An ISO 9001 Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)
Tiruchirappalli – 620014, TAMIL NADU, INDIA
CAPITAL EQUIPMENT/ MATERIALS MANAGEMENT

ENQUIRY **NOTICE INVITING TENDER**	Phone: +91 431 257 70 49 Fax : +91 431 252 07 19 Email : csguna@bheltry.co.in Web : www.bhel.com

TWO PART BID Tender to be submitted in two parts.	**Enquiry Number:** **2621000060**	**Enquiry Date:** **07.06.2010**	**Due date for submission of quotation:** **07.07.2010**

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.
Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity
10	**Steel Fin Shot Blasting Unit** as per the technical specification, general guidelines instructions & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	**2 Nos**

Important points to be taken care during submission of offer

1. **Delivery required 8 months from the date of purchase order.**
2. **Checklist to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.**

BHEL's General guidelines / instructions (refer MM/CE/GT/001) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site http://www.bhel.com or from the Government tender website http://tenders.gov.in (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference "2621000060".

Tenders should reach us before 14:00 hours on the due date Tenders will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present	Yours faithfully, For BHARAT HEAVY ELECTRICALS LIMITED Sr.Manager / MM / Capital Equipment

Specification for Fin Shot Blasting Machine:

SL No		Particulars / BHEL Specification	Vendor's offer
1	**PURPOSE**		
1.1	Fin Width	10mm to 110mm	
1.2	Fin Thickness	5mm to 12mm	
1.3	Fin Material	Carbon Steel: a)ASTM A 576 b) ASTM A 387Gr.12	
2	**BRIEF WORKING**		
		This equipment function to remove scales on the surface on the surface of the fin strip. the strip from the Decoiler enters into the blast chamber ,wherein the strip is polished by the shot blast of abrasive grits. Abrasive grits blasted from the blast nozzle and scale-dust removed form the strip surface are collected into the storage taken through the suction hose, Foreign materials mixed in the collected abrasives grits are taken out through metal meshes while dust are collected by the dust collector together with airflow and are	
3	**TECHNICAL SPECIFICATIONS**		
3.1		Blast Speed : 0.5 to 6 m/min	
3.2		Type :2 Stage Continous Blasting	
3.3		Nozzle dia 6mm	
3.4		Nozzle Quanitiy: 4 nos	
3.5		Blast Degree :Sa 2.5 Approx	
4	**Blast Cabinet- materials & overall sizes.**		
4.1	Materials	The blast chamber shall be constructed of steel plate and section steel. The direct shot blasting area in the blast chamber shall be mounted with 27 Cr Fc protective plate and the other inner wall areas shall be covered with wear resistant rubber sheets to prevent wearing. The product inlet and outlet gates of the blast chamber to be provided with rubber seals to prevent abrasive grits and scale dusts from dispersing out of the chamber.	

4.2	Size	Dimensions of blast cabit shall be 920 mm [L] x 460 mm [W] x 1300 mm [H].	
5	**Illumination**		
5.1		Light Box mounted on top of the cabinet each with bulb of 200W. Light box glass is protected by fine wire mesh screen against abrasion and is replaceable.	
6	**Blasting Nozzle**		
6.1	Qty of nozzles	Four Nos. of Tungsten Carbide steel Lined Nozzle of 6 mm orifice. Gun positions will be set manually according to fin width.	
7	**Abrasive Hose**		
7.1		20 mm I.D. antistaticised, wear resistant of requisite length will be	
8	**Air Blow Gun**		
8.1		One No. Is to be provided outside the cabinet for air washing the	
8.2		Air Orifice 1.5 mm.	
9	**Air Pressure Gauge, Air Filter & Air Regulator**		
9.1		One set is provided.	
10	**Storage Hopper**		
10.1		Blasting media shall be carried from cabinet hopper to the storage hopper by suction effect of exhaust fan. It air washes the media and carries fines and air laden dust into the dust collector. Due to cyclonic action, the heavy particles are collected in the bottom, where they are sieved by an air operated vibrating screen. The sized abrasive is transferred into the abrasive blasting hopper for recycling through pressure vessels. The debris can be removed manually through inspection hole.	
10.2		Storage Hopper :500 kgs	
10.3		Storage Hopper Dimensions :580 Dia x 1100 height	
11	**Blast Generator**		
11.1		The blast generator of machine is complete with double pressure vessel for continuous working and provided with mushroom valves, exhaust valve and two outlets with pinch valve and mixing tube to feed the nozzle via. blast hose. The blast generator shall be fabricated from 6 mm thick steel plate as per IS-2825 and hydraulically to be tested tested at 250 psi	
11.2		Blasting Hopper Dimensions:562 Dia x 1962 height for both pressure pots	

12	**Cartridge Type Dust Collector**		
12.1		The reverse jet filter cartridge dust collector is self cleaning system. All filter elements are to be automatically cleaned with the aid of timer card through which solenoid valve are activated. The compressed air valves opens and certain volume of compressed air is blown into the cartridges to keep cartridges clean and thus the clean air is to be discharged into the atmosphere.	
12.2		Blower Capacity:12m3/min	
12.3		Air Pressure:10 Kpa	
12.4		Drive Motor:11Kw 2P	
12.5		Dust Collector:	
12.6		Capacity [Approx.] Approx. 1800 Cfm	
12.7		Filter element Material:Polyster cartridge [9 cartridges].	
12.8		Filter Surface:20.25m2	
12.9		Type of cleaning: Pulsejet through solenoid valves.	
12.10		Pulsejet cleaning :Through sequential timer	
12.11		Pulse duration and frequency :Adjustable.	
12.12		Pressure gauge & air filter: to be provided.	
12.13		Casing : Constructed out of MS sheet supported by angles and channel for strength and rigidity.	
12.14		Fan motor:15 HP, 415V/3P/50 Hz.	
12.15		Suitable silencer shall also be provided at the outlet of the exhaust fan to keep the noise level of exhaust fan below 85 dB.	
13	**Electrical Control Panel**		
13.1		Mounted on cabinet itself to house push button/switches for On/Off of dust collector and illumination etc. One emergency stop switch will be provided.	
13.2		PLC : Make Mistubishi	
13.3		PLC Shall be provided for Operational Sequence & Parameter Sequence to control repeatability of the process and fault findings.	
13.4		Photo electric switch shall be provided which senses the fin and start blasting. The blasting will stop once the fin is totally uncoiled and completed.	
14	**Safety**		

		Interlocking to be provided to ensure that the blasting does not start for any unsafe condition.	
15	**Colour / Painting**		
		All inside and outside surface of the equipment shall be brush cleaned and given two coats of Epoxy primer. The exterior of the equipment shall be painted with one coat of PU Paint air drying shade Feroza Blue & Crystal white.	:
17	**Spares:**		
17.1		List of spares with itemized break-up of mechanical, pneumatic, electrical and electronic spares used in the machine in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation on three shifts continuous running basis shall be furnished by vendor along with offer. The list is to include following, in addition to other recommended spares: (Unit Price for each item of spare shall be offered	
17.2		Mechanical & Pneumatic Spares: All types of Valves, Pressure Switches, Flow Switches, Filters, Seals, O-rings, Hoses,Blast Nozzle etc shall be provided.	
17.3		Electrical / Electronic / PLC Spares: All types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch, Encoders, Spares for PLC, Servo Motors for Feed Drives, Power Module & Control Cards for Main Drive as well as Feed Drives etc.	
17.4		All types of spares for total machine and accessories shall be available for at least ten years after supply of the machine. If machine or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & suppliers to enable BHEL to procure these in advance, if required	
18	**Erection & Commissioning**		
18.1		**Installation,Erection and commissioing shall be done by supplier.**	
18.2		Material Handling Facilities/Equipments & other consumables required for Erection like Crane, Power, Compressed air, Abrasive media and Welding set including gas cutting set, welding consumbles & cutting gas & oxygen etc. shall be provided by BHEL at free of cost.	

19	**TRAINING**		
19.1		Vendor shall train BHEL staff on site during erection and commissioning period.	:
20	**DOCUMENTATION**		
20.1		GA drawings, Machine detailed constructional drawings with dimensions, Civil Foundation layout drawings, Hydraulic / Pneumatic / Electrical / Electronic circuits with BOM, are to be submitted within 45 days from the date of ordering (in case of an order) for approval by BHEL	
20.2		The following documents in English language should be supplied along with the machine: Hard Copies - 3 Sets Vendor to confirm In CD form - 1 Set 1. GA Drawing of the complete station. 2. GA & Sub-Assembly Drawings for sub-systems for maintenance purpose. 3. Operating manuals of Machine & its PLC System 4. Programming manuals of Machine & its PLC System 5. Maintenance manuals with all drawings of machine assemblies / sub-assemblies with parts list 6. Electrical circuit diagrams with bill of materials 8. Pneumatic circuit diagrams with bill of materials 9. Maintenance & Interface manuals for Machine Control System 10. Preventive Maintenance check list for Electrical and Mechanical	

20.2		11. Catalogues, O&M manuals for all bought out items used in the machine. 12. Operating Manuals, Maintenance Manuals & Catalogues for all supplied Accessories. 13. Detailed specification of all rubber items / hydraulic / lubrication fittings 14. PLC program print-outs with All symbols & comments in English (Preferably by Ladder Diagram) 15. PLC program Back up and data on CD. 16. PLC & Touch Panel software with Licence to be supplied & The Same Shall be installed in BHEL Computer / Laptop for PLC Program downloading, Uploading, Make Modification & On-line Trouble shooting etc. 17. Complete back up of hard disk on GHOST CD and clear written Instructions (3 copies) to take back up and reloading of a new hard disk. 18. Complete list of Alarm log, Error code, error messages & remedies and on line fault diagnostics to be provided by the vendor. 19. Complete list of spares for machine, along with item part no /specification / type / model and make & address of the sub-vendor. 20. Catalogues, O&M manuals for all bought out items used in the machine. 12. Operating Manuals, Maintenance Manuals & Catalogues for all supplied Accessories. 13. Detailed specification of all rubber items / hydraulic / lubrication fittings 14. PLC program print-outs with All symbols & comments in English (Preferably by Ladder Diagram) 15. PLC program Back up and data on CD. 16. PLC & Touch Panel software with Licence to be supplied & The Same Shall be installed in BHEL Computer / Laptop for PLC Program	
21	**MACHINE INSPECTION & ACCEPTANCE**		
21.1		**PRE-DISPATCH INSPECTION AT SUPPLIER'S WORKS**	
21.1.1		Shot Blasting Machine shall be offered for inspection by BHEL Engineers at supplier's works	

21.1.2		The Fin Shot Blasting station and the accessories shall be tested for its performance prove-out as per Technical Specifications, at the Supplier's Works prior to despatch.	
21.2	**PROVE-OUT AND ACCEPTANCE AT BHEL WORKS**		
21.2.1		After the machine has been erected and energized, a few idle runs have to be done to demonstrate the good working condition of the machine	
21.2.2		The Fin Shot blassting station and the accessories shall be tested for its performance prove-out as per Technical Specifications, at the BHEL works after erection	
21.2.3		Fin shot blasting shall be carried out on 2 Nos of full coiled flats per station continuously, as prove out test to observe the performance of the station. The quality and the production rate (Max.feed rate)	
22	**WARRANTY**		
22.1		warranty for products against defective materials and workmanship for a period of 12 months from the date of commissioning or 18 months from the date of despatch whichever is earlier, except normal wear and tear of components like nozzles, rubber components .	
23	**BHEL Scope:**		
23.1		De-Fin coiling unitr	
23.2		Fin Straightneer and feeder	
23.3		Compressed air supply at a pressure of 3.50 to 4.5 Kg/Cm2 will be provided at one common point near the m/c.	
23.4		A.C. electrical supply at 415V/3P (4 Wires)/50 Hz. Upto the control	
23.5		Blasting media required for commissioning.	
23.6		Main power source to machine's control panel and earthing wherever	
23.7		Material Handling Facilities/Equipments & other consumables required for Erection like Crane, tools & tackles, Power, Compressed air, Abrasive media and Welding set including gas cutting set, welding consumbles & cutting gas & oxygen etc. shall be provided by BHEL at	
23.8		civil Foundation including foundation bolts.	
23.9		Unloading and storing of equipment at stores when received and shifting of equipment from Stores to Site, unpacking and keeping ready for Erection/Commissioning.	