

**INDIAN INSTITUTE OF TECHNOLOGY KANPUR
DEPARTMENT OF MECHANICAL ENGINEERING**

Ref. No. :Enq/ME/FM/2017/01

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Sub: Quotations for Gas Hydrate Autoclave System with Accessories.

Dear Sir/Madam:

Sealed Quotations with all technical specifications are invited for gas hydrate autoclave system with the following specifications:

a)	Sample Cell Volume	25 Ltr. with head made from SS-316 Bar Stock and Body fabricated from SS-316 plates.
b)	Design pressure	200 Bar / 20 MPa
c)	Maximum working Temperature	-5 deg. C to 15 deg. C (Accuracy 0.1 deg. C)
d)	Nozzles and Fittings	External Fittings: Pressure gauge (with swivel connector), Pressure sensor, vent valve, safety rupture disc (Inconel) (certified by original manufacturer), Pressure release valve of MOC SS-316, Gas inlet valve for Methane, Flush bottom valve of MOC SS 316. Ball valve for powder/liquid inlet with funnel at atmospheric pressure.
e)	Nozzle for mounting of ultrasonic probe	
f)	Sapphire windows	4 Nos. of 2" sapphire windows for observing the process inside the autoclave at 90 deg apart & same level in the liquid zone.
e)	Body and Head Sealing	PTFE Gasket with split clamp type quick opening system with clamp bolts.
f)	Motor, Drive and Stirrer	½ HP Motor and variable frequency drive with 100-750 RPM infinitely variable speed & digital RPM indication. Motor shall have 3 piece quick & maintenance free connect/disconnect motor coupling for ease of

		operation. (in place of spring loaded clutching) and 6 bladed turbine stirrer.
g)	Shaft Sealing	Zero leakage Magnetic Drive Coupling. (Maintenance free)
h)	Heating and Cooling	By oil circulation in jacket.
i)	Camera	1 No. high Resolution camera with lighting system for observing and recording photos and videos within the reactor cell.
J)	Digital Pressure Indicator	In bar and PSI with high pressure alarm in addition to analog pressure gauge with high pressure safety heater cut off.
k)	Control Panel	SS control panel with temperature indicator, digital pressure indicator with high pressure alarm system and motor speed controller.
l)	Mains Power Supply	Single Phase, 220VAC \pm 10%, 50Hz
m)	Autoclave Mounting	S.S. movable trolley with polishing of complete autoclave
n)	SS Pr. Regulator	With self venting for releasing the pressure, pressure gauge & 4m long flexible hose pipe with NRV for 0-140 bar o/p pressure for Methane gas.

Optional accessories:

1. Single Fluid Closed Loop Heating Cooling System,
2. Suitable Thermic Fluid

Supplier should have minimum 3-5 years of experience in high pressure systems and proven track record in providing service to local area/government establishments/research institutions. Please, include the list of customers in high pressure systems.

Terms and conditions:

- Maximum educational discounts should be applied.
- Payment terms as per IIT Kanpur norms.
- Validity of quotation should be at least for 60 days.
- Price should be on FOR IIT Kanpur & should include the installation and training cost.
- Institute is exempted for payment of Excise Duty under notification No. 10/97.
- Warranty/Guarantee should be clearly mentioned.
- Quotation should carry proper certifications like agency certificate, proprietary certificate, etc.
- The delivery should be specifically stated. Earlier delivery will be preferred.
- The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved.

The prospective suppliers are required to send quotations in two parts in sealed envelopes, as "Technical Bid" and "Financial Bid". The Technical Bid should contain detailed technical specification of the product being offered and should not mention any prices. The Financial Bid should include the detailed price quotation clearly including the cost of the equipment, taxes, service charges if any, shipping and handling charges. The two separate and sealed envelopes should be clearly marked appropriately as "Technical Bid" and "Financial Bid". Kindly write the inquiry no on the top of envelop.

Kindly send the quotations to the following address on or before 7th February, 2017. Enquiry reference number and closing date should be mentioned on the envelope.

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