CORNING OPTICAL COMMUNICATIONS GENERIC SPECIFICATION FOR OPTICAL FIBER RIBBONS

October 2010

Revision 6

Corning Optical Communications reserves the right to update this specification without prior notification.

1.0 General Considerations

1.1 The optical fiber ribbons shall meet all requirements stated in this specification.

1.2 All ribbons shall comply with the optical fiber ribbon requirements of ANSI/ICEA S-87-640-2006, "Standard for Optical Fiber Outside Plant Communications Cables," and IEC 60794-3, "Optical Fiber Cables – Part 3: Duct, Buried, and Aerial Cables – Sectional Specification."

2.0 Fiber Characteristics (Non-Ribbonized Fiber)

2.1 Detailed information on the optical fiber types available for this ribbon design can be found in the following documents:

Dispersion Unshifted and Non-Zero Dispersion-Shifted Single-mode Optical Fiber: Generic Specification F1, "Generic Specification for Single-mode Optical Fiber in Loose Tube and Ribbon Cables."

50/125 µm and 62.5/125 µm Multimode Optical Fiber: Generic Specification F2, "Generic Specification for Multimode Optical Fiber in Loose Tube and Ribbon Cables."

2.2 Detailed information on connectorization-grade ribbon available can be found in the following document:

Dispersion Unshifted Single-mode Optical Fiber: "Specification for Connectorization-Grade Optical Fiber Ribbons."

3.0 Ribbon Characteristics

3.1 All ribbons must be usable and meet required specifications.

3.2 Fiber ribbons shall be measured in accordance with FOTP-123, "Measurement of Optical Fiber Ribbon Dimensions."

3.3 All fibers in the ribbon shall be parallel with no cross over along the entire length of the ribbon.

3.4 Individual fibers within the ribbon shall be identifiable in accordance with TIA/EIA 598-A, "Optical Fiber Cable Color Coding" as follows:

Sequence	Color
1	Blue
2	Orange
3	Green
4	Brown
5	Slate
6	White
7	Red
8	Black
9	Yellow
10	Violet
11	Rose
12	Aqua

Table 1. Optical Fiber Color Scheme

3.5 Ribbons shall be formed by encasing the fibers with an ultraviolet (UV) cured acrylate.

3.6 The ribbon matrix and fiber coating materials shall be removable with commercially available thermal strippers.

3.7 The ribbons shall allow hand or tool separation (ribbon peel) into individual fibers as well as tool separation (ribbon split) into smaller subunits.

3.8 Ribbon Dimensions.

	Maximum Ribbon Dimensions (µm)			
Number of Fibers	Width (w)	Height (h)	Extreme Fibers (b)	Planarity (p)
4-fiber	1220	360	786	50
6-fiber	1648	360	1310	50
8-fiber	2172	360	1834	50
12-fiber	3220	360	2882	75
24-fiber	6500	360	Per 12 fiber unit	Per 12 fiber unit
36-fiber	9800	360	Per 12 fiber unit	Per 12 fiber unit

Table 2. Maximum Dimensions for Optical Fiber Ribbons

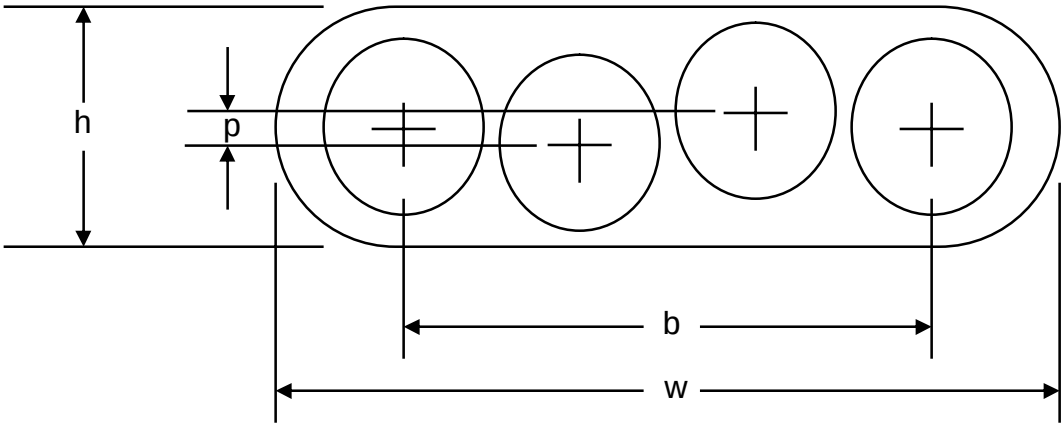

Figure 1. Ribbon Geometry

4.0 General Ribbon Performance Specifications

4.1 When tested in accordance with FOTP-131, “Measurement of Optical Fiber Ribbon Residual Twist,” aged ribbons shall not have residual twist of more than 8°/cm.

4.2 When tested in accordance with FOTP-141, “Twist Test for Optical Fiber Ribbons,” aged and unaged ribbons shall show no separation of individual fibers.

4.3 When tested in accordance with FOTP-178, “Measurement of Strip Force Required for Mechanically Removing Coatings from Optical Fibers,” matrix material and fiber coating shall be mechanically removable with commercial stripping tools from unaged and aged ribbons, without breaking individual fibers. Any residual matrix material or coating material shall be removable with a single alcohol wipe.

4.4 When tested in accordance with ICEA S-87-640-2006, Section 7.18, “Ribbon Separability Test,” the fibers shall not be damaged during separation and their color shall be discernible.

5.0 Quality Assurance Provision

5.1 The ribbon manufacturer shall be TL 9000 registered.

5.2 Ribbon construction and fiber continuity shall be verified for each ribbon shipped.

6.0 Packaging

6.1 Ribbons shall be packaged on ribbon reels of the manufacturer's choosing such that the ribbons shall not be damaged when subjected to the normal rigors of shipping. Packaging shall be done in such a manner that one end of the ribbon shall be easily accessible on the reel.

6.2 Ribbons shall be available within the following range of lengths:

	Shippable Length (km)				
Number of Fibers	Minimum	Maximum (Single-mode)	Maximum (62.5 μm Multimode)	Maximum (50 μm Multimode)	Maximum (Laser Optimized 50 μm Multimode)
4-fiber	1	4	4	4	4
6-fiber	1	3	3	3	3
8-fiber	1	4.5 / 2*	4.5 / 2*	4.5 / 2*	4.5 / 2*
12-fiber	1	3.2	3.2	3.2	3.2
24-fiber	1	1.5	1.5	1.5	1.5
36-fiber	0.5	0.9	0.9	0.9	0.9

* Note: 8-fiber ribbon can be shipped on two reels, Blue Corning flat reel holds 4.5 km and Blue Corning reel (Trapezoid) holds 2 km.

Table 3. Minimum and Maximum Shippable Length for Optical Fiber Ribbons

6.3 At a minimum, each reel shall be labeled with the following information:

Ribbon ID Number
Ribbon Length
Ribbon Product Type
Fiber Type
Attenuation Specification

6.4 The four and six fiber ribbons are shipped on trapezoidal shaped reels. The eight fiber ribbons can be shipped on both the trapezoidal and standard flat reels and the remaining ribbons are shipped on flat reels.

7.0 Miscellaneous

7.1 At the request of the customer, the cable manufacturer shall provide installation procedures and technical support concerning the items contained in this specification.

Revision History

Revision	Date	Reason for Change
4	Oct 2002	Yearly Review and changed min length for 36F ribbon order
5	Aug 2008	Update reference to 640 spec (now 2006). Update Table 2
6	Oct 2010	Updated Table 2 for 36F Ribbon and added 4 and 6 fiber ribbons. Changed 36F width to maximum of 9800 per GR-20, Issue 3. Also changed title in table to reflect that dimensions are maximums. Added 4 and 6 fiber ribbons to table 3 and note. Added section 6.4 describing how reels are shipped.