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SARDAR VALLABHBHAI NATIONAL  
 INSTITUTE OF TECHNOLOGY, SURAT-395 007.

No. MED/SERB Project/HBM/570/2018-19

Date: 15/05/2019

To,  
 As per attached List

स्वरीत डाक  
 SPEED POST

20 MAY 2019

**SUB: - Enquiry for Supply of Controlling and measuring system for Minichannel Heat Sink Assembly.**

Dear Sir,

You are requested to quote your prices for supply of stores listed overleaf. The quotations may be sent to the undersigned in a sealed envelope and subscribed as: "Quotation with reference to Enquiry No. MED/SERB Project/HBM/ / /2018-19 dtd: 15/05/2019. Your quotation should reach the undersigned on or before **06/06/2019 at 5:00 pm.**

The quotations should be furnished with the following information.

- 1) The brand or make of each item should be specifically stated and wherever necessary, Complete set of specifications and dimensions should be given.
- 2) If asked, samples are accompany the quotations
- 3) Sales tax, General tax, Central Sales tax, Custom duty, Insurance charges, Packing and Forwarding charges, if not included in the prices quoted, should be clearly specified.
- 4) The period of validity of the quotation should be at least 45 Days. Offers subject to prior sale may please be avoided.
- 5) The delivery period is to be clearly mentioned in the quotation.
- 6) The mode of delivery of the stores may be mentioned. The delivery should be F.O.R. Surat or at the Institute.
- 7) All concessions available to an educational institution should be specified and also taken into account while quoting.
- 8) This Institute is located within the limits of S.M.C. & exempted from the paying of octroi duty on incoming goods from outside limits of S.M.C.
- 9) This Institute is registered with the dept. of scientific & industrial Research (DSIR) for the purpose of availing custom duty exemption & central excise duty exemption, and hence the certificate to this effect will be issued wherever it is necessary on demand.
- 10) Payment is normally made by cheque drawn on the S.V.N.I.T. Branch Office of State Bank of India, Surat-395007 within a period of thirty days from the date of receipt of stores.
- 11) Your specifications & terms- conditions should be as per the format attached, must be on your company letterhead & signed by an authorized person.
- 12) Offered quotation may be rejected if any ambiguity is found in offered specifications, terms & conditions supplied by party in specified tabular format.
- 13) The Director reserves the right to accept stores, which are not strictly in confirming with the specifications but otherwise, found suitable.

Yours faithfully,

16/5/19  
 Head, Mech. Engg. Dept.

15/5/19

## Specification

Sr. No.	Item Name	Qty.
1.	<p><b>Supply of Controlling and measuring system for Minichannel Heat Sink Assembly</b></p> <p><b><u>1. Pressure Transducers (Quantity: 02)</u></b>                      Type: Differential Pressure Transducers                      Measurement range: 0 to 6bar                      Accuracy: <math>\pm 0.5\%</math> of reading                      Arrangement of pressure transducers: In each plenum of Minichannel heat sink                      Calibration certificate of pressure transducers</p> <p><b><u>2. Thermocouples (Quantity: 16)</u></b>                      Type: T type                      Bid diameter: 0.5 mm/1mm                      Accuracy: <math>\pm 0.5\%</math> of reading                      Arrangement of thermocouples:                      04 Nos. of thermocouples to measure the fluid temperature in each inlet and outlet plenum of Double layered Minichannel heat sink                      12 Nos. of thermocouples in the substrate of a minichannel heat sink to measure the solid substrate temperatures (As shown in Annexure Fig 2)                      Calibration certificate of thermocouples</p> <p><b><u>3. Heaters (Quantity: 12)</u></b>                      Type: Cartridge heaters                      Diameter: 6mm                      Length: 50mm                      Watt capacity: 100W each                      Accuracy: <math>\pm 1\%</math> of reading                      Arrangement of heaters: In the heater block (in 4x3 matrix form) (As shown in Annexure Fig 1)                      Calibration certificates for heaters</p> <p><b><u>4. Heating Controller Unit (Quantity: 12)</u></b>                      Type: PID based controller with voltage stabilizer                      Controlling range: 0-1200W                      Accuracy of controller: <math>\pm 0.5\%</math> of reading                      Calibration certificate of controlling unit</p> <p><b><u>5. Minichannel heat Sink Assembly (Quantity: 01)</u></b>                      A test box for the arrangement of Minichannel heat sink, thermocouples, pressure transducers and heaters (As shown in Fig. 1)                      Material: Plexi glass (Insulating material)                      Arrangement: (As shown in Annexure Fig 3)                      Plexi glass made inlet and outlet Plenums in both layers of a DL-MCHS (to accommodate uniform flow distributions across all the channels)                      Proper insulating arrangement for test setup to reduce heat loss</p> <p><b><u>6. Other Requirements</u></b>                      Frame Suitable for mounting the controlling and measurement system of MCHS                      Top Platform suitable for Mini channel heat sink Assembly                      Integrated Electrical panel in frame                      Castor Wheel Mounted for Easy movability                      One Year Service and Support against any manufacturing defect                      CAD and relevant Design documents of manufactured assembly                      Pre-Delivery Inspection and Onsite commissioning support</p>	01

## Annexure

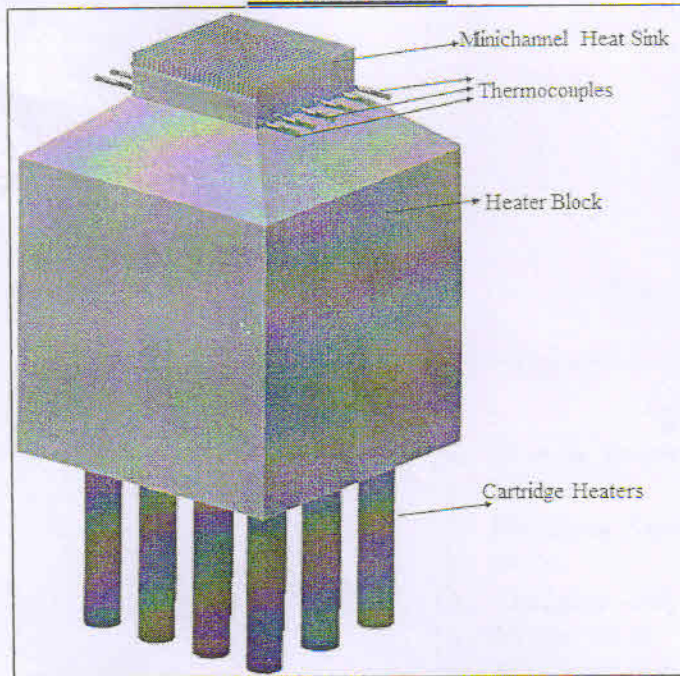


Fig. 1 Schematic of Minichannel heat sink with Thermocouples and heaters

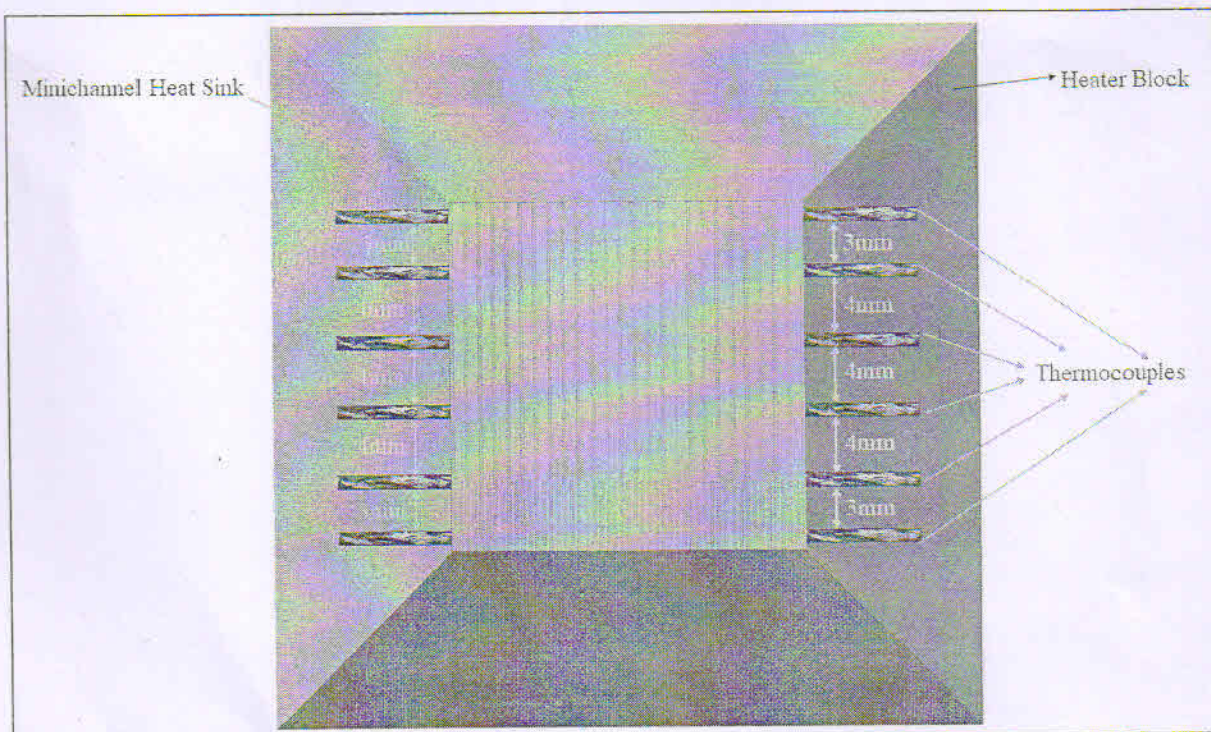
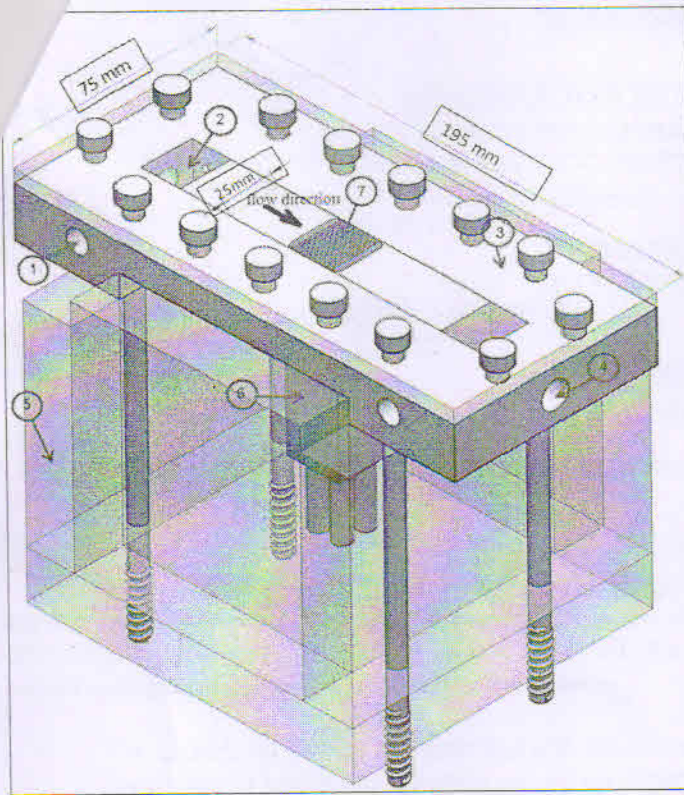


Fig 2. Arrangement of thermocouples (Top View of MCHS)



1. Hole for Pressure transducer at inlet
2. Inlet
3. Plexiglass Sheet (top cover)
4. Outlet
5. Plexiglass Box
6. Heater block
7. Minichannel heat sink

**Fig. 3** Minichannel Heat Sink Assembly in Plexiglass Box