


12-04-04 SIGN & DATE		भारतीय भारती उत्पाद मानक STEAM TURBINE ENGINEERING PRODUCT STANDARD	ST22008 पृष्ठ 04 का 01 Page 01 of 04			
SUPERSEDES INVENTORY NO	TECHNICAL SPECIFICATION FOR CONTINUOUS FLUID HEATER (Electric)					
सामग्री सूची संख्या को अनुसंधान कर रहे हैं	1.0 SCOPE:- This specification covers the technical particulars and other requirements for supply of control fluid heater to heat-up the fire resistant fluid.					
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	2.0 COMPLIANCE WITH STANDARDS:- 2.1 Based on Siemens's drg. no. 7404-92228/001 and BHEL experience.					
स्वतंत्रताधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत भारती इलेक्ट्रिकल्स लि. की सम्पत्ति है। इसका प्रयोग को अनुसंधान कर रहे हैं। इसका उपयोग को न करना चाहिए।	3.0 TECHNICAL REQUIREMENTS:- 3.1 DESIGN DATA:- 3.1.1 Rating : 27 KW (6+9+12 KW) Heater shall be arranged in three banks of 6 KW, 9 KW & 12 KW. 3.1.2 Voltage : 415 Volts , 3 Phase . 3.1.3 Frequency : 50 Hz 3.1.4 Protection : IP54 3.1.5 Design : Pressure container with stand with isolation and outer jacket . 3.1.6 Pressure : 6.0 Bar 3.1.7 Temperature : 100° C 3.1.8 Volume : 56.5 Liters. 3.1.9 Dimensions : As per sketch on sheet 4 .					
12/6/04 SIGN & DATE	3.2 OPERATING DATA :- 3.2.1 Medium : Phosphoric Ester Type HS-D 3.2.2 Kinematic viscosity at 40° C : 33 to 48 CST 3.2.3 Kinematic viscosity at 20° C : 115 to 210 CST 3.2.4 Density at 15° C : 1.25 Kgs. / Liter 3.2.5 Flash point : 235° C . 3.2.6 Flow : 0.28 Liters per second . 3.2.7 Pressure : 3.3 Bar (Maximum) 3.2.8 Temperature : 70° C (Maximum)					
12/6/04 SIGN & DATE	3.3 MATERIAL :- 3.3.1 Outer shell : Carbon steel equivalent to St42W IS: 2062					
12/6/04 SIGN & DATE	MEMBER PSC QAX TSX सहमत विभाग AGREED DEPT.	नाम N.R. DE S.S. CHAUHAN KISHAN LAL नाम NAME	दिनांक एवं हस्ताक्षर 12/6/04 [Signature] [Signature] दिनांक एवं हस्ताक्षर DATE & SIGNATURE	अनुवादक TRANSLATED BY निर्मापक WORKED BY जांचकर्ता CHECKED BY पर्यवेक्षणकर्ता SUPERVISED BY	नाम NAME - S.G./K.B.B. V.K.GUPTA V.K.GUPTA	दिनांक एवं हस्ताक्षर SIGNATURE & DATE - [Signature] [Signature] [Signature]
12/6/04 SIGN & DATE	स्वीकृति APPROVED : (B.K. BHALLA) AGM (STE) - [Signature]		जारी ISSUED : STE (TL)			
12/6/04 SIGN & DATE	निर्मापक PREPARED : STE		दिनांक DATE : 01-06-2004			
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भारतीय भारती



उत्पाद मानक

**PRODUCT STANDARD
STEAM TURBINE ENGINEERING**

ST22008

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समग्री सूची संख्या को
अनुसंधानकर्ता द्वारा है

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अनुसंधानकर्ता द्वारा है

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स्वत्वाधिकार एवं गोपनीय

इस प्रलेख में दी गई सूचना भारत भारती इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं
अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में सम्पत्तिकारक हो न किया जाए।

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INVENTORY NO

- 3.32 Inner shell : -- do --
3.33 Flange : -- do --
3.34 Gaskets : Viton
3.35 Heater sheathing : Incoloy - 800
3.4 Thermostats:- 3 Nos. thermostats with the following tag Nos.
and setpoints are to be provided for use by BHEL. The thermostat
contacts shall be wired to a terminal strip in the terminal box.
MAX91 CT001 : >65°C
MAX91 CT002 : >75°C
MAX91 CT003 : <50°C

3.5 TERMINAL BOX:-

One 3-Ø feeder will be fed to the heater. A switch fuse unit shall be provided in the terminal box. Distribution of power to three heater banks shall be done through three MCBs provided in the terminal box.

Any heater bank can be switched ON / OFF through the MCB. ON / OFF indication lamp for each bank shall be provided on the terminal box.

2 separate cable glands, one for signal cable from thermostats and one for power cable shall be provided.

4.0 TESTS:-

- 4.1 Each heater assembly shall be subjected to the following routine tests :
- (a) Input measured shall not differ from the rated input by more than 10%.
- (b) Hydraulic test pressure : 7.8 Bar , duration 30 Minutes.
- (c) The insulation resistance when measured with 500 V Meggar shall not be less than 10 Mohms. In hot condition, it shall shall not be less than 2 Mohms.
- (d) The heater shall withstand 1500 V, 50Hz voltage for at least one minute without any flash-over or breakdown.
- (e) Functional test of the thermostats (including hysteresis).

4.2 TYPE TEST:- Degree of protection of Terminal Box.

5.0 INSPECTION:-

Inspection shall be carried out by BHEL and / or their authorised representative.

6.0 DOCUMENTATION TO BE SUPPLIED ALONGWITH OFFER:-

- 6.1 General arrangement drawing of the heater assembly.

REV. NO.
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निर्माणकर्ता
WORKED BY

SG/KBB

6/5/04

6/5/04

जांचकर्ता
CHECKED BY


VKG

6.5.04

6.5.04

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SIGNATURE		उत्पाद मानक		ST22008									
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<p>6.2 Complete general arrangement and cross sectional drawing of the heater assembly and heater element with bill of material .</p> <p>6.3 Technical data sheet.</p> <p>6.4 Heater wiring diagram. *</p> <p>7.0 <u>DOCUMENTATION / TEST CERTIFICATES TO BE SUPPLIED ALONGWITH THE SUPPLY:-</u></p> <p>7.1 Material test cetificates w.r.t. Chemical composition of the materials used in the heater viz element wire, tubes, flanges, cover and shell.</p> <p>7.2 Tests certificates in respect of clause 3.1 to 3.2.</p> <p>8.0 <u>PAINTING AND PACKING:-</u></p> <p>8.1</p> <table border="0"> <tr> <td>Primer</td> <td>- Inorganic Ethyl Zinc Silicate</td> </tr> <tr> <td>Intermediate Coat</td> <td>- Epoxy based TiO2 Pigmented</td> </tr> <tr> <td>Finish Coat</td> <td>- Epoxy based</td> </tr> <tr> <td>Total DFT</td> <td>- 185 Microns minimum</td> </tr> </table> <p>8.2 Each heater assembly shall be wrapped individually in a bubbled polythene sheet and packed in a carton with adequate cushioning material to withstand normal transit risk.</p> <p>9.0 <u>MARKING:-</u></p> <p>9.1 The manufacturer's identification shall be marked permanently and the same shall be mentioned in the test certificates pertaining to it.</p> <p>9.2 A tag bearing the following material code of BHEL shall be attached to each heater. MAX91 AH011</p> <p>9.3 The following details shall be marked on each packing case:</p> <p>(g) Manufacturer's name and Trade mark.</p> <p>(h) BHEL purchase order No.</p> <p>(i) BHEL specification No. ST22008.</p> <p>10.0 <u>GUARANTEE:-</u></p> <p>10.1 The supplier shall guarantee trouble free and satisfactory operation of the equipment for a period of 12 months after the commissioning or for a period of 12 months from the day, the equipment leaves the supplier's works whichever is earlier.</p> <p>11.0 <u>CROSS REFERRED STANDARD:-</u> IS:2062</p>						Primer	- Inorganic Ethyl Zinc Silicate	Intermediate Coat	- Epoxy based TiO2 Pigmented	Finish Coat	- Epoxy based	Total DFT	- 185 Microns minimum
Primer	- Inorganic Ethyl Zinc Silicate												
Intermediate Coat	- Epoxy based TiO2 Pigmented												
Finish Coat	- Epoxy based												
Total DFT	- 185 Microns minimum												
<p>126604</p>													
REVISION NO.	REV. NO.	WORKED BY	SG/KBB	6/5/04	6/5/04								
INVENTORY NO.	P-6299	WORKED BY	VKG	6.5.04									

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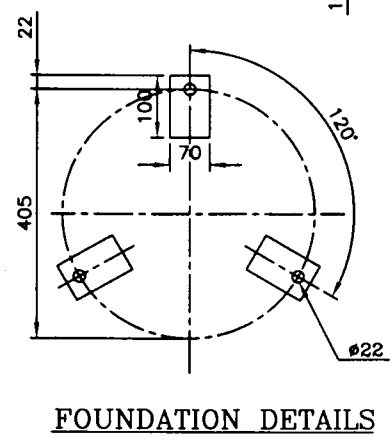
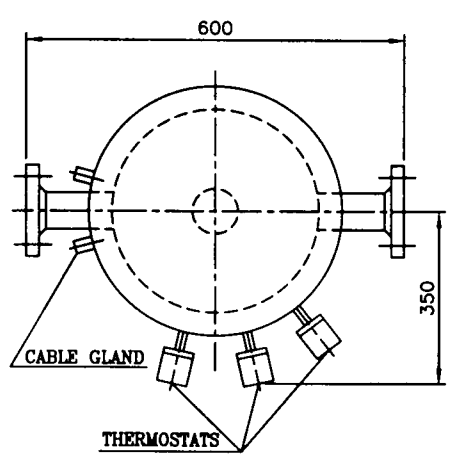
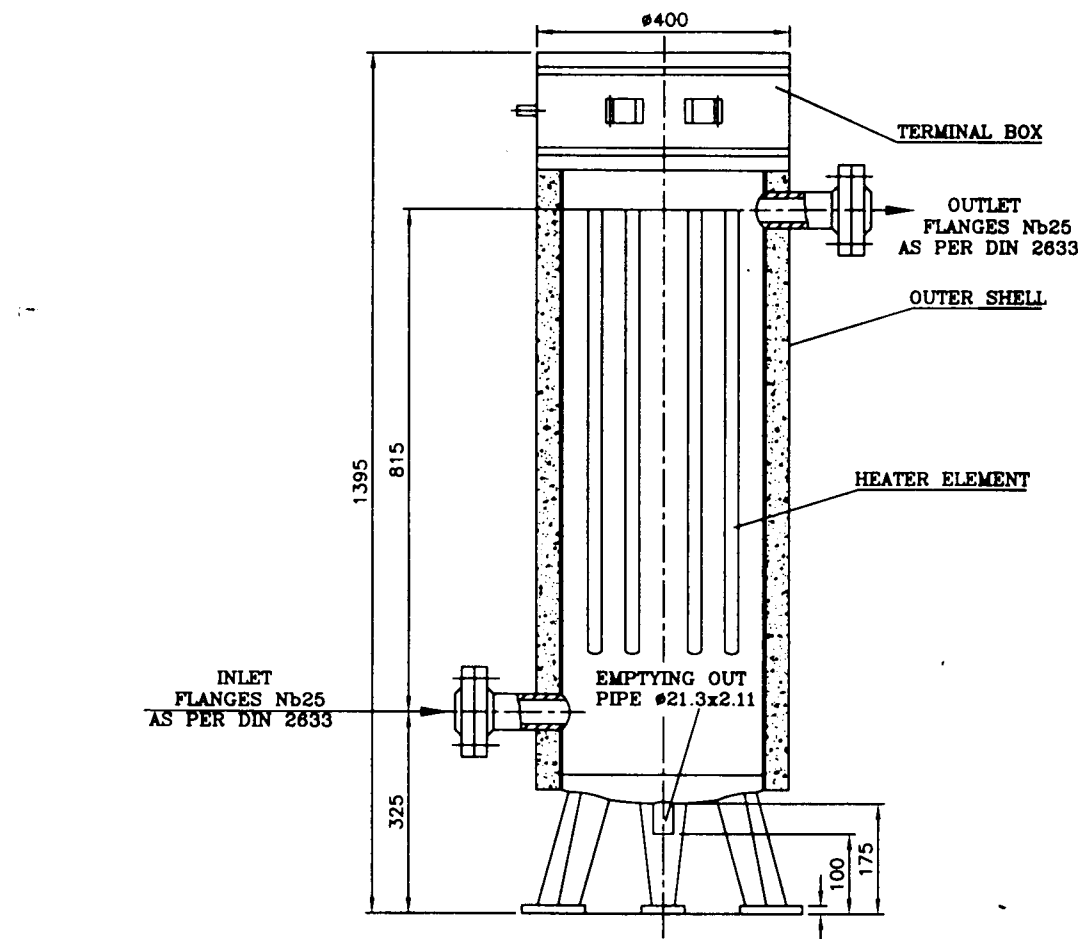
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हस्ताक्षर एवं तिथि
SIGN & DATE

सामग्री सूची संख्या
INVENTORY NO.


REV. NO.
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निर्माणकर्ता WORKED BY	SG/KBB	6/5/04	6/5/04
जांचकर्ता CHECKED BY	VKG	6/5/04	6/5/04

QUALITY PLAN

 QC-178		Q.P. NO. _____ REV _____ SPEC. NO. _____ REV _____ DRG. NO. _____ REV _____						SHEET _____ OF _____ LEGENDS P-Performed by 1-BHEL REP W-Witnessed by 2-Vendor V-Verified by 3-Subvendor				
		SL NO 1	COMPONENT OPERATION 2	CHARACTERISTICS 3	CLASSIFICATION 4	TYPE OF CHECK 5	QUANTUM 6	REFERENCE DOCUMENT 7	ACCEPTANCE NORMS 8	FORMAT OF RECORDS 9	AGENCY <div> P W V </div>	
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NTPC QUALITY PLAN

MANUFACTURERS NAME & ADDRESS: <hr/> <hr/> <hr/>			MANUFACTURING QUALITY PLAN					PROJECT: _____ PACKAGE: _____ CONTRACT NO.: _____ CONTRACTOR: _____						
			ITEM: _____ SUB-SYSTEM: _____				QP NO. _____ REV. _____ DATE: _____ PAGE ____ OF ____							
SL NO.	COMPONENT OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY				REMARKS	
1	2	3	4	5	6	7	8	9	D*	M	C	N	11	
			LEGEND: * RECORDS IDENTIFIED WITH TICK SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUB-CONTRACTOR C: CONTRACTOR NOMINATED INSPECTION AGENCY N: NTPC INDICATE “ P ” PERFORM “ W ” WITNESS AND “ V ” VERIFICATION AS APPROPRIATE “ CHP ” NTPC SHALL IDENTIFIED IN COLUM “ N ”					FOR NTPC USE: <div style="border: 1px solid black; height: 100px; width: 100%;"></div>		DOC NO. <div style="border: 1px solid black; height: 100px; width: 100%;"></div>				
SIGNATURE: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>			CONTRACTOR <div style="border: 1px solid black; height: 40px; width: 100%;"></div>		MANUFACTURER / SUB- CONTRACTOR <div style="border: 1px solid black; height: 40px; width: 100%;"></div>		REVIEWED BY: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>		NAME & SIGN OF APPROVING AUTHORITY & SEAL <div style="border: 1px solid black; height: 40px; width: 100%;"></div>					