

**SCOPE, SUPPLY, ERECTION AND COMMISSIONING OF FLOW METER
CUM TOTALIZER COMPLYING WITH SPECIFICATION AS BELOW:**

S No.	Description - BHEL's Requirement	Vendor to Confirm
1.0	SCOPE	
	The specification governs the quality requirements of design, manufacturing, supply, and commissioning of Flow Meter Cum Totalizer for Transformer oil in all respect. It includes meter, pre-amplifier, transmitter (if ,required), accessories as required (such as compnaion flanges ,strainers, straightening vanes, air eliminator,etc.), local totalizer and all other accessories necessary to make the system complete.	Vender To confirm
2.0	GENRAL FEATURES	
2.1	A Flow meter for measurement of Flow rate as well as Total flow for Trannsfomer oil flowing through pipe lines as per specification given below:	Vendor to confirm
3.0	SPECIFICATION	
3.1	Name of the Fluid : Transformer Oil	Vendor to Confirm
3.2	Operating Temperature : < 90 ⁰ C	Vendor to Confirm
	Ambient Temperature : 45 Deg C	
3.3	Operating Pressure : 10 Kg/cm sq.(Max)	Vendor to Confirm
3.4	Operating Viscosity : 27 centistokes (Kinematic)	Vendor to Confirm
3.5	Operating Density : 0.89 gm/cm ³ max at 29.5 ⁰ C	Vendor to Confirm
3.6	Measuring Range : 10KL/hr (Max)	Vendor to Confirm
3.7	Least count of measurement : 01 Liter or less	Vendor to Confirm
3.8	Accuracy : : +/- 0.2 %	Vendor to Confirm
3.9	Direction of Flow : <u>uni-directional (LEFT TO RIGHT OR RIGHT TO LEFT)</u>	Vendor to Confirm
3.10	Line Size : 2"	Vendor to Confirm
3.11	End Connection Details : Flanged both side (02 No Matching flange extra to be supplied by supplier)	Vendor to Confirm
3.12	Material of Construction : Housing : Cast Iron /SS	Vendor to Confirm
	: Rotating part : SS316	Vendor to Confirm
3.13	Type of flow meter : Electromagnetic/Turbine/ Positive displacement	Vendor to Confirm
3.14	Make of the Flow Meter	Vendor to specify
3.15	Totalizer Range : 6 to 8 digit	Vendor to Confirm
3.16	Accessories (e.g amplifier, transmitter,strainer ,air eliminators, Straightening vanes etc.) as per requirement of quoted flow meter.	Vendor to Specify
4.0	SAFETY ARRANGEMENTS:	

4.1	Safety feature should be incorporated for safety of operator and the Flow Meter.	Vendor to confirm
5.0	DOCUMENTATION : Three sets of following documents (Hard copies) in English language should be supplied along with the Flow Meter	Vendor to confirm
5.1	Operating manuals of Flow Meter	Vendor to confirm
5.2	Detailed Maintenance manual of Flow Meter with all drawings of Flow Meter assemblies/sub-assemblies/parts.	Vendor to confirm
5.3	Complete Master List of parts used in the Flow Meter shall be submitted by the vendor.	Vendor to confirm
6.0	ERECTION & COMMISSIONING	
6.1	Erection work shall be carried by BHEL as per drawing submitted by supplier.	Vendor to confirm
6.2	Supplier to take full responsibility for carrying out the start up, testing of Flow Meter, it's control & all types of other supplied equipment , etc. Service requirement like power, air & water shall be provided by BHEL at only one point to be indicated by supplier in their foundation/layout drawings. Other requirements like crane & material handling equipments shall also be provided by BHEL. Details of these requirements should be informed by vendor in advance.	Vendor to confirm
6.3	Tools, Tackels, Test Mandrels, instruments and other necessary equipment required to carry out all above activities should be brought by the supplier.	Vendor to confirm
6.4	Commissioning spares, required for commissioning of the Flow Meter within stipulated time, shall be brought by the supplier on returnable basis.	Vendor to confirm
6.5	Schedule of Commissioning shall be submitted with the offer.	Vendor to confirm
7.0	Flow Meter ACCEPTANCE: (Tests/Activities to be Performed by Vendor)	Vendor to confirm
7.1	Tests/Activities to be carried out at BHEL works while commissioning the Flow Meter :	Vendor to confirm
7.2	Demonstration of all features of the Flow Meter, accessories to the satisfaction of BHEL for efficient and effective use of the Flow Meter	Vendor to confirm
7.3	Training of BHEL Flow Meter operators/maintenance personnel in operation/maintenance of complete Flow Meter & accessories etc by the supplier's experts / engineers during their stay at BHEL works	Vendor to confirm
7.4	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	Vendor to confirm
8.0	FINAL ACCEPTANCE	
8.1	Final acceptance shall be after erection and commissioning of the complete Flow Meter at BHEL by the vendor to the full satisfaction of BHEL. The criteria for acceptance of the Flow Meter after erection shall be "satisfying all the clauses of Technical Specifications" given above.	Vendor to confirm
9.0	CALIBRATION/TEST CERTIFICATE	

9.1	Supplier has to provide necessary calibration and Test certificate and also provide us details of the sources from where we can get this certificate further.	Vendor to specify and confirm
10.0	GUARANTEE :	
10.1	24 months from the date of acceptance of the Flow Meter.	Vendor to confirm
11.0	GENERAL : The vendor should submit the following information:	
11.1	Equipment Model	Vendor to furnish
11.2	Dimension of Flow Meter	Vendor to furnish
11.3	Total weight of the system	Vendor to furnish
11.4	Detailed catalogues , sketch/ photographs of the Flow Meter and accessories/ attachments should be submitted with the offer.	Vendor to furnish
12.0	QUALIFYING CONDITION :	
12.1	Only those Vendors/Dealers should quote who have supplied and commissioned at least one similar Flow Meter in the past ten years (on the date of opening of tender) and such Flow Meter is presently working satisfactorily for more than one year after commissioning (on the date of opening of tender) .Dealers to provide authorization certificate from their OEM.	Vendor to accept and confirm
12.2	The following information should be submitted by the vendor about the companies where similar machines have been supplied. This is required from all the vendors for qualification of their offer.	
12.3	1. Name of the customer / company where similar machine is installed.	Vendor to inform
12.4	2. Complete postal address of the customer.	Vendor to inform
12.5	3. Month & Year of commissioning.	Vendor to inform
12.6	4.Parameters of Flow Meter(s) supplied (Type, Flow Rate, Pressure range etc.) & application for which the Flow meter is supplied.	Vendor to inform
12.7	5. Name and designation of the contact person of the customer.	Vendor to inform
12.8	6. Phone, FAX no. and email address of the contact person of the customer.	Vendor to inform
12.9	7. Performance /commissioning certificate from the customers regarding satisfactory performance of Flow Meter supplied to them .	Vendor to confirm
12.10	BHEL reserves the right to verify the information provided by vendor.In case the information provided by vendor is found to be false/incorrect, the offer shall be rejected.	Vendor to confirm

CHAIRMAN

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