

ANNEXURE-A**(Techno-commercial Scope of Supply and Work)**

Name of work: RECONDITIONING, UPGRADATION AND CNC RETROFITTING OF CINCINNATI COPY MILLING MACHINE, MODEL H400-224 HYPOWERMATIC, PLAN NO. 2-344 BLOCK-3.

CLAUSE NO.	DESCRIPTION	VENDOR TO CONFIRM
1.	<u>MACHINE DESCRIPTION:</u>	
	Two axes milling machine Make: Cincinnati; Model: H400-224 HyPowermatic. a). Machine Size: Length: 160"; Width: 87"; Maximum height: 102 ½". Net Weight of the machine: Approx. 9 T	
	b). Movements: 2-axes (table longitudinal and spindle carrier vertical) Table longitudinal (X-axis): About 48" Spindle carrier vertical (Y-axis): About 17 1/4" (Spindle carrier can be raised or lowered) Both the axes have lead screws. Manual arrangements for moving X-and Y-axes through square pieces exist in the machine.	
	c).Control : Machine has got a Rate-modifying tracer control attachment which controls a variable discharge hydraulic pump giving variable speeds through hydro motors.	
	d). Feed and rapid speeds: Feed of the elevating spindle carrier is ¼"- 50" per minute. Rapid traverse of the spindle carrier is 50" per minute and the table feed within the range of ½" to 150". The actual tracing rate along the slope of the cam varies within the minimum and maximum table feed and carrier feed ranges depending upon the slope of the cam at any given point.	
	e). Drives: Spindle motor is 25 hp AC asynchronous motor. Spindle speeds are changed by changing the pair of gears manually. Table longitudinal and Spindle carrier vertical axes are driven by Hydro motors.	
	f). Hydraulic system: I. Machine hydraulic system has got an electric motor driven variable delivery pump which provides the hydraulic pressure to control the table and spindle carrier movements. II. The hydraulic system also provides power to operate the tracer movements. III. Spindle carrier counterbalance is performed through a hydraulic cylinder piston. IV. Power of hydraulic motor is 7 ½ hp.	

	<p>g). Lubrication system: Most of the lubrication requirements of the machine are met by the machine hydraulic system and an automatic lubrication system. The oil selected for use in the hydraulic system has excellent lubrication qualities and is directed to gears and bearings. The automatic lubrication system supplies lubrication to all sliding components and to the screws that drive them. Bed of the machine table acts as the reservoir for the lubrication system. Following sliding, moving parts are lubricated by the automatic lubrication system:</p> <ul style="list-style-type: none"> i). Outboard elevating screw ii). Front and rear outer support ways iii.) Carrier lubrication of front and rear ways, front and rear clamps, solid and gib sides. iv.) Carrier elevating screw v.) Front and rear table ways vi) Each arbour support (also called “steady”- there are three such supports which are mounted on the Overarm) has its own oil reservoir and sight gauge. 	
2.	<u>SCOPE OF SUPPLY:</u>	
	<p>a). A CNC Controller with PLC to perform functions as per detailed specifications should be provided. The CNC controller should be Sinumerik 810M GA3 (J82 + J96 option) with TFT monitor and standard Machine Control Panel (MCP) for milling operations.</p>	
	<p>b). Siemens make Simodrive 611U AC Servo drive for Feed motor control including IR/Active Line module, Line filter with choke, LT Modules, Controller cards etc.</p>	
	<p>c). Table longitudinal feed (horizontal traverse) shall be provided by 1FT/1FK series servo motor of suitable rating alongwith Simodrive 611U controller card.</p>	
	<p>d). Spindle carrier feed (vertical axis traverse) shall be provided by 1FT/1FK series servo motor of suitable rating alongwith Simodrive 611U controller card and Over arm support travel shall be provided.</p>	
	<p>e). Electrical cabinet of reputed make with suitable side mounted air-conditioner, incorporating the new table longitudinal drive (horizontal axis), spindle carrier drive (vertical axis), PLC accessories and other switchgear including the machine ON/OFF MCCB with rotary handle should be provided. The cabinet should not have rear opening. No elements should be mounted on the back-side of the panel. Electrical Cabinet to be equipped with:</p> <ul style="list-style-type: none"> i. Door limit switch operated panel tube lights with ON/ OFF switch. ii. 15 Amp 3-pin service socket and switch 	

	<p>f). A hanging Operator Pendant of reputed make, incorporating the CNC Operator Panel, MCP, all CNC I/O Boards, Selector switches and pushbuttons required for machine operation should be provided. Main body of CNC System (Sinumerik 810GA3) shall be housed in the Operator pendant. Pendant shall be hanged from a suitable location on the machine or from the electrical cabinet in such a way that :</p> <ul style="list-style-type: none"> i. It is convenient for the operator to function. ii. Hanging system is strong and stable. iii. Swivel of minimum 180 degrees. iv. Pendant shall have handles on both of its sides for rotation by hand. v. One no. AC Axial fan of ebm/ebm nadi-make providing airflow of about 1800 m³/hr shall be mounted on the pendant for evacuating the heat generated inside the pendant. vi. 220 VAC/ 5 Amp 3-pin service socket and switch. vii. Illumination light with switch for working in the operator panel. viii. Vendor may note that all CNC I/O Boards are to be mounted in Operator panel. 	
	<p>g). Cable ducts and conduits of reputed-make should be provided as per requirement for routing of cables and it should be ensured that the electrical system will be completely sealed and there are no entry points in drag chain , electrical cabinet & operator pendent for rodents. All I/O cables, feedback cables should be pre-assembled and HMT-make only.</p>	
	<p>h). Heidenhain Linear scales (LS 187) of suitable length should be provided for X & Y - axes.</p>	
	<p>i). Heavy duty Backlash-free ball-screw & ball-nut system of Bosch-Rexroth/THK- make only having C5 accuracy should be provided for X-axis (Table longitudinal) and Y- axis (Spindle carrier vertical traverse and over arm support vertical axis). The arrangement of ball-screw should be a proven one and the make must be specified in the technical bid.</p>	
	<p>J). Arbour which carries the cutting tool is presently clamped manually into the machine spindle. A push button operated hydraulic arbour clamping and unclamping system using a hydraulic piston cylinder shall be quoted by the vendor. Decision to install hydraulic clamping and unclamping system for the arbour in place of the manual system shall be taken during the joint inspection at the vendor's works. However prices of the hydraulic arbour clamping and unclamping system shall be quoted by the vendor separately in the price bid. Arbour can be linearly adjusted manually up to 100 mm through a square piece.</p>	
	<p>k). A Chip conveyor system should be installed at the side of the table and proper storage system for chips with minimum space utilization.</p>	
	<p>l). Telescopic cover should be mounted at both end of the table.</p>	
	<p>m). A new Hydraulic system of Rexroth/Hydac/Parker/Vickers-make shall be provided to Execute</p>	

	<p>hydraulically-controlled functions of the machine such as hydraulic counter balance system, arbour clamping/unclamping system and lubrication of spindle gears and bearings.</p> <p>A strainer should be attached to the inlet line of the hydraulic pump to filter the oil before it enters the system and a 5-micron filter after the oil leaves the pump. A magnet should be mounted in the reservoir to remove magnetic particles from the oil. Functioning of cylinder-piston for spindle carrier counter balance system shall be checked by the vendor and rectification/overhauling carried out, if required. The balancing system should be automatically controlled & monitored through PLC. All pipes/hoses, valves, with manifolds, seals of counter balance cylinder should be changed and checked for proper functioning.</p>	
	<p>n). Separate automatic lubrication unit shall be provided for upgradation of existing lubrication system of the machine.</p>	
	<p>o). All the Mechanical & Electrical items and fittings required for the reconditioning & retrofitting work shall be provided by the vendor.</p>	
3.	<u>SCOPE OF WORK:</u>	
	<p>a).Reconditioning and up gradation of the complete machine to suit for CNC operation.</p>	
	<p>b). Replacement of all spindle bearings (SKF/NTN/FAG) ONLY.</p>	
	<p>c).The run-out of the spindle should be checked and rectification (if any) should be carried out accordingly within the range of .02mm.</p>	
	<p>d).Present feed traverse arrangements of spindle carrier elevating assembly (main vertical axis and over arm support vertical axis) and table longitudinal axis are to be replaced by Backlash free ball-screw & ball-nut system of reputed make(as per para 2.i)</p>	
	<p>e).Scraping and matching of guideways to ensure the smooth and precise motion of both axes. Turcite coating, if required, should be provided for both the X- & Y-axes ways of the machine.</p>	
	<p>f).Gibs, keeper plates etc. are to be checked and replaced/rectified as per requirement.</p>	
	<p>g). Wipers should be provided for the guide-ways of X & Y- axes of the machine.</p>	
	<p>h). Installation of the AC servo feed motors for X-axis (Table Longitudinal) and Y-axis (Spindle carrier elevating) feeds of the machine.</p>	
	<p>i) Installation of chip conveyor system by the side of table.</p>	
	<p>j). All existing and new lubrication points shall be connected with the new/restored system and proper lubrication shall be ensured.All old distributor ,nipples,pipe,hose is to be replaced with new one of suitable capacity. Lubrication system of the arbour supports (mentioned at 1.g of machine description) shall be restored. New sight gauges shall be installed.</p> <p>Lubrication and hydraulic systems shall be monitored in the PLC through new pressure switches and flow switches suitably installed at critical points. All pressure switches shall be of Hydac/Rexroth/Parker/Vickers-</p>	

	make only. Vendor shall ensure that there shall be no leakage of oil from the system/machine.	
	<p>k). CNC RETROFIT:</p> <ol style="list-style-type: none"> I. Installation of new electrical cabinet having contactors, MPCBs, MCBs, plug sockets, relay modules, DC power supply and other required electrical switchgear. II. Installation of new operator pendant with side handles having the new MCP, Monitor display, CNC keyboard, I/O Boards, hand wheel, required Push buttons, selector switches etc. III. Interfacing & commissioning of the CNC, PLC, Position feedback, spindle & Feed drives systems. IV. Existing AC asynchronous motor for spindle shall be retained. V. Prove-out of the main functions (axes & spindle). VI. Prove-out of the auxiliary functions (Coolant etc.). VII. Prove-out of the alarms and message prompts. VIII. Prove-out of the part programs for machining of external and internal profile of T4-50 blades. IX. Part programs of these profiles are already running on other CNC milling machines in BHEL Blade production shop equipped with Sinumerik 810M GA3 controls. 	
	<p>l). Other Works:</p> <p>All activities related to:</p> <ol style="list-style-type: none"> I. Dismantling of existing hydraulic system including the hydraulic motors of spindle carrier elevating and table longitudinal traverse. II. Mounting and cabling of AC servomotors for feeds replacing the existing hydraulic motors. III. Installation and commissioning of AC Servo drives for the new feed motors. IV. Interfacing the spindle and axes with the CNC. V. Development of PLC program and its commissioning. 	
	<p>m). Painting of the machine after reconditioning</p> <p>Moving parts of the machine shall be painted in Satin Blue shade (RAL 5012) & non-moving parts shall be painted in Phirozi Blue shade (RAL 5017) after reconditioning.</p>	
4.	<u>CNC FEATURES:</u> The CNC controller should have following features:	
	a). Two-axis continuous path control system for milling operations.	
	b). Mode selection through mode selector switch/keys.	
	c). TFT/LCD monitor for display.	
	d). Graphic simulation (Static graphic system).	
	e). Display of NC & PLC Alarms.	
	f). Full alphanumeric key board for input of part programs.	
	g). 2 Nos. RS 232 C ports for serial communication for data input/output by means of DNC/HHT.	

	h). Minimum 128Kb memory for program storage.	
	i) Facility to store up to 99 subroutines & 999 part programs.	
	J) Background editing of programs.	
	k) Part program renaming & copying facility.	
	l) Block search with calculations in automatic mode.	
	m). Facility to store 2 zero offsets & 2 additive zero-offsets.	
	n).It should be possible to store 64 tool offsets.	
	o).Resolution of 0.001 mm.	
	p). Automatic tool offset loading facility.	
5.	<u>OPERATIONAL FEATURES:</u> Pendent with the CNC operator panel should have the following operational features integrated with MCP:	
	a). Axes selection keys X & Y.	
	b). Directional keys + & - for axis movement in jog.	
	c). Rapid traverse key.	
	d). Spindle ON / OFF.	
	e). Spindle rotation direction CW/CCW.	
	f). Emergency stop.	
	g). Reset facility.	
	h). Single block option.	
	i). Selectable Dry run mode.	
	j). Optional program stop.	
	k). Oil pump ON push-button/key.	
	l). Main motor ON push-button/key.	
	m).Coolant ON / OFF push-button/key.	
	n).Indicators for main motor ON, Oil pump ON.	
6.	<u>PROGRAMMING FEATURES:</u>	
	a). ISO code (G&M mode type) programming, customized for milling operations.	
	b). Absolute/incremental programming.	
	c). Decimal point programming.	
	d). Linear & circular interpolation on both axes.	

	e). Programmable dwell.	
	f).Scaling factor.	
	g).Storage of user defined subroutine independent of the main program.	
	h).Variable parametric programming with mathematical functions including trigonometric & logic functions.	
	i).Arc-programming with radius & end-point.	
	j).Conditional & unconditional jump.	
	k).Programmable tool offset.	
	l).Programmable zero offset.	
	m).Two Programmable additive zero offset.	
	n).Subroutine nesting up to 3 levels.	
	o).Programmable skip.	
	p).Facility of inclusion of message in the part program.	
	q).Corner rounding & chamfering.	
	r).Diameter programming.	
	s).Tool nose radius compensation (TNRC).	
	t).Coolant on/off should be programmable.	
	u).Programming of primary & auxiliary functions through M, S, T codes.	
7.	<u>MONITORING:</u>	
	a). Any abnormality on the machine should be indicated by indicating lamps, PLC alarms & message prompts.	
	b). PLC alarms & messages should include the device number and/or the operand.	
8.	<u>SAFETY FEATURES:</u> should include	
	a).Fuses & Overloads of appropriate ratings for all primary & auxiliary circuits	
	b).Limit switches & sensors to avoid over-travel & collision of any part of the machine.	
	c).Float & pressure switches to ensure proper functioning of hydraulic & lubrication systems.	
9.	<u>COMPLETION AND ACCEPTANCE CRITERIA:</u>	
	a).Machine operation under CNC control shall be demonstrated at party's works before dispatch of machine to BHEL, Hardwar. Position control gain (KV) of each axis should not be less than 1200.	
	b).Spindle run-out should be within permissible limit of 0.02 mm.	
	c).Chatter free surface finish shall be ensured.	
	d).Erection & commissioning shall be done by the vendor at BHEL, Hardwar.	
	e).Successful machining of external and internal profiles of T4-50 blades should be completed for FINAL	

	HAND-OVER of the machine .CNC Part programs for machining of blades are available with some of the machines equipped with Sinumerik 810M GA3 CNC control. However, their prove-out and editing (if required) on the reconditioned and CNC retrofitted machine shall be the responsibility of the party.	
10.	<u>DOCUMENTS</u> consisting of-	
	a).New electrical schematic of the machine (Hard Copy) – 3 sets.	
	b).Technical and Service manuals of the AC servomotors (Hard Copy) – 3 sets.	
	c).Commissioning and service manuals of the AC servo drive (Hard Copy) – 3 sets.	
	d).PLC printout in ladder form with symbols & comments in English (Hard Copy) – 3 sets.	
	e).O&M manuals for CNC, PLC & Measuring systems (Hard copy) – 3 sets.	
	f).Programming manual (Hard copy) for CNC & PLC system – 3 sets.	
	g).Instructions for data back-up & restoration for Feed drives (Hard copy) – 3 sets.	
	h).O&M manual for ball screws & ball nuts – 3 sets.	
	i) Detail drawing of ball lead screw ,Spare part list manual and list of bearing.-3 Sets	
	j) O&M manual for Hydraulic and Lubrication system– 3 sets.	
	k).Details of all mechanical modifications & fittings with drawings – 3 sets.	
	l).All documentation (including mechanical and electrical system), Feed Drive parameters & back-up including machine data (NC, PLC, Setting & Alarm texts), Drives data & PLC Program on CD – 1 set.	
11.	Spare parts- Party shall compulsorily quote the prices following spare parts separately:	
	a) Line filter with Choke – 01 Set as used on the machine	
	b) LT module (for X & Y axis motor) – 01 No. as used on the machine.	
	c) Controller card for X & Y Axes – 01 No. as used on the machine	
	d) Scale & Transducers (including signals Converters) – 01 No. each type.	
	e) 1FT/1FK motors (as used on the machine) - 01 No. each type.	
	f) Pump-01No each type.	
	g) Valve-01 No Each type	
	h) End support bearings	
	i) Ball Lead Screw-1 No each type.	
	j) Coupling used in machine- 1 No. each type.	

12.	<u>GUARANTEE:</u>	
	Vendor shall stand guarantee for smooth functioning of the machine, including all the items and parts employed in reconditioning and retrofitting of the machine for a period of 12 months from the date of FINAL HANDOVER of the machine.	
13.	<u>TERMS OF PAYMENT</u> shall be as under:	
	a). Thirty percent (30%) of the contract value shall be paid after the dismantling, cleaning and identification of the parts / components to be repaired/replaced during joint inspection by BHEL and vendor at Vendor's works. This payment would be released on receipt of the bank guarantee of like amount which should be valid up to the completion of reconditioning works.	
	b). Sixty percent (60%) of the contract value and 100% of Taxes and Duties shall be paid after the completion of the reconditioning and CNC retrofitting and final HAND-OVER of the machine for production.Sales tax will be paid against Form 'C'. Vendor shall intimate to BHEL total service tax to be paid.	
	c). Ten percent (10%) of the contract value shall be paid after release of Performance Certificate by BHEL. This payment shall be released against the PBG of like amount. The PBG should be valid till the expiry of the guarantee period.	
14.	<u>EARNEST MONEY DEPOSIT:</u>	
	a) . The Earnest Money Deposit of amount Rs.1,50,000.00 is to be paid by each bidder along with Techno-commercial bid in the favour of BHEL Hardwar.	
	b). Earnest money should be deposited in one of the following ways: i. Cash (As permissible under the Income Tax Act) ii. Pay order iii. Demand draft Tenders not submitted with earnest money are liable to be rejected. Earnest money deposit of unsuccessful offers shall be returned normally within 15 days of acceptance of award of work by the successful bidder.	
	c). offers without EMD will be rejected and will not be considered for evaluation. However in special cases, NSIC/MSMED certificate may be considered at the discretion of BHEL management.	
	d). EMD shall be converted to security deposit if the work is awarded.	
	e). EMD shall not carry any interest.	
	f). EMD by the tenderer will be forfeited if: i) After opening of 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 15 days of receiving the machine at its works.	

15.	<u>SECURITY DEPOSIT:</u> Successful bidder should have to submit the security deposit as per below mentioned rate and format -	
	a).The rate of security deposit will be as below: Up to work order value Rs. 10 Lakhs: 10% of the total work order value work order value Above Rs.10 Lakhs upto Rs. 50 Lakhs: ` 1 Lakh + 7.5% amount exceeding ` 10 Lakhs work order value Above Rs. 50 Lakhs: Rs. 4 Lakhs + 5% amount exceeding Rs.50 Lakhs	
	b). The security deposit should be submitted before the start of work in the following forms: i) Cash (As permissible under the Income Tax Act) ii) Pay Order, Demand Draft in favour of BHEL, Hardwar iii) Local cheques of Scheduled Banks, subject to realization. iv) Bank Guarantee from Scheduled Banks/Public Financial Institution as defined in the companies Act. The Bank guarantee format should have the approval of BHEL.	
	c). Security Deposit shall not carry any interest	
	d). EMD of successful tenderer can be converted and adjusted against the Security Deposit.	
	e). Security Deposit shall be refunded to the vendor as follows: 50% of the Security Deposit amount shall be refunded to the vendor after successful completion of the project. Balance 50% of the Security Deposit amount shall be refunded after 6 months of maintenance period.	
16.	<u>FACILITIES:</u>	
	a). All perishable items, consumables like lubricants, Kerosene oil, cotton waste etc. will be supplied free of cost during dismantling and commissioning inside BHEL premises. However the vendor should make his own arrangements for all types of hand tools including pneumatic/electrical drill machines, grinders, scraping tools etc. along with the necessary tooling, general purpose measuring instruments, straight edges etc.	
	b). Crane facilities along with lifting tackles, trolleys, truck etc. will be available free of charges while working inside BHEL premises only.	
	c). Facilities of minor welding, machining etc. will also be available inside BHEL premises free of cost.	
17.	<u>INSPECTION OF MACHINE BY BHEL:</u>	
	a). After dismantling of the machine and cleaning of the parts by the vendor, a joint inspection of the machine will be carried out by BHEL representatives at Vendor's works for identification of the parts /components to be repaired /replaced by the vendor during the reconditioning. Vendor will have to inform to BHEL in advance for joint inspection.	
	b). Pre-despatch inspection of the machine after reconditioning and CNC retrofitting will be carried out by BHEL representatives at the vendor's works to verify machine operation under CNC control, spindle run out and other machine accuracies and compliance with other provisions of the Work order. Vendor will have to	

	inform to BHEL in advance for PDI.	
18.	<u>DELIVERY:</u>	
	a). Maximum Six months from the date of receipt of machine at vendor's works to the date of dispatch of the machine to BHEL, Hardwar.	
	b). Vendor shall intimate the date of receipt of the machine at their works within two days to BHEL, Hardwar.	
	c). Vendor shall depute their manpower within 10 days of intimation for commissioning of the machine at BHEL, Hardwar. The commissioning work shall be completed within 30 days from the date of start of commissioning.	
19.	<u>LATE DELIVERY:</u>	
	The LD shall be deducted from the amount(s) payable by BHEL to the vendor if the delivery of the machine is delayed beyond the delivery period. LD shall be applicable as 0.50% (1/2 Percent) of the contract value per week. The maximum amount of the LD shall be 5% (Five Percent) of the Contract Value.	
20.	<u>TRANSPORTATION & INSURANCE:</u>	
	20.1 During shifting of machine from BHEL Hardwar to Vendor's works Transportation & transit insurance will be on BHEL account.	
	20.2 After reconditioning of machine transportation of the machine from vendor's works to BHEL Hardwar will be on vendor's account while transit insurance will be arranged by BHEL Hardwar.	
21.	<u>OFF-LOADING OF WORK:</u>	
	Further off loading of work either in part or full is not permitted in any case without prior permission of AGM (WEX-MCR, & Services) otherwise contract is liable to be terminated at the discretion of BHEL, Hardwar.	
22.	<u>INSURANCE AT VENDOR'S WORKS:</u>	
	The machine will be comprehensively insured by the bidder for the entire period of reconditioning and retrofitting of the machine at vendor's premises.	
23.	<u>BANK GUARANTEE:</u>	
	For shifting of the machine outside the premises of BHEL, Hardwar for execution of the reconditioning work, a bank guarantee of suitable amount shall be provided by the vendor (to be indicated by BHEL).	
24.	All the documents being sent herewith should be returned back to us duly signed on each paper along with your offer.	
	Following documents shall be submitted by the vendor to enable Finance deptt. of BHEL to make the payment-	
	a). Receipt of the machine at vendor's works	

	b).BAR chart showing important milestones related to machine reconditioning and retrofitting.	
	c).Details of Service Tax	
	d).Income tax exemption letter, if applicable	
	e).Regular Invoice	
	f).E-payment form (format to be provided by BHEL) filled and signed by the vendor. Payment will be credited directly to vendor's bank account	
	g).To enable us to avail MODVAT credit for excise duty, all the relevant papers are to be submitted to BHEL.	
25.	<u>MISCELLANEOUS:</u>	
	a). A Para wise compliance statement shall be submitted by the party along with the Technical bid.	
	b). Party shall carry out dismantling of the machine at BHEL, Hardwar before dispatch to its works.	
	c). After the receipt of reconditioned machine at BHEL, Hardwar, assembly and commissioning of the machine shall be carried out by the vendor at BHEL, Hardwar and Vendor shall bring all tools and manpower for above work.	
	d). List of all parts repaired or replaced shall be furnished to BHEL along with reconditioned machine.	
	e). Old parts, which would be replaced by new ones, shall be returned to BHEL Hardwar properly tagged.	
26.	<u>Pre Qualification Criteria</u>	
	Offers shall be considered only of those vendors/ manufacturers who meet the below mentioned criteria: <ol style="list-style-type: none"> 1. Average annual turnover during the last 3 financial years ending 31st March or 31st December or as the case may be, should be at least Rs. 25 lakhs. Copies of audited balance sheets shall be submitted. 2. Experience of having successfully completed "<u>similar works</u>" during last 10 years ending on 30th August 2014 should be either of the following: <ol style="list-style-type: none"> 2.1 Three similar completed works costing not less than Rs. 35 lakhs each. 2.2 Two similar completed works costing not less than Rs. 45 lakhs each. 2.3 One similar completed work costing not less than Rs. 70 lakhs. 	

	<p><u>Definition of “Similar Works”:</u></p> <p>Similar works means either of the following:-</p> <ol style="list-style-type: none"> I. Reconditioning and CNC Retrofitting of a milling machine with Siemens/Fanuc CNC control system and drives having minimum table traverse of 800 mm. II. Reconditioning and CNC Retrofitting of a Lathe machine with Siemens/Fanuc CNC control system and drives having minimum bed length of 2500 mm. III. Reconditioning and CNC Retrofitting with Siemens/Fanuc CNC control system and drives of a Vertical Borer of minimum 1000 mm table diameter. IV. Reconditioning and CNC Retrofitting with Siemens/Fanuc CNC control system and drives of a Horizontal Borer Machine of minimum spindle diameter of 120mm 	
	<p>Machine builders who have designed, manufactured, supplied and commissioned a machine of the above specifications during last 10 years ending on 30th August 2014 may also submit their offers.</p>	
	<p>Documentary evidence such as P.O. / W.O. Copies giving scope of supply and scope of work, final acceptance MOM and performance certificate will have to be submitted by the vendor.</p>	
	<p>The machine(s) whose documentary evidence has been submitted by the vendor should be running satisfactorily at their customer’s premises on the date of publishing of notice inviting tender.</p>	
	<p>Customer’s details such as Name, Address, Telephone No., FAX No., email ID shall be submitted by the vendor along with documentary evidences. BHEL reserves the right to verify the information provided by the vendor with the vendor’s customers directly. Vendor shall also agree to facilitate the visit of BHEL engineer(s) to his customer’s premises, if considered necessary by BHEL. Travel, boarding and lodging expenditure for such visits shall be borne by BHEL.</p>	
	<p>The vendor shall do all the work of Reconditioning and CNC Retrofitting inside the territory of India.</p>	

27.	<u>OFFER:</u>	
	The offer should be submitted in two parts and in following manner.	
	Techno-commercial Bid :	
	The envelop shall contain the Techno-commercial Bid with technical details and commercial terms & conditions along with relevant documents like copies of ESI, PF code, PAN No., Service Tax Regn. No., TIN No., CST No., Experience Certificates, Audited Balance Sheet of last 3 years, and EMD.	
	The envelop shall be super scribed with “Techno-Commercial Bid”, Name of work & NIT No.	
	Point-wise compliance of this scope of supply and work is to be given by vendors while submitting their techno-commercial offer.	
	Price Bid :	
	The second envelope shall contain only the price bid with separate price for material & work on Price Bid Format as per ANNEXURE ‘B’ .	
	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 with “Price Bid”, Name of work & NIT No.	
	Price bids of only techno commercially accepted vendors shall be opened.	
	Both the above two envelopes shall be kept in another sealed cover. The cover shall be super-scribed with “Quotation for (name of work), NIT No. & due date” and shall be submitted in Tender Box kept in the Tender room of Purchase department at the 4th floor of the Main Administrative Building of BHEL, HEEP, Haridwar and it should also contain Bidder address’	
	Price bid must be valid for at least 120 days from the date of opening of tender.	