



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT/ MATERIALS MANAGEMENT

ENQUIRY

NOTICE INVITING TENDER

Phone: +91 431 257 70 49

Fax : +91 431 252 07 19

Email : csguna@bheltry.co.in

Web : www.bhel.com

TWO PART BID

Tender to be submitted in two parts.

**Enquiry
Number:**

2621000141

**Enquiry
Date:**

11.11.2010

**Due date for submission
of quotation:**

11.12.2010

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	Delivery (Item required at BHEL on)
10	MPI Testing Equipment – 1500 A (3 Nos.) and 2000 A (4 Nos.) as per the technical specification, general guidelines instructions & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	7 Nos.	30.09.2011

Important points to be taken care during submission of offer

1. Checklist to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
2. Subsequent to the hosting of this Enquiry, any corrigendum to the Enquiry that may be hosted in the BHEL Web-site as well as Government Tenders-portal shall be viewed by the vendors regularly to know the details of corrigendum. In case if any vendor without seeing the corrigendum quoted as per original Enquiry and intimate that they have wrongly quoted will not be considered and rejected. However as per the appropriate Policy of BHEL action will be taken on them in this regard.

BHEL's General guidelines / instructions (refer MM/CE/GT/001) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference "2621000141".

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

Sr. Manager / MM / Capital Equipment

PART - A.**QUALIFYING CRITERIA FOR THE SUPPLY OF
1500 Amps. RATING MAGNETIC PARTICLE INSPECTION EQUIPMENT****SECTION – I : COMPANY PROFILE**

The BIDDER has to provide the details pertaining to each clause in the table given below, to assess the profile of the BIDDER's COMPANY.

S.No.	PARTICULARS	VENDOR's RESPONSE
1.0	Number of Years of Experience of BIDDER in the field of design, manufacture and supply of Magnetic Particle Inspection (MPI) Units of Rating 1500 Amps. and above.	
2.0	YEAR of LAUNCH of the Model quoted against this TENDER / ENQUIRY	
3.0	Details on the International Standards / Codes adopted for the design and supply of above specified MPI Units	
4.0	Number of Magnetic Particle Inspection (MPI) Units of Rating 1500 Amps. and above supplied, installed and commissioned till date, in the QUOTED MODEL .	
5.0	Number of Magnetic Particle Inspection (MPI) Units of Rating 1500 Amps. and above supplied, installed and commissioned till date for the following category of CUSTOMERS (within INDIA): a) Government Organisations b) Private Sector Companies [Large Scale Industries] c) Public Sector Undertakings	
6.0	Number of Magnetic Particle Inspection (MPI) Units of Rating 1500 Amps. and above supplied, installed & commissioned till date in the following Category (around the GLOBE) : a) Universities b) R&D Labs c) Reputed Heavy Engineering Works/Manufacturing firms	

S.No.	PARTICULARS	VENDOR's RESPONSE
7.0	Details of Quality System followed (Kindly furnish the salient aspects of the Quality Assurance System followed)	
8.0	Comprehensive Details on Performance Testing - of the Equipment quoted, to be ensured in presence of BHEL Executives, prior to dispatch from Supplier's Works.	

SECTION – II : QUALIFYING CRITERIA

The BIDDER / VENDOR has to meet the following requirements to get qualified for submitting an offer for the supply of 'Magnetic Particle Inspection (MPI) Units of Rating 1500 Amps. and above':

[Additional Sheets shall be attached with the OFFER, to provide requisite details]

S.No.	REQUIREMENTS	VENDOR's RESPONSE
9.0	The BIDDER / VENDOR shall have a minimum of FIVE Years of Continuous Experience of in the Field of Design, Manufacture and Supply of 'Magnetic Particle Inspection (MPI) Units of Rating 1500 Amps.' and associated accessories.	
10.0	The BIDDER / VENDOR might have supplied atleast FIVE numbers of 'Magnetic Particle Inspection (MPI) Units of Rating 1500 Amps.' with associated accessories.	
11.0	Reference List of Customers with full contact details of CONTACT PERSON, who are the End Users of 'Magnetic Particle Inspection (MPI) Units of Rating 1500 Amps.' with associated accessories supplied as per Clause No. 10.0	
12.0	The BIDDER has to submit a Performance Certificate in the enclosed FORMAT for a period, not less than one year, from the Bidder's Customer(s). or The Performance Certificate or Reference shall be only from customers who are Heavy Engg. Fabricators like Manufacturers of Pressure Vessels and Heat-Exchangers, Off-Shore Oil Rigs, Thermal Power Plant Equipment, etc.	
13.0	BHEL reserves the right to verify the information provided by vendor. In case, it is found to be false/ incorrect, the offer shall get rejected.	
14.0	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centres in India, to be furnished .	

SECTION – III : BID / OFFER FORMATS

The BIDDER / VENDOR has to note the following :

S.No.	REQUIREMENTS	VENDOR's COMPLIANCE
15.0	The BIDDER shall submit the offer in TWO PARTS - Technical [with PART A & PART B] & Commercial and Price Bid.	
16.0	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 'YES' or 'CONFIRMED' or 'NO-DEVIATION' or 'COMPLIES' or 'ACCEPTED' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer.	
17.0	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 (if applicable)	
18.0	The Commercial Offer shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation of the inclusion of all the accessories, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.	
19.0	Earlier performance/field experience (including service support) if any, with BHEL for the VENDOR's Equipment / Service, will be a reckoning factor for the technical qualification of the OFFER.	
20.0	The expected delivery period (including the time for Pre-Dispatch Inspection clearance by BHEL) for the 'Magnetic Particle Inspection (MPI) Units of Rating 1500 Amps.' with associated accessories is not more than SIX Months (which includes time for General Arrangement Drawing approval by BHEL also) from the date of issue of BHEL Purchase Order. In case the quoted delivery period extends beyond SIX Months, an additional grace period of two months is permitted, but with a loading for arriving at the PRICE COMPETITIVENESS of the Commercial Offer (if the Offer is technically acceptable on all other accounts). Details are given in the Commercial Terms of this Tender.	

PERFORMANCE CERTIFICATE – [SAMPLE FORMAT]

(On Customer's Letter Head with Additional Sheet – if necessary)

1. Supplier of the Equipment :
2. Make & Model of the Equipment :
3. Month & Year of Commissioning :
4. Application for which Equipment is used :
5.
 - a. Equipment Serial Number :
 - b. Current Rating :
 - c. Type of Power Transformer used :
 - d. Sensitivity of Testing :
 - e. List of Accessories procured with Equipment :
6. Performance of the Equipment : Satisfactory /
Good /
Average /
Not Satisfactory
7. Feed- back on 'After Sales Service' by the Supplier :
8. Remarks / Reasons for Recommendations :

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

PART - A.**QUALIFYING CRITERIA FOR THE SUPPLY OF
2000 Amps. RATING MAGNETIC PARTICLE INSPECTION EQUIPMENT****SECTION – I : COMPANY PROFILE**

The BIDDER has to provide the details pertaining to each clause in the table given below, to assess the profile of the BIDDER's COMPANY.

S.No.	PARTICULARS	VENDOR's RESPONSE
1.0	Number of Years of Experience of BIDDER in the field of design, manufacture and supply of Magnetic Particle Inspection (MPI) Units of Rating 2000 Amps. and above.	
2.0	YEAR of LAUNCH of the Model quoted against this TENDER / ENQUIRY	
3.0	Details on the International Standards / Codes adopted for the design and supply of above specified MPI Units	
4.0	Number of Magnetic Particle Inspection (MPI) Units of Rating 2000 Amps. and above supplied, installed and commissioned till date, in the QUOTED MODEL .	
5.0	Number of Magnetic Particle Inspection (MPI) Units of Rating 2000 Amps. and above supplied, installed and commissioned till date for the following category of CUSTOMERS (within INDIA): a) Government Organisations b) Private Sector Companies [Large Scale Industries] c) Public Sector Undertakings	
6.0	Number of Magnetic Particle Inspection (MPI) Units of Rating 2000 Amps. and above supplied, installed & commissioned till date in the following Category (around the GLOBE) : a) Universities b) R&D Labs c) Reputed Heavy Engineering Works/Manufacturing firms	

S.No.	PARTICULARS	VENDOR's RESPONSE
7.0	Details of Quality System followed (Kindly furnish the salient aspects of the Quality Assurance System followed)	
8.0	Comprehensive Details on Performance Testing - of the Equipment quoted, to be ensured in presence of BHEL Executives, prior to dispatch from Supplier's Works.	

SECTION – II : QUALIFYING CRITERIA

The BIDDER / VENDOR has to meet the following requirements to get qualified for submitting an offer for the supply of 'Magnetic Particle Inspection (MPI) Units of Rating 2000 Amps. and above':

[Additional Sheets shall be attached with the OFFER, to provide requisite details]

S.No.	REQUIREMENTS	VENDOR's RESPONSE
9.0	The BIDDER / VENDOR shall have a minimum of FIVE Years of Continuous Experience of in the Field of Design, Manufacture and Supply of 'Magnetic Particle Inspection (MPI) Units of Rating 2000 Amps.' and associated accessories.	
10.0	The BIDDER / VENDOR might have supplied atleast FIVE numbers of 'Magnetic Particle Inspection (MPI) Units of Rating 2000 Amps.' with associated accessories.	
11.0	Reference List of Customers with full contact details of CONTACT PERSON, who are the End Users of 'Magnetic Particle Inspection (MPI) Units of Rating 2000 Amps.' with associated accessories supplied as per Clause No. 10.0	
12.0	The BIDDER has to submit a Performance Certificate in the enclosed FORMAT for a period, not less than one year, from the Bidder's Customer(s). or The Performance Certificate or Reference shall be only from customers who are Heavy Engg. Fabricators like Manufacturers of Pressure Vessels and Heat-Exchangers, Off-Shore Oil Rigs, Thermal Power Plant Equipment, etc.	
13.0	BHEL reserves the right to verify the information provided by vendor. In case, it is found to be false/ incorrect, the offer shall get rejected.	
14.0	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centres in India, to be furnished .	

SECTION – III : BID / OFFER FORMATS

The BIDDER / VENDOR has to note the following :

S.No.	REQUIREMENTS	VENDOR's COMPLIANCE
15.0	The BIDDER shall submit the offer in TWO PARTS - Technical [with PART A & PART B] & Commercial and Price Bid.	
16.0	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 'YES' or 'CONFIRMED' or 'NO-DEVIATION' or 'COMPLIES' or 'ACCEPTED' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer.	
17.0	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 (if applicable)	
18.0	The Commercial Offer shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation of the inclusion of all the accessories, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.	
19.0	Earlier performance/field experience (including service support) if any, with BHEL for the VENDOR's Equipment / Service, will be a reckoning factor for the technical qualification of the OFFER.	
20.0	The expected delivery period (including the time for Pre-Dispatch Inspection clearance by BHEL) for the 'Magnetic Particle Inspection (MPI) Units of Rating 2000 Amps.' with associated accessories is not more than SIX Months (which includes time for General Arrangement Drawing approval by BHEL also) from the date of issue of BHEL Purchase Order. In case the quoted delivery period extends beyond SIX Months, an additional grace period of two months is permitted, but with a loading for arriving at the PRICE COMPETITIVENESS of the Commercial Offer (if the Offer is technically acceptable on all other accounts). Details are given in the Commercial Terms of this Tender.	

PERFORMANCE CERTIFICATE – [SAMPLE FORMAT]

(On Customer's Letter Head with Additional Sheet – if necessary)

1. Supplier of the Equipment :
2. Make & Model of the Equipment :
3. Month & Year of Commissioning :
4. Application for which Equipment is used :
5.
 - a. Equipment Serial Number :
 - b. Current Rating :
 - c. Type of Power Transformer used :
 - d. Sensitivity of Testing :
 - e. List of Accessories procured with Equipment :
6. Performance of the Equipment : Satisfactory /
Good /
Average /
Not Satisfactory
7. Feed- back on 'After Sales Service' by the Supplier :
8. Remarks / Reasons for Recommendations :

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

PART – B.

TECHNICAL SPECIFICATIONS for AC and Half Wave DC PORTABLE MAGNETIC PARTICLE TESTING EQUIPMENT [1500 Amps. Rating] with DE-MAGNETIZATION FACILITY

S.No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER's OFFER [with Complete Technical Details]
1.0	Application	For magnetic particle examination of high pressure weld butt joints, fillet welds coming in nozzles and attachments, air-arc gouged surfaces, etc. using copper based prods. Maximum prod spacing used for examination will be 200 mm (8") and also to use for demagnetization requirements.	
2.0	Input Power Supply	Through 230 V / 50 Hz / 30 Amps Single Phase AC (Neon Pilot Lamp to be provided)	
3.0	Maximum Output	1500 Amperes at the end of 2 x 5 meter cable	
4.0	HWDC Output [Half Wave DC]	Supplier to specify for 50% duty cycle and for use with 2 x 5 meter cables.	
5.0	Maximum ON & OFF Time	Adjustable to select in a range of 0 - 60 secs. (with Timer Control)	
6.0	Cable Size	Shall be a minimum of 90 sq.mm, but not to be more than 120 sq mm; and shall be of Copper Conductor, with proper insulation.	
7.0	Current Control	Step-less Control for the specified range, with Solid State/SCR/Thyristor Controls	
8.0	Ammeter	AC and HWDC Ammeters	
9.0	Trigger Control at Prod Handle	Through a low voltage - 24 V control system	
10.0	Weight of Equipment	Shall be of Light Weight for easy handling (preferred to be around 50 kgs.)	

S.No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER's OFFER [with Complete Technical Details]
11.0	Facility for Demagnetization	Suitable Control Systems with Circuitry to be provided for using the equipment for DEMAGNETIZATION.	Bidder to provide the Technical Details , elaborating how the feature is achieved.
12.0	kVA Rating	Bidder to specify the maximum electric power consumption in kVA, at peak loading.	
13.0	Class of Insulation	Shall be of "H" Class	
14.0	Tapping for Inspection Lamp	One number of 24 V Tapping Point shall be provided for using Hand Lamp for Inspection	
15.0	Automatic Over-Load Protection	The safety feature of OVER-LOAD PROTECTION shall be part of the system.	
16.0	Cooling	Suitable Fan shall be provided to have an effective Air Cooling means.	
17.0	Over-Heat Protection	The safety feature of OVER-HEAT PROTECTION shall be part of the system.	
18.0	Dimensions of Equipment	Bidder to indicate the OVER-ALL DIMENSIONS of the Offered Equipment.	
19.0	External Hardware	All Equipment External Parts like those components used for Unit ON/OFF Switch, Current Control, Timer Control Switch, Trigger Switch on Prod Handles, Remote Cable Connector on Unit side, Prod Assembly Connectors on Unit side, Cable Connectors on Prod side, Cable Lugs, etc. shall be of Reputed Make and shall have ENOUGH RIGIDITY to withstand rough & tough handling conditions in a Heavy Engineering Fabrication Industry. Bidder has to provide the details all of these parts – like make, specification/rating, etc.	

S.No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER's OFFER [with Complete Technical Details]
20.0	Internal Hardware	All mechanical and electrical /electronic components used in the equipment shall be of high quality and of reputed makes only. Bidder has to provide the details all of these parts – like make, specification/rating, etc.	
21.0	Constructional Details	Bidder has to submit with the Technical Offer, the complete constructional details of the offered equipment : including sub-assembly drawings, electrical and electronic circuits with Bill of Materials, etc. are to be positively provided for evaluation by BHEL.	
22.0	The Equipment shall be offered for Inspection by BHEL, prior to dispatch from the Bidder's Works.	Bidder to list down procedures involved with Pre-Dispatch Inspection, for Inspection Clearance and further details of training provided in Operation & Maintenance of the equipment.	
23.0	Installation, Commissioning and Performance Prove-Out of the Equipment	Bidder has to depute suitably qualified Service Engineer/Supervisor for the Installation and Commissioning of the Equipment at BHEL Works, free of cost.	
24.0	Guarantee Period	The Performance of the Equipment with the Accessories shall be guaranteed for a minimum period of twelve months from the date of acceptance at BHEL Works, after commissioning & performance prove-out.	

S.No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER's OFFER [with Complete Technical Details]
25.0	Operation & Maintenance Manual and DOCUMENTATION, to be provided with Each Equipment.	<ol style="list-style-type: none"> 1. Operation and Maintenance Manuals in Hard Copies and ONE set in soft copy in CD/Pen Drive/Memory Stick 2. O & M Manuals shall contain complete electrical/electronic circuit diagrams with Bill of Materials (indicating specification & make of components used). 3. Moreover, the O & M Manuals shall also give details on Trouble Shooting, Preventive Maintenance Check-Lists, Circuit Diagrams of PCB used (for rectification by BHEL after the Guarantee Period). 4. Calibration Certificate for Main Equipment and Spare Ammeters as per ASTM E709, Local Centre of National Laboratory. 5. Test Report for Internal Short Circuit Check 6. Dimensional Report for Magnetic Particle Field Indicator as per ASTM E 1444 7. Dimensional Report for System Performance Test Plate 	
26.0	Scope of Supply	As listed in the ANNEXURE-1	
27.0	OPTIONAL : Annual Maintenance Contract (AMC)	Bidder to quote for AMC for one unit, at BHEL / Thirumayam Works (in Pudukkottai District of Tamilnadu)	

SCOPE of SUPPLY**ANNEXURE – 1**

S.No.	Item Description	Quantity
A.	MAIN EQUIPMENT	
1	Portable M P I Unit (1500 Amps. Rating) as per BHEL Spec.	3 Nos.
2	Flexible Input Power Supply 3-Core Cable – 10 Meter long with multi-strand copper conductor with 30 Amps Single Phase Metal Socket (male and female).	3 Nos.
3	Magnetizing Copper Cables 2 x 5 meter long with cable lugs on MPI Unit side and connectors on Prod side	3 Pairs
4	Individual Contact Copper Prods with Standard Length.	3 Pairs
5	Trigger Switch in one Prod with 5 Mtr. long Remote Cable	3 Nos.
6	Standard Tool Kit with adjustable Spanner, File, Tester, Screw Driver, etc.	3 Sets.
7	Portable Transport Trolley with four revolving type and rubberized wheels of 200 mm dia., to move the unit with cables. The trolley shall have hooking arrangement for lifting the complete unit with trolley. [Bidder to provide drawing of the Trolley, offered.]	3 Nos.
8	System Performance Test-Plate with EDN Notch in Wooden Carrying Case with Dimensional Report.	3 Nos.
9	Gauss Meter Range (0-20) with Calibration Certificate.	3 Nos.
10	Digital Lux-Meter (to measure upto 2000 Lux) with Calibration Certificate.	1 No.
11	Digital Black Light Meter (in Micro Watts) with Calibration Certificate	1 No.
12	Ultraviolet Inspection Black Light with built-in Cooling Fan with Integral Filter(minimum output of 2000 microwatts) with Calibration Certificate	3 Nos.
13	ASTM Pie Gauge Field Indicator: As per ASTM E 1444 -05 with Dimensional Report	3 Nos.
14	ANSI Ketos Steel Tool Ring with Copper Conductor of diameter 25mm and length 300mm or 400mm (As per ASTM E 1444 -05) with Dimensional Report.	1 No.
15	Rubber Blower medium size(Puffer Bulb to apply Dry Method Powders on the Job	15 Nos.
16	O & M and Documentation (as per PART-B Specification Clause No. 25.0) including Soft Copy in CD	9 Sets.

S.No.	Item Description	Quantity
B.	SPARES	
1	Prod Handles Assembly (without trigger switch) connected with Copper Rod.	2 Sets
2	Prod Handles Assembly (with trigger switch) connected with Copper Rod along with 5 meter long Trigger Cable.	2 Sets
3	Magnetizing Copper Cables of length 5 meters with Connectors on both ends.	2 Pairs
4	Ammeter AC	2 Nos.
5	Ammeter DC	3 Nos.
6	Current Control PCB	2 Nos.
7	Diodes	2 Nos.
8	Power Control PCB	2 Nos.
9	Thyristor	2Nos.
10	Shunt for DC Ammeter	2 Nos.
11	Ultraviolet Inspection Black Light Bulbs.	3 Nos.

PART – B.

TECHNICAL SPECIFICATIONS for AC and Half Wave DC PORTABLE MAGNETIC PARTICLE TESTING EQUIPMENT [2000 Amps. Rating] with DE-MAGNETIZATION FACILITY

S.No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER's OFFER [with Complete Technical Details]
1.0	Application	For magnetic particle examination of high pressure weld butt joints, fillet welds coming in nozzles and attachments, air-arc gouged surfaces, etc. using copper based prods. Maximum prod spacing used for examination will be 200 mm (8") and also to use for demagnetization requirements.	
2.0	Input Power Supply	Through 415 \pm 10% V / 50 \pm 2 % Hz / 30 Amps Three Phase AC (Neon Pilot Lamp to be provided)	
3.0	Maximum Output	2000 Amperes at the end of 2 x 10 Mtr. cable	
4.0	HWDC Output [Half Wave DC]	Supplier to specify for 50% duty cycle and for use with 2 x 10 meter cables.	
5.0	Maximum ON & OFF Time	Adjustable to select in a range of 0 - 60 secs. (with Timer Control)	
6.0	Cable Size	Shall be a minimum of 90 sq.mm, but not to be more than 120 sq mm; and shall be of Copper Conductor, with proper insulation.	
7.0	Current Control	Step-less Control for the specified range, with Solid State/SCR/Thyristor Controls	
8.0	Ammeter	AC and HWDC Ammeters	
9.0	Trigger Control at Prod Handle	Through a low voltage - 24 V control system	
10.0	Weight of Equipment	Shall be of Light Weight for easy handling (preferred to be around 60 kgs.)	

S.No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER's OFFER [with Complete Technical Details]
11.0	Facility for Demagnetization	Suitable Control Systems with Circuitry to be provided for using the equipment for DEMAGNETIZATION.	Bidder to provide the Technical Details , elaborating how the feature is achieved.
12.0	kVA Rating	Bidder to specify the maximum electric power consumption in kVA, at peak loading.	
13.0	Class of Insulation	Shall be of "H" Class	
14.0	Tapping for Inspection Lamp	One number of 24 V Tapping Point shall be provided for using Hand Lamp for Inspection	
15.0	Automatic Over-Load Protection	The safety feature of OVER-LOAD PROTECTION shall be part of the system.	
16.0	Cooling	Suitable Fan shall be provided to have an effective Air Cooling means.	
17.0	Over-Heat Protection	The safety feature of OVER-HEAT PROTECTION shall be part of the system.	
18.0	Dimensions of Equipment	Bidder to indicate the OVER-ALL DIMENSIONS of the Offered Equipment.	
19.0	External Hardware	All Equipment External Parts like those components used for Unit ON/OFF Switch, Current Control, Timer Control Switch, Trigger Switch on Prod Handles, Remote Cable Connector on Unit side, Prod Assembly Connectors on Unit side, Cable Connectors on Prod side, Cable Lugs, etc. shall be of Reputed Make and shall have ENOUGH RIGIDITY to withstand rough & tough handling conditions in a Heavy Engineering Fabrication Industry. Bidder has to provide the details all of these parts – like make, specification/rating, etc.	

S.No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER's OFFER [with Complete Technical Details]
20.0	Internal Hardware	All mechanical and electrical /electronic components used in the equipment shall be of high quality and of reputed makes only. Bidder has to provide the details all of these parts – like make, specification/rating, etc.	
21.0	Constructional Details	Bidder has to submit with the Technical Offer, the complete constructional details of the offered equipment : including sub-assembly drawings, electrical and electronic circuits with Bill of Materials, etc. are to be positively provided for evaluation by BHEL.	
22.0	The Equipment shall be offered for Inspection by BHEL, prior to dispatch from the Bidder's Works.	Bidder to list down procedures involved with Pre-Dispatch Inspection, for Inspection Clearance and further details of training provided in Operation & Maintenance of the equipment.	
23.0	Installation, Commissioning and Performance Prove-Out of the Equipment	Bidder has to depute suitably qualified Service Engineer/Supervisor for the Installation and Commissioning of the Equipment at BHEL Works, free of cost.	
24.0	Guarantee Period	The Performance of the Equipment with the Accessories shall be guaranteed for a minimum period of twelve months from the date of acceptance at BHEL Works, after commissioning & performance prove-out.	

S.No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER's OFFER [with Complete Technical Details]
25.0	Operation & Maintenance Manual and DOCUMENTATION, to be provided with Each Equipment.	<ol style="list-style-type: none"> 1. Operation and Maintenance Manuals in Hard Copies and ONE set in soft copy in CD/Pen Drive/Memory Stick 2. O & M Manuals shall contain complete electrical/electronic circuit diagrams with Bill of Materials (indicating specification & make of components used). 3. Moreover, the O & M Manuals shall also give details on Trouble Shooting, Preventive Maintenance Check-Lists, Circuit Diagrams of PCB used (for rectification by BHEL after the Guarantee Period). 4. Calibration Certificate for Main Equipment and Spare Ammeters as per ASTM E709, Local Centre of National Laboratory. 5. Test Report for Internal Short Circuit Check 6. Dimensional Report for Magnetic Particle Field Indicator as per ASTM E 1444 7. Dimensional Report for System Performance Test Plate 	
26.0	Scope of Supply	As listed in the ANNEXURE-A	
27.0	OPTIONAL : Annual Maintenance Contract (AMC)	Bidder to quote for AMC for one unit, at BHEL / Thirumayam Works (in Pudukkottai District of Tamilnadu)	

SCOPE of SUPPLY**ANNEXURE – A**

S.No.	Item Description	Quantity
A.	MAIN EQUIPMENT	
1	Portable M P I Unit (2000 Amps. Rating) as per BHEL Spec.	4 Nos.
2	Flexible Input Power Supply 3-Core Cable – 20 Meter long with multi-strand copper conductor with 30 Amps Single Phase Metal Socket (male and female).	4 Nos.
3	Magnetizing Copper Cables 2 x 10 meter long with cable lugs on MPI Unit side and connectors on Prod side	4 Pairs
4	Individual Contact Copper Prods with Standard Length.	4 Pairs
5	Trigger Switch in one Prod with 10 Mtr. long Remote Cable	4 Nos.
6	Standard Tool Kit with adjustable Spanner, File, Tester, Screw Driver, etc.	4 Sets.
7	Portable Transport Trolley with four revolving type and rubberized wheels of 200 mm dia., to move the unit with cables. The trolley shall have hooking arrangement for lifting the complete unit with trolley. [Bidder to provide drawing of the Trolley, offered.]	4 Nos.
8	System Performance Test-Plate with EDN Notch in Wooden Carrying Case with Dimensional Report.	4 Nos.
9	Gauss Meter Range (0-20) with Calibration Certificate.	4 Nos.
10	Digital Lux-Meter (to measure upto 2000 Lux) with Calibration Certificate.	1 No.
11	Digital Black Light Meter (in Micro Watts) with Calibration Certificate	1 No.
12	Ultraviolet Inspection Black Light with built-in Cooling Fan with Integral Filter(minimum output of 2000 microwatts) with Calibration Certificate	4 Nos.
13	ASTM Pie Gauge Field Indicator: As per ASTM E 1444 -05 with Dimensional Report	4 Nos.
14	ANSI Ketos Steel Tool Ring with Copper Conductor of diameter 25mm and length 300mm or 400mm (As per ASTM E 1444 -05) with Dimensional Report.	1 No.
15	Rubber Blower medium size(Puffer Bulb to apply Dry Method Powders on the Job	20 Nos.
16	O & M and Documentation (as per PART-B Specification Clause No. 25.0) including Soft Copy in CD	12 Sets.

S.No.	Item Description	Quantity
B.	SPARES	
1	Prod Handles Assembly (without trigger switch) connected with Copper Rod.	2 Sets
2	Prod Handles Assembly (with trigger switch) connected with Copper Rod along with 10 meter long Trigger Cable.	2 Sets
3	Magnetizing Copper Cables of length 10 meters with Connectors on both ends.	2 Pairs
4	Ammeter AC	2 Nos.
5	Ammeter DC	4 Nos.
6	Current Control PCB	2 Nos.
7	Diodes	2 Nos.
8	Power Control PCB	2 Nos.
9	Thyristor	2 Nos.
10	Shunt for DC Ammeter	2 Nos.
11	Ultraviolet Inspection Black Light Bulbs.	4 Nos.
12	ASTM Centrifuge Tube – 100 ml (with Stand)	2 Nos.