	<b>The Energy and Resources Institute</b>	ISSUE NO.	17	DATED	03-05-2024
	<b>Tender</b>	REVISION NO.	00	DATED	00-00-0000
		DOC. NO.	F/Mat/17		

**Tender for inviting quotations from the manufacturer/authorized distributor for the complete set of Autoclave with the capacity of 100 litre net filling and the same is going to be installed at TERI Gram office, Haryana.**

**TERI/MAT/2024–25/017**

**Tender Date: 03-05-2024**

**Last Date for Submission of Bids: 26-05-2024**

**The Energy and Resources Institute (TERI)  
6-C, Darbari Seth Block  
IHC Complex, Lodhi Road  
New Delhi – 110003, India**

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### About TERI:

TERI is an independent, multi-dimensional organization, with capabilities in research, policy, consultancy and implementation. We are innovators and agents of change in the energy, environment, climate change and sustainability space, having pioneered conversations and action in these areas for over five decades.

### General Information


TERI invites Bids from Prospective Bidder through tendering for inviting quotations from the manufacturer / authorized distributor for the complete set of Autoclave with the capacity of 100 liters net filling and the same is going to be installed at TERI Gram office, Haryana, as per the details given in tender document.

The tender document is available on TERI's, website: <http://www.teriin.org/Announcements/> from 03<sup>rd</sup> May, 2024. Interested bidders may view/download the Bid document and submit their Bid up to the date and time mentioned in the table.

### Schedule of activities:-


Sl. No.	Item	Tender No.	Quantity Required	Fee of Tender Document	Earnest Money Deposit
1	Autoclave with the capacity of 100 liters net filling and same is installed at TERI Gram office, Haryana	<u>TERI/MAT/2024-25/017</u>	1 nos.	5,000.00	2,00,000.00 or MSME certificate

Sl No.	Milestone	Date and Time (dd-mm-yyyy; hh:mm)
1	Release of tender	03.05.2024
2	Last date for submission of technical and financial bid	26.05.2024; 15:00 hrs
5	Opening of technical bid	27.05.2024; 11:00 hrs
6	Shortlisted firms on the basis of technical evaluation	27.05.2024; 15:00hrs
7	Financial bid opening of only of technically qualified bidders	28.05.2024; 11:00 Hrs
8	Finalization of Bidder	Intimation to be given only to finalized Bidder(s)

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9	Venue of opening of technical and financial details	The Energy and Resources Institute, 6C, Darbari Seth Block, India Habitat Centre, Lodhi Road, New Delhi – 110 003
10	Project Time frame	04 months

<b>Table 1 - COMMERCIAL TERMS AND CONDITIONS:</b>	
<b>Delivery</b>	
<b>Price Basis</b>	
<b>Packing</b>	
<b>Freight</b>	
<b>Installation</b>	
<b>Transit Insurance</b>	
<b>GST</b>	
<b>Payment Terms</b>	
<b>Our Bank Details</b>	
<b>Validity of quotation</b>	
<b>Warranty</b>	

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<b>Table 2 - STANDARD SPECIFICATIONS:</b>		
<b>S.N.</b>	<b>Model</b>	
<b>A.</b>	<b>Volume</b>	Total volume 110 liters and working volume 90 to 100 liters
<b>B.</b>	<b>Material of Construction</b>	Stainless steel (SS316) with PTFE coating
<b>C.</b>	<b>Design pressure</b>	10bar
<b>D.</b>	<b>Design temperature</b>	250°C
<b>E.</b>	<b>Maximum working Temperature</b>	240°C
<b>F.</b>	<b>Head mounting style</b>	Vertical
<b>G.</b>	<b>Heating</b>	Direct Steam
<b>H.</b>	<b>Motor &amp; drive</b>	Top driven system with a magnetically coupled stirrer assembly driven by high Torque encoder feedback based Stirrer Motor.
<b>I.</b>	<b>Shaft sealing</b>	
<b>J.</b>	<b>Stirrer</b>	Agitation range 50 – 1200 rpm
<b>K.</b>	<b>Standard fittings</b>	
<b>L.</b>	<b>Gasket</b>	PTFE gaskets
<b>M.</b>	<b>Closure type</b>	self-sealing O-Ring closures
<b>N.</b>	<b>Control Panel</b>	PID Control for heating and cooling
<b>O.</b>	<b>Auto Cooling System</b>	
<b>P.</b>	<b>Water Pump and 10Ltr. Tank</b>	
<b>Q.</b>	<b>Mechanical Chain</b>	
	<b>Pulley</b>	
<b>R.</b>	<b>Power Supply</b>	220volt
<b>S.</b>	<b>Mounting</b>	Vertical




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Table 3 - PRICE LIST:					
Model Number	Volume of Autoclave	Price in Rs for each unit	Price in Rs for each unit after discount	Minimum Stirrable volume	Approximate Dimension

Table 4 - OPTIONAL ATTACHMENTS WITH PRICE LIST:		
S. N	Optional Attachments	Price*
1	Hollow shaft with gas induction impeller (for Gas-Liquid reaction) (instead of item 'J')	
2	SS Pressure Regulator for H2 gas for 0–140bar cylinder pressure with inlet & outlet pressure gauge, flexible 4M hose pipe, non–return valve & adaptor for N2/O2/ air gas cylinder.	
3	Auto–cooling System with Flameproof II C Motor (for Hydrogen Gas) with water pump, SS tank & hose pipes for exothermic reaction & faster cooling.	
4	Digital pressure indicator in bar & psi with SS–316 Pr. Transmitter & high–pressure alarm in addition to analog pressure gauge.	
5	Hastelloy C wetted parts pressure transmitter instead of SS–316 in option no.'6' above	
6	Hastelloy C Diaphragm pressure gauge instead of SS Teflon coated diaphragm.	
7	1 hp ex–proof gas group IIC motor (zone 1) (instead of item `H')	
8	Pressure relief valve with Kalrez 'O' ring (Max. working temp. 250 Deg.C)	<b>SS316:</b> <b>Hast C:</b>

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9	Ex – proof Enclosure with Digital Temperature indicators in it, mounted on the autoclave trolley so that control panel can be remotely mounted at a distance of upto 5m in safe area.	
10	7–inch touch control panel & SCADA software with RS 485 – 232 converter for local and remote display of all major parameters, trends, data logging & change of set points on PC. (PC in client’s scope)	
	Note – Cable length shall be 5m from PC to panel unless specified.	
11	Hastelloy C High Pressure Liquid / Catalyst Slurry /Gas charging system for injecting liquids / Gas / Catalyst during the reaction under pressure (It consists of a Hastelloy C high pressure pot, Hastelloy C inlet & outlet valves, SS 316 pressure gauge, high pressure. Hose pipe, SS 316 Non return valve & SS 316 Pressure relief Valve) (Up to 100 bar).	<b>Pot 2L:</b>
12	SS–316 High Pressure Liquid / Catalyst Slurry /Gas charging pot for injecting liquids / Gas / Catalyst during the reaction under pressure. {(It consists of a high–pressure SS– 316 pot, inlet & outlet vent valves, pressure gauge, high pressure. Hose pipe, non–return valve & Pressure relief Valve} (Up to 100 bar).	<b>Pot 2L:</b>
		<b>5L:</b>
13	Hastelloy C Condenser for distillation / condensation (It is a shell & tube type heat exchanger) with SS braided Teflon hose pipe (Design Pressure: 10bar)	
14	SS–316 Condenser for distillation (It is an SS–304 shell side & SS–316 tube side heat exchanger) with hose pipe.	<b>0.5 m<sub>2</sub> :</b>
		<b>1 m<sub>2</sub> :</b>
		<b>2 m<sub>2</sub> :</b>
15	Hastelloy C Receiver pot at the outlet of condenser to apply vacuum for distillation & collect the condensate with Hastelloy C outlet & vacuum line valves.	2L:
16	Digital gas mass flow controller (in flow control mode or pressure control mode.) for any one gas with totalizer. (up to 50LPM) (Mention the gas, pressure, flow rate range	<b>100Bar:</b>
		<b>Flameproof Enclosure:</b>

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	& mode of control required) (Digital pressure indicator also to be ordered). MOC SS316	
<b>17</b>	Torque Wrench for uniform tightening, easy operation & ensuring leak tightness	

Any technical query, please send a mail to:

Dr Sanjukta Subudhi,

Senior Fellow & Area Convener (Head), Microbial Biofuels & Bio-chemicals Area,

Coordinator, Tata Chemicals Ltd.-TERI Centre of Excellence on Biochemicals

Advanced Biofuels Division, The Energy and Resources Institute (TERI)

Mail ID: [ssubudhi@teri.res.in](mailto:ssubudhi@teri.res.in);

***The interested manufacturer / authorized distributor are requested to please send their technical and financial proposal through closed envelop by 26<sup>th</sup> May 2024 on the below given address:***

***Mr. Manoj Kumar Tiwari  
Head-Materials  
The Energy and Resources Institute (TERI),  
6C, Darbari Seth Block,  
IHC Complex, Lodhi Road,  
New Delhi – 110003.***