

BHARAT HEAVY PLATE & VESSELS LIMITED.,  
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### NOTICE INVITING TENDER( NIT)

**Category of Tender: TWO BID  
(PRICED + UN - PRICED)**

**SUB: Column & Boom (LS/CS) Sub Merged  
Arc Welding Station**

Our Ref: **MM/2/10/3406/CAP/W-026/5026**

**DATE: 08.05.2013**

Sealed quotations in duplicate are invited from suppliers on or before **05.06.2013** **SUPERSCRIBING OUR REFERENCE AND CATEGORY OF TENDER** on the cover, for supply of the under mentioned stores within the above due date, otherwise send **REGRET LETTER**, strictly subject to the Terms & Conditions attached herewith.  
**LATE TENDERS ARE NOT ACCEPTABLE.**

ITEM No.	DESCRIPTION / SPECN. / SIZE	QTY
1.	Column & Boom (LS/CS) Sub Merged Arc Welding Station	1 No's
	<b>Encl:</b>  1. Qualifying Criteria PART A ..... 4 pages 2. Technical Specifications PART B ..... 12 Pages 3. Annexure - 1 ..... 1 Page 4. Annexure - 2 ..... 1 Page 5. Annexure - 3 ..... 1 Page 6. Annexure - 4 ..... 1 Page 7. Annexure - 5 ..... 1 Page 8. Annexure - 6 ..... 1 Page 9. General Terms/ commercial terms and conditions (INCLUDING CHECK LIST) ..... 10 pages	

**For BHARAT HEAVY PLATE & VESSELS LIMITED,**

**For Dy. GENERAL MANAGER (MM)**

**QUALIFYING CRITERIA FOR THE SUPPLY OF TRAVELING TYPE  
COLUMN & BOOM SUB-MERGED ARC WELDING STATION**

**SECTION – I : COMPANY PROFILE**

The BIDDER has to provide the details pertaining to each clause in the table given below, to understand the profile of the BIDDER's COMPANY (To be submitted with technical offer compulsorily).

<b>S. No.</b>	<b>PARTICULARS</b>	<b>VENDOR's RESPONSE</b>
1.0	Number of Years of Experience of the BIDDER / VENDOR in the field of Design, Manufacture & Supply of Heavy Duty Traveling Column & Boom Sub-merged Arc Welding Machines with associated welding flux circulating/slag recovery unit.	
2.0	Details on the Codes/Standards of Machine Design and Manufacture	
3.0	Details on Manufacturing Facilities available with the VENDOR for : a) Heavy Structural Fabrication b) Heat Treatment c) Machining & Grinding d) Machine Assembly & Testing	
4.0	Details of Quality System (with Stages of Internal Inspection) followed for the Machine Building and Testing of Capacity	

**SECTION – II : QUALIFYING CRITERIA**

The BIDDER / VENDOR has to meet the following requirements to get qualified for submitting an offer for the Traveling Column & Boom Sub-merged Arc Welding Machine (To be submitted with technical offer compulsorily):

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

<b>S. No.</b>	<b>PARTICULARS</b>	<b>VENDOR's RESPONSE</b>
5.0	The BIDDER / VENDOR shall have a minimum of TEN Years of Continuous Experience of in the Field of Design, Manufacture and Supply of Heavy Duty Traveling Column & Boom Type Sub-merged Arc Welding Machines	
6.0	The BIDDER / VENDOR should have supplied at least FIVE numbers of Traveling Column & Boom Sub-merged Arc Welding Machines with minimum 5 Mtr. x 5 Mtr. configuration. [5 Mtr. tall Column and 5 Mtr. long Boom]. The current rating (@ 100% Duty Cycle) for the Power source employed shall NOT be less than 1200 Amps. Furnish details of supply.	
7.0	Performance Certificate in the enclosed FORMAT for a period, not less than one year, from Customers or Reference List of Customers with full contact details of CONTACT PERSON, who are the End Users of Traveling Column & Boom Sub-merged Arc Welding Machines supplied as per the above <b>Clause No.6.0</b>	
8.0	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.	
9.0	BHPV reserves the right to verify the information provided by vendor. In case, it is found to be false/ incorrect, the offer shall get rejected.	
10.0	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centers in India, to be furnished.	

**SECTION – III : BID / OFFER FORMATS**

The BIDDER / VENDOR has to confirm the following (To be submitted with technical offer compulsorily):

S. No.	PARTICULARS	VENDOR's RESPONSE
11.0	The BIDDER shall submit the offer in TWO PARTS - Technical [with <b>PART A &amp; PART B</b> ] & Commercial and Price Bid.	
12.0	The OFFER shall contain a comparative statement of Technical Specifications given by BHPV and the Offer Details submitted by the Bidder, against each Clause. A just 'YES' or 'CONFIRMED' or 'NODEVIATION' or 'COMPLIES' or 'ACCEPTED' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer.	
13.0	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)	
14.0	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.	
15.0	Earlier performance/field experience (including service support) if any, with BHPV / BHEL for the VENDOR's Equipment / Service, will be a reckoning factor for the technical qualification of the OFFER.	
16.0	<p>DELIVERY - The bidder shall quote the best possible delivery. However the delivery period (including the time for Pre-Dispatch Inspection clearance by BHPV) shall not exceed 4 months (which includes time for General Arrangement Drawing approval by BHPV also) from the date of Purchase Order. A grace period of 2 months in addition is provided. However additional grace period will have a loading for arriving at the PRICE COMPETITIVENESS of the Commercial Offer (if the offer is technically acceptable on all accounts). Details are given in the Commercial Terms of this Tender. The delivery period is reckoned from the date of Purchase order to date of dispatch from the vendor works.</p> <p>Bidder to specify the time required for E&amp;C. BHPV reserves the right to fix E&amp;C period during Finalization of offer in consultation with the bidder</p>	

**PERFORMANCE CERTIFICATE – [SAMPLE FORMAT]**  
(On Customer's Letter Head with Additional Sheet – if necessary)

1. Supplier of the Equipment/Machine :
2. Make & Model of the Equipment :
3. Month & Year of Commissioning :
4. Application for which Machine is used :
5.
  - a. Equipment Serial Number :
  - b. Powersource Rating for AC and DC :
  - c. Column & Boom Dimensions :
  - d. Seam-Tracking System :
  - e. Other Specifications [optional] :
6. Performance of the Machine : Satisfactory / Not Satisfactory
7. Comments / Remarks :  
or Reasons for Recommendations
8. Feed- back on 'After Sales Service' :  
from the Supplier

Date:

Signature & Seal of the Authority  
Issuing the Performance Certificate

**TECHNICAL SPECIFICATIONS for TRAVELING TYPE COLUMN  
and BOOM SUB-MERGED ARC WELDING STATION (1 No.)**

**01. APPLICATION**

The proposed machine is intended for the welding of longitudinal and circumferential seams coming in the formation of different vessels, flat plates etc. at all heights. Here the cross section of the shell is not of uniform thickness, but with two thicknesses as shown in the ANNEXURE - 1. The weld edge preparation for the longitudinal weld seam and the circumferential weld seam are shown in ANNEXURE –2 and ANNEXURE – 3. The machine shall also have an integrated welding flux recovery and circulation system.

**02. WORK-CENTRE CONFIGURATION**

The work-centre will have one traveling type column & boom sub-merged arc welding machine, moving on floor rails for the traverse of the (column & boom) carriage. The job is independent of the welding machine and is positioned by means of a separate job manipulator system. So, the scope of supply covers only the welding machine and other accessories forming part of the welding machine. The job manipulation system is under the scope of BHPV [Refer to ANNEXURE–4 for the schematic diagram of the work-station.]

**03. JOB DETAILS**

Cylindrical Shell Outer Diameter	: 900 mm to 4000 mm
Shell Wall Thickness (at the weld joint)	: 20 mm to 200 mm
Minimum Length of Job	: 3000 mm
Maximum Length of Job	: 28000 mm
Maximum Weight of the Job	: 200 Tons
Job Material	: All weldable steels. [as per ASTM standards.]
Weld Edge Preparation Process	: By Machining or by Machine Grinding

S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
<b>04.</b>	<b>TECHNCIAL SPECIFCATIONS</b>		
<b>4.1.0</b>	<b>COLUMN &amp; BOOM DESIGN</b>		
4.1.1	Mode of Longitudinal Travel of Carriage.	Column & Boom on Carriage travelling on machined floor mounted rails.	
4.1.2	Effective Traversing Length of Carriage	32000 mm (Bidder to supply machined floor rails and accessories for rail fixing on the floor. BHPV will do civil works)	
4.1.3	Carriage Travel Speed.	100 - 2000 mm/min. (infinitely variable) Bidder to specify.	
4.1.4	Max. height under Boom of the Welding Machine from ground.	6750 mm	
4.1.5	Minimum Height under Boom of the Welding Machine from ground.	750 mm	
4.1.6	Boom Effective Stroke in Horizontal Direction	6000 mm	
4.1.7	Boom Effective Stroke in Vertical Direction	6000 mm	
4.1.8	Maximum sag at the end of boom	3 mm only. <i>(when measured for the full stroke in the horizontal direction)</i>	
4.1.9	Boom Effective Stroke in Vertical Direction	Bidder to Specify <i>(to suit the Clause No. 4.2.4 and 4.2.5)</i>	
4.1.10	Boom Vertical Travel Speed - fixed speed.	Around 1200 mm /min. Bidder to specify.	
4.1.11	Boom Horizontal Travel Speed	100 - 2000 mm/min. (infinitely variable) Bidder to specify.	
4.1.12	Maximum Boom extension ( from centre of column)	Bidder to Specify (to suit the stroke of 6000 mm)	
4.1.13	Minimum Boom extension (from center of column )		
4.1.14	Speed holding accuracy : for Carriage	Bidder to confirm speed holding accuracy of +/- 1% at 500 mm/min speed.	
4.1.15	Speed holding accuracy : for Boom	Bidder to confirm speed holding accuracy of < /= 1% at 500 mm/min speed.	
4.1.16	Vibration Level	Maximum 1.0 mm during the traverses	
4.1.17	Rotation of Column (about the vertical axis)	0 to 180° with locking arrangement Bidder to give details	
4.1.18	Clamps for Column Rotation	Details of clamping mechanism to be furnished with offer.	
4.1.19	Clamps for Boom (for vertical & horizontal movements)	Details of clamping mechanism to be furnished with offer.	
4.1.20	Self locking mechanism in case of power failure for above clamps	Bidder to give details	
<b>4.2.0</b>	<b>SAW ARC WELDING HEAD</b>		
4.2.1	Weld Head Vertical Traverse Stroke <i>[This stroke is to be provided for traverse of the entire weld head at fixed speed, at the BOOM end, to avoid interference with attachments welded to job]</i>	750 mm	

S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
4.2.2	Weld Head Rotation to switchover between Long Seam and Cirseam Welding	0 to 90° swivel. The mechanism of rotation shall be made easy to handle by the machine operator single handed.	
4.2.3	Wire feed speed	100 to 4000 mm/min	
4.2.4	Weld joint depth	200 mm (maximum)	
4.2.5	Joint width	30 to 60 mm	
4.2.6	Welding wire diameter	3.2, 4.0 & 4.8 mm	
4.2.7	Flux Hopper Capacity	10 Litres (minimum)	
4.2.8	Flux Handling Temperature	Around 250° C	
4.2.9	Motorised Horizontal Base Slide Unit (traverse parallel to boom movement) for carrying slides (4.2.12 & 4.2.13) - Stroke	300 mm	
4.2.10	Speed of Horizontal Slide (4.2.10)	Bidder to specify	
4.2.11	Stroke of Vertical slide unit (Manual) carrying wire feed motor assembly.	200 mm	
4.2.12	Stroke of Cross slide unit (Manual) carrying wire feed motor assembly.	200 mm	
4.2.13	The wire feed motor shall be mounted onto the slide through a rotary slide arrangement for tilting the wire feed units ( $\pm 45^\circ$ ) by Manual Adjustment (through Hand Wheel) for Torch angle adjustment.	Bidder to furnish details.	
4.2.14	Wire Straightening Unit for : Pressure adjustment knob to be provided for the drive roller and idler roller to achieve straight feeding of wire to a minimum length of 500 mm.	Bidder to confirm and furnish details.	
<b>4.3.0</b>	<b>WELDING POWERSOURCES</b>		
4.3.1	DC Power source Current Rating	Minimum 1200 Amps. Bidder to specify	
4.3.2	DC Power source Duty Cycle	Continuous Duty (100% duty cycle) (to suit the specified welding application without break).	
4.3.3	DC Power source Welding Voltage	0 to 60 Volts	
4.3.4	DC Power source Type	Fully Thyristorised (with 6 SCRs)	
4.3.5	Powersource Meters	Analog / Digital Ammeter & Voltmeter may be provided on the powersources	
4.3.6	Power source Location	Powersource to be positioned in the Machine Carriage	
4.3.7	Type of Cooling	Forced Air Cooling	
<b>4.4.0</b>	<b>OPERATOR CONTROLLER [POSITIONED NEAR WELDING HEAD]</b>		



S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
4.4.1	Controller Operations	a. Movement of all machine elements b. Pre-setting of all welding parameters c. Display of actual welding parameters d. Inching forward / reverse of wires. e. Pre-setting of Burn back time. f. Switches for Start & Stop of welding. g. Manual over-ride of welding parameters h. Indication Lamp for Welding 'ON' i. Emergency "OFF" Switch. j. Flux Feeding & Recovery Operation k. Long-seam or Cir-seam Weld Selector Switch.	
4.4.2	Machine Operations	a. To & fro Carriage Movement b. Column Rotation with limit switches c. Boom Up & Down Movement d. Boom forward & reverse movements	
4.4.3	Welding Process Parameters	a. Welding Speed (either by carriage movement or by boom movement) b. Welding Voltage / Current c. Weld ON / OFF d. Wire Feed - inching (up and down) e. Auto-Stop and Reverse for Carriage / Boom stroke with limit switches f. Manual over-ride on pre-set parameters. (Welding Current is representation of wire feed speed)	
4.4.4	Type of Controller	Bidder to provide latest control units & furnish technical details.	
<b>4.5.0</b>	<b>SEAM TRACKING MECHNAISM</b>		
4.5.1	Type (suitable for a tough working environment)	A simple and reliable system, is to be offered	
4.5.2	Working Principle	Bidder to give Technical Details [Bidder to quote for various options]	
<b>4.6.0</b>	<b>FLUX FEEDING &amp; RECYCLING UNIT</b>		
4.6.1	Capacity of the Flux Handling System	Bidder to Specify (to meet the requirement for 5 to 6 welding cycles)	
4.6.2	Type of Flux	Agglomerated / Fused	
4.6.3	Flux Grain Size	0.3 - 2.5 mm	
4.6.4	Flux Bulk Density	1.1 to 1.8 kgs./litre	
4.6.5	Air Displacement (Minimum)	6.50 Cubic Mtrs./Min.	
4.6.6	Measure of Vacuum	Bidder to Specify (in mm of water column), to suit the weld grove depth of 200 mm and length of hoses involved in the recovery and recycling system	
4.6.7	Recovery/Feeding Hose	40 mm ID - special high temperature & erosion resistant hose to withstand 300 Deg. C. Vendor to specify the attachment size & Geomantry to facilitate recovery of flux from weld groove.	
4.6.8	Flux Handling Temperature	250 Deg. C	

S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
4.6.9	Filter Area	Around 35,000 sq.cms.	
4.6.10	Fine Dust Storage Capacity	Around 25 Litres in Vacuum Unit	
4.6.11	Flux Storage Capacity	Around 30 Litres in Primary Separator	
4.6.12	Fresh Flux filling method	Vendor to furnish details on the mode of transfer of fresh / make-up flux from floor level to the flux storage tank.	
4.6.13	Dust removal process	Vendor to furnish details on the mode of removal of extracted dust from the dust collection unit without splashing.	
4.6.14	Vacuum Unit : Primarily there shall be a multi-stage rotary turbine or regenerative blower coupled to an electric motor (minimum 3 KW ) for high vacuum generation.		
4.6.15	Dust Filter Unit: The turbine/regenerative blower shall be connected to a vacuum chamber, provided with a fabric filter bag assembly to separate fine dust and a dust collecting tank. Teflon Coated Filters are to be used in the Filter Unit.		
4.6.16	Primary Separator: The vacuum chamber shall be connected to a primary cyclone/ baffle type separator through a flexible vacuum hose. The primary separator shall have a mesh for separating slag particles and a conical bottom (hopper) with a tapping facility to drain the collected flux.		
4.6.17	Flux Pressure Feeding: The system shall have a pressure feeding system to carry the flux from the flux-chamber to the flux-hopper fitted near the welding head. Hoses with suitable diameter & material to be quoted.		
4.6.18	Flux Recovery (Scope to include the Flux Recovery Hose with End Fittings): For sucking the flux a flexible hose with recovery/collecting nozzles (suitable for grooves and flat surface) shall be connected to the primary separator.		
4.6.19	Flux Level Indicator: An electronic flux level (in the pressure chamber) indicator has to be provided, to indicate the low level of flux, through an audio alarm.		
4.6.20	Automatic Dust Cleaning: The dust collected in the filters has to be cleaned automatically by pulse jet actuated by sensing the low vacuum level.		
4.6.21	The flux feeding conduit and recovery hoses shall ensure no clogging of flux at any junctions, bends, nozzles, etc.		
4.6.22	Suitable accessories like crevice nozzle, extension pieces, handles, filters etc., shall be offered in addition to the Flux Feeding Hopper near the Welding Head.		
4.6.23	The sucking and feeding hoses or tubing shall withstand the temperature of 250 Deg. C in continuous duty application with reasonably long life.		
4.6.24	Both electrical and mechanical spares such as rubber gaskets, filter fabric, suction hoses, V-belt, pulleys, heating elements etc. shall be offered with unit rate. Complete set of spares shall be quoted and the Indian equivalent may be mentioned in the offer.		
4.6.25	The flux feeding and recycling system shall be coated with heat resistant and anti-corrosive paint because of the nature of working environment.		
4.6.26	Flux Chamber and Heating: A heated flux chamber or hopper with suitable heating elements and temperature gauge to maintain the temperature of recycled flux at a minimum of 150 Deg.C, while in operation. The heating system offered shall be explained in detail with principle of operation and electric shock-proof heating mode. [The Heating Elements shall be provided in the Hopper near the Welding Head and the Main Storage Chamber of the System at the Machine Carriage also with selector switch].		
4.6.27	Air Dryer Unit : The system shall include suitable air drier, for removing moisture from the compressed air supplied.		

S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
4.6.28	Flux Sucking Rate: Bidder to specify the quantity of unfused flux, that can be sucked by the recovery unit for a duration of 20 minutes, without any interruption, when the vacuum unit is put on.		

<b>05.</b>	<b>BASIC CONSTRUCTIONAL FEATURES</b>
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5.1	The column, boom and carriage shall be of fully welded construction and amply ribbed, and built in closed construction.	
5.2	If heat-treatment is required for the fabricated structure, proper heat-treatment shall be carried out prior to taking up machining or grinding works. Bidder to mention/give heat-treatment details.	
5.3	The carriage has to be filled with heavy material like concrete or cast-iron blocks to give self-weight for the column & boom structure.	
5.4	The guide-ways (sliding surfaces) shall be hardened and ground to give a smooth traversing.	
5.5	The powersources and welding flux handling system shall be positioned in the carriage itself.	
5.6	Suitable bellow covers with metallic / anti-tear materials are to be provided to protect the rotating / sliding parts from the dust, welding flux/slag, wastes , etc.	
5.7	Since the jobs are welded with preheating to a temperature of 350 Deg. Celsius, all the machine parts shall be suitable for this working environment, by providing suitable covering or coatings.	
5.8	Wipers are to be fitted to machine parts to clean/remove the dust collected on guide-ways.	
5.9	All gears used in the machine are to be hardened and ground.	
5.10	Bidder to give complete technical details on the drive mechanism for the column/carriage travel, boom vertical and horizontal travel, arrangement of boom holding onto the machine column, etc.	
5.11	A lifting hook shall be provided at the top of the column, to lift the column & boom with carriage structure, by use of a crane in case of need.	
5.12	A control box for effecting all the machine movements, to be provided at the carriage.	
5.13	A portable control panel shall be provided with ten metre long cable with metallic sheathing, with duplicated functions for all the machine operations, except welding, to be provided on the carriage .	
5.14	To design carriage travel with two double flanged & two plain wheels to suit machined floor rails and provided with guide rollers.	
5.15	An operator seat shall be provided near the welding head (fitted to the boom) so as to have a better access when carrying out circumferential weld seam joints (at this stage the column and boom structure will be stationary).	
5.16	Wire feeder shall be capable to handle 25 Kg wire spool as a standard feature.	
5.17	The wire spool shall have the facility for adjustable brake on wire coil.	
5.18	The welding wire conduit (welding torch made of copper) to which the contact tip is screwed on shall not be more than 20 mm in diameter, as it may foul with the side walls of the narrow weld-groove during welding.	
5.19	The supply shall also include the return current (earth) cables of suitable rating for Powersource. The length of cable shall be suitable to connect the job of length around 15 Mtrs. at the maximum.	
5.20	Video images on CD / Hard copy of literature with photographs & drawings explaining the technical features may be enclosed with the offer	
5.21	Vendor to furnish details of material, hardness & constructional details including explanatory drawings of various components/assemblies like Machine Frame, Drive /Transmission System, Electric Motors, PLC, etc. employed in the machine.	

S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
5.22	Interlock to be suitably provided to make the Carriage / Boom movement start / stop in response to switching ON / OFF of DC Welding during Long-seam Welding (as there is no carriage travel in Cir-seam Welding).		
<b>06.</b>	<b>MACHINE LIGHTING SYSTEM</b>		
6.1	A spot light with sufficiently long cable should also be provided with 24V AC supply.		
<b>07.</b>	<b>IMPORTANT POINTS</b>		
7.1	415V + 10% / -10%, 50HZ +/-1.5 HZ, 3 Phase AC (3 wire system with out neutral) Power Supply Source will be provided by BHPV at a single point near the machine, as per layout recommended by Vendor. All types of cables, connections, circuit breakers etc. required for connecting BHPV's power supply point to different parts of the machine/control cabinets, shall be the responsibility of vendor.		
7.2	All electrical equipment shall be Tropicalized and shall have IP 54 degree of protection		
7.3	All electrical control cabinets & panels should be dust and vermin proof		
7.4	All electrical components in the cabinets should be mounted on DIN Rail		
7.5	All electrical panels should be provided with CFL lamps for sufficient illumination and electric power receptacles of 220 Volts, 5/15 Amp. AC. All adapters/receptacles should have compatibility with Indian equivalents.		
7.6	Motors shall be from M/s Siemens / ABB conforming to IEC Standards and acceptable to BHPV		
7.7	All electrics shall be of make viz. Siemens, L&T, BCH, Tele-mechanique.		
7.8	Electrical drives shall be of Siemens / ABB / L&T / Eurotherm and PLC of SEW / Allen Bradley / Siemens / Messung / Fanuc		
7.9	BHPV prefer to have standard gear boxes used in the machine. Gear boxes shall be of Radicon / greaves / Bonfiglioli.		
7.10	All pneumatics shall be of Festo make and hydraulics if any shall be of Rexroth / Vickers make.		
7.11	All components / devices / terminals are to be incorporated with ferrules.		
7.12	Vendor should ensure the proper earthing for the machine and its accessories.		
7.13	Wiring: All electrical motors, limit switches etc, on the machine shall be wired using PVC sheathed cable running in conduits to common terminal block		
7.14	External wiring from / to control panel, control desk, external motors, etc. shall be by means of unarmoured multi-core / multi strand copper cables.		
7.15	All cables/ hoses moving with traversing axis should be installed in cable drag chain. Additionally, all the cable trays required for laying of cables should be included in the offer.		
7.16	For incoming supply cable One No. MCCB of suitable nature is to be provided to avoid hazardous situation		
7.17	Pneumatics on machine, and associated equipment shall be connected by nylon and/or steel tube to common point on machine. Fitted at the common point would be a lubricator, regulator, filter and hand wheel valve		
7.18	BHPV supplied compressed air will be at a pressure of 5-6 Kg/Cm2 only. All pneumatic systems on the machine shall be designed to operate efficiently at this air pressure. A suitable refrigerant type air drier shall be included in the system by the vendor.		
7.19	The control voltage for all applications shall be less than 110 V		

S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
7.20	The Welding Power sources shall be sourced from any one of the following manufacturers (OEM) only: ESAB/Sweden, LINCOLN ELECTRIC/USA, WELD-CRAFT of USA, KEMPPI of FINLAND, MILLER. The make and rating of the Welding Power sources shall be clearly indicated in the offer.		
7.21	All non-working surfaces and control panels shall be given a primer coat & two coats of paint as specified in Vendor's Painting scheme. All unpainted surfaces shall be protected from rust during transit		
7.22	GUARANTEE: The equipment has to be guaranteed for its performance and also of the sub-assemblies / bought-out items, for a minimum period of 12 months from the date of commissioning or 18 months from the date of supply.		
08.	ENVIRONMENTAL PERFORMANCE OF THE MACHINE		
8.1	Maximum noise level shall be 85 dB (A) at normal load condition, 1 M away from the machine with correction factor for back ground noise, if necessary. This will be measured as per international standards like DIN 4563516. Vendor to demonstrate compliance to noise level, if so required.		
8.2	The machine shall be suitable for an ambient temperature of + 50° C and relative humidity of 93 % respectively, but both do not occur simultaneously.		
8.3	If any safety / environmental protection enclosure is required it shall be built in the machine by the vendor.		
09.	SAFETY ARRANGEMENTS		
9.1	Machine shall have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to mistakes or the malfunctioning.		
9.2	A detailed list of all alarms / indications provided on machine should be submitted by the Vendor.		
9.3	All the pipes, cables etc. on the machine should be well supported and protected. These should not create any hindrance to machine operator, for effective use of machine.		
9.4	Emergency Switches at suitable locations as per International Norms should be provided.		
9.5	Enclosures or protective covers shall be provided for the moving parts (either linear or rotary), as a safety measure, as per industry standards.		
9.6	Steel railings shall be provided in the carriage to support the sub-systems or maintenance staff during trouble shooting.		
9.7	Counter-balance & Safety device for holding the boom and the welding head against rope breakage. Offer details to be elaborated.		
9.8	Anti-tipping or anti-toppling device (mechanism) has to be provided for safe guarding the fall of the entire column & boom (with carriage) structure from elevated platform due to imbalance, on any account. Offer details to be elaborated.		
9.9	An access ladder and platform with hand rail shall be provided for the maintenance staff to attend to fault in the boom vertical travel mechanism.		
9.10	All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations, Noise and suitably guarded.		
10.	MACHINE SPARES		

S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
10.1	Itemised break-up of Mechanical, Electrical , Electronic and Pneumatic /Hydraulic Spares used on the machine in sufficient quantity as per recommendation of BIDDER for 2 years of trouble free operation on three shifts continuous running basis should be offered by BIDDER. The list to include following, in addition to other recommended spares (for guidance refer to ANNEXURE-5 and ANNEXURE -6, for Mechanical & Electrical Spares) . (Unit Price of each item of spare shall be offered)		
10.2	Mechanical & Hydraulic Spares: Bearings, Clutches, gears and all types of Pumps, Valves, Pressure Switches / Transducers, Filters, Seals, 'O' Rings, Hydraulic Hoses, etc.		
10.3	Electrical: All types of Relays, Contactors, Proximity Switches, Printed Circuit Boards, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch, etc.		
10.4	All types of spares for total machine and accessories shall be available for at least ten years after supply of the machine. If machine or control is likely to become obsolete in this period, the vendor should inform BHPV sufficiently in advance and provide drawings of parts / details of spares & Vendors to enable BHPV to procure these in advance, if required.		
10.5	Vendor to confirm that complete list of spares for machine and accessories, along with specification / type / model, and name & address of the spare Vendor shall be furnished along with documentation to be supplied with the machine.		
11.	DOCUMENTATION :		
11.1.0	Set of Documents <b>to be submitted along with the Offer</b> for technical evaluation:		
11.1.1	General Lay-out of the machine with major and critical dimensions in line with the specification		
11.1.2	General Assembly drawing of the machine with bill of materials and critical dimensions.		
11.1.3	List of bought out items with make and specification along with catalogues: Welding Power source, controllers, Drives, Motors, Gear boxes, Wire straightener, Air drier, etc.		
11.1.4	Hydraulic / Pneumatic Circuit with Bill of Materials (if proposed in the system)		
11.1.5	Electrical Circuit with Bill of Materials.		
11.1.6	Video images on CD /Hard copy of literature with photographs & drawings explaining the technical features.		
11.2.0	Set of Documents <b>to be submitted after placement of order</b> for approval / verification before manufacturing:		
11.2.1	General Lay-out of the machine with major and critical dimensions in line with the specification and Preliminary Foundation drawing.		
11.2.2	General Assembly drawing of the machine with bill of materials and critical dimensions.		

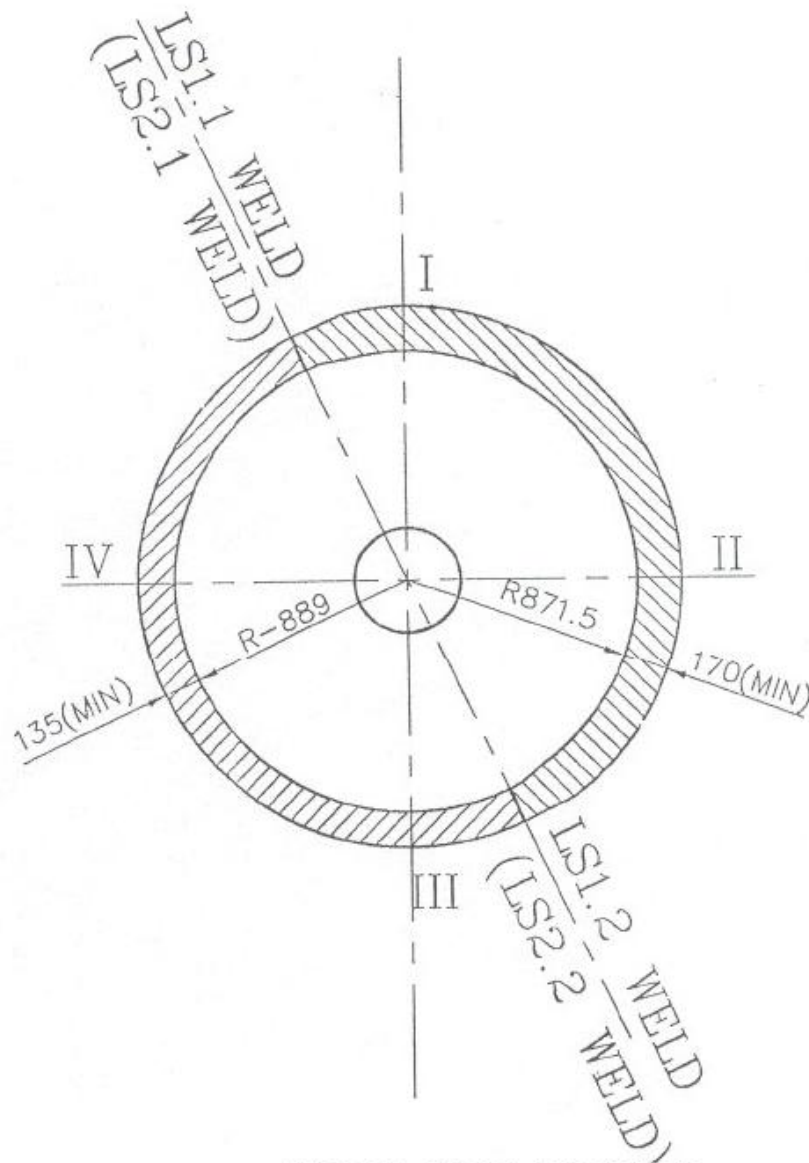
S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
11.2.3	Sub-assembly / Arrangement drawings with bill of materials and critical dimensions for the following: a) Carriage long travel drive arrangement. b) Column rotation / clamping arrangement. c) Boom vertical travel drive arrangement. d) Boom Horizontal travel drive arrangement. e) Weld Head Slides (vertical, Horizontal & Rotation) arrangement. f) Wire straightening roller arrangement. g) Weld head swing mechanism for Long-Seam to Cir-Seam Welding Mode conversion h) Flux recovery and feeding arrangement.		
11.2.4	Hydraulic / Pneumatic Circuit with Bill of Materials (if available in the system)		
11.2.5	Electrical Circuit with Bill of Materials.		
11.2.6	Quality Plan		
11.3.0	Set of Documents <b>to be submitted along with machine:</b>		
11.3.1	<b>Three sets</b> of following documents as Hard copies and 1 set of all documents including bought out item catalogues - soft copy in CD in English Language should be supplied along with the machine.		
11.3.2	<b>One set</b> of complete documents as Hard copy and complete documents in CD / Pen drive to be submitted during inspection at supplier's works for verification.		
11.3.3	Operating Manuals of equipments		
11.3.4	Programming Manuals if any for the station.		
11.3.5	Detailed Maintenance manual of machine with all drawings of machine assemblies/sub-assemblies/parts including Electrical /PCB circuit diagrams/ Pneumatic/ Hydraulic Circuit Diagrams. All Assembly/ Sub Assembly Drawings shall be supplied with the part list / Bill of Materials giving complete specification and make of components.		
11.3.6	Maintenance, Interface & Commissioning Manuals for speed drives.		
11.3.7	Manufacturing drawings for all wearing components like bushes, pulleys, gears, etc.		
11.3.8	Catalogues, O&M Manuals of all bought out items including drawings, wherever applicable highlighting the specific model used in the supplied machine.		
11.3.9	Detailed specification of all rubber items, hoses, fittings, etc. List of bearings, belts used to be provided.		
11.3.10	Operating Manuals, Maintenance Manuals & Catalogues for all supplied Accessories.		
11.3.11	Complete Master List of parts used in the equipment.		
11.3.12	Complete list of spares for equipments and accessories, along with item part no / specification / type / model, and name & address of the spare supplier shall be furnished.		
11.3.13	PLC (if any) program print-outs with comments in English.		
11.3.14	PLC (if any) Program / Ladder Diagram on CD, NC Data & PLC Data on Floppy Disc.		
12.	TRAINING OF BHPV PERSONNEL		
12.1	BHPV Personnel shall be trained at BHPV Works for mutually agreed period (3 Days) after commissioning & acceptance of machine in the area of a. Mechanical, Electrical & Electronic Maintenance for Machine & other Accessories supplied b. Operation of the Machine & other Accessories supplied		
12.2	Training shall be given at no extra cost.		

S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
<b>13.</b>	<b>INSPECTION &amp; MACHINE ACCEPTANCE</b>		
13.1.0	MACHINE ACCEPTANCE: (Tests/Activities to be performed by Vendor at Vendor's works, on the machine, before dispatch:)		
13.1.1	Physical Inspection and Verification of Certificates or Records for Materials of Construction, Bought-out Items, Adherence to Machine Building Procedures given by the Vendor, etc.		
13.1.2	Idle running of mechanical, electrical components / parts of machine and other tests as per applicable standard test chart recommended by the Vendor		
13.1.3	Demonstration of all features of the machine, control system & accessories		
13.1.4	Welding of sample test plate and the sub-sequent testing for establishing the quality of weld, for performance rating of the machine.		
13.2.0	Tests / Activities to be carried out at BHPV works while commissioning the machine:		
13.2.1	Demonstration of all features of the machine, control system & accessories to the satisfaction of BHPV for efficient and effective use of the machine		
13.2.2	Demonstration by actual use of all supplied attachments and accessories to their full capacity.		
13.2.3	The details of prove-out trials shall be as follows: 1. Three pairs of tests coupons of different thickness A. Shall meet Radiography and Ultrasonic quality with acceptable mechanical properties. 2. Shall produce Longitudinal Seam welding of 6 Meters length satisfactorily without any imperfections. This welding shall be carried out using carriage drive essentially.		
13.2.4	Supervision by BIDDER of independent operation of machine by BHPV Personal / Operator after job prove-out during the training period of 3 working days		
<b>14.</b>	<b>MACHINE ERECTION &amp; COMMISSIONING</b>		
14.1	Vendor to take full responsibility for supervision of the erection, vendor shall start up, test the machine, it's control & all types of other supplied equipment, carrying out welding of test pieces etc. Service requirement like power & air shall be provided by BHPV at only one point to be indicated by Vendor in their foundation/layout drawings. Crane will be provided by BHPV.		
14.2	Successful proving of BHPV components by the Vendor shall be considered as part of commissioning. All tests, as mentioned in Clause No.13.2.0 shall form part of the commissioning activity.		
14.3	Tools, Tackles, Testing Instruments and other necessary equipment required to carry out all above activities shall be brought by the Vendor.		
14.4	Commissioning spares, required for commissioning of the machine within stipulated time, shall be brought by the Vendor on returnable basis.		
14.5	Portion, if any, of the machine, accessories and other supplied items where paint has rubbed off or peeled during transit or erection should be repainted and merged with the original surrounding paint by the vendor. For this purpose, the Vendor should supply sufficient quantity of touch-up paint of various colours of paint used.		
14.6	Schedule of Erection and Commissioning shall be submitted with the offer.		
14.7	Charges, duration, terms & conditions for Erection & Commissioning should be furnished in detail separately by Vendor along with the Technical Offer.		

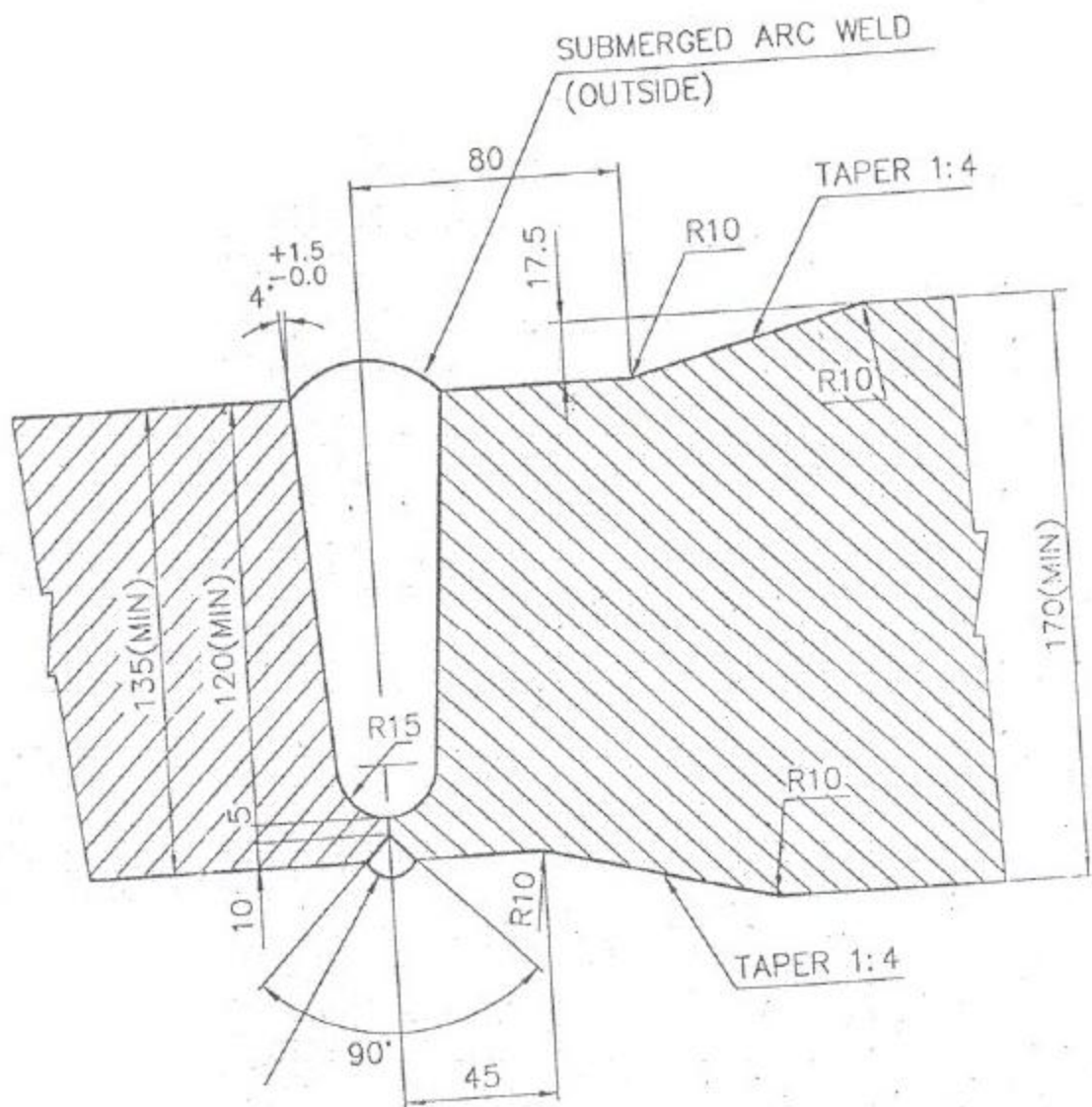


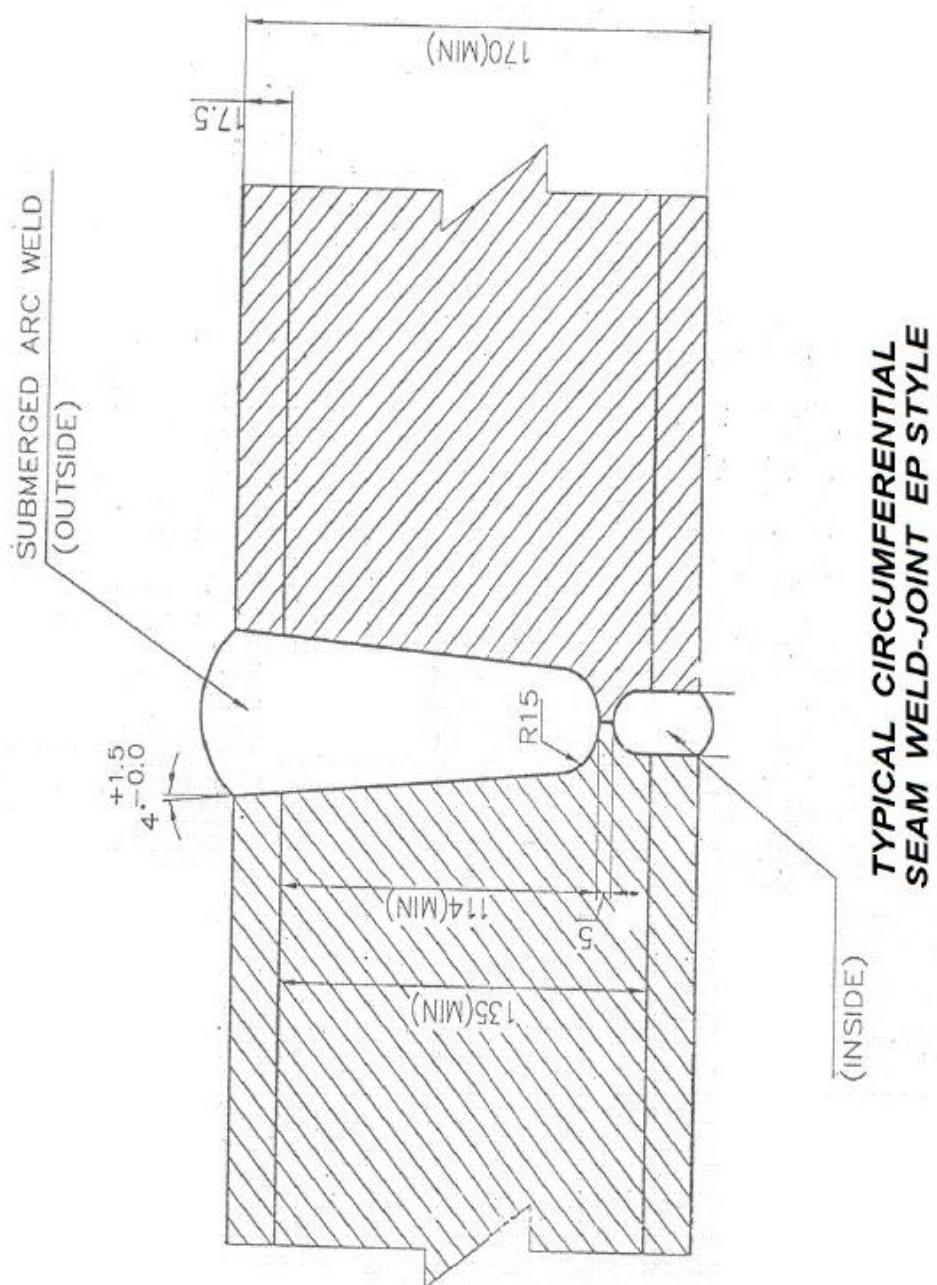
S. No.	PARAMETERS	SPECIFICATIONS	VENDOR'S OFFER [with Technical Details]
14.8	LEVELLING & ANCHORING SYSTEM : Vendor to supply the required foundation details for mounting the machined rails on the floor. Machined rails with anchoring and leveling materials shall form part of the scope of supply, by the vendor. BHPV shall construct complete foundation for the machine as per the Vendor's recommendation.		
<b>15.</b>	<b>MACHINE PACKING</b>		
15.1	Sea worthy & rigid packing for all items of complete machine, control panels , all accessories and other supplied items to avoid any damage/loss in transit. When machine is dispatched in containers, all small loose items shall be suitably packed in boxes		
<b>16.</b>	<b>MACHINE DATA [GENERAL] – DESIRED TO BE INDICATED WITH THE OFFER</b>		
16.1	Machine Model Number		
16.2	Total Connected Electrical Load in kVA		
16.3	Floor area required (Length, Width, Height) for Complete Machine & Accessories		
16.4	Painting of Machine / Electrical Panels		
16.5	Total weight of the Machine		
16.6	Weight of heaviest part of Machine		
16.7	Weight of the heaviest assembly / sub-assembly of the Machine		
16.8	Dimensions of largest part/ sub-assembly/ assembly of the Machine		
16.9	Earliest delivery period from the date of issue of Purchase Order by BHPV.		

Enclosures : Annexure – 1, 2, 3, 4, 5 & 6



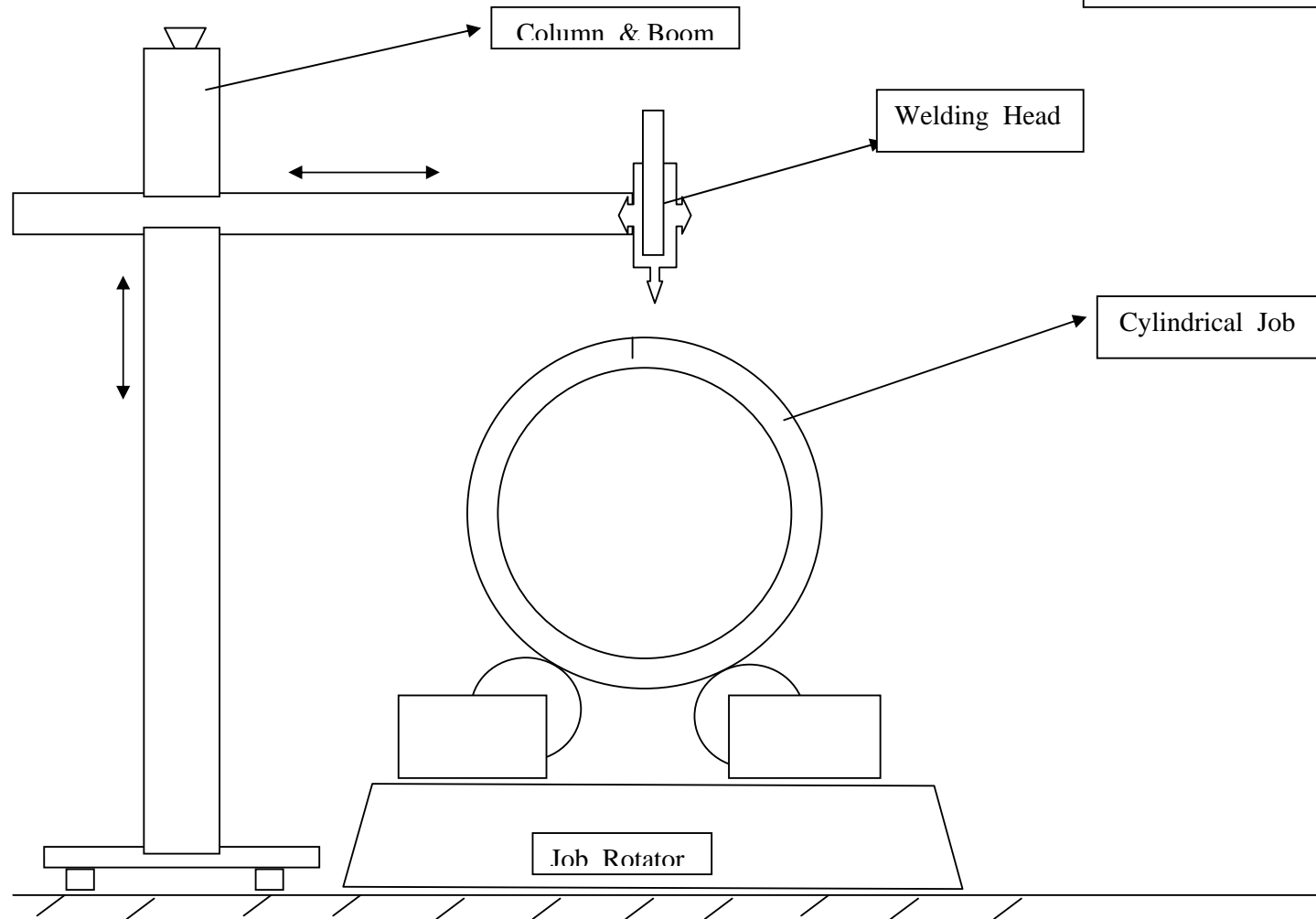
**TYPICAL CROSS-SECTIONAL  
VIEW OF A CYLINDRICAL SHELL**





SCHEMATIC DIAGRAM OF  
WELDING STATION

ANNEXURE -4



## LIST OF MECHANICAL SPARES

S.No.	Part Description	Quantity
1	Wire Feed Motor Gear Box	1 No.
2	Cross Slide Gear Motor	2 Nos.
3	Flux Feeding Hose Pipe (Total & Complete Assembly)	4 Nos.
4	Flux Hopper	2 Nos.
5	Wire Reel Holder	4 Nos.
6	Wire Feed Roller for 4.0 mm Dia. Wire	6 Nos.
7	Wire Feed Roller for 4.8 mm Dia. Wire	12 Nos.
8	Coupling Spider	10 Nos.
9	Vacuum Pump for Flux Recovery	1 No.
10	Flux Recovery Lifting Nozzle	5 Nos.
11	Flux Recovery Hose Pipe	30 Mtrs.
12	Bearing Column/Boom (Side Guide)	4 Nos.
13	Bearing Column/Boom (Main Guide in Roller)	4 Sets
14	Boom Horizontal Travel Drive Pinion	2 Nos.
15	Boom Vertical Travel Drive Pinion	2 Nos.
16	Column Vertical Rack – 1 Mtr. Piece	2 Nos.
17	Boom Horizontal Travel Rack – 1 Mtr. Piece	2 Nos.
18	Wire Feed Roller Fixing Bracket	4 Nos.
19	Gear Box for Carriage Travel	1 No.
20	Gear Box for Boom Vertical Travel	1 No.
21	Gear Box for Boom Horizontal Travel	1 No.
22	Set of Mechanical Spares of Refrigerant Air Dryer	1 Set.
23	Set of Washers and “O” Rings for Flux Recycling System	3 Sets.
24	Air Filter Cartridges for Flux Recycling Unit	5 Sets
25	3.2 mm dia Split Nozzle	10 Nos.
26	3.2 mm dia Solid Nozzle	10 Nos.
27	4.0 mm dia Split Nozzle	50 Nos.
28	4.0 mm dia Solid Nozzle	50 Nos.
29	4.8 mm dia Split Nozzle	10 Nos.
30	4.8 mm dia Solid Nozzle	10 Nos.

## LIST OF ELECTRICAL SPARES

S.No.	Part Description	Quantity
1	Control Cards for DC Welding Powersource	1 Set
2	Voltmeter and Ammeter (All Types – 1 No. each)	2 Sets
3	VFD Drive for Carriage	1 No.
4	VFD Drive for Boom	1 No.
5	Wire Feed PCB for DC Wire	1 Set
6	Thyristor Stack (6 Nos. per set)	1 No.
7	PLC Control Card	1 No.
8	Push Buttons	10 Nos.
9	Potentiometer (Voltage / Current)	10 Nos.
10	Digital Carriage Speed Indicator (Meter)	2 Nos.
11	Digital Boom Speed Indicator (Meter)	2 Nos.
12	Control Contactor	2 Nos.
13	Selector Switch	2 Nos.
14	Indicating Lamp	20 Nos.
15	Limit Switch	5 Nos.
16	Potentiometer for Boom and Carriage	5 Nos.
17	Set of Electrical Spares for Refrigerant Air Dryer	1 Set
18	Set of Heating Elements in Flux Recycling Unit	1 Set

**COMMERCIAL TERMS AND CONDITIONS FOR SUBMISSION OF OFFER****1.0 QUOTATIONS**

Bidders shall submit the offer in TWO INNER ENVELOPES as indicated below which shall be sealed in one outer envelope.

**Envelope I:** This sealed envelope should contain all the copies of technical bid together with un-priced commercial bid. This envelope should be clearly marked “**Part I – Technical and Un-priced commercial bid**” Indicating Tender No., Due Date and Address & Reference of the Bidder.

**Envelope II:** This sealed envelope should contain price details this envelope should be clearly marked “**Part II - Price bid**” indicating Tender No., Due Date and Address & Reference of the Bidder.

Both the envelopes (Part I & II) shall be put in one cover, duly sealed, super scribing as Part I and Part II of Tender No., due date of opening and the address and reference of the Bidder

The above offer should reach this office on or before the due date by 14.00 Hrs (IST)  
Tender should not be addressed to any Individuals name but only designation to

**Dy. General Manager (MM)**  
**BHARAT HEAVY PLATE & VESSELS LIMITED**  
**VISAKHAPATNAM - 530 012 (A P), INDIA.**

Tenders should be free from CORRECTION AND ERASURES. Corrections if any must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

Offers should be in ENGLISH and accompanied by technical literature catalogue and detailed dimensional drawings in ENGLISH or otherwise the offers will not be considered.

**2.0 PART I (TECHNICAL & UN-PRICED COMMERCIAL BID)****2.1 Technical**

This part shall include / indicate the following:

- 2.1.1. Offer should contain complete scope of supply with all technical details, specifications, delivery and other commercial terms and conditions.
- 2.1.2. Point by point confirmation for the Technical Specification enclosed is to be provided. If there are any deviations the same should be clearly specified. Offers received without conformation to our specification will be rejected.
- 2.1.3. List of customers to whom same or similar equipment have been supplied along with performance certificates to be enclosed.
- 2.1.4. Relevant catalogue to be attached.
- 2.1.5. List of spares parts (with part numbers) for two years operation and maintenance should be attached.
- 2.1.6. Information on shipping weight and cubage (length, width & height) to be provided
- 2.1.7. In case of foreign bidder offer, the Principal's technical offer only should be enclosed.

**2.2 Un-Priced Commercial**

This part shall include / indicate the following

- 2.2.1. Port of shipment / Station of dispatch
- 2.2.2. Terms of payment



- 2.2.3. FOB/FCA price along with freight charges up to Chennai port (for foreign bidders) Ex-works/FOR Dispatch Station price along with freight charges up to BHPV Visakhapatnam (for Indian bidders)
- 2.2.4. Taxes, Service tax & duties including Cess applicable.
- 2.2.5. Delivery Schedule
- 2.2.6. Filled-in check list to be enclosed
- 2.2.7. Offer validity
- 2.2.8. Country of origin
- 2.2.9. Percentage of agency commission if any along with a copy of Agency agreement The FOB/FCA/CFR Prices quoted shall include the agency commission.
- 2.2.10. A copy of "Un-Priced Part II 'i.e., a copy of the Price Bid without the price details to be enclosed.
- 2.2.11 BHPV is eligible for availing CENVAT / VAT credit on both inputs and capital inputs. The suppliers invoice should separately indicate the amount of duty / taxes and should invariably mention the following details:
  - 1. The Central excise registration number, range division and commission rate of the supplier's jurisdiction.
  - 2. The rate of duty and 8 digit central excise tariff heading of the item supplied.
  - 3. The TIN, VAT, CST registration number of the supplier.

The duplicate copy of the invoice is required for availing CENVAT credit and original copy for availing VAT credit, if purchased within the state.

In case of foreign bidders the duplicate copy of the electronic Bill of Entry along with TR6 challan should be made available for availing CENVAT credit on CVD, Cess (S) and SAD.

### 3.0 **PART II (PRICE –BID)**

This part should contain the schedule of price particulars and to be co-related to the technical details provided in Part-I

### 4.0 **OPENING OF TENDERS**

The Part I – Technical & un-priced commercial bid alone would be opened on the Tender opening date.

The Part II – Price bid of technically suitable Bidders alone would be opened. The Technically suitable Bidders would be informed about the Price Bid opening date. Clarifications if any required by BHPV FOR Technical evaluation / commercial evaluation would be sought from Bidders before opening of Part II – price bid.

#### **GENERAL**

- 5.1 Incomplete offers will not be considered.
- 5.2 **Fixed priced:** Prices quoted by the bidder shall be fixed and not subject to any escalation whatsoever during the period of bid validity and execution of the Purchase Order A bid submitted with an adjustable price will be treated as non- responsive and rejected Prices shall be written in words and figures. In the event of difference, the price in words shall be valid and binding. Unit prices shall be considered correct in the event of any discrepancy with regards to total price.
- 5.3 **Bid currency:** Indian bidders should submit the prices only in Indian Rupees. Foreign bidders may submit their bid in their home currency, which should be clearly indicated in the un-priced commercial bid as well as in the price bid. Price bid opening date/ RA date will be considered as effective date for considering exchange rate to evaluate the offers.
- 5.4 **Terms of Delivery:** Bidders are required to quote their best delivery period. Foreign Bidders should submit their offer for net FOB/ FCA – Nearest Sea Port / Air Port as well as CFR / Chennai Seaport/ Airport. Freight charges up to Chennai port to be indicated separately. Indian Bidders should submit their offer for Dispatching station as well as FOR BHPV Visakhapatnam basis. Freight charges from works to BHPV Visakhapatnam to be indicated separately. Delivery from the date of Letter of Intent to be mentioned in the offer.

5.5 **Taxes and Duties:** All Taxes and Duties payable as extra to the quoted price should be specifically stated in offers along with CST & TIN No/ Tariff No. etc, failing which the purchaser will not be liable for payment of such Taxes and Duties (Our TIN No.28280189432, APGST No. VSP/04/1/1023 dated 24.08.1968. CST No.VSP/04/1/1012 dated 24.08.1968 & BHPV ECC No AAA CB 7076 N-XM001. Assessment circle Visakhapatnam.)

5.6 **Validity:** The offers for main equipment and spares shall be kept open for acceptance for a period of 120 days (one hundred and twenty days) from the dates of opening of the tender (part I)

**5.7 Terms of Payment:**

**5.7.1 Indian Bidders:**

5.7.1.1 BHEL, Trichy on behalf of BHPV (Subsidiary of BHEL) will arrange for an irrevocable, usance Letter of Credit (60 days from date of dispatch) after receipt of Inspection release note and against presentation of documents for 80% of payment (80% of basic price + 100% Taxes). And balance 20% of payment will be made after acceptance of material/commissioning of the equipment at BHPV, Visakhapatnam and on submission of Performance Bank Guarantee.

**5.7.1.2 Documents to be submitted by Indian Bidders for negotiating LC:**

1. Original Invoice in triplicate in the name of BHPV.
2. Original LR in the name of the LC issuing Bank
3. Original packing list in triplicate in the name of BHPV.
4. Original Test certificate in triplicate in the name of BHPV.
5. Inspection release Note.
6. One original Bank guarantee, if applicable in favour of BHPV.
7. Certificate issued by the beneficiary certifying that the materials dispatched and shown in the packing list are not less than that invoiced.
8. Insurance for 100% of the commercial invoice value made out in the name of LC issuing bank, covering all risks.
9. Any other conditions/documents as mentioned in the Purchase Order.

**5.7.1.3 Additional conditions for Indian Bidders:**

1. **Liquidated damages:** Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional penalty at the rate of ½% of the value of goods for each week of delay subject to a maximum of 10% of the Purchase Order value.
2. In the event of delayed presentation of documents beyond the validity for negotiation(Subject to acceptance of documents by Applicant), 5% of invoice value will be retained towards demurrage and other charges and the difference if any between actual charges and recovery will be settled between BHPV and beneficiary outside the purview of LC terms.

**5.7.2 Foreign Bidders**

An Irrevocable letter of Credit shall be established by BHEL, Trichy on behalf of BHPV (Subsidiary of BHEL) for 80% of FOB/FCA/CFR/ (excluding Indian Agent's commission) 2 months prior to shipment with a validity of 3 months and negotiation after shipment against shipping documents. Letter of Credit shall be opened through an authorized bank of BHEL in India. Balance 20% of FOB/FCA/CFR value shall be paid through sight draft on Commissioning & acceptance of the equipment at BHPV Visakhapatnam, against submission of 10% performance bank guarantee. All Bank charges outside India are to supplier's account. Lump sum erection and commissioning charges if any shall be payable after satisfactory erection & commissioning of the equipment by sight draft against certificate issued by the competent authority.

**5.7.2.1 Documents to be submitted by Foreign Bidders for negotiating LC:**

1. Original Invoice in triplicate in the name of BHPV.
2. Original bill of lading in triplicate in the name of the LC issuing bank.
3. Original packing list in triplicate in the name of BHPV.
4. One original certificate of origin.
5. Original Test certificate in triplicate in the name of BHPV.
6. Inspection release Note.
7. One original Bank guarantee, if applicable in favour of BHPV.
8. Certificate issued by the beneficiary certifying that one copy of non-negotiable documents comprising Bill of Lading, Invoice, Packing List, Certificate of country of origin and Test certificate sent to Port consignee.
9. Certificate issued by the beneficiary certifying that the materials shipped and shown in the packing list are not less than that invoiced.
10. Insurance for 110% of the commercial invoice value made out in the name of LC opening bank, covering all risks, clearly mentioning the name of claim settling agent in India. The claims will be settled in the same currency as that of LC.
11. Any other conditions/documents as mentioned in the Purchase Order.

**5.7.2.2 Additional conditions for Foreign Bidders:**

1. **Liquidated damages:** Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional penalty at the rate of ½% of the value of goods for each week of delay subject to a maximum of 10% of the Purchase Order value.
2. In the event of delayed presentation of documents beyond the validity for negotiation (Subject to acceptance of documents by Applicant), 5% of invoice value will be retained towards demurrage and other charges and the difference if any between actual charges and recovery will be settled between BHPV and beneficiary outside the purview of LC terms.

**5.7.3 Common to both India & Foreign Bidders.**

Erection & Commissioning (E&C) charges will be released after deduction of Income Taxes as per the Govt. of India rules. The TDS certificate will be issued by BHPV. Applicable service tax on E&C charges will be payable extra. The liability of depositing the same to the Govt. will be of the supplier.

- 5.7.4 Loading criteria common to both Indian and foreign bidders:** Vendor should accept the payment terms specified above. However for any deviation to the payment terms offered with reference to the above criterion will be loaded with prime lending rate of SBI prevailing on date of opening of price bid + %, which shall be computed for the differential period between BHPV terms of payment and the offered payment terms by vendor.

- 5.8 DUNS number (allotted by M/s. DUN & Bradstreet) shall be mentioned in your offer.
- 5.9 **Guarantee:** The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier.  
**Offers from vendors not accepting to the requested guarantee period will be rejected.**
- 5.10 **Contract Execution Bank Guarantee (CEBG):** The successful tenderer shall furnish a Bank Guarantee from any Nationalized Bank for 5% of Purchase Order value (FOR Dispatching station value – Excluding taxes, duties, freight & insurance – for Indian bidders) & (FOB/FCA value – excluding freight & insurance – for foreign bidders) confirming that the order will be executed as per the terms and conditions and this should be valid till final dispatch date (LR/GR/BL/AWB) with additional 2 months claim period. Letter of Credit will be processed only after receipt of CEBG. The CEBG is to be furnished within 3 weeks from the date of Purchase order.  
**Offers from vendors not accepting to submit CEBG will be rejected.**
- 5.11 **Performance Bank Guarantee (PBG):** The supplier shall furnish a Bank guarantee from any Indian Nationalized Bank approved by BHPV in the format, given by BHPV along with purchase order for 10% of the Purchase Order value (FOR Dispatching station value – Excluding taxes, duties, freight & insurance – for Indian bidders) & (FOB/FCA value – excluding freight & insurance – for foreign bidders) valid for period of guarantee with additional claim period of 2 months.  
**Offers from vendors not accepting to submit PBG will be rejected.**  
The CEBG & PBG shall be obtained from any Indian Nationalized Bank/ Scheduled Commercial Banks.
- 5.12 **Liquidated damages:** Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional penalty at the rate of ½% of the value of goods for each week of delay subject to a maximum of 10% of the Purchase Order value.
- 5.12.1 **Loading Criteria for Liquidated Damages:** Any deviation from above LD Clause to the extent for which LD is not agreed by the vendor i.e., differential % value will be loaded on basic price, e.g. If some vendor agrees for say maximum of 6% LD then his price will be loaded by 4% (10 – 6) of his quoted basic price.
- 5.13 **Risk purchase:** If the supplier fails to deliver the goods within the delivery specified in the Purchase Order, BHPV will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the delivery period mentioned in the Purchase Order.  
**Offers from vendors not accepting the above Risk Purchase terms will be rejected.**
- 5.14 **Indian Agent & Agency commission:** An Indian Agent can represent only one Foreign Manufacturer against a particular Tender. The FOB/FCA/CFR price quoted by the Foreign bidder shall include the agency commission. However, the agency commission component payable to their Indian Agents shall be shown separately in the offer. This will be paid by BHPV in India Rupees, on satisfactory commissioning & acceptance of the equipment. Copies of current Agency Agreement / Authorization Letter in respect of Agency Commission shall be furnished along with offer. For calculation of Rupee equivalent of Agency Commission exchange rate as prevailing on the date of Purchase Order will be taken.
- 5.15 **Short shipment / Warranty replacement:** In case of any short shipment in the main equipment / spares, customs duty levied on such supplies, shall be borne by the supplier. Any warranty replacement during the warrantee period shall be on FOR, BHPV - Visakhapatnam, basis.

- 5.16 **Inspection & Testing:** All goods shall be subject to inspection by BHPV or its authorized representatives at supplier's works or at BHPV stores. The supplier will not charge for the facilities provided for inspection of goods. In case of machine tools the machine would be inspected and proved at supplier's works prior to dispatch however, final inspection and acceptance of the machine will be carried after installation of the machine at BHPV, Visakhapatnam.
- 5.17 **Operating and Maintenance manuals:** The Bidders shall clearly mention in their offer that Operating Maintenance Manuals as called for in the Technical Specification in the required number of copies will be provided.
- 5.18 **Cenvat & VAT credit. (for Indian Bidders only):** The quotation must indicate Tariff item number and rate of Excise Duty applicable. The original Excise Duty Gate Pass will be required to be furnished in case charges to us. If the bidder is availing Cenvat credit for his input materials, the effect of proforma credit should be passed on to the purchaser.
- 5.19 **Packing:** The Supplier shall arrange for packing suitably in all respects considering the peculiarity of the material involves for normal transport by sea / air / rail road and suitably protected against effect of tropical salt laden atmosphere in the event of shipment being delayed at ports.
- 5.20 **Salient Points of HSE** (Health, Safety & Environment) that are to be considered while submissions of offer are:
- 5.20.1 Consumption benchmarks related to output shall be provided wherever applicable for key input resources (energy/fuels/chemicals)
- 5.20.2 Competency requirements for operation, maintenance and calibration, if any, shall be communicated
- 5.20.3 If any Hazardous chemicals as per MSIHC (Manufacturing, Storage and import of Hazardous Chemicals) Rules 1989/94/2000 are used, the MSDS shall be provided, along with on site & OFF site emergency plan (as applicable).
- 5.20.4 The noise level at operator level shall be within 90 DbA
- 5.20.5 OH&S (Occupational Health and Safety) control measures for safe working of machine as applicable shall be specified
- 5.20.6 The machine/equipment shall be fitted with guard for rolling and moving parts and shall comply with applicable OH&S legislations and Factories Act 1948
- 5.20.7 The supplier shall submit the layout drawing of operating controls, displays etc and operating instructions to enable ergonomics evaluation and approval
- 5.20.8 The recommended PPE (Personal Protective Equipment) for the equipment shall be furnished
- 5.20.9 Alarm System (both visual and audible) and Automatic switch off of the equipment shall be provided for any intrusion, overloading, short circuiting or any malfunctioning of the equipment.
- 5.20.10 Details of all hazardous / harmful substances discharges as by-products / wastes during operations of the machine / equipment, such as fumes, gases, dust particles, aerosols UV./IR (Ultra violet / Infra red) radiations, etc shall be furnished, along with their concentrations and their TLV, (Threshold Limit Value)

- 5.20.11 Appropriate pollution control measures shall be proposed to keep the emissions from the machinery / processes within the prescribed limit as stated in Environment Protection Rules 1986.
- 5.20.12 All furnaces, process units, DG sets, paint booths, shot blasting chambers, etc shall be provided with stack(s) of sufficient height as per guidelines laid down in the Environment Protection Rules 1986.
- 5.20.13 wherever industry specific standards are not available for control of pollutants, general emission standards shall be used
- 5.20.14 Chemicals banned due to their negative impact on the environment shall not be used on the process
- 5.20.15 Fuels with sulphur content less than 0.05% shall be proposed.
- 5.20.16 Details regarding nature of waste generated and appropriate disposal practices available shall be provided, along with the operation procedure of the plant / process.
- 5.20.17 Hazardous chemicals and flammable substances shall be transported only through authorized transporters and all safety practices as laid down in applicable legislative requirements such as Central Motor Vehicle Rules, Manufacture, Storage and Import of Hazardous Chemical 1989, etc. shall be followed.
- 5.20.18 Primary materials used in the equipment shall be specified and they shall be eco - friendly.
- 5.21 Evaluation of offers shall be on the basis of delivered cost (Net cash outflow to BHPV).
- 5.22 BHPV also reserves its right to allow to the Public Sector Enterprises ordering and price preference facilities as admissible under the existing policy.
- 5.23 BHPV reserves its right to reject a tender due to unsatisfactory past performance in the execution of a contract at another project / unit.
- 5.24 BHPV shall be at liberty to reject or accept any tender, part or in full, at their own discretion and any such action is not liable for any question or claim against BHPV.
- 5.25 BHPV reserves the right to go for a Reverse Auction (RA) instead of opening the submitted sealed bid, which will be decided after technical evaluation. Information and general terms and conditions governing RA are given below.

### **GENERAL TERMS AND CONDITIONS OF RA (REVERSE AUCTION)**

Against this enquiry for the subject item/system with detailed scope of supply as per enquiry specifications. BHPV may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING ON INTERNET.

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. BHPV will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
3. BHPV will inform the vendor in writing in case of reverse auction, the details of service provider to enable them to contact & get trained.

4. Business rules like event date, time, start price, bid decrement, extensions etc. also will be communicated through service provider for compliance.
5. Vendors have to fax the Compliance form in the prescribed format (provided by Service provider) before start of Reverse auction. Without this, the vendor will not be eligible to participate in the event.
6. BHPV will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHPV like Packing & Forwarding charges, taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHPV standard Commercial terms & conditions) for each of the vendor to enable them to fill-in the price and keep it ready for keying in during the Auction.
7. Reverse auction will be conducted on scheduled date & time.
8. At the end of Reverse Auction event, the lowest bidder value will be known on the network.
9. The lowest bidder has to Fax the duly signed Filled-in prescribed format as provided on case-to-case basis to BHPV through Service provider within 24 hours of Auction without fail.
10. Any variation between the on-line bid value and the signed document will be considered as sabotaging the tender process and will invite disqualification of vendor to conduct business with BHPV as per prevailing procedure.
11. In case BHPV decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHPV shall be opened as per BHPV's standard practice.

- 5.26 **Force Majeure clause:** If at the time during the continuance of this contract the performance in whole or in part by either party of any obligations under this contract shall be prevented or delayed by reason, of any war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, explosions epidemics, quarantine, restrictions or acts of GOD (hereinafter referred to as events) then provided notice of happening of any such events is given by either party to other within twenty one days from the date of occurrence thereof neither party shall reason of such events be entitled to terminate this contract nor shall either party have any such non performance and delay is resumed as soon as practicable after such events has come to an end or ceased to exist, if the performance in whole or part of any obligation under this contract is prevented or delayed by reason or any such event claims for extension of time shall be granted for period considered reasonable by the purchaser subject to prompt notification by the seller to the purchaser of the particulars of the events and supply to the purchaser if required of any supporting evidence. Any waiver of time in respect of partial installment shall not be deemed to be a waiver of time in respect of remaining deliveries.

**CHECK LIST**

Bidder's acceptance to BHPV's Standard Commercial Terms & Conditions.

**Applicable for Indian bidders**

(To be submitted along with the offer – please do not change the format)

<b>BHPV Tender No: &amp; Date:</b>	<b>Bidders Confirmation / response</b>
Prices have been quoted on "FIRM PRICE" basis only (Yes / No)	
Prices have been quoted on "F.O.R BHPV" basis only (Yes / No)	
<b>P &amp; F (Please confirm whether included or not)</b>	
<b>Freight (Please confirm whether included or not)</b>	
<b>Insurance (Please confirm whether included or not)</b>	
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – <b>please Specify</b> )	
<b>Sales Tax (please Specify)</b>	
<b>Excise Duty (please Specify)</b>	
Delivery period from the date of Purchase Order ( <b>please Specify</b> ). A loading @ ½ % of the Purchase Order value per week will be done for the grace period requested. For evaluation 4 weeks will be considered as one month. Vendors quoting a delivery period beyond the 'the requested delivery plus the allowed grace period' is liable for rejection.	
Liquidated damages as per clause 5.12 (we require acceptance to @ ½% per week subject to a maximum of 10%) (Yes / No)	
Risk Purchase as per clause 5.13 (Yes / No) <b>(Offers from vendors not accepting the Risk Purchase terms will be rejected)</b>	
Payment terms (As per Clause No. 5.7.1) (Yes / No)	
Contract Execution Bank Guarantee (CEBG) as per Clause 5.10 (Yes / No) <b>(Offers from vendors not accepting to submit CEBG will be rejected)</b>	
Performance Bank Guarantee (PBG) as per Clause 5.11 (Yes / No) <b>(Offers from vendors not accepting to submit PBG will be rejected)</b>	
Guarantee as per clause 5.9 (The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier) (Yes / No) <b>(Offers from vendors not accepting to the guarantee period will be rejected)</b>	
<b>Inspection (please Specify the Place of Inspection)</b>	
Erection & Commissioning/ Installation/ Training <b>(Please confirm whether charges are included in the total cost or not)</b>	
Approximate Net Weight of the total Consignment	
Approximate Gross Weight of the total Consignment	

**Signature & Office Seal of the bidder**



**CHECK LIST**

Bidder's acceptance to BHPV's Standard Commercial Terms & Conditions.

**Applicable for foreign bidders** (To be submitted along with the offer – please do not change the format)

<b>BHPV Tender No: &amp; Date:</b>	<b>Bidders Confirmation / response</b>
Prices have been quoted on "FIRM PRICE" basis only (Yes / No)	
Prices basis (FOB/CFR/CIF – <b>Please Specify</b> )	
Insurance ( <b>Please confirm whether included or not</b> )	
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – <b>please Specify</b> )	
Currency in which quoted ( <b>please Specify</b> )	
Port of loading ( <b>please Specify</b> )	
Country of Origin ( <b>please Specify</b> )	
Delivery period from the date of Letter of Intent ( <b>please Specify</b> ) A loading @ ½ % of the Purchase Order value per week will be done for the grace period requested. For evaluation 4 weeks will be considered as one month. Vendors quoting a delivery period beyond the 'the requested delivery plus the allowed grace period' is liable for rejection.	
Liquidated damages as per clause 5.12 (we require acceptance to @ ½% per week subject to a maximum of 10%)	
Risk Purchase as per clause 5.13 ( <b>Offers from vendors not accepting the Risk Purchase terms will be rejected</b> ) (Yes / No)	
Payment terms (As per Clause No. 5.7.2)	
Agency commission (refer clause 5.14)	
Contract Execution Bank Guarantee (CEPG) as per Clause 5.10 (Yes / No) ( <b>Offers from vendors not accepting to submit CEBG will be rejected</b> )	
Performance Bank Guarantee (PBG) as per Clause 5.11 (Yes / No) ( <b>Offers from vendors not accepting to submit PBG will be rejected</b> )	
Guarantee as per clause 5.9 (The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier). ( <b>Offers from vendors not accepting to the requested guarantee period will be rejected</b> ) (Yes / No)	
Inspection ( <b>please Specify</b> )	
Erection & Commissioning/ Installation/ Training ( <b>Please confirm whether charges are included in the total cost or not</b> )	
Dimension of the Largest Part ( <b>please Specify</b> )	
Packing Schedule (No of containers and their Sizes) ( <b>please Specify</b> )	
Approximate Net Weight of the total Consignment ( <b>please Specify</b> )	
Approximate Gross Weight of the total Consignment ( <b>please Specify</b> )	

**Signature & Office Seal of the bidder**