



**C-ASMP
AEROSPACE LAB
AS9100 Rev D**

Project :
Date: 23 December
2021
Rev:01
Page 1 of 4

TECHNICAL SPECIFICATION

Document No :
CMTI/U&MPTF/MBN/Tech.
Spec/13-21/Rev-01

Technical Specification

SI No	Specification	Requirement	Vendor's compliance
1.	Item	Thermic fluid heating system	
2.	Operating fluid	Therminol 55 / Shell Heat Transfer Oil S2	
3.	Thermic fluid reservoir Volume	250 liters	
4.	Heating	Resistive heaters, 6KWx12 = 72 KW (Recommended tubular sheathed heating elements)	
5.	Maximum Operating temperature	300°C	
6.	Qty	1 No	
7.	MoC of tank and tubes	Stainless steel	
8.	Pressure switch	0 - 10 bar, Make: Danfoss	
9.	Pressure relief valve	0 - 10 bar, Make: Danfoss / Reputed	
10.	Float Switch	Make: Shridhan Automation	
11.	Temperature Switch	25 - 300°C, Make: Wika / Danfoss	
12.	Electrical Requirement	<p>WORKING MODE :</p> <ul style="list-style-type: none">Local mode :<ol style="list-style-type: none">Heater initial ON/OFF through push button , and then through PID (linear control)Temperature set value will be set through PIDEmergency stopLocal/remote selector switchHeater ON , fault indication lamp , temperature indicationR,Y,B indication lampMains ON/OFF switchRemote mode:<ol style="list-style-type: none">Heater initial ON/OFF through remote start command from DAQ, and then through PID (linear control)Temperature set value will be set through DAQ in PID (remote set point) – 0-10V / 4-20mAEmergency stop feedbackHeater ON & Fault potential free contact	

Prepared by

Checked by



**C-ASMP
AEROSPACE LAB
AS9100 Rev D**

Project :
Date: 23 December
2021
Rev:01
Page 2 of 4

TECHNICAL SPECIFICATION

Document No :
CMTI/U&MPTF/MBN/Tech.
Spec/13-21/Rev-01

		feedback 5. Remote mode selected potential free contact feedback 6. Process value (temp.) feedback : 4-20mA	
13.	Technical Manuals & Documents to be provided	<ul style="list-style-type: none"> ➤ Design document & Detailed drawings of thermic fluid heating system. ➤ Electrical circuit diagram & PLM program(if any). ➤ Installation & Operation manual ➤ Maintenance manual 2 Hard Copies + 1 Soft Copy in provided	
14.	Electrical power requirements	To be specified by vendor	
15.	Safety	<ul style="list-style-type: none"> • A thermal switch should be provided to stop the heating as soon as the temperature in the system increases beyond preset value and also a message will be displayed. • Pressure switch should be provided to stop the heating as soon as the pressure in the system increases beyond preset value and also a message will be displayed. • Pressure relief valve should be provided to relieve excess pressure in the system beyond preset value. • Float switch should be provided in the oil reservoir to stop the heating as soon as the level of oil inside the reservoir reaches below the preset value. 	
16.	Warranty	24 months from the date of installation. Replacement of parts if any, during warranty must be done free of cost.	
17.	Test certificate	To be provided	
18.	Delivery	8 weeks from the date of placing purchase order.	
19.	Scope of work	<ul style="list-style-type: none"> • Design, Development, Supply, Installation & commissioning of Thermic fluid heating system as per CMTI Technical specification • Integration of the system with thermic fluid pump supplied by CMTI 	
20.	Other Terms and Conditions	➤ Delivery, Installation, Commissioning & Testing of the Thermic fluid heating system at CMTI,	

Prepared by

Checked by



**C-ASMP
AEROSPACE LAB
AS9100 Rev D**

Project :
Date: 23 December
2021
Rev:01
Page 3 of 4

TECHNICAL SPECIFICATION

Document No :
CMTI/U&MPTF/MBN/Tech.
Spec/13-21/Rev-01

		<p>Bangalore should be carried out by Vendor at their cost.</p> <ul style="list-style-type: none">➤ The vendor should commission and handover the thermic fluid heating system to CMTI in the ready to use condition➤ Vendor to submit Design, Modeling & Detailed drawing for CMTI approval before they manufacture.➤ Vendor should also provide calibration certificates of sensors, pressure switch, temperature switch, float switch, etc.➤ Vendor should Provide Electrical circuit diagram & PLM program(if any).➤ Makes of all fitting for electrical, Mechanical and measuring devices should be of reputed make and to be specified in the quotation.	
21.	Detailed list of documents to be submitted	<ul style="list-style-type: none">a) GST certificateb) Completed Compliance form in above format with company sealc) Detailed technical data sheet for each and every item quotedd) Detailed Contact information of contact person (Name, email ID and Phone Number)	
22.	Acceptance Criteria	<p>The thermic fluid heating system will be accepted based on:</p> <ul style="list-style-type: none">a) Test Certificate and Certificate of Confirmation for the system.b) Demonstration of the thermic fluid heating system at maximum load conditions and temperature control as per section 12 in this document at vendor's site.c) Tank should be tested for working pressure of 10 bar at vendor's site.d) The system will be finally accepted at CMTI, Bangalore based on the compliance of the equipment with the Acceptance Criteria. Compliance includes proper commissioning of	

Prepared by

Checked by



C-ASMP AEROSPACE LAB

AS9100 Rev D

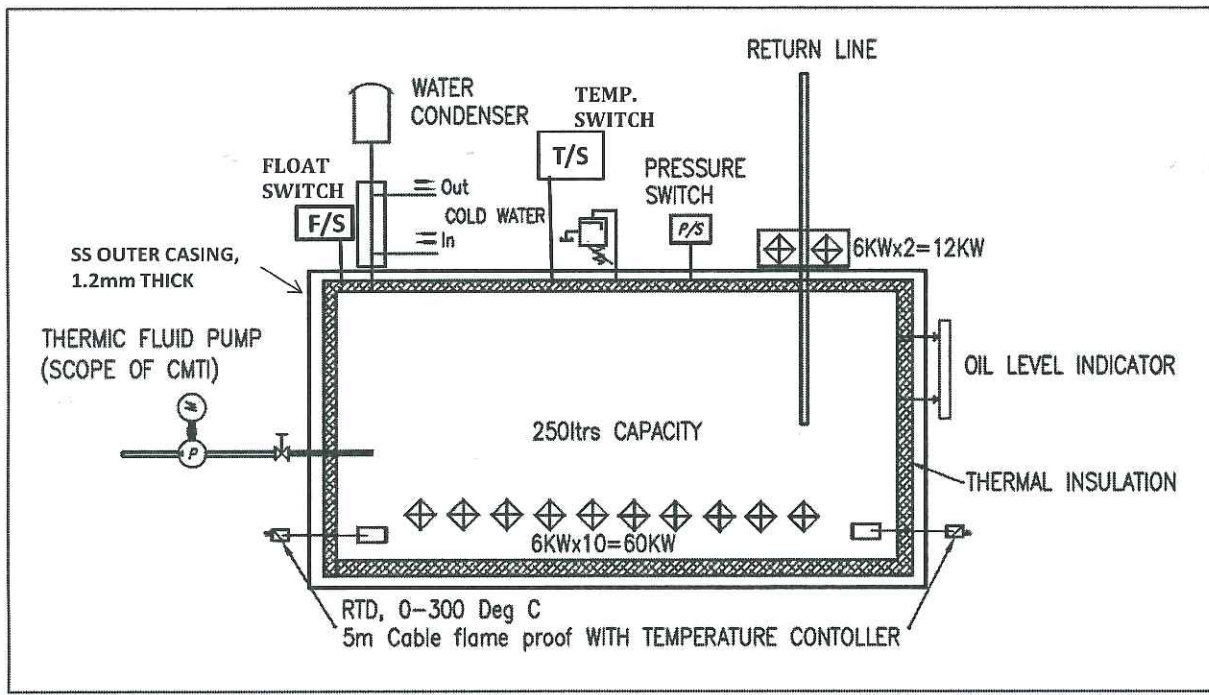
Project :
Date: 23 December
2021
Rev:01
Page 4 of 4

TECHNICAL SPECIFICATION

Document No :
CMTI/U&MPTF/MBN/Tech.
Spec/13-21/Rev-01

		the equipment, training of our personnel regarding maintenance & operation of the equipment.	
23.	Criticality		FC& SC

Drawing of thermic fluid heating system



Prepared by	<i>[Signature]</i>	Checked by	<i>[Signature]</i>
-------------	--------------------	------------	--------------------

Format No : FRM-ASMP-8.2.2-TS