

Haldia Institute Of Technology
(An Autonomous Institution)

Sealed quotations [in the following format only] are invited from the competent vendors for the below mentioned equipment for Heat Transfer Lab of Mechanical Engineering department of this institute. Last date of submitting the quotation is **05/11/2024**.

Principal, HIT

Equipment of Heat Transfer Lab

Sl. No.	Name of Equipment	Experiments will be done	Specification	Qty.	Unit cost in Rs.	Applicable GST	Amount as per Qty.
1	Thermal Conductivity of Metal Bar-- experimental setup(with Steel Table)	1) To determine the thermal conductivity of given bar at various temperatures. 2) To plot the temperature distribution along the length of Bar	1.Metal Bar (rod): copper; Bar Diameter: 20 mm; Length: 400 mm to 500 mm 2.Temperature Sensors : RTD PT-100 Type (12 Nos.) 3.Control panel: .Digital temperature indicator; 0-300°C 4.Digital voltmeter : 00- 300 volt 5.Digital ammeter : 0 -5 ampere	1			
2	Thermal Conductivity of Insulating Powder-- Experimental Setup (with Steel Table)	1) Determination of thermal conductivity of insulating powder. 2) Comparison of thermal Conductivity of insulating powder at different temperatures.	1.Inner Sphere : 100 mm dia. Outer Sphere : 200 mm dia. 2.Heater : Nichrome Wire15- 1000 Watt 3.Temperature Sensors : RTD PT-100 Type (12 Nos.) 4.Control Panel : Digital Voltmeter: 0-300 Volt. 5. Digital Ammeter: 0-5 Amp. Variance : 0-230 V / 2 Amps. 6. Digital Temperature Indicator: 0-300oC	1			

3	Heat Transfer in Forced Convection- - Experimental Setup	<p>1) To determine average surface heat transfer coefficient for a pipe losing heat by forced convection.</p> <p>2) Comparison of heat transfer coefficient for different airflow rates and heat flow rates.</p> <p>3) To plot surface temperature distribution along the length of pipe.</p>	<p>TECHNICAL DETAILS: - Test Section Dia : 28 mm (Approx.) Length : 400 mm (Approx.) *Heater : Nichrome Wire *Air Flow Measurement : Orifice Meter & Manometer *Temperature Sensors : RTD PT-100 Type</p> <p>CONTROL PANEL : Digital Voltmeter : 0-300 Volt, Digital Ammeter: 0-5A, *Digital Temperature Indicator: 0-300°C with Multi-Channel Switch, ON/OFF Switch, Mains Indicator.</p>	1			
4	Emissivity Measurement Apparatus (with Steel Table)	<p>1) Determining the Emissivity of a test plate.</p> <p>2) Study the variation of Emissivity of test plate with respect to absolute temperature.</p>	<p>TECHNICAL DETAILS: - *Test Plate Dia : 160 mm *Black Plate Dia : 160 mm *Heater (2 Nos.) : Nichrome Wire Heater (One each for test plate & black Plate) *Temperature Sensors : RTD PT-100 Type</p> <p>CONTROL PANEL : Digital Voltmeter: 0-300 Volt, Digital Ammeter: 0-5Amps, DPDT Selection Switch: For Digital Voltmeter & Digital Ammeter, Variac: 0-230 V/5 Amps - 2 Nos. (One each for test plate and black plate), Digital Temperature Indicator: 0-300°C with Multi-Channel</p>	1			

5	Shell & Tube Heat Exchanger	<p>1. To calculate the Rate of Heat Transfer.</p> <p>2.To calculate the LMTD.</p> <p>3.To calculate the Overall heat transfer co-efficient.</p>	<p>TECHNICAL DETAILS: - *System: Water to Water. (1 - 2 shell & tube type)</p> <p>*Shell: Material Stainless steel. Dia. 250 mm, Length 600mm</p> <p>*Tube: ID 15mm, OD 18mm approx., Length 500mm (24 Nos.)</p> <p>*Water Flow Measurement Rotameters (2Nos.) one each for cold & hot fluid.</p> <p>*Hot Water Tank: Made of Stainless steel (Insulated with ceramic fibre wool)</p> <p>* Heaters: Nichrome wire heater (2 Nos.)</p> <p>CONTROL PANEL : Digital Temp Controller 0-199.9 deg C, (For Hot Water Tank)</p> <p>*Temperature Sensors RTD PT100 type</p> <p>*Water Supply 5 lit/min (approx.)</p> <p>*Electricity Supply 1 Phase, 220 V AC, 50 Hz, 32 amp MCB</p>	1			
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