

TD-106 Rev No. 00	Form No.	 HYDERABAD	PRODUCT STANDARD PUMPS HYDERABAD		FP60310 Rev No. 00 Page 1 of 5																																				
<u>MECHANICAL SEAL AUXILIARY SKID</u> 1.0.0 INTENT OF SPECIFICATION : This specification covers the technical requirements of auxiliary skid for Mechanical seals. 2.0.0 SCOPE OF SUPPLY: 2.1.0 The scope of supply shall include design, engineering, manufacturing, inspection, testing, packing and forwarding the mechanical seal auxiliary skid. 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 Flushing 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 Flushing water inlet & outlet of each cooler. 2.1.3 Isolating valves of suitable size at CW inlet & outlet and FW inlet & outlet of the skid. 2.1.4 Bosses for thermometer sinks at CW & SW inlet and outlet for temperature indicators & RTDs. 2.1.5 Flushing water and cooling water inlet and outlet connections shall be terminated with SORF flanges along with counter flanges, Gaskets, Bolts & Nuts. 2.1.6 Flushing water, Cooling water piping, pipe fittings, valves & flanges made of SS 316 material. 2.1.7 Pressure gauges at inlet and outlet of CW and FW pipe lines. 3.0.0 TECHNICAL REQUIREMENTS: 3.1.0 <u>Technical Data:</u> <table border="0"> <tr> <td>Design Heat Load per cooler</td> <td>:</td> <td>36 kW</td> </tr> <tr> <td>CW inlet temperature</td> <td>:</td> <td>38 deg.C</td> </tr> <tr> <td>CW Design temp rise</td> <td>:</td> <td>3 deg.C</td> </tr> <tr> <td>CW supply pressure</td> <td>:</td> <td>10 kg/cm² max.</td> </tr> <tr> <td>CW operating pressure</td> <td>:</td> <td>6 kg/cm² max.</td> </tr> <tr> <td>Cooler design pressure</td> <td>:</td> <td>20 kg/cm²</td> </tr> <tr> <td>Pressure drop across cooler</td> <td>:</td> <td>0.5 kg/cm² max.</td> </tr> <tr> <td>Pressure drop across filter</td> <td>:</td> <td>0.5 kg/cm² max.</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> <tr> <td>Cooler shell material</td> <td>:</td> <td>SS304/ SS316/ CF8M</td> </tr> <tr> <td>CW, FW pipe, pipe fittings</td> <td>:</td> <td>DN 25 min.</td> </tr> </table>						Design Heat Load per cooler	:	36 kW	CW inlet temperature	:	38 deg.C	CW Design temp rise	:	3 deg.C	CW supply pressure	:	10 kg/cm ² max.	CW operating pressure	:	6 kg/cm ² max.	Cooler design pressure	:	20 kg/cm ²	Pressure drop across cooler	:	0.5 kg/cm ² max.	Pressure drop across filter	:	0.5 kg/cm ² max.	CW flow rate/cooler	:	(*) to be indicated by manufacturer	Cooler tube material	:	SS316	Cooler shell material	:	SS304/ SS316/ CF8M	CW, FW pipe, pipe fittings	:	DN 25 min.
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Ref. Doc	Revisions : Refer to record of revisions :	Prepared : ASK	Approved : MSR	Date : 21.05.18																																					

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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	3.2.0 Two Independent cooling circuits shall be provided for coupling side mechanical seal and end side mechanical seal. Each cooling circuit shall consist of 2x100% coolers (one working and one standby) and 2x100% magnetic filters (one working and one standby) for each circuit. 3.3.0 Both coupling side and end side seal auxiliaries shall be mounted on one single skid along with necessary valves, piping and pipe fittings. Refer informative drawing given in another page. 3.4.0 Coolers shall be designed suitably for the cooling water data given at 3.1.0. 3.5.0 Heat transfer area of each cooler shall have a margin of not less than 20% over the design heat load indicated at 3.1.0. 3.6.0 All instrument connections provided on the skid shall not be less than ½" NPT (F). 3.7.0 Magnetic Filter assembly shall have strainer element along with magnetic separator. 4.0.0 <u>DRAWINGS/DATA TO BE FURNISHED ALONG WITH OFFER:</u> - Seal cooler heat load sizing calculation. - Outline and sectional assembly drawing of Cooler. - Outline and sectional assembly drawing of Magnetic Filter. - Mechanical seal auxiliary skid P&ID and assembly drawing. 5.0.0 <u>INFORMATION TO BE FURNISHED AFTER AWARD OF CONTRACT</u> 5.1.0 Drawings/Data indicated at 4.0.0 shall be furnished against PO for BHEL approval. 5.2.0 Quality assurance plan of the skid. 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 20 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 A guarantee certificate for trouble free performance of the auxiliary skid 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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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 name plate containing following details shall be riveted or fixed by screws to the metal frame of each auxiliary seal skid consignment. BHEL 12 digit material code, Description of the component, Purchase Order No., Name of the Manufacturer, Month and Year of Supply shall be clearly visible.

8.2.0 Following details shall be marked on the packing case.

- a) Name of manufacturer
- b) Material Code and Description of the component
- c) BHEL Purchase order number.

9.0.0 VARIANT TABLE:

VAR. NO.	DESCRIPTION & MAKE OF SEAL	MATERIAL CODE
00	Auxiliary Skid for Mechanical Seals	FP9760310007



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PUMPS
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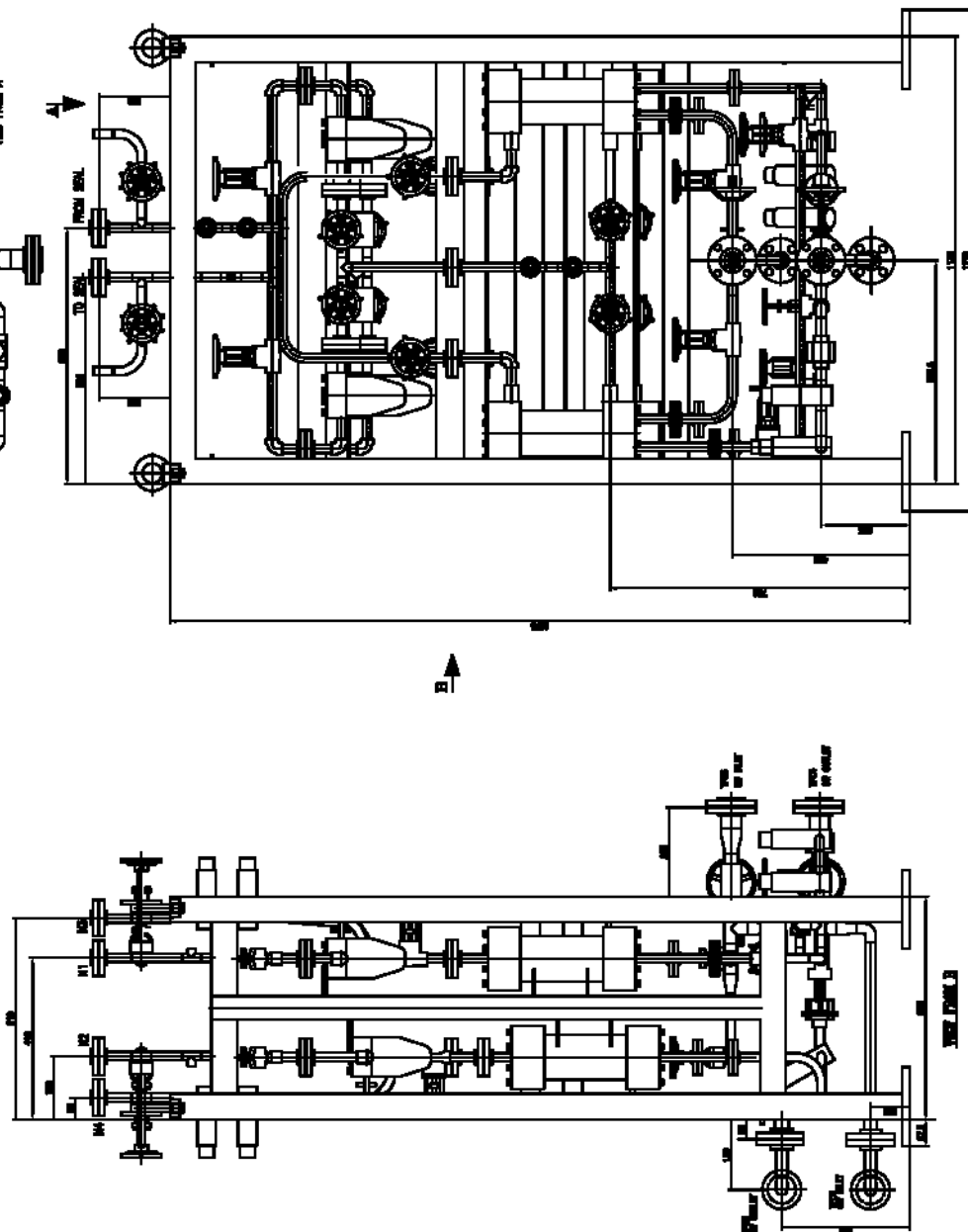
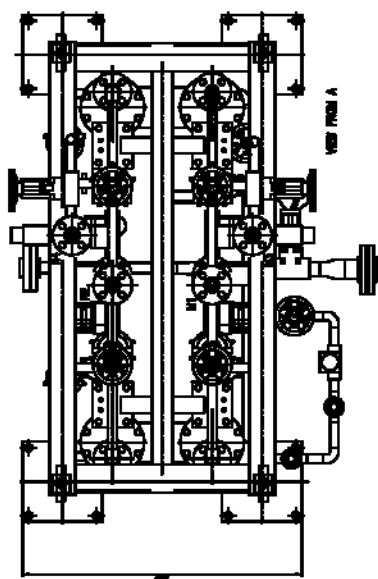
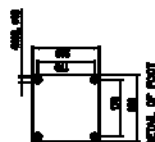
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GENERAL ARRANGEMENT OF SKID

ITEM NO.	DESCRIPTION	QTY	REMARKS
1	SKID	1	
2	SKID	1	
3	SKID	1	
4	SKID	1	
5	SKID	1	
6	SKID	1	
7	SKID	1	
8	SKID	1	
9	SKID	1	
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