

What To Ask When Selling Fiber

What kind of fiber cable?

- Multimode** (Usually orange color)
The most common fiber cable used in data comm applications. Usually a duplex cable allowing both Transmit and Receive.
- Singlemode** (Usually yellow color)
Used in long distance communications such as Telco or CATV applications.

What size fiber?

Multimode (Core diameter/Cladding diameter) 50/125 Micrometers (µm) 62.5/125 Micrometers (µm) 100/140 Micrometers (µm)	Singlemode (Core diameter/Cladding diameter) 9/125 Micrometers (µm)
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62.5 µm Core - Signal carrying portion
125 µm Cladding - Core surrounding portion

What kind of connector ferrule?

- Ceramic** Made with a Zirconia Ceramic ferrule which offers the best operating temperature range.
- Polymer** Made with a space age polymer ferrule which has the best price performance characteristics.
- Stainless** Made with a stainless steel ferrule and offer excellent performance at a competitive price.

What kind of jacket?

Patch Cables and Jumpers
For Patch Cords in non-plenum areas.

- PVC/Riser** - or -
- Plenum** Fire resistant outer jacket used in plenum areas such as air return handling spaces.
- Zipcord** Most common duplex design.
- Round** - or - Singular round outer jacket design.

Riser Cable
Commonly used for non-burial/indoors.

- Indoor** - or -
- Outdoor** Direct burial or aerial use. May be armoured and/or gel filled. Also called "loose tube cable" or "outside plant cable".

Breakout Allows quick termination eliminating need for fanout or furcation kits.

Tight Buffer - or -
Reduced size and cost. Requires a fanout or furcation kit. Can be connectorized either onto the 900um fiber, or built up to 3mm with furcation tubing.

What finish do you want?

Fiber Style	Finish Type	Return Loss
<input type="checkbox"/> Multimode	No finish issues common to this style.	
<input type="checkbox"/> Singlemode	PC Finish	-35dB
	Super PC Finish	-40dB
	Ultra PC Finish	-55dB
	Angled PC Finish	-65dB

PC Finish is sufficient for most singlemode applications.

What length do you need?

Fiber cables are generally measured in meters. To convert between English & Metric, use the following:

1 Meter = 3.28 Feet

Meters to Feet Meters times 3.28	Feet to Meters Feet divided by 3.28
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Glossary of Terms

Multimode	Most commonly used in data comm. The construction is dual "zip cord" style with a transmit and receive leg. Most common size = 62.5/125 Micrometers HINT - Usually orange in color w/ 4 conn's
Singlemode	Most commonly used in voice applications. The construction is dual "zip cord" or single style. Most common size = 9/125 Micrometers HINT - Usually yellow color
Duplex	Refers to dual "zip cord" style construction cable with a transmit and receive leg.
Simplex	Refers to single cable construction.
Core	The signal carrying portion of a glass strand.
Cladding	The glass portion which surrounds and reflects light back into the core.
Kevlar	This bundle of "yellow hair" inside the fiber jacket is the strength member protecting the fiber cable from lateral stress.
Ferrule	The protruding portion of a fiber connector. Material = Ceramic, Stainless Steel, Polymer.
Polishing	A step in the connectorization that creates a flat even surface on the ferrule face allowing two cables to be mated to transfer a signal.
Furcation Tubing	A protective tubing used on exposed multi-strand fiber cables.
Fanout	A multi-fiber cable constructed in a tight buffered fiber tube design.
Decibel (dB)	Unit for measuring the relative strength of light signals.
Backreflection	An undesirable characteristic in singlemode fiber transmission. Reflectance of light pulse back towards transmitted source.
Meter	One meter equals 3.28 feet.
Micrometer (µm)	One micrometer = 1 millionth of a meter. Used to express geometric dimensions of fibers, e.g. 62.5 µm.
Nanometer (nm)	One nanometer equals 1 billionth of a meter. Used to express the wavelength of light.
Return Loss (Reflectance)	Stated as a negative value, measured in dB. The better the polish & connector, the lower the return loss value.

If the customer experiences problems with cables

- Signal Loss**
 - The most common reason signal loss occurs in a cable that once tested OK is contamination on the polished surface. Simply clean the ends with an alcohol wipe. **DO NOT TOUCH THE POLISHED SURFACE.**
 - The cable may have been mated with a cable that has poorly polished ends which either introduced contamination, or damaged the good cable. The ends may have to be re-polished.
 - Vinyl caps covering the ferrule are supplied with all Gruber Industries fiber cables to prevent contamination.
- High Signal Loss**
 - Repolishing may not resolve the problem if the fiber core is split, cracked, or damaged. Re-connectorizing may be the only solution. Fiber Microscopes at 400x or better will show these problems.
- No Signal**
 - Fiber is fragile. Generally a loss of signal in a cable indicates a break occurred after the production process. Bending fiber beyond a 1/2" radius may be the culprit. High intensity laser sources will illuminate the exact area of the breakage allowing salvaging especially long cables by reconnectorizing at the break.
 - Make sure the vinyl end cap has been removed before inserting the cable connectors.

- Gruber Technical Support - 800 658-5883 (Email - support@gruber.com)

Fiber Connector Styles

 ST Connector A slotted bayonet type connector. This connector is one of the most popular styles.	 SC Connector A push/pull type connector. This connector has emerged as one of the most popular styles.	 FC Connector A slotted screw-on type connector. This connector is popular in singlemode applications.	 SMA Connector A screw-on type connector. This connector is waning in popularity.
 FDDI Connector A push/pull type connector. This connector is one of the more popular styles.	 Mini-BNC Connector A bayonet style connector using the traditional BNC connection method.	 Biconic Connector A screw-on style connector. This connector is almost obsolete.	 MT-RJ Connector A new RJ style housing fiber connector with two fiber capability.
 ST Feedthru A slotted bayonet type feedthru. ST connectors are one of the most popular styles.	 SC Feedthru A push/pull type feedthru. SC connectors are one of the most popular styles.	 FDDI Feedthru A push/pull type feedthru. FDDI connectors are popular in both singlemode and multimode applications.	 FC Feedthru A slotted screw-on type feedthru. FC connectors are popular in singlemode applications.

Cable Assembly Types

Pigtail Cable
Jumper Cable
Conversion Cable