



DEPARTMENT OF CIVIL ENGINEERING
Indian Institute of Technology Madras
I.I.T.P.O., MADRAS-600 036

Form for Inviting Quotations

Ref.No.CIE/KRAM/2019/Microwave Pyrolysis Reactor

Date: 20-8-2019

To

DUE DATE: 4-9-2019

Dear Sirs,

1. Quotations are invited in duplicate for the various items shown below / overleaf / Enclosed list.
2. **The Quotations duly sealed and superscribed on the envelope with the reference No. and due date, should be addressed to the undersigned and contain in 2 bid system i.e. Technical bid and Commercial bid in two separate envelopes should be enclosed in a single envelope only so as to reach on or before the due date stipulated above.**
3. The Quotations should be valid for ninety days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms : Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for F.O.R. Madras. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rates of GST and other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for GST/General Taxes will be admitted at any stage and on any ground whatsoever. IIT Madras is eligible for concessional GST. Relevant certificate will be issued. In case of import supply the price should be quoted without custom duty. I.I.T. Madras is exempted from levy of IGST on Imports and eligible for concessional custom duty (not exceeding 5%) and the price should be quoted on **EX-WORXS** and **CIP** basis indicating the mode of shipment.
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. Payment : Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later.

Yours faithfully,


[PROF. K. RAMAMURTHY]

- Note: (i) Quotation should be sent by SPEED POST only or to be delivered directly to the concerned.
(ii) Firms are requested to submit the specifications of their product along with supporting technical Documentation / brochure instead of reproducing the specifications sent by us.

Specifications for Microwave Pyrolysis Reactor

Item	Specification
Microwave Pyrolysis Reactor	<ul style="list-style-type: none"> • 2 kW rated MW system with maximum MW output power - 1.4 kW • Cabinet should be of steel material • Set temperature upto 1200°C • MW Cavity size: Length - 40 cm; Height - 35 cm; Depth - 30 cm • Control panel to measure and control the operation time (every 30 seconds or 0.5 min), pulse time (every 30 seconds), current used for the process (± 5 watt) and temperature sensor (IR based, with $\pm 5^\circ\text{C}$) • All parameters mentioned above should be adjustable/controllable through touch screen monitor
Automatic Electronic Circuit Board with Control Panel (touch screen type)	<ul style="list-style-type: none"> • Dimensions: 200 mm x 144 mm x 50 mm • Material: Aluminum Alloy • Voltage: 220 V/380 V, Frequency: 50/60 Hz, Rated Current: 20 A - 3000 A • Power efficiency: >90%
Temperature Sensor controller	<ul style="list-style-type: none"> • PFA/ceramic coated thermocouple • Can measure temperature up to 1200°C in presence of microwave radiation/field • Accuracy is $\pm 1^\circ\text{C}$.
High Voltage Diode and capacitor	<p><u>Diode</u></p> <ul style="list-style-type: none"> • High Voltage Silicon Diode Rectifier with Repetitive Peak Reverse Voltage-12kV • Average Forward Current -500mA <p><u>Capacitor</u></p> <ul style="list-style-type: none"> • Capacitance-0.8 ~ 1.2 μF $\pm 3\%$ • Rated Voltage- 2,100 VAC • Insulation Resistance -1,000 MΩ
Condenser and other accessories	<p><u>Condenser</u></p> <ul style="list-style-type: none"> • Adjustable dual high / low pressure control • Should be secured with copper tubing • Should be attached with Suction and discharge service valves <p><u>Others Accessories</u></p> <ul style="list-style-type: none"> • Connector(glassware)
Optional item	<p>Microwave with-standable customized tray 3 three numbers which can be mountable one over the other with a spacing of at least 5 cm between each rack to withstand up to a temperature of 1200°C. The whole tray system should be compactable peaceable in the microwave cavity</p>