



Telephone: 22574472 [EN]

Extn:

Department of Electrical Engineering

Indian Institute of Technology, Madras

I.I.T.P.O., MADRAS - 600 036.

Ref. No.

ELE	SOUM	2016	turbomolecular pumping system
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Date: 14/09/16

Under certificate of posting

O/c

Due date: 30/09/16

Dear Sirs,

1. Quotations are invited in duplicate for the various items shown below/overleaf/enclosed list.
2. The Quotations duly sealed and superscribed on the envelope with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The Quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS & D Rate contract, Rate Contract Number and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate Contract price. If so, please send copy of the R.C. (Please note that we are not Direct Demanding Officers).
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations are for Ex-Godown delivery charges should be indicated separately.
7. Firms outside Chennai: Quotations should be for F.O.R Chennai. If F.O.R. consignor station, freight charge by passenger train/lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charge must be indicated.
8. The rate of Sales/General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, claim for Sales/General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax applicable to non-Government Educational Institutions run with no profit motive for which a commission. Sales Tax certificates will be issued at the time of final settlement of the bill.
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. Payment: Every attempt will be made to made payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.

Specification is enclosed Quotation to be sent below address

DR. Soumya Dutta
Assistant Professor
Microelectronics & MEMS Lab

Electrical Engineering Department
IIT Madras
Chennai 600036.

Yours faithfully,

HEAD / Project Co-Ordinator

Tender Specifications for compact Turbomolecular pumping system with Dry backing pump:

SNo.	Parameter	Specifications
1	Ultimate pressure	$< 1 \times 10^{-7}$ mbar
2	Inlet Flange	DN 63 ISO-K
3	Backing pump	Dry Diaphragm pump
4	Backing pumping speed	Maximum $0.5 \text{ m}^3/\text{h}$
5	Mains Voltage	230 V, 50 Hz, Single Phase
6	Pumping speed for N_2	$> 67 \text{ l/s}$
7	Compression for N_2	$> 1 \times 10^{11}$
8	Gas throughput at full rotational speed for N_2	1.3 mbar.l/s
9	Rotation Speed	Maximum 90,000 RPM
10	Max. Fore vacuum Pressure for N_2	Up to 22 mbar
11	Bearing system for turbo pump	Permanent magnetic bearing at High-vacuum side with oil lubricated ceramic bearing in low vacuum side
12	Control Unit for the turbo pump should inform following parameters	<ul style="list-style-type: none"> - The speed of the pump in terms of revolutions per seconds (Hz) and revolutions per minute. - Current drawn by the pump. - Operating hours. - The temperature of bearing, Motor, Electronics, and bearing etc. - The controller of the TMP has provision to vary the rotation speed of rotor from 20 % to 100% of full speeds so that working pressure can be varied - The Turbo display & control unit should be able to read one vacuum gauge.
13	General	<p>Air cooling</p> <p>Compact & small unit of rough dimensions (330 mm x 310 mm x 200mm)</p> <p>Provision to run only diaphragm pump without disturbing the existing setup.</p> <p>All necessary accessories to connect the turbo to the system need to be provided</p>
14	After Sale Service requirements:	In case of a break down, maintenance of the turbo pump, such as bearing replacement, motor parts replacement, stator/ rotor replacement and overall cleaning of the pump etc. should be possible at purchaser's site

Signature

		The supplier should have Service Centre/ Service Facility and complete infrastructure within India to handle major repair of the turbo pump, such as changing of stator/ rotor assembly, repairs of electronics and availability of critical spares off the shelf, from Indian office
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Specifications of Compact FullRange Cold Cathode Gauge head along with Controller

Active Pirani & Cold Cathode gauge head

Connection flange: DN 25 ISO-KF
Measurement range: 900 mbar to 1.10^{-8} mbar.
Bake out temperature: Max 150°C (Electronics Removed)
Accuracy: $100 - 10^{-8}$ mbar: $\pm 30\%$
Repeatability: $10^{-8} - 100$ mbar: $\pm 5\%$
Output signal: pressure range: 2.0 – 8.6 V DC
Output signal, minimum load: 10 K Ω
Pressure Max:- 10 bar
Operating temperature: + 10 to + 50°C
Temperature, storage: - 40 to + 70°C
Supply: Voltage: 14.5 – 30 V DC
Supply: Power consumption max.: 2 W
Filament: Tungsten
Feed through: Glass
Flange: St. steel 1.4435
Sensor Cable length:- 3 meter.

Sony Dns