

**Bharat Heavy Electricals Limited**

(A Government of India Undertaking)

Electronics Division

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Tender document for the supply of AUTOMATIC PCB CLEANING SYSTEM

R F Q Number : TRSM900001

Tender Qty : Two Numbers

Tender Due Date and Time : 14.01.2008 13.00 Hrs

Tender Opening Date and Time : 14.01.2008 13.30 Hrs

Place of opening of Tender : SA – MM Conference hall

Scope:

Supply , Installation and commissioning of the Cleaning System as per the specifications for cleaning of Printed Circuit assemblies.

1. Two part Bid - Tender shall be submitted in two parts :

- a. Part I – Techno commercial bid without prices.
- b. Part II – Price bid

2. Earnest Money Deposit : EMD of Rs 20,000/- (rupees twenty thousand only) shall be submitted in the form of DD along with the bid. EMD in the form of DD / Pay order only is acceptable & any other form is not acceptable and the bid is liable for rejection. EMD amount doesn't carry any interest. The same will be converted as Security Deposit for the successful bidders and for unsuccessful bidders the same will be refunded after finalization of the order. For successful bidders EMD will be refunded after submission of PBG.

3. Delivery Period: Equipment shall be delivered, within 4 months from the date of placement of technically & commercially clear purchase order.

4. Terms and conditions:

1. All the Bidders shall meet the **pre-qualification criteria** and Comply with **Technical Specification** mentioned in this specific tender.
2. Indian Bidders are required to comply with the **general terms and conditions** as per SA – 01 (Annexure –I)
3. Foreign Bidders are required to comply with the **general terms and conditions** as per SA – 02. (Annexure –II)

5.0 Pre qualification criteria

1. The vendor shall be an Original Equipment Manufacturer (OEM)
 - a. Based in India
 - b. Foreign OEM with Authorized Indian dealer(s) / representative(s) for sales & service. The authorization letter for the dealer/ representative from their OEM shall be provided.
 - c. Offer can be submitted by the OEM or their authorized dealers in India along with an authorization letter. However Purchase Order will be placed on the lowest technically acceptable bidder on the OEM only.
 - d. If the offer is from an authorized representative in India , the Indian representative cannot quote for the same equipment from 2 or more different OEM's
2. The offer shall be only for new equipment and not for any refurbished / used equipment.
3. All the parts used in the machine shall also be new and not used / refurbished ones. A declaration to the above effect to be furnished.
4. The vendor should have already supplied and installed 2 nos. of similar machines in India and operating satisfactorily for atleast one year during the last three years. The details of the customers with contact details, machines installed, date of installations etc. to be provided.
5. The vendor shall be in a position to provide service and spares support for the installations in India.
6. The vendor or their authorized service representatives should have trained personnel in India for commissioning & service for the offered equipment.
7. The vendor shall be in a position to undertake AMC for the equipment with BHEL after the expiry of the warranty/ guarantee period either directly or through a service representative. The vendor should have successfully completed AMC for similar machines for atleast one year in India and necessary proof to be furnished.
8. The vendor shall arrange for a demonstration of the machine or a similar system operating in India, if required by BHEL.
9. The vendor shall furnish a comprehensive warranty for atleast 12 months from the date of commissioning or 18 months from the date of delivery, whichever is early.
10. The vendor shall guarantee the performance of the equipment for atleast 12 months from the date of commissioning.

NOTE:

1. Pre qualification will be carried out based on the details furnished by the vendor / feedback from their customers / inspection of the company / product if required by BHEL and at its sole discretion.
2. The Pre qualification criteria are mandatory requirements and the technical bids will be evaluated only when the Pre Qualification criteria are met.

P S No : PS-202-SMT-703

3.Scope:

Supply , Installation and commissioning of the Cleaning System as per the following specifications for cleaning of Printed Circuit assemblies.

B. Technical Specifications:

The offer shall be corresponding to the parameters under the specifications below or better. Point wise compliance to the following specification is required

S1 No	PARAMETER	REQUIREMENT
A BASIC PARAMETERS		
1	Maximum PCB Width	450mm (Approx)
2	PCB thickness	0.8 to 3.2 mm
3	PCB top side clearance	Minimum 75 mm
4	Air Pressure	Less than 6 bar
5	Compatibility	SMEMA
6	Mode of transport	Conveyor chain/ belt
7	Direction	Left to Right
8	Power Requirement	415 V AC 3 phase or 230 V AC 1phase (50 Hz)
9	Environmental conditions for operation	Ambient Temperature upto 40 deg C , RH upto 95 %
10	Cleaning medium	Iso –Propyl Alcohol (IPA) currently used.
B CONSTRUCTION		
	Frame	Aluminium Extrusions or Steel (powder coated) with level adjustment mechanism
	Panels	Stainless steel or MS with powder coating
	Interface	SMEMA mechanical interface
C LOADING /UNLOADING UNIT		
		a)Option to load the PCB assemblies to the machine manually to the Conveyor
		b) Suitable Loading extension of about 1 metre to be provided
		C) Suitable unloading extension of about 1 metre to be provided

D	CONVEYOR UNIT	
		a) Option to change the width of conveyor system to suit different sizes of PCB's
		b) Option to change the speed of conveyor
		c) Control unit for varying the width and speed of conveyor and proper error display system
		d) Front fixed and rear adjustable.

E	CLEANING SPRAYING UNIT	AGENT
		a) Options to spray the cleaning agent to the PCB from top and bottom side
		b) nozzles at top and bottom for spraying the solvent
		c) both the nozzles should be moving on one axis to cover the entire width of the PCB
		d) Appropriate exhaust system for collecting the solvent fumes
		e)) Air atomizing with self cleaning nozzles to be provided
		f) Options to program the spray area
		g) Suitable controls to control the volume and pressure of solvent
		H) quick change facility for spray nozzles along with additional spray nozzles
		I) Stainless steel removable cover for protection of underneath floor
		J) The spraying unit shall have the capability to handle different types of solvents like IPA, water based, VOC free etc
		H) Tank of appropriate material to store Minimum 20 liters of solvent

F	BRUSH CLEANING UNIT	Suitable Brush (ESD safe)cleaning facility to be provided for underside board cleaning after solvent cleaning
G	DRYING UNIT	Suitable air drying with compressed air to be provided after brush cleaning. Air cleaning nozzles to be provided from top and bottom
H	CONTROL UNIT	
1	Suitable Man Machine Interface	a)Suitable interfaces to control the conveyor, solvent spraying , brush unit, drying unit etc. b)Machine diagram, display for error messages, maintenance menu c)Suitable controls for each unit d)Interlocking of machine with exhaust system
I	SAFETY	a) Suitable Multi color Signal tower to be provided b) Emergency stop to be provided at suitable locations c) Safety interlocks to be provided
J	Spares	
	O & M Spares	Operational and Maintenance spares for 2 years of operations to be provided.
	Tools	All necessary tools for operation & maintenance to be provided.

C. Details to be furnished along with the technical offer

1. Equipment parameters with brief explanation of features.
2. If more than one model is quoted, separate offer with complete technical details shall be submitted.
3. Additional Accessories, which will enhance the performance of the system, shall be quoted separately with price break up.
4. A clauses wise conformation / deviation, has to be brought out clearly. If there are no deviations, the vendor has to positively certify compliance to the specifications in toto.
5. The complete technical information and catalogue shall be given.
6. Authorisation letter from the OEM to be provided , if applicable.
7. Details of authorized service agents in India to be furnished
8. Reference list of customers to be furnished.
9. List of recommended spares for maintenance purposes to be indicated

D. Documents to be furnished along with Equipment

1. Operation, Maintenance, Service & spare parts manual have to be supplied along with the equipment
2. Pre-shipment Calibration certificates, if any shall be furnished. The subsequent calibration process and periodicity shall be furnished along with the authorized calibration agencies.

F. General Terms:

1. Supplier shall guarantee for one year of trouble free performance of the instrument from date of installation / commissioning
2. .
3. The equipment and accessories shall carry comprehensive warranty of one year from the date of installation including spares and service.
4. Training of the operators to be provided at BHEL / EDN for the operations and maintenance of the machine free of cost.
5. The requirements of civil , electrical , compressed air connections etc. for the machine needs to be provided along with the offer.
6. Terms of Annual maintenance contract to be indicated as a percentage of total quoted price.