

Tender Enquiry for Fiber Glass Processing Station

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**DETAILED NOTICE INVITING TENDER****Tender Enquiry No: SFO/OPD/AOC FIFO /2401001****Dated: 20-01-2024**

On behalf of the Chairman and Managing Director, SFO Technologies Pvt Ltd , Kochi Kerala are inviting Tenders for **Fiber Glass Processing station** capable of doing ***Fiber Fusion, splicing, Tapering etc which can be used for manufacturing Mode Field Adapters and Fan -In Fan -Out devices*** . The Tender will be open from **20th Jan 2024 till 30th Jan 2024**.

Bids are invited from vendors fulfilling the following criteria.

1. Bidder qualification Criteria:

1.1. Quotations will be accepted only from original equipment manufacturers or their authorized representatives in India. In case of authorized representative in India, authorization certificate from original manufacturer should be provided.

1.2. The bidder should offer a standard off-the-shelf catalogue product. Custom built equipment will not be considered.

1.3 The bidder or their OEM should have built and commercially supplied at least two Glass Processing workstation of similar design and capacity as in the tender specifications in the past five years and must submit documents in support of the same. Feedback from users of the previously supplied systems may be used to evaluate the suitability of the quoted system. Negative feedback could constitute a reason for rejection of the quote. Bidder should provide details of contact person, e-mail ID, phone nos. to get a feedback from the users.

1.4 The bidder or their OEM shall confirm their capability to provide spares, maintenance and after-sales service of the Glass Processing workstation after installation & commissioning, during the mandatory warranty period of one year and need warranty cost for additional years after the formal acceptance, either directly or through an authorized service representative. The bidder or OEM should have at least 2 local trained personnel, trained at manufacturer site, available for basic maintenance and assistance for reliable operation of the system. Training certificates of the local trained persons should also be attached along with the technical bid. This will be a major criteria in the technical qualification of the bidder.

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2. Equipment Specifications:

Sr. No.	Parameter	Value
1	Applicable fiber types (Non-PM)	Single Mode, Multimode, Photonic Crystal, Large Mode Area and Non-Circular
2	Applicable fiber types (PM)	Panda, Elliptical and Bow-Tie and Multi-core fibers
3	Fiber cladding diameter for processing	In the range of 80 μm to 1.7 mm
4	Fusion method	Filament
5	Filament temperature	Room temperature to 3000°C
6	Typical splice loss	< 0.02 dB for 125 μm cladding diameter single mode fibers
7	Splice loss estimation	Automatic measurement with True core imaging technology
8	Typical splice strength	>250 kpsi for 125 μm cladding diameter single mode fibers
9	Splice strength enhancement feature	Fire polish
10	Fiber inspection feature	
	(a) Fiber Side Viewing	Back, front, center with manual and auto focus,
	(b) Fiber End Viewing	Fiber end face inspection with manual and auto focusing and cursors for diameter measurement
11	Core / Cladding / Fiber Diameter	Automated Measurement
12	Fiber and End Face Alignment	
	(a) Fiber Z-Axis Movement	180 mm (max)
	(b) Z-Axis Movement Resolution	0.25 μm or better
	(c) XY Axis Fiber Positioning Resolution	0.02 μm or better
	(d) Rotation Alignment	Fully Automated End-View Alignment for Panda, Bow Tie, Elliptical-Core Fibers and External Extinction Ratio Feedback for Automatic Alignment of PM Fiber Types
	(e) Rotation Drive Resolution	0.02° or better
	(f) Rotation Travel	200° or better
13	Fiber tapering	

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	(a) Tapering Length	In the range of 2 mm (min.) to 150 mm (max.)
	(b) Tapering Ratio (Max)	Adiabatic Tapers up to 1:10
	(c) Typical Tapering Speed	1 mm/s
	(d) Adiabatic Tapering Loss	< 0.01 dB

14	Hardware for operation of fiber Glass Processing workstation	Control/processing unit with pre-loaded latest version of Windows 10 operating system, 8GB RAM, 500GB HDD, full HD 1920x1080 or better resolution 24 inch display unit, keyboard, and mouse along with required connecting & power cables for stand-alone operation and control of the Glass Processing workstation
15	Software for operation of fiber Glass Processing workstation	GUI based software should be provided, which includes Built-In Library for common fibers having cladding diameter in the range of 80 μm to 1.7 mm, splices, tapers etc. The software should be preinstalled.
16	Filament assemblies	(a) Graphite Filament Assembly, Ø125 μm - Ø600 μm Cladding – 4 Nos. (b) Graphite Filament Assembly, Ø 400 μm - Ø1300 μm Cladding – 4 Nos. (d) Graphite Filament Assembly, Ø400 μm – Ø1800 μm Cladding – 4 Nos.
17	Fiber Holder Bottom Inserts	(a) Fiber Holder Transfer Bottom Insert, Ø112 μm - Ø208 μm cladding– 2 nos. (b) Fiber Holder Transfer Bottom Insert, Ø177 μm - Ø320 μm cladding– 2 nos. (c) Fiber Holder Transfer Bottom Insert, Ø279 μm - Ø519 μm cladding– 2 nos. (d) Fiber Holder Transfer Bottom Insert, Ø346 μm - Ø795 μm– 2 nos. (e) Fiber Holder Transfer Bottom Insert, Ø516 μm - Ø1047 μm cladding– 2 nos. (f) Dual-Sided Fiber Holder Bottom Insert, Ø773 μm - Ø1523 μm cladding– 2 nos. (g) Dual-Sided Fiber Holder Bottom Insert, Ø1280 μm - Ø2007 μm cladding– 2 nos. (h) Dual-Sided Fiber Holder Bottom Insert, Ø1787 μm - Ø2513 μm cladding– 2 nos.

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18	Fiber Holder Top Inserts	(a) Fiber Holder Top Insert with LED Illumination Indent, Ø57 µm - Ø759 µm cladding – 2 nos.
		(b) Dual-Sided Fiber Holder Top Insert with LED Illumination Indent, Ø410 µm - Ø1269µm cladding – 2 nos.
		(c) Dual-Sided Fiber Holder Top Insert,

		Ø812 µm - Ø1770 µm cladding - 2 nos.
		(d) Dual-Sided Fiber Holder Top Insert, Ø1288 µm - Ø2268 µm cladding - 2 nos.
		(e) Dual-Sided Fiber Holder Top Insert, Ø1772 µm - Ø2944 µm cladding - 2 nos.
19	Fiber Transfer Clamp	Transfer Clamp with Magnetic Lid for Fiber Holder Transfer Inserts – 10 nos.
20	Graphite V-Grooves	(a) Extended Graphite V-Groove, Ø80 µm - Ø125 µm cladding – 2 nos.
		(b) Graphite V-Groove, Ø200 µm - Ø250 µm cladding – 2 nos.
		(c) Graphite V- Groove, Ø350 µm - Ø400 µm cladding – 2 nos.
		(d) Graphite V-Groove, Ø400 µm - Ø450µm cladding – 2 nos.
		(e) Graphite V-Groove, Ø450 µm - Ø500 µm cladding – 2 nos.
		(f) Graphite V- Groove, Ø500 µm - Ø550 µm cladding – 2 nos.
21	Mountable gooseneck light	Mountable Gooseneck Light for workstation and its power supply
22	Liquid Cooling System for workstation should be included with system.	
23	Accessories	Fiber combiner/bundle loading fixture. Large Diameter Fiber cleaver for precision cleaving of the capillary after the tapering process. Required accessories such as inserts for multiple fiber holding to fabricate couplers and fan in devices, software recipes, tool kit for filament & insert replacement, vacuum pump, gas regulator, PTFE gas tubing, power supplies and cables necessary for functioning of the workstation should be included as part of the system

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3. Details of site preparation & utilities: A detailed document for site preparation and specifications of required utilities should be provided by the supplier as part of the technical bid. The document should include details of the following:

- 3.1 Floor/table space & layout (footprint inside clean room)
- 3.2 Electrical requirement (Power at site will be single and three phase supply as per Indian standard).
- 3.3 Ethernet Connection (if required).
- 3.4 Pressure of Argon cylinder and gas purging requirement

4. On-site installation and commissioning: The supplier should install, test & commission the Glass Processing workstation at site. The site preparation will be done by SFO as per requirements in the site preparation & utilities document provided by the supplier.

5. Warranty: The entire system inclusive of accessories shall be under comprehensive warranty for two year starting from the date of commissioning and final acceptance, against design, material or manufacturing defects. Any malfunctions or breakdowns shall be attended to by a qualified engineer (either from the OEM or their authorized representative) at the earliest but not later than 15 days.

6. Compliance Statement: Detailed compliance statement against the required specifications in the tender should be provided with Technical bid, without which the bid would be rejected.

7. Application packages: The following application using the workstation should be demonstrated and trained to at least 2 users,

- a. Multicore fiber Fan-out Engineering Service Package

The package should consist of design and development of 4-core and 7-core _ Multicore fiber Fan-In Fan-out device using glass processing station. Fabrication process should be transferred to SFO along with necessary training.

- b. Mode Field Adaptor for SM and MM fibers Engineering Service Package

The package should consist of design and development of Mode Field Adaptor for single core and multi-core fibers using glass processing station. Fabrication process should be transferred to SFO along with necessary training.