

**Retrofitting of table motor, drive, control panel and operator panel in COOPER Vertical Boring
M/c. (4253-2252) (BAY 5 - BLDG 5)**

ANNEXURE II		VENDOR TO CONFIRM												
SPECIFICATION & SCOPE OF WORK														
SL NO	DESCRIPTION													
1	DETAILS OF MACHINE													
1.1	Details of existing DC spindle motor: Motor make: Elmot direct current machine pvt ltd. HP/KW: 60/44.74 RPM: 1000/2500 ; Voltage: 400V ; duty : S1 A : 124 amps Frame: 280M Type of mounting: Leg Mounted; Cooling:Blower cooling SPEED SELECTION: Through gear box.													
1.2	DC Tachogenerator mounted on motor.													
1.3	Details of existing DC Drive: Make: Kirloskar Speed Track (power converter), Type no: DCR504501616 Input: 415V; 50Hz; power : 47 kW; i/p: 415V, 50 Hz: o/p : 400 & 130amp													
1.4	Details of existing cross rail up & down motor Type AM100LK4 ; KW: 2.2kW; 415V; 4.6 Amp; 1400RPM													
1.5	Details of existing coolant motor : Type : PK2/270 ; Power : 0.25 kW ; 3ø ; I/P ~ 415 v ; I : 0.75A ; Speed : 2900 rpm ; 80 LPM													
1.6	Details of existing lubrication motor 1) 3ø induction motor,V 415 Y connected ; 50Hz ; KW : 0.75, RPM 1400, Duty S1 2)Cenlub: 3ø induction motor,V 415 Y connected ; 50Hz ; KW : 0.18 (approx)													
1.7	Blower motor detail : 3ø induction motor ; kw: 2.2, RPM: 2860, make: Laxmi Hydraulics Pvt Ltd.													
1.8	DRO and scale system. Make :ELEKTRA INFINITI; Type No : D.A(VER 4.1); SI No 9801/171 Scale length : X AXIS: 900 mm; Y AXIS: 1200 mm													
1.9	DC Valves Model Vickers ,DG 4S4 012C 24 VDC 50													
1.10	Machine RPM and Job details: <table border="1"> <thead> <tr> <th></th><th>Max</th><th>Min</th></tr> </thead> <tbody> <tr> <td>RPM</td><td>850</td><td>30</td></tr> <tr> <td>Dia of Job</td><td>650 mm</td><td>200 mm</td></tr> <tr> <td>Height of Job</td><td>800 mm</td><td>120 mm</td></tr> </tbody> </table>		Max	Min	RPM	850	30	Dia of Job	650 mm	200 mm	Height of Job	800 mm	120 mm	
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RPM	850	30												
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2	SCOPE OF SUPPLY													
2.1	Supply and fixing of AC motor, foot/leg mounting type of suitable Power/ Torque rating and speed to match the performance of the existing DC motor. Necessary fan for motor cooling to form part of the scope of supply. Mechanical items such as motor base platform, coupling,pulley, belts to interface the new AC spindle motor with the existing gear box, required fasteners etc., for fixing the new motor shall be included as part of the supply. Note: Vendor may check and record the performance of the m/c like i) Table RPM min and max, ii) cutting speed and feed (max) etc. The proposed AC motor rating shall meet the performance of the existing DC motor setup. Note : In the case of AC induction motor the rating shall not be less than 75 kW.													
2.2	Supply and fixing of AC drive of sufficient rating, suitable for the selected AC motor. Accessories required for the safe and smooth operation of the drive like isolation transformer, IO modules, filter unit, reactor module, surge arrestor, Dynamic braking facility etc as required to be included in the offer. The AC spindle drive/motor of Fanuc, Rexroth, Siemens, ABB, Allen Bradley, Danfoss, Schneider, Mitsubishi, Yashkawa, Kirloskar, FUJI,Fagor,L&T, Crompton Greaves makes only acceptable.													
2.3	Supply of AC induction motors of suitable Power/ Torque rating and speed to replace the existing motors for cross rail and tool horizontal/ vertical movement.													
2.4	Supply and fixing of new coolant pump with motor for replacing the old one in the machine.													
2.5	Supply of Power, signal and control cables with suitable connectors for the motors.													
2.6	Supply and fixing of Central Lub System , lubrication lines, guide wipers,DC valves, drive chains and inline filter.													
2.7	Supply and fixing of lubrication pump with motor for gear box system.													
2.8	Supply and fixing of Screw rod (2 no's), boxnut. Supply of hydraulic hoses to replace the old ones of the machine.													

2.9	Supply of necessary switch gears, relays, contactors, terminal blocks, control and power wirings for complete rewiring of the machine.	
2.1	Supply of new OPERATING PENDANT with necessary push buttons and switches for controlling the complete operational features of the machine.	
2.11	Supply and fixing of DRO and two numbers of linear scale to meet with existing machine DRO & scales specification. Make : Heidenhain, Givi Misure, Fagor, Electronica or any other reputed make acceptable to	
2.12	Supply, erection and commissioning of new electrical control panel. The electrical panel should have the following features. - The electrical / control panel should accomodate the new AC digital drive and its accessories. - All new control elements, switch gears, contactors, terminal blocks, control and power wirings for the complete machine functioning should be accomodated in the new panel. - The control panel should be of suitable size to accomodate all the above items. - The control panel shall conform to the Indian standards/ Indian electricity Regulations from safety aspects. The panel shall be of indoor machine/ floor mounting type with IP 55 enclosure and made of 2mm or higher thickness sheet steel for the non-load bearing/ load bearing sheets with necessary MS angles/ sections. It should undergo the full degreasing, derusting, phosphating treatment process before painting with red oxide and two coats of enamel paints. The panel drawings shall be approved by BHEL incharge before manufacturing. - All mating surfaces shall be provided with 3 mm thick neoprene gaskets. Panel shall be provided with three point locking arrangement. Hardware used shall be chrome/ nickel - plated. The anti-vibration pad shall be of hard rubber. - Suitable lifting Eye bolts with nuts and washers shall be provided. - The panel should be of Rittal or any other make acceptable to BHEL. -The bottom surface of the control panel should be free and no components should be mounted	
2.13	Supply and installation of air conditioning unit for the Electrical panel of sufficient rating. Air conditioner shall be of following makes only. i. M/s Advance cooling System pvt Ltd ii. M/s Werner Finley pvt Ltd iii. Sunbeam iv. Rittal or any other make acceptable to BHEL.	
2.14	Supply of all limit switches, valves and other sensors available in the machine to replace the old ones.	
2.15	Suitable Machine lamp (LED type) with fitting to be provided. Note: 2 number's of LED lamp with fitting is required. One for machine and another as spare.	
2.16	Supply and fixing of suitable brackets for mounting the new motors.	
2.17	Supply of necessary cables, wires, glands, sleeves, ferrules, hoses etc for the complete rewiring of the machine.	
2.18	Any other item not mentioned above to keep the machine in working condition and to ensure completeness of the supplied electronics/ electrical system to be listed and included in the offer.	
2.19	Supply of three phase smart energy meter for the electrical panel with energy data logging	
3	The vendors (except OEM of the machine) must visit BHEL, to study the existing machine & assess the work content before submitting the offer. Otherwise the offer shall not be considered for technical evaluation.	