

**Instrument: "Micro compounder along with Micro injection moulding"**

Sealed Quotation (Technical & Commercial, separately) must reach to us till 05.01.2014 before 5.00PM and should be sent to Kamal K. Kar, Department of Mechanical Engineering, Room # ACMS 204, IIT-Kanpur, 208016 against the enquiry letter numbered ME-MSP/KKK/14/2013 Dated: December 23, 2013.

**The closing date for the above item is extended to Jan. 10, 2014. Vendors are encouraged to get in touch with the indenter and make a presentation (before the closing date, preferably on first week of Jan. 2014) to the standing technical committee regarding the instrument capabilities.**

Dear Sir/Madam:

Quotations (Technical & Commercial, separately) are invited for purchase of "Micro compounder along with Micro injection moulding" having following specifications:

**Specifications :**

S. NO.	PARAMETER	SPECIFICATIONS
1.	Design	Both <b>vertical</b> /horizontal type Co-rotating screws and counter-rotating screws.
2.	Hopper/Feeder	Pneumatic hopper with solid plunger and Manual feeding with an option
3.	Extruder requirements	Provision for adding fluids, double co-rotating and counter rotating fully intermeshing detachable screws with an integrated adjustable driving gear.
4.	Maximum sample quantity requirement of the Extruder	Around 5 gm by weight or 7 cm <sup>3</sup> by volume
5.	Heating Capacity	The extruder should include electrically heated controlled heating zone with an adjustable temperature range and the operating temperature should be 420°C.
6.	Cooling of the extruder	Water and air cooling
7.	Pressure measurement sensors	The extruder must include pressure sensors capable of measuring high pressures of 200 bars
8.	Main drive	The main drive of the extruder should include digital RPM adjustment with a provision for torque measurement. RPM range should be between 10 to 350 rpm by means of a frequency controlled drive.
9.	Instrument control - integrated PC based control and monitoring	PC based Data documentation, Control and acquisition software. Storage of test setup and test results. The software should be operatable under Window platform. The software should have manual control executed via a separate control and monitoring panel which features easy handling. Minimum 10 method storage facility. Computer control via visualization software. The

		software should be able to do viscosity calculation by correction in accordance to Carreau, Rabinowitsch and other rheological and mathematical models.
10.	Essential accessory	Strand Die compatible with the extruder, Set of rod dies (0.5, 1.0, 1.5 and 2.0 mm diameter)
11.	Rheological Measurements	The extruder must have a back-flow channel which should re-circulate the extrudate back to the extruder to enable control of the residence time and to measure viscosity.
12	Bypass operation	Automatic bypass operation for circulation/extrusion
13	Inert environment	Extruder should be equipped with an inert gas flush system
14	Torque on screw:	5 Nm / screw (minimum)
15	Thermocouple	Standard thermocouple for measurement of temperature
16	Pressure sensor	Standard pressure sensor for measurement of stress
17	Computer	Standard specification
18	Standard tools	All standard accessories for handling and cleaning
<b>SPECIFICATIONS Micro Injection Moulding Machine</b>		
1.	The Micro Injection Moulding Machine	The Micro Injection Moulding machine must be only vertical design and a piston based injection molding system to ensure reduced cylinder volume, resulting in a smaller quantity of required material and almost complete transportation of material into the mould.
2.	Compatibility	The machine must be capable of being used as standalone unit or in conjunction with above Micro Twin Screw Extruder with force feeder
3	Pressure requirement	Must not be more than 10 bars
4	Technical Specifications	(a) Injection pressure max. : 1200 bars or more (d) Mould temperature max. 250 °C (e) Cylinder temperature max. 400 °C
5	Mould for Test specimen	Tensile, DMA, Izod Charpy, disc as per ASTM or ISO
6	Standard tools	Air Compressor (10 Bar) with Air Drier and other accessories

#### **Other Terms & Conditions:**

1. Prices should be FOB (your international airport), CIP New Delhi, and IIT-Kanpur including Packing and Forwarding, Insurance and freight.
2. Prices should include the installation cost.
3. Warranty should at least be for three years after installation.
4. Validity of quotation should be at least for 90 days.
5. Maximum educational discount
7. Any other charges from your side.
8. User list of this equipment in India (preferably IIT) (MUST) including installation certificate and service performance from users
9. Proprietary certificate, if any
10. Authorization letter from your principal
11. Agency commission, if any

**You can separately quote for higher specification, if it is available with you.**

You will be informed accordingly by appropriate authorities if your bid is accepted. Please do not make unnecessary and unsolicited phone calls and emails (except to seek a clarification for the tender), you will be contacted as per need.

Kindly mention **“Micro compounder along with Micro injection moulding”(ME-MSP/KKK/14/2013 Dated: December 23, 2013)** on sealed envelope carrying quotation and printed literature and send your best offer (Technical & Commercial, separately) so as to reach us on or before 05-01-2014 to the following address-

Prof. Kamal K. Kar,  
Department of Mechanical Engineering  
Room # 204 ACMS  
IIT Kanpur - 208016 India,

Email: [kamalkk@iitk.ac.in](mailto:kamalkk@iitk.ac.in)