

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION		Std. / Doc. Number	
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				Rev. No.	00

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Revisions: Refer to record of revisions	Prepared by :	Checked by :	Approved by :	Date :
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Based on clarification sought by various bidders, following are the consolidated list of clarification:

1. Vendor list:
Bidder shall follow approved sub vendors list as per Annexure-9 of BHEL tender specification. In case of any specific practical difficulty, bidder is requested to bring out the same with proper reason for not following vendor list [Annexure-9 A or B]. For other items for which sub vendors are not specified, bidder can follow their standard vendors. However, they have to ensure the Proven Track record of the sub vendors and Bidder to take prior approval of BHEL for the same. Bidder shall not source any items from his sub vendors who are part of EIL holiday list of vendors.
2. Specification for Gear Box:
Gear Box shall be as per BHEL tender specification.
3. Inspection requirement for Lube oil system, Gear Box, Hydraulic coupling shall be as per Annexure-7 of BHEL tender specification. Revised Annexure-7 is enclosed with this document.
4. Dedicated LO system [Lube oil requirement for LO system for Pump, Motor, Gear Box [if applicable] shall be supplied by the bidder for each BFP skid. Same shall be as per API 614 Chapter 3.
However, LO requirement for Hydraulic coupling shall be integral part of Hydraulic coupling.
5. Lube oil requirement for Motor: Bidder to consider suitable quantity of Lube oil requirement for motor for deciding capacity of Lube oil skid for each BFP skid based on their experience of similar orders / motors executed earlier.
6. As per Annexure-1 of Suction, Discharge, Recirculation & Balance leak off line shall be as per IBR. Hence, all line items in these lines shall be as per IBR. Only cooling water inlet & outlines are Non IBR type.
7. As per BHEL tender specification, some of the instruments are in BHEL scope of supply. Only these instruments shall be mounted by BHEL at site at later date.
8. Motor shall be free issue to pump supplier. Bidder to conduct complete unit test as per specification.
9. Bidder to furnish PTR for major bought out items such as Gear Box, LO skid & Hydraulic coupling.
10. Testing of the pump shall be as per clause no 8.3.0 of BHEL specification, PYAS4M095836001.
11. Painting for Pump shall be as per table 7.3 of Annexure-13M, A747-000-79-41-PLS-01, Rev 01, page 33 of 43.
However, Painting shall be discussed during detailed engg stage.
12. NPSH availability for various conditions shall be as follows:

Description	Unit	Rated Condition	Condition-4	Condition-1	Condition-2
Capacity of each pump	m ³ /hr	148	134	126	116
NPSHA at pump suction flange	mlc	10.92	10.92	11.39	11.56
Margin between NPSH A & NPSHR		1 m at rated condition & NPSHR shall be less than NPSHA till end of the curve condition.			

13. Auxiliary power [Input power to Motor] shall be limited to 820 kW [inclusive of all losses such as Gear Box loss, Hydraulic coupling loss, loss due to motor in efficiency etc] at guaranteed condition ie 116 m³/hr @ 1438 mlc.
Auxiliary power above 820 kW @ guaranteed condition is not acceptable.
14. BHEL shall provide cooling water at one location of each BFP skid. Further distribution to Pump, Motor, Hydraulic coupling & Gear Box shall be in bidder scope of supply.

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15. As per specification, PYAS4M095836001, clause no 4.0.14.7, Casing skin temperature monitoring system is in bidder scope of supply.
16. Instrument installation shall be as per annexure-6 of tender specification.
17. Equipment noise level (Driver + Driven equipment train + auxiliaries) shall not exceed 85 dBA when measured at One-meter distance from the equipment skid in any direction. Acoustic hoods shall not be used for any equipment. This noise requirement shall be reviewed during detailed engg stage based on earlier supply to EIL projects.
18. 2 nos of Pressure Safety relief valves shall be provided at Balance leak off line of each pump. Scope of supply shall be as per clause no 4.0.0 of per specification, PYAS4M095836001.