

TECHNICAL SPECIFICATIONS AND OTHER ALLIED REQUIREMENTS

SI No.	Description of items	Quantity
PUR/230/SET/CK/E/2020-21		
01	Single Turn Coil Induction Heating System RF Terminal Power: 10 kW (Heating Control Within 50 W Resolution) Frequency: 150 to 400 kHz (Detail as per Annexure-I)	01 No.

1. INSTALLATION/COMMISSIONING

1.1. AS PER ANNEXURE-I.

2. WARRANTY

2.1. 01 (ONE) YEAR FROM THE DATE OF ACCEPTANCE OF THE GOODS

NOTE: MANUFACTURER'S AUTHORIZATION FORM IS MANDATORY FOR NON-OEM BIDDERS.

Annexure - I

Single turn coil Induction heating system

Induction heating system is required for heating Nickel base superalloy to a temperature of 1400°C for crystal growth. Specimen is to be heated is a round pipe of thickness 1 to 10 mm. Work head with Induction coil will be mounted on a vertical z- axis to move freely with the axis movement. Power source will be more than 1500mm away from the workhead and it will have connection with work head using high frequency flexible cable so as to move along Z axis freely.

Specifications	
RF Terminal Power	10 kW (heating control within 50 W resolution.)
AC Line Power	12.4 kV·A
AC Line Protection	25 A at 440 V
Frequency	150 to 400 kHz
AC Line Voltage at $\pm 10\%$	370 to 440 V 50 Hz 3 Phase
Front Panel Display	LCD display Parameters: Frequency, power, set point, timer and fault descriptions
Serial Communications	Via RS485 Terminal Mode
Process Timer	Built in; 10 ms to 10000 seconds
Heating Controller	4 programmable profiles, 5 steps per profile
RF Rise Time	<5 ms
Tune Time	<5 ms
Maximum Ambient Temperature	45 °C
Coil size	Circular (internal dia. 40mm) and coil diameter 8 mm.
Centre of the Coil to work head distance	100 mm (Approx.) It will be decided according to the size of the work head to be fixed in vertical axis.
Coil with Work head	100 mm movement in the vertical axis
Permissible load for work head with coil	Less than or equal to 5 Kg
Work head and power source	Dimension of both is required to be mentioned
Water Cooling System	
Flow	5.7 litre per minute
Maximum Input Pressure	5.6 bar
Pressure Differential Range	2.8-5.5 bar
Maximum Water Temperature	35°C
Accessories	
	<ul style="list-style-type: none">• External controller (plc)• Extended work head cable lengths• Serial data interface• Pendant station• Start-up assistance

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Documents in English both hardcopy and softcopy	<ul style="list-style-type: none"> • Operation and maintenance manuals, wiring and other schematic diagrams, list of components, spares and accessories. • Safety and security instruction manual should be provided.
Inspection	<ol style="list-style-type: none"> 1. The manufacturer/supplier's trained engineer should carry out installation and commissioning of the unit at CSIR-CMERI Durgapur. 2. Inspection will be done at CSIR-CMERI Durgapur by melting Nickel super alloy material 3. Demonstration of heating capacity at CSIR-CMERI Durgapur

Qualification Criteria:

- a. System should be of a reputed make.
- b. Supplier should have supplied Induction heating systems in the last 3 years in India or worldwide.
- c. The Supplier should provide support documents to show their Customers' list with contact details. Performance certificate if available of the latest of them may be submitted with technical bid.
- d. The Induction heating system will be used for heating the Nickel super alloy at the melting temperature. Documents/ reports/literature if available that assure that offered system is suitable and has been used for similar applications should be submitted with the technical bid.

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