



Government of India
Bhabha Atomic Research Centre
Environmental Monitoring and Assessment Division
Trombay, Mumbai – 85

Ref: BARC/EMAD/MT/WO/2021/

Date: 01 / 11 /2021

Sub: Notice Inviting Tender for Work Order for fabrication of vibration free high-vacuum external pumping station for existing Benchtop Scanning Electron Microscope.

Quotations are invited from your side to carry out fabrication of vibration free high-vacuum external pumping station for existing Benchtop Scanning Electron Microscope. Fabrication of an external pumping station complete Turbo-molecular pumping unit with a 240 ls-1 or more pumping capacity, anti-vibration SS mounting stand with provision for placement of roughing pump, compatible vibration isolation device to stop conduction of HF vibrations to the microscope, fabrication of required flanges and bellows and connectors, installation and testing of all the devices and demonstration of satisfactory performance. Kindly go through technical requirement as per annexure for details.

So you are requested to offer your quotation for the aforementioned work. While quoting, kindly adhere to the following guidelines. Send us your offers so as to reach by 15 / 11 / 2021.

1. Kindly quote this enquiry number as the reference in your offer.
2. Kindly send your offer so as to reach us before **15th, November 2021**. Offers received after the deadline will not be considered.
3. Kindly send your offers in a sealed envelope super-scribed "Fabrication of vibration free high-vacuum external pumping station for existing Benchtop Scanning Electron Microscope". The envelope should contain two hard copies, of offers, in original, made in your letter head and duly signed. The letters should be addressed to the undersigned and send it so as reach us before the due date.
4. The charges applicable should be in the **most modest, competitive/least profitable manner**.
5. Include a copy the PAN/TAN details of your firm along with the offer. Also indicate you GSTIN in your offer.
6. Include the bank details of your firm for ECS clearance should an order be effected I your favor.
7. Please be sure to send the printed copy of offer in your own letter-head by **Indian Mail/ Speed Post only**. No private couriers are allowed.

Anticipating a prompt reply and your valued offers

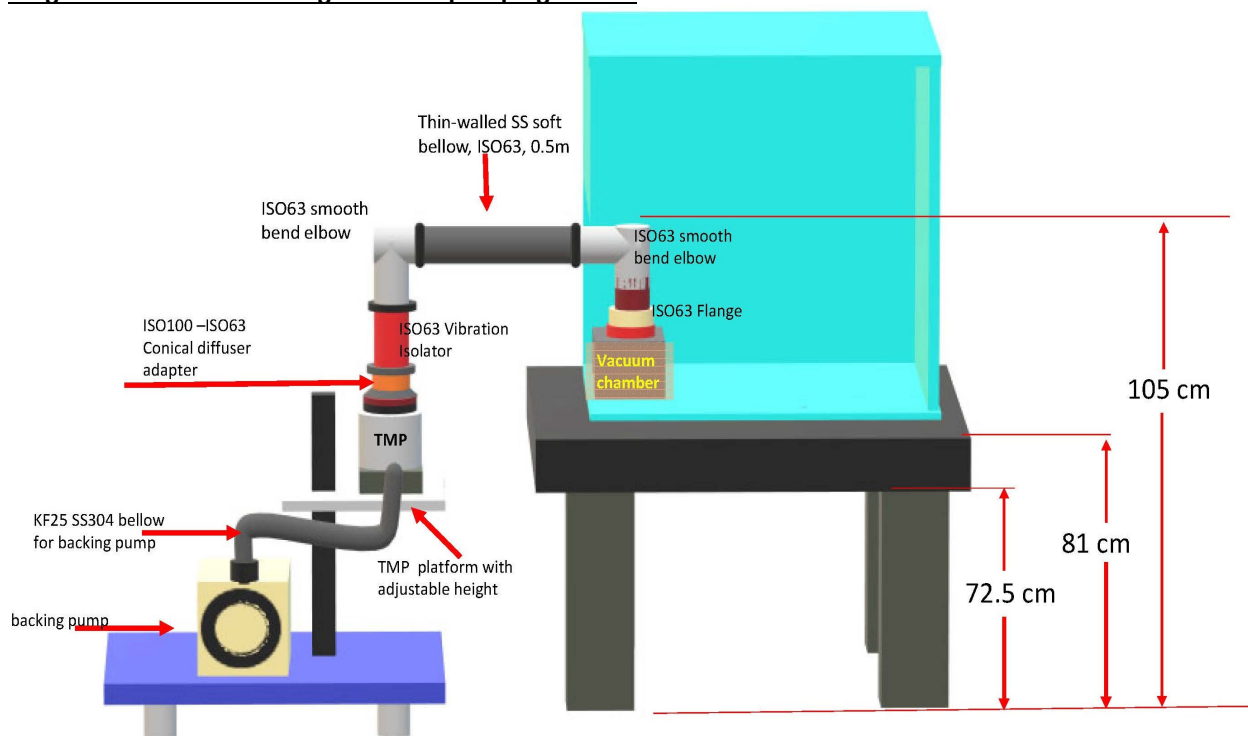
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Technical Specifications for fabrication of vibration free high-vacuum external pumping station for existing Benchtop Scanning Electron Microscope.

Sr.	Item	Parameter	Specification	Quantity
1.	Turbo Molecular Pump	Inlet Flange Type	ISO-63 or ISO100	01 No. each
		Inlet Pumping Speed (for N2) ls-1	≥240 ls-1 for ISO-63	
		Compression Ratio (for N2)	Should be $\geq 1 \times 10^{11}$	
		Ultimate pressure with RV backing with ISO100	Should be $\leq 6 \times 10^{-8}$	
		Backing/Interstage Port Type	NW25	
		Vent/Purge Port Type	1/8inch BSP	
		Start Time to 90% Speed (80 W)	100 to 140 sec	
		Nominal Rotational Speed	~60,000 rpm or more	
		Maximum weight	3.2 Kg Maximum	
		Dimensions	Length (Podule side / including podule) – 117 mm maximum Width (including backing port) – 117 mm Height (Maximum allowed) – 175mm (with NW40 flange), 150mm with ISO63 flange)	
		Power	programmable from 50 – 200W	
		Cooling	Air cooling connector to be fitted as standard	
Venting	<ul style="list-style-type: none"> Solenoid operated vent-valves for controlled venting of the pumping system. Valves should be supplied with a sintered bronze inlet-filter and a riffled hose connector Power connector: 2-3m of power cable to be supplied. Venting adapter type: DN25NW adaptor. The vent-valves could be powered and controlled from the turbo controller for venting control 			
2.	Pump Controller	Controller Type	Turbo and Active Gauge (TAG) controller type or Turbo Instrument controller (TIC) type	01 No.
		Input Power	100 – 200W	
		Electrical Supply	Mains AC input or DC input (Required power adapter to be provided along with controller)	
		Terminals required	<ol style="list-style-type: none"> Turbo cooling Fan control Turbo Pump Control Active Gauge control 	

			4. Vent valve control for controlled venting	
		Operating Temperature and Humidity	Upto 40°C / upto 90%RH non-condensing	
		Enclosure IP rating	IP20 minimum	
3.	Vibration isolator specific for the TMP present in the pumping station. It should reduce the transmission of the vibration generated by the pump to the vacuum chamber which has vibration sensitive instruments. The vibration isolator should have flanges on both sides separated by flexible stainless steel bellows and an outer rubber anti-vibration collar for vibration damping.			01 No.
4.	KF25 SS304 flexible soft bellow 1meter			01 No.
5.	KF25 SS304 center ring + Viton 'O' ring + Aluminium 'C' clamp set			04 Nos.
6.	ISO63K SS304 center ring + Viton 'O' ring			08 No.
7.	ISO100K SS304 center ring + Viton 'O' ring +clamp set			04 No.
8.	ISO63 Aluminium full claw clamp			16 Nos.
9.	ISO63K SS304 flexible soft (Thin-walled) bellow having total length 0.5m			01 No.
10.	ISO63K SS304 smooth bend elbow			02 No.
11.	ISO100K-63K SS304 conical reducer			01 No.
12.	Vibration free SS stand as per the diagram			01 No.

Diagram for the external high vacuum pumping station



Note: The pumping station should incorporate the components as per the list and should be supplied, either as prior-assembled form at vendors' works or should be with pre-formed components which can be assembled or dismantled at the installation site without leaving any waste/left overs. The scope of the work does not include the supply of backing pump. But the backing pump platform should provide a vibration free fast-mounting support for the existing roughing pump with 50x15x24cm (LxBxH) dimensions. Finalized measurements at site can be carried-out prior to the commencement of work.