



BHARAT HEAVY ELECTRICALS LIMITED
RAMACHANDRAPURAM :: HYDERABAD – 502032
M & S, F & P, CW, HSE DIVISION
10-REPAIR SHOP, AIR-CONDITIONING

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TENDER NOTICE NO. HY/M&S/10-RS/RC/09-10/SB-CNC/1112/1

Date: 12/11/09

Tender in two parts (Techno-commercial & Price Bid) will be received by the undersigned in sealed cover from the contractors satisfying the prequalification requirements. The following should be legibly written on the cover -- tender notice number, tender date, name of the work, due date of opening, techno commercial bid or price bid on top of cover. Tenders will be opened at 1400 hrs on the due date in the presence of bidders or their authorized representatives in BHEL, Ramachandrapuram, Hyderabad.

1. Name of work : Reconditioning & CNC Retrofitting of SB-CNC lathe (Asset No.: 03-1419) as per scope of work, terms & conditions enclosed
2. Earnest Money Deposit : Rs. 1,00,000/-
3. Estimated Cost : Rs 51.0 Lakhs (excluding taxes, duties & jt.inspn.spares)
4. Cost of tender documents (non-refundable) : NIL
5. Tender sale starts from : Not applicable
6. Tender sale closes on : Not applicable
7. Last date of receipt of tenders : 05/12/11/2009 upto 14.00 Hrs.
8. Date and time of opening of tenders : 05/12/2009, 14.00 Hrs.

(techno-commercial bid only)

TENDERERS ARE REQUESTED TO SIGN AND PUT SEAL ON ALL PAGES OF TENDER DOCUMENT AND SUBMIT.

TENDERING PROCEDURE

EMD Payment : An amount of Rs.1,00,000/- (Rupees One lakh only) towards EMD shall be Deposited in cash at BHEL Cash office or by way of Demand Draft / Bankers cheque drawn in the name of M/S Bharat Heavy Electricals Limited payable at Hyderabad and shall be enclosed to the tender bid. No other means of payment will be accepted, no interest on EMD will be payable.

Cash office timings: 09.30 AM to 11.30 AM & 1.30 PM to 3.30 PM

Tenders may be dropped before the due date & Time in the M&S Tender box kept in 02-Annexe (Ground floor), M&S (P&C Section) of BHEL, R.C.Puram, Hyderabad – 502 032

THE BIDS SHALL BE SUBMITTED IN TWO PARTS.

A. Techno-commercial bid. B. Price Bid

- a. Techno-commercial Bid : The envelop shall contain the Techno-commercial Bid as per the enclosed technical bid pro-forma with relevant documents like copies of ESI, PF code, PAN No., Service Tax Regn. No., TIN No., CST No., Experience, turnover, (IT Returns along with Profit & Loss account copies duly certified by chartered accountant for the 3 previous years to meet turnover point) and **EMD**. The envelop shall be super scribed "Techno-commercial bid ----- (name of work)".
- b. The second envelope shall contain only the price bid to be quoted. Any other information in the price bid shall not be considered and the quotation is likely to be rejected. Price bid document shall be signed by the bidder at the bottom of the page. The envelope shall be sealed and super scribed "Price Bid -----(name of work)".

Both the above two envelopes shall be kept in another sealed cover. The cover shall be super-scribed with "Quotation for ----- (name of work)" and shall be addressed to Sri C.Suresh Kumar, Addl.Gen.Manager (M&S) / 10-RS, FP&D, A.C., 02-Annexe (Ground Floor), Bharat Heavy Electricals Limited, Ramachandrapuram, Hyderabad – 502032 to reach at or before 13.00 hrs on the due date and it should also contain Bidder address, Tender No. & due date.

Tender documents may be downloaded from BHEL website: <http://www.bhel.com>. BHEL is not responsible for any postal delay. The bids will be opened in BHEL R.C.Puram Hyderabad-32 on tender due date at 13.30 hrs in presence of those bidders who choose to be present.

Date of Reverse Auction for price finalization will be intimated after techno-commercial suitability.

The technical bid consists of technical schedule requiring documentary proof. In case the party has not satisfied all the conditions along with documentary proof, the bid will be rejected.

Bids received mixed with both technical & Price bid documents without individual envelop will be rejected.

A.TECHNO- COMMERCIAL BID

Tender Notice No: HY/M&S/10-RS/RC/09-10/SB-CNC/1112/1

Date: 12/11/09

NAME OF THE WORK: Reconditioning & Retrofitting of SB-CNC lathe (Asset No.: 03-1419) as per scope of work, terms & conditions enclosed.

THIS IS AN INDIVISIBLE WORKS CONTRACT.

THE CONTRACTOR SHALL FILL REMARKS COLUMN AGAINST ALL ITEMS.

This tender schedule must be submitted along with the General Conditions, Special conditions etc. enclosed herewith duly signed and stamped on each page with bidder's covering letter. Quotations should be TYPED on tender schedules only. Any deviations / deletions should be brought out separately on bidder's letter pad and enclosed to the bid documents.

The following are to be filled up by the Bidder:

Name of the Contractor :
Full Address :
Name of contact person :
Phone No. / Fax No. :
E-mail Id. :
Mobile no. :

Sl. No.	Description	Contractor's Acceptance / Remarks
1	PF CODE NO	
2	ESI CODE NO	
3	PAN No.	
4	Service tax regn. no.	
5	TIN No.	
6	CST No.	
7	Validity : 90 days from techno-commercial bid opening date.	
8	EMD : Rs.1,00,000/-, Cash receipt / bankers cheque details	
9	Security Deposit clause : acceptance (See terms and conditions for details)	
10	Taxes and duties : mention whether included and firm during contract period OR extra as applicable	
11	Payment Terms: Progressive payments as mentioned in the scope of work enclosed for the work completed successfully in all respects.	

SPECIFICATIONS OF SB-CNC LATHE (03-1419)

Description of machine: SB-CNC LATHE (Asset No. 03-1419)

TECHNICAL DATA :

ANNEXURE-III

SB CNC is a heavy duty high speed Slant Bed Lathe CNC machine with two linear axes (X and Z) and one spindle axes and with 12 tool turret facility. Spindle speed is infinitely variable through DC motor/Drive. Presently this machine is interfaced with LAKSHMI ELECTRIC CONTROL SYSTEM (LECS) CNC system with integrated PLC, General Electric Servo Drives/Motors for feeds and Siemens Simoreg 6RA70 DC Drive for spindle.

BRIEF DESCRIPTION OF THE MACHINE:

Type of bed : Inclined 20° to vertical
Maximum swing over bed : 610 mm
Swing over carriage wings : 540 mm
Swing between centers : 350 mm
Distance between centers : 1250
Maximum weight of job : 1000 kg
Spindle nose : A1 – 11”
Hole through spindle : 103 mm
Spindle socket taper : ASA 450
Spindle speed range : I) 12- 100- 331, RPM
II) 36- 301-993 RPM.
III) 100- 850- 2800 RPM
Total speed range : 1:233
Total constant power range : 1:28
Type of spindle drive : DC Motor with SCR Drive

Longitudinal feed drive

Feed range : 1 –5000 mm/min
Rapid traverse rate : 10 m / min
Longitudinal force : 15000 N Continuous
25000 N FOR 15 min duty cycle

Longitudinal ball screw size / pitch 50 / 10 mm

Cross Feed Drive

Feed Range : mm/min 1-5000
Rapid traverse rate : m/min 5
Cross Slide stroke : mm/ 380
Transverse ball screw size/pitch : mm 40/5
Max. Transverse Force... : 15000 N

Tailstock

Spindle dia : mm 90 127 160
Spindle taper : MT3 MT5 MT5
Spindle stroke (Hyd) : mm130 127 160
Quill thrust : N9500 17000 24000

Turret

No.of tools (External/Internal) : 12 (any combination)
Turret indexing positions : 12 (Random/sequential)
Turning tool shank size : 32x32 mm
Max.dia of drilling/boring tool : 40 mm 50mm 60mm
±Turret actuation : Hydraulic Power

Spindle drive motor :HP/KW 30/22.5 slandered

50/37.5 optional

Hydraulic Motor :HP/KW 7.5/5.6

Center distance in mm & weight of Machine (Nett): 3000 mm & 17000 Kg

Accuracies	Positioning	Repeatability
Asper NMTBA Method	±0.015 mm	±0.005 mm
As per JIS method	±0.008 mm	± 0.003 mm

Electronics:

The CNC system displays 2 Axes viz., X and Z. Both the axes are programmable.

- Existing Position feedback : X, Z Axes – Fagor make Rotary encoders (2500 ppr)
: Spindle- Fagor make Rotary Encoders (1024 ppr)
- Existing Feed motor spindle motor details are as under:
 - X axis: Permanent Magnet DC servo motor
40Nm, 1500rpm, brake 24V.
 - Z axis: Permanent Magnet DC servo motor
40Nm, 1500rpm.

Spindle: Capacity: 50 Hp DC motor, Speed range: 850 - 2800 rpm Arm Volts: 240V
DC, Arm Amps: 173 A Filed Volts: 120V DC, Field Amps: 7.4 / 1.85 A.

SCOPE OF WORK IN BRIEF:

Complete Reconditioning & CNC Retrofitting consisting of labour (mechanical, hydraulics, electrical and electronics), Laser calibration, replacement of existing LECS make Allen Bradley 8600 TC CNC SYSTEM, DC Feed drives, DC Feed motors, DC Spindle Drive, DC Spindle motor With SIEMENS 810D/840D or FANUC OiTB CNC system, AC servo drives and AC servo motors for Feed & Spindle application, rewiring of the machine and change of switchgear and machine elements such as limit switches, proximity switches ,changing Hydraulic Powerpack with new one, This includes scraping and blue-matching using Turcite-B anti-friction bearing material, servicing of tool change system, **servicing of chip conveyor system** and replacement of all initial and joint inspection spares identified and proveout.

Sl. No.	<u>PRE-QUALIFICATION</u>	<u>Contractor's offer as Agreed/Not Agreed</u>
AA	<p><u>PRE-QUALIFICATION REQUIREMENTS (Proofs to be enclosed for verification):</u> All the following conditions are to be satisfied by the bidder. Documentary proof is to be enclosed with techno-commercial bid satisfying all these conditions. In case the bidder fails to enclose the same his offer will be rejected.</p>	
	<p>1. The party must be a reputed Machine tool Builder / Reconditioner / Retrofitter of Medium and above category CNC machine tools with at least 3 years experience in the last 5 years(From Nov-04 to Oct -09) in this field (Copies of work orders and work completion certificates / final bills should be submitted as proof for verification). List of the customers along with respective contracting officer's addresses (including phone no. and e-mail ID) for whom machines were built / reconditioned / retrofitted shall be enclosed to the offer for verification.</p>	
	<p>2. Average Annual financial turnover during the last 3 years, ending 31st March 2008 should be at least 50% of estimated cost (Balance sheet / P&L statements to be enclosed).</p>	
	<p>3. Experience of having successfully completed similar works during last 5 years ending 30th June 2008 should be either of the following:-</p> <p>a. Three similar completed works costing not less than the amount each equal to 30% of the estimated cost. Or</p> <p>b. Two similar completed works costing not less than the amount each equal to 40% of the estimated cost. Or</p> <p>c. One similar completed work costing not less than the amount equal to 50% of the estimated cost.</p>	
	<p><u>Similar works definition:</u> Manufacture / Reconditioning & Retrofitting of Medium and above category CNC machine tools like</p> <ol style="list-style-type: none"> 1). Lathes of minimum Job weight of 2 Tons and / or job lengths of 2 mtrs. 2). Horizontal Borers of Minimum Spindle Diameter 63 mm. 3). Vertical Borers of minimum table diameter 1200 mm. 4). Multi Spindle Plano Milling machines with each spindle motor rating of 7.5 HP and table length of 1.0 m. 5). Special Purpose CNC Machines. 	

Sl. No.	<u>SCOPE OF WORK IN DETAIL</u>	<u>Contractor's offer as Agreed/Not Agreed</u>
A.	<u>MECHANICAL :</u>	
1.	Noting condition of the machine including vibration / noise; and measurement & recording of geometrical accuracies as per manufacturer's charts before dismantling of machine at BHEL by contractor with his personnel and measuring instruments.	
2.	Removing the machine from foundation at BHEL works, dismantling into transportable lots for further transportation to contractor works. The necessary personnel and tools are in contractor's scope. Transportation and transit insurance both ways in BHEL scope and cost.	
3.	Unpacking the transported parts at Contractor works, complete dismantling of machine assemblies and rotary table into individual parts, degreasing, chemically cleaning; pre-painting of structural parts, joint inspection to finalise the detailed list of 1) spares to be bought out, 2) spares to be manufactured. The list has got to be approved by BHEL. Drawings of manufacturing spares and specifications for bought-out items shall be prepared and submitted to BHEL for approval. BHEL may procure and supply these items to the Contractor from any other sources as well.	
4.	Replacement of all bearings (with SKF/FAG make only) including spindle, tailstock centre, steady rest and all ball screws bearings; and bush bearing of torque limiter clutch of spindle. List of bearings enclosed. Bearings other than those in the list are to be identified in joint inspection and replaced. One set of spare bearings for steady rest, tailstock centre and all ball screws are also included in the list. BHEL supplies available bearings from their stocks.	
5.	Turret-Hydraulic –to be serviced. Serving of machine cladding	
6.	Checking and pre-loading of spindle bearings	
7.	Replacement of all ball screws and nuts.	
8.	Replacement of all worn out gears / other parts with new ones to I.S. standards and specified quality materials complying with the original manufacturer's specified tolerances.	
9.	Guideways are hardened and steel strips cladded. Necessary rectification to achieve original accuracies is to be done. Pasting of Turcite-B anti-friction bearing material on all slides, wherever required. Scraping of all sliding parts like gibs etc.	
10.	The existing tool change device (12 nos. tools, tool coding 31) is not functioning at present, to be made functioning.	
11.	Spindle speeds gear shifting problem exists, to be rectified.	
12.	Modification manufacture and mounting of brackets and couplings to mount axes & spindle motors.	
13.	Guideways-Cladded hardened steel stripes.	
14.	Telescopic covers to be serviced 7 lips changed. Machine cladding to be re-painted.	
15.	Design, manufacture and mounting of suitable protective guards to protect the devices like motors, scales, encoder, limit switches, proximity sensors etc.	
16.	Steady Rest-Jaws movement Hydraulic, travel is manual.	
17.	Carriage and tail stock wipers to be changed.	
18.	Tail stock ball screw to be provided with spiral protective guard.	

19.	Tailstock hydraulic system not working properly, to be rectified.	
20.	Tailstock pressure setting mechanism to be replaced.	
21.	IGUS make fiber cable drag chains with protective cover to be provided for cables.	
22.	Replacement of hydraulic power pack (for turret) and all elements of complete hydraulic system. Spare pump coupling and seal kit to be supplied.	
23.	Hydraulic components by Vickers/Rexroth/Yuken make shall be used.	
24.	Replacement of all hydraulic hoses with equivalent new ones.	
25.	Hydraulic oil cooling system is not proper, to be rectified.	
26.	Lubrication system for X- & Z-axes, tailstock and steady rest is not working properly. Centralised lubrication system to be replaced.	
27.	All manual lubrication systems to be integrated into an automatic centralized lubrication system.	
28.	Replacement of all seals, O-rings and rubber Packings.	
29.	Overhauling of steady rest and replacement of its rollers—3 nos.	
30.	Lubrication (grease) to be improved for steady rest shafts by providing grease nipples. Supply of grease gun for the same.	
31.	Overhauling of hydraulic chuck.	
32.	<ul style="list-style-type: none"> • Telescopic covers / spiral guards-safety guards to be provided / replaced for all movements. • Entire Machine Cladding to be serviced. 	
33.	Jerky movement observed in Chip conveyor. Overhauling of complete system. (Make : Miben, Germany)	
34.	Provision for draining out return coolant from chip conveyor to coolant tank (to be manufactured) to be located in the pit (to be constructed).	
35.	Complete coolant system to be modified with new one.	
36.	Machine cladding front doors movement to be improved.	
37.	Machine cladding acrylic sheets to be changed—4 nos.	
38.	Dials, name plates, instruction plates including speed and feed chart plates shall be replaced with new ones. One plate with machine specifications in full, name & address of reconditioning party, year of reconditioning etc. should be riveted on the machine.	
39.	Oiling points with periodicity, type of oil to be used shall be indicated on the machine.	
40.	All the missing handles and levers to be provided	
41.	All levers and handles shall be Nickel-plated.	
42.	Any modifications carried out shall not sacrifice original traverses, speed and feed ranges	
43.	General assembly of the reconditioned CNC machine.	
44.	<p>PAINTING : Machine and rotary table outside body shall be painted with two coats of Apcolite (Asian paints) Premium enamel opline green colour paint. Interior of the machine and rotary table are to be painted with two coats of red enamel paint. Wherever oil comes in contact with interior of the body, oil resistant paint to be used. Letters, numerals etc. will have to be painted with a different colour as required / as indicated by BHEL at the time of final painting. For electrical panel boxes inside area is to be painted with two coats of white enamel paint. Painting should be carried out according to the standard procedure for painting including cleaning and removing old paint, applying metal primer putty etc. Good finish should be ensured.</p> <p>Overall Machine aesthetic view should be taken care of.</p>	

B.	<u>ELECTRICAL & ELECTRONICS :</u>	
1	Dismantling of existing CNC system, Feed Motors/Drives, Spindle Motor/Drive and Electrical Panel and interconnected cables.	
2	Mounting of Axes Motors/Drives and Spindle Drive / Motor etc.	
3	Installation of new electrical panels and pendent panel	
4	Development of PLC logic and interface drawings	
5	Wiring of the i.e between electrical panel, pendent, drives, motors, PLC, etc	
6	Interfacing of controls to the axes motors / drives, spindle motor /drive to the machine.	
7	Interfacing of motors for hydraulics, lubrication etc to the control system.	
8	Interfacing of RS232 Communication system with the control system for transfer of part programs and PLC ladder.	
9	Interfacing of encoders to the control system.	
	Mechanical work for Electronics:	
10	Design, manufacture and mounting of brackets and couplings to mount X, Z servomotors and spindle motor.	
11	Design, manufacture and mounting of suitable protective guards for the devices like motors, encoders, sensors etc.	
12	Design and manufacture of suitable brackets and fixtures to mount and align encoders for X, Z axes and for spindle.	
13	Design, manufacture and mounting of suitable protective guards to protect the above devices	
14	Counter weight balance system for saddles to be modified to suit to variable A.C. servo motors.	
15	All equipment must be suitable to run with input voltage 3 wire, 3 phase, 415 volts \pm 10% 50 Hz \pm 2 Hz	
16	All equipment shall be tropicalised and suitable for operation in shop floor conditions, where temperature variation is between 10 ⁰ to 45 ⁰ C	
17	Panels shall be stand-alone type, suitable for above	
18	List of auxiliary motors for which switchgear shall be provided in the panel is detailed under (Voltage 3 x 415 Volts) : 2 x 0.75 KW, 1 x 10 HP	
19	Supplier should arrange for training on maintenance of CNC system and PLC (2 persons), Programming (2persons) free of cost at CNC system manufacturer's training facility. Training for operation (2persons) & maintenance (electrical &Mechanical) 4 persons at supplier works for free of cost.	
20	Supplier to quote separately for the material and for installation and commissioning charges.	
21	Supplier to send his offers for commercial and technical bids in a separate sealed cover and for price bid in a separate sealed cover.	
22	The supplier is required to study the machine, the scope of supply and certify the completeness of the scope in order to execute the work. In case of any discrepancies in the scope of supply the supplier is required to highlight the same to BHEL before acceptance of the order.	
23	Existing CNC hardware, feed motors/drives, spindle motors/drives and any other material removed from the machine shall be handed over to BHEL.	

24	Planning and laying of all necessary cables like interfacing cables between system cards, drive modules, drive and system, system and machine control panel, power cables for motors etc, are in suppliers' scope of work.	
25	Before commencing manufacture of the panels, electrical and general arrangement drawings should be submitted to BHEL for approval.	
26	Before dispatch of material the supplier should arrange for inspection/working of the system, drives and motors for BHEL personnel at his works. BHEL shall be intimated ten days in advance before calling for inspection. The material shall be dispatched only after written clearance from BHEL	
27	All machine functions, operational interlocks and safety features provided by OEM should be incorporated in new system. PLC logic shall be in line with the existing logic and interface drawings.	
28	Supplier has to prove out all the functions of CNC system including PLC logic with necessary modifications, functioning of fed drives/feed motors/spindle drive and demonstrate working of the machine to the satisfaction of BHEL.	
29	Indication lamps wherever required to be provided.	
30	M codes and switch control to be provided for all auxiliary functions like coolant, spindle, etc.	
31	Each panel and the equipment mounted on each panel shall be securely connected to the earth bus. For this purpose, the earth wire shall be looped from equipment to equipment and both the ends of the earth wire shall be connected to the earth bus.	
32	All non-current carrying metallic parts shall be earthed. All doors and movable parts shall be connected to the earth bus with flexible copper connections.	
33	The supplier may visit our works to see the machine which is presently in working condition.	
34	Energy meter to be provided to indicate and record total consumption of electric power for the machine including auxiliary systems.	
35	Existing machine lamp units (one from headstock side and another from tailstock side) to be replaced with CFL units.	
36	All equipment must be suitable to run with input voltage of 3 wire, 3 phase, 415 volts \pm 10%, 50 Hz \pm 2 Hz.	
37	All equipment shall be tropicalised and suitable for operation in shop floor conditions, where temperature variation is between 10° to 45°C.	
38	Before commencing manufacture of the panels, electrical and general arrangement drawings should be submitted to BHEL for approval.	
39	Earthing to be complied with as per IS for the complete machine. Double earthing to be provided for machine bed	
40	Each panel and the equipment mounted on panels shall be securely connected to the earth bus. For this purpose, the earth wire shall be looped from equipment to equipment and both the ends of the earth wire shall be connected to the earth bus.	
41	All non-current carrying metallic parts shall be earthed. All doors and movable parts shall be connected to the earth bus with flexible copper connections.	
42	Any other item not mentioned above to keep the machine in working condition and to ensure completeness is in the contractor's scope.	
43	All the bought out items should be furnished with their test certificates.	

22	An Ultra Isolation transformer with suitable safety enclosure is required for CNC system, drives, motors and other electrical Devices. This should not be mounted inside the control panel. Make: Reputed. To be furnished with test certificate.	
23	All the Limit switches, Proximity switches, Solenoids, Relays, Float switches and Pressure switches etc are to be replaced with new items of reputed make and to be wired with new cables.	
24	Any other item not mentioned above to keep the machine in working condition and to ensure completeness of electrics & electronics.	
25	Bill of material should be provided.	
26	SPECIFICATIONS OF CNC SYSTEM	
26.1	Controlled axes (No of axis displayed) 2 axes + Spindle	
26.2	Simultaneously controllable axes- 2 axes (x and z)	
26.3	Least input increment 0.001mm (linear axis)	
26.4	Least command increment 0.0005mm (linear axis)	
26.5	Rapid traverse rate 5000 mm/min (linear axes)	
26.6	CNC display 12.1" color LCD or larger	
26.7	RS-232 communication port for transfer of part programs	
26.8	The system should have a page to display feed (mm/min) for two axes and speed (rpm) for spindle and turret tool indication.	
26.9	Ethernet card supporting TCP/IP protocols with software.	
26.10	Handheld unit with MPG (electronic hand wheel)	
26.11	Configuration screen to enable/disable axis.	
26.12	CNC system to support feedback from HEIDENHAIN rotary encoders, apart from integral motor encoders.	
26.13	Position control loop of X & Z axes shall be through the CNC only.	
26.14	List of optional features of the CNC system to be informed by the supplier in their offer.	
	MECHANICAL :	
27	Bearings as per list enclosed (SKF / FAG make only) including spindle, tailstock centre, steady rest and all ball screws bearings; and bush bearing of torque limiter clutch of spindle. One set of spare bearings for steady rest, tailstock centre and all ball screws.	
28	Ball screws and nuts of carriage, tailstock and transverse movement (X-axis). One spare ball screw with nut for X-axis movement.	
29	Turcite-B anti-friction bearing material (Rollon make)	
30	Wipers and wedges for carriage and tailstock. One set of spare wipers (reputed make)	
31	Telescopic covers for X- & Z-axes and spiral protective guard for tailstock ball screw.	
32	Tailstock pressure setting mechanism and pressure gauges of reputed make.	
33	Cable drag chains with protective cover for carriage, tailstock and front door cables movements.	
34	Hydraulic power pack and all elements of complete hydraulic system. Spare pump coupling and seal kit.	
35	Hydraulic hoses.	
36	Centralised lubrication system for X&Z axes, tailstock and steady rest.	
37	Seals, O-rings and rubber Packings, wipers	
38	3 Nos. Rollers of steady rest.	
39	Grease nipples and grease gun for steady rest	
40	Complete coolant system including coolant tank and pump	
41	Dials, name plates, instruction plates, levers, handles, painting material.	

D.	<u>PROVE OUT OF THE RECONDITIONED & CNC RETROFITTED MACHINE AT CONTRACTOR WORKS :</u>	
	<u>ELECTRONICS :</u>	
1	Setting up of all parameters of CNC.	
2	Installation & Commissioning of Axes & spindle Drives and checking of Axes: FEED & RAPID, Spindle : RPM	
3	Checking CNC functions and movements of machine feeds	
4	Checking function of spindle system.	
5	Checking function of Tool turret.	
6	Checking function of lubrication system	
7	Checking functions of other required auxiliary functions like Coolant system hydraulic system.	
8	Checking PLC interlocks and other safety features.	
9	Checking the function of data transfer between CNC, PLC and machine.	
10	Proving of all the CNC options opted for.	
11	Testing of machine with spare harddisk (loaded with proven backup).	
	<u>MECHANICAL :</u>	
12	Checking and recording geometrical accuracies as per original test chart supplied by BHEL. These accuracies shall be brought back to 100% of the original accuracies mentioned in the test chart.	
13	Checking of positional accuracies as per ISO 230-2: a. Unidirectional positional accuracy X-axis 0.020 (over full length of X-traverse) Z-axis 0.050 (over full length) b. repeatability as per ISO 230-2 : X-axis 0.010 (over full length of X-traverse) Z-axis 0.020 (over full length)	
14	Two standard test pieces have to be machined to check the accuracy of the job from reconditioned & CNC retrofitted machine. All these tests should be witnessed by BHEL representatives and certified.	
15	LASER Calibration after the work.	
16	The Contractor has to prove out all features / functions including PLC logic, functioning of feed drives / feed motors and demonstrate working of the machine to the satisfaction of BHEL and also functioning of all mechanical elements on the machine.	
17	Prove out of remote diagnosis facility. Data transfer through Ethernet connectivity with LAN on the machine at BHEL.	
E.	<u>RE-COMMISSIONING & PROVE OUT AT BHEL WORKS:</u>	
1.	Dismantling of the reconditioned & CNC retrofitted machine after satisfactory final inspection as per clauses D1—D17 and dispatch by BHEL approved transporter, by the contractor.	
2.	The complete machine is to be re-erected and re-commissioned at BHEL works by the contractor. The reconditioned & CNC retrofitted machine shall be proved out as per clauses D1—D17 by the contractor including LASER calibration.	
F.	<u>DOCUMENTATION :</u>	
	<u>General:</u>	
1.	Three sets of built drawings of the general arrangement, component lay out diagram, electrical wiring, and cabling diagram shall be supplied within two weeks after completion of work.	
2.	Three sets of manufacturing drawings for all replaced parts.	

3.	Electronics:	
3.1	The supplier shall supply 3 sets of the following documents for CNC system, feed motors/drives, spindle motors/drives, coolant motors/drives and PLC before commencement of work at BHEL factory: At least one set should be original.	
	i. Operation manual	
	ii. Interface manual	
	iii. Programming manual	
	v. Connection manual	
	vi. Maintenance manual	
	vii. Parameter manual	
	viii. Electrical drawings of the main control panel & pendant panel.	
	ix. PLC ladder / statement list (hard copy and soft copy)	
3.2	One set of the above documents shall be furnished in CD-ROM	
3.3	System software, software for standard cycles, Software for remote diagnosis, commissioning data etc. to be provided in CD.	
3.4	Three sets of AS-built drawings of the general arrangement, electrical wiring and cabling shall be supplied within two weeks after completion of work.	
G.	TRAINING NEEDS :	
1.	Training for two operators, one programmer and three maintenance personnel shall be provided at the CNC SYSTEM manufacturer's training facility free of cost.	
H.	SPECIAL CONDITIONS :	
	REVERSE AUCTION (NO TIES) :	
1	Reverse auction will be conducted on-line by BHEL authorised service provider among techno-commercially qualified bidders to obtain at optimum price bid. Information can be had from BHEL. Offers from contractors accepting for reverse auction only will be considered for evaluation. Other offers will be rejected.	
	EMD :	
2	Earnest Money Deposit of Rs.1.0 lakhs shall be deposited to BHEL account by the bidder along with the offer. In the event of acceptance of full or part tender, and if the contractor/bidder fails to commence the work within promised period, BHEL shall without prejudice to any other right or remedy be at liberty to forfeit the said earnest money absolutely. EMD does not carry any interest. Offers without EMD will be rejected and will not be considered for evaluation.	
	SECURITY DEPOSIT FOR WORK :	
3	Successful bidder has to pay 10% of the total contract value to BHEL as security deposit before commencement of the work as per clause 8.2.2 of BHEL Works policy reproduced in terms & conditions. This amount shall be returned after successful completion of the contract work.	

4	<p>BANK GUARANTEE / ALL RISK INSURANCE COVERAGE (for safe custody of machine & material): The contractor has to submit Bank Guarantee / All risk Insurance coverage for Rs.35.00 lakhs from any nationalized bank / agency for safe custody of machine and materials for the period they are stationed at contractor works. Any damage / loss shall be made good by contractor.</p>	
5	<p>All works connected to guideways of all axes (eg. Slideways, gibs) repair by machining (grinding, milling, hand scraping), suiting with trucite and matching are also covered under labour charges. However, bought-out items like turcite etc. are covered under spares. Repair of spindle by machining, chrome plating etc. are also covered under labour only</p>	
6	<p><u>SPARES :</u></p> <p>a) The spare parts (electrical / mechanical / hydraulic / electronics) required to be replaced (manufacturing spares and bought-out spares) will be to BHEL account. Contractor has to quote for these spares along with manufacturing drawings for manufacturing items and specifications for bought-out items for approval. BHEL will supply spares available with them. BHEL may procure and supply these items to the Contractor from any other sources as well. Spares not supplied by BHEL shall be purchased / manufactured by the Contractor.</p> <p>b) Spares required to be replaced other than those agreed to during joint inspection will have to be approved by BHEL before such replacement is effected. Cost of such spares shall be absorbed by the Contractor. BHEL will not pay for these items.</p> <p>c) Prior intimation has to be given to BHEL by the contractor for deputed the team for joint inspection at contractor works.</p> <p>d) Contractor must submit the quotation for joint inspection spares within a week of joint inspection.</p>	
7	<p><u>REWORK IN LIEU OF REPLACEMENT :</u></p> <p>Reworks in lieu of replacement on all parts (guideways / sliding surfaces like spindle, bushes, box nuts, screw rods etc.) by machine grinding preferably /chrome plating / welding / machining etc. identified initially and also during joint inspection are covered under labour charges only. For such works BHEL will not pay extra.</p>	
8	<p><u>TIME SCHEDULE :</u></p> <p>a) Two weeks from the date of issue of work order for removing the machine from foundation, dismantling the same into transportable lots by contractor at BHEL works.</p> <p>b) Two weeks for transporting the dismantled sub-assemblies of machine to contractor works by BHEL</p> <p>c) Twenty weeks for reconditioning & CNC retrofitting the machine, from the date of receipt of the same at contractor works to the date of inspection and acceptance of reconditioned & CNC retrofitted machine at contractor works.</p> <p>d) Two weeks for transporting the reconditioned & CNC retrofitted machine to BHEL works.</p> <p>e) Two weeks for prove out and handing over the reconditioned & CNC retrofitted machine to production at BHEL works by the contractor.</p>	

9	<p>PAYMENT TERMS:</p> <ol style="list-style-type: none"> 1. 30% of Part-A order (i.e. 30% of labour cost and 30% of initial spares cost) shall be paid after joint inspection of completely dismantled machine for 1)identification of spares and 2) deciding detailed scope of repair / rework on various components / parts. This is subject to submission of quotation for joint inspection spares along with manufacturing drawings and Bank guarantee for like amount valid for the period till the reconditioned & CNC retrofitted machine is handed over to Production at BHEL works. This BG will be returned to the party after satisfactory handing over the machine to production. 2. 60% of labour cost and 60% of initial spares cost along with taxes and duties at actuals (on submission of documents concerned for BHEL to avail credit) shall be paid after prove out and handing over the reconditioned & CNC retrofitted machine to Production at BHEL works. This is subject to handing over of total documentation as per clause 'F'. 3. Joint inspection spares / reworks shall be ordered separately (Part-B). However, 90% of Part B order shall be paid along with (2) above. 4. Balance 10% of Part-A & B orders shall be paid after submission of Performance Bank Guarantee of like amount valid for the guarantee period of 12 months (two-shift basis) and providing training as per clause 'G'. 	
10	<p><u>PENALTY:</u></p> <p>0.5% of the total contract value (including labour cost and cost of initial & joint inspection spares) per week or part thereof upto a maximum of 10% of the total contract value shall be levied beyond the time specified in H.8(c).</p>	
11	<p><u>PERFORMANCE BANK GUARANTEE :</u></p> <ol style="list-style-type: none"> a). Satisfactory performance of the reconditioned & CNC retrofitted machine shall be guaranteed for 12 months (two-shift basis). If it is not satisfactory during the guarantee period, Contractor shall attend to the machine / replace failed parts free of charge as and when called upon to do so for defects / failures noticed and attributable to the Contractor's work & supplies (both manufactured and bought-out by them). b). The discarded parts (old) during the warranty period shall be taken back by Contractor at its expenses. Repairs, if any shall be carried out either at BHEL / Contractor works as agreed mutually but cost of transportation both ways shall be on Contractor's account. c). Performance bank guarantee for 10% of total contract value shall be submitted for the guarantee period of 12 months (two shift basis) which shall cease after the guarantee period. 	
12	<p>Existing CNC system, spindle drive, spindle motor, feed drives, feed motors, resolvers, and encoders and any other material removed from the machine shall be retained at BHEL while transporting the machine to Contractor works. These are BHEL's property.</p>	
13	<p>Transport & transit insurance both ways in BHEL scope and cost.</p>	

14	<p>General tools / instruments / gauges required for</p> <p>a) dismantling and packing of the machine parts & rotary table at BHEL works for transporting the same to Contractor works for reconditioning</p> <p>b) assembly, erection, commissioning and prove out of the reconditioned & retrofitted machine & rotary table at BHEL works shall be arranged for by Contractor.</p> <p>c) Special tools / instruments / gauges for these works will be provided by BHEL.</p>	
15	<p>General terms and conditions of BHEL as per enclosure shall be acceptable. They form an integral part of contract agreement.</p>	
16	<p>BHEL reserves the right to inspect the progress and workmanship at any stage of the work. Decision of BHEL Representative shall be final in the matter of inspection at any stage. Contractor shall extend necessary co-operation to enable such inspection.</p>	
17	<p>All discarded parts shall be returned to BHEL.</p>	
18	<p>Bar chart showing the time required for the following elements to be given covering the period of delivery quoted</p> <p>a) Dismantling of machine into transportable lots at BHEL</p> <p>b) Complete dismantling, cleaning and Joint inspection of components at Contractor works to identify parts for replacement and rework.</p> <p>c) Manufacturing, rework/repairing etc. of the components, completion of scraping work and sub-assemblies</p> <p>d) Complete reconditioning and CNC retrofitting work</p> <p>e) Assembly of the complete machine</p> <p>f) Geometrical, positional accuracy testing</p> <p>g) LASER calibration</p> <p>h) Job trial and prove out</p> <p>i) Dismantling the machine</p> <p>j) Re-erection & re-commissioning at BHEL works</p> <p>k) Geometrical, positional accuracy testing</p> <p>l) LASER calibration</p> <p>m) Job trial and prove out</p>	
19	<p>MACHINE will be kept in open condition. No air conditioner is provided for this machine. The machine shall give specified accuracies in these conditions only.</p>	
20	<p>Any other activity (electrical, electronics, mechanical and hydraulics) not mentioned in this scope of work to bring back the machine to satisfactory working condition with all features and accuracies after reconditioning is in the scope of contractor</p>	
21	<p>The contractor is required to study the machine, the scope of supply and certify the completeness of scope in order to execute the work. In case of any discrepancies, the contractor is required to high light the same to BHEL before submission of the offer.</p>	
22	<p>Contractor may visit BHEL works to see the machine which is presently in working condition.</p>	
23	<p>Lodging & Boarding facilities for the contractor personnel are at Contractor's scope (during dismantling period, re-erection & re-commissioning period and for troubleshooting during performance guarantee period). BHEL is not responsible for this.</p>	



24	Material handling facilities such as crane, battery truck, slings, lifting tackles etc. along with operator, consumables like cleaning solvents, cotton waste etc. and utilities like electric power, compressed air etc. shall be provided by BHEL for the works performed at BHEL works	
25	The enclosed Electronic Funds Transfer Format shall be submitted along with offer. All payments, even return of EMD (for unsuccessful bidder) will be made by EFT only as per CVC guidelines.	

(G.VijayaKumar)
Dy.Manager (M&S)/ 10-RS,

RECONDITIONING & RETROFITTING OF SB-CNC LATHE
(ASSET NO.03-1419)

PRICE BID FORMAT

PART-A

Cost estimation for Reconditioning & Retrofitting of SB-CNC Lathe (03-1419) 27/06/09			
A.	LABOUR : (Activities A-H of the scope of work) including LASER calibration, engineering & design charges)	Rate Rs.	Total Rs.lakh
A and B	Mechanical Engineers -- 1 No. x 3 Months		
A and B	Electrical Engineers -- 1 No. X 1month		
A and B	Electronics Engineers -- 1 No. x 1 Month		
A and B	Mechanical Skilled Artisans – 2 Nos. x 3 Months		
A and B	Electrical Skilled Artisans -- 2 Nos. x 3 Months		
A and B	Electronics Skilled Artisans – 1 No. x 1 Month		
A and B	Causal Labourers -- 2 Nos. x 3 Months		
A and B	Major Machining Charges -- (1.4 & 6)		
	TOTAL LABOUR		
	Add Overheads @ _____ %		
	Total Labour cost (A):		
B.	MATERIAL :		
B1	Initial spares :		
B1.1	Mechanical		
B1.1.1	Bearings of SKF/FAG/NTN/INA make as per list enclosed (C27)		
B1.1.2	Turcite-B anti-friction bearing material, Rollon make (A9, C29)		
	all ball screws (C-28)		
	Wiper (C-30)		
	Telescopic, spiral covers (C-31)		
	Tailstock Mech. (C-32)		
	Hyd Power pack including gages etc., (C-34)		
	Hyd hoses, cable drag chain (C-43, 35)		
	Cen lube (C-36)		
	Rubber packings (C-37)		
	Rollers for steady – 3 Nos. (C-38)		
	Name plates, grease nipples, coolant system (C-39, 40, & 41)		
	Sub Total (B1.1)		
B1.2	Electrical & Electronics C1-25		
	CNC System....C1		



	PLC.....C2		
	Operating Panel.....C3		
	Machine Control panel....C4		
	Feed Motors.....C5		
	Feed Drives.....C6		
	Spindle AC motor.....C7		
	Spindle Drive....C8		
	Line Filter...C9		
	Encoders....C10		
	Encoder for tool turret C11		
	Control Panel....C12		
	A.C for Operator Panel.....C13		
	A.C for Control Panel....C14		
	Cables....C15		
	PVC Conduits....C16		
	Switch Gear....C17		
	Indicators & sensors....C18		
	Junction Boxes....C19		
	Control Transformer....C20		
	Power Supply....C21		
	Isolation Transformer....C22		
	LimitsC23		
	Any other item...C24		
	Sub total (B1.2):		
	Total B = (B1.1 + B1.2)		
	Grand Total (A+B)		
	Taxes & Duties Extra : Reverse Auction participation is a must.		

(BIDDER)



PRICE BID FORMAT FOR BEARINGS TO BE RELACED ON SB-CNC LATHE (ASSET NO.03-1419) DURING RECONDITIONING & RETROFITTING

Sl. No.	Material Description	Size	Bearing No.	Qty (Nos.)	Total Rs.
1	Radial ball bearing	25/52x15	6205	2	
2	Needle roller thrust cyl roller brg. with		ZARF 3080 LTN	1	
3	Needle roller thrust cyl roller brg. with left hand shaft		ZARF 3080 TN	1	
4	Double row taper roller bearing " Gemet"	152.40/222.25 x 105	183152x /183222 x	1	
5	Single row taper roller bearing " Gemet"	133.35/196.8 x 93.67	164133x / 164196 xp	1	
6	Double row taper roller bearing " Gemet"		120060/120110 HEO	2	
7	Cyl roller bearing		NJ 2212	2	
8	Radial ball bearing	100x150x24	6020	2	
9	Deep groove ball bearing	130/165 x 18	SKF 61826	1	
10	Radial ball bearing	160/200 X20	61832	2	
11	Radial ball bearing		6004	4	
12	Radial ball bearing		6208Z	6	
13	Needle roller thrust cyl roller brg.	INA MAKE	ZARN 4580 TN	2	
14	Needle roller thrust cyl roller brg.		ZARN 3570 TN	2	
15	Needle thrust cage		AXK 6590	1	
16	Deep groove ball bearing	105/160 X 26	6021	2	
17	Angular contact ball bearing	30/62 x 16	7206	2	
18	Deep groove ball bearing	30/62 x 16	6206	1	
19	Needle roller and cage assy.		K95 X 102 X 21	2	
20	Thrust cyl roller bearing	65 /100 x 27	81213	1	
			TOTAL. RS.		

(BIDDER)



NATIONAL ELECTRONIC FUND TRANSFER FORMAT

(To be furnished on Contractor's Letter head)

Ref No. :

Date :

Dy.Manager/Finance-CM
Bharat Heavy Electricals Limited
Ramachandrapuram
Hyderabad 502 032

Dear Sir,

Sub: Details for National Electronic Fund Transfer

We request and authorize you to effect payment through NEFT to our Bank account, subject to RBI Guidelines, as per the details given below.

- A. Supplier code (As per PO/SCO) :
- B. Beneficiary (Name as per PO/SCO) :
- C. PAN of Beneficiary :
- D. TIN of Beneficiary :
- E. e-mail address of Beneficiary :
- F. City (of Beneficiary) :
- G. Bank Name :
- H. Branch (of Bank) :
- I. A/c Number :
- J. A/c Type (Savings or Current) :
- K. MICR Code of the branch (9 digit) :
- L. IFSC for EFT (11 char) :
- M. IFSC for RTGS (if different from L) :

Thanking you,

(Signature with Seal)
Authorised Signatory

Name :
Designation :

Certified that the particulars furnished above are correct as per our records.

Date :

(Signature of authorized official of bank)
Bank Stamp

BHEL TERMS AND CONDITIONS

A. CONTRACTUAL :

- 1) The Contractor will ensure that the employees deployed by him in the premises of BHEL are physically and mentally fit and do not have any criminal record.
- 2) The Contractor will maintain records of his employees deployed to carry out the job. The Contractor will provide employment card/Identity card with photograph duly attested by him to his employees.
- 3) In the event of termination of contract for any reason whatsoever, the contractor shall withdraw all his employees from the establishment of BHEL.
- 4) The Contractor will obtain insurance cover for his employees and take third party risk insurance coverage at his own cost.
- 5) The Contractor will be solely entitled to dictate such workers about the manner of carrying out the work.
- 6) The Contractor or his authorized representative will supervise the work allotted to him and being carried out by his employees or will post a Supervisor for this purpose.
- 7) The Contractor will be responsible for the good conduct of his employees. In case of any misconduct / misbehavior by any employee, contractor will replace such employee immediately.
- 8) The Contractor will keep watch on his employees and he will be liable for any pilferage / loss to BHEL due to acts of omission and commission by his employees. Similarly, liability for any compensation to outsiders on account of any act of omission and commission by the employees deployed by the contractor shall lie exclusively with him.
- 9) The Contractor will ensure that all precautions are taken for the safety of his employees.
- 10) The Contractor will provide to his employees all tools, tackles and equipments required to carry out the job under the contract at his own cost.
- 11) The Contractor will provide safety appliances at his own cost which may be required under the statute or otherwise.
- 12) The Contractor will provide all material at his own cost as mentioned in the contract to his employees for carrying out the job.
- 13) Transportation facility for the employees to come to BHEL works is in the scope of the contractor.
- 14) Consumables like air, water, power supply will be supplied by BHEL free of cost.
- 15) No accommodation will be provided by BHEL to the contractor personnel deputed for performing the contract work.
- 16) Shift timings : 1st shift – 06:45 to 15:15 hrs with lunch break from 11:30 to 12:00 hrs
2nd shift—15:00 to 23:30 hrs with dinner break from 19:30 to 20:00 hrs

STATUTORY :

- 1) The Contractor shall comply with all statutory requirements, rules, regulations, and notifications in relation to employment of his employees issued from time to time by the concerned authorities.
- 2) The Contractor shall provide PF passbook to his employees and ensure payment of PF, EDLI, and pension dues under EPF & MP Act, 1952 to the RPFC.
- 3) The Contractor shall produce proof of deductions as well as remittances of PF, EDLI, Pension, ESI contribution, administrative charges etc. wherever applicable and shall maintain proper records.
- 4) The Contractor shall furnish proper returns to the concerned statutory authorities.
- 5) The Contractor shall be solely responsible for non payment/delayed payment of wages, contributions under EPF & MP Act, ESI Act etc.
- 6) In case the contractor fails to make payment of wages to his employees or remittance of contribution to the concerned authorities, the security deposit/other dues under the contract can be utilized by BHEL to discharge the liability of the contractor.
- 7) The Contractor shall indemnify BHEL against all claims and losses under various statutes or any civil or criminal law in connection with employees deployed by him.

- 8) The liability for any compensation on account of injury sustained by an employee of the contractor will be exclusively that of the contractor.
- 9) The Contractor shall obtain license under CL(R&A) Act, 1970.

GENERAL:

- 1) The contractor shall pay minimum wages to workers as per minimum wages act. Contractor shall make PF, ESI contributions as per applicable rules. ESI Cards should be arranged to contract labour and their wards by the contractor. These records need to be preserved for a period of at least 3 years and made available even after the contract is over for any verification by the statutory authorities.
- 2) Contractor shall provide personnel protective equipment like safety uniform in blue colour, safety shoe in black colour and should ensure that they wear them daily while on work.
- 3) Contract operates on Unit rates, contract labour should get at least Daily Unit rate as per the minimum wages act from the contractor.
- 4) Contractor should pay double amount to the contract labour, if they are engaged more than 8 hours (normal).
- 5) Permissions for labour and materials shall be obtained in the prescribed formats.
- 6) **Break:** contract labour should be given break period for about 15 days once in every 6 months in case of long duration contracts, for one time/ short period contracts this clause will not apply.
- 7) The contractor is wholly responsible for any loss of life or partial disability of any of their labour while on duty.
- 8) In case of occurrence of any accident/ injury of contractor's staff, BHEL will not pay any compensation while they are on duty and contractor has to take care of health of workers under statutory obligation.
- 9) BHEL reserve the right to cancel the work order in part or in full without assigning any reason.
- 10) Upon awardal of the work, the contractor has to execute an agreement with BHEL on a non-judicial stamp paper worth Rs.100/- as per General Agreement Conditions before commencement of work.
- 11) BHEL shall have the privities of the contract with the contractor only and will give instructions to the contractor or his authorized representative. BHEL will have nothing to do or be concerned with the employment of employees working for the contractor. The relationship between BHEL and the Contractor will be that of independent entities and nothing herein contained will amount to joint venture, partnership or an employer-employee relationship.
- 12) The contractor shall maintain regular contact with the designated employee(s) of BHEL and will interact on matters relating to the work awarded under this contract.
- 13) In case the Contractor does not carry out the Contractual/Statutory obligations or the services rendered by him are found to be unsatisfactory, BHEL shall bring the same to his notice and he will be obliged to discharge the obligations and rectify the efficiency/anomaly within three days time failing which, BHEL reserves the right to terminate the contract without assigning any reason whatsoever. In such an event, no damages will be payable for short closure of the contract.
- 14) Notwithstanding anything contained in the contract Agreement which will be entered after awardal of work, the contract may be terminated by BHEL without assigning any reason thereof by giving a notice of 30 days to the contractor.
- 15) The Entry permits are to be issued to the Contract Labour by Assistant Commandant / CISF(Plant), based on the requisition submitted by Contract Executing Officer and forwarded by Dy.General manager / Personnel.
- 16) Every contractor shall submit a notice regarding commencement and completion of work in form – VI A&B [Rule 25 (VIII) & 81 (3)] to HR Department, IR section through his contract executing officer, for forwarding the same to State Labour Department.
- 17) Non – compliance of any provisions under the act / rule / instructions / guidelines shall make the contractor liable for penal action including termination of contract.

- 18) Contractor shall furnish in a separate letter his place of residence and postal address. The delivery at the above named place or posting in a Post box regularly maintained by the post and telegraph Department or sending letters registered for acknowledgement of any notice, letter or other communication to the contractor. Change in address shall come into force at any time by an instrument executed by the contractor and delivered to the Company official who has signed the contract.
- 19) The contractor must satisfy himself by personal study and examination of the drawings / specifications furnished and understand thoroughly the scope of proposed work in detail and all conditions affecting the work before entering into the contract. There shall not be at any time dispute / complaint of any misunderstanding with regard to scope of work and interpretation of specifications or any misunderstanding with regard to nature or omission of the work to be done not shall any application for compensation in terms of time and money shall be accepted by company regarding the above.
- 20) Contractor shall in his absence keep competent agent constantly on the works and any directions or explanations given by the "Contract Signing Officer" or his representative to such agent shall be held to have been given to the contractor himself.
- 21) It shall be contractor's sole responsibility to protect the public and his employees against accident from any cause and provide required safety equipments and shall indemnify, the company against any claims for damages for injury to the person or property resulting from any such accidents and shall, where the provisions of the workmen's compensation act apply, take steps to properly insure against any claims there under.
- 22) In the event of any accident in respect of which compensation may become payable under the workmen's compensation act VIII of 1923 whether by the contractor or by the company as principle employer, it shall be lawful for the company to retain out of monies due and payable to the contractor such sum or sums of money as may, in the opinion of the company shall be final in regard to all matter arising in this clause.
- 23) No work shall be done on Sundays or on other declared holidays of the company without the written permission of the company officer in-charge of the work. The contractor shall comply with the provisions of the Factories Act Rules framed there under if the same are applicable.
- 24) The contractor shall keep his work place clean and safe to avoid injuries to men and damage to finished products / equipments.
- 25) On the occurrence of an accident, which results in the death of any of the workmen employed by the contractor or which is so serious as to be likely to result in the death of any such workmen, the contractor shall intimate within 24 hours of the happening of such an accident intimate in writing to the company official in-charge of the work.
- 26) The contractor shall indemnify the company against all losses or damages sustained by the company resulting directly or indirectly from his failure to give intimation in the manner aforesaid including the penalties or dues if any and become payable by the company, as a consequence of failure, the company to give notice under the workmen's compensation act or otherwise confirm to the provisions of the said act in regard to such accident.
- 27) The contractor shall ensure adherence to all statutory requirements applicable to BHARAT HEAVY ELECTRICALS LIMITED, RAMACHANDRA PURAM, HYDERABAD-502032.
- 28) Notwithstanding the clause, in case of any financial loss incurred by the company on account of contravention of the Provident Fund regulations or any regulations of rule touching the same by the contractor, the contractor shall submit an undertaking to indemnify the company to the extent of the loss incurred by the company.
- 29) The contractor should engage only those labourers who shall be more than 18(eighteen) years of age.
- 30) The contractor shall not resort to subcontracting under any circumstances. If found subcontracting at a later date, BHEL reserves the right to take whatever action it deems fit, including cancellation of the contract.
- 31) The contractor shall be responsible to settle any grievances of the labour deployed by him.
- 32) Whenever the term "CONTRACTOR" is used, it shall be understood to refer to the particular person, firm or corporation with whom an agreement has been made by the concerned company official for executing the work defined in the concerned agreement and for the purpose of instructions regarding compliance with contract conditions, it shall include the contractor's authorised agents, who are entrusted with the work by contractor.

- 33) The quantities mentioned in the agreement schedule are worked out from the relevant drawings in the company and may not be the actuals required for execution. The company does not expressly or by implication agree that the actual amount of the work to be done shall correspond therewith, but reserves the right to increase or decrease the quantity of any class or portion of the work as he deems necessary.
- 34) All the works shall be carried out in accordance with the directions and to the satisfaction of the company official in accordance with the drawings, specifications and instructions. Supplementing or explaining the same as may from time to time shall be done by the company official.
- 35) For all modifications, omissions or additions to the approved drawings and specifications, the company shall issue revised plans or written instructions and no modifications, omission or addition shall be made unless at any time before completion of the work.
- 36) All materials, articles, and workmanship shall be the best of their respective kinds for the class of work described in the contract specifications and schedule and materials to be obtained by the contractor shall be from sources approved by the company.
- 37) Sample of materials shall be furnished by the contractor at his expense to the company when called for before execution of any work.
- 38) The company shall have power to reject at any stage, any work which is considered to be defective in quality of materials of workmanship and shall not be debarred from rejecting wrong material by reasons of having previously passed them in an unworked condition. Any portion of the work or materials rejected or pronounced to be inferior or not in accordance with specifications shall be taken down and removed from the work site at the contractor's expenses.
- 39) The decision of the company shall be final and binding on the contractor on all technical questions which may arise in the contract with respect to material, workmanship, removal; of improper work, interpretation of the working drawings, specifications, notes, procedures etc.
- 40) The decision of the "Contract Signing Officer" or any officer deputed by him duly authorised on his behalf, in respect of the rate of progress and the quality of work or material shall be final.
- 41) Contracts shall be deemed to have included in his tender price of all the plant, machinery and appliances required for the purpose of all operations connected to secure a satisfactory quality of work within the opinion of the company will ensure the completion of the work within the time specified.
- 42) It is open to the company to lend or supply to the contractor any tools, implement, material and machinery that are needed by the contractor, which in the opinion of the company is essential to improve the quality or progress of work. The contractor shall pay such deposit or charges that may be fixed or determined by the company for any such articles or machinery lent or hired to the contractor.
- 43) All rubbish as it accumulates shall be removed from the site to the point of disposal as indicated from time to time by the company. If this is not adhered to, the company shall remove the scrap and recover the cost of these operations from the bills of the contractor.
- 44) Any sum due from the contractor on account of tools and plants, stores, or any other items provided by the company shall be deducted from the respective bill due to him.
- 45) In case the contractor does not execute the work awarded to him as per the terms and conditions of the agreement, the same shall be got executed by some other contractor and the excess cost incurred shall be recovered from the contractor's security deposit/pending bills.
- 46) In case of breach of any of the terms and conditions of the contract, a claim shall be lodged under the bank guarantee with the guarantor at the discretion of the competent authority of the company. On successful completion of the contract to the satisfaction of the company, the bank guarantee shall be released after due claim period.
- 47) In the event of any question or dispute or under this contract, the same shall be referred to a competent Authority in the company for sole arbitration and his decision shall be final and binding on the parties to the contract.
- 48) In case of any suit or other legal proceeding arising under this contract, the courts at Sangareddy (Medak Dist.) A.P only shall have the Jurisdiction.

- 49) Disputes, grievances between the contractor and his labour, will have to be settled by the contractor only.
- 50) The labour employed by the contractor, if found in abetting and fellow labour or contractors or any BHEL employee, the same shall be considered as an act of indiscipline. Such labourers shall be removed from the services of the contractor, on the advice of BHEL. Further the contractor shall initiate every necessary action in accordance with the relevant Laws, Rules & Regulations and enactments of State and Central Government.
- 51) Wherever, BHEL/COMPANY standards are mentioned shall be strictly followed.
- 52) Nothing contained in the contract agreement and its conditions shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the contractor personally.
- 53) The decision of the "Contracting Signing Officer" shall be final and binding on the contractor on all technical questions which may arise touching the contract with respect to the quality of material, workmanship, removal of improper work, interpretation of the working drawings, specifications, notes, procedures etc.
- 54) All disputes, claims and demands arising in connection with the contract shall be settled by mutual consultation. If no such agreement is reached between the parties each party can appoint one Arbitrator and the Arbitrators so appointed can appoint a Presiding Arbitrator. The proceedings of the tribunal shall be in accordance with the provisions of the Arbitration and Conciliation Act, 1996 and the rules made there under. The venue of the Arbitration shall be at BHEL, Hyderabad or at such place as the Arbitrators may direct. The Award to be given by the Arbitral Tribunal shall be a speaking award. The arbitration costs, fees and expenses shall be borne by both the parties equally. The award of the tribunal shall be final and binding on both the parties equally. The award of the tribunal shall be final and binding on both the parties. All questions, disputes, differences arising under, out of or in connection with this contract shall be exclusive jurisdiction of the Courts at Sangareddy, Medak District, Andhra Pradesh.
- 55) **GENERAL INSTRUCTIONS REGARDING BHEL TENDERING PROCESS:**
1. If the tender is made by an individual, it shall be signed with his full name and his address shall be furnished. If it is made by firm, it shall be signed with the co-partnership name by a member of the firm, who shall also sign his own name, also furnish the name and address of each member of the firm. If the tender is made by a corporation, it shall be signed by a duly authorized Officer who shall produce with the tender, satisfactory evidence of his authorization. Such tendering corporation/firm is required to furnish evidence of its existence along with bid.
 2. The EMD will be refunded to the unsuccessful Tenderers after rejection of the tender is intimated. The earnest money will be retained in the case of the successful tenderers and either of the cases will not carry any interest. It will be dealt with as provided in the conditions attached to the tender.
 3. Whenever a tender is to be accepted, the tenderer, whose tender is under consideration, shall attend the Office of " Officer Inviting the Tender " on the date fixed by written intimation to him. He shall forthwith, upon intimation being given to him by the " Officer Inviting the Tender" for acceptance of his tender, complete the execution of the agreement by signing all documents connected therewith. Failure to do so and not to commence the work within one month from the date of intimation shall entail forfeiture of the earnest money.
 4. Tenderers shall pursue carefully the instructions and directions to the parties given in the tender document and the conditions thereof and all other relevant documents before quoting the rates for the work. The approximate quantity of work to be executed under each class is given in the schedule. The quantities are given with a view to enable tenderer to quote his overall rate for each class of work in the tender form and for a uniform comparison of tenders. It shall be definitely understood that the schedule is liable to alterations at the discretion of accepting authority.
 5. Tenderers shall keep the offer valid for a period of 90 days from the date of opening of tender. After submitting the tender, he will not recall his offer or modify the terms and conditions thereof. Should the tenderer fail to observe or comply with the foregoing stipulations, the EMD shall be forfeited.
 6. Tenderers have to quote their rates in the tender schedule legibly written in figures and words and those not submitted in proper form are liable for rejection.
 7. The submission of tender shall be strictly in accordance with the terms and conditions stipulated in this tender notice. No counter conditions will be acceptable or valid.
 8. Contractor shall be deemed to have included in his tender price of all the plant, machinery and appliances required for the purpose of all operations connected with the work embraced under the contract to secure a satisfactory quality of work and rate of progress which in the opinion of the " Contract Signing Officer" will ensure the completion of the work within the time specified.

9. The rates quoted by the contractor should be firm for the contract period. There shall be no revision in contract rates during the period of the contract. Any increase of statutory levies during the period of the contract will be reimbursed on production of relevant proof of incurring expenditure for the same.
10. **BHEL reserves the right to negotiate for price reduction with lowest quoted (L1) party and negotiated price will be considered as contract amount for all practical purposes.**
11. The contractor must have phone facility at his office/ residence or cellular phone for proper communication.
12. Withdrawal from contract during contract period in BHEL will entail forfeiture of security deposit.
13. The contractor should abide by the company's **CISF** Security / safety rules and provide such safety requirements as per statutory rules and requirements of the factories act.
14. In case of breach of any of the terms and conditions of the contractor, BHEL reserves the right to cancel the contract either in part or full.
15. Contractor shall provide uniform, shoes and other Personal Protective Equipments (like safety helmet) wherever applicable to their labour.
16. **Earnest Money Deposit** : Earnest Money is to be paid by each tenderer to ensure that the tenderer does not refuse to execute the work after it is awarded to him. The rate of earnest money deposit shall be as per tender schedule. EMD by the Tenderer will be forfeited as per Tender Documents if:
 - i) After opening the tender, the tenderer revokes his tender within the validity period or increases his earlier quoted rates.
 - ii) The tenderer does not commence the work within the period as per LOI / Contract. In case the LOI / contract is silent in this regard then within 15 days after award of contract.
 - iii) EMD shall not carry any interest
17. **Security deposit**: Security Deposit should be collected from the successful tenderer. The rate of Security Deposit will be as below:

Upto Rs. 10 lakhs : 10%

Above Rs. 10 lakhs Upto Rs. 50 lakhs : 1 lakh + 7.5% of the amount exceeding Rs.10 lakhs

The security Deposit should be collected before start of the work from the contractor.

Security Deposit may be furnished in any one of the following forms

- i) Cash (as permissible under the Income Tax Act)
- ii) Pay Order, Demand Draft in favour of **BHEL**.
- iii) Local cheques of scheduled banks, subject to realization.
- iv) Securities available from Post Offices such as National Savings Certificates, Kisan Vikas Patras etc. (Certificates should be held in the name of Contractor furnishing the security and duly pledged in favour of **BHEL** and discharged on the back).
- v) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act subject to a maximum of 50% of the total security deposit value. The balance 50% has to be remitted either by cash or in the other form of security. The Bank Guarantee format should have the approval of **BHEL**.
- vi) Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the contractor, A/C **BHEL**, duly discharged on the back.
- vii) Security deposit can also be recovered at the rate of 10% from the running bills. However in such cases at least 50% of the Security Deposit should be collected before start of the work and the balance 50% may be recovered from the running bills.
- viii) EMD of the successful tenderer shall be converted and adjusted against the security deposit. Security deposit shall be refundable after final bill claim but request should be made to section incharge.
- ix) The security deposit shall not carry any interest.

NOTE : Acceptance of Security Deposit against Sl. No. (iv) and (vi) above will be subject to hypothecation or endorsement on the documents in favour of BHEL. However, BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith.

Accepted
Signature of the Bidder with seal