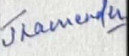
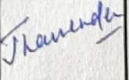


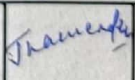
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SUPERSEDES INVENTORY NO.	पृष्ठ 13 का 1 Page 1 of 13																																																		
TURBINE OIL COOLER (Plate Type Heat Exchanger)																																																			
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	1.0 Objective: This standard is prepared to purchase turbine oil cooler (Plate Type Heat exchanger) The nozzle location of same fluid shall be parallel i.e. the inlet and outlet of turbine oil shall be on the same vertical line. (refer sketch 01 & 02).																																																		
स्वत्वाधिकार एवं गोपनीय यस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स लिमिटेड की सम्पत्ति है, इसका प्रयोग एवं प्रकाशन के बिना कम्पनी के हित में हानिकारक हो न सके।	2.0 Scope of supply: 2.1 Plate Type Heat Exchanger complete with following accessories and auxiliaries. (i) Suitable drain and vent connections on both stream side (Turbine oil) and secondary (DM water) with isolation valves. (ii) Supporting arrangement complete with foundation plate channels, anchor bolts, nuts, sleeves, inserts etc. (iii) Lifting arrangement complete with lifting lugs, eye bolts etc. (iv) Other accessories as required to make PHE's complete in all respects. (v) 1 set of gasket as deemed fit with commissioning spares, if any. (vi) Matching piece (reducer/expander) with coatings (as required) to match the PHE nozzle connection with connecting pipe size as indicated in data sheet. (vii) Mandatory spares as applicable for each projects. 2.2 Finish paints in sealed containers for touch up of equipment after erection at Site 2.3 Equipment GA drawings, datasheets, test reports/certificates, instruction manuals for erection operation and maintenance etc.																																																		
दिनांक एवं हस्ताक्षर SIGN & DATE	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">नाम NAME</td> <td style="width:20%; text-align: center;">दिनांक एवं हस्ताक्षर SIGNATURE & DATE</td> </tr> <tr> <td>QAX</td> <td>Manindra kn</td> <td></td> <td>DRAWN</td> <td></td> <td></td> </tr> <tr> <td>TSX</td> <td></td> <td></td> <td>WORKED</td> <td>JHAMENDER KUMAR</td> <td></td> </tr> <tr> <td>महसत विभाग AGREED DEPTT.</td> <td>नाम NAME</td> <td>दिनांक एवं हस्ताक्षर DATE & SIGNATURE</td> <td>CHECKED</td> <td>D K YADAV</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>SUPERVISED BY</td> <td>D K YADAV</td> <td></td> </tr> <tr> <td colspan="3"></td> <td colspan="2">स्वीकृति APPROVED: NAVEEN PRAKASH, AGM (HXE)</td> <td> 20-12-21</td> </tr> <tr> <td>सामग्री सूची संख्या INVENTORY NO.</td> <td>REV. NO. 00</td> <td></td> <td>निर्माण PREPARED: HXE</td> <td>जारी ISSUED: TSX</td> <td>दिनांक DATE:</td> </tr> <tr> <td></td> <td>DL 20-12-21</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE	QAX	Manindra kn		DRAWN			TSX			WORKED	JHAMENDER KUMAR		महसत विभाग AGREED DEPTT.	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	CHECKED	D K YADAV					SUPERVISED BY	D K YADAV					स्वीकृति APPROVED: NAVEEN PRAKASH, AGM (HXE)		 20-12-21	सामग्री सूची संख्या INVENTORY NO.	REV. NO. 00		निर्माण PREPARED: HXE	जारी ISSUED: TSX	दिनांक DATE:		DL 20-12-21				
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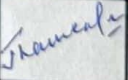
निम्न एवं हस्ताक्षर SIGN & DATE SUPERSEDES INVENTORY NO. मासिक सूची संख्या को अतिरिक्त करना है		PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075	
				पृष्ठ 13 का 2 Page 2 of 13	
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		3.0 Designation 3.1 The Turbine oil cooler shall be designated as below 3.1.1 ON DRAWINGS AND INDENTS Material specification column: HE 57075 Description column : Turbine Oil Cooler (PHE) 3.1.2 ON ENQUIRIES AND PURCHASE ORDER In addition to incorporating the above detail a copy of this product standard shall be enclosed along with enquiry.			
		4.0 Codes and Standards: This standard is not based on any standard. Details have been taken from supplier's approved design.			
स्वयंसेविका एवं मोनोनीय इस प्रयोग में दी गई सूचना भारत हेवी एलेक्ट्रिकल्स लिमिटेड की सम्पत्ति है, इसका प्रयोग एवं अपव्यवहार के बिना या बिना की कम्पनी के लिखित से अनुमति के बिना न किया जाय।		5.0 Technical Requirements 5.1 The construction shall be as per figure (sketch 1 & 2). 5.2 Construction of heat exchanger Heat transfer plates shall be packed in a frame consisting of fixed frame plate and movable pressure plate and aligned at top and bottom of carrying bars. Design shall be such that cleaning is possible without dismantling the piping Heat transfer plates shall be sealed at their outer edges and around the ports and gaskets in order to prevent leakage and inter-mixing of fluids. Double sealing arrangement shall be provided at outer edge and around ports. The inter space between the seals shall be vented to atmosphere in order to avoid inter-mixing of liquids in case of gasket failure.			
		निम्न एवं हस्ताक्षर SIGN & DATE			
मासिक सूची संख्या INVENTORY NO.	REV. NO: .00	निर्माणकर्ता WORKED BY	JHAMENDER KUMAR		20.12.21
		जांचकर्ता CHECKED BY	D KYADAV		20.12.21

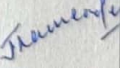
दिनांक एवं हस्ताक्षर SIGN & DATE			PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075 पृष्ठ 13 का 3 Page 3 of 13
सामग्री सूची संख्या INVENTORY NO.		SUPERSEDES INVENTORY NO.	The gasket arrangement shall be such that it receives continuous support to ensure a long gasket life. The gasket should be able to retain its properties and shape over a life period of 10 years. Heat transfer plates shall be provided with sufficient thickness in order to impart sufficient rigidity to the plates particularly from handling considerations. Plates shall have contact points in order to provide inter plates support. The recesses on the plates are suitably strengthened by a reinforcement plate. Plate thickness shall be adequate to withstand all operating conditions as specified in data sheet furnished after placement of order enquiry. Thickness of pressure and frame plates shall be as per ASME Sect VIII div.1. Extra capacity of 30% over and above required margin for additional plates shall be provided in frame. Each plate shall be numbered in sequence. The number shall be marked by indelible ink on the plate to permit easy reassembly. The plates shall be pressed from one piece. They shall be pressed in single/ progressive manner. The corrugation shall be smooth, uniform, and identical for every plate. The PHE bottom frame plate and support should have fixing jigs and cleats to keep provision for enabling to fit through with outlet nozzle fitted underneath to collect and drain water in the event of leakages.		
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स्वत्वधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी एलेक्ट्रिकल्स लिमिटेड की सम्पत्ति है। इसका प्रयोग एवं प्रसारण रूप से किसी भी तरह प्रयोग जो कि कंपनी के हित में हानिकारक हो न किया जाए।					
दिनांक एवं हस्ताक्षर SIGN & DATE					
सामग्री सूची संख्या INVENTORY NO.	REV. NO: .00		निर्माणकर्ता WORKED BY	JHAMENDER KUMAR	 20.12.21
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SIGNATURE & DATE SIGN & DATE		PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075		
				पृष्ठ 13 का 4 Page 4 of 13		
SUPERSEDES INVENTORY NO.	नाम की सूची संख्या की अधिकतम संख्या है	Frame for each of heat exchanger shall have extra capacity to accommodate the additional plates. The upper carrying bar and lower guide bar shall be rigid in construction without any risk of sagging or buckling and shall facilitate easy guiding of the plates. The nozzle sizes of primary/secondary streams of PHE's shall be of adequate size within acceptable range of velocity. The size selection shall be subject to approval in the event of order If necessary, relief valves shall be provided on both the streams. 5.3 Technical Data Material plates and connection : ASTM A240TYPE as per enquiry Material gasket : Neoprene, Non-glued Data Sheet : <i>AS PER PROJECT SPECIFIC DESIGN INPUT</i>				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		स्वामित्व अधिकार एवं गोपनीय इस दस्तावेज में दी गई जानकारी भारत भारती लिमिटेड की सम्पत्ति है इसका प्रयोग एवं प्रकाशक रूप से किसी भी तरह प्रयोग को कि कंपनी के हित में हानिकारक हो न किताब आए।				
SIGNATURE & DATE SIGN & DATE						
INVENTORY NO.	REV. NO: .00	निर्माणकर्ता WORKED BY	JHAMENDER KUMAR	<i>Jhamender</i>	20.12.21	
		जांचकर्ता CHECKED BY	D K YADAV	<i>DK</i>	20.12.21	

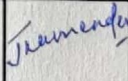
दिनांक एवं हस्ताक्षर SIGN & DATE		PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075 पृष्ठ 13 का 5 Page 5 of 13	
मासगी सूची संख्या INVENTORY NO.	6.0 Quality Assurance, Inspection and Testing 6.1 The Manufacturer shall conduct all tests required to ensure that all the major component of the cooler offered confirm to the requirements of the specification and is in compliance with requirements of applicable codes and standards. 6.2 The bidder shall submit quality plan along with his offer. 6.3 The particular of proposed shop tests and procedures for the test shall be Submitted to BHEL/owner for approval along with quality plan. 6.4 The minimum tests /checks to be carried out on the cooler as envisaged by BHEL are given below. This is however not intended to form a comprehensive testing program, as it is supplier responsibility to prepare the detailed quality plan, which also include tests/checks carried out by supplier as a part of his normal practice. This quality plan is subject to the approval of BHEL /owner and BHEL/owner reserve to right to ask for any more checks at the time of quality plan finalization. 6.4.1 Testing of material: The material of major component shall be tested as per relevant specification for its chemical composition and mechanical properties viz. Y.S, UTS, Impact, % age elongation. Suitable NDT to ensure freedom from surface and subsurface defect shall be carried out. Plate material used for pressing shall be furnished with mill test report showing chemical and physical properties and heat treatment records. The following tests shall be carried out during various stages of manufacturing at Manufacturer's works. 6.4.1.1 All the component parts of the cooler including assembly shall be subjected to dimensional and visual inspection. After pressing visual and dimensional checks on the plates shall be made in the presence of BHEL's inspector, on sampling basis.				
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स्वत्वधिकार एवं गोपनीय यस प्रत्येक में बी.एल. भारत हेवी इलेक्ट्रिकल्स लिमिटेड की संपत्ति है। इसका प्रयोग एवं प्रसारण के बिना बी.एल. भारत हेवी इलेक्ट्रिकल्स लिमिटेड की अनुमति के बिना न किया जाय।					
दिनांक एवं हस्ताक्षर SIGN & DATE					
मासगी सूची संख्या INVENTORY NO.	REV. NO: .00		निर्माणकर्ता WORKED BY	JHAMENDER KUMAR	 20.12.21
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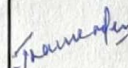
दिनांक एवं हस्ताक्षर SIGN & DATE				PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075			
सामग्री सूची संख्या INVENTORY NO		SUPERSEDES INVENTORY NO				पृष्ठ 13 का 6 Page 6 of 13			
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company				6.4.1.2 Heat transfer plates shall be subjected to light box test/ vacuum test as per agreed procedure.					
				6.4.1.3 Fillet welds shall be subjected to 100% DPT as per ASME Section VIII. Butt welds if any shall be subjected to 10% RT as per ASME Section VIII.					
				6.4.1.4 Hydraulic test for PHE's shall be performed at 1.5 times the design pressure with 30 minutes holding time for each side. No leak is permitted.					
				The pressing of HT plates shall be carried out in one operation.					
				100% PMI inspection for material grade of PHE heat transfer plates from BHEL nominated third party and certificate shall be submitted for review of BHEL.					
स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत भारती एलेक्ट्रिकल्स लिमिटेड की संपत्ति है, इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाय।				BHEL reserves the right to conduct random and independent PMI inspection on PHE'S heat transfer plates to ascertain the plate material.					
				6.5 Bidder shall furnish the procedure for white light scanning method during detailed engineering viz. after award of contract which shall be subjected to BHEL/ customer approval.					
दिनांक एवं हस्ताक्षर SIGN & DATE				Inspection of plate area measurement for one heat transfer plate per PHE by white light scanning shall be from BHEL nominated third party, same shall also be witnessed by BHEL. No type test certificates are acceptable to BHEL for same.					
सामग्री सूची संख्या INVENTORY NO.		REV. NO: .00		निर्माणकर्ता WORKED BY		JHAMENDER KUMAR		 20.12.27	
				जांचकर्ता CHECKED BY		D K YADAV		 20.12.21	

दिनांक एवं हस्ताक्षर SIGN & DATE			PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075
सामग्री सूची संख्या INVENTORY NO		SUPERSEDES INVENTORY NO	पृष्ठ 13 का 7 Page 7 of 13		
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		Bidder to note that heat transfer area measured by white light scanning during contract stage should not have negative tolerance more than 3% w.r.t to the heat transfer area indicated by bidder against the offered mode of PHE. However, in the case of negative tolerance (limited to maximum 3%). Bidder has to provide additional plates proportionately, as free issue assembled into all the applicable PHE'S before the final inspection and as built certificate shall be issued by the bidder accordingly. Bidder to note that negative tolerance beyond three percent shall not be accepted. 6.6 The heat transfer plates from each lot of the plates shall be tested by liquid/dye penetrant test in order to check for cracks and other surface defects in presence BHEL/BHEL nominated third party If any defect is detected in any of these plates, the whole lot shall be tested and plates without defects only shall be accepted. Plate cleaning agent, liquid penetrant and developer shall not contain any halogen. 6.7 The heat transfer plates shall be tested by light box in order to check for cracks and other surface defects in presence of BHEL/BHEL nominated Third party. The plates without defects only shall be accepted. Gaskets: Certificate on chemical composition of the gasket material shall be furnished to prove the quality sample testing in presence of BHEL's inspector, if desired. Shore hardness test shall be conducted on the gasket and certificate shall be furnished. Visual and dimensional check on a sampling basis shall be done. Plates and gaskets assembled together will be inspected for proper assembly. Frame assembly: All materials for various components of frame assembly viz. frame plate, pressure plate, carrying bar, guide bar, tightening/clamping bolts and nuts etc. shall be tested quality and test certificates for chemical composition and physical properties shall be furnished			
स्वत्वाधिकार एवं गोपनीयता इस प्रलेख में दी गई सूचना भारत हिंदी एलेक्ट्रिकल्स लिमिटेड की संपत्ति है इसका प्रयोग एवं अवलोकन केवल से निम्नी ओ तहत प्रयोग हो कि निम्नी के हित में हानिकारक हो न किता					
दिनांक एवं हस्ताक्षर SIGN & DATE					
सामग्री सूची संख्या INVENTORY NO	REV. NO: 00		निर्माणकर्ता WORKED BY	JHAMENDER KUMAR	 20.12.21
			जांचकर्ता CHECKED BY	D K YADAV	 20.12.21

दिनांक एवं हस्ताक्षर SIGN & DATE			PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075
सामग्री सूची संख्या INVENTORY NO.		SUPERSEDES INVENTORY NO.	If the thickness of the plates used for frame and pressure plates is 40mm or more the same shall be checked ultrasonically to demonstrate the absence of lamination and lack of fusion etc. All weld joints used for fabrication of heat exchangers shall be subjected to suitable nondestructive examination. This shall include 100% magnetic particle examination or other suitable NDT of all welds.		
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.			7.0 INSPECTION The cooler shall be inspected by BHEL/CUSTOMER representative at the supplier works and stamped with BHEL/CUSTOMER QC seal. 8.0 TESTS AND GUARANTEE CERTIFICATES Five copies of the following certificates shall be furnished for each cooler along with the supply. a) Hydro test certificates including hydraulic test result as per clause 6.0 above. b) Material test certificates of body sealing, pipe and all other major component. This shall include chemical composition, mechanical properties etc. c) Dimensional report and NDT reports. d) The supplier shall guarantee the satisfactory operation of the cooler for a period of 18 month of operation after commissioning or 36 month of date of supply whichever is later.		
स्वत्वधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स लिमिटेड की संपत्ति है। इसका प्रसारण एवं प्रयोग के बिना इस दस्तावेज को नष्ट करने से निषेध है।					
दिनांक एवं हस्ताक्षर SIGN & DATE					
सामग्री सूची संख्या INVENTORY NO.	REV. NO: .00		निर्माणकर्ता WORKED BY	JHAMENDER KUMAR	 20.12.21
			जांचकर्ता CHECKED BY	D K YADAV	 20.12.21

दिनांक एवं हस्ताक्षर SIGN & DATE			PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075
सामग्री सूची संख्या INVENTORY NO.	SUPERSEDES INVENTORY NO.	9.0 <u>SUPPLY OF TECHNICAL DOCUMENTATION</u> 9.1 The following documents shall be submitted along with quotation for technical scrutiny in 2 copies each a) Catalogue and detailed literature including cross-sectional and assembly drawing of the cooler stating all necessary dimensions, design and test Pressure details, material details of all component parts etc. b) Calculation for cooler sizing. Technical data like element capacity, total number of plates, heat exchanger area, cooling water flow rate, cooling water pressure drop, cooling water outlet temperature, oil pressure drop etc shall be furnished. c) O & M manual of the cooler giving complete description installation, operation, maintenance feature including trouble shooting. d) List of recommended spares along with item wise price. The tenderer shall submit during contract stage a curve showing expected Turbine Oil (primary side) temperature at heat exchanger outlet for each one-degree centigrade variation in DM water (secondary stage) temperature, all other parameters remaining unchanged. Similar curve for expected Oil temperature outlet temperature for variation of DM water flow rate with DM water inlet temperature remaining unaltered shall also be furnished. The bidder shall also furnish various curves to enable apply corrections during site PG testing in the event of any data variation from the stipulated design parameters Bidder shall also furnish thermal design calculations at contract stage to justify the no. of plates offered.			
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स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी एलेक्ट्रिकल्स लिमिटेड की सम्पत्ति है, इसका प्रयोग एवं प्रकाशन अन्य से किसी भी तरह प्रयोग जो कि सम्पत्ती के हित में हानिकारक हो सकेगा, नहीं।					
दिनांक एवं हस्ताक्षर SIGN & DATE					
सामग्री सूची संख्या INVENTORY NO.	REV. NO.: 00		निर्माणकर्ता WORKED BY	JHAMENDER KUMAR	<i>Jhamender</i> 20.12.21
			जांचकर्ता CHECKED BY	D K YADAV	<i>DKY</i> 20.12.21

दिनांक एवं हस्ताक्षर SIGN & DATE		PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075	
				पृष्ठ 13 का 10 Page 10 of 13	
मासिकी सूची संख्या को INVENTORY NO.	9.2 10 copies of Operation & Maintenance Manual of the Cooler giving complete description, installation operation and maintenance features including trouble shooting, conservation list of spares etc. and assembly drawing of the cooler. This shall be in bound form and shall be supplied with in four weeks' after placement of order.				
SUPERSEDES INVENTORY NO.	10.0 PAINTING Unless otherwise specified the cooler shall be painted as per supplier's standard. Total paint thickness shall be between 120-150 micron.				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	11.0 MARKING 11.1 BODY MARKING The following markings shall be integral with the body. a) Manufacturer's name or trade mark. b) Design heat load c) Design pressure (NP) d) Nominal flow e) Inlet/ outlet marking for primary & secondary flows. f) Body material designation.				
स्वतंत्राधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत भारती एलईएच लिमिटेड की संपत्ति है। इसका प्रयोग एवं प्रसारण अन्य से किसी भी तथ्य प्रयोग को कि कंपनी के हित में हानिकारक हो न किताव।	11.2 MARKING ON THE NAME PLATE A nameplate giving the following detail shall be suitably fixed to the cooler. a) Manufacturer's name or trade mark b) SI. No. of cooler c) Year of manufacture d) Material specification of body e) Nominal flow f) Nominal pressure g) No. of element h) B.H.E.L material code no.				
दिनांक एवं हस्ताक्षर SIGN & DATE					
मासिकी सूची संख्या INVENTORY NO.	REV. NO: 00	निर्माणकर्ता WORKED BY	JHAMENDER KUMAR		20.12.21
		जांचकर्ता CHECKED BY	D K YADAV		20.12.21

दिनांक एवं हस्ताक्षर SIGN & DATE		PRODUCT STANDARD HEAT EXCHANGER ENGINEERING		HE 57075		
				पृष्ठ 13 का 11 Page 11 of 13		
सामग्री सूची संख्या को अधिकांशित करता है	SUPERSEDES INVENTORY NO.	11.3 A tag bearing the material code of BHEL shall be attached to each cooler. 11.4 Marking of the packing case a) Manufacturer's name or trade mark b) B.H.E.L order No. c) BHEL product standard No.				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		12.0 PACKING Each cooler shall be drained, cleaned and packed in such a way as to avoid the possibility of damage to inside and outside parts during storage and transit. Opening should be covered to exclude dirt and other foreign material. Threaded and mechanical surfaces shall be well covered with an approved rust preventive material				
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में की गई सूचना भारत की एलेक्ट्रिकल लिमिटेड की संपत्ति है, इसका प्रयुक्त एवं प्रसारण अन्य से किसी भी तरह प्रयोग, जो कि समती के हित में हानिकारक हो न सिका जाय।		दिनांक एवं हस्ताक्षर SIGN & DATE				
सामग्री सूची संख्या INVENTORY NO.	REV. NO: .00	निर्माणकर्ता WORKED BY	JHAMENDER KUMAR		20.12.21	
		जांचकर्ता CHECKED BY	D K YADAV		20.12.21	

view-A

OIL COOLER LEFT

VAR 00

OIL COOLER RIGHT

VAR 01

SKETCH -01

Dimensions shown in sketch 1 are of Indicative nature only

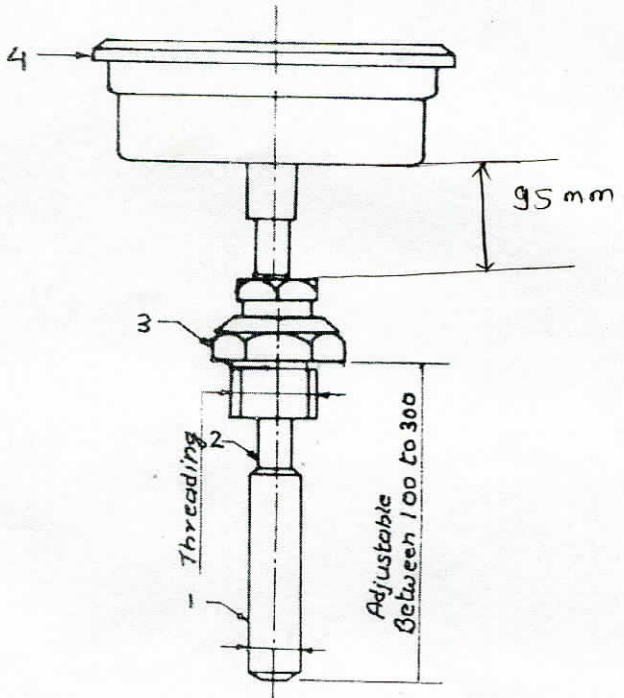
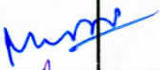
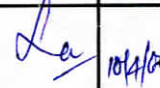
Dimensions shown in sketch 1 are of Indicative nature only

सामग्री सूची संख्या INVENTORY NO.	दिनांक एवं हस्ताक्षर SIGN & DATE						
	REV. NO: .00		निर्माणकर्ता WORKED BY	JHAMENDER KUMAR		20.12.21	
			जांचकर्ता CHECKED BY	D K YADAV		20.12.21	

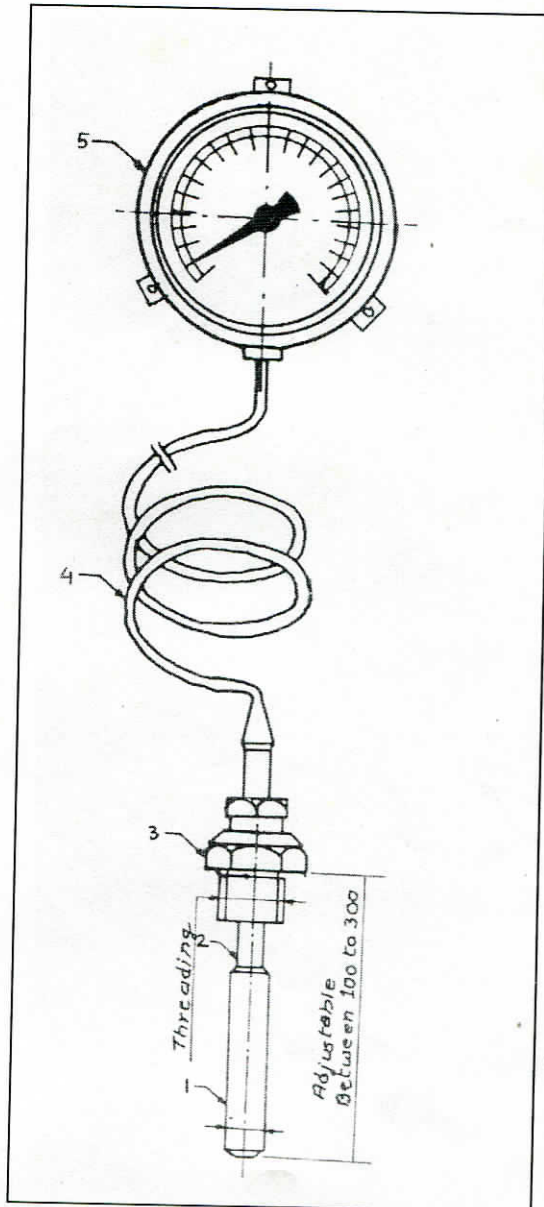
सातवीं सूची संख्या INVENTORY NO.	REV. NO.: 00	निर्माणकर्ता WORKED BY JHAMENDER KUMAR	जांचकर्ता CHECKED BY D K YADAV	20.12.21	20.12.21	HE 57075
						पृष्ठ 13 का 13 Page 13 of 13
PRODUCT STANDARD HEAT EXCHANGER ENGINEERING						
मी एच ई एल MEEEL						
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company						
SKETCH - 02 Dimensions shown are of indicative nature only						

दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद मानक PRODUCT STANDARD	HE57018 पृष्ठ 5 का 1 Page 1 of 5																					
SUPERSEDES INVENTORY	<u>INERT GAS ACTUATED DIAL THERMOMETER</u>																							
COPYRIGHT AND CONFIDENTIAL The information on this documents 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	1.0 <u>SCOPE :</u> 1.1 This standard specifies the requirements of inert gas actuated dial thermometer for power plant application. 1.2 This standard shall be supplemented by AA0851410, technical delivery conditions for temperature measuring instruments, dial type. 2.0 <u>COMPLIANCE WITH STANDARDS :</u> The thermometer shall generally comply with BS: 5235 (Dial type expansion thermometer). 3.0 <u>TYPE OF THERMOMETER :</u> 3.1 This standard covers three types of thermometers. TYPE A : Direct mounting, vertical having bottom entry stem. TYPE B : Direct mounting, co-axial having back entry stem. TYPE C : Capillary type, surface mounting with bottom entry. 4.0 <u>DESCRIPTION :</u> A direct mounting inert gas actuated co-axial dial thermometer, to this standard, of range 0 to 80° C, dial size 150 mm and threading connection size M20x1.5 shall be designated on the indents as follows : (A) Material specification column : HE57018 (B) Description column : THERMOMETER INERT GAS ACTUATED, M20X1.5 TYPE -B (C) Size column : RANGE 0 TO 80° C.																							
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दिनांक एवं हस्ताक्षर SIGN & DATE	नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE																						
अनुवादक TRANSLATED BY																								
निर्माणकर्ता WORKED BY	M.K.LAHOTI																							
जांचकर्ता CHECKED BY	M.K.LAHOTI																							
पर्यवेक्षणकर्ता SUPERVISED BY	L.KISHORE																							
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निर्माण PREPARED : HXE	जारी ISSUED : TSX	दिनांक DATE : 08.04.06																						
संपत्ति सूची संख्या INVENTORY NO. P-6021	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%; text-align: center;"> सहमत विभाग AGREED DEPTT </td> <td style="width:10%; text-align: center;"> नाम NAME </td> <td style="width:10%; text-align: center;"> दिनांक एवं हस्ताक्षर DATE & SIGNATURE </td> </tr> <tr> <td style="text-align: center;"> WORKED BY </td> <td>GULSHAN</td> <td></td> </tr> <tr> <td style="text-align: center;"> CHECKED BY </td> <td>DEEPAK KR.</td> <td></td> </tr> <tr> <td style="text-align: center;"> REV.NO. 02 </td> <td>REAFFIRMED</td> <td>Year 2021</td> </tr> <tr> <td style="text-align: center;"> Dt 19.04.15 </td> <td>CA No. HXE-</td> <td>21-03</td> </tr> </table>			सहमत विभाग AGREED DEPTT	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	WORKED BY	GULSHAN		CHECKED BY	DEEPAK KR.		REV.NO. 02	REAFFIRMED	Year 2021	Dt 19.04.15	CA No. HXE-	21-03						
सहमत विभाग AGREED DEPTT	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE																						
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REV.NO. 02	REAFFIRMED	Year 2021																						
Dt 19.04.15	CA No. HXE-	21-03																						

दिनांक एवं हस्ताक्षर SIGN & DATE				उत्पाद मानक PRODUCT STANDARD		HE57018	
सामग्री सूची संख्या को INVENTORY NO.		सामग्री सूची संख्या INVENTORY NO.		पृष्ठ 5 का 2 Page 2 Of 5			
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.		4.1 On enquiries and purchase orders : In addition to incorporating the above details, a copy of this standard and TDC Standard no. AA0851410 shall be enclosed. 5.0 <u>TECHNICAL REQUIREMENT :</u> 5.1 Dial size : 150 mm. 5.2 Range and connection size : As specified in purchase order. 5.3 Capillary (Refer thermometer type-C): Shall be stainless steel armored capillary tubing. Length of capillary 5 meters. 6.0 <u>INSPECTION :</u> 6.1 Inspection and testing shall be done as per CL. 5.0 of AA0851410. 6.2 Test certificates shall be supplied as per CL. 6.0 of AA0851410. 7.0 <u>GENERAL REQUIREMENT :</u> Constructional features, guarantee, document, packing, marking etc. shall be as given in standard AA0851410. 8.0 <u>REFERRED STANDARDS :</u> (i) BS : 5235 (ii) AA0851410					
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए।		दिनांक एवं हस्ताक्षर SIGN & DATE 28/11/06					
सामग्री सूची संख्या INVENTORY NO. P-6021		REV.NO. 02		निर्माणकर्ता WORKED BY M.K.LAHOTI			
				जांचकर्ता CHECKED BY L.KISHORE			
						10/11/06	

दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद मानक PRODUCT STANDARD		HE57018 पृष्ठ 5 का 4 Page 4 Of 5	
SUPERSEDES INVENTORY सामग्री सूची संख्या को					
COPYRIGHT AND CONFIDENTIAL The information on this documents 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					
स्वत्वधिकार एवं गोपनीय इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए।		TYPE -B			
INVENTORY NO. P-6021	REV.NO. 02		निर्माणकर्ता WORKED BY	M.K.LAHOTI	
			जांचकर्ता CHECKED BY	L.KISHORE	

PRODUCT STANDARD



TYPE - C

- 1- BULB
- 2- STEM
- 3- ADJUSTABLE GLAND
- 4- CAPILLARY
- 5- DIAL

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स्वत्वाधिकार एवं गोपनीय

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

दिनांक
रस्ताधार एवं

सामग्री सूची संख्या
INVENTORY NO.

REV.NO.

0.2

निर्माणकर्ता

WORKED BY

M.K.LAHOTI

जांचकर्ता

CHECKED BY _____

L.KISHORE

10/4/00

डॉक्यूमेंट सर्वर पर मौजिब कर दी गई है। DOCUMENT RELEASED FROM SERVER/CTA			हस्ताक्षर दिनांक SIGN & DATE			डॉक्यूमेंट सर्वर पर जमा कर दी गई है। DOCUMENT DEPOSITED IN SERVER			हस्ताक्षर दिनांक SIGN & DATE			संशोधन प्रपत्र CHANGE ADVICE FORM																													
			संशोधन सूचना संख्या CHANGE ADVICE NO.			उत्पाद का प्रकार TYPE OF PRODUCT			जीएमएस/जीआरएसपी/सीबीएम संख्या GMS / GRSP / CBOM No.			मुद्रण दिनांक PRINT DELIVERY DATE			स्वीकृतिकर्ता APPROVED BY																										
(1)			(2)			(3)			(4)			(5)			(6)																										
HXE-21-03			HXE			Inert Gas activated dial thermometer.																																			
आधिकार्य दस्तावेज सं. DESIGNATION (DRAWING No.etc) (7)			संशोधित पृष्ठ संख्या REV. NO.			संशोधन का कारण कोड CODE FOR REASON OF CHANGE			संशोधन का विवरण DETAILS OF REVISION			प्रसार्य मद संख्या CHARGEABLE HEAD NO.			संशोधन का विवरण DETAILS OF REVISION																										
ROUTE (7a)			(8)			(9)			(10)			जैसा है AS IT EXISTS			(11)			जैसा होना चाहिए AS IT SHOULD BE			(12)																				
HE57018			-			3												Standard reaffirmed without any changes.																							
CODES FOR REASON OF CHANGES:- 01- ENGINEERING ERROR INCLUDING D.O. ERRORS, 02- DESIGN UPGRADATION (INCLUDING ADDITION OF VARIANT), 03- DESIGN REVIEW INCLUDING CHANGES DUE TO CHANGE ADVICE IN OTHER DOCUMENTS, 04- TO MEET MANUFACTURING REQUIREMENTS, 05- TO MEET TECHNOLOGICAL MODIFICATIONS, 06- TO SUIT CUSTOMER DEMANDS, 07 TO SUIT STATUTORY REQUIREMENTS, 08 TO REPLACE DAMAGED/ TURN OUT ORIGINALS BY A FRESH ORIGINALS, 09- ANY OTHER																																									
AGREED सहमति															(20)																										
निर्माणकर्ता WORKED BY			नाम NAME			हस्ताक्षर SIGN			दिनांक DATE			आभियांत्रिकी ENGG.			प्रौद्योगिकी TECHNOLOGY			व्यवस्थिति QUALITY			विभाग एवं दूर J & T DEPTT.			वेल्डिंग प्रौद्योगिकी WELDING TECHNOLOGY			केन्द्रीय संयंत्र प्रयोग CPL			अन्य विभाग OTHER DEPTT.											
जांचकर्ता CHECKED BY			नाम NAME			हस्ताक्षर SIGN			दिनांक DATE			निरस्तारणकर्ता RELEASED BY			निरस्तारण STANDARDS (21)			जारी कर्ता ISSUED BY			जारी कर्ता CTA			प्राप्त कर्ता RECEIVED BY			प्राप्त कर्ता STANDARDS (23)			प्राप्त कर्ता RECEIVED BY			प्राप्त कर्ता CTA								
(17)			Gulshrin Chaudhary			28.06.21																																			
(18)			Deepak Kumar			28.06.21																																			
मानक नियंत्रण STD. CONTROL			(19)																																						
विवरण के लिए देखें मानक संख्या HW0425199, (FOR DETAILS REFER PLANT STANDARD HW0425199)																																									