



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY	Phone: +91 431 257 79 38 Fax : +91 431 252 07 19 Email : tvenkat@bheltry.co.in Web : www.bhel.com
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	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
	2620800039	06.06.2008	08.07.2008

You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order

Item	Description	Quantity	Delivery (Item required at BHEL on)
10	Valve Body Seat Lapping Machine as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1 No.	31.07.2009

BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats along with technical specifications can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference “2620800039”.

Tenders should reach us before 14:00 hours on the due date
Tenders will be opened at 14:30 hours on the due date
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED

Manager / Capital Equipment / MM

PART A**VALVE BODY SEAT LAPPING MACHINE****SECTION – I : QUALIFYING CRITERIA**

The BIDDER has to compulsorily meet the following requirements to get qualified for consideration of the technical offer for the VALVE BODY SEAT LAPPING MACHINE

S. No.	REQUIREMENTS	VENDOR's RESPONSE
1	Only those vendors (OEMs), who have supplied and commissioned at least One Special Purpose Lapping / Grinding Machine, in the past and such machine is presently working satisfactorily for more than one year after commissioning (on the date of opening of Tender), should quote. However, if such machine (s) has/ had been supplied to BHEL, then such machine should be presently working satisfactorily for more than six months after its commissioning and acceptance (on the date of opening of Tender) in BHEL.	
The vendor should submit following information where similar machine has been supplied for qualification of their offer.		
1.1	Name and postal address of the customer or company where similar machine is installed.	
1.2	Name and designation of the contact person of the customer.	
1.3	Phone, FAX no and email address of the contact person of the customer.	
1.4	Month and Year of commissioning of the machine.	
1.5	Application for which the machine is supplied	
1.6	Performance certificate from the customer regarding satisfactory performance of machine supplied to them.	
2.0	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.	

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SECTION – II

The BIDDER / VENDOR is requested to provide the following information:

3.0	The BIDDER shall specify the number of Years of Continuous Experience in the field of Design, Manufacture and Supply of Special Purpose Machines.	
4.0	Details of Special Purpose Machines supplied to other BHEL units, if any, (Year of commissioning, Spindle size of machine, Spindle motor power).	
5.0	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centers in South India.	
6.0	Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

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SECTION – III

The BIDDER to note:

S. No.	PARTICULARS	VENDOR'S RESPONSE
7.0	The BIDDER / VENDOR shall submit the offer in TWO PARTS. 1. Technical Offer [with Part A & Part B] and Commercial offer. 2. Price Bid.	
8.0	The Offer shall contain a comparative statement of Technical Specifications demanded by BHEL and Offer Details submitted by the Bidder , against each clause. A just 'CONFIRMED' or 'COMPLIED' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer.	
9.0	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details of 'Bought-Out-Items' with copies of Product Catalogue and Selection Criteria.	
10.0	The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation.	
11.0	For obtaining the performance certificate from the customer, a suggestive format is provided in SECTION - IV .	

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SECTION – IV

The Performance Certificate should be produced on Customer's Letter Head.

PERFORMANCE CERTIFICATE

1. Supplier of the machine	
2. Make & Model of the M/C	
3. Month & Year of Commissioning	
4. Application for which the machine is used	
5. a. Table size b. Table Weight carrying capacity c. Spindle Power	
6. Performance of the Machine. (Strike off whichever is not applicable)	Best in the market Satisfactory Good Average Not Satisfactory
7. Any Other remarks	
<div style="display: flex; justify-content: space-between; align-items: flex-end; padding: 10px;"> <div>Date:</div> <div>Signature & Seal of the Authority Issuing the Performance Certificate</div> </div>	

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PART – B TECHNICAL SPECIFICATION FOR VALVE BODY LAPPING MACHINE

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
1.0	Purpose: The machine is intended to lap Seats of Valve Bodies.		
1.1	Operation: Valve Bodies with seats shall be lapped using a circular lap plate. Silicon Carbide waterproof emery paper in strip form will be used as the lapping abrasive. Emery strips will be cut to size and stuck to the lapping plate radially using double-sided adhesive tape. For job details, please refer Annexure-1.	Vendor to confirm	
1.2	Work piece Material: The surface to be lapped will be hard-faced with Stellite-6, with hardness in the range of about 425 BHN. The surface finish will be 1.6 micron before lapping. After lapping the surface finish shall be 0.1 micron (Ra) and the flatness shall be one Helium light band.	Vendor to confirm	
2.0	SPECIFICATION:		
2.1	For Approximate configuration of machine, please refer Annexure-2		
2.2	Column: The column shall house / carry all necessary drives in the machine.	Vendor to confirm	
2.2.1	Cross movement of column (X-axis): This is required for bringing the arm axis and the table center in line. After achieving this alignment, the column will be mechanically locked permanently. The cross movement shall be manually driven. The vendor shall give details of this arrangement. The X traverse shall be maximum 500 or 600 mm.	Vendor to confirm	
2.2.2	Column indexing: The column shall be free to rotate through 360 ° about its own axis. The column shall be rotated manually and shall be locked in any position. This arrangement is required to enable lapping of large jobs outside the machine table (Job will be kept on floor). Vendor shall give details of this arrangement.	Vendor to specify	

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
2.2.3	Longitudinal movement of column (Z-axis): The column carrying the arm shall move on rails. Mechanism: Driven by Motor. Rating of motor: Traverse movement: Speed:	Vendor to specify Vendor to specify Vendor to specify	
2.2.4	Y-axis guide ways: Guide ways for vertical movement of arm shall be fixed to the column	Vendor to confirm	
2.3	Arm: The arm shall house all necessary drive mechanisms required for the rotation of lap plate (B-axis), Longitudinal movement (W-axis) and 180 degree turning of the lap plate about the arm axis (Lap plate facing the sky).	Vendor to confirm	
2.3.1	Vertical movement of Arm (Y-axis): The Arm shall move vertically on suitable guide ways fixed to the column. The drive shall be motorized. The Y-axis traverse shall be min 300 mm from the Table surface (when not tilted). Thrust load: Y-axis drive shall be capable of producing sufficient thrust required for generating necessary pressure at the lapping surface. Vendor shall furnish details. Rating of motor: Traverse movement: Speed:	Vendor to confirm Vendor to confirm Vendor to specify Vendor to specify Vendor to Specify	
2.3.2	Longitudinal movement of Arm (W-axis): The Arm shall extend/retract in the longitudinal direction towards/away from the machine table. Mechanism: Manual, Rack and Pinion type with locking in all positions. Traverse Movement:	Vendor to specify	

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
2.3.3	Turning of Arm through 180 degree: The arm should turn through 180 ° so that the lapping face of the lap plate faces upward. This is required for changing the used emery strips with fresh ones. This position will also help in easy mounting of lap plates on to the spindle. This shall be achieved manually through a suitable arrangement. Vendor shall give details of the offered arrangement.	Vendor to specify	
2.4	Lap Plate:		
2.4.1	The lap plate shall be located and mounted on its drive spindle (B-axis) using clamping screws.	Vendor to specify	
2.4.2	Details of B axis drive mechanism	Vendor to specify	
2.4.3	Motor rating	Vendor to specify	
2.4.4	Speed range: (infinitely variable)	1 to 30 RPM	
2.4.5	Wobble effect: The spindle shall have suitable mechanism to introduce radial wobbling in the range 1 to 10 mm (adjustable). This is required for obtaining required surface finish and flatness without scratch marks on the lapped surface.	Vendor to furnish	
2.5	Table:		
2.5.1	Size of the Table:	Vendor to specify	
2.5.2	Weight carrying capacity	8 Tons	
2.5.3	The top surface of table shall be flush with the floor level (when not tilted) for easy loading of jobs.	Vendor to confirm	
2.5.4	There shall be a locating bore on the table surface for locating fixtures. (Dia of bore and depth to be specified)	Vendor to confirm & specify.	
2.5.5	Tilting of table: By hydraulic means. Tilting range: 0 to 12° with minute tilting of the order of minutes.	Vendor to specify	
2.5.6	The table shall have three self-centering jaws for quick holding of jobs. These jaws shall be operated by electric motor suitably mounted at the bottom face of the table.	Vendor to furnish details	

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
2.5.7	The table shall have 2 T Slots for fixing the base of V Block. Vendor to specify T slot size and pitch.	Vendor to specify	
2.5.8	The table shall have a movable V Block with hydraulic height adjustment for supporting the over hanging portion of jobs. Vendor shall give details like stroke length etc. to ascertain accommodation of entire range of jobs.	Vendor to specify	
2.6	CONSTRUCTION:		
2.6.1	Vendor to furnish construction details of various components /assemblies like column, Arm, guide ways, spindle, table etc. of the machine.	Vendor to specify	
2.6.2	Machine should be Metric execution.	Vendor to confirm	
2.6.3	The general configuration of the machine is indicated from clause number 2.1 to 2.5.8. However the configuration can vary with out affecting the requirements.		
2.7	OPERATOR'S PANEL:		
2.7.1	Preferably swiveling type operator's panel having complete machine control knobs/buttons/keys shall be provided at a suitable location, ergonomically. All switches on the Operator's panel should be within reach of operator for convenient & safe operation. All displays/indications should also be conveniently placed accordingly. Layout showing complete details of the panel should be submitted.	Vendor to submit	
2.7.2	For easy job setting, an additional operator panel shall be provided at a suitable location near the Table.	Vendor to confirm	
2.8	MACHINE LIGHTS:		
2.8.1	Machine Lights should be provided for sufficient illumination of complete working area.	Vendor to confirm	

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
2.8.2	A magnetic base portable spotlight with sufficiently long cable should also be provided.	Vendor to confirm	
2.8.3	All light fittings, consumables, adapters/receptacles should have compatibility with Indian equivalents	Vendor to confirm	
2.9	Hydraulic system: Rexroth / Vickers Sperry or any other reputed make acceptable to BHEL.	Vendor to confirm	
2.9.1	Hydraulic pump capacity (flow / pressure):	Vendor to confirm	
2.9.2	Each pump should have an independent motor.	Vendor to confirm	
2.9.3	First filling of all required Oils & Grease etc. Should be supplied by vendor. Oil grade: ISO VG46 or 68 Grease: Servo gem grade 2 (preferred) Indigenous (Indian) source or Indian equivalent and specifications of oil/grease are also to be provided by vendor.	Vendor to confirm	
2.10	ELECTRICAL SYSTEM:		
2.10.1	415V $\pm 10\%$, 50HZ ± 3 HZ, 3 Phase AC (3 wire system with out neutral) Power Supply Source will be provided by BHEL at a single point near the machine, as per layout recommended by Vendor. All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the machine/control cabinets, shall be the responsibility of vendor. Requirement of grounding/earthing with required material details is to be informed by vendor well in advance so that it could be incorporated during construction of foundation.	Vendor to confirm	

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
2.10.2	Tropicalisation: All electrical / electronic equipment shall be tropicalized	Vendor to confirm	
2.10.3	All electrical & electronic control cabinets & panels should be dust and vermin proof and shall have IP 54 protection.	Vendor to confirm	
2.10.4	All electrical components in the cabinets should be mounted on DIN Rail	Vendor to confirm	
2.10.5	All electrical and electronic panels including operator's panel should be provided with fluorescent lamps for sufficient illumination and power receptacles of 220Volts, 5/15 Amp AC. All adapters/receptacles should have compatibility with Indian equivalents.	Vendor to confirm	
2.10.6	Motors shall conform to IEC or Indian Standards. Make: Siemens / ABB / Indramat. Or any other reputed make acceptable to BHEL.	Vendor to confirm	
2.10.7	All cables moving with traversing axes should be installed in Caterpillar/ Drag chain. Additionally, all the cable trays required for laying of cables should be included in the offer.	Vendor to confirm	
2.10.8	Vendor should ensure the proper earthing for the machine and its peripherals.	Vendor to confirm	
2.11	Safety arrangements:		
2.11.1	Following safety features in addition to other standard safety features should be provided in the machine:	Vendor to Confirm	
2.11.4	All the pipes, cables etc. on the machine should be well supported and protected.	Vendor to Confirm	
2.11.5	All rotating parts used on the machine should be statically & dynamically balanced to avoid undue vibration.	Vendor to Confirm	
2.11.6	Emergency Switches at suitable locations as per International Norms are to be provided	Vendor to Confirm	

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
2.11.7	Oil pipelines should not run with electrical cable in the same tray / trench.	Vendor to Confirm	
2.12	Environmental performance of the machine:		
2.12.1	Maximum noise level shall not exceed 85 dB (A) at normal load condition, 1 meter away from the machine.	Vendor to Confirm	
2.12.2	If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	Vendor to specify	
2.12.3	Paint of the machine should be oil resistant and should not peel off.	Vendor to Confirm	
3.0	ACCESSORIES		
3.1	Vendor to supply Lap plates for the entire range of jobs indicated in Annexure-1. Drawing of lap plates has to be approved by BHEL.	Vendor to specify	
3.2	The vendor shall supply a portable surface-finish measuring instrument (Probe / stylus type), suitable for measurement at seat surface inside the valve body. Make: Model: Specification:	Vendor to specify Vendor to specify Vendor to specify	
3.3	Portable Flatness Measuring Instrument (Optional): The vendor shall supply a portable flatness measuring instrument/device using monochromatic light source and optical flat. This instrument/device shall be suitable for measuring flatness on seat surfaces inside valve body. Make: Model: Specification:	Vendor to specify Vendor to specify Vendor to specify	

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER (With Technical Details)
4.0	LEVELING & ANCHORING SYSTEM	
4.1	Complete anchoring system including foundation bolt, anchoring materials, fixators, leveling shoes etc shall be supplied for the Machine and Table.	Vendor to Confirm
5.0	TOOLS FOR OPERATION & MAINTENANCE:	
5.1	The vendor shall supply special tools required for the operation and maintenance of the machine. The vendor shall also supply necessary standard tools like Torque Wrench, Spanners, Keys, grease guns etc. for operation and maintenance of the machine. List of all such Special and standard tools shall be submitted along with the offer	Vendor to Confirm
6.0	SPARES:	
6.1	<p>a) Mechanical & hydraulic spares: The list may generally include all types of pumps, Valves, pressure switches / transducers, filters, seals etc.</p> <p>b) Electrical & electronic spares: The list may generally include all types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch, I/O Cards for PLC Power Module & Control Cards for Drives etc.</p> <p>c) Un-priced list of spares with quantities, specified at a&b above, should be submitted with this technical offer.</p> <p>d) Unit Price of each item figuring in c shall be submitted in a sealed cover with the price bid.</p>	Vendor to Submit
6.2	All types of spares for the total machine and its accessories should be available for minimum ten years, after supply of the machine. If any spares or controls are likely to become obsolete within this	Vendor to Confirm

	period, the vendor should inform BHEL and provide details of it's suppliers to enable BHEL to procure them in advance.		
Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
6.3	In case of ordering, a complete list of spares for the machine and its accessories along with spares specification / type / model, and name & address of the spare supplier shall be submitted along with documentation while supplying the machine.	Vendor to Confirm	
7.0	DOCUMENTATION:		
7.1	3 sets of following documents (3 Hard copies) in English language should be supplied along with the machine	Vendor to confirm	
7.2	Operating manuals of Machine	Vendor to confirm	
7.3	Detailed Maintenance manual of machine with all drawings of machine assemblies/sub-assemblies/parts including Electrical / Pneumatic/ Hydraulic circuit diagrams.	Vendor to confirm	
7.4	Catalogues / O&M Manuals of all bought out items.	Vendor to confirm	
7.5	Detailed specification of all rubber items and hydraulic/lube fittings	Vendor to confirm	
7.6	Bearings: Make& Specification for all bearings used in the machine.	Vendor to Specify	
7.7	The vendor shall submit complete Master List of parts used in the machine.	Vendor to Submit	
7.8	One additional set of all the above documentation on CD ROM, wherever possible.	Vendor to confirm	
8.0	TRAINING:		
8.1	The Vendor shall train Two BHEL's Engineers in Operation and Maintenance (Mechanical, Electrical/ Electronics System) of the Machine at Vendor's works for four days	Vendor to confirm	

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
8.2	The Vendor shall impart training to BHEL's Machine Operators and Maintenance crew in Operation and Maintenance after the commissioning of the Machine at BHEL works for not less than 4 working days	Vendor to confirm	
8.3	Airfare, boarding & lodging for the trainees shall be borne by BHEL	Vendor to confirm	
8.4	Competent, English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHEL personnel.	Vendor to confirm	
8.5	Vendor to quote for training on per man per day basis for training at vendor's work	Vendor to specify	
9.0	FOUNDATION:		
9.1	Supplier shall submit the preliminary layout drawing for getting BHEL's approval within one month from the date of Letter of Intent (LOI)/ P.O., Complete Foundation Design including load details and final Layout drawings, shall be submitted by the supplier, within three months after getting BHEL's approval. The Layout should consist of all requirements pertaining to complete machine and all accessories. BHEL shall construct complete foundation for the machine. The vendor shall also indicate detailed specifications of grouting compound and grouting procedure etc. for foundation bolts of the machine.		
10.0	ERECTION & COMMISSIONING		
	1.Supplier to take full responsibility for the supervision of erection, start up, testing of machine, it's control system & all types of other supplied equipment, Lapping of test pieces etc. 2.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. 3. Crane help will be provided by BHEL.		

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
10.1	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All tests, as mentioned in the clause " Machine Acceptance " shall form part of the commissioning activity.	Vendor to confirm	
10.2	The supplier should bring tools, Tackles, instruments and other necessary equipment required to carry out all above activities.	Vendor to confirm	
10.3	The supplier shall arrange commissioning spares required for commissioning of the machine.	Vendor to confirm	
10.4	If any Portion of the machine/ accessories where paint has rubbed off or peeled off during transit or erection should be repainted by the vendor and merged with the original paint of the machine. For this purpose, the vendor should supply sufficient quantity of touch-up paint of various colors used in the machine.	Vendor to confirm	
10.5	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to confirm	
10.6	Duration, terms & conditions for E&C should be furnished with this technical offer in detail. Charges for the same shall be submitted with the price bid.	Vendor to confirm	
11.0	AMBIENT CONDITIONS & THERMAL STABILITY:		
11.1	Power Supply : AC 415 V \pm 10% Frequency : 50 Hz \pm 3HZ Phases : 3 phase 3 wire system Compressed air supply: 60-70 psi Ambient Temperature: max 45°C Relative Humidity = 85% Vendor to confirm that machine is suitable for above conditions	Vendor to confirm Vendor to confirm	

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER (With Technical Details)
11.2	Weather conditions are tropical. Atmosphere may be dust laden during some part of the year. Machine will be installed in the normal shop floor condition. Vendor to confirm that machine is suitable for above	Vendor to confirm
11.3	Thermal Stability of the machine shall be good enough to withstand the specified ambient conditions in order to meet the accuracy requirements of BHEL components. Vendor to confirm for trouble-free operation of the machine.	Vendor to confirm
11.4	The Vendor should confirm that the machine and its accessories is suitable for continuous operation at its full capacity for 24 hours a day and 7 days a week through out	Vendor to confirm
12.0	PROVE-OUT OF BHEL COMPONENTS:	
12.1	<ol style="list-style-type: none"> 1. Job configuration with required critical dimensions for designing the Body Seat lapping machine is enclosed in Annexure – 1. 2. The vendor should prove out any four components with in the range shown in Annexure – 1 (To be identified by BHEL at the time of E & C) to the specified flatness and surface finish. 3. The vendor shall supply all tools like lap plates, abrasive paper etc. necessary for lapping of prove-out components. 	Vendor to confirm
13.0	MACHINE ACCEPTANCE: (Tests/Activities TO be Performed by Vendor)	Vendor to confirm
13.1	Tests/Activities should be carried out at supplier's works on the machine before dispatch:	Vendor to confirm
13.1.1	The machine should be tested for continuous running of 24 hrs.	Vendor to confirm

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
13.1.2	Demonstration of all features of the machine.	Vendor to confirm	
13.1.3	Lapping of Test Piece. Drawing of test piece with relevant dimensions and details of surface conditions shall be submitted by vendor for BHEL'S approval. Vendor shall supply test piece, lapping plate and lapping abrasive for it's lapping. Lapping of the approved test piece to the required finish and flatness as mentioned in clause 1.2 shall form part of the norm for acceptance.	Vendor to confirm	
13.2	Test to be carried out at BHEL works while commissioning the machine:	Vendor to confirm	
13.2.1	Full load test to demonstrate the maximum capacity of the machine table.	Vendor to confirm	
13.2.2	The machine should be tested for continuous running of 24 hrs.	Vendor to confirm	
13.2.3	Demonstration of all features of the machine to the satisfaction of BHEL	Vendor to confirm	
13.2.5	Vendor shall supply test piece as in clause 13.1.3, lapping plate and lapping abrasive for it's lapping. Lapping of the approved test piece to the required finish and flatness as mentioned in clause 1.2 shall form part of the norm for acceptance.	Vendor to confirm	
13.2.6	Prove out of BHEL jobs	Vendor to confirm	
14.0	PACKAGING:		
14.1	Sea worthy & rigid packing for all items of complete machine, all Accessories and other supplied items to avoid any damage/loss in transit. When machine is dispatched in containers, all small loose items shall be suitably packed in boxes	Vendor to confirm	
15.0	GUARANTEE:		
15.1	24 months from the date of acceptance of the machine.	Vendor to confirm	
16.0	GENERAL: The vendor shall submit the following information:	Vendor to specify	

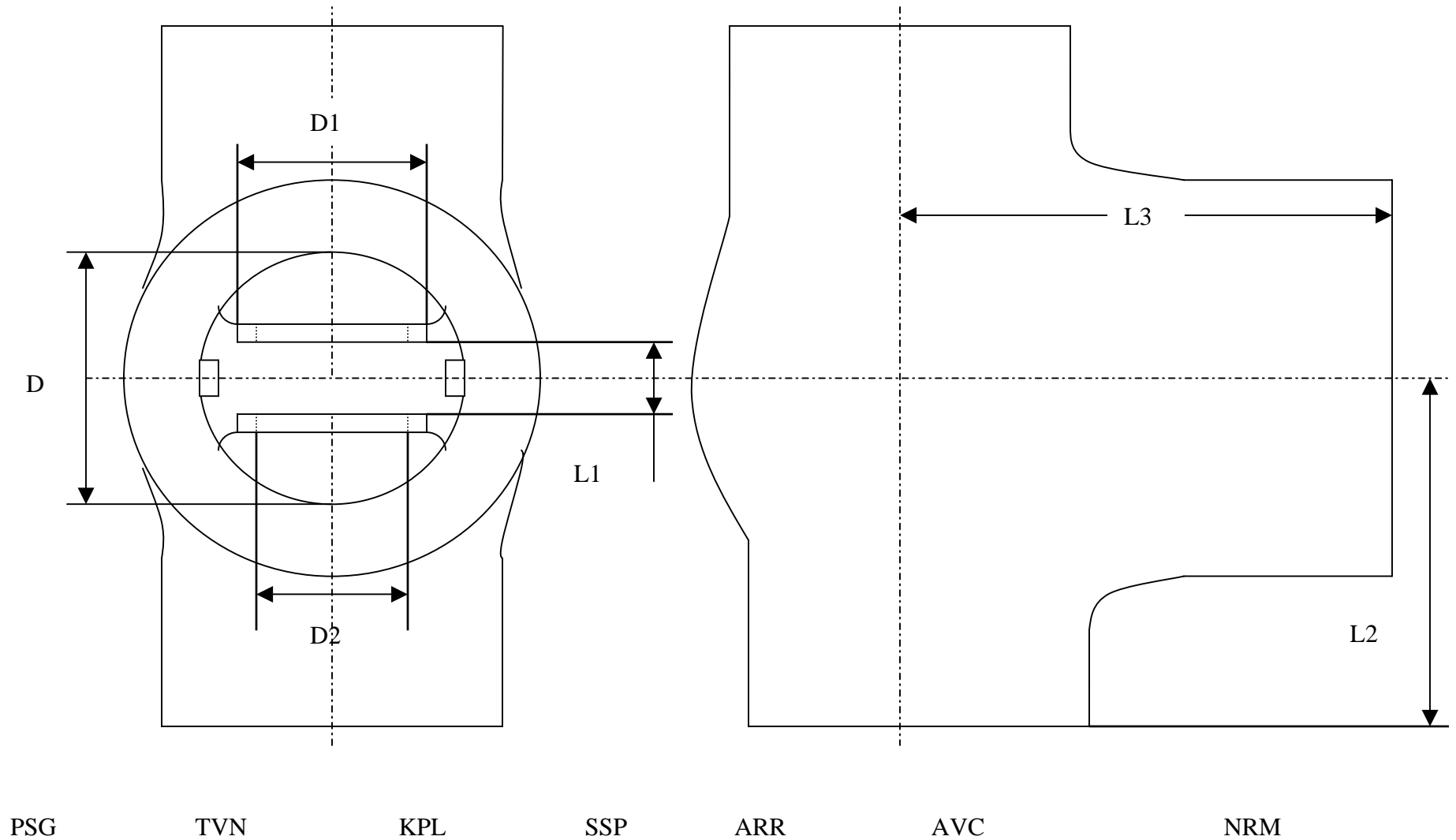
Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER (With Technical Details)
16.1	Machine Model	Vendor to specify	
16.2	Total connected load (KVA):	Vendor to specify	
16.3	Floor area required (Length, Width, Height) for complete machine & accessories.	Vendor to specify	
16.4	Painting of Machine/ Electrical Panels: RAL 6011 Apple Green (Polyurethane Paint)	Vendor to confirm	
16.5	Total weight of the machine	Vendor to specify	
16.6	Weight of heaviest part of machine	Vendor to specify	
16.7	Weight of the heaviest assembly/ subassembly of the Machine	Vendor to specify	
16.8	Dimensions of largest part/ subassembly/ assembly of the machine	Vendor to specify	

Annexure-1. Job configuration with Dimensions.

Annexure-2. Approximate configuration of Body seat Lapping Machine.

Annexure – 1. Job configuration with dimensions

(BHEL will provide any four components with in this range for prove out)



Annexure – 1. Job configuration with dimensions.... Contd.

GROUP	SL.No	VALVE TYPE	SIZE	D	D1	D2	L1	L2	L3	REMARKS
A	1	QCNRV & CRHNRV	10"-300CL	305	280	254	228	333	340	
	2		10"-600CL	360	294	248	282	415	400	
	3		12"-150CL	360	336	306	248	497	370	
	4		12"-300CL	370	337	305	288	378	390	
	5		14"-600CL	410	375	327	306	467	470	
	6		16"-150CL	455	423	391	380	622	450	
	7		16"-300CL	465	434	336	184	567	480	
	8		16"-600CL	410	375	327	306	535	470	
	9		18"-600CL	512	510	450	530	638	700	
	10		20"-150CL	580	536	490	480	673	545	
	11		20"-300CL	565	526	490	470	638	550	
	12		24"-150CL	680	633	593	550	747	595	
	13		24"-600CL	705	680	600	730	852	885	
	14		32"-150CL	870	840	790	710	947	760	
	15		32"-600CL	920	900	800	1020	1027	1190	
NOTE: QCNRV VALVES UPTO 14" ARE TAPER SEAT WITH 9° SEAT ANGLE. ABOVE 16" HAS STRAIGHT SEAT.										
B	1	GATE VALVE	250/1500	290	238	190	157.73	432	505	
	2		300/1500	330	276	220	180.4	495.5	570	
	3		350/1500	370	305	245	202.91	533.5	640	
	4		400/1500	420	350	280	246.13	597	730	
	5		450/1500	475	395	315	269.27	673	820	
	6		250/2500	275	205	155	169.9	457	500	
	7		300/2500	340	245	185	197.97	520.5	570	
	8		350/2500	400	310	235	252.91	559	720	
	9		400/2500	400	310	235	252.91	622.5	720	
	10		450/2500	470	350	265	290.74	698.5	800	
	11		500/2850	465	365	285	268.17	700	1035	
	12		32-600 GV	880	776	733	296	898	1428	

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Annexure – 1. Job configuration with dimensions.... Contd.

GROUP	SL.No	VALVE TYPE	SIZE	D	D1	D2	L1	L2	L3	REMARKS
C	1	SWING CHECK VALVE	250/1500	255	233	195	--	432	400	
	2		300/1500	300	275	230	--	495.5	450	
	3		350/1500	330	300	250	--	533.5	500	
	4		400/1500	220	204	160	--	457	390	
	5		450/1500	270	237	195	--	520.5	455	
	6		250/2500	325	290	230	--	559	575	
	7		300/2500	360	320	260	--	622.5	640	
	8		350/2500	420	355	290	--	698.5	755	

PSG

TVN

KPL

SSP

ARR

AVC

NRM

**Annexure-2 :
Approximate Configuration of
Body Lapping Machine**

