

TD-106 Rev No. 00	Form No.  HYDERABAD	PRODUCT STANDARD PUMPS HYDERABAD		FP60236 Rev No. 00 Page 1 of 5																						
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. <u>SKID FOR MECHANICAL SEALS , BOOSTER PUMP TYPE : MLC400X300H</u> (To be procured along with mechanical seals specn no. FP60197) 1.0.0 INTENT OF SPECIFICATION : This specification is intended to cover the technical requirements of auxiliary skid for shaft seals (Mechanical seals) for Boiler Feed Booster Pump type MLC400x300H Coupling side(DE) and End side(NDE). 2.0.0 SCOPE OF SUPPLY : 2.1.0 The scope of supply shall include Design, Engineering, Manufacturer, Inspection, Testing, Packing and forwarding the auxiliary skid for Mechanical seals. 2.1.1 Duplex coolers(2x100%) with integral change over devices on seal water side of each mechanical seal on coupling side & end side. Isolating valves at seal water and cooling water inlet and outlet of each cooler. 2.1.2 Duplex filters(2x100%) with integral change over devices for each mechanical seal on coupling side & end side. Isolating valves at seal water inlet & outlet of each cooler. 2.1.3 Isolating valves of suitable size at CW inlet&outlet and SW inlet&outlet of the skid. 2.1.4 Bosses for pressure indicators, thermometer sinks for temperature indicators & RTDs. 2.1.5 Seal water and Cooling water inlet and outlet connections shall be terminated with SORF flanges along with counter flanges, Gaskets, Bolts & Nuts. 2.1.6 Seal water piping, pipe fittings, valves & flanges made of SS316 material. 2.1.7 Cooling water piping, pipe fittings, flanges & valves made of carbon steel. 3.0.0 TECHNICAL REQUIREMENTS: 3.1.0 <u>Technical Data :</u> <table style="width: 100%;"> <tr> <td>CW temperature</td> <td>:</td> <td>38 deg.C</td> </tr> <tr> <td>Design temp rise</td> <td>:</td> <td>3 deg.C</td> </tr> <tr> <td>CW supply pressure</td> <td>:</td> <td>0.5 MPaG</td> </tr> <tr> <td>CW line design</td> <td>:</td> <td>1.0 MPaG x 50deg.C</td> </tr> <tr> <td>Design pre drop</td> <td>:</td> <td>0.1 MPa</td> </tr> <tr> <td>CW flow rate/cooler</td> <td>:</td> <td>(*) to be indicated by manufacturer</td> </tr> <tr> <td>Cooler tube material</td> <td>:</td> <td>SS316</td> </tr> </table> 3.2.0 The Coolers and Filters of the skid shall be designed for satisfactory performance of the mechanical seals being supplied against specn no. FP60197.						CW temperature	:	38 deg.C	Design temp rise	:	3 deg.C	CW supply pressure	:	0.5 MPaG	CW line design	:	1.0 MPaG x 50deg.C	Design pre drop	:	0.1 MPa	CW flow rate/cooler	:	(*) to be indicated by manufacturer	Cooler tube material	:	SS316
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Ref. Doc	Revisions : Refer to record of revisions :	Prepared : M.S.RAM	Approved : PS	Date : 30.01.13																						

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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.		Ref Doc 3.3.0 Independent cooling circuits shall be provided for coupling side and end side mechanical seals. 2x100% coolers and 2x100% magnetic filters of each mechanical seal along with all the required accessories in cooling circuits & seal circuits are mounted on a single skid. 3.4.0 Both coupling side and end side seal auxiliaries shall be mounted on one skid along with necessary valves, piping and pipe fittings. Refer informative drawing given in another page. 3.5.0 Coolers shall be designed suitably for the cooling water data given at 3.1.0. 3.6.0 Heat transfer area of each cooler shall have a margin of not less than 20% over the worst condition of heat generated in the mechanical seal. 3.7.0 All connections on cooler and magnetic filter for seal water and cooling water shall not be less than 1/2" NPT (F). 3.8.0 All cooling water pipes & pipe fittings shall be subjected to pickling to remove internal rust, grease and mill scales. 4.0.0 <u>DRAWINGS TO BE FURNISHED:</u> - Cooler and Magnetic filter drawings - Mechanical seal auxiliaries skid drawings. - Quality plan. 5.0.0 <u>INFORMATION TO BE FURNISHED AFTER AWARD OF CONTRACT</u> 5.1.0 Detailed cross-sectional assembly of the cooler and filter with all parts identified on it along with their materials of construction and over all dimensions shall be submitted for BHEL approval. 5.2.0 Quality assurance plan of the skid in five copies. 6.0.0 <u>TESTS & GUARANTEE CERTIFICATES</u> 6.1.0 Coolers, filters and thermometer sinks shall be hydro tested independently. 6.2.0 Hydraulic test at 52 Kg/cm² shall be conducted on the cooler and test report shall be furnished. 6.3.0 <u>Mech.Seal Skid:</u> Hydraulic test at 52 Kg/cm² and 15 Kg/cm² shall be conducted on seal water piping and cooling water piping respectively, along with pipe fittings and test reports shall be furnished. 6.4.0 The compliance certificate shall be furnished for satisfactory performance of the mechanical seal along with its auxiliary skid. 6.5.0 A guarantee certificate for trouble free performance of the auxiliary skid along with its seals for a period of 24 months from the date of supply or 12 months from the date of commissioning, whichever is earlier, shall be furnished.		

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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. 7.0.0 PACKING: The auxiliaries skid shall be packed to ensure its capability to withstand transit risks without damage. The seal Skids shall be packed with polythene cover and wooden box/crate; additional GI sheet (1.6mm thick) covering either from inside the package or outside the package shall be carried out. 8.0.0 MARKING : 8.1.0 A tag bearing relevant 12 digit material code of BHEL shall be attached to each auxiliary seal skid consignment. 8.2.0 Following details shall be marked on the packing case. - Name of manufacturer - BHEL Purchase order number. 8.3.0 A name plate containing following details shall be riveted or fixed by screws on top of seal plate and shall be clearly visible. Mechanical seals received without these details will be rejected during inspection at our stores. - Name of manufacturer - Month & year of supply - Direction of rotation and application of seal 9.0.0 VARIANT TABLE : <table border="1" data-bbox="391 1171 1435 1440"> <thead> <tr> <th>VAR. NO.</th> <th>DESCRIPTION & MAKE OF SEAL</th> <th>MATERIAL CODE</th> </tr> </thead> <tbody> <tr> <td align="center">01</td> <td>Skid for Mechanical seals Coup. Side & End side, MLC400x300H Booster pump</td> <td align="center">FP9760236010</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				VAR. NO.	DESCRIPTION & MAKE OF SEAL	MATERIAL CODE	01	Skid for Mechanical seals Coup. Side & End side, MLC400x300H Booster pump	FP9760236010						
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PRODUCT STANDARD

PUMPS

HYDERABAD

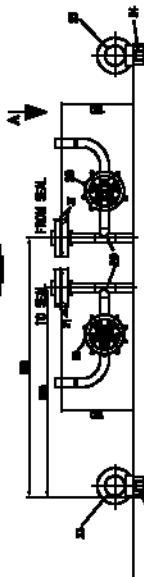
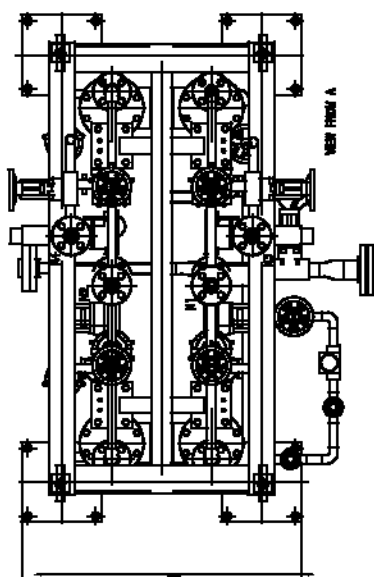
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GENERAL ARRANGEMENT OF SKID (INFORMATIVE-BP MLC400x300H)

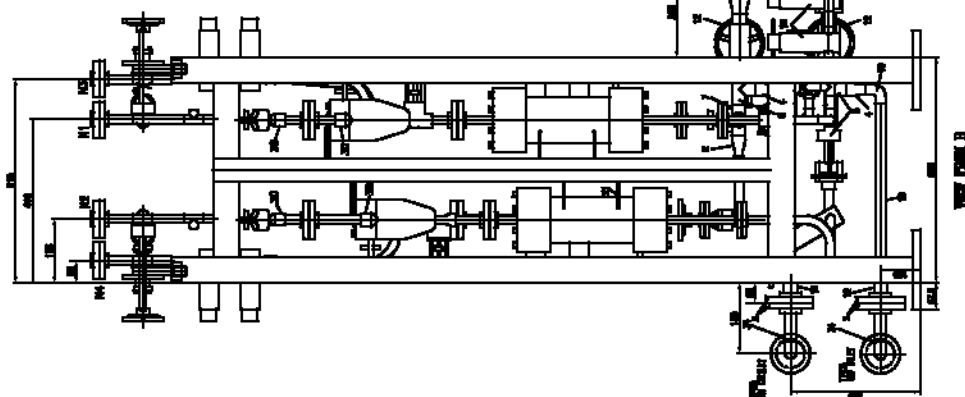
- 1) COOLING WATER, SEALING WATER, MOTOR AND EXHAUST SHALL BE SUPPLIED TO THE SKID BY THE USER.
- 2) ALL VALVES, FITTINGS, PIPES, PIPES, VALVES & FLANGES SHALL BE OF STEEL.
- 3) ALL VALVES, FITTINGS, PIPES, PIPES, VALVES & FLANGES SHALL BE OF STEEL.
- 4) ALL VALVES, FITTINGS, PIPES, PIPES, VALVES & FLANGES SHALL BE OF STEEL.
- 5) ALL VALVES, FITTINGS, PIPES, PIPES, VALVES & FLANGES SHALL BE OF STEEL.
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- 11) ALL VALVES, FITTINGS, PIPES, PIPES, VALVES & FLANGES SHALL BE OF STEEL.
- 12) ALL VALVES, FITTINGS, PIPES, PIPES, VALVES & FLANGES SHALL BE OF STEEL.
- 13) NO PAINTING TO BE DONE FOR PARTS MADE OF SS MATERIAL.



ITEM NO.	ITEM	QTY.	SIZE	QTY.	QTY.	QTY.
1	1/2" FLANGE	10	10	10	10	10
2	1/2" FLANGE	10	10	10	10	10
3	1/2" FLANGE	10	10	10	10	10
4	1/2" FLANGE	10	10	10	10	10
5	1/2" FLANGE	10	10	10	10	10
6	1/2" FLANGE	10	10	10	10	10
7	1/2" FLANGE	10	10	10	10	10
8	1/2" FLANGE	10	10	10	10	10
9	1/2" FLANGE	10	10	10	10	10
10	1/2" FLANGE	10	10	10	10	10
11	1/2" FLANGE	10	10	10	10	10
12	1/2" FLANGE	10	10	10	10	10
13	1/2" FLANGE	10	10	10	10	10

APPROXIMATE WEIGHT

ITEM NO.	ITEM	QTY.	SIZE	QTY.	QTY.	QTY.
1	1/2" FLANGE	10	10	10	10	10
2	1/2" FLANGE	10	10	10	10	10
3	1/2" FLANGE	10	10	10	10	10
4	1/2" FLANGE	10	10	10	10	10
5	1/2" FLANGE	10	10	10	10	10
6	1/2" FLANGE	10	10	10	10	10
7	1/2" FLANGE	10	10	10	10	10
8	1/2" FLANGE	10	10	10	10	10
9	1/2" FLANGE	10	10	10	10	10
10	1/2" FLANGE	10	10	10	10	10
11	1/2" FLANGE	10	10	10	10	10
12	1/2" FLANGE	10	10	10	10	10
13	1/2" FLANGE	10	10	10	10	10



DETAIL FOR PART NO 22

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