

PART A**QUALIFYING CRITERIA FOR SUPPLY OF
65 M LONG WALKING BEAM TYPE COOLING BED****SECTION – I**

The BIDDER / VENDOR has to compulsorily meet the following requirements to get qualified for submitting an offer for the Cooling Bed.

S. No.	REQUIREMENTS	VENDOR's COMMENTS
1.0	The BIDDER / VENDOR shall have a minimum of FIVE Years of Continuous Experience in the Design, Manufacture & Supply of WALKING BEAM TYPE COOLING BED.	
2.0	The BIDDER / VENDOR shall have supplied at least one number of WALKING BEAM TYPE COOLING BED with minimum of 60 m length, in the last Five years and the same shall be in working condition for the past one year	
3.0	Performance Certificate from CUSTOMER with full contact details	
4.0	Complete reference list of customers with Length & Type of Cooling Bed supplied to them	
5.0	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	
6.0	DELIVERY - The bidder shall quote the best possible delivery. However the delivery shall not exceed 10 (Ten) months with an additional grace period of 2 (Two) months. The additional grace period will attract a penalty which is explained in the commercial terms of the enquiry. The delivery period shall be reckoned from date of purchase order to dispatch from the vendor works.	

SECTION – II

The BIDDER / VENDOR has to necessarily provide the following details, for making an assessment of the firm's capability and competency:

[The BIDDER is expected to give complete details against each clause in the table given below and wherever necessary an additional sheet may be attached (giving clear reference number) to cover the required details]

S. No.	PARTICULARS	VENDOR's RESPONSE
7.0	Number of Years of Experience of the BIDDER/ VENDOR in the field of design, manufacture and supply of ' WALKING BEAM TYPE COOLING BED '	
8.0	Number of WALKING BEAM TYPE COOLING BED supplied, installed and commissioned till date, around the world.	
9.0	Number of WALKING BEAM TYPE COOLING BED supplied, installed and commissioned till date for the following category of CUSTOMERS (within INDIA): a)Government / Public Sector b)Private Sector Companies [Large Scale Industries]	
10.0	Details of Design Set-Up and Technology Back-Up	
11.0	Details on National / International Standards followed in Design of the Equipment	
12.0	Details of Quality System followed (Kindly furnish the salient aspects of the QA system followed)	
13.0	Details on SERVICE-AFTER-SALES Set-Up in India including the addresses of Agents / Service Centre's in India.	
14.0	Details on Financial soundness, Profit & Loss Account and Balance Sheet for the past three years, are to be furnished	
15.0	Any Additional Data to supplement the manufacturing capability of the BIDDER	

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SECTION – III

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The BIDDER / VENDOR has to comply with the following, for accepting the Technical Offer for scrutiny by the Purchaser:

S.No.	REQUIREMENTS	VENDOR's COMPLIANCE
16.0	The BIDDER / VENDOR shall submit the offer in TWO PARTS - Technical [with PART A & PART B] & Commercial and Price Bid.	
17.0	The Offer shall contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by the Bidder, against each clause. A just 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer.	
18.0	The BIDDER / VENDOR shall assure a continuous support for SPARES and SERVICE for TEN Years, from the date of commissioning of the equipment at BHEL Works.	
19.0	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details of 'Bought-Out-Items' with copies of Product Catalogue and Selection Criteria	
20.0	The Commercial Offer (given with the Technical Offer) shall contain the detailed Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation	

PART - B**TECHNICAL SPECIFICATION FOR SUPPLY OF
65 M LONG WALKING BEAM TYPE COOLING BED**

S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
1.0	BRIEF DESCRIPTION		
1.1	<p>Pipe is put into the fixed rack by the inlet system and comes to walking-circulation of cooling bed. The pipes always move in circle, for uniform cooling. In case the rate of Production is reduced, pipe can either move/ rotate in the same rack position or move backwards by one position and forward by one position so as to avoid distortion. Pipes are naturally cooled. Vendor can offer Fan cooling system, if required, underneath the Cooling Bed, to achieve the required Temperature after Cooling Bed.</p> <p>Output Device of Cooling Bed Pipes will be collected at line platform/collecting bed at outlet of cooling bed. Transfer device/ shuffle bar will transfer pipe to roller table for next process.</p> <p>(Only Inlet conveyor and outlet conveyor are in the scope of BHEL. Cooling Bed, collecting Bed and Transfer Device are in the scope of Supplier)</p>		
2.0	EQUIPMENT SPECIFICATION		
2.01	Cooling Bed shall be suitable for processing Hot Finished Boiler Quality Tubes, in various material specifications and sizes as specified below.		
2.02	Steel Grade of tubes	Carbon steel & alloy steel	
2.03	Tube size range	O.D.: 28 mm ~133mm W.T.: 3.0 mm ~12.5mm	
2.04	Length of tube :	Max. 65.0 meter	
2.05	Production Capacity:	120 Pipes/Hour	
2.06	Temperature of tube before Cooling Bed	~850°C	

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S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
2.07	Temperature of tube after Cooling Bed	<150°C	
2.08	Maximum weight of tube in one slot	390 Kg.	
2.09	Type of Cooling Bed	Walking Beam type	
2.10	Lifting system	Vendor to specify	
2.11	Conveyor / Advance system	Vendor to specify	
2.12	Fixed rack assembly	Vendor to specify	
2.13	Moving rack assembly	Vendor to specify	
2.14	Cooling Bed output equipment	Vendor to specify	
2.15	Shuffle bar /collecting Bed	Vendor to specify	
2.16	Layer transfer to outlet conveyor	Vendor to specify	
2.17	Length of cooling bed	65,000 mm	
2.18	Width of cooling bed	16,000 mm	
2.19	Width of Collecting Bed/shuffle bar	3,270 mm	
2.20	Width of Layer Transfer	900 mm	
2.21	Total distance between inlet Table & output table	20,500 mm (centre to centre)	
2.22	Centre line of tube at the inlet Table (SRM centre line)	+ 800 mm(above floor level)	
2.23	Top Level of the output Table	+800mm (above floor level)	
2.24	Maximum no. tube per minute coming out of SRM	3	
2.25	Type of Layer Transfer	Vendor to specify	
2.26	Type of Drive	Vendor to specify	
2.27	Lift / Decline travel distance	Vendor to specify	
2.28	Forward / Reverse travel distance	Vendor to specify	
2.29	Gap of step (Pitch)	Vendor to specify	
2.30	Height of step	Vendor to specify	
2.31	Total No. of Slots (Total No. of tubes that can be accommodated at any given point of time)	Vendor to specify	
2.32	Lift/Decline System	Vendor to specify	
2.33	Lift/Decline stroke drive	Vendor to specify	
2.34	Power (KW)	Vendor to specify	

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S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
2.35	Quantity	Vendor to specify	
2.36	Shift System	Vendor to specify	
2.37	Shift stroke	Vendor to specify	
2.38	Advance Stroke	Vendor to specify	
2.39	Repetition stroke	Vendor to specify	
2.40	Reverse Stroke	Vendor to specify	
2.41	Rack System		
2.42	Rack Space at the entry	Vendor to specify	
2.43	Rack Space at the middle	Vendor to specify	
2.44	Rack Space at the exit	Vendor to specify	
2.45	Rotation Transport Drive Type	Vendor to specify	
2.46	Power (KW)	Vendor to specify	
2.47	ALIGNMENT of fixed & moving beam to ensure tube straightness	Vendor to confirm	
2.48	Calculation for temperature at the end of the collecting bed with and with fan arrangement during continuous operation	Vendor to provide	
3.0	SUB SYSTEM OF EQUIPMENTS		
3.1	HYDRAULICS		
3.1.1	Preferable makes :: 1. Bosch Rexroth 2. Vickers Sperry / 3. Parker Hannfin	Vendor to specify	
3.1.2	Hydraulic Hose end-fittings shall be of suitable material with female swivel nut and 24 deg cones. Hoses shall preferably be of GATES make. (For other makes, complete details to be furnished).	Vendor to specify	

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S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
3.1.3	Hydraulic Circuits shall be designed with minimum number of control valves and to suit oil of ISO VG 68 only. Also minimum number of check-points to be provided, wherever pressure is required to be read for setting and trouble-shooting.	Vendor to confirm	
3.1.4	Solenoids shall be provided with indication lamp / LED. Control voltage for all solenoid operated valves.	24 V DC	
3.1.5	Filtration System.	Vendor to specify	
3.1.6	Hydraulic Pump capacity (flow / pressure)	Vendor to specify	
3.1.7	Pump Motor Power in kW	Vendor to specify	
3.1.8	Hydraulic Tank Capacity	Vendor to specify	
3.1.9	Each Pump shall have a stand-by Pump & an independent Motor.	Vendor to confirm	
3.1.10	All Hydraulic Pumps for the Power Pack should be loaded only during requirement and should run unloaded during idle running.	Vendor to Confirm	
3.2	LUBRICATION:		
3.2.1	Oil Lubrication and/or Grease Lubrication arrangement shall be provided for all rotating and moving components.	Vendor to Confirm	
3.3	PNEUMATICS:		
3.3.1	Pneumatic operated elements of the equipment shall work efficiently with BHEL Compressed Air supply at a pressure of 4 to 6 Kg / cm²	Vendor to confirm	
3.3.2	BHEL will provide compressed air. Vendor shall provide suitable Filter-Regulator-Lubrication (FRL) unit.	Vendor to confirm	

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S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
3.3.3	Volume (flow) of Compressed Air required for the equipment.	Vendor to Specify	
3.4	ELECTRICAL:		
3.4.1	BHEL shall provide power supply : 415V +/-10%, 50Hz +/- 3 Hz, 3 Phase AC (3 wire system without neutral)	Vendor to note.	
3.4.2	All electrical / electronic equipment shall be tropicalized.	Vendor to confirm	
3.4.3	All electrical & electronic control cabinets & panels shall be dust and vermin proof	Vendor to confirm	
3.4.4	All electrical components in the cabinets shall be mounted on DIN Rail	Vendor to confirm	
3.4.5	All electrical and electronic panels including operator-panels shall be provided with :: 1. Fluorescent Lamps for sufficient illumination 2. Power receptacles of 220Volts, 5/15 Amp AC. All adapters /receptacles shall have compatibility with Indian equivalents.	Vendor to confirm	
3.4.6	Motors & other electrical components shall conform to IEC or Indian Standards	Vendor to confirm	
3.4.7	All Electric enclosures shall have IP 43 protection	Vendor to confirm	
3.4.8	Motors shall be of Siemens / ABB or such reputed makes only conforming to IS / IEC Standards	Vendor to confirm	
3.4.9	Drives & PLC shall be of Siemens / Allen Bradley / ABB or such reputed makes only conforming to IS / IEC Standards	Vendor to confirm	

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S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
3.4.10	All feedback systems & field sensors, limit switches, proximity switches, pressure switches, temperature controllers, shall be suitable for heavy duty application and wired up with flexible PVC insulated screened cables. All field elements shall have easy accessibility for maintenance.	Vendor to confirm	
4.0	SAFETY ARRANGEMENTS: Following safety features, in addition to other standard safety features, shall be provided on the equipments:		
4.1	Equipments shall have adequate and reliable safety interlocks / devices to avoid damage to the equipment, work piece and the operator due to malfunctioning or mistakes.	Vendor to specify	
4.2	All the pipes, cables etc. on the equipment shall be well supported and protected, which shall not create any hindrance to movement of equipment operators.	Vendor to Confirm	
4.3	All the rotating parts used on equipments shall be Statically & Dynamically balanced to avoid undue vibrations and suitably guarded.	Vendor to Confirm	
4.4	Emergency Switches at suitable locations shall be provided as per International Norms.	Vendor to Confirm	
5.0	ENVIRONMENTAL PERFORMANCE OF THE EQUIPMENT: Equipment shall conform to following factors related to environment:		

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S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
5.1	Maximum noise level shall be 85 dB (A) at normal load condition, 1meter away from the equipment with correction factor for background noise. This will be measured as per International Standards like DIN 45635-16. Vendor to demonstrate compliance to noise level, if required.	Vendor to Confirm	
5.2	If any other safety / environmental protection enclosure are required, same shall be provided in the equipment.	Vendor to confirm	
6.0	DOCUMENTATION: Vendor to furnish Documentation as listed below:	Vendor to confirm	
6.1	Three sets of as-built-Drawings and Updated Manuals (Hard Copy) shall be supplied - including Bought-out items.	Vendor to confirm	
6.2	One set of above Documents in Soft-copy.	Vendor to confirm	
6.3	Operating Manuals of Equipments	Vendor to confirm	
6.4	Programming Manuals of Equipments	Vendor to confirm	
6.5	Detailed Maintenance Manual of equipments with all Drawings of equipment / sub-assemblies / parts, including Electrical / Pneumatic/ Hydraulic circuit-diagrams. All Assembly/ Sub Assembly Drawings shall also be supplied with the part list.	Vendor to confirm	
6.6	PLC program printouts with comments in English (after commissioning the equipments).	Vendor to confirm	
6.7	PLC program on CD/Flash Memory card	Vendor to confirm	
6.8	Complete List of parts used in the equipment.	Vendor to confirm	

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S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
7.0	INSPECTION-		
7.1	BHEL shall depute its Engineers for inspection at vendor's work, for Pre-dispatch Inspection.	Vendor to confirm	
8.0	FOUNDATION:		
8.1	<p>Vendor shall submit the Preliminary Layout Drawing for BHEL approval, within one month from the date of Letter of Intent (LOI), taking into consideration of other existing Equipments / Layout at SSTP.</p> <p>Vendor shall submit Foundation details, viz. Static / Dynamic Load details, etc. and Final Layout Drawings, within two months after BHEL approval of Preliminary Layout Drawings.</p> <p>Layout shall consist of all requirements pertaining to complete equipments, including space requirement for any other accessories.</p> <p>BHEL shall design and construct complete Foundation for the equipments as per the recommendation of Vendor.</p> <p>Vendor shall also indicate detailed specifications of Grouting Compounds, Grouting Procedure, etc., for Foundation Bolts of the equipments.</p>	Vendor to Confirm	
8.2	List of Foundation / Anchorage material.	Vendor to specify	

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S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
9.0	ERECTION & COMMISSIONING		
9.1	Vendor to take full responsibility for Supervision of the Erection, Start up, Testing and Commissioning of Equipments. BHEL shall provide Service requirements, like Power, Air & Water, Crane and Personnel for helping.	Vendor to confirm	
9.2	Vendor to prove out the Rate of Production and Product Quality as per the tender specification.	Vendor to confirm	
9.3	Vendor shall bring (on returnable basis) Spares required for commissioning of the equipment within stipulated time..	Vendor to confirm	
9.4	Vendor shall furnish a Schedule of Erection and Commissioning along with offer.	Vendor to confirm	
9.5	Vendor shall furnish Charges, Duration, Terms & Conditions for Erection & Commissioning (with break-up details), along with offer.	Vendor to confirm	
9.6	Tests / Activities to be carried out at BHEL works while commissioning the equipment:	Vendor to specify	
9.7	Geometrical accuracies as per applicable standard Test Chart recommended by the Vendor	Vendor to confirm	
9.8	Demonstration of all salient features of the equipment, control system to the satisfaction of BHEL for efficient and effective use of the equipment	Vendor to confirm	
10.0	PROVE OUT:		
10.1	<u>Straightness:</u> Vendor shall establish straightness of tube at & after cooling Bed	Vendor to confirm.	

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S. No.	PARTICULARS	BHEL SPECIFICATION	BIDDER's OFFER [With Complete Technical Details]
10.2	<u>Cycle time :</u> Vendor shall prove the cycle time of min. 20 secs. for each tube	Vendor to confirm	
11.0	GUARANTEE:		
11.1	12 months from the date of acceptance of the equipments at BHEL Works.	Vendor to confirm	
12.0	GENERAL:		
12.1	Machine Model No.	Vendor to specify	
12.2	Total connected load (KVA) required	Vendor to specify	
12.3	Floor area required (Length, Width, Height)	Vendor to specify	
12.4	Painting of Equipment / Electrical Panels: RAL 6011 Apple Green (Polyurethane Paint)	Vendor to confirm	
12.5	Total weight of the equipment	Vendor to specify	
12.6	Vendor to furnish clear and legible General Arrangement Drawings, showing equipments, accessories & associated systems with salient dimensions, along with Offer.	Vendor to Confirm	