





















दिनांक एवं तिथि SIGN & DATE		उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)		TG60729	
				पृष्ठ 22 का 1 Page 1 of 22	
SUPERSEDES INVENTORY NO.	<u>OWN EXPERIENCE</u>				
मशीन/पैकी मशीन को पहचानने के लिए	STATOR WATER PUMP WITH AC MOTOR				
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.	1.0 SCOPE This standard covers the requirements of design, manufacture, testing and delivery of horizontal spindle single stage centrifugal pumps along with motor, coupling, coupling guard base plates, foundation bolts etc. (refer Table-1) for supplying demineralized water (D.M) to stator winding. Equipment shall be suitable for power station duty.				
	2.0 APPLICATION : Primary water pump is used for supplying D.M water to stator winding of water cooled Generators. The pump motor set shall be suitable for ambient temperature of 50°C and working temperature of 75°C.				
	3.0 DESIGNATION : A primary water pump with AC motor & specification shall be designated as below:-				
	3.1 On drawings and Indents (Computerized): a. Material and specification column. TG60729 b. Description column: PW pump with AC Motor. c. Material code Column : W90415302390				
स्वत्व अधिकार एवं गोपनीय इस दस्तावेज में दी गई जानकारी भारत भारती नॉन्फिरेसियस लिमिटेड की संपत्ति है तथा इसका उपयोग केवल भारत भारती नॉन्फिरेसियस लिमिटेड के ही उपयोग के लिए ही किया जा सकता है अन्य किसी भी उद्देश्य के लिए नहीं किया जा सकता है।	3.2 On Enquiries and purchase orders: In addition to incorporating the above information a copy of this product standard shall be enclosed.				
	4.0 TECHNICAL REQUIREMENTS (EXCLUDING MOTOR) 4.1 Technical Data				
		a. Liquid to be pumped		- De-mineralized water.	
		b. Working temperature		- 75°C.	
		c. Discharge		- Refer Table-1	
		d. Head		- Refer Table-1	
		e. Suction		- Flooded.	
		f. Type of pump		- Centrifugal.	
		g. Dimensional Details		- Refer Table-1	
दिनांक एवं तिथि SIGN & DATE 17/11/18	TSX PSC MEMBER QAX	D. GARGUWA R. K. Sharma VIBHUTISUNJ	अंग्रेजी में TRANSLATED BY WORKED BY	नाम NAME Jagdeesh Chauhan	दिनांक एवं तिथि SIGNATURE & DATE 18/12/17
	सहमत विभाग AGREED DEPT EME	नाम NAME Jagdeesh	दिनांक एवं तिथि DATE & SIGNATURE 16/12/18	जांचकर्ता CHECKED BY Pratibha Gupta	पर्यवेक्षणकर्ता SUPERVISED BY R. L. Vyas
मशीन/पैकी मशीन INVENTORY NO. P-6449	EME EME REV. NO. Date CHANGE ADVICE NO.	Jagdeesh Pratibha 07 08/12/25 TGE-25-23	स्वीकृति APPROVED: RAKESH KUMAR (AGREED) 16-1-2018	निर्माण PREPARED : TGE	जारी ISSUED: TSX
				दिनांक DATE : 09.04.2014	Gr. NO. 2.83





SIGN & DATE 05/11/19		उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	TG60729 पृष्ठ 22 का 2 Page 2 of 22								
SUPERSEDES INVENTORY मशीन की संख्या में परिवर्तन	<p>4.2 Constructional Features</p> <ul style="list-style-type: none"> i. The pump shall be such that the complete rotating assembly can be withdrawn without disturbing the pipe connections. ii. The design of pump shall be of split casing type, self-venting, volute open with integral cast feet end suction nozzle and top discharge nozzle. iii. The impeller shall be closed radial impeller statically and dynamically balanced with valves to relieve pressure on stuffing box. iv. The pumps shall be supplied with mechanical seals of reputed make such as Crane, Dura metallic, Eagle Bergmann or equivalent approved make. v. The shaft should be guided between the two oil lubricated ball bearings. Constant level oilers shall be fitted to all bearing housings. vi. The pump shall be single stage centrifugal pump & horizontal mounting type. vii. Spacer type flexible coupling shall be provided so that motor need not be removed from the base plate. The coupling shall be designed to facilitate easy alignment. viii. The pump shall have a rising head vs. discharge characteristic up to the shut off head. ix. The pump shall be designed to comply in respect with the requirements of latest addition ISO 5199/ISO 2858/ DIN 24256. 										
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.	<p>4.3 Material specification of the pump</p> <p>4.3.1 All the components coming in contact with the water shall be made of 18-10Chrome Nickel Molybdenum stainless steel AISI 316/1.4541 as per DIN standard or equivalent or better material.</p> <p>4.3.2 The pump body and impeller casting shall be of A743 Gr. CF8M as these are critical components of the primary water pump.</p> <p>4.3.3 Shaft shall be of stainless steel AISI316/1.4541 as per DIN standard or equivalent approved material.</p> <p>4.3.4 Bidder shall furnish a cross-sectional drawing of pump indicating its various components and its material of construction along with make.</p>										
स्वत्वधिकार एवं गोपनीय यह दस्तावेज बी.एच.ई.एल. की संपत्ति है। इसमें उल्लेखित जानकारी को बिना अनुमति के किसी भी प्रकार का उपयोग नहीं किया जानना चाहिए।	<p>4.4 Proper alignment of pump and motor set is to be done at supplier's end. Further supplier to ensure that there is no misalignment of pump and motor set during transportation. If misalignment occurs, then correction shall be in supplier's scope.</p>										
SIGN & DATE 05/11/19	REV. NO. 07		<table border="1"> <tr> <td>निर्माणकर्ता WORKED BY</td> <td>Jagdeesh Chauhan</td> <td></td> <td>02/11/19</td> </tr> <tr> <td>जांचकर्ता CHECKED BY</td> <td>Pratibha Gupta</td> <td></td> <td>02/11/19</td> </tr> </table>	निर्माणकर्ता WORKED BY	Jagdeesh Chauhan		02/11/19	जांचकर्ता CHECKED BY	Pratibha Gupta		02/11/19
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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		<p>5.0 TECHNICAL REQUIREMENTS. (Motor)</p> <p>5.1 Each pump shall be provided with electric motor having suitable rating and meant for supply voltage as follows:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 40%;">Rated normal voltage</td> <td>415 Volts.</td> </tr> <tr> <td>No of phases</td> <td>3</td> </tr> <tr> <td>Frequency</td> <td>50 Hz</td> </tr> <tr> <td>Variation in voltage</td> <td>± 10% of rated normal voltage.</td> </tr> <tr> <td>Variation in frequency</td> <td>± 5% of rated</td> </tr> <tr> <td>Combined variation in Voltage and frequency</td> <td>± 10%</td> </tr> <tr> <td>Duty</td> <td>Continuous</td> </tr> <tr> <td>Dimensional Details</td> <td>Refer Table-1</td> </tr> </table> <p>5.2 The motor must be selected such that the selected KW rating is 15% above the KW required by the pump.</p> <p>5.3 The motor shall have the type of enclosure IP-55 as per IEC60034-5.</p> <p>5.4 In other respects, the motor shall comply with the specifications as per Annexure-1.</p> <p>5.5 The supplier shall send filled up motor data sheet as per annexure- III.</p> <p>5.6 The motor shall confirm the efficiency class IE3/IE4 (As per mat code description) as per IEC60034-30.</p> <p>6.0 COUPLING & COUPLING GUARD: Suitable spacer type flexible coupling shall be provided for coupling the pump with motor and shall be designed to facilitate easy alignment. Coupling guard of suitable design shall also be supplied.</p> <p>7.0 PERFORMANCE TEST AND TEST CERTIFICATE: The pump and motor shall be tested for their performance as per relevant standards mentioned below and test certificates in respect of the same shall be supplied. The pump shall be tested for its performance along with job motor at the rated speed and rated capacity at the manufacturer's works. Tests & inspections shall be carried out to determine following and results shall be furnished for review and acceptance.</p>			Rated normal voltage	415 Volts.	No of phases	3	Frequency	50 Hz	Variation in voltage	± 10% of rated normal voltage.	Variation in frequency	± 5% of rated	Combined variation in Voltage and frequency	± 10%	Duty	Continuous	Dimensional Details	Refer Table-1
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दिनांक एवं हस्ताक्षर SIGN & DATE	P-6449 Study 15/1/26																			
सामग्री सूची संख्या INVENTORY NO.	REV. NO. 07	(SUPERSEDES)	निर्माणकर्ता WORKED BY	Jagdeesh Chauhan		15.01.26														
			जांचकर्ता CHECKED BY	Vishwadeep Gupta		15/01/26														

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सामग्री सूची संख्या INVENTORY NO. P-6449	REV. NO. 03		<table border="1"> <tr> <td>निर्माणकर्ता WORKED BY</td> <td>Jagdeesh Chauhan</td> <td></td> <td>18.12.17</td> </tr> <tr> <td>जांचकर्ता CHECKED BY</td> <td>Pratibha Gupta</td> <td></td> <td>18/12/17</td> </tr> </table>	निर्माणकर्ता WORKED BY	Jagdeesh Chauhan		18.12.17	जांचकर्ता CHECKED BY	Pratibha Gupta		18/12/17																																					
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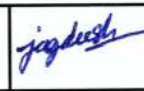

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सुपरसेडस SUPERSEDES INVENTORY	सामग्री सूची संख्या को अभिलेखित करें।	<p>8.0 LUBRICATION SCHEDULE: The supplier shall furnish the lubrication schedule for the pump and motor indicating: -</p> <ul style="list-style-type: none"> i) Application point. ii) Type of bearing. iii) Kind of lubricant and its make. iv) Application method. v) Quantity required for first filling and subsequent replenishment. vi) Frequency of lubrication. <p>9.0 SUPPLIER'S RESPONSIBILITY: Any fittings, accessories which might have not been mentioned in this specification but are usually supplied along with the equipment of similar nature are to be supplied without any extra cost.</p> <p>10.0 DOCUMENTATION:</p> <p>10.1 Along with offer</p> <ul style="list-style-type: none"> i) Complete catalogue of the pump and motor having cross sectional and overall dimensional drawing, foundation drawing and material of different components, special features and other important details. ii) O & M instructions complete in respect of erection, assembly, disassembly, operation, troubleshooting Dos & Don'ts etc. iii) Catalogues of mechanical seal, coupling and other important component. iv) Filled -up pump data sheet as per Annexure II and Motor data sheet as per Annexure III. <p>10.2 After placement of order.</p> <ul style="list-style-type: none"> i) 2 copies of the operation and maintenance manual in bound form covering relevant literature, drawings of pump and motor for erection, operation and maintenance, including trouble shooting, preventive and overhaul maintenance instruction shall be supplied. ii) 2 copies of the test certificates of the pumps and motors as per clause 7 shall be provided. It shall be preferred if these certificates also from a part of the bound operation and maintenance manual. 			
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स्वत्वधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत भारती लिमिटेड का संपत्ति है। इसका प्रयोग एवं प्रसारण अन्य किसी भी उद्देश्य के लिए बिना भारत भारती लिमिटेड की अनुमति के नहीं किया जा सकता।					
दिनांक एवं तिथि SIGN & DATE		<p>11.0 PAINTING All metallic surfaces of pump and motor except bright parts exposed to weather shall be given a suitable two (2) no. coats of primer with DFT 70 microns, one (1) no. coat of intermediate paint with DFT 70 microns and one (1) no. coat of final paint of shade grey RAL9002 with DFT 60 microns. Total DFT of primer and paint (intermediate & final) shall be 200 microns.</p> <p>The above painting requirements are in general. Vendor to take BHEL approval after P.O. placement for the customer specific final paint shade and DFT requirements.</p>			
सामग्री सूची संख्या INVENTORY NO.	P-6449	REV. NO. 07	निर्माणकर्ता WORKED BY	Jagdeesh Chauhan	 02/11/19
			जांचकर्ता CHECKED BY	Pratibha Gupta	 02/11/19




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सुपरसेड इन्वेंटरी SUPERSEDES INVENTORY	सामग्री नुमाई संख्या को अधिकाधिक करना है		पृष्ठ 22 का 6 Page 6 of 22			
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			<p>12.0 PERFORMANCE GUARANTEE</p> <p>12.1 The supplier shall guarantee the capacity head and efficiency of the pump as listed below:</p> <ul style="list-style-type: none"> i) Type of pump. ii) Guaranteed capacity. iii) Guaranteed developed head at guaranteed capacity. iv) Rated speed. v) Head developed at rated speed and closed discharge. vi) Guaranteed maximum power consumption at guaranteed capacity. vii) Guaranteed efficiency at guaranteed capacity. viii) Power consumption at rated speed and closed discharge. <p>12.2 If the general requirements of the specification are not fulfilled and if the capacity, head and efficiency obtained during acceptance test fall short of that guaranteed by the supplier under 12.1, the supplier shall rectifying/ replacing the defective parts. The supplier shall bear the whole cost of repairs / replacement of defective parts.</p> <p>12.3 The equipment supplied shall be guaranteed for good workman-ship and performance as per clause 12.1 & 12.2 for a period of 12 months from the date of commissioning and 18 months from the date of dispatch whichever is earlier.</p>			
स्वत्वाधिकार एवं गोपनीय यह दस्तावेज और इसमें उल्लिखित विनिर्देश की जानकारी केवल के.एच.ई.एल. के अधिकार में है। इसमें उल्लिखित विनिर्देशों का उपयोग बिना के.एच.ई.एल. की अनुमति के नहीं किया जा सकता है।			<p>13.0 CONSERVATION, PACKING AND DISPATCH :</p> <p>13.1 The supplier shall pack and conserve all equipment's (Pump & motor set in duly assembled condition) in such a manner as to protect them from deterioration and damage during rain and road transportation to site and storage at site till the time of erection. The supplier shall be held responsible for all damages due to improper packing and conservation. Conservation instruction, if any to use at site during storage should be furnished.</p> <p>13.2 Dispatch instructions shall be issued by BHEL after the pumps are tested and found satisfactory in presence of representative of BHEL / BHEL clients.</p>			
दिनांक एवं तारीख SIGN & DATE			<p>14.0 The supplier should confirm rendering of free service during commissioning of their pumps at all sites in case required for and / or to attend to any problem etc.</p> <p>15.0 The supplier shall furnish results of the type tests carried out while establishing their design of these pumps along with the offer.</p>			
सामग्री नुमाई संख्या INVENTORY NO. P-6449	REV. NO. 0		निर्माणकर्ता WORKED BY	Jagdeesh Chauhan		12.12.17
			जांचकर्ता CHECKED BY	Pratibha Gupta		18/12/17





डिजाइन संख्या SIGN & DATE		<p style="text-align: center;">उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)</p>		<p style="text-align: right;">TG60729</p> <p style="text-align: right;">पृष्ठ 22 का 10 Page 10 of 22</p>		
सुपरसेडस INVENTORY	<p>12. The frames and all external parts of the motor shall be rigid fabricated steel or a casting. In the latter case, the material shall be meehanite or approved equivalent.</p> <p>13. A plate showing direction of rotation as determined by the phase sequence on the terminal marking shall be screwed at the non-driving end on the body of the motor.</p> <p>14. Each motor shall have a name plate/ name plates showing diagram of connections. all particulars as per IEC 60034-1 and the following additional information's.</p> <p style="margin-left: 20px;">i) Temperature raise under normal conditions / abnormal conditions. ii) Type of bearings, bearing identification number and recommended lubricant. iii) Phase sequence to correspond to direction of rotation for the application. iv) Starting limitations, if any.</p> <p>15. The motor shall be capable of withstanding the electro dynamic stresses and heating imposed if it is started at voltage 110% and 80% of the rated value respectively.</p> <p>16. The motor after having attained the temperature rise corresponding to the rated load shall be capable of withstanding momentary overload of 160% of full load torque for 15sec without injury (the voltage & frequency being maintained at the rated values).</p>					
कॉपीराइट और कॉन्फिडेंशियल 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	<p>17. The motors shall be designed to withstand 120% of the rated speed for two minutes without any mechanical damage. The over speed test shall be conducted as a type test.</p> <p>18. Motors shall be designed to keep torsional & rotational natural frequencies of vibrations at least 25% above or below, preferably above the motor operating speed, to avoid resonance in vibration over the operating speed range of the equipment unit.</p> <p>19. The vibrations as measured at motor bearing shall be within the limits specified in IEC 60034-14. The motor shall also be capable of withstanding the vibrations produced by the driven equipment. Noise levels shall comply with IEC 60034-9.</p> <p>20. The motor shall have a continuous rating which is at least 15% above the maximum demand of the pump at design duty point and the motor shall not be overloaded at any operating point of driven equipment that will arise in service.</p>					
स्वत्वाधिकार एवं गोपनीय एक नमूने में की गई प्रमाण और इसे मॉडिफिकेशन बिना किसी शर्तों के प्रमाण प्रदान करने के बिना इस दस्तावेज़ को किसी भी प्रकार में प्रकट नहीं किया जा सकता है।	<p>21. Fault level shall be limited to 50 KA RMS for 1 sec.</p>					
डिजाइन संख्या SIGN & DATE  17/11/18						
सामग्री सूची संख्या INVENTORY NO. R 6649	REV. NO. 07		निर्माणकर्ता WORKED BY	Jagdeesh Chauhan		18/12/17
			जांचकर्ता CHECKED BY	Pratibha Gupta		18/12/17









दिनांक एवं हस्ताक्षर SIGN & DATE		<p style="text-align: center;">उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)</p>	<p style="text-align: right;">TG60729</p> <p style="text-align: right;">पृष्ठ 22 का 11 Page 11 of 22</p>			
सामग्री सूची संख्या INVENTORY NO.	P-6449	REV. NO. 07	<p>22. Motor winding shall be of copper and shall be provided with class F- insulation. The winding shall be suitable for successful operation in hot, humid tropical climate with the ambient temperature at 50°C.</p> <p>23. Terminal of the space heater shall be brought to a separate terminal box.</p> <p>24. Motor shall be provided with eye bolts, lugs or other means to facilitate lifting.</p> <p>25. Two earthing bolts of size suitable for earthing conduction of size 25x6mm² should be provided on either side of the motors.</p> <p>26. AC motor shall be tested at manufacturer's works for routine test as per IEC 60034-1 including noise and vibration. (Refer Clause 19, Annexure-I).</p> <p>27. AC motor shall be tested at manufacturer's works for type test as per IEC 60034-1.</p> <p>28. Type Test Certificates (not older than 5 years from the date of bid opening) of the type tests as per clause 27 (Annexure-I) shall be furnished with the offer and same shall be made available during customer inspection to the inspector. In-case of non-availability of any of the type test certificates, vendor shall carry out the type tests along with routine test as part of main offer without any price implication to BHEL.</p> <p>29. Following drawings shall be submitted for approval:</p> <ul style="list-style-type: none"> i) GA Drawing showing the position of terminal boxes earthing connection etc. ii) Arrangement drawing of JB's. iii) Speed Vs torque. iv) Load Vs efficiency and power factor v) Speed Vs current. vi) Time Vs current. vii) Thermal withstand time curve. 			
सामग्री सूची संख्या INVENTORY NO.	P-6449	REV. NO. 07	<p>30. Motors shall be suitable for two hot starts in succession under the specified conditions of load torque and inertia, with the motor initially at its normal running temperature.</p>			
सामग्री सूची संख्या INVENTORY NO.	P-6449	REV. NO. 07	निर्माणकर्ता WORKED BY	Jagdeesh Chauhan		02/11/19
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			निम्न सूची संख्या के अधीन किया गया है SUPERSEDES INVENTORY	31. Motors shall be cooled by a totally enclosed fan as per IC 0141 method of cooling.																																								
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.	32. Cable Entry Details Vendor to provide the cable entry in the motor suitable for the power cable sizes indicated below.		<table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Motor rating in KW</th> <th>Power cable size in sq. mm. (#)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>1.1-3.0</td> <td>3CX2.5</td> </tr> <tr> <td>2.</td> <td>3.1-7.0</td> <td>3CX6</td> </tr> <tr> <td>3.</td> <td>7.1-13.0</td> <td>3CX16</td> </tr> <tr> <td>4.</td> <td>13.1-24.0</td> <td>3CX35</td> </tr> <tr> <td>5.</td> <td>24.1-37.0</td> <td>3CX70</td> </tr> <tr> <td>6.</td> <td>37.1-55.0</td> <td>3CX120</td> </tr> <tr> <td>7.</td> <td>55.1-90.0</td> <td>3CX150</td> </tr> <tr> <td>8.</td> <td>90.1-100.0</td> <td>3CX240 (2 nos. of cable entries shall be provided for 4 pole motors, with higher motor frame size)</td> </tr> <tr> <td>9.</td> <td>100.1-200.0</td> <td>3CX240 (2 nos. of cable entries shall be provided for 4 pole motors, with higher motor frame size)</td> </tr> </tbody> </table>				Sl. No.	Motor rating in KW	Power cable size in sq. mm. (#)	1.	1.1-3.0	3CX2.5	2.	3.1-7.0	3CX6	3.	7.1-13.0	3CX16	4.	13.1-24.0	3CX35	5.	24.1-37.0	3CX70	6.	37.1-55.0	3CX120	7.	55.1-90.0	3CX150	8.	90.1-100.0	3CX240 (2 nos. of cable entries shall be provided for 4 pole motors, with higher motor frame size)	9.	100.1-200.0	3CX240 (2 nos. of cable entries shall be provided for 4 pole motors, with higher motor frame size)								
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				पृष्ठ 22 का 13 Page 13 of 22													
सुपरसेडस INVENTORY	34. Phase to phase/ phase to earth air clearance Minimum inter-phase and phase earth air clearance for LT motors with lugs installed shall be as follow																
भारी मशीन मंत्रालय अभियंता कर्म है	<table border="1"> <thead> <tr> <th>SI. No.</th> <th>Motors MCR in KW</th> <th>Clearance (in mm)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Up to 110 KW</td> <td>10</td> </tr> <tr> <td>2.</td> <td>Above 110 KW-Up to 150 KW</td> <td>12.5</td> </tr> <tr> <td>3.</td> <td>Above 150 KW</td> <td>19</td> </tr> </tbody> </table>					SI. No.	Motors MCR in KW	Clearance (in mm)	1.	Up to 110 KW	10	2.	Above 110 KW-Up to 150 KW	12.5	3.	Above 150 KW	19
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	iv) Design pressure																															
16.	Weight of the pump (Kg)																															
17.	Pump BHP/KW at rated capacity and head																															
18.	Recommended HP/KW																															
19.	Desired norms readings for alignment of pump & motor coupling																															
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<p style="text-align: center;">स्वत्वाधिकार एवं गोपनीय यह दस्तावेज भारतीय नौका सेवा की संपत्ति है। इसमें उल्लेखित जानकारी का उपयोग केवल भारतीय नौका सेवा के लिए ही किया जा सकता है। इसमें उल्लेखित जानकारी का उपयोग अन्य किसी भी उद्देश्य के लिए न किया जाए।</p>																																
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भारतीय नौका सेवा INVENTORY NO.	P-6449		जांचकर्ता CHECKED BY	Pratibha Gupta		19/11/18																										

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विवरण एवं मंजूर SIGN & DATE SUPERSEDES INVENTORY नए की नयी संख्या को अधिस्थान करना है		उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)		TG60729			
				पृष्ठ 22 का 18 Page 18 of 22			
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.	C. CONSTRUCTIONAL FEATURES						
	1. Stator winding insulation						
a. Class & Type							
b. Winding Insulation Process							
c. Tropicalized (Yes/No)							
d. Temperature rise over specified maximum ambient temperature of 50°C.							
e. Method of temperature measurement							
f. Stator winding connection							
2. Main Terminal Box							
a. Type							
b. Location (viewed from NDE side)							
c. Entry of cables (bottom/side)							
d. Recommended cable size (To be matched with cable size envisaged by owner)							
e. Fault level (MVA), Fault level duration (sec)							
f. Cable glands & lugs details (shall be suitable for power)							
3. Type of DE/NDE Bearing							
4. Motor Paint shade							
5. Weight of							
a. Motor stator (KG)							
b. Motor Rotor (KG)							
c. Total weight (KG)							
D. List of accessories.							
1. Space Heaters (Nos./Power in watts/supply voltage)							
2. Terminal Box for Space Heater (Yes/No)							
3. Speed switch (Yes/No)							
4. No of contacts and contact ratings of speed switch							
5. Insulation of bearing (Yes/No)							
6. Noise reducer (Yes/No)							
7. Grounding pads							
a. No. and size on motor body							
b. Nos. on terminal Box							
8. Any other fitments							
स्वलाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स लिमिटेड की संपत्ति है। इसका प्रयोग एवं प्रसारण अन्य किसी भी उद्देश्य के बिना कर्तव्य के बिना या हानिकारक ढंग में नहीं किया जा सकता।	विवरण एवं मंजूर SIGN & DATE  17/11/18	सामग्री की संख्या INVENTORY NO P-6449	REV. NO. 07	निर्माणकर्ता WORKED BY Jagdeesh Chauhan 	जांचकर्ता CHECKED BY Pratibha Gupta 	18/12/17	18/12/17



उत्पाद क्रय विनिर्देश (हीप : हरिद्वार)
PRODUCT PURCHASE SPECIFICATION
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दिनांक एवं हस्ताक्षर
SIGN & DATE

SUPERSEDES
INVENTORY

सामग्री सूची संख्या को
अधिकारित करता है

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स्वतंत्राधिकार एवं गोपनीय
 इस प्रबंध में दी गई सूचना भारत हीवी एलेक्ट्रिकल्स लिमिटेड की सम्पत्ति है। इसका उपयोग केवल उद्देश्य के लिए ही किया जाना चाहिए। इस सूचना का प्रयोग अन्य किसी भी उद्देश्य के लिए न किया जाये।

दिनांक एवं हस्ताक्षर
SIGN & DATE

सामग्री सूची संख्या
INVENTORY NO.

TABLE-1

VAR.	PUMP DISCHARGE (M ³ /HR.)	PUMP HEAD (MWC)	APP. MOTOR RATING (KW)	APPLICABLE FIGURE	MATERIAL CODE & RATING
01	80	80	37	1	APPLICABLE FOR 500 MW MATERIAL CODE- W90415302390 WITH IE3 MOTER
02	150	77	75	2	APPLICABLE FOR 660 & 700 MW MATERIAL CODE- W90415302382 WITH IE3 MOTER
03	120	75	45	3	APPLICABLE FOR 800 MW MATERIAL CODE- W90415302374 WITH IE3 MOTER
04	135	75	45	3	APPLICABLE FOR 800 MW MATERIAL CODE- W90415302617 WITH IE3 MOTER
05	135	75	45	3	APPLICABLE FOR 800 MW MATERIAL CODE- TG9041530002 WITH IE4 MOTER
06	150	77	75	2	PRIMARY WATER PUMP MOTOR SET (WITH IE4 MOTOR) FOR 660 MW (CENTRIFUGAL 150M3/HR, 77M, AS PER TG60729)

Table -2

Sl. No.	Material code	Description
01	TG9741530048	SPARE KIT FOR PW PUMP MOTOR SET (800 MW Mat. Code-W90415302617) comprising of: Mechanical Seals, Pump bearings (DE + NDE), Motor bearings (DE+NDE), Set of Gaskets.
02	TG9741530030	SPARE KIT FOR PW PUMP MOTOR SET (660 MW Mat. Code-W90415302382) comprising of: Mechanical Seals, Pump bearings (DE + NDE), Motor bearings (DE+NDE), Set of Gaskets.

REV. NO. 07

(SUPERSEDES)

निर्माणकर्ता WORKED BY	Jagdeesh Chauhan	<i>Jagdeesh</i>	15.01.26
जांचकर्ता CHECKED BY	Vishwadeep Gupta	<i>Vishwadeep Gupta</i>	15/01/26

15/01/26

P-6449



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सामग्री सूची संख्या का
INVENTORY NO.

समग्री सूची संख्या को
अनुसंधानित करत है

सुपरसेड्स
INVENTORY

स्वत्वधिकार एवं गोपनीय
 इस प्रवेश में दी गई सूचना भारत हेवी एलेक्ट्रिकल्स लिमिटेड की संपत्ति है इसका प्रयोग एवं अथवाक रूप से किसी भी तरह प्रयोग जो कि कंपनी के हित में हानिकारक

समग्री सूची संख्या
INVENTORY NO.

REV. NO. 07

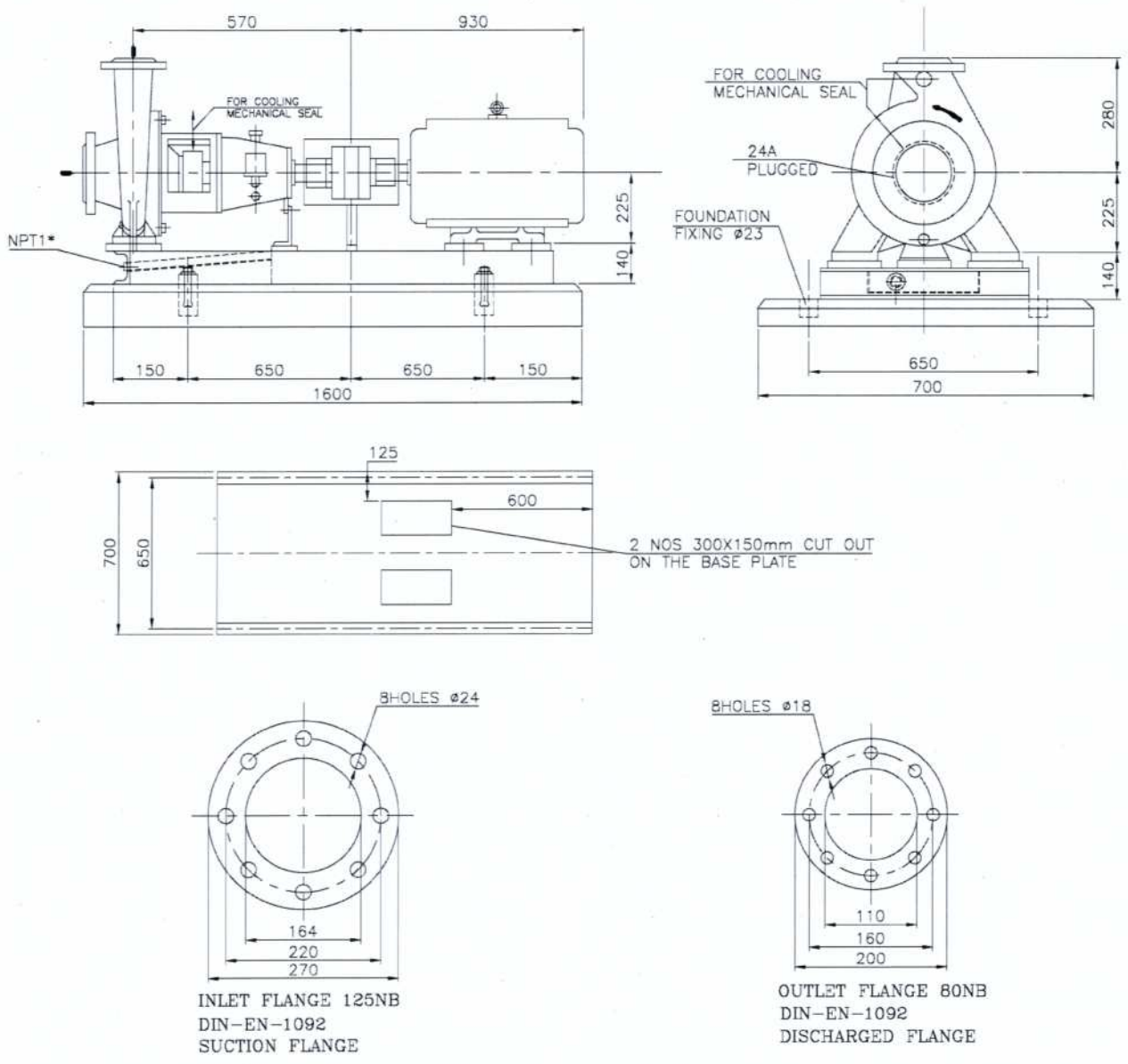


FIGURE-3

INLET FLANGE 125NB
DIN-EN-1092
SUCTION FLANGE

OUTLET FLANGE 80NB
DIN-EN-1092
DISCHARGED FLANGE

निर्माणकर्ता WORKED BY	Jagdeesh Chauhan	<i>Jagdeesh</i>	15.01.26
जांचकर्ता CHECKED BY	Vishwadeep Gupta	<i>Vishwadeep Gupta</i>	15/01/26

(SUPERSEDES)