

CORNING OPTICAL COMMUNICATIONS GENERIC SPECIFICATION FOR SIMPLEX OPTICAL FIBER (MULTIMODE) NO-EPOXY, NO-POLISH CONNECTORS

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PGS028
Revision 12

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

Master Format 27 13 23 13 Communications Optical Fiber Splicing and Terminations

1.0 General Considerations

This document covers the specifications and performance for field-installable multimode (62.5 um and 50 um) ST[®] compatible, SC, and LC connectors.

2.0 References

2.1 The following documents may be used as references.

EIA/TIA-455-A	Standard Test Procedures for Optical Fibers, Cables, Transducers, Sensors, Connecting and Terminating Devices, and Other Fiber Optic Components (FOTPs)
TIA/EIA-604-2	Fiber Optic Connector Intermateability Standard, FOCIS-2 (ST Compatible)
TIA/EIA-604-3A	Fiber Optic Connector Intermateability Standard, FOCIS-3 (Type SC)
TIA/EIA-604-10A	Fiber Optic Connector Intermateability Standard, FOCIS-10 (Type LC)

3.0 Connector Characteristics

3.1 Design Features.

- 3.1.1 Strain relief: For ST compatible, LC and SC connector types, the connector shall provide a strain relief mechanism for installation on a single fiber cable that contains strength elements. The fiber within the body of the connector shall be isolated mechanically from cable tension, bending and twisting.
- 3.1.2 Intermateability: The connector shall be designed to comply with the appropriate TIA/EIA FOCIS document.
- 3.1.3 Mating Style: The ST compatible, SC and LC connectors shall secure to the field fiber via a rotating cam which shall be situated on the connector

body and the camming action shall be performed with the use of a connector terminating tool designed for that purpose. Upon rotation of the cam, the connector shall then be permanently secured to the fiber by the crimping of the connector lead in tube via the connector terminating tool.

- 3.1.4 Ferrule Type: The connector ferrule shall be made from a homogenous polymer or ceramic material.

3.2 Installation Type.

- 3.2.1 Installation rate: The ST compatible and SC connectors shall be installable upon 900 μm buffered fiber in one minute or less and upon 1.6, 2.0, 2.6, or 3 mm jacketed cable, if applicable, in three minutes or less total time.
- 3.2.2 Installation rate: The LC connector shall be installable upon 900 μm buffered fiber in one minute or less
- 3.2.3 The connector installation tool kit will contain an integrated continuity test systems (CTS), which will give immediate Go/No-Go feedback of successful connectivity.
- 3.2.4 The cleaver and connector installation tool shall not require a fiber handler
- 3.2.5 Installation on field fiber: The connector shall contain a mechanical splice and require one tool kit to assemble all four connector types.
- 3.2.3 Installation polishing: The connector shall not require polishing of the endface in the field. Connectors shall have a factory-polished fiber stub in the connector ferrule.
- 3.2.4 Installation type: The connector installation shall not require the use of epoxies.
- 3.2.5 Fiber protection: The connector crimp-on mechanism shall protect the bare fiber from the ingress of air or waterborne contaminants and shall secure the fiber in the ferrule micro-hole.

4.0 Performance Requirements

4.1 Insertion Loss.

When tested in accordance with FOTP-171, connectors shall be consistently capable of insertion losses ≤ 0.1 dB (average) and ≤ 0.5 dB (maximum) when installed in accordance with the manufacturer's recommended procedure.

4.2 Performance Testing Values.

The connector shall comply with the values presented in Table 1.

Table 1. Connector Performance

Test	Test Method (FOTP #)	Test Conditions	Requirement*
Insertion Loss (IL)	171	concatenation method	Average: 0.1 dB Max IL : 0.5 dB
Return Loss (RL)	107	coupler with power source and meter	Minimum RL: ≤ -20 dB Minimum RL: ≤ -26 dB LOMMF
Low Temp Soak	188	4 days @ 0°C	Max IL : 0.75 dB Min RL: 20 dB
Temperature Life	4	4 days @ 60°C	Max IL : 0.75 dB Min RL: 20 dB
Humidity	5	4 days @ 40°C RH 90-95%	Max IL : 0.75 dB Min RL: 20 dB
Impact	2	8 impacts from 1.8 meters (height)	Max IL : 0.75 dB Min RL: 20 dB
Strength of Coupling Mechanism	185	33 N at 0° for 5 seconds	Max IL : 0.75 dB Min RL: 20 dB
Durability	21	500 rematings, clean every 25	Max IL : 0.75 dB Min RL: 20 dB
Cable Retention 0°	6	0.5 lb. on 900 μ m buffered fiber for 5 seconds	Delta IL: ≤ 0.5 dB Max IL: 0.75 dB Min RL: 20 dB
Cable Retention 90°	6	0.5 lb. on 900 μ m buffered fiber for 5 seconds	Delta IL: ≤ 0.5 dB Max IL: 0.75 dB Min RL: 20 dB
Flex	1	$\pm 90^\circ$ for 100 cycles @ 0.5 lb. load on 900 μ m buffered fiber	Max IL : 0.75 dB Min RL: 20 dB
Twist	36	10 cycles 5 turns, 0.5 lb. load on 900 μ m buffered fiber	Max IL : 0.75 dB Min RL: 20 dB

* These requirements are attainable when the connector is installed by strictly following the manufacturer's recommended installation procedures.

5.0 Packaging and Shipping

- 5.1 The connector shall be packaged individually or in an organizer pack to adequately protect the connector.
- 5.2 Each connector shall be equipped with a protective dust cap that does not contaminate the connector end-face.
- 5.3 The packaging shall indicate the supplier part number, connector type, and date of manufacture.

6.0 Quality Assurance Provisions

- 6.1 All cabled optical fibers > 1000 meters in length shall be 100% attenuation tested. The attenuation of each fiber shall be provided with each cable reel.
- 6.2 The cable manufacturer shall be TL 9000 registered

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.

Gen Spec PGS028 Revision History

Revision #	Date	Reason for Change
5	10/21/02	Add LC connector, Adjust performance req. to TIA/EIA 568B.3
6	01/20/04	<ul style="list-style-type: none"> 1. Section 1.0 added 62.5 um and 50 um 2. Section 3.1.4 added LC for CTS Compatibility 3. Section 3.1.5 added Mating Style 4. Section 3.1.6 added Ferrule Type
7	7/14/04	Section 3.2.1 Added LC 1.6, 2.0, 2.4, 3.0 mm
8	7/28/04	Section 3.2.2 Added LC compatible with 900 micron only
9	9/13/04	Fixed Typo in footer.
10	02/05/09	Updated Section 4.1 to include organizer packs
11	04/08/09	<ul style="list-style-type: none"> 1. Deleted references to FC 2. Added CTS go/no go detail 3. Updated Insertion Loss to reflect current numbers

12	10/25/17	Reformatted, added Master Format number, Quality Assurance Provisions and Miscellaneous sections.
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