

**Bharat Heavy Electricals Limited**

(A Government of India Undertaking)

Electronics Division

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Tender document for supply of SMT Reflow Oven**R F Q Number : TRSM900008**

Tender Qty : One

Tender Due Date and Time : 15.02.2008 13.00 Hrs

Tender Opening Date and Time : 15.02.2008 13.30 Hrs

Place of opening of Tender : SA – MM Conference hall

Scope:

Supply, installation and commissioning of SMT Reflow Oven

- 1. Two part Bid -** Tender shall be submitted in two parts :
- Part I – Techno commercial bid without prices.
 - Part II – Price bid

2. Earnest Money Deposit : EMD of Rs 80,000/- (rupees eighty thousand only) shall be submitted in the form of DD along with the techno-commercial bid in a separate sealed cover in favor of “Bharat Heavy Electricals Limited”. 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.

4.0 Warrantee period : Equipment shall have a comprehensive warrantee of 12 months from the date of installation / acceptance and accordingly PBG shall be for 12 months from date of acceptance.

5. Terms and conditions:

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

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 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 5 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 engineers 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. Pre qualification criteria are mandatory requirements and the technical bids will be evaluated only when the Pre Qualification criteria are met.

Ref : Pspec - PS-202-SMT 704

Scope:

Supply, Installation & Commissioning of the Reflow oven for SMT line.

Specifications:

The offer shall be corresponding to the parameters under the specifications below or better.

<i>Specificaions for SMT Reflow Oven</i>		
1	HEATING	
1.1	HEATING PRINCIPLE	Hot air forced convection
1.2	TEMPERATURE RANGE	About 350 degrees Celcius (suitable for lead free soldering)
1.3	TEMPERATURE CONTROL	Thermocouple sensors for each zone / heater with microprocessor based programmable Controller
1.4	Heat circulation	The mechanism to be furnished. Detailed description of the system to be provided.
1.5	Temperature control within zone	Variation within 1 deg C
1.6	Zone wise temperature separation	2 deg C
1.7	TOTAL HEATER CAPACITY	Sequential switching on of heaters required. Total Heater capacity to be specified.
2	CONVEYOR	
2.1	TYPE	Both Edge/pin and Mesh belt
2.2	Maximum WIDTH	500 mm or more
2.3	Minimum width	100 mm or less
2.4	WIDTH ADJUSTMENT	Motorised, Front Fixed and Rear adjustable – automatic width adjustment preferred
2.5	DIRECTION	Left to Right
2.6	TOPSIDE CLEARANCE	minimum 35 mm
2.7	BOTTOMSIDE CLEARANCE	minimum 15 mm
2.8	Centre support	Adjustable and removable
2.9	Conveyor speed	0.2 to 2 m/ min
3	ZONES	
3.1	HEATERS & COOLERS	Shall be provided both at top & bottom
3.2	TOTAL HEATING TUNNEL LENGTH	minimum 2500mm
3.3	TOTAL COOLING TUNNEL LENGTH	minimum 750mm
3.4	TYPE OF COOLING	Forced air
3.5	No of heating Zones	Minimum 8
3.6	No of cooling zones	Minimum 2
3.7	Hood opening	Front – Motorised.
3.8	Blowers for cooling	Multiple blowers with atleast 3 stage speed control.

4	NITROGEN Attachment	System ready for Nitrogen inerting
5	LUBRICATION OF CHAIN/CONVEYOR	Automatic
6	POWER SUPPLY	230V +/-10% 50Hz 1-ph or 415V +/-10% 50Hz 3 Phase. All transformers shall be with in the machine.
7	POWER FAILURE MANAGEMENT	Graceful Shutdown feature shall be part of the system with separate power supply for control system & conveyors.
8	POWER CONSUMPTION	At startup Normal operation
9	CONTROL SYSTEM SOFTWARE	Windows based Software with built-in temperature profile storage along with thermal profiler capability
	Machine control system interface	USB , Ethernet , Serial communication ports Display – LCD display 17”
10	COMPATIBILITY	SMEMA
11	ALARMS & PROTECTION	The system shall have the following: a. Built-in overload protection b. Thermocouple, blower, heater failure detection & warning through alarms c. Built-in over temperature protection for each zone d. Emergency stop buttons.
12	FLUX FUME MANAGEMENT SYSTEM	In built system to Entrap Flux contaminants and Exhaust system _ Detailed description of the system to be provided.
13	SPARES	Spares for 2 year operation to be included

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 clause-wise deviation, if any, has to be brought out clearly. If there are no deviations, the vendor has to positively certify clause-wise compliance to the specifications.
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. List of recommended spares for maintenance purposes to be indicated
9. Reference List of customers in India & worldwide to be furnished.

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.

E. General Terms:

1. Supplier shall guarantee for one year of trouble free performance of the equipment from date of installation.
2. The equipment and accessories shall carry comprehensive warranty of one year from the date of installation including spares and service.
3. Training of the operators to be provided at BHEL / EDN for the operations and maintenance of the machine.
4. All commissioning / service requirements such as power, compressed air, water, lubricants, coolants, any civil requirements like special foundation arrangements etc. have to be listed and intimated well in advance.
5. The equipment shall be installed & commissioned at BHEL / EDN by the vendor.
6. The vendor shall coordinate with other vendors of related equipment of SMT line, which will be installed at BHEL-EDN, during installation & commissioning.
7. Training shall be provided for operation & maintenance for BHEL personnel. The training details to be furnished.
8. Initial Calibration certificates shall be furnished. The subsequent calibration schedules, process and periodicity shall be furnished along with the authorised calibration agencies, if any..
9. The software upgrades during the warranty / guarantee period shall be provided free of cost
10. Terms of Annual maintenance contract to be indicated.