed and labeled and conform in all material respects to statements made by Teldor on any container packaging or label.
3. Under no circumstances shall Teldor be liable for any repair or replacement needed in whole or in part (i) as a result of inappropriate environment, improper storage, transportation, handling, installation, use, removal, modification, maintenance or repair, negligence or fault, by any party other than by Teldor; or (ii) as a result of accident.
4. During the Warranty Period Teldor shall, at Teldor's discretion, either repair, replace or give credit for the purchase price of, any defective products found to fail to comply with this Warranty and returned by the Buyer to Teldor. In no event shall Teldor be liable for damages in excess of the purchase price received by Teldor for the product. Teldor shall acquire the ownership of all the products that have been replaced or given credited for. This Warranty shall also apply to the repaired or replacement part during the remaining portion of the Warranty Period, if any.
5. This Warranty applies only if (i) Teldor has received a written notice from the Buyer giving details of the defective item before the end of the Warranty Period, (ii) Teldor has been afforded a reasonable opportunity to inspect the item in question, and (iii) the Buyer has provided at its expense all assistance and support needed by Teldor to fulfill its obligations under this Warranty.
6. To the extent permitted by applicable law, this Warranty is exclusive and constitutes the entire warranty and liability of Teldor with respect to the products, and all other warranties or liabilities imposed or implied by statute, law or custom are explicitly excluded. In no circumstances shall Teldor have any liability for consequential or indirect loss or damage no matter how arising, or of any loss arising out or in connection with the ability or inability to use the products. Teldor expressly excludes liability for all costs associated with the installation of the replacement items, the removal of the items being removed, and the repair of defective items other than at Teldor's premises.

The terms, conditions and limitations of the Teldor warranty are agreed on a case-by-case basis.

Specifications of Standard Singlemode Optical Fibers[1]

Parameter	Standard per ITU-T G.652D IEC 60793-2-50 B1.3 Max./Typical	NZDS per ITU-T G.655 IEC 60793-2-50 B4 Max./Typical	Bend-Insensitive ITU-T G.657A.1 IEC 60793-2-50 B6_a1 Max./Typical	Bend-Insensitive ITU-T G.657A.2 IEC 60793-2-50 B6_a2 Max./Typical	Units
Teldor Fiber Code	9	8	A	7	
Attenuation[4,5,6], Loose Tube Cables:					dB/km
@ 1310 nm	0.35 / 0.34	N/A	0.35 / 0.34	0.35 / 0.34	
@ 1550 nm	0.23 / 0.20	0.23 / 0.20	0.23 / 0.20	0.23 / 0.20	
@ 1625 nm	0.25 / 0.22	0.26 / 0.23	0.25 / 0.22	0.25 / 0.22	
Attenuation[4], Tight Buffered Cables:					dB/km
@ 1310 nm	≤ 0.40	-	≤ 0.40	≤ 0.40	
@ 1550 nm	≤0.30	-	≤0.30	≤0.30	
Dispersion: between 1285 - 1330 nm	≤3.5	NA	≤3.5	≤3.5	ps/ (nm*km)
between 1460 - 1530 nm (S Band)	-	[2]	-	-	
between 1530 - 1565 nm (C Band)	≤18	2 – 6[3]	≤ 18	≤ 18	
between 1565 - 1625 nm (L Band)	≤ 22	4.5 – 11.2[3]	≤ 22	≤ 22	
Zero Dispersion Wavelength	1312 ± 12	< 1520	1312 ± 12	1312 ± 12	nm
Mode Field Diameter @ 1310 nm	9.2 ± 0.4	NA	New Cell	8.6 ± 0.4	µm
@ 1550 nm	10.4 ± 0.6	9.6 ± 0.6	9.8 ± 0.5	9.6 ± 0.5	
Cable Cut-Off Wavelength	≤1260	≤1480	≤ 1260	≤1260	nm
PMD (Individual fiber)	≤0.2	≤0.1	≤ 0.2	≤0.2	ps/km$^{1/2}$
Cladding Diameter	125 ± 0.7	125 ± 0.7	125 ± 0.7	125 ± 0.7	µm
Core/Cladding Concentricity Error	≤0.5	≤0.5	≤ 0.5	≤0.5	µm
Cladding Non-Circularity	≤1.0	≤1.0	≤ 1.0	≤1.0	%
Coating Diameter (un-colored)	245 ± 5	245 ± 5	245 ± 5	245 ± 5	µm
Proof-Test Level	0.7	0.7	0.7	0.7	GN/m^2
Induced Macrobend @ 1550nm – 1 turn around a 7.5 mm mandrel					
Mandrel Radius			10	7.5	mm
Max. @ 1550 nm			0.5	0.4	dB
Max. @ 1625 nm			1.5	0.8	dB

1. For other fiber typesor improved attenuation values (e.g. "Low Loss", "ULL"), consult the Teldor Sales Department
2. Non-standard range. Dispersion is typically negative. Consult Teldor for details
3. Tighter dispersion tolerances may be available, consult Teldor for details
4. For attenuation values of fibers in tactical cables (Product Description TAC-...), consult Teldor for details
5. Maximum attenuation values for microduct cables intended for blown installation (FTX cable series) are: 0.25 dB/km @ 1550 nm and 0.28 dB/km @ 1625nm
6. Maximum attenuation values for ADSS cables (ADS cable series) as measured after installation

Specifications of Standard Multi-mode Optical Fibers[1]

Parameter	50/125 µm			62.5/125 µm	Units
Teldor Fiber Code	**5**	**4**	**3**	**6**	
ISO/IEC 11801 Performance Category	OM2[2]	OM3[3]	OM4[4]	OM1	
Attenuation[6], Loose Tube Cables:					dB/km
@ 850 nm	≤ 2.8			≤3.2	
@ 1300 nm	≤0.9			≤1.0	
Attenuation[6], Tight Buffer and Semi-Tight Cables:					dB/km
@ 850 nm	≤3.0			≤3.5	
@ 1300 nm	≤1.0			≤1.0	
OFL Bandwidth[5] @ 850 nm	≥ 500[7]	≥1500	≥3500	≥200	MHz?km
@ 1300 nm	≥800[7]	≥500	≥500	≥600	
Efffective Modal Bandwidth@ 850nm	N/A	≥2000	≥4700[8]	N/A	
Supported Ethernet Link Lengths (max.)					
1 GbE[9]					
@ 850 nm (1000BASE-SX)	550	970[12]	1040[12]	220	
@ 1300 nm (1000BASE-LX)	950[12]	550[12]	600[12]	550	
10 GbE[10]					
@ 850 nm (10GBASE-SR)	82	300	550	33	
@ 1300 nm (10GBASE-LXR)	450[13]	300	300	300	
40/100 GbE[11]					
@ 850 nm (40/100 GBASE-SR4/10)	N/A	100	150	N/A	
Numerical Aperture	0.20 ± 0.015			0.275 ± 0.015	
Core Diameter	50 ± 2.5			62.5 ± 3	µm
Cladding Diameter	125 ± 1			125 ± 2	µm
Core Non Circularity	≤4			≤5	%
Cladding Non-Circularity	≤0.7			≤1	%
Core/Cladding Offset	≤1.5			≤1.5	µm
Coating Diameter (Un-colored)	245 ± 10			245 ± 10	µm
Proof-Test Level	0.7			0.7	GN/m2

1. For other fiber specifications, consult the Teldor Sales Department

2. As per IEC 60793-2-10 type A1a.1 and TIA 492AAAB 3. As per IEC 60793-2-10 type A1a.2 and TIA 492AAAC

4. As per IEC 60793-2-10 type A1a.3 and TIA 492AAAD 5 .As per IEC 60794-1-41 and TIA/EIA 455-204

6. For attenuation values of fibers in tactical cables (Product Description TAC-...), consult Teldor for details

7. 500/800 and 600/1200 MHz.km fibers are also available as standard. 8. As per TIA 492AAAD

9/10/11 Per IEEE 802.3z/ae/ba assuming the requirements of the Standard and associated documents are met

12. Calculated per the IEEE 1 GbE link model 13. Calculated per the IEEE 10 GbE link model

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