



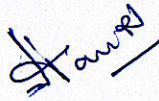
An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY		Phone: +91 431 257 7421/ 7297 Email : vkarna@bhel.in , hari.r@bhel.in Web : www.bhel.com	
NOTICE INVITING TENDER			
TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two Parts	2632000020	19.11.2020	16.12.2020
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 is reaching physically our office before 14:00 hrs on the Date of tender opening.			
Item	Description		Quantity
10	Radiographic Film Digitizer as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or https://eprocure.gov.in/epublish/app)		1 No.
Important points to be taken care during submission of offer			
1. Delivery terms shall be FOR BHEL Stores, Trichy. 2. Compliance Form MCTD/ TRY/ IND/ 07 to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation. 3. EMD applicable for this enquiry is INR 40,000/- 4. Delivery period required is 3 months from the date of Purchase Order. 5. Erection and commissioning activities shall be done by the supplier, at BHEL, Trichy works. 6. Time period required for Erection and Commissioning activities shall be 2 weeks from the date of intimation by BHEL 7. Procurement of the item through this NIT will be as per Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 by DPIIT (DPIIT Order No.P-45021/2/2017-PP (BE-II) dated 04.06.2020), to encourage 'Make in India ' and promote manufacturing and production of goods and services in India. 8. 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/001- EMD), compliance form and technical specification can be downloaded from BHEL web site http://www.bhel.com or from https://eprocure.gov.in/epublish/app under Enquiry reference "2632000020".			
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  R. HARI Engineer MM / Capital Equipment BHEL, TRICHY - 620 014 Engineer / MM/ Capital Equipment	

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PART A - QUALIFYING CRITERIA FOR THE SUPPLY OF RADIOGRAPHIC FILM DIGITISER

SECTION – 1: Qualifying Criteria

The BIDDER / VENDOR has to compulsorily meet the following requirements to get qualified submitting an offer for RADIOGRAPHIC FILM DIGITISER

S. No.	BHEL REQUIREMENTS	BIDDER'S RESPONSE
1.1	The BIDDER / OEM shall have a minimum of last FIVE Years of Continuous Experience in the Design, Manufacture and supply of Portable MPI Equipment ^{Radiographic film digitiser} . Vendor to indicate the actual no. of years of experience in this field.	
1.2	Only those BIDDER / OEM, who have manufactured, supplied and commissioned at least 2 Nos. RADIOGRAPHIC FILM DIGITISER in the last 5 years as on the first date of tender opening.	
1.3	The Bidder has to submit at least 1 Performance Certificate from any of their customers, for satisfactory performance of RADIOGRAPHIC FILM DIGITISER meeting the following conditions: (a) The Equipment must have been supplied within the last 5 years as on the first date of tender opening. (b) The Equipment must have performed satisfactorily for at least 1 year during this period. For obtaining the Performance certificate, a suggestive format is provided as in Annexure 1.	
1.4	BHEL reserves the right to verify the information provided by the Bidder. In case the information provided is found to be false/ incorrect, the offer is liable for rejection.	

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SECTION – 2

Bidder to provide the following details:

S. No.	BHEL REQUIREMENTS	Bidder's Response
2.1	Year of launch of the model quoted against this enquiry	
2.2	Number of RADIOGRAPHIC FILM DIGITISER supplied and commissioned till date in the quoted model	
2.3	The Bidder/vendor to furnish reference list of customers including Contact details (phone no & email id)	
2.4	Details of RADIOGRAPHIC FILM DIGITISER supplied to other BHEL units (if any)	
2.5	Bidder shall provide contact details (phone no & email id) including the address of his Agents / Service Centers in India	

SECTION – 3:

Bidder to note the following:

S. No.	BHEL REQUIREMENTS	Bidder's Response
3.1	The BIDDER shall submit the offer in Two Parts – 1. Technical [with PART A & PART B] & 2. Commercial and Price Bid.	
3.2	The Bidder's offer against each clause in PART A & B of the offer should be filled by the BIDDER compulsorily with complete details.	
3.3	The BIDDER shall assure continuous support for Spares and Service for Ten Years, from the date of commissioning of the equipment at BHEL Works.	
3.4	The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation.	
3.5	The Technical Offer shall be supported by Product Catalogue and Data Sheets in original and complete	

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ANNEXURE 1

SUGGESTIVE FORMAT OF PERFORMANCE CERTIFICATE:

(On Customer's Letter Head)

PERFORMANCE CERTIFICATE

1. Supplier of the Equipment :
2. Make & Model of the equipment :
3. Month & Year of Commissioning :
4. Equipment description :
5. Application for which the 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. Service support after sales : Satisfactory / Not Satisfactory
(Strike off whichever is not applicable)
9. Any Other remarks :
10. This performance certificate was issued on : (DD/MM/YYYY)

Signature & Seal of the Authority
Issuing the Performance Certificate

Contact details of issuing authority

Name & Designation:

Office No/ Mobile no:

Email ID:

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PART B

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TECHNICAL SPECIFICATIONS FOR RADIOGRAPHIC FILM DIGITIZER.

Sl.No.	Particulars	BHEL Specifications	Bidder's offer
1.0	Description of radiographic film digitizer.	Radiographic Film Digitizer is a device, which converts hard-copy films, which are exposed to X-Ray or Gamma Radiation to high-resolution digital images that are electronically transmitted, viewed, analyzed and stored.	
2.0	Area of application	For digitizing the processed radiograph films of weldments, castings in Boiler components as well as nuclear components with steel thickness ranging from 4mm to 200mm using Radiation Sources – 15 to 450 kV X-Rays, Ir-192 & Co-60 Isotopes and Linear Accelerators (4 MeV / 6 MeV) and film size varying from 10 cm X 10 cm to 30 cm x40 cm.	
3.0	Principle of operation	The X-ray film is moved in front of a collection tube and laser beams /high-intensity light with a fixed diameter are passed through the film. The collection tube integrates the diffused light which is transmitted through the film and a photomultiplier tube that is placed behind the film (PMT) registers the same with voltage in proportion to the light intensity. During the scan, the folding mirror moves the laser beam along a horizontal line on the film. The output, after logarithmic amplification and digitization with a pixel depth of 12 bits or better, and yields grey values that are proportional to the optical density of the film.	
4.0	Design base	Shall conform to ASME SEC V, ISO 14096.CLASS DS, ASTM E-2339 & DICONDE format	
5.0	Equipment configuration	The equipment shall be compact, shall be capable of reproducing the intricate detail of the radiographic film. Details are as given by sections 5.1.1 to 5.1.10	
5.1	Constructional	A radiographic film Digitizer shall comprise, a film feed tray, Control panel, film	

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	features	surface detection rollers, a self-threading roller transport system, CCD/photomultiplier based Digitizer, replaceable LED or laser-based light source, film collection tray, Operating temperature controllers, licensed version of user interface software compatible with Windows10 or above.	
5.1.1	Type	Continuous roller-feeding type.	
5.1.2	Dimensions (external)	Supplier to specify (Length, Width, Height, Floor Space) Length = Maximum 2000 mm Width = Maximum 1000 mm Height =Maximum 1000 mm.	
5.1.3	Illuminator	The illuminator shall be energy efficient and Replaceable LED array or Laser-based technology. Bidder to specify the details.	
5.1.4	Detector	The detector shall be using CCD or photo-multiplier based technology for enabling efficient data conversion.	
5.1.5	Optical Density range	Shall be capable of scanning and recording data from films with optical density 0.5 to 4.5	
5.1.6	Film feed tray & width	The Feed tray shall be wide enough for a minimum of 3 number of 10 cms wide films to be fed parallel to each other or 30 X40 Cm wide single film for increased productivity. The feeding mechanism shall not be assisted with any cassette/adaptor kind of mechanism for any standard film size as mentioned in clause 5.1.9, Since loading in an adapter/cassette and further scanning will reduce productivity.	
5.1.7	Automatic film feeder	An automatic film feeder facility shall be provided, for faster scanning of multiple films for the same size. The automatic film feeder shall have a capacity to load at least 20 films at a time. The bidder has to mention the actual capacity of the automatic film feeder.	
5.1.8	Film receiving	The film receiving tray should be adjustable to suit the sheet film.	

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	tray	The processed films shall always be collected in the tray in the scanning order.	
5.1.9	Film size	Radiographic Film Digitizer should be compatible to scan and digitize various film sizes.(15x30,15x40,30x40,20x30,15x20,10x40,10x20,10x15,10x10 etc.), all units in Cm	
5.1.10	Materials	The container assembly should be made of material, which is non-corrosive and long-lasting. Vendor to specify the material.	
5.1.11	Weight	Specify for Main unit only (Maximum 45 kg).	
6.0	Digitization parameters		
6.1	Optical resolution	Shall be capable of achieving a resolution of 7 lp/mm with a digitization Spot size of 70µm or better for radiographic film scanned in the digitiser.	
6.2	Contrast sensitivity	The Digitization system shall have a minimum contrast sensitivity of 0.02 Optical Density.	
6.3	Dynamic Range	The system shall achieve a dynamic range of 3.5 optical density or better	
6.4	Image Size	The system shall return measured dimension with in 3% of the actual dimension of the radiographic film in both the axes.	
7.0	Operating Parameters		
7.1	Input Power supply:	230V, 50Hz, 5 / 16 A. Appropriate Servo Voltage Stabilizer shall be provided with the unit. Also, spell out the power requirements for the unit. Resettable over current breaker shall be fitted for protection.	
7.2	Processing speed	The standard scanning cycle time shall be Maximum 1 minute for 300 DPI (6lp/mm) for a film size of 30 x 40cm.	

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7.3	Operating environment	10° to 35° C, 20% to 85% relative humidity.	
7.4	Storage environment	10° to 35° C, 20% to 85% relative humidity.	
7.5	Power consumption	Shall be energy efficient. Power consumption shall be less than 100 Watts. The vendor has to specify	
8.0	Essential Features		
8.1	PC based User interface/review software	The UI shall provide provision to feeding information about parameters including • Film size, date and time of digitization, and type. • Facilities for identifying the file with a job, joint number radiographic segment. • Organizing archiving, auto indexing(User specific format) & retrieving facilities. • Film size detection features.(Length & width) • Facilities for measurement of indication dimensions with units of measurements in SI units. • Import/export facilities from/to DICOM, JPEG, PNG & GIF formats. • Image enhancement features (Sharpness, contrast, filters, window leveling, measurement, annotation). Bidder to specify the available features in detail.	
8.2	Pre-programmed processing cycle	The scanning shall be programmable with auto film feed facilities.	
8.3	PC/Hardware interface	Shall be compactable to USB 2.0 or advanced interface. The vendor to specify the details.	

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8.4	Cooling mechanism	The film digitizer should have a cooling mechanism to ensure continuous operation for up to 10 hours.	
8.5	Main drive mechanism	The 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.	
8.6	Digitizer in down mode	When all the films have left the scanner, it should automatically come to standby mode. The standby mode shall reduce power consumption	
9.0	Computer system requirements:	The bidder shall specify requirements of PC hardware for optimum performance of <i>(Note: The UI, Review/Archive software shall be compactable with windows 10 Operating system or any other advanced version of windows.)</i> Monitor size: Resolution: Processor: RAM: Hard Drive: Operating system: Windows 10 or above. Bidder to specify.	
10.0	Optional features	Stand for Auto Feeder and receiver tray. Supplier to specify the details of the optional features if any.	

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11.0	Scope of Supply	Radiographic Film Digitizer which converts hard-copy films that are exposed to X-Ray or Gamma Radiation to high-resolution Digital images automatically by using a self-threading roller transport system meets all the requirement of this technical specification and with the following facilities - 1 NO. • Automatic film feeder and Film feed tray with provision for loading films of different sizes as mentioned in cl 5.1.9. And strictly without any cassette/ adapter kind of mechanism for film loading. • Batch feeder system • Film length& width detection system. • Power and connectivity cables. • Film collection basket. • User interface/review software compactable with windows10 or a higher version, and with minimum requirements as mentioned in clause 8.2 • Operation manual. • Spares as listed in clause 13.0	
12.0	UI software & license	The UI software License shall be perpetual having a lifetime validity, and any updates to the existing version shall be free of cost. The license shall either be Pendrive based or one time licensing(Offline license only) which is useful when hardware/ PC system is replaced on account of any hardware failure in the future.	
13.0	Spares for Main Equipment & Accessories	BIDDER shall 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 The below listed spares to be supplied with the equipment;	

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		• Illuminator – 1 no • Detector – 1 no • Drive motor or film feed motor – 1 no • Drive Rollers – 1 set • SMPS – 1 unit • All essential PCBs – 1 set	
14.0	Performance Prove-Out at BHEL	On the supply of the equipment, it is essential to demonstrate the satisfactory performance of the system in line with the requirements of ASME Sec V, Using the reference film, meeting the requirements of ASME Sec V mandatory appendix VI Supplement A, and the vendor shall give proper training to the operators.	
15.0	Installation and commissioning	The Radiographic Film Digitizer and accessories are to be installed & commissioned at BHEL Works, by service engineer of the supplier.	
16.0	Documentation in ENGLISH Language	3 Copies (In English) of the Operation & Maintenance Manuals containing Electric Schematics, Circuit Diagrams, PCB Drawings, Trouble Shooting Charts, Mechanical Sub-Assemblies, Rating of Bought-Out Items, one CD/DVD copy of UI other software applications, if any with license key, etc. shall be supplied, at the time of installation at BHEL.	
17.0	Product Demonstration	In case of clarification required during the offer evaluation stage, the supplier shall offer free demonstration (at BHEL works) of the required features as required by the indenter.	
18.0	Performance Guarantee	The Radiographic Film Digitizer system and accessories are to be guaranteed for its performance for a minimum period of one year from the date of commissioning.	

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19.0	Service and Spares Support Requirements	The vendor shall provide free online assistance for software related issues, whenever required. The vendor shall ensure the availability of service personnel and spare parts 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 in the shortest possible time.	
20.0	Training on Operation & Maintenance	Complete Training to be given to BHEL Engineers in Operation & Maintenance of the equipment and Training has to be provided at Suppliers works / at BHEL, after the successful commissioning of the Equipment, user interface & Accessories.	
21.0	Service contract, periodic calibration and maintainance	The bidder has to specify the duration of calibration and preventive maintenance if any. A separate quote has to be furnished for periodic maintainance. visit charges shall be furnished per day/hourly based (expecting cumulative 10 visits, 2 visits per year) after the expiration of the guarantee period.	
22.0	Safety and Quality Standards	Supplier to ensure that Radiographic Film Digitizer System shall conform to International Standards. Conformance certificate to be along with the equipment.	