



Specification No.	7186
Item No.	ME-1/7/2735
Location	BAY-9
Quantity	01 NO.

- NOTE:-**
1. Vendor must submit complete information against clause no.20 (Qualifying Condition). The offer meeting this clause would only be processed.
 2. The "Offered" Column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance.
 3. The offer and all documents enclosed with offer should be in English language only.

NAME & ADDRESS OF THE SUPPLIER :
 NAME OF CONCERN PERSON :
 TELEPHONE NOS. :
 FAX NOS. :
 E-MAIL ADDRESS :

DESCRIPTION FOR BHEL REQUIREMENT- 12 / 25 KL PORTABLE OIL FILTRATION & CIRCULATING UNIT	QTY.	SPECIFIED / TO BE CONFIRMED BY VENDOR	OFFERED	DEVIATIONS
1.0 PURPOSE & WORK PIECE MATERIAL: 1.1 A new Portable Transformer oil circulation plant with necessary oil pipe line is required to process & handle low sulphur content transformer oil for manufacturing international quality transformers. The new facility will consist of the following : A) Portable Transformer oil circulation plant of 12 KL flow rate capacity with interconnecting pipe lines, valves & control panel. B) The treatment is carried out to reduce the number of particle content size > 2 microns in the insulation oil below 10,000 particles per liter and also to improve the oil impregation of the insulation. C) The process shall be continued till the partical content of the insulation oil achieved to ≤ 10,000 particles > 2 microns per liter.	1NO.	Vendor to confirm		
1.2 Work piece Material: The facility is required for handling Transformer oil.				
2.0 SPECIFICATION 2.1 PLANT CONFIGURATION: Portable oil filtration & circulating plant shall be suitable for closed loop circulation and filtration of TRANSFORMER OIL (As per IS-335) in power-transformer at a flow of 12000 LPH and 2500 LPH through a filter. It shall consist of suction filter, oil feed pump, Coarse & cartridge filter and acontrol panel with necessary instrumentation. Complete plant should be mounted on a steel frame structure with suitable 4 nos. wheels lined with polycurathane & mechanical jacks which can be shifted to any location. Four nos. lifting hooks to be provided to facilitate the shifting.		Vendor to confirm		
2.2 FILTRATION SYSTEM 2.2.1 SUCTION FILTER	1 SET.	Vendor to confirm		
2.2.1.1 Flow capacity of suction filter	12000 LPH			

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DESCRIPTION FOR BHEL REQUIREMENT		QTY.	SPECIFIC CONFIRMATION VENDOR	BE OFFERED	DEVIATIONS
2.2.1.2	Rating of suction filter				
2.2.2	COARSE FILTER	1 mm	Vendor to confirm		
2.2.2.1	Flow rate				
2.2.2.2-1	Filter rating	25000 LPH	Vendor to confirm		
2.2.2.2-4	Filter rating	50-75 Microns	Vendor to confirm		
2.2.3	CARTRIDGE FILTER : It should be suitable for filtration of transformer oil. Filter elements shall be housed in two or more filter housing. At the outlet of the housing a 6/8 NB tapping point with valve shall be provided for connection to a existing particle counting system. Cartridge filter shall be of MICRO CLEAN TYPE, ZETA PLUS, CUNO Make.	1 SET	Vendor to confirm		
2.2.3.1	Flow rate				
2.2.3.2	Filter rating	25000 LPH	Vendor to confirm		
2.3.4	OIL FEED PUMP : Pump should be of centrifugal type of M/s Jyoti Make. It should be provided with inlet & outlet isolation valves, pr. Gauges, flow control valves & pressure relief valves.	0.5 Microns	Vendor to confirm		
2.3.4.1	Flow rate				
2.3.4.2	Max. feeding pressure	12000 LPH	Vendor to confirm		
2.3.4.3	Quantity	2bar	Vendor to confirm		
2.3.5	OIL FLOW METER : The oil flow meter should be connected at the out let of the filter to measure the flow of oil from 25000 Ltrs/ Hr to 50000 Ltrs/Hr. Flow meter shall be of M/s Teitech make with veeder root counter.	2no.	Vendor to confirm		
2.3.5.1	Flow rate				
2.3.6	Hose pipes	25000 LPH	VENDOR TO CONFIRM & SUBMIT		
2.3.6.1	Flexible steel corrugated hose (02 no) of length 10 meter each flange size of 80 NB with one end fixed flange & other end floating flange for connection with transformer to be provided.	02NO.	Vendor to confirm		
2.3.7	Necessary 80 NB isolation valve shall be provided at the inlet and outlet of the system.	01 SET	Vendor to confirm		
2.3.8	All steel piping shall be sand blasted & painted both internally & externally with oil resistant epoxy paint.		Vendor to confirm		
3.0	ELECTRICAL CONTROL PANEL:				
3.1	CONTROL PANEL: A frame mounted sheet metal control panel to be provided for operation of all circulating pumps complete with indicating lamps, starter, single phasing preventer, MCCB & HRC fuses, step-down transformer (if required) & pr. Gauges.	01 NO.	Vendor to confirm		
4.0	INSTRUMENTATION FOR OIL CIRCULATION PLANT SYSTEM		Vendor to confirm		
4.1	Pressure gauge at inlet of cartridge filter W/KA, Germany make.		Vendor to confirm		
4.2	Pressure gauge at outlet of cartridge filter W/KA, Germany make.	01 SET	Vendor to confirm		
4.3	Oil flow meter with totaliser, make- Teitech with veeder root counter.	01 SET	Vendor to confirm		
4.4	suitable provision of 6 mm out let fitting with valves for measuring particle size (in circulated oil) of the order 1 micron	01 NO.	Vendor to confirm		


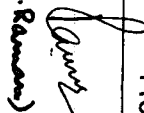
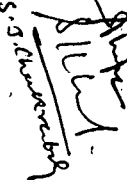

DESCRIPTION FOR BHEL REQUIREMENT: 12 / 25 KL PORTABLE OIL CIRCULATING PLANT	QTY.	SPECIFIED CONFIRMED VENDOR	BE	OFFERED	DEVIATIONS
5.0 ELECTRICAL SYSTEM					
5.1 415 v-10% 50 HZ +/- 1.5 HZ, 3 phase AC (3 wire system with out neutral) Power supply source will be provided by BHEL. Vendor to provide 50 meter power cable to be connected to BHEL source of supply wherever the plant is shifted and being used.		Vendor to confirm			
5.2 TROPICALISATION : All electrical/Electronics equipment shall be tropicalized.					
5.3 All electrical & electronics control cabinets & panels should be dust and vermin proof.		Vendor to confirm			
5.4 All electrical components in the cabinets should be mounted on DIN Rail.		Vendor to confirm			
5.5 Motor shall be conform to IEC or Indian standards.		Vendor to confirm			
5.6 Vendor should ensure the proper earthing for the machine and its peripherals.		Vendor to confirm			
5.7 List of recommended spares with price list to run the plant for 2 years 24 hrs.		Vendor to submit			
6.0 SAFETY ARRANGEMENTS: Following safety features in addition to other standard safety features should be provided on the :					
1. Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, workpiece and the operator due to the malfunctioning or mistakes. Machine functions should be continuously monitored and alarm / warning indications through lights (on panels) should be available.		Vendor to confirm and submit standard safety			
2. A detailed list of all alarms / indications provided on machine should be submitted by the supplier.		Vendor to confirm			
3. All the pipes, cables etc. on the machine should be well supported and protected. These should not create any hindrance to machine operator's movement for effective use of plant.		Vendor to confirm			
4. All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations.		Vendor to confirm			
5. Emergency Switches at suitable locations as per International Norms are to be provided.		Vendor to confirm			
6. Oil & water pipe lines should not run with electrical cable in the same tray / trench.		Vendor to confirm			
7.0 ENVIRONMENTAL PERFORMANCE OF THE PLANT : The Plant shall conform to following factors related to environment :					
(a) Maximum noise level shall be 85 dB(A) at normal load condition, 1 M away from the Plant with correction factor for back ground noise, if necessary. This will be measured as per international standards like DIN 45635-16. Supplier to demonstrate compliance to noise level, if so required.		Vendor to confirm Vendor to confirm			
(b) If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.		Vendor to confirm			
(c) Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.		Vendor to confirm			
8.0 TOOLS FOR ERECTION, OPERATION & MAINTENANCE :					
8.1 Special tools and equipment required for erection and necessary tools like Torque Wrench, Spanners, Keys, grease guns etc for operation and maintenance of the plant should be supplied. List of such tools should be submitted with offer.		Vendor to confirm and submit			
8.2 Not with standing any thing the details in this specification, if any thing else is required for its functioning the same shall be specially brought and included in offer.					

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DESCRIPTION FOR BHEL REQUIREMENT: 12 / 25 KL PORTABLE OIL CIRCULATING PLANT	QTY.	SPECIFIED CONFIRMED VENDOR	BE OFFERED	DEVIATIONS
9.0 DOCUMENTATION : Five sets of following documents (Hard copies) in English language should be supplied along with the plant	05 SET	Vendor to confirm		
9.1 Operating manuals of plant				
9.2 Detailed Maintenance manual of plant with all drawings of machine assemblies/sub-assemblies/parts including Electrical / Pneumatic/ Hydraulic circuit diagrams. All Assembly/ Sub Assembly Drawings shall be supplied with the part list also				
9.3 Catalogues, O&M Manuals of all bought out items including drawings, wherever applicable.				
9.4 Detailed specification of all rubber items and hydraulic/tube fittings				
9.5 Operating Manuals, Maintenance Manuals & Catalogues for supplied equipments, Voltage Stabilizer, Isolation transformer and all supplied Accessories.				
10.0 TRAINING BHEL Persons should be trained at supplier's Works for mutually agreed period in the area of Electrical, Electronic for machine & other supplied equipments		Vendor to confirm		
11.0 ERECTION & COMMISSIONING Supplier to take full responsibility for carrying out the erection, start up, testing of plant, 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 shall also be provided by BHEL. Details of these requirements should be informed by vendor in advance.	01 LOT	Vendor to confirm		
11.1 Successful proving of plant by the supplier shall be considered as part of commissioning. All tests, as mentioned at clause (6) shall form part of the commissioning activity.		Vendor to confirm		
11.2 Commissioning spares, required for commissioning of the machine within stipulated time, shall be brought by the supplier on returnable basis.		Vendor to confirm		
11.3 Portion, if any, of the plant, accessories and other supplied items where paint has rubbed off or peeled during transit or erection should be repainted and merged with the original surrounding paint by the vendor. For this purpose, the Schedule of Erection and Commissioning shall be submitted with the offer.		Vendor to confirm		
12.0 ACCURACY TEST- Complete prove-out of plane shall be done by vendor at BHEL works to the specified accuracy as per specification para 2.0 Material for the proveout of the shall be provided by BHEL. Vendor shall be fully		VENDOR TO SUBMIT		
13.0 AMBIENT CONDITION & THERMAL STABILITY: Complete plant all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Voltage: 415 V - 10%, +10% , Frequency: 50 Hz +3%, - 3% No. of phases = 3 Ambient Conditions: Temperature = 5 to 45 degree celsius Relative Humidity = 95% max.		Vendor to confirm		
Weather conditions are tropical. Atmosphere may be dust laden during some part of the year. Machine shall be kept in the normal shop floor condition. Max. temperature variation is up to 25 deg Celsius in 24 hours.		Vendor to confirm		
Thermal Stability of the complete machine keeping in view specified Ambient Conditions and accuracy requirements of BHEL components and trouble free operation of the machine should be ensured by vendor. (Confirm that machine is suitable for above and details of provisions on the machine for the same should be furnished)		Vendor to confirm		
The plant, including attachment and accessories, should be suitable 24 hrs. continuous operation to its full capacity for 24 hour a day and 7 week throughout. Vendor ensure and conform the same.		Vendor to confirm		

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DESCRIPTION FOR BHEL REQUIREMENT 12 /25 KL PORTABLE OIL CIRCULATING PLANT	QTY.	SPECIFIC CONFIRMED BY VENDOR	OFFERED	DEVIATIONS
14.0¹ PROVEOUT OF BHEL COMPONENTS :				
14.1 Complete prove out of plant shall be done by vendor at BHEL works to the specified accuracy as per para 2.0 material for the proveout of plant shall be provided by BHEL. Vendor shall be fully responsible for proveout of plant as per drawing and other requirements specified by BHEL to the full satisfaction of BHEL. Clarifications, if any required by vendor, regarding accuracy requirements of plant, whether specified or not, should be discussed and cleared by vendor during initial technical discussions.		Vendor to confirm.		
14.2 Vendor shall be responsible for any deviation/ rejection in proveout of plant due to wrong operation or malfunctioning of the plant during proveout and also for the delay in operation. The cost of such deviation/ rejection, if any shall be refunded by the vendor to BHEL.		Vendor to submit.		
15.0¹ PLANT ACCEPTANCE: (Tests/Activities should be Performed by Vendor)		Vendor to confirm.		
15.1 Tests/Activities to be carried out at supplier's works on the machine before dispatch :		Vendor to confirm.		
15.2 The plant should be tested for continuous running of 48 hrs. If any break down occurs during this test, the should be repeated for 48 hrs form that time.		Vendor to confirm.		
15.3 Demonstration of all features of the plant & all accessories as per para 2.0		Vendor to confirm.		
16.0¹ Tests/Activities to be carried out at BHEL works while commissioning the plant :		Vendor to confirm.		
16.1 Full load test to demonstrate the maximum power & pressing/dismantling capacity of the plant.		Vendor to confirm.		
16.2 The plant should be tested for continuous running of 48 hrs. If any break down occurs during this test, the should be repeated for 48 hrs form that time.		Vendor to confirm.		
16.3 Demonstration of all features of the machine, control system & accessories to the satisfaction of BHEL for efficient and effective use of the machine as per para 2.0		Vendor to confirm.		
16.4 Demonstration by actual use of all supplied attachments and accessories to their full capacity.		Vendor to confirm.		
16.5 Job prove out. Five job trials shall be taken prove out of plant specifications as per para 2.0		Vendor to confirm.		
16.6 Two weeks supervision of independent operation of machine by BHEL after job proveout		Vendor to confirm.		
16.7 Training of BHEL machine operators in operation of complete machine & accessories etc by the supplier's experts / engineers during their stay at BHEL works		Vendor to confirm.		
17.0¹ PAINTING:				
17.1 Standard & rigid packing for all items of complete plant, all Accessories and other supplied items to avoid any damage/loss in transit. When machine is despatched in containers, all small loose items shall be suitably packed in boxes		Vendor to confirm.		
18.0¹ GUARANTEE :				
18.1 24 months from the date of acceptance of the machine.		Vendor to confirm.		
19.0¹ PAINTING				
19.1 Painting of plant/electrical panels:RAL,6011 APPLE GREEN (POL YURETHANE PAINT)		Vendor to confirm.		
20.0¹ QUALIFYING CONDITION				
20.1 Only those vendors, who have supplied and commissioned at least Two Numbers Oil circulation plant of similar or higher capacity for similar application in the past ten years and such plant is presently working satisfactorily for more than one year after commissioning should quote. The following information is to be submitted by the vendor about the companies to whom similar plants have been supplied. This is required from all the vendors for qualification of their offers.		Vendor To Confirm		
20.2 Name of the panel manufacturer and company profile.		Vendor To Confirm		

DESCRIPTION FOR BHEL REQUIREMENT 12 / 25 KL PORTABLE OIL CIRCULATING PLANT	QTY.	SPECIFIED CONFIRMED VENDOR	OFFERED	DEVIATIONS
20.3 Details of manufacturing facilities available at manufacturer works.		Vendor To Confirm		
20.4 Details of test facilities available at manufacturer works.		Vendor To Confirm		
20.6 List of the company where supplied in last 2 years with address, name of contact person and phone number.		Vendor To Confirm		
21.0 BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false/incorrect, the offer shall be rejected.		Vendor To Confirm		
<p>Prepared By</p>  Y.K. Disingra (W.E.R.S.)	<p>Approved By Production In-charge</p>  (A.K. Singh)	<p>Approved By Maintenance In-charge</p>  S.S. Choudhary		
				<p>Prepared By</p>  (PRDUN SINGH)