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1	Updated Specification after Pre-Bid for 250 Kg capacity Rotary Furnace	Updated Specification for Supply Installation and commissioning of 250 Kg capacity Rotary Furnace	30-Jan-2024 05:35 PM	Finalizedspecs.pdf 	493.51

Chapter 4
Updated specification
(after Pre-Bid Meeting)

Quantity-01 set.

Specification of 250 kg capacity rotary furnace with control panel, support platform, chimney with gas ventilation pipe, coal charging facility, insulated material transfer/discharge facility, electrical switches and cables and tools required for operation & maintenance.

The rotary furnace shall be suitable for heating 250 kg, up to 600^oC temperature, size of coal charge 90%, -3mm. The furnace is to be installed on suitable mounting platform at suitable position, so that hot coal from the rotary furnace can be charged into the desired system without any temperature loss.

The indented item/items shall have the following technical requirements-

a	<p>Rotary Furnace: <i>Material to be handled-</i> pulverized coal of 0 to 3 mm size, with 10% moisture level. <i>Charging capacity-</i> 250 kg of pulverized coal with 10% moisture level; volume of coal Charge to be 0.35 m³. For uniform heating, material shall be uniformly distributed throughout length of the furnace. <i>Desired Maximum coal mass temperature:</i> 550^o C. <i>Temperature controller-</i> Micro-processor-based controller. <i>Material of construction of rotating drum-</i> high temperature grade stainless steel <i>Baffel arrangement-</i> 8 nos. of 4-inch-wide high temperature grade stainless steel standard horizontal baffles fixed inside the rotating drum. <i>Rotating drum size-</i> Inside volume: 2.35m³, Overall length: 3.5 m; volume of coal charge should be <= 15% of volume drum. <i>Inlet and outlet doors of the rotating drum-</i> Inlet and outlet door of the rotating drum should be in opposite diagonal corner. There shall be no spillage of material during rotation and preheating; the doors should be arranged with door and lock arrangements. <i>Rotation speed-</i> Variable rotation speed from 0.5 to 5 RPM. Speed indicator and speed control facility for setting rotation speed is to be provided in control panel. <i>Heating mechanism:</i> Electrically heated. For uniform heating, material shall be uniformly distributed throughout length of the furnace, while furnace is in rotation. Electrical connections should be properly insulated and covered for avoiding accidents and electrical short circuit. <i>Heat load-</i> Heat load is equivalent heat energy for heating 250 kg of coal at 10% moisture level to 550^oC in 30 minutes. Maximum pre-heating time for the empty furnace must be less than 60 minutes. <i>Furnace tilting facility-</i> For easy and quick discharging of hot sample, mechanized tilting facility of the furnace is to be arranged. The tilting angle must be 30^o or more. Necessary thrust bearing arrangement must be provided for absorbing/ withstand the load during</p>
b.	<p>Gas ventilation facility: The rotating drum is to be connected with chimney through ventilation/gas removal pipe for removal of gases and moisture during pre-heating of the coal sample. Arrangement shall be made to arrest the tar generated at the bottom of the chimney or any other place in the system. <i>Chimney height-</i> Minimum 5 m height from the rotating drum; <i>Material of construction-</i> stainless steel for chimney and ventilation pipe. All the joints of the ventilating pipe with rotating drum as well as the chimney must be leak proof.</p>
c.	<p>Charging Facility: Uniform distribution of material throughout the length of the furnace shall be ensured while charging and heating. Charging hopper, chute of suitable size and suitable charging arrangement for charging -3 mm coal particles should be provided. <i>Material of construction-</i> Mild steel. <i>Door and damper-</i> Door / damper with lock arrangement is to be provided at the bottom of the hopper. The charging chute must be mounted on the top of the rotary drum and a detachable duct to be provided from hopper to the rotary drum.</p>
d.	<p>Dis-charging Facility: The discharging facility is an insulated chute suitable for quick discharge of the sample and insulated duct for transporting hot sample to nearby pilot plant apparatus. Suitable duct/chute shall be provided for discharging the hot coal mass to the existing stamping box. <i>Material of construction-</i> Mild steel, warped with insulation blanket. Insulating blanket with heating coil (to preheat the stamping box walls to 150^o C) also to be provided for existing stamping box of 1100 mm length, 500 mm wide and 510 mm height to which hot coal mass has to be discharged.</p>
e.	<p>Control Panel: The control panel is to be made of enamel painted mild steel panel fitted with following control facilities— i) Spot OFF/ON facilities for furnace, ii) Rotation speed indicator, iii) Driver switch for tilting the furnace assembly iv) Furnace temperature and coal mass temperature should be displayed digitally.</p>
f	<p>Support/ Platform: Rotary furnace shall be installed on a suitable steel structure. Support platform shall be provided for required drives, tilting arrangements, vertical reciprocating motion of 3^o, charging and discharging mechanism, control panel and for other operational and maintenance requirements.</p>
g	<p>Electrical appliances: All electrical switches/cables/bus bar from the existing panel to the rotary furnace and its control panel also to be supplied. CSIR-CIMFR will provide required electrical power at a distance of 15 meter from the control panel of Rotary Furnace.</p>
h	<p>Spare Thermocouple: Two extra set for each thermocouple with necessary sheath are to be provided as spare.</p>

i	Tools & Tackles: Instrument should be supplied with necessary tools for charging, discharging and cleaning for operation and maintenance.
j	Loading/unloading and transportation will be in the scope of supplier.
k	All civil work for installation of the said furnace and other related accessories will be in the scope of supplier.
l	Comprehensive Warranty: 1 Year (Warranty should cover thermocouples, heating element, furnace refractory, insulation, control panel with associates and all other parts of the system)
m	Non Comprehensive AMC (3 years after completion of warranty): The firm should separately quote for AMC year wise. The price will be frozen and a separate order will be placed for AMC after completion of warranty. During warranty & AMC Period minimum two preventive maintenance visits in a year, and break down visit as and when required. AMC charges will be paid on yearly basis after satisfactory certification by the user.
n	Delivery: Within 24 weeks after placement of order.
o	Installation: 8 weeks

NOTE: 1. Basis of evaluation of price bids will be sum of equipment cost, comprehensive warranty for one year and cost of **Non Comprehensive** AMC for 3 years.

2. General arrangement drawing of the offered Rotary Furnace showing major components and bill of material shall be Submitted with the technical bid.

3. As built drawing of the furnace should be submitted after successful commissioning by the successful bidder.

The payment terms mentioned in the GCC 2.22.1 of sl. No. 15 was modified as below:

100% payment will be released after thirty days of successful installation, commissioning of the items, handing over all the certificates, documents, manuals etc. and final acceptance as certified by the user subject to be submission of performance bank guaranty (PBG) of 5% of the purchase order value covering the period of warranty plus 60 days. All the bidders are required to furnish requisite information for making payment by e- mode.