ANNEXURE- I

TECHNICAL SPECIFICATIONS FOR SIMPLEX FILTER

Simplex filter for Lube Oil se**rvice as per API 614 –2004 for filtration of SERVO Prime 57** grade oil. The construction of Simplex filter shall be as per ASME Section VIII Div 1 and as per the details given below:

1.0 Lube Oil Filter Specifications:

1.1 ARRANGEMENT:
The Simplex filter shall consist of one filter with inlet & outlet branch connections vent & drain connections with valves

1.2 Flow: 320 LPM Capacity

1.3 Operating pressure: 8-10 Kg/cm2 (g)

1.4 Design Temperature: 100°C

1.5 Operating Temperature: From Ambient up to 65^0C

1.6 Pressure drop for complete unit: 0.35 Kg/cm2 clean at design condition of at 40°C (46CST) (DP across complete unit including filter elements, filter body). 1.5 Kg/cm2 Dirty condition (Element to be changed). Collapsible min. pr.10 Kg/cm2 (g).

1.7 Design: As per API 614 -2004 class 2.6&2.7, ASME Sec VIII Div. I. The design shall be at 40 °C (55 CST).

1.8 Fluid to be handled: Turbine Oil type Non ISO IS: 1012-2012/ BS 489/1983 (Oil Grade: Servo Prime57).

1.9 Viscosity range, cSt: 55-80

1.10 Filtration: 5 Microns (Nominal), 10 Microns (absolute) β 10 = 2 00

1.11 Cleanliness Level Requirement: ISO 4406 17/14 grade or NAS-8 grade (R02)

1.12 Filtration Area Requirement in CM^2: Please specify

1.13 Inlet / outlet connections: NB 100 Flanged ends (With 150/300 class rated flanges as per ANSI)

1.14 Vent connections: Require**d with valve NPT ¾" screwed**

1.15 Drain connections: Require**d with valve NPT ¾" screwed**

1.16 Leakage: Not allowed during operation.

1.17 Differential pressure Indicator: Analog type differential pressure gauge to measure the pressure drop across the filter should be provided along with the filter.

1.18 Magnet : Required to collect the solid contamination

1.19 Terminal Points: All terminal points shall be flanged ANSI B 16.5, RF smooth finish.

1.20 Material: Carbon steel for Filter housing. Casted body filters are not acceptable. Vent & drain valve internals shall be stainless steel.

1.21 Hydro static test pressure: 1.5 times of design pressure or as specified in ASME Section VIII Div 1.

1.22 Filter element material: Disposable Type, Resin impregnated fiber. (Free water resistance organic paper). The material should be Fiber glass pleating material with S.S support. Vendor to provide standard (similar) size filter element.

1.23 Filter Clogging Indicator: Visual/electrical with three digital LED indicators (i.e. LED / Green = in use , LED / red =100% clogging, LED / Yellow =75% clogging) and two switching points (switch pressure 1.5 bar) for clogging indication of the filter.

2.0 Performance required: Vendors shall provide the following information.

1. Flow Vs Pr. drop curves for housings
2. Flow Vs Pr. drop curves for elements (cartridges) of each type.
3. Actual area of filtering media.
4. Dirt retention capacity.
5. Number of elements per housing.

3.0 General Requirements

3.1 Vendor may offer Standard models under vendor's regular range of manufacture having ease of operation and maintenance features.

3.2 The Vendor shall submit the relevant technical brochures of the offered lube filter along with the technical bid for evaluation.

3.3 Design calculations as per ASME Sec VIII Div. I are to be submitted along with the technical bid.

3.4 The filter should be supplied with 2 Nos. of mating flanges NB 100 (150/300 class rated flanges as per ANSI) suitable for inlet and out let connections.

3.5 Spares requirement: The vendor should quote separately two sets of Spare Oil filter **elements/cartridges along with gaskets & "O"** rings (The material shall be non-asbestos type) are to be supplied along with the above filter.
Note: One set means number of elements for filter housing.

3.6 The vendor should have supplied similar rating Lube oil filters to other BHEL units during the last three years from the date of offer with trouble free operation for the last one year. Details of such supply shall be indicated in the Technical bid.

3.7 Vendor should furnish TECHNICAL COMPLIANCE STATEMENT in the enclosed format as per ANNEXURE-II along with Technical bid FOR EACH OF THE ITEMS OFFERD SEPERATLY. The Vendor should not say Complied, should explicitly specify the specification of each parameters. The deviations if any with reference to BHEL specifications may clearly be indicated. BHEL reserves the right to disqualify the tender if the statement as per ANNEXURE-II is not submitted and relevant information is not indicated in the compliance statement.

3.8 Vendor must submit complete information against clause No. 3.6 & 3.7. The offer meeting this clause would only be processed. BHEL reserve the option to disqualify the tender in case of non-conformity of the above conditions (3.6 & 3.7).

3.9 The Un-priced price bid shall be enclosed with the Technical bid.

4.0 Documents required along with quotation

a) The descriptive leaflets / Catalogues with complete details.
b) Nomenclature designations (model) for offered simplex filter & filter elements.
c) Over all dimensional drawings along with filter element details
d) Expected performance curves.
e) Cross-sectional drawing of filter with bill of materials.
f) Performance and Type test certificates of same model shall be submitted

K S R Swamy
Sr. Manager / TML