SSF™ Fiber Connectors are designed to meet the physical and optical parameters and storage, installation and operating conditions as per below Table:

### Table I: Optical Parameters, Temperature & Mechanical Requirements

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connector type</td>
<td>SC/UPC, SC/APC, FC/UPC, FC/APC, LC/UPC, LC/APC</td>
</tr>
<tr>
<td>2</td>
<td>Cable outer dimensions</td>
<td>Suitable for circular 250 µm, 900 µm, 2mm, 3 mm</td>
</tr>
<tr>
<td>3</td>
<td>Return Loss</td>
<td>≥ 55 dB (APC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≥ 45 dB (UPC)</td>
</tr>
<tr>
<td>4</td>
<td>Insertion Loss</td>
<td>≤ 0.3 dB</td>
</tr>
<tr>
<td>5</td>
<td>Durability (100 matings) with SC–SC adaptor</td>
<td>Max. Increase of ≤ 0.3 dB</td>
</tr>
<tr>
<td>6</td>
<td>Temperature Range</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Storage Temperature</td>
<td>-40°C to +75°C</td>
</tr>
<tr>
<td>b</td>
<td>Installation</td>
<td>-40°C to +75°C</td>
</tr>
<tr>
<td>c</td>
<td>Operating Temperature</td>
<td>-40°C to +75°C</td>
</tr>
<tr>
<td>7</td>
<td>Tensile Load</td>
<td>Over than 40N (For 3mm,3x2mm)</td>
</tr>
<tr>
<td>8</td>
<td>Length (Ferrule up to Boot)</td>
<td>Less than 50 mm</td>
</tr>
<tr>
<td>9</td>
<td>Connector end geometry, radius of curvature, apex offset and fiber undercut</td>
<td>As per applicable IEC specification</td>
</tr>
</tbody>
</table>
Tests for Mechanical Characteristics

Given below are the mechanical characteristics, for which the CONNECTOR shall be tested.

(1) Insertion loss
This is the criterion test to check the statistical distribution and mean insertion loss for random mated optical FMC. Testing shall be performed in accordance with IEC 61300-3-34. The insertion loss of FMC test should be checked at room temperature. Insertion Loss: Average ≤ 0.25 dB and Max ≤ 0.3 dB

(2) Return loss
This is the criterion test for the optical performance of a product. Check the optical performance before and after installation and mechanical or environmental testing. Testing shall be performed in accordance with IEC 61300-3-6, Method 2. Return Loss: > 45dB (SM fiber PC polish) Return Loss: > 55dB (SM fiber APC polish)

(3) Change in Insertion loss
This test is to check the change of insertion loss before, during and after mechanical or environmental testing. Testing shall be performed in accordance with IEC 61300-3-3. The optical power shall be monitored using an optical source and a detector operating at 1310 nm, 1550 nm and 1625 nm wavelength. ΔIL during test: ≤ 0.2dB.

(4) Change in Return loss
This is the criterion test for optical measurements during and after mechanical or environmental testing. Testing shall be performed in accordance with IEC 61300-3-6. The optical power shall be monitored using an optical source and a detector operating at 1310 nm, 1550 nm and 1625 nm wavelength. ΔRL: ≤ 5 dB during test, ΔRL: ≤ 5dB after test.

(5) Repeatability (Mating durability)
This test simulates cable/closure manipulation and focuses on optical system performance. Movement of the cable can cause fiber movement in the cable to organizer transition inside the closure. Testing shall be performed in accordance with IEC 61300-2-2.

The number of mating cycles: 100

(6) Drop
This is the criterion test to check the FMC to withstand impacts likely to be encountered during usage. The impact may be a localized impact, a series of impacts with hard objects or an impact normally associated with dropping the device.

Testing shall be in accordance with IEC 61300-2-12. Attach the cable clamping fixture at a specified height 4m from the impact surface. Repeat the cycle 5 times.

After completion of the cable drop cycling, remove all fixtures and make a final IL and RL measurement to ensure that there is no permanent damage to the device under test.
(7) Cable pull

This is the criterion test to ensure that the attachment of the fiber/cable to FMC will withstand tensile loads likely to be applied during normal service. Testing shall be performed in accordance with IEC 61300-2-4. The specimen is rigidly clamped to a holding fixture and a tensile load is applied to the fiber/cable. Activate the test apparatus so that an axial force is gradually exerted between the fiber/cable and the device under test. Apply the load gradually so as to eliminate any impulse or impact loading effect. Continue loading until the tensile load specified in the detail specification has been reached. Maintain the load for 2 mins, while the specimen is under load, make observations and perform measurements as required by the detail specification. Remove the test load and make a final IL and RL measurement to ensure that there is no permanent damage to the device under test.
(8) Vibration

This test details a procedure for evaluating the effects of the vibration on the FMC at the predominant frequency ranges and magnitudes that may be encountered during field service. Testing shall be in accordance with IEC 61300-2-1. A specimen is mounted on a vibration generator and vibrated with a sinusoidal motion. The specimen is exposed to vibration on the three mutually perpendicular directions, one of which is parallel to the optical axis. Each sample will be placed in the vibration plat shall be subjected to a sweep range of 10-50 Hz sweep range with the following parameters:

- Frequency range : 10-55-10Hz
- Amplitude : 1.52mm(±0.75mm)
- Cycle : 4 minutes
- Time : 2 hour / X.Y.Z direction

After test to make a final IL and RL measurement to ensure that there is no permanent damage to the device under test.

(9) Temperature cycling

This test describes a procedure to determine the suitability of a FMC to withstand the effects of a change in temperature or a succession of changes in temperature. Testing shall be according to IEC 61300-2-22. They shall be subjected to 12 cycles defined as follows:

- Cycle : 8 hours
- Total : 12 cycles / 96 hours
- Temperature Maintenance : 1 hour
- Cycle : 23 → -40 → 23 → +75 → 23
After testing, make a final IL and RL measurement to ensure that there is no permanent damage to the device under test.

(10) Heat & Humidity
This test details a procedure for determining the suitability of a FMC to withstand variations in humidity and temperature that may occur during operation, storage and/or transport. The test is intended to indicated the performance of such devices when exposed heat and humidity followed by short-term freezing. Testing shall be according to IEC 61300-2-48. Place the specimen in the chamber and pre-condition for 2 hrs at the standard test conditions. Complete the initial examinations and measurements on the specimen. Set the chamber temperature and humidity profile to achieve the specified severities.

- 40 °C (relative humidity : 90%)
- Time : 96 hours

After testing, make a final IL and RL measurement to ensure that there is no permanent damage to the device