

Minutes of Pre-Bid Conference (PBC) held on 01/09/2026 for proposed Procurement of
"High Pressure and High Temperature stirrer Autoclave (Alloy C276)
Interchangeable 250 500 ml in CSIR-IICT"

Chairpersons / Members of the Technical Sub Committee (TSC) present during
PBC including domain experts present during PBC:-

- 1 Dr. K. Srinivas, Chairman
- 2 Dr. Pratyay Basak, Member
- 3 Dr. G. Jithender Reddy, Member
- 4 Sri. K. NARSINGH, Member
- 5 Dr. P. Aruna, Member
- 6 IO Dr. Vijay Thomas B

Representatives of the following firm attended the PBC:

1. M/s. Orbit Technologies (Parr Instruments) Hyderabad.
2. M/s Amar Equipment Pvt Ltd, Mumbai.
3. M/s Nano-Mag Technologies Pvt Ltd, Mumbai.

The following points were discussed during the PBC:

Query raised by M/s. Orbit Technologies (Parr Instruments), and response of CSIR-IICT:

Query-1: What is the delivery time for supply of the Autoclave?

Response: The total delivery period shall be 12 weeks, including supply, installation, and commissioning of the complete autoclave unit.

Query-2: Can we submit the quotation in US Dollars (USD)?

Response: Yes. Since this is a Global Tender Enquiry (GTE), the quotation may be submitted in US Dollars (USD).

Query-3: Can the payment terms be 90% on delivery and 10% after installation?

Response: No. The payment terms shall be 80% upon delivery of the item and 20% after successful installation and commissioning of the unit.

Query raised by M/s. Amar Equipment Pvt Ltd, Mumbai, and response of CSIR-IICT:

Query-1: The vendor expressed that the belt-and-pulley arrangement for the magnetic drive is an old technology compared to the present overhead motor-driven magnetic drive system.

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MEMORANDUM FOR THE RECORD

TO: Mr. Tolson
FROM: Mr. [Name]
SUBJECT: [Subject]
RE: [Reference]

On [Date], [Name] advised that [Name] had been [Action] by [Name].

The following information was obtained from [Name]:

[Name] is a [Nationality] born [Date] at [Location].

He is currently residing at [Address] and is employed by [Company].

His education includes [Degree] from [Institution] in [Year].

He has been married to [Name] since [Date] and they have [Number] children.

His previous employment includes [Company] from [Year] to [Year].

He has no known criminal record and is not currently under any legal restrictions.

Very truly yours,
[Signature]
[Name]
[Title]

Response: CSIR-IICT has requested the belt-and-pulley arrangement based on our previous successful experience with similar autoclaves. The arrangement has been found to be suitable, reliable, and satisfactory for our applications. Therefore, the vendor shall provide the belt-and-pulley arrangement as specified in the tender. The belt-and-pulley drive arrangement is not expected to adversely affect the performance or reliability of the magnetic drive or cause any damage to the magnetic coupling under normal operating conditions.

Query-2: Regarding the valves, can Amar brand valves be supplied?

Response: No. All needle valves supplied with the system shall be of Swagelok, Parker, WIKA, or an equivalent internationally reputed brand with globally recognized certifications and quality standards.

The supplied valves shall meet the required pressure, temperature, material compatibility, and safety requirements specified for the autoclave system.

Query raised by M/s. Nano-Mag Technologies Pvt Ltd, and response of CSIR-IICT:

Query-1: Whether the vessel volume specified for the 250 mL–500 mL vessels is the working volume or gross volume?

Response: The specified 250 mL and 500 mL vessel capacities are gross volumes.

Query-2: If 250 mL is the gross volume, designing and manufacturing the vessel may be difficult.

Response: CSIR-IICT is already using autoclaves with similar vessel volumes and configurations. Several reputed vendors/manufacturers have successfully supplied autoclaves meeting these requirements. Moreover, the specifications provided in the tender are generic.

Query-3: The heater temperature is specified as 500 °C, which may be difficult to achieve and maintain even with proper insulation.

Response: Several vendors/ manufacturers have quoted and supplied autoclaves meeting the specified temperature and pressure ratings. CSIR-IICT has also been using autoclaves with similar high-temperature and high-pressure ratings for the past twenty years. Therefore, the specified temperature requirement of 500 °C shall be maintained as per the tender specification.

Query-4: Designing an autoclave for a pressure rating of 340 bar is very difficult. Can the pressure requirement be reconsidered?

Response: No. The pressure rating of 340 bar has been specified based on IICT's R&D requirements and shall be maintained as specified in the tender. The specification is generic, and several manufacturers are capable of supplying autoclaves with the specified pressure rating. CSIR-IICT has also been using similar high-pressure autoclaves.

Query-5: Is the specified temperature of 500 °C and pressure of 340 bar the actual working conditions required for the autoclave?

Response: The specified 500 °C temperature and 340 bar pressure are the design ratings of the autoclave. The normal operating/working conditions shall be limited to approximately 90% of the respective design ratings.

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Query-6: Is the belt-and-pulley arrangement for the magnetic drive required?

Response: Yes. The autoclave shall be provided with the belt-and-pulley arrangement for the magnetic drive as specified in the tender.

Query-7: Is the reactor vessel bottom-moving arrangement manual or electrical?

Response: The reactor vessel bottom-moving arrangement shall be manual.

Query-8: Can the maximum motor speed be limited to 1300 RPM due to the vendor's limitation?

Response: No. The required motor speed is 1500 RPM or higher. The vendor shall provide a suitable drive system capable of meeting the specified speed requirement.

Query-9: Regarding the valves, can any other make be supplied?

Response: No. All needle valves supplied with the system shall be of Swagelok, Parker, WIKA, or an equivalent internationally reputed brand with globally recognized certifications and quality standards.

The valves shall be suitable for the specified pressure, temperature, material compatibility, and safety requirements of the autoclave system.

Points clarified by CSIR-IICT Team during PBC:

The representatives of the participating firm/further informed that they do not have any issue or suggestion with respect to other points of tendered specifications and related requirements given in the tender document. Participating bidders have been informed that points raised by them during PBC will be examined by CSIR-IICT's **Technical Sub Committee (TSC)/Technical team** constituted for the purpose of procurement of said equipment and **post PBC changes** in tendered specifications and requirements to be agreed after due consideration of the same by TSC, **if any**, will be uploaded in **CPPP** as part of **revised/amended tendered specifications** along with CSIR-IICT website www.iict.res.in or on before **24/08/2026**. All bidders are requested kindly to take a note of the changes, if any, in tendered specifications subsequent to **PBC** held today, i.e. **01/09/2026** before they start submitting their online bids through CPPP.


(Dr. Pratyay Basak)
Member


(Dr. Jithender Reddy)
Member


(Dr. P. Aruna)
Member
21/9/2026


(Sri. K. NARSINGH)

Member


(Vijay Thomas B)

IO


(Dr. K. Srinivas)
Chairperson

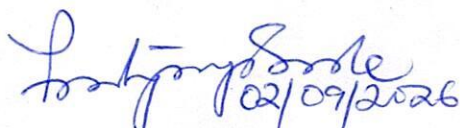
The following changes has been made in the tendered specification subsequent to PBC held on 01/09/2026

S. No.	Existing Specifications	Revised/Amended Specifications
3	Designed pressure: 34 bar with working pressure 90% of designed pressure.	Designed pressure: 340 bar with working pressure 90% of designed pressure.

All the other tender terms remains unchanged. Bidders may please submit their bids accordingly.

REVISED TECHNICAL SPECIFICATIONS

(Please mention full technical specifications here)


(Dr. Pratyay Basak)
Member


(Dr. Jithender Reddy)
Member


(Dr. P. Aruna)
Member


(Sri. K. NARSINGH)
Member


(B. Vijay Thomas)
IO


(Dr. K. Srinivas)
Chairperson

Technical Specification for High Pressure & High Temperature Stirred Autoclave (Alloy C276) with Interchangeable Vessels

- 1) Autoclave MOC: Alloy C276 (Autoclave body/vessel and all the wetted parts)
- 2) Volume: 250 ml vessel and 500 ml with same fixed head for both and with L/D ratios for the vessel should in the range, 250 ml 1:1 to 2 and for 500 ml 1: 2 to 3.
- 3) Designed pressure: 340 bar with working pressure 90% of designed pressure.
- 4) Designed Temperature: 500 °C.
- 5) All Needle valves (MOC alloy C276):
 - a. All valves must be made of corrosion-resistant high-grade materials MOC alloy C276.
 - b. All needle valves supplied with the system must be Swagelok, Parker, Wika or of an equivalent with globally certified.
 - c. The needle valves must be rated for and capable of withstanding the maximum design pressure and temperature of the system (i.e. 340 bar and 500°C).
 - d. Documentation confirming the pressure and temperature ratings, material of construction, and manufacturer certifications for each valve must be submitted along with the technical bid.
- 6) Metal gasket for each vessel 500ml & 250 ml units and extra one more should be provided for both the vessels.
- 7) Safety rupture disc Alloy C276. Suitable MOC pressure gauge 340 bar with isolator and Pressure transmitter
- 8) Floor mounted, simple design style.
- 9) Ceramic band heater with 230V for reactor vessels to move up & down direction.
- 10) Position counter for real time rpm display.
- 11) Magnetic Drive:
 - a. Agitator Shaft & impeller.
 - b. Magnetic drive alloy C276 Torque 16 in-lbs torque with DC motor.
 - c. Mounted with NPT threading.
 - d. Cooling jacket with inlet and outlet.
 - e. Drive belt and pulley to control stirrer speed from up to 1500 rpm or better.
- 12) Inlets & outlets (Alloy C276) with valves:
 - a. One inlet feed for gas & Liquid.
 - b. One outlet for gas sampling.
 - c. One outlet for liquid sampling (dip length)
 - d. Pressure gauge line.



- f. Thermowell latest $\frac{3}{4}$ length of reactor vessel length for indication of temperature.
- g. Cooling coil with Solenoid.
- h. Gas entrainment impellers should be provided for the both the vessels 250 & 500ml extra from the regular impeller setup.

13) Control Box/tower:

- a. Heat/cool PID temperature controller with programmable features. (Ramp & soak 16 steps minimum)
- b. Thermowell with suitable type thermocouple
- c. Heating temperature display
- d. Rpm display indicator
- e. Pressure display (PT compactable plus one spare).
- f. Safety cutoff for over temperature & pressure.
- g. Audible alarm for over temperature & pressure.

14) Spares and toolkit:

- a. Metal lines/ flexible gas lines hose with NRV about 4 meters.
- b. Spanners and tool kit set/ drive repair kit.
- c. Spare ferrule sets and nuts – sight numbers.
- d. Two numbers of Bearings, O rings, bush, gaskets, and head gasket.

15) The SCADA software or equivalent or better software which should have provision of HOLD UP facility during the auto downloading the recipe (reaction progress program). Data acquisition software should be designed for following data logging, control

- Reactor temperature control & data logging
- Stirring speed control & data logging
- Solenoid valve control
- Over Temperature and pressure alarm

16) Data logging software should have the following features.

- Process Graphics Animation
- Real Time Trending & Historical Trending
- Manual Data Entry Tags & Alarms
- Report with Automatic Storage in M.S. Excel format
- Loop Screen for all Control Automation
- Digital Interface System for Computer Control



17) Computer Specifications

- All in one PC (Dell or HP) for software.
- Intel i7, 13th generation or better with 1TB SSD & 16 BG RAM
- Display LED with 24-inch screen.
- Inbuilt WIFI 6, 10/100/1000 ethernet.
- Software windows 11 professional & MS office 2021 or latest with life time license.

18) Compliance and Certification Requirements for High Pressure & High Temperature Reactor Unit.

- a. ISO Quality Certification- The manufacturer must possess a valid ISO certification (e.g., ISO 9001) demonstrating compliance with international standards for quality assurance and management systems across design, manufacturing, and servicing processes.
- b. CE/PED Compliance-The manufacturer must be CE and PED (Pressure Equipment Directive) certified, confirming that the design and manufacture of pressure reactors and assemblies for laboratory use comply with European safety, health, and environmental protection standards.
- c. OEM Experience-The Original Equipment Manufacturer (OEM) must have a minimum of 10 years' experience in the design, manufacturing, and sales of high-pressure and high-temperature reactors.
- d. Proven Track Record – Relevant Installations: The vendor must submit documentary evidence (e.g., purchase orders or client installation certificates) of at least five (5) successful installations of reactor systems with pressure and temperature ratings of minimum 340 bar and 500°C, specifically at CSIR laboratories, Government agencies, PSUs, or Semi-Government organizations in the last five (5) years.
- e. Factory Acceptance Test (FAT)-A comprehensive Factory Acceptance Test (FAT) shall be conducted at the vendor's facility, at the vendor's cost and scope, prior to dispatch, to validate system performance and compliance with specifications.
- f. The vendor must provide complete technical documentation, including Detailed schematic diagrams of the reactor system, P&ID, Operation manuals, Service and maintenance manuals. The offered unit must be a model from the current serial production range of the manufacture.
- g. Warranty-A minimum warranty period of three (3) years shall be provided for the complete system, effective from the date of successful installation and commissioning at the end-user.



Stores and Purchase

File No. PUR/IICT/40274/1008/26-27/EQPT

Dt-04/09/2026

Minutes of T&PC for approval of modifications of technical specifications post pre bid meeting

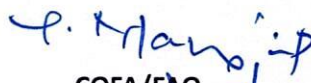
This office conducted a **PRE BID MEETING** on **01/09/2026** ^{for} the procurement of **High Pressure and High Temperature Stirrer Autoclave** with the participation of members from **Technical Sub Committee(TPC)** and **Technical and Purchase Committee (T&PC)**.

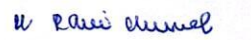
The indenter along with other committee members, addressed the queries raised by **M/s Orbit Technologies Pvt Ltd, Amar Equipment Pvt Ltd** who participated offline and **Nano-Mag Technologies Pvt Ltd** participated online.

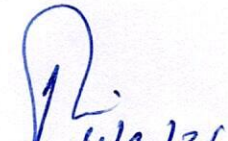
The **Minutes of the pre bid meeting**, incorporating the suggested modifications provided by the Indenting Officer and duly approved by the committee members, is attached herewith for ready reference.

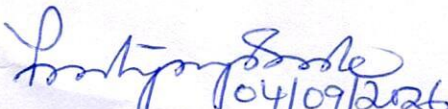
Taking into consideration of above recommendation given by **I/O and TSC**, **TPC** recommends uploading the revised technical specification.


COSP/SPD
04/9/26


COFA/FAO
4/9/26


COA/AG
4/9/26

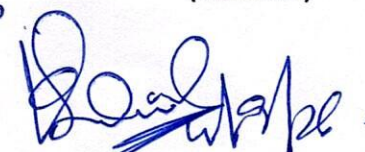

IO/PL/CHAIR
4/9/26

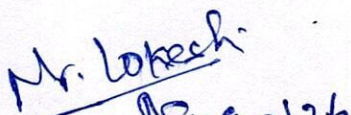

Dr Pratyay Basak
(Member)
04/09/2026


Dr P Aruna
(Member)
4/9/26


Dr Jithender Reddy
(Member)


Shri K Narsingh
(Member)
04/9/26


Dr K Srinivas
(Chairperson)


Mr. Lokesh
04/9/26