



## SUMITOMO PRODUCT SPECIFICATION

**FutureFLEX®**

### **TCxxTP2 PLENUM RATED JACKETED TUBE CABLE SERIES**



**SUMITOMO ELECTRIC LIGHTWAVE CORP.**

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SEL is a Member of the Sumitomo Electric Industries, Ltd. Group

*Sumitomo Electric Lightwave reserves the right to improve or modify these specifications without notice.*

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## 1.0 GENERAL

This specification covers the design requirements and performance standards for FutureFLEX<sup>®</sup> Air-Blown Fiber<sup>®</sup> (ABF) TP2 plenum rated, jacketed tube cables. These tube cables are designed for indoor tube cable infrastructures that provide flat and continuous support, such as cable tray. (See Sumitomo Recommended Procedure SRP SP-F04-029 for complete installation guidelines.) The features described in this document are intended to provide information on the performance of Sumitomo Electric's FutureFLEX<sup>®</sup> tube cables and aid in handling and use.

### 1.1 Tube Cable Description

Sumitomo's FutureFLEX<sup>®</sup> TP2 series tube cables are designed for use as an optical fiber cabling infrastructure in ABF applications that require an Optical Fiber Nonconductive Plenum (OFNP) fire rating. TP2 tube cables are UL/cUL NFPA 262 and CSA OFN FT6 listed. TP2 series tube cables may also be used in indoor applications where: 1) lesser fire ratings such as Optical Fiber Nonconductive – General Purpose (OFN) or Optical Fiber Nonconductive – Riser (OFNR) apply or 2) no fire ratings apply. The individual tubes have an inner liner which reduces the inside diameter to 5.5mm and an 8mm outside diameter. The tubes and jacket are comprised of plenum rated PVC material. These tube cables are designed to be pulled or placed in indoor routes for the purpose of individual tube interconnection to establish pathways for FutureFLEX<sup>®</sup> fiber bundle installation. A ripcord is provided to aid in outer jacket removal.

### 1.2 Quality

Sumitomo ensures a continuing high level of quality through ISO / TL9000 registered Quality Management Systems and our commitment to continuous improvement. Guaranteed, high quality products have been manufactured at Sumitomo's facility in Research Triangle Park, North Carolina since 1984.

### 1.3 Reliability

Sumitomo ensures product reliability through rigorous qualification testing of each product family to meet or exceed industry standards. Both initial and periodic qualification testing are performed to assure the tube cables' performance and durability in a field environment.

Sumitomo supports industry standards organizations such as Telcordia, Telecommunications Industry Association (TIA), International Telecommunications Union (ITU), International Electrotechnical Commission (IEC), American Society for Testing and Materials (ASTM), Rural Utilities Service (RUS), The Institute of Electrical and Electronics Engineers (IEEE), and Insulated Cable Engineers Association (ICEA).

**2.0 TUBE CABLE DESIGN**

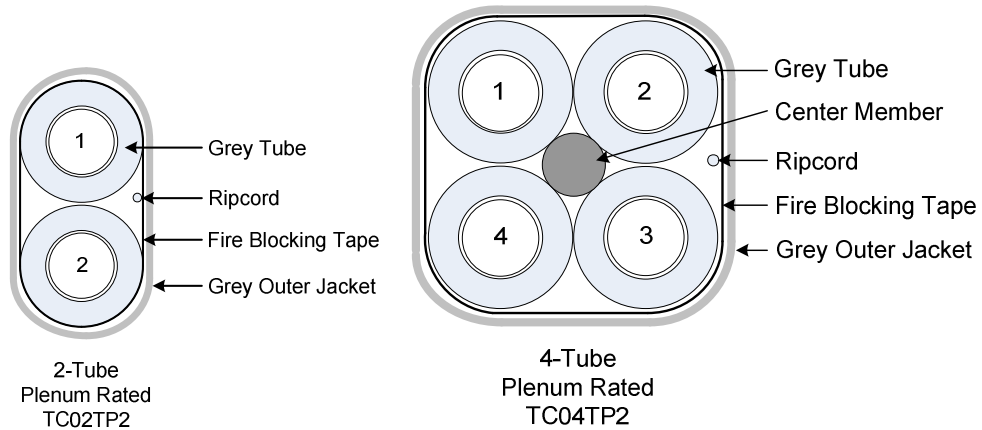
**2.1 General**

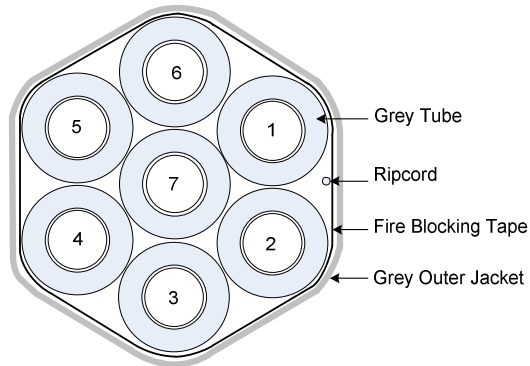
Sumitomo's FutureFLEX® TP2 series tube cables provide a small diameter, lightweight, indoor pathway for FutureFLEX® fiber bundle installations. FutureFLEX® ABF fiber bundles are available in Single Mode, 50 micron and 62.5 micron Multimode versions with 2, 4, 6, 12, or 18 fiber strand counts. One fiber bundle can be field-installed in each tube.

**2.2 Construction**

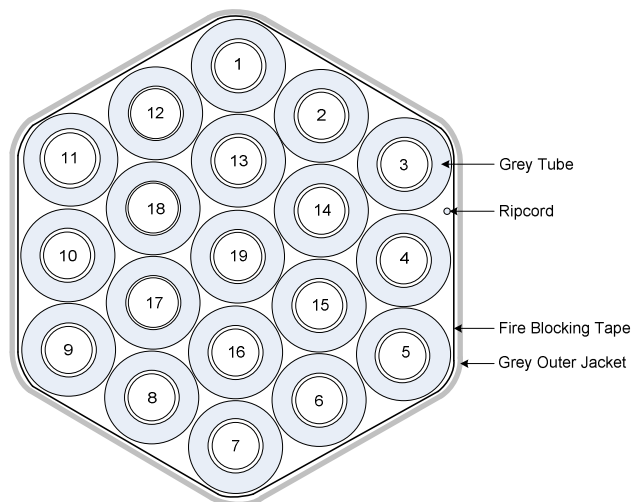
SEL Part Number	Product Description	Outside Diameter (in.)	Max. Weight (lbs./kft.)	Max. Tensile Load (lbs.)
TC02TP2	2- tubes, grey, jacketed, plenum rated tubes	.90 in.	89	120
TC04TP2	4- tubes, grey, jacketed, plenum rated tubes with a center member	.90 in.	218	200
TC07TP2	7- tubes, grey, jacketed, plenum rated tubes	1.0	320	400
TC19TP2	19- tubes, grey, jacketed, plenum rated tubes	1.75	750	500

Drawings Not To Scale





7-Tube  
Plenum Rated  
TC07TP2



19-Tube  
Plenum Rated  
TC19TP2

### 3.0 TUBE CABLE CHARACTERISTICS

#### 3.1 Performance

Property	Specification
Operation Temperature Range	-20° to +158°F
Minimum Bend Radius (During / After Installation)	20 / 10 x tube cable outside diameter

#### 3.2 Tube and Jacket Markings

The outside surface of each tube shall be marked every 2.0 (+/- 0.5) inches with the tube designation number (1 through 24).

##### 3.2.1 Cable Jacket

The outside surface of each cable jacket is marked every two feet with the following product identification print string:

'Phone receiver' SEL FutureFLEX® (SEL Part No.) Type OFNP (UL) c(UL) E146200 Field Assembled Optical Fiber Cable CSA 238147 OFN FT6 (Manufacturing Lot #) (Sequential footage) 1-877-356-FLEX [WWW.FUTUREFLEX.COM](http://WWW.FUTUREFLEX.COM) ←

#### 3.3 Reel Markings

The outside of each reel flange is marked with the Sumitomo Electric Lightwave Corp. product part number, the tube cable manufactured length in feet, and the text "Do Not Lay Flat."

#### 3.4 Tube Cable Ends

Both ends of the tube cable are accessible on the reel. Each tube is sealed with a plastic cap or plug. Tube cable ends are sealed with a heat shrink end cap.

#### 3.5 Standard Reel Lengths

Sumitomo Part No.	Std Reel Length (ft)	Std Reel H x W (in)	Standard Drum Diameter (in)	Std Reel Weight (lbs) Empty	Std Reel Weight (lbs) Full
TC02TP2	1000	54 x 10	40	105	194
TC04TP2	1000	36 x 13	18	55	265
TC07TP2	1000	54 x 32	40	137	457
TC19TP2	1000	60 x 42	40	420	1170

#### Notes:

- Standard Reel Length tolerances are  $\pm 5\%$
- All Reel Widths shown are approximate values only and measured across outside-of-flanges
- If tube cable is re-spoiled, the Minimum Drum Diameter of the new reel shall be as shown to avoid damaging tube cable product
- All Empty and Full Reel Weights shown are approximate values only

#### 4.0 BLOWING PERFORMANCE / TESTING

Each finished tube cable on its reel is required to pass a 4.5mm diameter ball from end to end using 70 psi (+/-10 psi) gas pressure.

#### 5.0 INSTALLATION / HANDLING PRACTICES

Sumitomo has incorporated a wide range of technical support and training services for our tube cable products into our Technical Support Services (TSS) program. TSS offers training in the areas of cable installation, sheath entry, splicing, testing, and system troubleshooting. The services are available in a variety of media formats and can be customized to better accommodate individual training needs. The TSS program consists of an extensive series of recommended procedure documents, training courses with classroom and hands-on instruction. Please contact Sumitomo's Customer Service department for more information.

#### 7.0 ORDERING INFORMATION

To learn more about Sumitomo's cables or to place an order, call, fax, e-mail, or write us at:

Sumitomo Electric Lightwave Corp.  
78 Alexander Drive  
Research Triangle Park, NC 27709  
Attn: Customer Service Department

Phone: 800-358-7378  
919-541-8100  
Fax: 919-541-8265  
E-mail: [info@sumitomoelectric.com](mailto:info@sumitomoelectric.com)

Sumitomo Electric Lightwave reserves the right to improve, enhance, or modify the cable's features and specifications. For special requirements different than those shown above, please contact our Inside Sales Department. Each Sumitomo Electric Lightwave Corp. optic cable and/or its manufacture may be covered by one or more of the following US Patents: 4,715,677 4,729,629 4,763,983 4,770,489 4,828,349 4,953,945 5,043,037 5,082,347 5,165,003 D331,567 5,247,599 5,410,901 5,471,555 5,642,452.