



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirapalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY

NOTICE INVITING TENDER

Phone: +91 431 257 74 21

Email : vkaruna@bhel.in

: hari.r@bhel.in

Web : www.bhel.com

TWO PART BID

Tender to be submitted in two Parts

Enquiry
Number:

2622000002

Enquiry
Date:

04.06.2020

Due date for submission
of quotation:

29.06.2020

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 should reach physically on or before 14.00 Hrs(IST) on the Date of tender opening. Tenders received after 14.00Hrs (IST) will not be considered for evaluation.

Item	Description	Quantity	(Indigenous Vendors) Matl. Will be Delivered to
10	Automatic Film Processor as per the technical specification & commercial conditions applicable (To be downloaded from web site www.bhel.com or http://tenders.gov.in)	1.00 Nos.	FOR, BHEL, Stores, High Pressure Boiler Plant, Tiruchirappalli - 620014

Important points to be taken care during submission of offer

- 1) Material shall be delivered to (By Indigenous vendors): As stated above.
- 2) By Foreign Vendors: CFR Chennai Seaport / Airport
- 3) Delivery required 5 Months (including PDI) from the date of purchase order.
- 4) Erection & Commissioning period required 1 Week from the date of intimation by BHEL to vendor for deputation of their Engineers for E&C.
- 5) EMD for this Tender will be (INR): 40,000.00
- 6) Compliance Forms. ATP TRY/IMP/03 & ATP TRY/IND/03A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
- 7) All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions (refer MM / CE / GENL / GENL / 001 - EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site www.bhel.com/tender/tender_home.php or from the Government tender website <https://eprocure.gov.in/epublish/app>) under Enquiry reference .

Tenders should be submitted before 14.00Hrs (IST) 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**

DGM / Capital Equipment / MM

V. KARUNAKARAN
Dy. General Manager
Capital Equipment / MM
BHEL / Tiruchirappalli - 620 014

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PART A - QUALIFYING CRITERIA FOR THE SUPPLY OF AUTOMATIC FILM PROCESSOR

SECTION – I

The BIDDER / VENDOR has to compulsorily meet the following requirements to get qualified for submitting an offer for the AUTOMATIC FILM PROCESSOR.

S. No.	REQUIREMENTS	Vendor's COMMENTS
1.0	The BIDDER / VENDOR shall have a minimum of last FIVE Years of Continuous experience in the Design, Manufacture and supply of AUTOMATIC FILM PROCESSOR. Vendor to indicate the actual no. of years of experience in this field.	
2.0	Only those vendors (OEMs), who have manufactured and commissioned at least Two AUTOMATIC FILM PROCESSORS in the last five years (as on original date of opening of Tender) and such pieces of equipment are presently working satisfactorily shall quote.	
3.0	The vendor has to submit at least one Performance Certificate from any of their customers, for satisfactory performance of the quoted model of AUTOMATIC FILM PROCESSOR supplied to them with in the last five years and is working satisfactorily for a minimum period of one year from the date of commissioning (as on original date of opening of tender). For obtaining the Performance certificate, a suggestive format is provided as Annexure I.	
4.0	BHEL reserves the right to verify the information provided by the vendor. In case the information provided by the vendor is found to be false/ incorrect, the offer shall be rejected.	

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SECTION – II

Bidder to provide the following details:

S. No.	PARTICULARS	Vendor's RESPONSE
5.0	Year of the launch of the model quoted against this enquiry	
6.0	Number of "AUTOMATIC FILM PROCESSOR" supplied and commissioned till date in the quoted model	
7.0	The Bidder/vendor to furnish reference list of customers	
8.0	Details on SERVICE-after-SALES Set-Up in India including the addresses of Agents/Service Centers in India and Asia	

SECTION – III:

Bidder to note the following:

S. No.	PARTICULARS	Vendor's RESPONSE
9.0	The BIDDER shall submit the offer in Two Parts – 1. Technical [with PART A & PART B] & 2. Commercial and Price Bid.	
10.0	The BIDDER shall assure that the offered system shall be available in market for next 10 years. The OEM shall extend continuous Spares & Service support for minimum 15 years, from the date of commissioning of the equipment at BHEL Works.	
11.0	The VENDOR's RESPONSE against each clause in PART A & B of the offer should be filled compulsorily with complete details.	
12.0	The Technical Offer shall be supported by Product Catalogue and Data Sheets and complete technical details/literature on the quoted model.	

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ANNEXURE I

PERFORMANCE CERTIFICATE FORMAT

(On Customer's Letter Head)

1. Supplier of the Equipment :
2. Make & Model of the Equipment :
3. SI No. of the equipment :
4. Month & Year of Commissioning :
5. Application for which Equipment is used :
6. Jobs Performed by the Equipment
 - a. Typical film types and sizes used :
 - b. Workload (Weekly average quantity of films processed (approx.):
 - c. Total no of films processed after commissioning(cumulative):
7. Performance of the Equipment : Satisfactory/Not Satisfactory
(Strike off whichever is not applicable)
8. After Sales Service : Satisfactory/Not Satisfactory
9. Any other remarks :
Contact details of issuing authority
Name & Designation:
Office No/Mobile no: Signature and seal of authority
Issuing the performance certificate
Email Id:

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Part B-TECHNICAL SPECIFICATIONS FOR AUTOMATIC FILM PROCESSOR

Sl.No.	Particulars	Specifications	Bidder's offer
1.0	Description of the Automatic film Processor	Automatic Film Processor is a device, which Automatically develops the film, which is exposed to X-Ray or Gamma Radiation. All the processes like developing, fixing, washing and drying should be automatic by using self-threading roller transport system and it should have the facilities like film length detection system, a replenishment system, a recirculation system for the developer and fixer solutions and an automatic stand by feature	
2.0	Principle of operation	In the Processing of radiographic film, an invisible latent image produced on the film by exposure to x-rays, Gamma rays are made visible or permanent. An Automatic Processor carries out these processes quicker by accurate control of temperature, Agitation, replenishment of solutions etc. The roller-transport mechanism carries the films throughout the operations from input to output.	
3.0	Area of application	For Processing of Exposed Radiographs of Weldments in Boiler and steam generator components with Steel thickness Ranging from 4mm to 200mm using Radiation Sources – 15 to 450kV X-Rays, Ir-192 & Co-60 Isotopes and Linear Accelerators (4 MeV / 6 MeV)	

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4.0	Design base	Shall conform to ASTM E 999-15. Shall Conform to ISO Standards for Design, & Electrical safety.	
5.0	Equipment configuration	The equipment shall be compact. Details are as given by sections 5.1 to 5.11	
5.1	Constructional features	<p>An automatic film processor for processing housing shall comprise,</p> <ul style="list-style-type: none">a. A Film feed tray.b. Control panelc. Film surface detection rollers,d. Developer, fixer and washer tanks with removable upper covers.e. A self-threading roller transport system to carry the film throughout the film developing operation from input to output.f. Dryer.g. Film collection tray.h. Developer replenishment pump,i. Fixer replenishment pump,j. Draining system,k. Arrangement for maintaining a constant temperature for film development and corresponding temperature control and display. <p>The container assembly should be made of material, which is non-corrosive and of the latest technology. Vendor to specify the material of the container.</p>	
5.2	Type	Continuous roller-feeding type.	

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5.3	Dimensions (external)	Supplier to specify (Length, Width, Height) Length = Maximum 2000 mm Width = Maximum 1000 mm Height = Maximum 1000 mm, Vendor to specify the actual dimension of the machine	
5.4	Film feed tray width	The Feed tray shall be wide enough for minimum 4 number of 10 Cms wide films to be fed parallel to each other or 40 Cms wide films for increased production.	
5.5	Film receiving tray	The film receiving tray should be adjustable to suit sheet film and roll film. The processed films shall always be collected in the tray in the correct order	
5.6	Film size	The auto processor should be compatible with various sizes of films (15x30,15x40,30x40cm,20x30cm,15x20cm,10x40cm,10x20cm,10x15,10x10,5x5) etc.) Vendor to specify the minimum length and width of the film that can be processed	
5.7	Tank capacity	a. Developer = Minimum 6 litres b. Fixer = Minimum 6 litres c. Rinse water = Minimum 6 litres The replenishment containers should have a capacity of at least 25 litres and the replenishment should be automatic. Vendor to Specify the actual capacity of tank and replenishment containers.	
5.8	Intermediate washer tank	Vendor to provide intermediate washer tank between developer and fixer tank to minimize the carryover of the developer to fixer tank, thus keeping the fixer less contaminated.	
5.9	Drying mechanism	The Auto processor should have a dryer mechanism, preferably an infrared dryer. Vendor to specify	

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5.10	Weight	Specify for Main unit only (when empty) = Maximum 160 kg; With processing chemicals = Maximum 200 kg ;	
5.11	Material of Equipment	The material should be highly corrosion resistant. Vendor to specify the material.	
6.0	Operating Parameters		
6.1	Input Power supply:	230V, 50Hz, single phase supply only provided by BHEL at site. Vendor to mention the input power requirements for the unit. Resettable over current breaker shall be fitted in the unit for protection. Appropriate Servo Voltage Stabilizer to be provided along with the equipment.	
6.2	Processing speed	The standard processing cycle time shall be Maximum 8 minutes 30 secs for development to drying using film with dimension 30 x 40cm (dry to dry time).	
6.3	Wash water flow control	The flow of washing water shall be regulated automatically, as per the requirement of cycle and film surface area. Vendor to provide the details	

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6.4	Developer and fixer temperature range.	Developer and fixer temperature Should be maintained between 25 ⁰ C and 30 ⁰ C. Provision shall be made for maintaining the temperature within the abovementioned range. Vendor to specify the details of maintaining the temperature. There shall be a digital display of temperature.	
6.5	Rinse water temperature	Vendor to ensure the rinse water temperature is maintained between 25 ⁰ C and 30 ⁰ C. For ensuring rinse water temperature and pressure at required level suitable arrangements to be provided by the vendor along with the equipment.	

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6.6	Dryer / Drying air	The ON/ OFF status of the heater shall be controllable.	
7.0	Essential Features		
7.1	Operating panel	<p>The Operating panel shall provide visual information about each processing parameters including</p> <ul style="list-style-type: none">a. The current processing temperature,b. Cycle time,c. The dryer setting,d. Replenishment quantities of developer and fixer,e. Indication for film input and the remaining cycle time. <p>The temperature of the fixer and developer shall be adjusted incrementally to suit the processing program chosen.</p>	
7.2	Pre-programmed processing cycle	The processing cycle shall be programmable, with a duration between 3-12min, in steps of 1min-Multi choice operation, in addition to the standard cycle time of 8 min 30Sec.	

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7.3	Replenishment pump	There shall be a replenishment pump for automatic replenishment of chemicals. There shall be a provision to control the replenishment capacity. The replenishment pump should accurately deliver replenishment solutions regardless of the solution level in replenishment tanks. Preferably a positive displacement BELLOWS PUMP. The supplier has to specify the rating and other details of the Pump.	
7.4	Circulation mechanism	Circulation pumps shall continuously stir the developer and fixer to maintain a uniform mixture of the processing fluids.	
7.5	Main drive mechanism	Main drive motor shall ensure the smooth movement (rotary and longitudinal) of the film from infeed to outfeed. It shall be preferably an enclosed gear head motor with an automatic thermal overload protector. The main drive should stop automatically during idle time to prevent wear and tear and remain ready in standby.	
7.6	Rollers	Self-threading roller feed mechanism for smooth rotary and longitudinal movement of the film shall be made of non-corrosive and shall be free of wear and tear.	
7.7	Rinse water valve	The valve allows water flows to maintain a constant temperature.	
7.8	Intermediate Wash Tank	There shall be Intermediate Wash Tank, between Developer and Fixer tanks which keeps the Fixer fresh	

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7.9	Draining tanks	Proper drainage system with valves shall be provided. It also prevents the formation of toxic fumes into the waste collection tank	
7.10	Safety circuitry	There shall be Developer & fixer overheat-prevention circuit preferably with Circuit breaker formed by a safety thermostat. There shall be Protection against overheating during drying preferably with circuit breaker formed by thermistors.	
7.11	Standby mode	When all the films have left the processor, it should automatically come to standby mode. The standby mode shall reduce water and energy consumption	
7.12	The concentration of processing solutions	Supplier to specify the concentration details of various chemical solutions for processing.	
7.13	Proper earthing	The supplier should ensure proper earthing of the machine. The Details of earthing should be provided in the offer.	
7.14	Pre Filter	Water used for rinsing/washing shall be pre-filtered by using a coir filter/other filters-Supplier to specify the exact details.	
8.0	Environmental Factors		
8.1	Relative humidity	It shall work satisfactorily for RH range 20% to 80%	
8.2	Room temperature	It shall work satisfactorily for temperature range up to 30°C	
9.0	Optional features	SS Stand for Automatic film processor can be provided optionally, Supplier to specify the details of the optional features if any.	

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10.0	Scope of Supply	<p>Automatic film processor which performs the processes developing, fixing, washing and drying of Radiographic exposed films automatically by using self-threading roller transport system meets all the requirement of this technical specification and with the following facilities - 01 Nos.</p> <ul style="list-style-type: none">• Film feed tray with LCD and program selection option.• Developer tank• Intermediate washing tank.• Fixer tank.• A replenishment system with level detection for Developer, and Fixer solutions.• Recirculation system for the developer and fixer solutions• Rollers• Dryer• Film collection basket• Automatic stand by feature• Draining mechanism• Main drive motor• Servo Voltage Stabilizer• Coir Filter/other filters• Manuals and performance certificate as per clause 14.• Spares as listed in clause 11.0	
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11.0	Spares for Main Equipment & Accessories	<p>BIDDER has to list down the critical SPARES under Mechanical, Electrical & Electronic Category for the Main Equipment & Accessories for Equipment Operation in 3 shifts a day and for 365 days in a year. BIDDER has to compulsorily quote for the Commissioning Spares with the TECHNICAL OFFER for trouble-free operation of the equipment for two years.</p> <p>The below listed spares to be supplied with the equipment;</p> <ol style="list-style-type: none">1. All type of PCB's – 1nos each2. One set of rollers (for fixer, developer, washer units & idle rollers (if any) – each 1 set3. Temperature sensor – 1set4. Replenishment pump – 1no5. Pre-filter -2 Nos.	
12.0	Performance Prove-Out	On supply of the equipment, it is essential to demonstrate the satisfactory performance of the system and train the operators.	
13.0	Installation and commissioning	The Auto Processor system and accessories are to be installed & commissioned at Works, by the SUPPLIER. And shall demonstrate processing minimum 10 number of exposed films without any Process marks.	
14.0	Documentation in ENGLISH Language	<ol style="list-style-type: none">a) 3 Copies (In English – 2 Hard copies & 1 Soft Copy) of the Operation & Maintenance Manuals containing Electric Schematics, Circuit Diagrams, PCB Drawings, Trouble Shooting Charts, Mechanical Sub-Assemblies, Rating of Bought-Out Items, etc. shall be supplied, at the time of inspection by BHEL.b) A booklet with Pictorial representation of various PROCESS MARKS, the probable causes and troubleshooting methods(Hard & Soft copy-Optional).	

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15.0	Performance Guarantee	The Auto Processor system and accessories are to be guaranteed for its performance for a minimum period of one year from the date of commissioning.	
16.0	Service and Spares Support Requirements	Vendor shall ensure after the guarantee period, through trained service personnel in India for the next 5 years as and when need arise. Spares to be made available with shortest possible time.	
17.0	Training on Operation & Maintenance	Complete Training for BHEL Engineers is to be given on Operation & Maintenance of the equipment. The training has to be provided at Suppliers works / at BHEL, after the successful commissioning of the Equipment & Accessories.	
18.0	Annual Maintenance Contract– AMC(Optional)	The BIDDER has to QUOTE for AMC for 3 years with a detailed scope of work from the date of completion of the guarantee period.(AMC to be quoted separately)	
19.0	Safety and Quality Standards	Supplier to ensure that Safety and Quality of Auto Processor System shall conform to International Standards. Conformance certificate to be along with the equipment.	