

SCOPE OF SUPPLY FOR 100 TON CAPACITY ROTATOR WITH TROLLEY. QTY: ONE SET

Sl. NO	DESCRIPTION FOR BHEL REQUIREMENT	REQUIRED	OFFERED	DEVIATIONS	REMARKS
1.1	Purpose: (Operations/Jobs involved): Shifting of shells and HP Heaters from shop to NDT room and rotation of the same during NDT process.	vendor to confirm			
1.2	ONE SET consisting of : Trolley Unit 2 nos. with independent/single drive or Drive provided for the roators itself Job Rotator (drive and idler)	vendor to confirm			
2.0	TROLLEY SPECIFICATION:				
2.1	Static Load carrying Capacity 100 TON(both the trolleys combined)	vendor to confirm			
2.1.1	Max. length of the Shell(JOB) carried by two trolleys is 15 mtrs	vendor to confirm			
2.1.2	Two numbers of Drive Trolleys each with a load carrying and drive capacity of 65% of 100 TON.	vendor to confirm			
2.1.4	Suitable Tie beams (One set of replaceable 4,6, 8 & 10 metre length 2 nos. per each length) shall be provided to connect both the trolleys during operation. Such tie beams shall have holes/provisions to adjust to different intermediate lengths. Trolleys move in tandem to carry Jobs of lengths upto 15 metre.	vendor to confirm			
2.1.5	Width of the track for trolley movement: 1676mm(inner to inner)Broad gauge	vendor to confirm			
2.1.6	Motor and gear to be put on outer wheels only. All gear wheels shall be designed for 3 times impact load.	vendor to confirm			
2.2	Trolley Speed : approx 5-6 mtrs / min. (Single Speed)	vendor to specify & confirm			
2.3	AC Motor capacity with 5.5KW , 2 No's Model & Make (each on one trolley/Equivalent on single unit) (ABB/Siemens/GEC/Kirloskar/Crompton/Schneider/Misubishi/Allenbradley make only) Any other make will be rejected.	Specify and confirm any one make			

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2.4	Suitable Gear Box Make & Model (NORD/SEW/BAUER, BONFIGLIOLI/ BONVARIO) make only. Any other make will be rejected.	Specify and confirm any one make			
2.5	Trolley Wheels: Forged Steel wheels with single flange construction & required hardness.	vendor to confirm			
2.6	Trolley Axels (EN24) shall be Forged Steel and heat treated	vendor to confirm			
2.7	Trolley Wheel Dia (minimum wheel dia shall be 500 mm)	Specify			
2.8	Additional Hand Operated Mechanical brake on the Trolley Drive wheels shall be provided, which is easily accessible	vendor to confirm			
2.9	The ultimate drive from reduction gear box to the trolley axle/wheel shall be through gears only. (Chain / Belt drive is not acceptable).	vendor to confirm			
2.10	Total width of the Trolley including operating panel must be less than 4 mtrs. (NDT room door width is only 4 mtrs)	vendor to confirm			
2.11	Bearings make shall be of FAG/SKF make only. Bearings shall be suitable to take impact load of 3 times. Any other make will be rejected.	vendor to confirm			
2.12	The distance between the centre to centre of adjacent Trolley wheels along the direction of Rail track shall be more than 1600 mm	vendor to confirm			

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3.0	JOB ROTATOR SPECIFICATION:				
3.1	Job rotator drive unit & Idler unit shall be fixed on to the Drive Trolley units/Or rotators could be provided with wheels .	vendor to confirm			
3.1.1	Drive unit rotating capacity. :100 Tons	vendor to confirm			
3.1.2	Drive unit to support:50Tons	vendor to confirm			
3.1.3	Idler units to support.:50 Tons	vendor to confirm			
3.2	Maximum dia of shell:4000 mm	vendor to confirm			
3.3	Minimum dia of shell :600 mm	vendor to confirm			
3.4	Surface speed: (Constant) approx 1000 mm / min	vendor to specify & confirm			
3.5	AC Motor capacity with 5.5KW , 2 No's Model & Make (each on one trolley/Equivalent on single unit) (ABB/Siemens/GEC/Kirloskar/Crompton/Schneider/Misubishi/Allenbradley make only) Any other make will be rejected.	Specify and confirm any one make			
3.6	Suitable Gear Box Make & Model (Premium / Elecon / Shanti) make only	Specify and confirm any one make			
3.7	Rotator Wheels : Forged Steel wheels with required hardness.	vendor to confirm and specify hardness			
3.9	No. of wheels in rotator(each in drive and idler) : TWO	vendor to confirm			
3.10	Wheel dia and width of the job rotator	Specify			

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3.11	The rollers shall be manually adjustable across the frames. To accommodate shells of Dia 600 mm to 4000mm	vendor to confirm			
3.12	Bearings make shall be of FAG/SKF make only. Bearings shall be suitable to take impact load of 3 times while loading the job on to the trolley. Any other make will be rejected.	vendor to confirm			
3.13	With rotator placed above the trolley, the top most of point of 4000mm dia shell resting on the rotator shall not be more than 5500mm from the top of the rail track.	vendor to confirm			
4.0	Successful bidder shall submit design calculations, finite element analysis report, outline drawing with dimensions, material specifications of all the components after placement of PO. BHEL may review and comment, if required. However BHEL's review does not absolve the vendor from his responsibility of suitable design and supply.	vendor to confirm			
5.0	Control Panel / Operators panel shall be provided at easily accessible location for carrying out all operations as well as maintenance. Operators panel consists of Emergency stop, Forward, Reverse push buttons for rotator and Trolley In & Out, Trolley stop push buttons etc.	vendor to confirm			
6.0	Suitable Anti creep device shall be quoted along with offer.	vendor to confirm			
7.0	A).Remote control pendant for rotatoin of job with push buttons and cable length 15 mtrs. B).Remote control pendant for Trolley with push buttons and cable length 30 mtrs. Wireless remote pendant for trolley operation also to be provided	vendor to confirm			
8.0	AMBIENT CONDITIONS & THERMAL STABILITY :				
8.1	Total machine should work trouble free and efficiently under following operating conditions. Power Supply: Voltage: 415 V $\pm 10\%$ Frequency: 50 Hz $\pm 3\%$ No. of phases = 3 Ambient Conditions: Temperature = 5 to 50 degree celsius Relative Humidity = 95% max.	vendor to confirm			
8.2	Thermal Stability of the complete equipment keeping in view specified Ambient Conditions and accuracy requirements of BHEL components and trouble free operation of the machine should be ensured by vendor.	vendor to confirm			

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9.0	ELECTRICAL :				
9.1	415V $\pm$ 10%, 50HZ $\pm$ 3%, 3 Phase AC (3 wire system with out neutral) Power Supply Voltage will be provided by BHEL.	vendor to confirm			
9.2	Tropicalization: All electrical / electronic equipment shall be tropicalized	vendor to confirm			
9.3	Motors shall conform to IEC or Indian Standards				
9.4	Suitably rated Variable Frequency Drives (VFDs) - 2 Nos. for the motors mentioned at 2.3 and 3.5 above. Vendor to mention Make & Model. Make of VFDs : ABB/Siemens/GEC/Kirloskar/Crompton/Schneider/Misubishi/Allenbradley make only. Any other make will be rejected.	vendor to confirm			
9.5	Vendor should ensure the proper earthing for the machine and its peripherals.	vendor to confirm			
10.0	SAFETY ARRANGEMENTS:				
10.1	Equipment should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistake in operation.	vendor to confirm			
11.0	ENVIRONMENTAL PERFORMANCE OF THE MACHINE :				
11.1	Maximum noise level shall be less than 75 dB at normal load condition.	vendor to confirm			
11.2	If any safety / environmental protection enclosure is required it should be built in the equipment by the vendor.	vendor to confirm			
12.0	DOCUMENTATION : Five sets of following documents (Hard copies) <u>in English</u> language along with soft copy should be supplied along with the equipment.	vendor to confirm			
12.1	Operating manuals & Maintenance manuals with detailed mechanical & electrical circuit drawings.	vendor to confirm			
12.2	Complete Master list of parts used in the equipment shall be submitted by the vendor. Catalogues of bought out items to be submitted	vendor to confirm			
12.3	Successful bidder shall submit Quality Plan for BHEL approval before executing the PO.				
13.0	PROVE OUT::				

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13.1	Complete equipment prove out with load shall be proved by vendor at BHEL works after complete erection & commissioning.	vendor to confirm			
14.0	ERECTION & COMMISSIONING				
14.1	Supplier to take full responsibility for carrying out the erection, start up, testing of machine, it's control & all types of other supplied equipment. Other requirements like crane, power shall be provided by BHEL. Details of these requirements should be informed by vendor in advance.	vendor to confirm			
14.2	Successful proving on BHEL components by the supplier shall be considered as part of commissioning. All tests, for Machine Acceptance shall form part of the commissioning activity.	vendor to confirm			
15.0	INSPECTION : BY BHEL ENGINEERS at supplier works: Operational demonstration Tests/Activities should be carried out at supplier's works on the machine before despatch.	vendor to confirm			
15.1	Demonstration of all features of the equipment in all respects, control system & accessories as per scope of supply.	vendor to confirm			
16.0	PACKING:				
16.1	Sea worthy & rigid packing for all items of complete machine, all accessories and other supplied items to avoid any damage/loss in transit.	vendor to confirm			

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17.0	Delivery period.(in months)3 months from the date of PO placement	vendor to confirm			
18.0	WARRANTY :				
18.1	24 months from the date of commissioning.	vendor to confirm			
18.2	Service beyond WARRANTY period.	Specify			
18.3	In addition to the breakdown service, the manufacturer's engineers will render free service once in six months irrespective of breakdowns during the warranty period.	vendor to confirm			
19.0	GENERAL :				
19.1	Total weight of the machine	Specify			
19.2	Total connected load (KVA) / Input of the Machine:	Specify			
19.3	Painting of Machine / Electrical Panels : RAL 6011 Apple Green (Polyurethane Paint)	vendor to confirm			