



Enquiry No.: 37/CHE/SSK
Enquiry Date: August 18, 2015
Closing Date: August 24, 2015

Sealed quotation(s) in Indian Rupees or USD with all technical details so as to reach latest by 3:00 PM on August 24, 2015 are invited for the supply of following items.

Note: Price Bid and Technical bid of instrument should be provided separately with same date and also mention the enquiry number and instrument name on the sealed envelope carrying the quotation. Please provide all the mentioned parts together with name of the companies, specified.

Reactor

Specification:-

Temperature up to 800 °C, ICONAL Tube I.D. 25 mm, heating zone 200 mm, total furnace length 400 mm. best quality heating elements proper ceramic fiber Insulation and separate control box having MCB Switch, indicator lights, PID profile programmer of 16 steps, with Cr/Al thermocouple inserted from top hole of Furnace.

Pre Heater

Pre heater just before the reactor to heat mixture upto 400°C with temperature controller

Thermal Mass Flow Controllers for He & H₂ Gases

(a) Gas – Helium

- Op. Temp.: 30-100 deg c
- Inlet Pressure 30 bar (g)
- Outlet Pressure 20 bar (g)
 - Flow-0 –4 SLPM
 - MOC-SS 316L
- End Connection-1/4" OD compression

(b) Gas-hydrogen

- Op. Temp.: 30-100 deg c
- Inlet Pressure: 30 bar (g)
- Outlet Pressure : 20 bar (g)
 - Flow-0 –1 SLPM
 - MOC-SS 316L
- End Connection-1/4" OD compression

Double Stage High Pressure Regulators (2 Nos.)

SS 316 Dual Stage Regulators with Two Dial Gauge upto 100 Bar

Micro Fluid Pump: (1 No)

Capable of Pumping Solvents like acids, bases, biomass Reactants like furfural, hmf, etc., at least in the range of (0.1 – 10 ml per min) at Room Temperature to 50 °C

Condenser with Water Chiller (1 No)

Condenser Connect to Chiller Machine, for Cooling Outlet from the Reactor.

Temperature Range: -5 °C to RT

Material: Glass

Pump Capacity: 12 lit/min

Cooling Capacity : 0.25KW

Tank Capacity 20 liters

Chiller having suitable specs will be accepted

Filters (2 Nos)

Micron Filters which can collect Solids (Range 0.100 - 0.250 Microns) from

Reactor and avoid them going into back pressure Regulator.

One additional 5 micron Filter will be fixed before fine filter to increase life of Second Filter.

Liquid Gas Separator (1 No)

Liquid Gas Separator made up of Glass and Connected to GC

Back Pressure Regulator (2 Nos)

Medium to High Pressure Piston up to 100 Bar Pressure,

compatible with various solvents (Acids, Bases, Biomass Reactants like furfural, hmf etc)

Pressure Gauge: (1 No)

Pressure Gauge (0-100 Bar) for measuring

actual pressure inside the Reactor

High Pressure ON / OFF Valve (2 Nos)

Suitable High Pressure ON / OFF Valve to stop the Gas and Fluid Flow

Completely

Non Return Valves (2 Nos)

Suitable High Pressure NRVs to prevent back flow of Gas and Fluid. Gas and Fluid Pipelines:

High Purity SS 316 1/8 inch tubes with fittings to sustain High Pressure of 100 Bars

Flame Arrestor for H2 Gas (1 No)

HPLC Columns

Flow Rate: 0.8mL/min.

Column Type: OA-1000

Diameter (Metric) Inner: 6.5mm

Length (Metric): 300mm

Stainless Steel Reactor

Temperature: 300 °C

Port for pressure sensor 85 bar

Port for gas outlet

Port for temperature sensor

Port for gas inlet

Diameter of the reactor = 4 cm

Depth of the reactor = 4 cm

It should contain ports for gas inlet, gas outlet, pressure sensor, and temperature sensor.

The machine should be duly certified/ authorized and the vendor should produce the certificate for the same.

Terms & Conditions:

- I. Price Bid and Technical bid should be provided separately with same date.
- II. Prices (FOB/ High Sea Sales) should include delivery up to nearest airport.
- III. Clearly state the CIF charges to IIT Kanpur and other taxes as applicable.
- IV. Warranty should at least be for 1-3 years after installation.
- V. Validity of quotation should be at least for 90 days.
- VI. The delivery time should be clearly mentioned. Shorter delivery time may be given a preference.
- VII. Technical specifications along with the extent of compliance should be in a separate envelope with proper labels on the envelopes.
- VIII. The delivery period should be specifically stated.

Kindly mention the enquiry number on the sealed envelope carrying the quotation and send the sealed quotation(s) to the following address:

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