



**MATERIALS MANAGEMENT
CENTRAL FOUNDRY FORGE PLANT
BHARAT HEAVY ELECTRICALS LIMITED
RANIPUR, HARIDWAR - 249403
(INDIA)**

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Sub: Tender Enquiry No. 3044/P/950/75586P/1 Due on 21th March'2008.

We are pleased to invite offer as per enclosed specifications, drawings with terms and conditions in sealed covers for the under mentioned item.

| SL. NO. | TENDER NO. | DESCRIPTION OF MATERIAL AND MATERIAL CODE | QTY (NOS) | DATE OF OPENING TECHNO COMMERCIAL BID |
|---------|---------------------|---|-----------|---------------------------------------|
| 01 | 3044/P/950/75586P/1 | CONVENTIONAL HORIZONTAL BORER- 200MM SIZE AS PER TECHNICAL SPEC:FF07004 REV.01 FF4120418057 | 01 | 21 th March'2008 2.00 P.M. |

KINDLY READ TERMS AND CONDITIONS. OFFER NOT IN ACCORDANCE WITH THE INSTRUCTIONS IS LIABLE TO BE DISQUALIFIED AND OR IGNORED.

PLEASE VISIT www.bhel.com or www.bhelhwr.co.in for more details and tender documents.

Thanking you.

Yours faithfully

For & On behalf of CFFP/BHEL,Hardwar

(A.L. Meena)
Engineer (Pur)

| CFFP/BHEL,HARDWAR | | FF07004 R01 | |
|---|---|-------------------------------|---------|
| | | DATE 15/01/2008 | |
| SPECIFICATION OF FLOOR TYPE HORIZONTAL BORING MACHINE | | | |
| NOTE:- | | | |
| 1. The "VENDOR TO CONFIRM/SPECIFY" Column and "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. | | | |
| 2. The offer and all documents enclosed with offer should be in English language only. | | | |
| 3. Any deviation may be clearly mentioned in "REMARKS COLUMN" | | | |
| SCOPE: SUPPLY, ERECTION & COMMISSIONING OF FLOOR TYPE HORIZONTAL BORING MACHINE COMPLYING WITH SPECIFICATIONS AS BELOW: | | | |
| Sl. NO. | CFFP/BHEL,HARDWAR REQUIREMENT | VENDOR TO CONFIRM/ TO SPECIFY | REMARKS |
| 1.0 | PURPOSE & WORKPIECE MATERIAL | | |
| 1.1 | PURPOSE | | |
| 1.1.1 | Milling | Vendor to confirm | |
| 1.1.2 | Drilling | Vendor to confirm | |
| 1.1.3 | Boring | Vendor to confirm | |
| 1.1.4 | O.D.Turning | Vendor to confirm | |
| 1.1.5 | Slitting | Vendor to confirm | |
| 1.2 | WORKPIECE MATERIAL | | |
| 1.2.1 | Steel Castings and Forgings in black condition. Machine should be suitably designed to withstand toughest conditions as our castings & forgings generally have black spots, hard spots, sand inclusion, bend, cracks, etc. Machine shall be utilized for bulk material removal. Intermittent cutting shall also be there. At times finish machining shall also be done. | Vendor to confirm | |
| 1.2.2 | Steel castings and forgings of alloy steel and stainless steel grades having hardness value upto 350BHN | Vendor to confirm | |
| 1.2.3 | Drawings of likely jobs (04-HB-01R00 TO 04-HB-06 i.e. 06 nos.drgs),which shall be machined on Horizontal Boring Machine, are enclosed. | Vendor to confirm | |
| 2.0 | SPECIFICATIONS: | | |
| 2.1 | MACHINE CONFIGURATION: The Machine shall be Floor Type Horizontal Boring Machine with a Rotary Table. Linear movement of Table is to be perpendicular to X-axis. | Vendor to confirm | |
| 2.2 | HEAD STOCK | | |
| 2.2.1 | Boring spindle diameter 200 mm | To confirm | |
| 2.2.2 | Milling spindle diameter | Vendor to specify | |
| 2.2.3 | Ram Cross section (LxB) 450 X 500 mm or more | Vendor to specify & confirm | |
| 2.2.4 | Spindle drive power (AC Continuous Rating - S1) 75 KW or more | To confirm | |
| 2.2.5 | Spindle speed (Infinitely variable) Number of steps in the gear system should be minimum. 1.5 - 630 rpm | To confirm | |
| 2.2.6 | No. of speed ranges | Vendor to specify | |
| 2.2.7 | Max torque on the milling spindle | Vendor to specify & confirm | |
| 2.2.8 | Max torque on the boring spindle (N.m) | Vendor to specify | |
| 2.2.9 | Spindle taper Metric 120 or Equivalent | To confirm | |

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| 2.2.10 | Torque-Power-Speed characteristics of the spindle system to be submitted by the vendor. | Vendor to submit | |
| 2.2.11 | Oriented Spindle Stop (Any position) | Vendor to confirm | |
| 2.3 | COLUMN: | | |
| 2.3.1 | Column longitudinal travel (X-Axis) 10000 mm | Vendor to confirm | |
| 2.3.2 | X-axis feed rate (Infinitely variable) 1.6-1600 mm/min or more | Vendor to confirm | |
| 2.3.3 | X-axis rapid traverse rate 1600 mm/min or more | Vendor to confirm | |
| 2.4 | HEADSTOCK TRAVERSE ON COLUMN: | | |
| 2.4.1 | Headstock vertical travel (Y-Axis) 3150 mm (min.) | To confirm | |
| 2.4.2 | Traverse Range wrt Table top | Vendor to specify | |
| 2.4.3 | Y-axis feed rate (Infinitely variable) 1-1000 mm/min or more | To confirm | |
| 2.4.4 | Y-axis rapid traverse rate 2000 mm/min or more | To confirm | |
| 2.5 | RAM/ SPINDLE TRAVERSE: | | |
| 2.5.1 | Boring spindle axial travel (W-Axis) 1000 mm (min) | To confirm | |
| 2.5.2 | Ram axial travel (Z-Axis) 1000 mm | To confirm | |
| 2.5.3 | Spindle + Ram travel (W+Z) 2000 mm (min) | To confirm | |
| 2.5.4 | Lowest spindle position from Table Top. | Vendor to specify | |
| 2.5.5 | Boring Spindle axis feed rate (Infinitely variable) 1.6-1500 mm/min | To confirm | |
| 2.5.6 | Boring Spindle axis rapid traverse rate 1500 mm/min or more | To confirm | |
| 2.5.7 | Ram axis feed rate (Infinitely variable) 0.5 - 1500 mm/min or more | To confirm | |
| 2.5.8 | Ram axis rapid traverse rate 1500 mm/min | To confirm | |
| 2.6 | FEED AND DRIVE SYSTEMS: | | |
| 2.6.1 | Feed drives/ motors for X,Y,Z & W axes [AC servo motors of Siemens make only] shall be digital type of reputed make (Details of model, make, type etc. to be submitted) | Vendor to submit | |
| 2.6.2 | Maximum feed force for all axes | Vendor to specify | |
| 2.6.3 | Type of power transmission: Pre-loaded backlash free double pinion & rack drive | Vendor to submit | |
| 2.6.4 | Mechanism for locking X, Y, Z & W axis | Vendor to specify & Submit Details | |
| 2.6.5 | Maximum thrust rating of all axes. | Vendor to specify | |
| 2.7 | MACHINE GUIDEWAYS: | | |
| 2.7.1 | Width of bed guideways, X-axis | Vendor to specify | |
| 2.7.2 | Width of column guideways, Y-axis | Vendor to specify | |
| 2.7.3 | Details of Guide ways for Ram axis and bearing details of Spindle axis are to be submitted with offer. | Vendor to submit | |
| 2.7.4 | Guide ways for X-axis: Hydrostatic (Details to be submitted). Details of lubrication system provided on Spindle axis are also to be submitted with the offer. | Vendor to submit | |
| 2.7.5 | Hardness of guideways | Vendor to specify | |
| 2.7.6 | Metallic Telescopic covers of rust resistant material to be provided with wipers for X & Y axes guide ways. Telescopic covers for X-axis should be with a slant towards Chip conveyor. | Vendor to offer and confirm | |
| 2.8 | ROTARY TABLE : | | |
| 2.8.1 | Table size (LxB) 3000 x 3500 mm | Vendor to confirm | |
| 2.8.2 | Maximum load carrying capacity 50 MT | Vendor to confirm | |
| 2.8.3 | Rotary Table shall be capable of eccentric loading of jobs up to 25T. Loading Chart of Table showing relation of weight and distance of c.g. from centre of Rotary Table to be submitted. | Vendor to confirm & submit. | |

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| 2.8.4 | Table rotation -360 indexing positions | Vendor to confirm | |
| 2.8.5 | Accuracy of Rotary axis | Vendor to specify | |
| 2.8.6 | Maximum machining torque on B-axis (N-m) | Vendor to specify | |
| 2.8.7 | Maximum clamping torque on B-axis (N-m) | Vendor to specify | |
| 2.8.8 | Feed rate for Table Rotary Axis. (rpm) | Vendor to specify | |
| 2.8.9 | Rapid Traverse Rate for Rotary Axis (rpm) | Vendor to specify | |
| 2.8.10 | Size, Tolerances & pitch of T-slots (Suitable for Studs of M30 size). | Vendor to specify and confirm | |
| 2.8.11 | Size of bore at the center (dia & depth) | Vendor to specify | |
| 2.8.12 | Linear traverse 2500 mm | Vendor to confirm | |
| 2.8.13 | Feed Force on Linear Axis | Vendor to specify | |
| 2.8.14 | Feed Rate for Linear axis (mm/min) Infinitely variable | Vendor to specify | |
| 2.8.15 | Rapid Traverse rate for Linear axis (mm/ min) | Vendor to specify | |
| 2.8.16 | Minimum distance between ram face and table face. | Vendor to specify. | |
| 2.8.17 | Chevron type Metallic Telescopic Covers of rust resistant material are to be supplied with wipers for Table Linear axis. Sheet thickness to be 3mm min. | Vendor to confirm | |
| 2.8.18 | Mechanism for locking/ clamping of Table axes | Vendor to specify | |
| 2.8.19 | Location of the Table | On extreme Left side of X-traverse looking from Spindle side. | |
| 2.8.20 | Distance for which Spindle should reach beyond extreme end of rotary table on either side. | Vendor to specify | |
| 2.8.21 | Level of Rotary table should be such that it can freely rotate without interfering with the floor plates. | Vendor to confirm. | |
| 2.8.22 | Hydrostatic Guideways for Table Rotation, Details to be submitted. | Vendor to specify | |
| 2.8.23 | Guideways for Table Linear Traverse, Details to be submitted for Lubrication, Drive etc. | Vendor to specify & submit | |
| 2.8.24 | 4 x 90 deg Precision Positioning (Details to be submitted.) | Vendor to specify. | |
| 2.9 | CONSTRUCTION: | | |
| 2.9.1 | Vendor to furnish details of material, hardness & constructional details, including explanatory drawings, of various Components/ Assemblies like Column, bed, Head Stock, Ram, Spindle, Rotary Table etc. of the machine. | Vendor to submit | |
| 2.9.2 | Video images on CD including hard copy explaining the technical features/ Literature with photographs, drawings explaining the technical features should be enclosed with the offer. | Vendor to submit | |
| 2.9.3 | Automatic deflection compensation for ram and Spindle effective at any extension of the ram plus spindle is to be provided taking into consideration weight of all possible cutters/ attachments offered. Details of the offered system should be submitted with offer. | Vendor to confirm and submit | |
| 2.9.4 | Head Stock Counterbalancing System. (Details of the offered system to be submitted) | Vendor to submit | |
| 2.10 | OPERATOR'S PLATFORM: | | |
| 2.10.1 | Operator's platform of min 300 kg load carrying capacity to be provided with Headstock | Vendor to confirm . | |
| 2.10.2 | Minimum Height of Platform from Shop Floor. | Vendor to specify | |
| 2.10.3 | Splash/ Chip guards on operator platform for protection of operator, operator's panel | Vendor to offer and confirm | |

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|---------------|---|--|---------|
| 2.11 | CONTROL SYSTEM: | | |
| 2.11.1 | OPERATOR'S PANEL: | | |
| 2.11.1.1 | Suspended movable control panel with required switches / keys should be provided for selection of required axis, axis direction, cutting feed, spindle rpm, Direction of Spindle Rotation, i.e. CW/ CCW, cutting feed and spindle rpm on/off, display of axis position values etc. for convenient, efficient & safe operation. Diagram/ Sketches for switches/ keys provided on operators panel to be submitted. All displays/ indications should also be conveniently placed accordingly. Layout showing complete details of the panel should be submitted. Emergency stop push button to be provided on this panel. | Vendor to confirm & submit Photographs & Layout. | |
| 2.11.1.2 | An auxiliary pendant, which can be taken to the table/Job, for job setting and start/ stop of speed and feed, should be provided. Emergency stop push button to be provided on this panel. | Vendor to confirm & offer | |
| 2.12 | MACHINE LIGHTS: | | |
| 2.12.1 | Machine Lights for sufficient illumination of complete working area on both sides of operator's platform should be provided for clear visibility | Vendor to offer & specify details. | |
| 2.12.2 | Any lights required in the foundation/ pit area shall also be foreseen and supplied by the vendor. | Vendor to offer & specify details. | |
| 2.12.3 | All light fittings, consumables, adapters/receptacles should have compatibility with Indian equivalents | Vendor to confirm | |
| 2.13 | AIR CONDITIONERS: | | |
| 2.13.1 | Air Conditioners with Dehumidifiers of suitable/ sufficient capacity and proper drainage pipes for condensate, are to be provided for all Electrical/ Electronic Panels/ Cabinets including operator's Panel considering specified ambient conditions. Detailed specifications of the same are to be submitted. The Air Conditioners are not to be mounted on top of the panels. However, it will be preferred if the electrical controls work efficiently without AC and Dehumidifiers within the specified conditions. | Vendor to offer and submit details. | |
| 2.14 | HYDRAULIC SYSTEM : Details should be Submitted by the Vendor | | |
| 2.14.1 | Reputed make centralised Hydraulic system | Vendor to confirm | |
| 2.14.2 | Filtration System, Details to be submitted. | Vendor to confirm & submit | |
| 2.14.3 | Failure indication | Vendor to confirm | |
| 2.14.4 | Automatic shut off provision, Details to be submitted. | Vendor to confirm & submit | |
| 2.14.5 | Refrigerated type cooling system of sufficient capacity to maintain Oil Temperature within 40 °C in complete Hydraulic System, including lubrication oil, hydrostatic oil and gearbox oil, etc., keeping in view the specified ambient conditions to be offered with complete details. | Vendor to confirm | |
| 2.14.6 | Hydraulic pump capacity (flow/ pressure) to be intimated | Vendor to specify | |
| 2.14.7 | Each pump should have an independent motor. Tandem pumps should not be used | Vendor to confirm | |
| 2.14.8 | First filling of all required Oils & Grease etc. to be supplied by vendor. Indigenous (Indian) source or Indian equivalent and specifications of oils/ greases are also to be provided by the vendor. | Vendor to confirm | |
| 2.14.9 | Hydraulic Oil Tank should preferably be located at Floor level. | Vendor to confirm | |

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| 2.14.10 | All hydraulic oil used on the machine must have Indian make equivalent | Vendor to confirm & Specify | |
| 2.14.11 | LUBRICATION SYSTEM | | |
| 2.14.11.1 | There should be centralised Lubrication system for complete machine | Vendor to submit details & offer | |
| 2.14.11.2 | Interlocking of Spindle lubrication and Spindle drive in case of Lubrication failure | Vendor to confirm | |
| 2.15 | ELECTRICAL SYSTEM : | | |
| 2.15.1 | 415V +10% / -10%, 50HZ +/- 3 HZ, 3 Phase AC (3 wire system without 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, etc., shall be the responsibility of vendor. Requirement of grounding/ earthing with required material (indian make) details is to be informed by vendor well in advance so that same could be incorporated during construction of foundation. The vendor can take earthing connection from the nearest column of the production shop. | Vendor to confirm & specify | |
| 2.15.2 | Tropicalisation: All electrical/ electronic equipment shall be tropicalized. | Vendor to confirm | |
| 2.15.2.1 | Complete panels to be fuseless except Thyristor drives, where thyristor protection fuses are to be used. In all other cases MCCBs/ MPCBs etc. to be used. | Vendor to confirm & specify | |
| 2.15.2.2 | Preferred make for PLCs, Drives & basic electrical equipments like contactors, MPCBs,MCCBs ACBs etc. to be Siemens make make. | Vendor to confirm & specify | |
| 2.15.2.3 | PLCs & drives to have profibus / Ethernet communication capability. PLC programming unit with all necessary hardware and software to be provided with machine. All the softwares including operating system, other system software, programming software and user software for machine must be duly licensed to CFFP,BHEL. | Vendor to confirm & specify | |
| 2.15.2.4 | Indicating lamps to be high luminous type LED's | Vendor to confirm & specify | |
| 2.15.2.5 | All cables to have bottom entry into panels. Power & Control terminals to be grouped separately with 10% extra terminals in each group. | Vendor to confirm & specify | |
| 2.15.2.6 | 10% extra I/Os to be provided in PLC (Min one module each of DI, DO, AI & AO). | Vendor to confirm & specify | |
| 2.15.2.7 | In general the control voltage is to be single phase 220v,50Hz,AC. 110V AC/DC or 415 V AC/DC control voltage are not to be used. The control voltage and auxiliary power supplies to be derived through suitable transformers. | Vendor to confirm & specify | |
| 2.15.2.8 | All panels should be provided with voltmeter , ammeter and energy meter.They should also contain phase indicating LED's in incoming supply. | Vendor to confirm & specify | |
| 2.15.3 | All electrical & electronic control cabinets & panels should be dust and vermin proof. | Vendor to confirm | |

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| 2.15.4 | All electrical components in the cabinets should be mounted on DIN Rail. | Vendor to specify | |
| 2.15.5 | All electrical and electronic panels including operator's panel should have provision of sufficient illumination and power receptacles of 220Volts, 5/15 Amp AC. All adapters/ receptacles should have compatibility with Indian equivalents. | Vendor to specify | |
| 2.15.6 | Motors shall conform to IEC or Indian Standards | Vendor to confirm | |
| 2.15.7 | 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 | |
| 2.15.8 | Vendor should ensure the proper earthing for the machine and its peripherals. | Vendor to confirm | |
| 2.16 | SAFETY ARRANGEMENTS: Following safety features in addition to other standard safety features should be provided on the machine: | | |
| 2.16.1 | 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/ alarm number should be provided. | Vendor to confirm & specify | |
| 2.16.2 | A detailed list of all alarms/ indications provided on machine should be submitted by the supplier. | Vendor to submit | |
| 2.16.3 | All the pipes, cables etc. on the machine should be well supported and protected. These should not create any hinderance to machine operator's movement for effective use of machine. | Vendor to confirm | |
| 2.16.4 | All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations. | Vendor to confirm | |
| 2.16.5 | Emergency Switches at suitable locations as per International Norms are to be provided. | Vendor to confirm | |
| 2.16.6 | Oil lines should not run with electrical cable in the same trench. | Vendor to confirm | |
| 2.16.7 | Safety Lights on moving column (preferably Flashing during X-travel) shall be provided. | Vendor to confirm | |
| 2.17 | ENVIRONMENTAL PERFORMANCE OF THE MACHINE: The Machine shall conform to following factors related to environment : | | |
| 2.17.1 | Maximum noise level shall be 85 dB(A) at normal load condition, 1 meter away from the machine 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 | |
| 2.17.2 | There shall not be any emissions from the machine | Vendor to confirm | |
| 2.17.3 | There should not be any effluent from the machine. In case there are any effluents from the machine, requisite effluent treatment plant or pollution control device should be built into the machine by the supplier. | Vendor to confirm | |
| 2.17.4 | No hazardous chemicals shall be required to be used in the machine. | Vendor to confirm | |

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| 2.17.5 | If any safety/ environmental protection enclosure is required it should be built in the machine by the vendor. | Vendor to confirm | |
| 2.17.6 | No oil spillage from the machine to be ensured. Provision of collection & disposal of spillage oil to be provided (If any) | Vendor to confirm | |
| 2.17.7 | Paint of the machine should be oil/ coolant resistant and should not peel off | Vendor to confirm | |
| 5.0 | PNEUMATIC SYSTEM: | | |
| 5.1 | Vendor to specify any requirement of compressed air supply for the operation of the machine. If so, then the system should be so designed to have additional provision and required accessories with Refrigerated type Air Dryer so that BHEL compressed air supply having pressure 5 Kg/sq.cm with high moisture could be used as and when required. The compressor unit should be suitable for continuous duty operation. | Vendor to specify | |
| 6.0 | MEASURING SYSTEM : | | |
| 6.1 | DRO to display measurements for all axes including linear positions and spindle speed. Least count in X, Y & Z axes should be 0.01 mm | Vendor to specify & Confirm | |
| 7.0 | LEVELING & ANCHORING SYSTEM | Required. | |
| 7.1 | Complete anchoring system including foundation bolts, anchoring materials, fixators, leveling shoes etc shall be supplied for the Machine, Rotary Table, Floor Plates etc. | Vendor to offer and submit details. | |
| 8.0 | ACCESSORIES (OPTIONAL) | | |
| 8.1 | ANGULAR MILLING HEAD/ RIGHT ANGLE MILLING HEAD: | | |
| 8.1.1 | Power | Vendor to specify | |
| 8.1.2 | Max torque | Vendor to specify | |
| 8.1.3 | Speed Range (Infinitely Variable) | Vendor to specify | |
| 8.1.4 | Speed ratio (1:1 between spindles of Machine and Head) | Vendor to specify | |
| 8.1.5 | Spindle taper Metric 120 or Equivalent | Vendor to confirm | |
| 8.1.6 | Traverse Range of C-axis 360 deg. | Vendor to confirm | |
| 8.1.7 | Resolution of C-axis 1 deg. | Vendor to confirm | |
| 8 | Power-Torque-Speed characteristic diagram to be submitted | Vendor to submit | |
| 8.1.9 | Wt. of the head | Vendor to specify | |
| 8.1.10 | Pull Stud for mounting the Head and for mounting the Tools in the taper of the Head shall be supplied by the vendor. | Vendor to confirm | |
| 8.1.11 | Mounting of Head on Ram | Vendor to submit details | |
| 8.2 | BORING AND FACING HEAD | | |
| 8.2.1 | Min. Boring Dia 200 mm | Vendor to confirm | |
| 8.2.2 | Max. Boring dia 1000 mm | Vendor to confirm | |
| 8.2.3 | Max. speed | Vendor to specify | |
| 8.2.4 | Tool slide stroke | Vendor to specify | |
| 8.2.5 | Max. Boring depth. | Vendor to specify | |
| 8.2.6 | Accuracy of Bore Size (Bore Tolerance), Surface Finish of bores and Facial and Radial Run outs | H7, 1.6 microns Ra, 0.02 and 0.05mm respectively. | |

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| 8.2.7 | Item wise details of complete set of standard Tool Holders and Tools, to be used with the offered Head, are to be submitted with the offer. Complete details of any special arrangement offered to meet the specified requirement of Boring range are also to be submitted. | Vendor to submit | |
| 8.2.8 | Details, including schematic sketches, of the offered Head are to be submitted with the offer. Drawing of Pull Stud, if required, should also be submitted. | Vendor to submit | |
| 8.2.9 | Vendor may offer multiple Heads covering our boring range | Vendor to specify | |
| 8.3 | CHIP CONVEYOR : | | |
| 8.3.1 | A chip conveyor to carry both short and curly chips efficiently and effectively to the chip bin to be provided on one end of the machine . | Vendor to confirm | |
| 8.3.2 | Type of chip conveyor | Vendor to specify | |
| 8.3.3 | Width of conveyor | Vendor to specify | |
| 8.3.4 | Elevation of chip conveyor for chip bin | Vendor to specify | |
| 8.3.5 | Material of chip conveyor (to be rust resistant) | Vendor to specify | |
| 8.3.6 | Provision for smooth flow of chips to the conveyor. | Vendor to confirm | |
| 8.3.7 | Operation of chip conveyor through push buttons on operator's panel. | Vendor to confirm | |
| 8.3.8 | Layout showing location of chip conveyor to be submitted. | Vendor to submit | |
| 8.4 | TOOLINGS: | | |
| 8.4.1 | Complete Description of Tooling Ssystem | Vendor to specify | |
| 8.4.2 | Standard Conventional type Tool Holders, adapters, sleeves, arbors, boring bars, clamping elements etc..Any other latest type of Tooling system may also be offered with all relevant details.Mounting details should also be submitted. | Vendor to specify and offer. | |
| 8.5 | SPARES: | | |
| 8.5.1 | Mechanical & Hydraulic Spares: The following spares are to be included. | | |
| 8.5.1.1 | All types of pressure switches / transducers with item wise list. | Vendor to offer | |
| 8.5.1.2 | All pumps (one of each type) including hydraulic and lubrication pumps with item wise list. | Vendor to offer | |
| 8.5.1.3 | All types of valves (2 Nos of each type) including D.C. valves, Relieve valves, Reducing valves, Check valves, Flow control valves, Proportionate valves, Float switches & Pressure switches with item wise list. | Vendor to offer | |
| 8.5.1.4 | Hydraulic Hoses - one set with item wise list. | Vendor to offer | |
| 8.5.1.5 | Set of seals (for all clamping cylinder, all cylinders & pistons) | Vendor to offer | |
| 8.5.1.6 | Metering valves / progressive lubrication system blocks & seals. | Vendor to offer | |
| 8.5.1.7 | All oil filters used in the machine with item wise list. - 5 Nos. each for regenerative type & 20Nos. each for throwaway type | Vendor to confirm & specify | |
| 8.5.1.8 | Set of belts (including timing belts) with item wise list. | Vendor to offer | |
| 8.5.1.9 | All couplings including hydraulic pump couplings, pressure sleeves etc. | Vendor to offer | |
| 8.5.1.10 | Oil seals (one set), sufficient nos. of replacement elements and filters should be quoted as recommended by the vendor for two years 3 shift trouble free working of machine with item wise price, specification and source of supply. | Vendor to offer | |

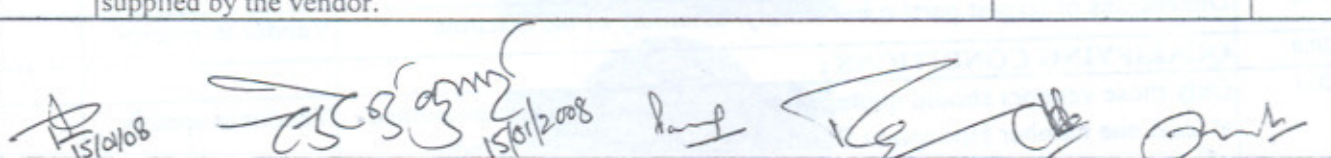
| Sl. NO: | CFFP/BHEL,HARDWAR REQUIREMENT | VENDOR TO CONFIRM/ TO SPECIFY | REMARKS |
|---------|--|-----------------------------------|---------|
| 8.6.1 | Electrical/ Electronic Spares: All types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch, Servo Motors for Feed Drives, Power Module & Control Cards for Main Drive as well as Feed Drives etc. | Vendor to offer | |
| 8.6.1.1 | All types of spares for total machine and accessories should be available for atleast ten years after supply of the machine. If machine or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & suppliers to enable BHEL to procure these in advance, if required. | Vendor to confirm | |
| 8.6.1.2 | Two additional set of electronic cards of installed quantity to be supplied as spares.Type of cards should be minimum. | Vendor to confirm | |
| 8.6.1.3 | Recommended set of spares for all attachments, viz.; Angular Milling Head, Universal Milling Head and Boring Heads are to be offered with details. The spares are to include Motors, Set of Gears, Bearings, Limit Switch Connectors with item wise details. | Vendor to offer | |
| 8.6.1.4 | Vendor to confirm that complete list of spares for machine and accessories, along with specification/ type/ model, name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine | Vendor to confirm | |
| 8.6.1.5 | Floor Plates (For full floor area) | Vendor to furnish details & offer | |
| 9.0 | ERECTION & COMMISSIONING | | |
| 9.1 | Supplier to take full responsibility for carrying out the erection, start up, testing of machine, it's control system & all types of other supplied equipment, machining of test pieces etc. Service requirement like crane, power, air & water shall be provided by BHEL at only one point to be indicated by supplier in their foundation/layout drawings. Details of these requirements should be informed by vendor in advance. | Vendor to confirm | |
| 9.2 | Erection & Commissioning of Voltage stabilizer, Isolation Transformer shall also be responsibility of the vendor. | Vendor to confirm | |
| 9.3 | Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All tests, as mentioned at clause 16 (Machine Acceptance) shall form part of the commissioning activity. | Vendor to confirm | |
| 9.4 | Tools, Tackles, Test Mandrels, instruments and other necessary equipment required to carry out all above activities should be brought by the supplier. | Vendor to confirm | |
| 9.5 | Commissioning spares, required for commissioning of the machine within stipulated time, shall be brought by the supplier on returnable basis. | Vendor to confirm | |
| 9.6 | Schedule of Erection and Commissioning shall be submitted with the offer. | Vendor to submit | |
| 9.7 | All Cover Plates required for the machine and its peripherals shall be supplied by the vendor. The plates should be sourced from India | Vendor to confirm | |

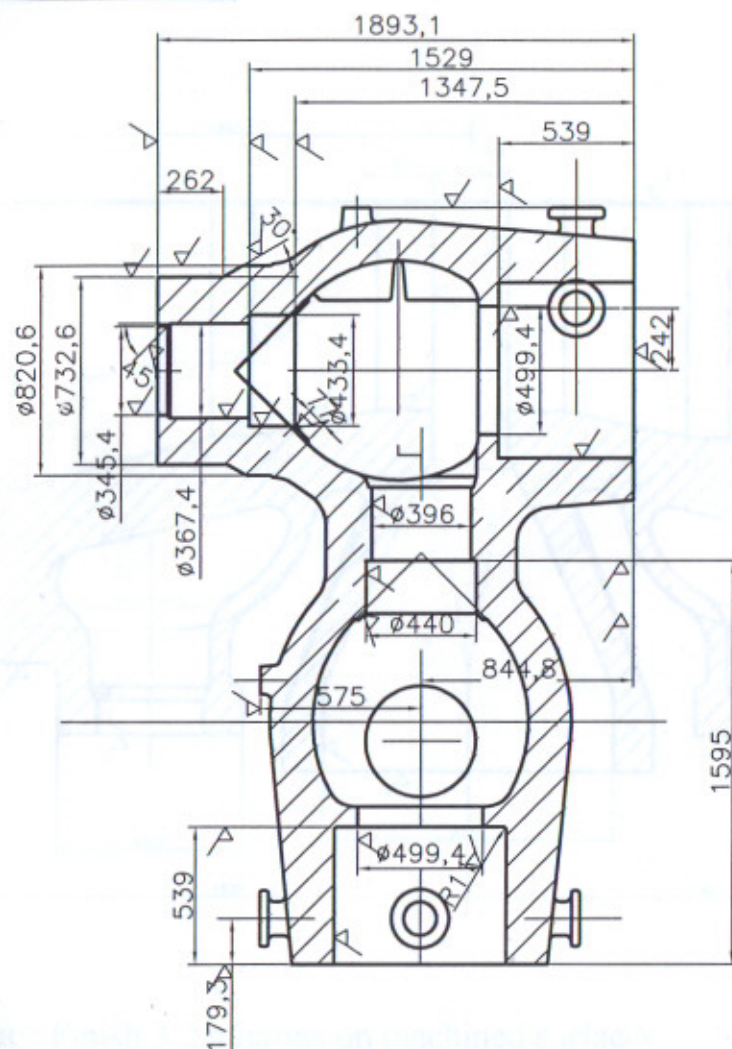
| Sl. NO. | CFFP/BHEL,HARDWAR REQUIREMENT | VENDOR TO CONFIRM/ TO SPECIFY | REMARKS |
|---------|---|---------------------------------------|---------|
| 9.8 | Special tools and equipment required for erection of the machine shall be brought by the vendor. Necessary tools like Torque Wrench, Spanners, Keys, grease guns etc.for operation and maintenance of the machine should be supplied. List of such tools should be submitted with offer. | Vendor to confirm and submit details. | |
| 9.9 | Test mandrel for checking spindle run-out & alignment should be supplied | Vendor to confirm | |
| 9.10 | The vendor shall supply sufficient quantity of paint of the machine and carry out touching wherever the paint is damaged during transit or erection of the machine. | Vendor to confirm | |
| 9.11 | Charges, duration, terms & conditions for E&C should be furnished in details separately by vendor along with offer. | Vendor to offer | |
| 10.0 | DOCUMENTATION : Five sets of following documents (Hard copies) and two set of soft copies in English language should be supplied along with the machine: | Vendor to supply | |
| 10.1 | Operating manuals of Machine | | |
| 10.2 | Detailed Maintenance manual of machine with all drawings of machine assemblies/sub-assemblies/parts including Electrical / Pneumatic/ Coolant / Hydraulic circuit diagrams. All Assembly/ Sub Assembly Drawings shall be supplied with the part list also. | | |
| 10.3 | Manufacturing drawings for all supplied tool holders, coolant connections, adapters, sleeves, fixtures etc. | | |
| 10.4 | Catalogues, O&M Manuals of all bought out items including drawings,wherever applicable. | | |
| 10.5 | Detailed specification of all rubber items and hydraulic/ lube oil fittings are to be supplied. | | |
| 10.6 | Operating Manuals, Maintenance Manuals & Catalogues for supplied Voltage Stabilizer, Isolation Transformer and all supplied Accessories. | | |
| 10.7 | Complete list of parts used in the machine shall be submitted by the vendor. | Vendor to submit | |
| 11.0 | TRAINING: | | |
| 11.1 | BHEL Persons should be trained at supplier's Works for mutually agreed period in the area of: (b) Electrical, Electronic maintenance for machine & other supplied equipments (c) Mechanical & Hydraulic maintenance of the machine & other supplied equipments (d) Operation of the machine & other supplied equipments. | Vendor to offer | |
| 11.2 | To & fro fare, boarding & lodging for the trainees shall be borne by BHEL. | Vendor to confirm | |
| 11.3 | Competent, English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHEL personnel. | Vendor to confirm | |
| 11.4 | Vendor should commit to organize specialised training if so required by BHEL | Vendor to confirm | |

| Sl. NO. | CFFP/BHEL, HARDWARE REQUIREMENT | VENDOR TO CONFIRM/ TO SPECIFY | REMARKS |
|---------|--|---------------------------------------|---------|
| 12.0 | FOUNDATION: | | |
| 12.1 | Vendor shall submit the preliminary layout drawing for getting BHEL's approval within one month from the date of Letter of Intent (LOI)/ P.O., whichever is earlier. Complete Foundation Design including details, like Static/ Dynamic load details etc. and final Layout Drawings shall be submitted by the supplier within three months after getting BHEL's approval keeping in view of the soil condition also. The Layout should consist of all requirements pertaining to complete machine and all accessories, including space requirement for Voltage Stabiliser, Isolation Transformer, Air Compressor, Chip Bin & any other accessory. BHEL shall construct complete foundation for the machine under supervision of supplier and at supplier's responsibility. Vendor should arrange equipment required for the testing of foundation, if required by the vendor. The vendor shall also indicate detailed specifications of grouting compound and grouting procedure etc. for grouting of foundation bolts of the machine. | Vendor to confirm | |
| 13 | GEOMETRICAL ACCURACIES : | | |
| 13.1 | Geometrical Accuracy Tests shall be in accordance with applicable ISO/DIN standard or equivalent applicable standard. Detailed Test Charts for the same, clearly showing the accuracies to be achieved on the machine, shall also be submitted with the offer. | Vendor to confirm | |
| 13.2 | All the above accuracies to be demonstrated to BHEL engineers during pre-acceptance tests at Suppliers works and during Erection & Commissioning at BHEL Works. | Vendor to confirm | |
| 13.3 | Accuracies to suit the requirement of BHEL component as per enclosed Drawing. | Vendor to confirm | |
| 14.0 | AMBIENT CONDITIONS & THERMAL STABILITY : | | |
| 14.1 | Total machine should work trouble free and efficiently under following operating conditions and should give specified accuracies. Power Supply: Voltage: 415 V - 15%, +10% Frequency: 50 Hz +3%, - 3% No. of phases = 3 Ambient Conditions: Temperature = 0 to 50 degree celsius Relative Humidity = 95% max. (Vendor to confirm that machine is suitable for above and details of provisions made in the machine for the same. | Vendor to confirm & submit the detail | |
| 14.2 | 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. Thermal Stability of the complete machine keeping in view the specified Ambient Conditions and accuracy requirements of BHEL components and trouble free operation of the machine is to be ensured by vendor. | Vendor to confirm | |

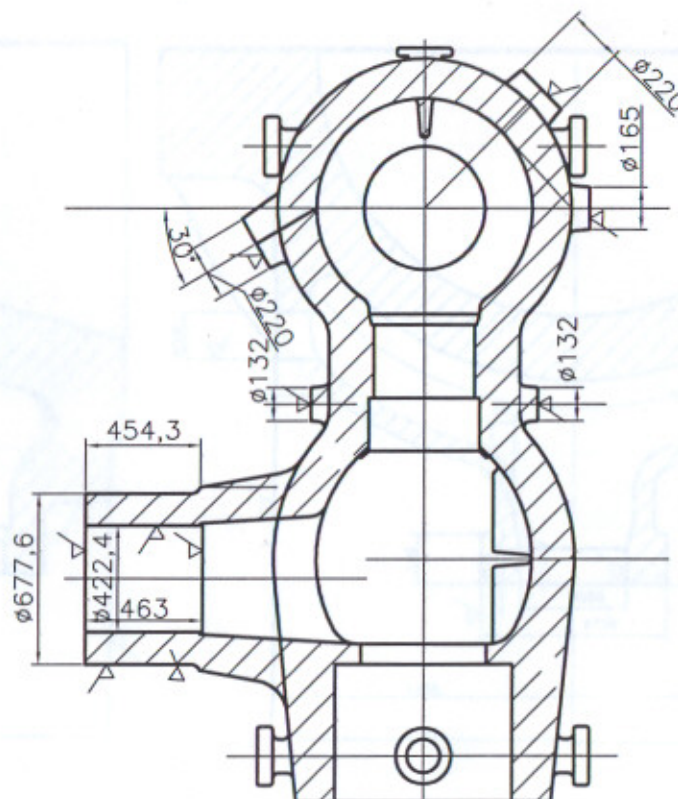
| Sl. NO. | CFFP/BHEL,HARDWAR REQUIREMENT | VENDOR TO CONFIRM/ TO SPECIFY | REMARKS |
|---------|--|--|---------|
| 14.3 | Vendor to confirm that machine is suitable for successful running with guaranteed accuracies and production of jobs with accuracies as specified in proveout components in the conditions specified above. Details of provisions made on the machine for the same are to be furnished to BHEL. | Vendor to confirm | |
| 14.4 | The machine, including Attachments and Accessories etc., should be suitable for 24 hrs. continuous operation to its full capacity for 24 hour a day and 7 days a week throughout. Vendor to ensure and confirm the same. | Vendor to confirm | |
| 15.0 | PROVEOUT OF BHEL COMPONENTS : | | |
| 15.1 | Vendor shall be fully responsible for machining of prove out component as per drawing and other requirements specified by BHEL to the full satisfaction of BHEL Prove out component shall be 01 no. ESVCV CASING as per enclosed Drg. No. 04-HB-01 R00 . Consumables shall be given by BHEL, while durables shall be arranged by the Vendor. | Vendor to confirm | |
| 16.0 | MACHINE ACCEPTANCE: (Tests/Activities To be Performed by Vendor) | Should be accepted & confirmed by Vendor | |
| 16.1 | Tests/Activities to be carried out at supplier's works on the machine before dispatch & during Commissioning at BHEL : | | |
| 16.1.1 | Geometrical Accuracy Tests as per test chart. | Vendor to confirm | |
| 16.1.2 | The machine should be tested for continuous running of 48 hrs. If any break down occurs during this test, the test should be repeated for 48 hrs from that time. | Vendor to confirm | |
| 16.1.3 | Demonstration of all features of the machine,control system, all supplied attachments & accessories to their full capacity and to the satisfaction of BHEL for their efficient and effective use. | Vendor to confirm | |
| 16.1.4 | Machining of Test Piece as per applicable ISO/DIN standard or any other equivalent standard . Vendor to arrange Test pieces and tooling for it's machining. | Vendor to confirm | |
| 16.1.5 | Full load test to demonstrate the maximum power & cutting capacity of the machine. | Vendor to confirm | |
| 16.1.6 | Job prove out at BHEL | Vendor to confirm | |
| 16.1.7 | Two weeks supervision of independent operation of machine by BHEL after job proveout. | Vendor to confirm | |
| 16.1.8 | 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 | |
| 17.0 | PACKING: | | |
| 17.1 | 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 | |
| 18.0 | GUARANTEE : | | |
| 18.1 | Min 18 months from the date of acceptance of the machine. | Vendor to confirm | |

| Sl. NO. | CFFP/BHEL, HARDWARE REQUIREMENT | VENDOR TO CONFIRM/ TO SPECIFY | REMARKS |
|---------|---|-------------------------------|---------|
| 19.0 | GENERAL : The vendor should submit the following information: | | |
| 19.1 | Machine Model | Vendor to specify | |
| 19.2 | Total connected load (KVA): Operating Power Factor should be greater than 0.9 lagging. If it is less, then it should be corrected by suitable means. | Vendor to specify | |
| 19.3 | Floor area required (Length, Width, Height) for complete machine & accessories | Vendor to specify | |
| 19.4 | Paint of Machine/ Electrical Panels: RAL 6011 Apple Green (Polyurethane Paint) | Vendor to confirm | |
| 19.5 | Total weight of the machine with break up of major parts/ assemblies of the machine. | Vendor to specify | |
| 19.6 | Weight of heaviest part of machine | Vendor to specify | |
| 19.7 | Weight of the heaviest assembly/ subassembly of the Machine | Vendor to specify | |
| 19.8 | Dimensions of largest part/ subassembly/ assembly of the machine | Vendor to specify | |
| 20.0 | QUALIFYING CONDITIONS : | | |
| 20.1 | Only those vendors should quote, who have supplied and commissioned at least one number Horizontal Boring Machine of Spindle diameter 180mm & above and Ram + Spindle Travel 1500mm or higher sizes in the past ten years (on the date of opening of Tender) and referred machine is presently working satisfactorily for more than one year (on the date of opening of tender) after commissioning. However, if referred machine has been supplied to BHEL, then the machine should be presently working satisfactorily for more than six months (on the date of opening of tender) after its commissioning and acceptance in BHEL. Supply details are required for qualification. | Vendor to specify | |
| 20.2 | 1. Name and complete postal address of the customer/ company where similar machine(s) is (are) installed. | Vendor to submit | |
| 20.3 | 2. Year of commissioning. | Vendor to submit | |
| 20.4 | 3. Broad Specifications of the machine: Spindle Diameter, Spindle Power, Y-Travel, Ram+Spindle Travel (Z+W) | Vendor to submit | |
| 20.5 | 4. Application for which the machine has been supplied with details of accuracies achieved on the job. | Vendor to submit | |
| 20.6 | 5. Performance certificate from the customer(s), in original, mentioning the aforesaid data, for verification by BHEL. | Vendor to submit | |
| 20.7 | 6. Name, designation, address, Phone no., FAX no. and email address of the issuer of the Performance Certificate/ contact person of the customer. | Vendor to submit | |
| 20.8 | BHEL reserves the right to verify information submitted by vendor including visit to the vendor's works and witnessing the manufacturing & operational procedures. In case the information is found to be false/incorrect, the offer shall be rejected. | Vendor to accept & confirm | |
| 21.0 | SPECIAL INSTRUCTIONS: | | |
| 21.1 | Reference list of the customers, to whom such machines have been supplied should be submitted with the offer, mentioning customer, M/c model, major specifications, year of supply etc. | Vendor to submit | |
| 21.2 | No tandem pump should be used. | Vendor to confirm | |

| Sl. NO. | CFFP/BHEL,HARDWAR REQUIREMENT | VENDOR TO CONFIRM/ TO SPECIFY | REMARKS |
|---|--|-------------------------------|---------|
| 21.3 | Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer. | Vendor to submit | |
| 21.4 | Hydraulic, Pneumatic & oil pipings should be preferably metallic except places where flexible pipings are essential. All the pipes required for the same shall be included in the standard scope of the machine. | Vendor to confirm | |
| 21.5 | Oil & water piping shouldnot be located in the tray / trench in which electrical cables are laid. | Vendor to confirm | |
| 21.6 | All Cover Plates required for the machine and its peripherals shall be supplied by the vendor. | Vendor to confirm | |
|  Dy.Mgr(M/c shop) Sr.Mgr(Maint. M/c shop) SDGM(Maint.M/c shop) AGM(M/c shop) AGM(M&S) AGM(P&D,MSX) | | | |



K



NOTE:

1. Surface Finish 3.2 microns on machined surfaces.
2. Tolerance : Outside dimensions +0.5,-0
: Inside dimensions +0, -0.5
3. Runout of all diameters to be within 0.1 mm
4. Perpendicularity of surfaces to be within 0.1mm

CASTING

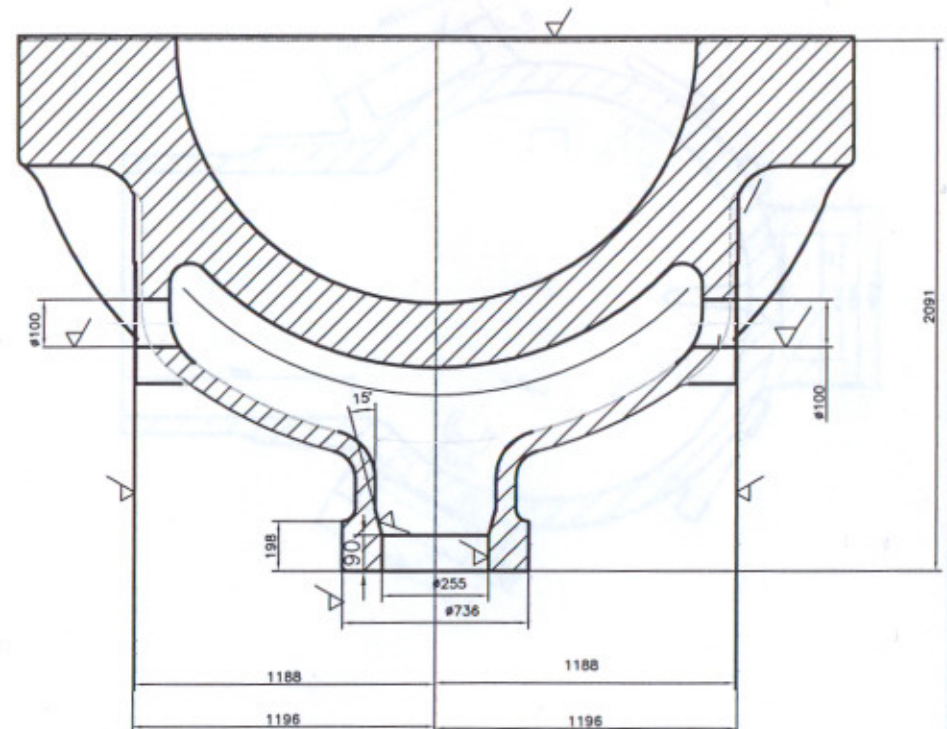
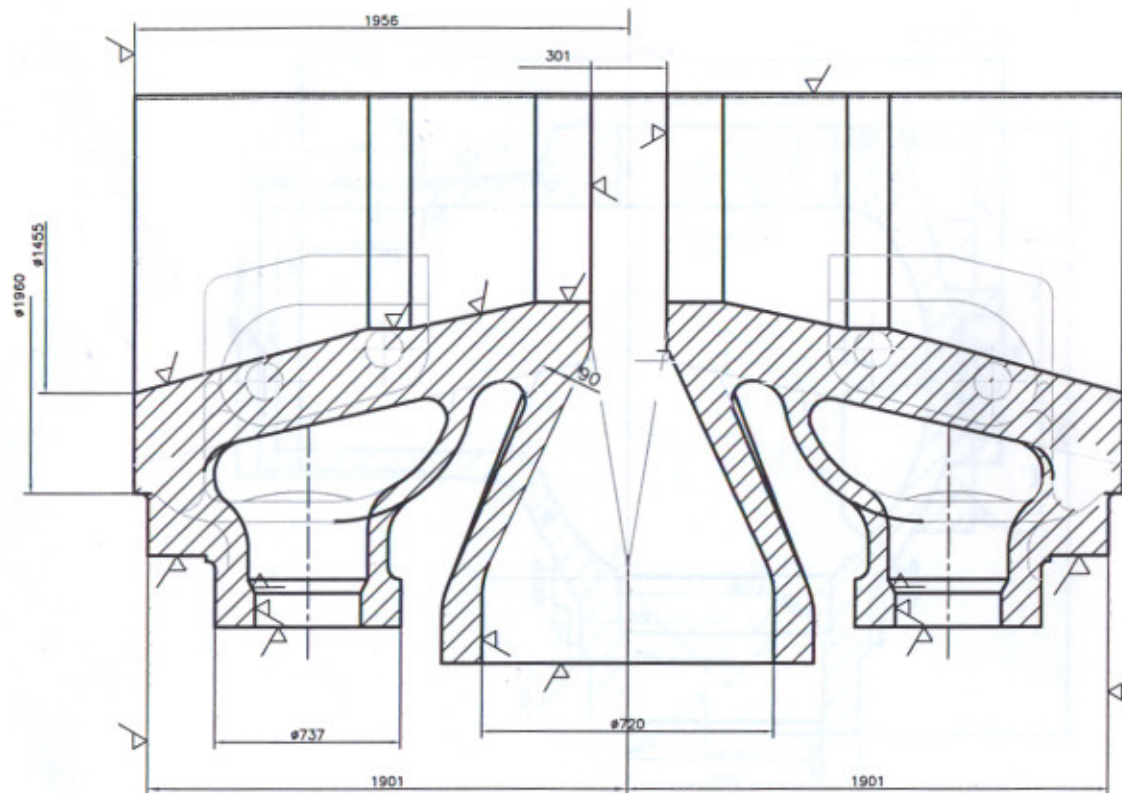
DLY.WT 14500 KG

DRG. NO.

04-HB-01R00

SHEET NO.

NO. OF SHEETS



NOTE:

1. Surface Finish 3.2 microns on machined surfaces.
2. Tolerance : Outside dimensions $+0.5, -0$
: Inside dimensions $+0, -0.5$
3. Runout of all diameters to be within 0.1 mm
4. Perpendicularity of surfaces to be within 0.1mm

CASTING

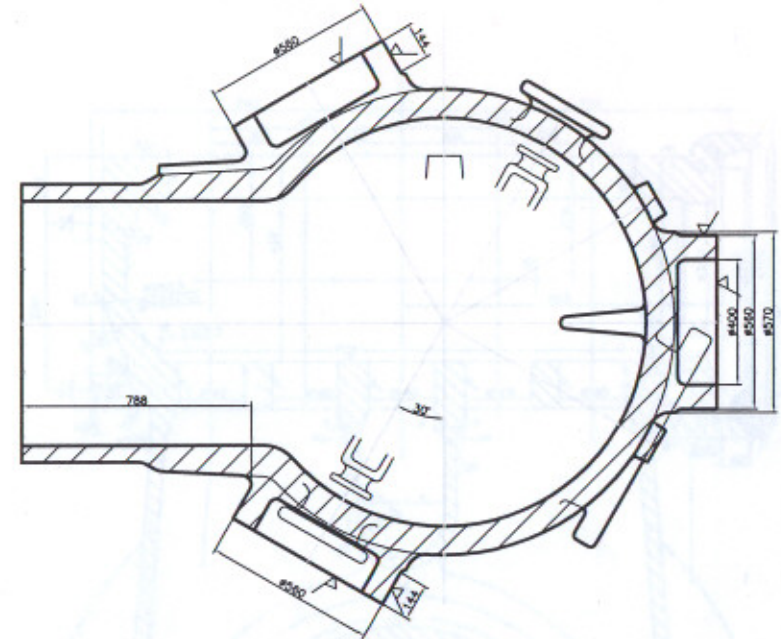
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DRG. NO.

04-HB-02R00

SHEET NO.

NO. OF SHEETS



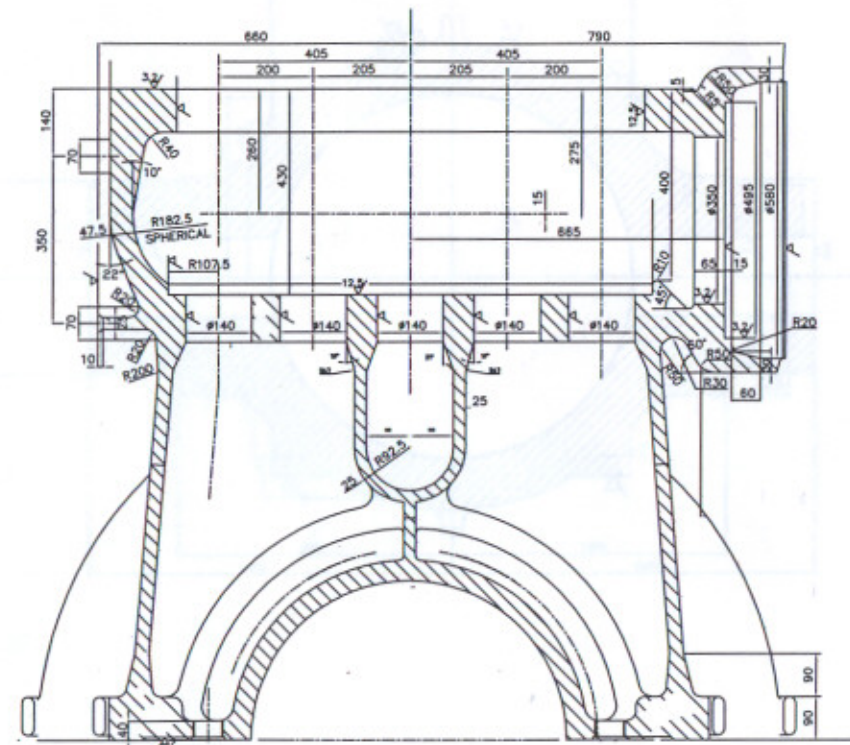
DLY.WT 9000KG

4. Perpendicularity of surfaces to be within 0.1mm

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| NO. OF SHEETS |
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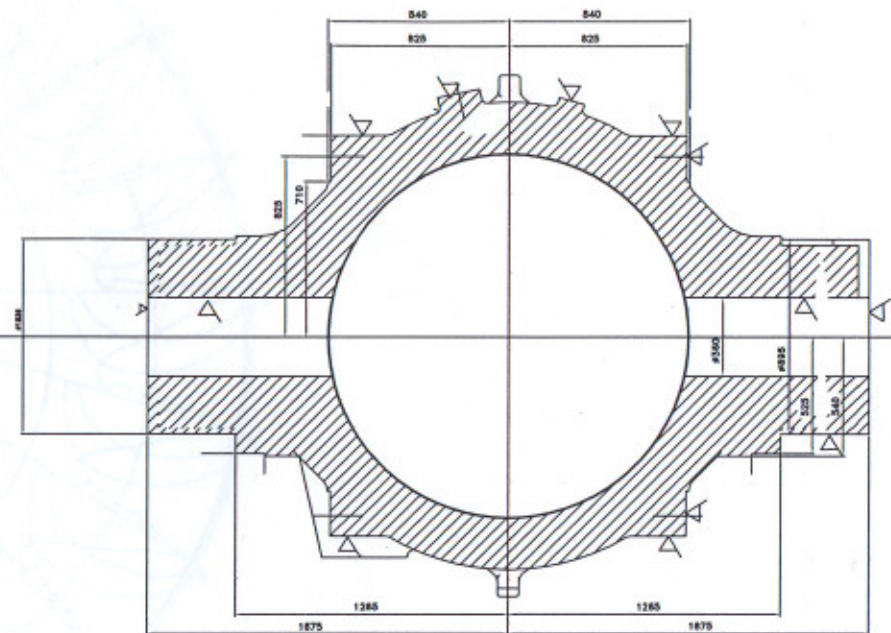
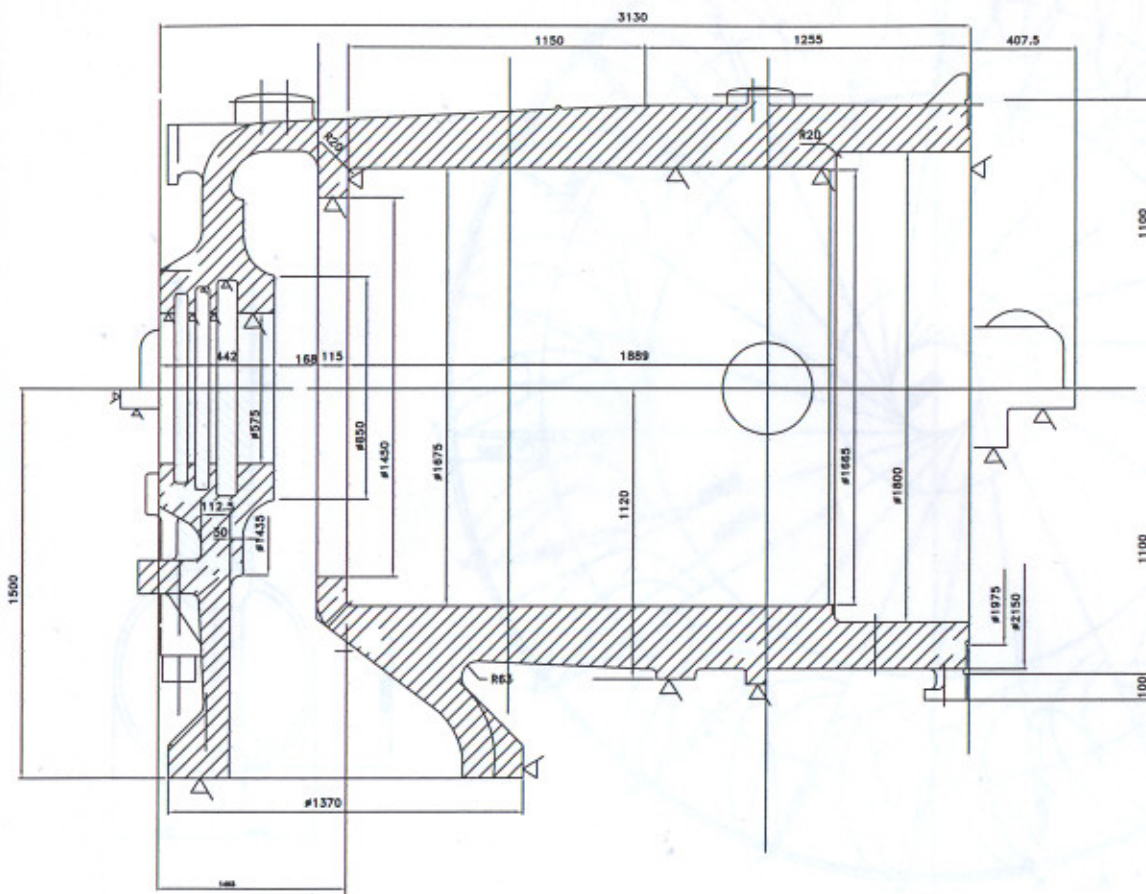
1. Surface Finish 3.2 microns on machined surfaces.
2. Tolerance : Outside dimensions $+0.5, -0$
: Inside dimensions $+0, -0.5$
3. Runout of all diameters to be within 0.1 mm
4. Perpendicularity of surfaces to be within 0.1mm



DLY.WT.5000KG

04-HB-04R00

| |
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| NO. OF SHEETS |
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NOTE:

1. Surface Finish 3.2 microns on machined surfaces.

2. Tolerance : Outside dimensions +0.5,-0

: Inside dimensions +0, -0.5

3. Runout of all diameters to be within 0.1 mm

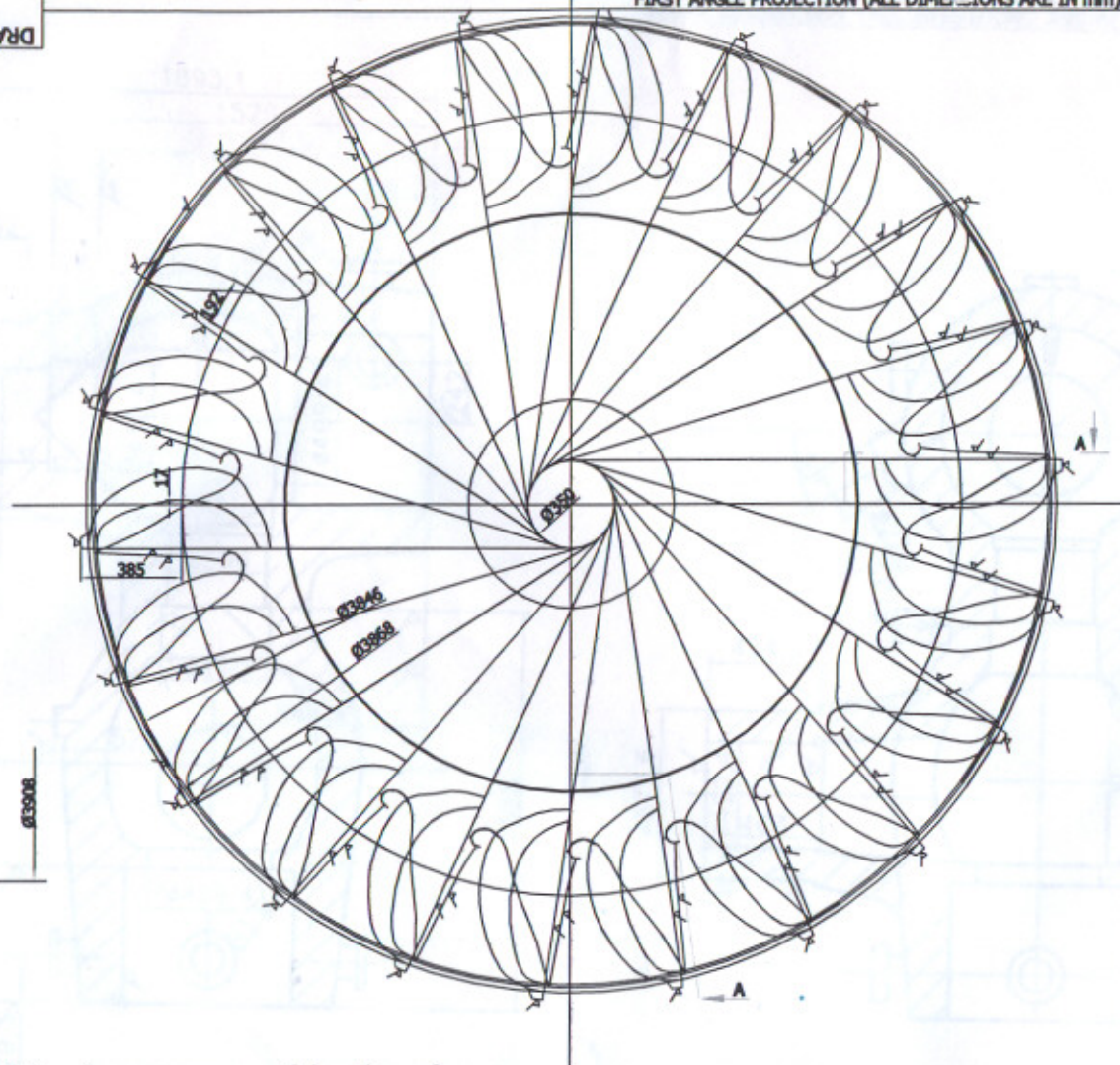
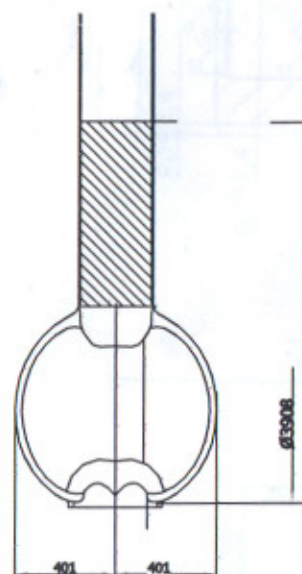
4. Perpendicularity of surfaces to be within 0.1mm

CASTING

DLY.WT46000KG

DRG. NO.

04-HB-05R00

**NOTE:**

1. Surface Finish 3.2 microns on machined surfaces.
2. Tolerance : Outside dimensions $+0.5, -0$
: Inside dimensions $+0, -0.5$
3. Runout of all diameters to be within 0.1 mm
4. Perpendicularity of surfaces to be within 0.1mm

CASTING

DLY.WT.12700KG

DRG. NO.
04-HB-06R00

SHEET NO.

NO. OF SHEETS



GENERAL TERMS AND CONDITIONS OF TENDER ENQUIRY

ANNEXURE-A

1. Submit the tender in two parts i.e.

Part-I Techno-Commercial Bid

Part-II Price Bid

Techno-Commercial (part one) & Price Bid (part two) should be put in separate sealed envelopes. Both envelopes should be super scribed with **Tender Number, Date of Opening & Technical / Commercial Bid and Price Bid** respectively along with name of firm.

Both the envelopes i.e. containing Techno-Commercial Bid and Price Bid should again be kept in one envelope super scribed again with Tender No. and Date of Opening and the name of firm submitting the tender and sent by Registered A/D post to **SDGM(MM),Purchase Department ,CFFP ,BHEL Hardwar,Ranipur ,Hardwar 249403.Uttarakhand ,India**

Part-I Envelopes super scribed with **Techno-Commercial Bid** must contain all information especially:-

(a) Specification of the material offered should be strictly as per CFFP/BHEL specifications of Enquired material in tender documents. **Deviations if any must be indicated clearly in the offer .**

(b) All commercial terms i.e. packing, forwarding, Custom Duty ,Additional Duty ,ST/STT/VAT/CST, Excise duty/CVD , Bank Charges, payment terms & Insurance etc as applicable should be clearly mentioned **except Price** .Also mention present rate of applicable taxes & duties even if inclusive in rates.

(c) Confirm to submit all required commercial documents (tax invoice, CENVATable duplicate copy of invoice, packing list, transit sale agreement etc.)& technical documents (TC/GC/QP etc.)

(d) Registration Numbers of SSI, Central Excise, Sales tax, Income tax, DGS & D, ECC etc.

(e) **Un-priced copy of Price Bid.**

Part-II Envelopes super scribed with **Price Bid** should contain **priced copy of Price Bid**. The price should be mentioned both **in figures and words**.

2. Authorized Signatory should authenticate all tender documents.

3. **Techno-commercial bid (Part-I)** will be opened on the due date at 2.00 PM. In the presence of participating vendors or authorized representatives, who may wish to be present. Representative deputed to witness tender opening must produce an authority letter from the signatory of offer. After evaluation of technical bids & finalization of technical, commercial terms & condition, price bid of only successful vendors will be opened. Priced bid opening date will be intimated separately.

4. The material offered must conform to the required BHEL specifications and drawings as well as instructions and details made available .

5. Eligibility :

a) The Vendor must submit the annual reports giving the audited profit or loss account and balance sheet for last three financial years with year ending 31.03.07.

b) The Vendor have to submit the details of recent orders of similar material (not earlier than 31.03.05) executed mentioning the Name and address of Customers with technical details preferably in India .

The Vendors who are registered with any unit of BHEL ,India, in related category are exempted of above two . They should however give details of their registration.



6. **Original Test Certificate & other related Documents** from the Manufacturers or Government or Recognized Houses shall have to be produced as applicable without any extra cost. This may please be clearly confirmed in the quotation without which the offer may not be considered.
7. **Validity** of offers should be minimum of 180 working days from the date of Tender (Techno-Commercial Bid) opening.
8. **Delivery** in the promised period is the essence of contract. Confirm to supply according to delivery schedule mentioned (Refer Annexure B)
9. **Payment Term** preferably should be within 30 days after receipt and acceptance of material through e-payment.
10. CFFP/BHEL Hardwar reserves the right to accept or reject any or all tenders without assigning any reason there of.
11. Tenders not submitted in the prescribed manner are likely to be ignored/ rejected.
12. **Agent /Agency Commission:** Payment of any kind at any stage will not be made to Agent on account of agent commission or otherwise by CFFP BHEL Hardwar.
13. CFFP, BHEL, HARIDWAR may opt for **E-auction/Reverse auction** for obtaining best prices for part or full Tendered Quantity.
14. Please do intimate the personal contact details like Mobile Number, Email-Id, etc of authorized executive for correspondence.
15. **Penalty** : Orders placed against this Enquiry will be subject to normal clauses for imposing Penalty, Liquidated Damages, Risk purchases, cancellation ,arbitration as per terms and conditions of Purchase Orders in case of delay in effecting supply and or other defaults .
16. **Inspection** :CFFP BHEL Hardwar inspection after receipt shall be final and binding . BHEL may inspect at Vendor's work also. BHEL may nominate any testing house for inspection .The report shall be final and binding to both concerned .In case store is found defective during warranty period ,the same will be returned for repair (if not possible in India by Vendor) and or replacement .For this Vendor has to bear all the charges such as Freight ,i.e. to and fro ,insurance etc .Bank Guarantee for the equal amount to the cost of the item is to be furnished by Vendor. In case the repair is done at CFFP/BHEL the amount on actual shall have to be reimbursed by the Vendor and or adjusted on actual from their Bill.
17. **Security Deposit and Performance Bank Guarantee** is must .The percentage of both proposed (Annexure B) if decreased the % of decrement than that proposed shall be loaded on Landed Cost Calculation .The minimum % acceptable shall be decided by CFFP/BHEL beyond which offer may be rejected .
18. **Disputes** : In event of any dispute arising out of Contractual obligation ,the order being finalized at Hardwar ,India will be subject to Indian Laws and falls under jurisdiction of the Court of Law at New Delhi ,India .The overseas supplier hereafter referred to as "Vendor" shall therefore ,abide by the verdict of Court of Law at Hardwar ,India as may occur .

-OR-

All disputes arising out of or in connection with the present contract ,if any ,shall be finally settled under the rules of arbitration of International Chamber of commerce by one or more arbitrator appointed in accordance with the said Rules in India .

ANNEXURE I**ACCEPTANCE OF COMMERCIAL TERMS BY BIDDERS:**

NAME OF VENDOR :

TENDER ENQUIRY NO:

| DESCRIPTION | VENDOR'S CONFIRMATION |
|--|--------------------------|
| <p>1) <u>PAYMENT TERMS:</u> 80% of the material cost to be paid against delivery / dispatch documents. Balance 20% of material cost and supervision of E&C and proving charges will be paid after satisfactory erection & Commissioning.</p> <p><u>NOTE:</u></p> <p>a) As per payment terms, minimum 20% will be released by BHEL after successful erection, commissioning and job proving.</p> <p>b) Further this 20% can be released against submission of performance bank guarantee valid for entire warrantee period from the date of commissioning.</p> <p>c) The security deposit is to be as per the tender condition.</p> | |
| <p><u>1.1 LOADING (IF ANY TERM OF THIS ANNEXURE IS NOT AGREED BY VENDOR) WILL BE AS FOLLOWS:</u></p> <p>Loading: Advance amount, if any (Amount X): 1.5% per month for the quoted delivery period for the amount 'X'</p> <p>Say Payment at the time of dispatch against shipping/dispatch documents (Amount Y): "1.5% per month for the amount X+Y exceeding 80% of contract value i.e. 1.5% of (X+Y-0.8Z) where Z is the contract value".</p> <p>In case any bidder does not accept any of the condition at (a) to (c) above then, their offer is likely to be rejected by BHEL and technical bid will not be processed, and no correspondence in this regards will be entertained.</p> | |
| <p>1.2 <u>P.B.G. TERMS:</u> Performance Bank Guarantee to be submitted on the prescribed format equal to the value of 20% of the total order value valid WARRANTY / GUARANTEE agreed period. This bank guarantee, in the format to be prescribed by BHEL, shall have to be submitted before release of last balance payment(see annexure II and IV)</p> | |
| <p>1.3 <u>CURRENCY OF PAYMENT:</u> Mention the currency in which payment has to be made.</p> | |
| <p>1.4 <u>FOR INDIGENOUS SUPPLY:</u> For indigenous supply the currency shall be Indian Rupees</p> | |
| <p>1.5 <u>SUPERVISION CHARGES:</u></p> <p>For Indian Suppliers: It should be quoted in Rupees.</p> <p>For Foreign Suppliers: If supervision is being carried out by persons residing in India, it should be quoted in Indian Rupees</p> | |

| | |
|--|--|
| 1.6 <u>TAXES:</u> All statutory taxes, if any, will be deducted at source & to be borne by the beneficiary. Tax deduction certificate shall be issued at the end of financial year if required. | |
| 2.) <u>SECURITY DEPOSIT:</u> Vendor has to submit security equal to the amount of 10% of the total order value in the currency of order within one month of receipt of order in the form of Bank Guarantee in BHEL format valid for two months beyond shipment. | |
| 2.1 <u>SUBMISSION OF BANK GUARANTEE :</u> All bank guarantees for security deposit as well as for performance should be from one of the BHEL consortium banks and the bank guarantee should be in the Performa prescribed by BHEL (see annexure-II & III). | |
| 3) <u>PENALTY FOR LATE DELIVERY:</u> Penalty shall be applicable for delayed delivery @ 0.5% per week and part thereof subject to a maximum of 10% for total P.O. value. <u>3.1 LOADING ON PENALTY FOR LATE DELIVERY IF NOT AGREED BY VENDORS ON ABOVE TERMS:</u> If any vendor do not accept the LD @ of 0.5% per week and part thereof subject to a maximum of 5% of total PO value, their offer will be ignored. Vendors accepting LD terms different from the proposed terms of 0.5% maximum 10% will be loaded @ %age deviation from the range of 10% on their prices (FOB for imported and ex-factory for indigenous). If the vendor does not accept as above their offer is likely to be ignored and technical bid will not be processed. | |
| 4) <u>DELIVERY OF THE EQUIPMENT:</u> Firm delivery period for the equipment to be stated w.e.f. date of LOI/ Order. | |
| 5) <u>SETTLEMENT OF DISPUTES:</u> <ul style="list-style-type: none"> Settlement of disputes through arbitration shall be in accordance with Arbitration Rules of Conciliation and Arbitration of the ICC, Paris. The venue of arbitration shall be Delhi. The courts of Delhi shall have exclusive jurisdiction. For Indigenous Source. The venue of arbitration shall be Haridwar Court, which will have exclusive jurisdiction. | |
| 6) <u>AUTHORIZATION OF PRE-INSPECTION:</u> BHEL is authorized to pre inspect the material at works. The material will be dispatched only after getting clearance form BHEL. | |
| 7) <u>DRAWING / DATA APPROVAL:</u> Any drawing / data approval required from BHEL after placement of order shall be the responsibility of the vendor and any delay on account of the same shall be the responsibility of the vendor and have no bearing on the penalty applicable. | |
| 8) <u>DRAWING/DESIGN/ INFORMATION USE:</u> The vendor will have to give an undertaking that the drawing / design / information enclosed with the enquiry / proposed order will not be parted to any agency and will also not be used for manufacturing for any other customer. | |

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|---|--|
| 09) <u>5 SETS OF O&M MANUAL:</u> 5 Sets of Operation & Maintenance Manual shall have to be supplied along with the equipment. Final payment will be released only after receipt of the required documentation. | |
| 10) <u>TOOLS AND SPARES:</u> Special tools and recommended spares required. | |
| 11) <u>TRAINING:</u> Vendor shall provide required training to BHEL personnel free of cost. | |
| 12) <u>WARRANTY/ GUARANTEE:</u> 24 months from the date of commissioning or as per specifications if mentioned in specification. | |
| 13) <u>CONTACT DETAILS:</u> Details of Contact person Name, Designation, Department complete postal, E-mail address & Fax no, phone, Mobile no. to be mentioned. | |
| 14) <u>PHYTO SANITARY CERTIFICATE:</u> Phyto sanitary Certificate essential for packages (Wooden). | |
| 15) <u>VALIDITY:</u> Validity of the offer should be 180 days from tender opening. | |
| 16) <u>BANK CHARGES:</u> Bank Charges to be borne by vendor. | |

Note:

a) Loading shall be applicable for any deviation in commercial terms viz payment terms ,PBG etc. for the amount/period not agreed.

Attach separate sheet for additional information if necessary.The above terms & condition supersedes the terms & conditions found contract

ANNEXURE II

LIST OF CONSORTIUM BANKS:

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|---|---|
| 1. State Bank of India CAG Branch, 10-th Floor, Vijaya Building, Barakhamba Road, New-Delhi-110001 | 10. HDFC Bank Ltd 5 th Floor, HT House, K G Marg, New-Delhi-110001 |
| 2. Canara Bank 74, Janpath, New-Delhi-110001 | 11. CITI Bank N A Jeevan Vihar Building, Sansad Marg, New-Delhi-110001 |
| 3. Punjab National Bank 74, Janpath, place, New-Delhi-110001 | 12. Standard Chartered Bank H2 Block, Connaught New-Delhi-110001 |
| 4. Bank of Baroda Corporate Banking Branch, 11 th Floor, BOB Building, Sansad Marg, New-Delhi-110001 | 13. ICIC Bank Ltd. ICIC Tower, Bisham Pitamah Marg, Pragati Vihar, New Delhi 110003 |
| 5. Deutsche Bank Tolstoy Marg, New-Delhi-110001 | 14. IDBI Bank Ltd. 19, K G Marg, Surya Kiran Building, New-Delhi-110001 |
| 6. State Bank of Hyderabad Surya Kiran Building, K. G. Marg, New-Delhi-110001 | 15. HSBC Ltd. ECE House, 28 KG Marg, New-Delhi-110001 |
| 7. State Bank of Mysore Antriksh Bhawan, K. G. Marg, New-Delhi-110001 | |
| 8. State Bank of Mysore Industrial Finance Branch, Ramanashree Arcade, MG Road, Bangalore-560001 | |
| 9. State Bank of Travancore Travancore House, IF Branch, K G Marg, New-Delhi-110001 | |

ANNEXURE III

PROFORMA FOR SECURITY DEPOSIT (TO BE STAMPED IN ACCORDANCE WITH STAMP ACT)

This deed of guarantee made thisday ofTwo Thousand.....by (bank) hereinafter called 'the Guarantor') which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns)IN FAVOUR OF M/s Bharat Heavy Electricals Limited (A Government of India Undertaking) a Company incorporated under the Companies Act, 1956 having its registered office at "BHEL House" Siri Fort, New Delhi 110 049 , through its Unit/Division at Hardwar (Central Foundry Forge Plant) hereinafter called " the Company" (which expression shall unless repugnant to the context of meaning thereof be deemed to include its successors and assigns).

WHEREAS M/s..... (hereinafter referred to as the vendor) have entered into a contract bearing no.....Dated.....(Hereinafter referred to as "the Contract") for the supply ofWith the Company.

AND WHEREAS the Contract interalia provides that the vendor shall furnish Security Money to the Company in the form a Bank Guarantee for a sum of Rs.....(Rs.....only) as Security for due and faithful execution of deliveries within specified period in the contract.

AND WHEREAS THE VENDOR has approached the Guarantor and in consideration of the arrangement arrived at between the Vendor and Guarantor; the Guarantor has agreed to give the guarantee as hereinafter mentioned in favour of the Company.

NOW THIS DEED WITNESS AS FOLLOWS:-

- (1) The Guarantor do hereby guarantee to the Company the due and faithful performance, observance or discharge of the Contract by the Vendor and further unconditionally and irrevocable undertake to pay the Company without demur and merely on demand to the extent of Any claim made by the Company on them for any loss, damage, costs charges and expenses caused to or suffered by the company by reason of the vendor making any default in the performance, observance or discharge of the terms , conditions stipulations or undertakings or any one of them gas contained in the Contract.
- (2) The decision of the Company whether any default has occurred or has been committed by the Vendor in the execution of the supplies, observance or discharge of any of the terms, conditions stipulations or undertakings or any one of them as contained in the Contract and or as to the extent of loss, damage, costs ,charges and expenses caused to or suffered by the Company by reason of the vendor making any default in the performance, observance or discharge of any of the terms, conditions, stipulations or undertakings or any one of them shall be conclusive and binding on the Guarantor irrespective of the fact whether the vendor admits or denies the default or questions the correctness of any demand made by the company in any Court, Tribunal or Arbitration Proceedings or before any other authority.

- (3) The Company shall have fullest liberty without affecting in any way the liability of the Guarantor under this guarantee, from time to time to enforce or forbear from enforcing any of the terms and conditions governing the contract or securities available to the Company and the Guarantor shall not be released from its liability under these presents by any exercise by the Company of the liberty with reference to the matters aforesaid or by reason of time being given to the vendor or any other forbearance, act or commission of the part of the company or any indulgence by the company to the vendor or of any other matter or thing whatsoever which under the law relating to sureties, would but for this provision have the effect of so releasing the Guarantor from its liability under this Guarantee.
- (4) The Guarantor further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken to the performance of the Contract and that it shall continue to be enforceable till all the dues of the Company under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged and till the Company certifies that the terms and conditions of the Contract have been fully and properly carried out by the Vendor and accordingly discharges this Guarantee, subject, however, that this Guarantee is only valid for written demands by the Company on or before.....(specify date).

The Guarantor undertake not to revoke this Guarantee during the period it is in force except with the previous consent of the Company in writing and agree that any liquidation or winding up or insolvency or dissolution or any change in the constitution of the Vendor or the Guarantor shall not discharge the Guarantor's liability hereunder:

It shall not be necessary for the Company to proceed against the Vendor before proceeding against the Guarantor and the Guarantee herein contained shall be enforceable against them notwithstanding any security which the Company may have obtained or obtain from the Vendor shall at the time where proceedings are taken against the Guarantor hereunder by outstanding or unrealized.

The Guarantor hereby declares that it has power to execute this guarantee under its Memorandum and Articles of association and the executants has full powers to do so on its behalf under the Power of Attorney dated.....granted to him by the proper authorities of the Guarantor..

IN WITNESS whereof the (Bank) have caused this deed to be signed hereunder or their behalf on the date first above mentioned.

Signed for and on behalf of the (Bank)

Name:

Designation:

Address:

Fax No. (With country code):

E-mail address:

NOTE: IN CAE A BANK IN INDIA IS GIVING THIS BANK GUARANTEE; IT WILL BE EXECUTED ON A STAMP PAPER OF RS. 62.50 BUT IF IT WILL BE FROM AN OVERSEAS BANK, IT WILL HAVE TO BE EXECUTED AS PER LAWS OF THAT COUNTRY.