



An ISO 9001  
Company

## Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

<b>ENQUIRY</b>	Phone: +91 431 257 79 38 Fax : +91 431 252 07 19 Email : <a href="mailto:tvenkat@bheltry.co.in">tvenkat@bheltry.co.in</a> Web : <a href="http://www.bhel.com">www.bhel.com</a>
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	<b>Enquiry Number:</b> <b>2620900029</b>	<b>Enquiry Date:</b> <b>28.01.2009</b>	<b>Due date for submission of quotation:</b> <b>02.03.2009</b>
You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order			

Item	Description	Quantity	Delivery (Item required at BHEL on)
10	Metallurgical Differential Interference Contrast Microscope as per the technical specification & commercial conditions applicable (to be downloaded from web site <a href="http://www.bhel.com">www.bhel.com</a> or <a href="http://tenders.gov.in">http://tenders.gov.in</a> )	1 No.	25.06.2009
<b>BHEL commercial terms &amp; conditions with Price Bid and Bank Guarantee formats along with technical specifications can be downloaded from BHEL web site <a href="http://www.bhel.com">http://www.bhel.com</a> or from the Government tender website <a href="http://tenders.gov.in">http://tenders.gov.in</a> (public sector units &gt; Bharat Heavy Electricals Limited page) under Enquiry reference “2620900029”.</b>			
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 <b>BHARAT HEAVY ELECTRICALS LIMITED</b>  Manager / Capital Equipment / MM	

# MMF-ATP-I-10 – METALLURGICAL DIC MICROSCOPE

## PART A

### QUALIFYING CRITERIA FOR THE SUPPLY OF DIC MICROSCOPE

#### SECTION – I

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.

<b>Sl.No</b>	<b>PARTICULARS</b>	<b>VENDOR'S RESPONSE</b>
1.0	Number of Years of Experience of the BIDDER/VENDOR in 'Optical DIC Microscope'	
2.0	Number of DIC Microscope Supplied, erected commissioned till date.	
3.0	Number of DIC Microscope Supplied, erected & commissioned till date in the following category of CUSTOMERS: a) Central Government Organizations b) Public Sector Enterprises c) Private Sector Enterprises [Large Scale Industries]	
4.0	Number of DIC Microscope Supplied, erected commissioned till date in the following category a) Universities b) R&D Labs c) Heavy Engineering Works.	
5.0	Details of Design Set-Up	
6.0	Details on International Standards followed in Design	
7.0	Details of Manufacturing Facilities	

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Sl.No	PARTICULARS	VENDOR'S RESPONSE
8.0	Comprehensive Details on Performance Testing-	
9.0	Details of Quality System followed	
10.0	Details on AFTER –SALES-SERVICE Set-Up	
11.0	Any Additional Data to Supplement the manufacturing capability of the BIDDER	

### SECTION – II

The BIDDER / VENDOR has to compulsorily meet the following requirements to get qualified for submitting an offer for the Optical emission Spectrometer

Sl.No	REQUIREMENTS	VENDOR'S COMMENTS
12.0	The BIDDER / VENDOR Shall have a minimum of FIVE Years of Continuous Experience in the DIC Microscope Field [Design, Manufacture & Supply]	
13.0	The BIDDER / VENDOR might have supplied at least one number DIC Microscope in the last FIVE Years	
14.0	Reference list of Customers and Performance Certificate from CUSTOMERS (minimum 2 to 3 Customers) with details of CONTACT PERSON.	
15.0	The BIDDER / VENDOR should have sound financial position and should furnish the Finance Statement (Summary of P & L Statement and Balance Sheet) for the immediate past three Years.	
16.0	In Case of short listing by the Purchaser, the BIDDER / VENDOR has to co-ordinate for the visit of Assessing Team, to the WORKS of the BIDDER/VENDOR with a notice period of 10 days.	

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### SECTION – III

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

Sl.No	REQUIREMENTS	VENDOR'S COMMENTS
17.0	The BIDDER / VENDOR shall submit the offer in TWO PARTS – Technical & Commercial and Price Bid. The Technical Offer shall be in line with the BHEL Technical Specifications and the Guidelines or Annexures mentioned, wherever applicable.	
18.0	The Technical Offer shall Contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by the BIDDER, against each clause of the Specifications.	
19.0	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	
20.0	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	
21.0	The Commercial Offer (given with the Technical Offer) shall CONTAIN THE Scope of Supply and the unpriced Part of the Price-Bid, for confirmation	
22.0	The reference List of Customers Shall be accompanied with the details (Phone Number /e-Mail ID) of the CONTACT PERSON for cross reference	

**MMF-ATP-I-10 TECHNICAL SPECIFICATION FOR METALLURGICAL DIC MICROSCOPE****PART-B**

<b>Sl.No</b>	<b>PARTICULARS</b>	<b>BHEL SPECIFICATION</b>	<b>BIDDER'S OFFER [With complete Technical Details]</b>
<b>1.0</b>	Area of Application	DIC Microscope is meant for micro examination of Specimens prepared from Test Plates taken out for Critical Pressure Parts coming in High Pressure Boilers, Industrial Valve Components, Castings, Welding Qualification Test Plates, Procedure Qualification test coupons covering a wide range of materials from plain Carbon Steel, Low Alloy & High Alloy Steels , Quenched & Tempered Steels, Austenitic & Martensitic Stainless Steels ; Nickel & Titanium Alloys; Failure analysis of shop problems and site failed components etc.	
<b>2.0</b>	Principle of Operation	User friendly Reflected / Incident light Optical Metallurgical Microscope with automated DIC facility	
<b>3.0</b>	Design Base	Supplier's proprietary design with basic stand and cover for all kinds of stand tops.	
<b>4.0</b>	Equipment Configuration	The minimum desired features are enlisted below :	
<b>4.1</b>	Illumination System	Automatic illumination management (Aperture, diaphragms & light intensity –automatic controls)	
<b>4.2</b>	Illumination	100 W halogen/mercury lamps with lens collector and heat protection filters.	
<b>4.3</b>	Power Supply for the illumination	Supplier to specify.	

**MMF-ATP-I-10 TECHNICAL SPECIFICATION FOR METALLURGICAL DIC MICROSCOPE**

<b>Sl.No</b>	<b>PARTICULARS</b>	<b>BHEL SPECIFICATION</b>	<b>BIDDER'S OFFER [With complete Technical Details]</b>
<b>4.4</b>	Programming Facility	Programmable keys with LCD display.	
<b>4.5</b>	Interfacing Facility	Provided with RS232 Interface USB port and cable [about 3 mtrs. in length] for connecting to PC with Image Analysis System software.	
<b>4.6</b>	Input Electric Power Supply	230 $\pm$ 10 % V , 50Hz, Single Phase AC through a 3 wire system [Phase ,Neutral & Protective Earthling]	
<b>4.7</b>	Z Drive / Focus	Manual Z drive with one focusing knob for coarse (about 3mm per revolution) and another for fine movement (about 0.2 mm per revolution) with moving range of 45 to 50 mm.	
<b>4.8</b>	Objective Turret	6 fold Revolving coded nose piece for the objectives including incident light axis with motorized aperture and diaphragm discs – Motorised turret for reflectors for DF, BF or P, DIC and fluorescence cubes.	
<b>4.9</b>	Stage	Not less than 100x80 mm Motorised scanning stage for the X and Y axis, provided with joy stick type controllers. Accuracy: less than $\pm$ 5 microns	
<b>4.10</b>	Contrast method	BF, DF, POL, ICR and Fluorescence	
<b>4.11</b>	Filters	Grey filter to adjust between DF and BF, Panchromatic green, blue and day light filters.	

# MMF-ATP-I-10 TECHNICAL SPECIFICATION FOR METALLURGICAL DIC MICROSCOPE

Sl.No	PARTICULARS	BHEL SPECIFICATION	BIDDER'S OFFER [With complete Technical Details]
4.12	Viewing and documentation	Binocular BDT 25+V100/50/0 – 30° fixed viewing angle, field of view 25mm – 3 beam splitter: 100% eyepiece, 100% documentation, 50% eyepiece+50% documentation. Adopter for documentation device.	
4.13	Eyepiece details	Plan Achromatic 10x with diapter adjustment Graticule 10mm=100div adjusted for the eyepiece 10x	
4.14	Objective details	Suitable Prisms for the objectives, PLAN Achromatic 5x//0.12, 10x/0.25, 20x/0.40, 50x/0.75,100x/0.85 suitable for BF,DF and DIC	
4.15	Calibrated Graticule	As per ASTM E112 for eyepiece 10x with calibration certificate traceable to National / International standards.	
4.16	Digital Camera and adopter	C mount adopter ½ “ and CMOS not less than 3 Megapixels live image digital cameras, with Software Kit and PC interface card .	
5.0	Metallurgical software	Calibrated and preloaded Image Analysis DESK TOP System (PC) for complete metallurgical analysis using Windows XP for Image calibration, Magnification imprinting on image, and as per relevant ASTM, DIN. JIS, IS and, ISO standards for grain size, Phase analysis, Inclusion rating, Coating or layer thickness, Decarburisation depth, Graphite Nodule rating, tools for measurements.	

# MMF-ATP-I-10 TECHNICAL SPECIFICATION FOR METALLURGICAL DIC MICROSCOPE

Sl.No	PARTICULARS	BHEL SPECIFICATION	BIDDER'S OFFER [With complete Technical Details]
5.1	Desk Top System	Intel Pentium Core 2 Duo Processor @ 2.2 GHz, 2GB DDR 2 RAM,160 GB HDD, DVD writer, 17" TFT Monitor. Sound Card: Multimedia kit with 2 speakers and one sound card 10x100 mbps Ethernet card, Windows XP Licensed Pack and good quality HP laser printer (Model 1020). UPS for PC with 30 minutes back up	
6.0	Accessories	BIDDER to list down (with UNIT RATE) the various ACCESSORIES to be procured with the EQUIPMENT to enhance the Operating Efficiency and Features of the OFFERED EQUIPMENT, over and above those mentioned in the SPECIFICATIONS.	
7.0	Spares	BIDDER has to list down the CONSUMABLES to be used in the Operation of the Equipment and QUOTE with UNIT RATE for all the listed consumables, to be procured with the equipment.	
8.0	Inspection	The equipment &Accessories Shall be offered for Inspection by BHEL Engineers and performance prove out at the works of the Supplier, Prior to Dispatch.	
9.0	Installation and Commissioning	The Equipment with all Accessories is to be installed & commissioned at BHEL works , FREE OF COST , by the Service Engineer of the SUPPLIER	

**MMF-ATP-I-10 TECHNICAL SPECIFICATION FOR METALLURGICAL DIC MICROSCOPE**

<b>Sl.No</b>	<b>PARTICULARS</b>	<b>BHEL SPECIFICATION</b>	<b>BIDDER'S OFFER [With complete Technical Details]</b>
<b>10.0</b>	Performance prove out at BHEL	The Supplier's Service Engineer has to calibrate the Equipment for the magnifications along with the system using calibrated optical micrometer.	
<b>11.0</b>	Documentation in ENGLISH language	3 Copies 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 Engineers In addition, one SOFT COPY in CD to be supplied.	
<b>12.0</b>	Performance Guarantee	The Equipment & Accessories (including Bought-Out Items) are to be guaranteed for its performance for a minimum period of one year from the date of performance acceptance at BHEL Works.	
<b>13.0</b>	Training on operations & Maintenance	Complete Training for 2 BHEL Engineers is to be given on operation & Maintenance of the OFFERED EQUIPMENT at SUPPLIER'S Works, on FREE OF COST. Similar Training has also to be provided at BHEL works, after the successful commissioning of the Equipment & Accessories	
<b>14.0</b>	Service support Requirements.	Vendor shall ensure AMC service facilities in India after the guarantee period , through trained service personnel in India	

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<b>Sl.No</b>	<b>PARTICULARS</b>	<b>BHEL SPECIFICATION</b>	<b>BIDDER'S OFFER [With complete Technical Details]</b>
<b>15.0</b>	Annual Maintenance Contract	The BIDDER has to QUOTE for AMC under two patterns given below ,for a period of THREE YEARS after the expiry of Original WARRANTY period:	
<b>15.1</b>	AMC – CASE I	Technical service for preventive Maintenance, Trouble Shooting and Re- Commissioning of the Equipment EXCLUDING the Cost of SPARES [BHEL will not be responsible for the timely availability of spares ]	
<b>15.2</b>	AMC – CASE II	Technical service for preventive Maintenance, Trouble Shooting and Re- Commissioning of the Equipment INCLUDING the Cost of SPARES [BHEL will not be responsible for the timely availability of spares]	
<b>15.3</b>	AMC - RESPONSE	The BIDDER has to furnish / indicate the response time for the service engineer to be at BHEL works, from the time of reporting breakdown through e-mail or telefax.	
<b>15.4</b>	AMC – Service Calls	The BIDDER has to furnish details on service calls for preventive maintenance (number of calls and intervals) and break-down maintenance.	