

BHARAT HEAVY PLATE & VESSELS LIMITED.,
 (A Subsidiary Bharat Heavy Electricals Limited)
 A Government of India Enterprises
 Visakhapatnam – 530 012 INDIA.
 web site: www.bhpvl.com



Phone : +91(0891) 6681309, 494
 +91(0891) 6681396
 Fax : +91(0891) 6681700
 E-Mail : mm_cps@bhpvl.com,
mm@bhpvl.com

NOTICE INVITING TENDER(NIT)

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

**SUB: Panel Welding Station with 20 Torch
 (MIG/MAG)**

Our Ref: **MM/2/10/2094/CAP/W-462/5287**

DATE: 06.01.2012

Sealed quotations in duplicate are invited from suppliers on **or before 14.02.2012 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.	Panel Welding Station with 20 Torch (MIG/MAG)	1 No 's
	Encl: 1. Qualifying Criteria 4 pages 2. Technical Specifications 28 Pages 3. Annexure-1 2 pages 4. General Terms/ commercial terms and conditions (INCLUDING CHECK LIST) 9 pages	

For BHARAT HEAVY PLATE & VESSELS LIMITED,

For Dy. GENERAL MANAGER (MM)

VISUAL INSPECTION OF TUBULAR PANELS

The tubular products shall be visually inspected at appropriate stages and accepted based on the Acceptance standards detailed in below:

ACCEPTANCE CRITERIA

Characteristics	Acceptance norms
a) Cracks, Voids & Skips	}
b) Burnthrough	}
c) Lack of Fusion	}
d) Lack of penetration	}
e) Oxide/metallic inclusions	} Not permitted
f) Overlaps	}
g) Underflushing	}
h) Root porosity	}
i) Wrinkles & Deformities	}
j) Poor restart	}
1. Surface mismatch	Not to exceed $1/4 t$ where " t " is the tube thickness
2. Undercut (on pressure retaining materials)	Not to exceed 0.4mm
3. Porosity (for fillet welds)	Pores up to & including 1.6 mm diameter, provided it does not occur at a start or stop. 4 or more pores (cluster or inline) are not permitted if they are separated by less than 1.6mm or less than the major dimension of the largest indication in that group. For other pores, acceptance shall be as per TABLE 1.
4. Reinforcement	Not to exceed 3 mm
5. Tool marks	Not permitted. To be ground to have a smooth transition
6. Concavity of the fillet weld	Permissible, provided it does not encroach on the required weld thickness
7. Arc strikes	Not permitted. Stray arc areas shall be examined with LPI or MPI after grinding followed by thickness measurement
8. Spatter	To be removed. Isolated spatter may be permitted
9. Bore passage	Freedom from foreign materials

TABLE 1 - Porosity acceptance level

TYPE	SIZE in mm	No. of pores permitted in 150 mm length
SMALL	0.8	10
MEDIUM	1.2	5
LARGE	1.6	3
ASSORTED	-	LARGE – 1No.) MEDIUM – 2 Nos.) TOTAL – 7 Nos. SMALL – 4 Nos.)

QUALIFYING CRITERIA FOR THE SUPPLY OF 20 TORCH PANEL WELDING STATION**SECTION – I**

The BIDDER is expected to give complete details against each clause in the table given below, with additional sheets those may be attached (giving clear reference number) to furnish and cover the requisite details / documents.

Sl. No.	PARTICULARS	VENDOR's RESPONSE
1	VENDOR to provide the Profile of their Company	
2	The Bidder / Vendor (OEM) shall have a minimum of TEN Years of Continuous Experience in the field of Design, Manufacture and Supply of Panel Welding Stations.	
3	List of customers to whom Panel Welding Stations were supplied, installed and commissioned till date, highlighting the customers who are in the field of Power Utility Boilers manufacturing (of High Pressure Ratings). The sizes of machines supplied may be furnished.	
4	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centers in India.	
5	Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

20 TORCH PANEL PROCESSING MACHINE (PART A)

SECTION – II

The BIDDER / VENDOR has to compulsorily meet the following requirements to get qualified for submitting an offer for the 20 Torch Panel Welding Station:

Sl. No.	PARTICULARS	VENDOR'S RESPONSE
1	Only those vendors (OEMs) should quote, who have supplied and commissioned at least One 20 Torch Tube Panel Welding station with top and bottom side welding in the past Ten years (on the date of opening of Tender) and such machine should presently be working satisfactorily for more than one year after commissioning (on the date of opening of Tender),. However, if such equipment has been supplied to BHPV / BHEL, then the same must be currently working satisfactorily for not less than six months (as on date of Tender Opening) from the date of commissioning and acceptance.	
	The vendor should submit following information where similar machine has been supplied:	
1.1	Name and postal address of the customer or company where similar equipment is installed.	
1.2	Name and designation of the contact person of the customer.	
1.3	Phone, FAX no and email address of the contact person of the customer.	
1.4	Month and Year of commissioning of the equipment.	
1.5	Application for which the equipment is supplied	
2	Along with the Technical offer, the Vendor should submit the <u>Performance certificate from the customer for the satisfactory performance of the equipment supplied as per clause 1.0 above.</u> (For obtaining the Performance certificate, a suggestive format is provided in SECTION – IV)	
3	Offers of only those vendors who meet the above Qualifying Criteria will be considered for further evaluation.	
4	BHPV reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	
5	DELIVERY - The bidder shall quote the best possible delivery. However the delivery period shall not exceed 10 months from the date of Purchase Order. A grace period of 2 months in addition is provided. The additional grace period will attract loading, which is explained in the commercial terms of the enquiry. The delivery period is reckoned from the date of purchase order to date of despatch from the vendor works. Erection & Commissioning shall be completed within 6 weeks from the date of receipt of material at BHPV	

SECTION – III

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

Sl. No.	PARTICULARS	VENDOR's RESPONSE
1	The BIDDER / VENDOR shall submit the offer in TWO PARTS- Technical [with PART A & PART B] & Commercial and Price Bid.	
2	The offer shall contain a comparative statement of Technical Specifications given by BHPV and the offered details submitted by the Bidder, against each clause. Merely stating 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words wherever 'Vendor to Specify' details in the technical comparative statement may lead to disqualification of the Technical Offer.	
3	The Technical Offer shall be supported by product Catalogues & Data Sheets and also technical details of Bought-Out-Items with copies of Product Catalogue to the extent possible.	
4	The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation of the inclusion of all the accessories, toolings, attachments, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.	
5	BIDDER has to indicate the Country of Origin for the supply of equipment.	

SECTION – IV

PERFORMANCE CERTIFICATE
(On Customer's Letter Head)

1. Supplier of the Machine :
2. Make & Model of the Equipment :
3. Month & Year of Commissioning :
4. Application for which machine is used :
5. Sizes of Jobs Performed in the machine :
6. Performance of the Machine : Satisfactory / Not Satisfactory
(Strike off whichever is not applicable)
7. After Sales Service : Satisfactory / Not Satisfactory
8. Any other remarks :
9. Contact Details
Name of the Contact Person :
Phone No. :
Fax No. :
E-mail ID :

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
1.0	PURPOSE	Continuous welding of Super critical / Sub Critical High Pressure Power Boiler Membrane Wall Panels formed by welding of seamless tubes with intermediate flats.	
2.0 JOB SPECIFICATION			
2.1	Tube Outside Diameter	28.6mm / 31.8mm / 38.1mm / 44.5mm / 47.63mm / 51mm / 57mm / 60.3mm / 63.5mm / 76.1mm	
2.2	Tube Wall Thickness	2.3mm to 10mm	
2.3	Tube Material		
2.3.1	a) Carbon Steel	SA192, SA210A1, SA210C etc.	
2.3.2	b) Alloy Steel	SA213T11, SA213T22 etc.	
2.4	Fin Material		
2.4.1	a) Carbon Steel	ASTM A 576	
2.4.2	b) Alloy Steel	ASTM A 387Gr.12, ASTM A 387Gr.22 etc.	
2.5	Fin Width	9mm to 110mm	
2.6	Fin Thickness	5mm to 12mm	
2.7	Fin Coil Weight	Max: 2000 kg	
2.8	Fin Coil Diameter (OD)	Min: 1000mm / Max: 1500mm	
2.9	Fin Coil Diameter (ID)	Min:450mm / Max: 700mm	
2.10	Panel Length (Welded Portion)	Minimum : 4000 mm Maximum : 25000 mm	
2.11	Panel Width	Upto 2500 mm	
2.12	Panel Tolerances	Tolerance on Width: +0mm /-3mm Bow: Not allowed	
WELDING LINE			
3.0	WELDING STATION		
3.1	Type	PLC Controlled Push-Through (moving tube) Stationary Welding Machine	
3.2	Weld Process	Pulsed GMAW	
3.3	Welding Wire Diameter	1.2mm Solid Wire	
3.4	Construction	Rigid Closed Frame	
3.5	Number of Torches	20 Nos suitable for Pulsed GMAW	

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
3.6	Torch Arrangement	10 Torches each for top & bottom side welding.	
3.7	Machine Design	Machine design to ensure formation of panels without kink, bow and twist, in addition to a perfect defect-free welding.	
3.8	Panel Welding	Simultaneous Welding on both Top side & Bottom side of the panel	
3.9	Selection of Torches for welding in a group	Welding with any or all 20 Torches at a time by operator selection	
3.10	Welding Speed (Variable Range)	500 to 1500 mm/min	
3.11	Continuous Welding without interruptions	Welding shall progress without interruptions while welding a 24m long panel when welding with all 20 Torches simultaneously. Note: A maximum of 2 interruptions for torch cleaning purpose only are allowable	
3.12	Drive	Inverter Controlled AC Drive	
3.13	Upper Form Roller Shafts and Lower Form Roller Shafts	Screw Rod and Locking Arrangement with Gear-Box and Motor. Suitable arrangement to vary effective height so that adjustment for different diameter of tubes is possible. Bidder to explain the complete construction.	
3.14	Form Rollers and Distance Rings	Shall be suitable for both tube-end and fin-end panels.	
3.15	Fin Bar Guiding Arrangement	Electrically Operated, vertically adjustable pre-set system to position fins at tube centre to suit various tube diameters. Bidder to provide details.	
3.16	Fin Bar Pressing Rolls	Automatic control with pre-setting provisions to suit various tube diameters. Bidder to provide details.	
3.17	Fin & Tube Clamping Device	Side Pressing Unit with hydraulically operated pressing rollers for fins or tubes with automatic control and mechanically pre-setting provisions.	
3.18	Arc Blow Prevention & Return Current Collecting Arrangement	Welding return current collectors (for grounding) are to be provided at suitable locations and machine frame to be constructed with separate high capacity collectors to withstand high current flow and to avoid over heating of collectors and to avoid current flow through rollers & other machine supporting systems. Bidder to explain the arrangement for Arc Blow prevention to ensure smooth & stable arc when all torches are working.	

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
3.19	Service Platform over the Machine	To locate the welding power sources, wire feeders, fume extractors, 300kg Jumbo coil holders, hydraulic power pack, etc.	
3.20	Roller construction for feeding the tube and pressurizing the tubes	Sufficient number of rows of rollers across the width & length of the panel are to be arranged, in order to avoid welding heat related problems of like bow / twist generation during welding and insufficient pressure related problems in the horizontal or vertical directions.	
3.21	Weld Quality	Machine Design to ensure perfect weld quality (in single stroke) without any defects like Weld Skip- Off, Off-Line, Burn- Through, Under-Cuts, Lack of Fusion or Penetration, Weld Porosity. Weld Quality inspection visually as per Annexure-I. Bidder to confirm.	
3.22	Weld Quality	Complete weld penetration across the thickness of the fin to be ensured. Bidder to confirm.	
3.23	Machine Elements	Welding components / equipments arrangement are to be of rigid and solid design, self guiding/holding type and user friendly to avoid welding related problems (due to fragile arrangement of wire feeders, guides & controllers, torch assembly & positioning, devices with respect to feeding rollers, etc). The details of torch vertical up and down adjustment to be provided by the bidder.	
4.0	WELDING EQUIPMENT		
4.1	Welding Power Source	20 Nos. Inverter Controlled (IGBT based) DC Welding Powersource	
4.1.1	Power source Current Rating	350 Amps. @ 100 % Duty Cycle	
4.1.2	Welding Process	Suitable for Pulsed GMAW with Mixed Gas (Argon + CO ₂) Shielding	
4.1.3	Power source Make	OTC / DAIHEN CORPORATION, Japan	
4.1.4	Other Features of Power source	Capable to produce Weld in the Panel Building Process [with Spatter Free Welding, Smooth Arc Initiation, Crater Filling, Good Penetration, Uniform Weld Bead Formation, etc.]	
4.2	Wire Feeder	Make and model of the wire feeder to be provided by the bidder.	
4.2.1	Wire feeding roller mechanism	Wire feeding roller mechanism shall be FOUR roll wire feeding system. Bidder to confirm.	
4.2.2	Wire feed motor rating	Wire feeder motor to be adequately rated to ensure smooth wire feeding of 1.2mm solid wire from 300kg Jumbo packs / 25 kg spools.	

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
4.2.3	Welding Wire Coil Holders	Capacity to hold and feed 25 kg. Spools	
4.2.4	Welding Wire Drum Holders	Capacity to hold 300 kg. Jumbo Coil packs	
4.2.5	TOP Torches: Wire feeder and Jumbo coil packs mounting position	Wire feeders and Jumbo coil packs for TOP torches shall be on the Service Platform	
4.2.6	BOTTOM Torches: Wire feeder and Jumbo coil packs mounting position	Wire feeders and Jumbo coil packs for BOTTOM torches shall be on the Side of the machine for convenient loading of Small spools and Jumbo coils.	
4.2.7	Wire feeding conduits	The wire feed conduits for feeding of the wire from the Drum Packs to Wire feeder inlet shall have a suspending/support arrangement that ensures the conduits are routed in smooth curves aiding uninterrupted wire flow.	
4.3	Welding Torches	To be Rated for continues heavy duty application of 350 Amps at 100 % Duty cycle. Bidder to confirm.	
4.3.1	Torches	Make and Model to be provided by the bidder.	
4.3.2	Type of torch cooling	Cooling Methodology: Water cooling with chiller and distribution system for all the torches.	Vendor to confirm & furnish details
4.3.3	Torch cable	Appropriate cable length & support devices (such as servo assist) if reqd. to ensure high speed stable wire feeding with 1.20 mm solid wire shall be provided.	
4.3.4	Torch cable protection	Torch cables to be provided with protective sheathing that is fire proof	
4.3.5	Welding Torch Mounting Arrangement	Torch Mounting Guide to be suitable for welding 2.5 Meter wide panel.	
4.3.6	Weld Torch movement and positioning	It should be possible to move and locate the Welding Torch Carriages at any desired position on the horizontal Guide Beam. Movement should be motorized.	
4.3.7	Stroke adjustment of Welding Torch	Up/Down Stroke adjustment shall be motorized. BIDDER to specify the stroke length.	
4.3.8	Weld Arc Shielding Gas	Machine mounted arc shield for Pulsed GMAW	
4.3.9	Mixed Gas Flow Rate	20 – 40 litres / min / torch	
4.3.10	Inlet Pressure	1.5 to 5 Bar	

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
4.3.11	Torch design	The Gas nozzles of the torches, torch body & torch slides shall be of design & construction to allow satisfactory aiming of the 1.20 mm solid wire to the particular point in the tube-fin interface (for all combinations of Tube-Fin sizes) with appropriate stick out distance (10 - 12 mm)-appropriate Torch angles - to result in deposition of a defect free bead of satisfactory shape & size in all Torches (Down hand + Overhead). Bidder to confirm.	
4.3.12	Gas circuit - Accessories	Gas Manifold, Gas Solenoid Valves, Gas Flow-Meters, Gas-Regulators and with hoses and end connections, are to be provided with machine tripping logics arrangement.	
5.0	FUME EXTRACTION SYSTEM		
5.1	Fume extraction System	A very effective fume extraction system to be provided to suck the entire fumes being generated during welding with all 20 torches in the welding zone.	
5.2	Details of Fume extraction system	Bidder to explain the complete fume extraction system provided on the machine with Make, Type, Capacity, Hood design and its location etc. Bidder to also provide details such as suction pressure, Flow rate, Filter cartridge type, ducting and hood arrangement.	
6.0	IN-FEED , OUT-FEED CONVEYORS & RETURN CONVEYORS		
6.1	Conveyor Design	<ol style="list-style-type: none"> 1. Made of Wear Resistant but Smooth (not to make impressions on the tubes of the panels) Steel Rollers. 2. Position of Idler & Motorized Rollers are to be so designed such that the Panels of all Dimensions (within the range specified) are handled smoothly. 3. BIDDER to specify the details on the arrangement of Drive and Idler Rollers 	
6.2	Conveyor Width	Suitable for making Panels upto a width of 2500 mm	
6.3	In-feed Conveyor	To be suitable for welding 25metres long and 2.5metres wide panels.	
6.4	Out-feed Conveyor	To be suitable for welding 25metres long and 2.5metres wide panels.	
6.5	Pass-On Stand or Return Conveyor	Provided with all motorized Steel Rollers Stand, suitable for transporting sub-panels / full panels (with width upto 2500 mm) through the full traverse length of the In-Feed Conveyor, Out-Feed Conveyor and the Machine Frame Width.	

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
6.6	Conveyor Speed of Infeed / Out feed / Return conveyor	500 to 6000 mm/min (synchronized to the Welding Speed in Automatic Mode) – Otherwise selectable for Manual Operations, even when the welding operation is not in progress or stopped.	
6.7	Cross Conveyors	1. Cross Conveyors to be provided to shift sub- panel / mini-panels from the Out-Feed Conveyor to the pass-on conveyor after welding, and again from pass-on conveyor to the In-feed Conveyor for further build up of panel.	
		2. Cross Conveyors shall be of Lift and Shift type conveying system. Rigid guiding arrangement of lifting and shifting conveyor system to be provided.	
		3. Lift evenly throughout the length and width of the panel irrespective of its position on the lifting supports. The supports and lifting mechanism has to be very rigid.	
		4. Each Cross Conveyor Unit shall be made of minimum six numbers of cross-transferring arm assemblies. Bidder to specify the no.of cross conveyor arms.	
6.8	Noise Level Control	By providing non-metallic linings in the various tube conveyors in the system	
7.0	INTEGRATED TUBE & FIN FEEDING ARRANGEMENT		
7.1	Tube Feeding System	Bidder to explain the arrangement of Tube feeding arrangement from the sloping rack to the panel tacking unit. The tubes have to be automatically lowered on to the scalloped bar of panel tacking unit, one by one from the sloping rack.	
7.2	Fin Storage and Feeding System	Bidder to explain the arrangement of feeding the fins in between the tubes in panel tacking unit. The fin feeding to be done automatically.	
7.3	Panel Tacking table	Bidder to explain the construction of Panel tacking table, having a fixture for arranging the tubes & fins including automatic feeding of tubes & fins to the Panel tacking table. The table to be suitable for a sub-panel of 6 tubes and 5 fins of 25m length.	

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
7.4	Tack Welding Fixture	The tack welding fixture shall have a Pneumatic clamping unit, which clamps the tubes and fins firmly in the fixture, (maintaining the pitch distance between tubes) for tack welding at the start of the panel for about 5 to 10mm (up to 250mm length). Bidder to explain the construction of Panel tack welding fixture.	
7.5	Tack Welding	Tack welding shall be done by MIG / SMAW welding. The Welding power source is under BHPV scope.	
7.6	Transport of Tack Welded Panel to Machine In-Feed Table	The tack welded sub-panel to be shifted from the panel tacking table to the machine In-feed table by means of Cross Transport Conveyor. Bidder to explain the construction.	
7.7	Control Unit for the above	Controls for Automatic tube & fin feeding and clamping, transport of tack welded sub panel to the In-feed table to be provided. Bidder to confirm the controls provided.	
8.0	FIN WIDTH CORRECTING UNIT WITH SHOT BLASTING		
8.1	JOB DESCRIPTION		
8.1.1	Fin Width	9mm to 110mm	Vendor to Confirm
8.1.2	Fin Thickness	5mm to 12mm	Vendor to Confirm
8.1.3	Fin Length (Cut length)	Minimum Length : 4meters Maximum length : 25meters	Vendor to Confirm
8.1.4	Fin Material	Carbon Steel: ASTM A 576 Tensile Strength: 390 MPa Alloy Steel: a) ASTM A 387Gr.12 (TS: 450 to 585MPa) b) ASTM A 387Gr.22 (TS: 515 to 690 MPa)	Vendor to Confirm
8.1.5	Fin Coil Weight	Max: 2000 kg	Vendor to Confirm
8.1.6	Fin Coil OD	Min: 1000mm / Max: 1500mm	Vendor to Confirm
8.1.7	Fin Coil ID	Min:450mm / Max: 700mm	Vendor to Confirm
8.2	PRODUCTIVITY	Max. 6m/min	Vendor to Confirm
8.3	MACHINE CONFIGURATION: The machine shall have the following elements / Components:		
8.3.1	Coiled Fin Mounting Arrangement		Vendor to Confirm
8.3.2	De-Coiling Unit		Vendor to Confirm
8.3.3	Fin Butt Welding Bench		Vendor to Confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION		BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
8.3.4	Fin Shot Blasting Station		Vendor to Confirm
8.3.5	Fin Width Correction Unit		Vendor to Confirm
8.3.6	Fin Horizontal Straightening Unit		Vendor to Confirm
8.3.7	Fin Vertical Straightening Unit		Vendor to Confirm
8.3.8	Fin Length Measuring Unit		Vendor to Confirm
8.3.9	Hydraulic Fin Cut-Off / Shearing Unit.		Vendor to Confirm
8.3.10	Fin Transfer Unit		Vendor to Confirm
8.3.11	Fins storage rack		Vendor to Confirm
8.3.12	Control Panel		Vendor to Confirm
8.4	COILED FIN MOUNTING ARRANGEMENT & DE-COILING UNIT		
8.4.1	Coil Loading	Manual loading with the help of crane.	Vendor to Confirm
8.4.2	Fin Coil Maximum OD	1500mm	Vendor to Confirm
8.4.3	Fin Coil Minimum ID	450mm	Vendor to Confirm
8.4.4	Width of coil mounting arrangement - Maximum	200mm	Vendor to Confirm
8.4.5	Coil Weight - Maximum	2000 Kgs. (maximum)	Vendor to Confirm
8.4.6	Coil Clamping arrangement	Mechanical Jaws – Four jaws – Self Centering type	Vendor to provide details
8.4.7	Device to prevent free uncoiling	Friction Brake (with adjuster)	Vendor to provide details
8.4.8	Uncoiling and Fin feeding	By pinch rolls in the fin calibrating m/c.	Vendor to provide details
8.4.9	Fin Coil end Sensing	Suitable Mechanical type Sensor or any other sensing device for stopping the machine automatically once the fin comes to an end in the de-coiling unit.	Vendor to provide details
8.5	FIN BUTT WELDING BENCH		
8.5.1	To be of simple and compact design to weld the leading end with trailing end of fin		
8.5.2	Clamping	Manually operated clamps for clamping the ends of fins and aligning.	Vendor to Confirm
8.5.3	Welding Process	MIG / MAG / SMAW Welding Power Source is under BHPV scope.	Vendor to Confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION		BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
8.5.4	Construction	During fin feeding, the weld bench shall be retracted from the fin feeding line. Weld bench may be mounted on slides or by wheels.	Vendor to provide details
8.6	FIN SHOT BLASTING STATION		
8.6.1	The proposed machine shall be capable of cleaning the oil film, grease, rust, scales, protective film-coats etc. from the surface of the fins.		
8.6.2	The design of the machine shall be such that the equipment is compact in size with ease of maintenance.		Vendor to Confirm
8.6.3	The chamber size shall be of suitable size for the job envelope and effective cleaning of the surfaces.		Vendor to Confirm
8.6.4	The shot-blasting operation should be carried out automatically by multiple guns fitted onto the mounting brackets inside the chamber and directed at suitable angles towards the job. Blasting guns shall be adjustable to cover the surface of the fin.		Vendor to provide details
8.6.5	The blasting chamber shall have access doors and chamber door for maintenance purposes.		Vendor to Confirm
8.6.6	The machine shall have suitable inlet with scrubbers for fin in-feed, intermediate supports for fin inside the chamber and outlet with scrubbers for fin out-feed for cleaning. Suitable guide units for the fin to be provided at the inlet and outlet points and the guide units shall be adjustable to accommodate varying width of fins.		Vendor to Confirm
8.6.7	The blasting chamber shall be constructed of thick plates of abrasive resistant steel with suitable stiffeners inside the chamber to ensure minimum wear of chamber.		Vendor to Confirm
8.6.8	The blasting chamber shall be leak-proof with proper sealing elements for the openings so that no dust / shots leaks out of chamber during operation.		Vendor to Confirm
8.6.9	Type	Push-Through Type	Vendor to Confirm
8.6.10	Location	Inline and between Fin Butt-Welding Bench & Width correction unit	Vendor to Confirm
8.6.11	Cleaning Standards	SA2½ (Sweden) equivalent	Vendor to Confirm
8.6.12	Shots – Quantity, Mix, Selection & Specification	Around 500 kg./filling, Mix of Shots of specification SS 850 & SS 600 as per IS 4606-1983	Vendor to Confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION			BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
8.6.13	Filter Cleaning	Automatic and Pulse Jet Cleaning	Vendor to Confirm	
8.6.14	Moisture removal	A suitable Refrigerant Air Dryer and filter unit for moisture removal shall be incorporated in the pneumatic circuitry of shot blasting station. Capacity details to be provided.	Vendor to provide details	
8.6.15	Purging of shots	Purging to be done for 10 to 15 seconds after the shot blasting is completed to purge out residual shots in the system.		
8.6.16	Dust Collection	In designated Dust Collecting Bins.	Vendor to Confirm	
8.6.17	Dust Extraction – Outlet Air Quality	Dust Emission Maximum @ 5mg/Nm ³ [for particle size 10 micron & above]	Vendor to Confirm	
8.6.18	Number of Nozzles		Vendor to Specify	
8.6.19	Nozzle Diameter		Vendor to Specify	
8.6.20	Blasting speed		Vendor to Specify	
8.6.21	Integral Shot Recovery & Recycling System		Vendor to Confirm	
8.6.22	Location	Normal Shop-Floor Area	Vendor to Confirm	
8.6.23	Dust Separation	Through a system containing cyclonic separators, ducts connecting blasting chamber & dust extraction unit, dust collectors and exhaust fan		
8.6.24	Shots Leakage	Leak proof arrangement to be provided	Vendor to Confirm	
8.6.25	Control	Manual & Automatic Start / Stop with indicating alarm for shots level low	Vendor to Confirm	
8.6.26	Noise Level	Not exceeding 85dBA	Vendor to Confirm	
8.6.27	Air booster	Suitable air booster to be provided. For pneumatic air supply refer clause 16.1	Vendor to Confirm	
8.7	FIN WIDTH CORRECTION UNIT BY COLD ROLLING			
8.7.1	Purpose : Continuous width correction of Fins to be done by COLD ROLLING by means of rollers and straightening in horizontal and vertical directions.		Vendor to Confirm	

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION		BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
8.7.2	Fin Bar Straightening & Width correcting Unit by Rolling shall consist of :		Vendor to Confirm
	Supporting & In feed Guide Rollers		Vendor to Confirm
	Vertically straightening unit, Mechanically Adjustable		Vendor to Confirm
	Horizontally straightening unit, Mechanically Adjustable		Vendor to Confirm
	Fin width correcting unit with top & bottom support rollers		Vendor to Confirm
	Motorized, Hardened, Calibrating Rollers, Mechanically adjustable to the needed Fin-Width, with Mechanical Width Indicators.		Vendor to Confirm
8.7.3	Total No. of Width Correcting Roller Stages (In how many stages the width correction is done)		Vendor to Specify
8.7.4	No. of Width Correcting Rollers per Stage (How many rollers are there in each stage)		Vendor to Specify
8.7.5	Width correction Capacity	Suitable for the Material as per Clause 8.1.4	Vendor to Confirm
8.7.6	Width of Fins used	9 mm to 110mm	Vendor to Confirm
8.7.7	Fin thickness	5mm to 12mm	Vendor to Confirm
8.7.8	Width Correction required up to	1.5 mm	Vendor to Confirm
8.7.9	Tolerance on Width	± 0.05 mm	Vendor to Confirm
8.7.10	Fin Feeding Speed	Range : 1.0 to 6.0m/min	Vendor to Confirm
8.7.11	Lubrication	Greasing points have to be provided in convenient locations for easy grease filling in the unit.	Vendor to Confirm
8.8	FIN FEEDING SYSTEM & FIN STORAGE RACK		
8.8.1	Automatic fin bar pulling of the fin from the Decoiler Unit and through rollers of the fin width correction unit / other units.		Vendor to provide details of the feeding system
8.8.2	The fin storage rack on the out feed side has to be rigid by design.		Vendor to Confirm
8.8.3	The width of the fin storage rack on the out feed side shall have enough width to store atleast 50 fins of 12.5mm width.		Vendor to Specify
8.8.4	The outfeed conveying system to be provided. Details such as drives provided, means of conveying etc to be provided about the outfeeding system		Vendor to Specify
8.8.5	The system to shift the corrected fins from Outfeed conveyor to the fin storage rack to be explained.		Vendor to Specify

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION		BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
8.8.6	The outfeed conveying system and fin storage rack to handle fins with maximum length of 25metres and minimum length of 4metres	Vendor to Confirm	
8.9	HYDRAULIC CUT OFF UNIT & FIN LENGTH MEASURING DEVICE		
8.9.1	Purpose : To cut the fin to the pre-programmed length after Fin width correction & Straightening		
8.9.2	Cutting	Hydraulic Shear	Vendor to Confirm
8.9.3	Length Measuring Devices	Online Automatic Length measurement before the shearing unit to be provided.	Vendor to Confirm
8.9.4	Length range	Programmed length after Width correction & straightening. Range : 1 Meter to 25meters	Vendor to Confirm
8.9.5	Length display	The actual length to be continuously displayed by the side of the programmed length on the control panel screen.	Vendor to Confirm
8.9.6	No. of Fins to be cut	Programmed no. of fins to be cut and actual no. of fins cut to be displayed on the control panel screen.	Vendor to Confirm
8.9.7	Accuracy on Length of Fin	± 10mm in 25 meters	Vendor to Confirm
8.9.8	Interlock	Automatic Fin travel stop and restart when Fin is Cut	Vendor to Confirm
8.9.9	Interlock	Automatic fin travel start after the fin is transferred to fin storage rack.	Vendor to Confirm
8.10	OPERATION AND CONTROL SYSTEM FOR FIN WIDTH CORRECTION SYSTEM		
8.10.1	Control shall be PLC based.		Vendor to Specify
8.10.2	Separate operator's panel for Fin width correcting & shot blasting station, having complete machine control system with suitable TFT colour display preferably touch screen of required configuration shall be provided for convenient and efficient operation. All switches should be within reach of operator. All displays/indications should also be conveniently placed. The control panel shall be standalone type with a cable length of minimum 15metres.		Vendor to provide details

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
8.10.3	Control panel shall have the following digital display for pre- setting and control: a) Start / Stop of Machine b) Length of the fin c) Width of the fin d) No. of fins (Qty) e) Speed of fin feeding	Vendor to Confirm
8.10.4	Actual values are to be displayed on the control panel screen by the side of the pre-set values during operation of the following: a) Length of the fin b) Width of the fin c) No. of fins (Qty) d) Speed of fin feeding	Vendor to Confirm
9.0	OPERATION AND CONTROL SYSTEM FOR THE PANEL WELDING STATION	
9.1	OPERATOR'S CONTROL PANEL:	
9.1.1	Control shall be PC based PLC based.	Vendor to Specify
9.1.2	Operator's Panel having complete machine control system with suitable display unit of required configuration shall be provided for convenient and efficient operation. All switches should be within reach of operator. All displays/indications should also be conveniently placed (Layout showing complete details should be submitted with the offer)	Vendor to Confirm
9.2	PC based PLC SYSTEM & FEATURES	
9.2.1	Make : Fanuc / Siemens / Mitsubishi	Vendor to provide details
9.2.2	Model (suitable and latest version)	Vendor to specify
9.2.3	Details of Standard features	Vendor to specify
9.2.4	Details of optional features, recommended by vendor.	Vendor to specify
9.2.5	The system should have full alphanumeric keyboard, display of suitable size, RS232C serial interfaces, parallel interface for printer, compact disc drive unit for data input/output, hard disk of sufficient capacity, pre-installed system software and other associated / required softwares, etc . (Details shall be furnished by the Vendor in the TECHNICAL OFFER)	Vendor to Confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION		BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
9.2.6	TFT monitors to be provided for display. Bidder to specify the size of the monitors.		
9.2.7	Display type and size		Vendor to Specify
9.2.8	Latest version Laptop with pre-loaded software for PLC for maintenance to be supplied with the machine.		Vendor to Specify
9.3	MACHINE OPERATIONAL CONTROLS		
9.3.1	Welding Process Control	Independent Process Controllers	Vendor to Confirm
9.3.2	The Controls shall be Hinged with swiveling arrangement	Located in a convenient position for the operator (180 deg Swivel)	Vendor to Confirm
9.3.3	Remote Control on Both Sides of Welding Machine	For Welding Torches Operations : - Torch Left / Right Torch Up / Down Wire Feed – Jogging control (inching)	Vendor to Confirm
9.4	CONTROL FEATURES shall include the following:		
9.4.1	Start / Stop of Panel movement	Auto / Semi Auto / Manual START/STOP of welding according to panel movement.	Vendor to Confirm
9.4.2	Panel movement trip logic	If panel movement stops or slows down, welding should be stopped. Similarly panel movement should STOP if welding is interrupted.	Vendor to Confirm
9.4.3	Interlocks	All necessary interlocks such as burn through, weld seam tracking, welding wire feed indication and alarm for change over, etc. to be provided. Bidder to list down all the interlocks provided in the machine.	Vendor to Specify
9.4.4	Separate controls of Different Units	Tube Shot Blast Unit Control / Fin width correcting unit control / Welding Power Source Controls / Wire Feed Controls / Panel Movement Controls etc. to be provided.	Vendor to Confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION			BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
9.4.5	Movements control	Operation of Torches / Upper Rolls / Fin Pressing Rolls / In-Feed, Out- Feed and Return Conveyor Control / Emergency Stop etc.	Vendor to Confirm	
9.4.6	Displays	Controller shall be provided with Digital Ammeters & Voltmeters for display of preset & real time weld parameters, digital display of Welding speed, wire feed rate, Gas flow etc. Bidder to enlist all displays on the control panel.	Vendor to Specify	
9.4.7	Locking	Provision for setting & locking of welding parameters	Vendor to Confirm	
10.0	DIAGNOSTIC SYSTEMS			
10.1	FAULT DIAGNOSTIC SYSTEM:			
10.1.1	Fault diagnostic system should be provided to show the faults on the display and detailed cause, and remedy for the faults related to mechanical and electrical maintenance.		Vendor to confirm	
10.1.2	Help guide should be provided to use both diagnostic systems		Vendor to confirm	
10.2	TELE-DIAGNOSTIC SERVICE (OPTIONAL)			
10.2.1	Tele-diagnostic service should be provided through International telephone lines along with required Hardware / Software package for the supplied PC based PLC system for remote diagnosis and correction of the problems in PC based PLC System of the machine. The tele-diagnostic service shall be provided free of charge for the guarantee period. BHPV will provide the necessary telephone line near the machine. GSM connection not acceptable.		Vendor to confirm	
10.2.2	The Vendor shall inform terms and conditions for the service after guarantee period. Subsequently, it should be possible to use other platforms, such as Internet or telephone line, subject to their availability in future.		Vendor to confirm	

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
11.0	MACHINE CONSTRUCTION AT WELDING ZONE	
11.1	<p>Machine frame shall be designed in such a manner to have easy access for the operators to view the weld bead in all 20 Torches and make adjustments online.</p> <p>Particularly to view the bottom torches welding, adequate wide space to be provided for the operator to go and stand and observe without much effort or inconvenience. The standing space to be suitably designed.</p> <p>Easy access to the operators to load 25kg wire spool coils in the wire feed coil holders particularly for the bottom torch wire feeders.</p>	Bidder to give details of the arrangement with dimensions of machine frame in the welding zone.
12.0	TOOLINGS	
12.1	<p>Complete set of toolings to be offered for the following sizes to weld a 2.5m wide full panel – Bidder to offer and confirm.</p> <ol style="list-style-type: none"> 1. Tube Dia. 38.1mm x Pitch 50.8mm – 1 Set 2. Tube Dia. 51mm x Pitch 63.5 mm - 1 Set 3. Tube Dia. 63.5mm x Pitch 76.2 mm - 1 Set 4. Tube Dia. 76.1mm x Pitch 101.1 mm – 1 Set 	
12.2	Tooling drawings for the complete sets of Toolings ordered shall be submitted with the documentation	
12.3	One set of all types & sizes of tools required for maintenance of the equipment to be supplied with equipment. List of the same shall be enclosed in the technical offer.	Vendor to confirm & furnish details
13.0	HYDRAULICS	
13.1	The System should be centralized, modular / stacked valve construction having minimum number of pipes / pipe joints and located at suitable location with easy accessibility of components for maintenance.	Vendor to Furnish Details
13.2	Pumps, valves, accessories etc shall be of Bosch-Rexroth / Vickers. (Details to be submitted). The seals used in cylinders shall be of Merkel / Parker / Bushak + Shamban / Hunger / Simrit make.	Vendor to confirm & furnish details
13.3	Each pump should have an independent motor. Tandem pumps shall be avoided.	Vendor to confirm
13.4	Suitable filtration system should be provided with Duplex / standby filter units. It is preferable to use re-usable type of filter elements in the system. The filter unit shall be of Hydac / Parker / Rexroth.	Vendor to confirm & furnish details

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
13.5	The flexible hoses used in the system shall be of Gates / Aeroquip / Parker.	Vendor to specify
13.6	Failure indication for oil level, temperature, pressure, filter clogging should be provided	Vendor to confirm & furnish details
13.7	Automatic shut off provision during hose failures, chiller failure, low oil level etc. Pump unloading feature during idle running to be provided for energy conservation. Details should be submitted.	Vendor to specify
13.8	Cooling system of sufficient capacity to maintain complete Hydraulic System at a temperature not exceeding 50 deg C irrespective of the ambient conditions.	Vendor to confirm & furnish details
13.9	It should be possible to replace hydraulic elements like valves, manifolds etc without disturbing the associated pipelines. The positioning of hydraulic elements should allow easy maintenance	Vendor to furnish details
13.10	Maximum Operating Pressure of hydraulic system	Vendor to specify
13.11	Main Pump flow in lpm and Motor Power in kW	Vendor to specify
13.12	Reservoir capacity (in litres)	Vendor to specify
13.13	All oil pipelines shall be of seamless steel and should undergo pickling process.	Vendor to confirm
13.14	One hand held minimess pressure gauge of suitable range with minimess hose (1.0 to 1.5m length) to be supplied along with the power pack. Check points to be provided in the system.	Vendor to confirm
13.15	All cylinders used in the machine should have standard bore and rod sizes. The piston rod shall be hard chrome plated.	Vendor to furnish details
13.16	The Power pack should be designed taking into account the energy efficiency (Hi-low pump system, proper unloading during idling, etc.). The motor used for pumps shall be energy efficient ones.	Vendor to furnish details
13.17	All the pipe / hose end fittings shall be of standard weld nipple with O-ring seating type (DIN 3865 or equivalent). No ferrule joints are to be used in the hydraulic system. All threaded connections shall be of metric sizes.	Vendor to confirm
13.18	The oil to be used shall be of standard ISO Viscosity Grades – 32 / 68. Vendor shall indicate equivalent Indian make oil.	Vendor to specify
13.19	The maximum pressure of the system should preferably not to exceed 310 bar	Vendor to specify
13.20	The control voltages for all the Solenoids of the valves shall be of 24-V DC and all solenoid operated DC valves should have manual over-ride provision and light indicating solenoids.	Vendor to specify

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION		BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
13.21	The pipelines to be painted with standard colours as per the colour coding accepted internationally for hydraulic systems.		Vendor to furnish details
13.22	All hydraulic pipelines, hoses and electrical control cables to be neatly laid out with proper clamps and flexible hose conveyors wherever required.		Vendor to confirm
13.23	All the components in the hydraulic power pack shall be provided with identification numbers, as per the hydraulic circuit and should be pasted with metallic identification number plates.		Vendor to confirm
13.24	Hydraulic oil will be supplied by BHPV during commissioning at BHPV works. Vendor to provide the oil during pre-dispatch inspection.		Vendor to confirm
14.0	COOLING SYSTEM		
14.1	Chiller Unit for Cooling of Sub- Systems	Suitable Capacity Refrigerant / Radiator type Chilling Units are to be provided for the cooling of Power Transformers, Tube Clamping Rollers, Hydraulic Power Pack Oil etc. Bidder to give Complete Technical Details on these Chilling Units	Vendor to Specify
14.2	Interlock System for Chilling Units – Coolant Flow	Suitable flow sensors are to be provided to have an interlock with welding circuit, to avoid failure of flow of cooling medium	Vendor to Confirm
15.0	LUBRICATION :		
15.1	Machine lubrication: Automatic centralized lubrication system with timer control and suitable metering cartridges to be supplied.		Vendor to confirm
15.2	All greasing points to be provided at convenient location for the operators to fill grease periodically.		Vendor to confirm
15.3	First filling of Lubrication Oil to be supplied by the supplier. Indian equivalent shall be mentioned.		Vendor to specify
15.4	First filling of Grease should be supplied by vendor. Indian equivalent shall be mentioned.		Vendor to specify
16.0	PNEUMATIC SYSTEM:		
16.1	The pneumatic operated elements of the machine shall work efficiently with BHPV compressed air supply at a pressure of 4.5 to 5 kg/cm ² .		Vendor to confirm
16.2	Bidder to specify the total air volume required for efficient operation of the complete machine.		Bidder to confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
16.3	Refrigerated Air Drier to be provided to eliminate moisture content from the compressed air at the designed flow and pressure rating.	Bidder to confirm
16.4	BHPV will provide compressed air at only one point near / on the machine. Vendor shall provide suitable filter-regulator-lubrication (FRL) unit and in addition a hand wheel valve at this point	Vendor to confirm
16.5	Hydraulic, Pneumatic & Lubricating oil piping should be preferably metallic except places where flexible piping is essential. All the pipes required for the same shall be included in the standard scope of the machine.	Vendor to confirm
16.6	Pneumatic components shall be of FESTO / NORGREN make.	Vendor to Specify
17.0	ELECTRICAL & ELECTRONICS SYSTEMS	
17.1	415V with a voltage fluctuation of +/- 10%, 50HZ with a fluctuation of +/-3%, 3 Phase AC (3 wire system without neutral) power supply will be provided by BHPV at a single point near the machine, as per layout recommended by Vendor. All cables, connections, circuit breakers etc. required for connecting BHPV's power supply to the machine shall be in the scope of vendor.	Vendor to confirm
17.2	Tropicalization: All electrical / electronic equipment shall be tropicalized.	Vendor to confirm
17.3	Control circuit voltage shall not exceed 24V DC	Vendor to confirm
17.4	All electrical components in the cabinets should be mounted on DIN Rail	Vendor to confirm
17.5	All electrical and electronic panels including operator's panel should be provided with fluorescent lamps for sufficient illumination and power receptacles of 220Volts, 5/15 Amp AC. All adapters /receptacles should have compatibility with Indian equivalents.	Vendor to confirm
17.6	All cables moving with traversing axes should be installed in caterpillar / Drag chain. Additionally, all the cable trays required for laying of cables should be included in the offer.	Vendor to confirm
17.7	Vendor should ensure the proper earthing for the machine and its peripherals.	Vendor to confirm
17.8	Cables shall be routed through totally enclosed cable trays. There shall not be cable trenches.	Vendor to Confirm
17.9	All electrical & electronic control cabinets & panels should be vermin and dust proof. All Electric enclosures shall have IP 54 protection	Vendor to confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
17.10	Motors and drives shall be of Fanuc / Siemens / Allen Bradley / ABB / Indramat / SEW conforming to IS / IEC Standards (Vendor should indicate make and type in the offer)	Vendor to confirm
17.11	All electrical items shall be of from SEW / ROCKWELL / Allen Bradley / Telemecanique / Delta.	Vendor to Confirm
17.12	All the motor control variable frequency drives should have input and out put chokes with brake resistor.	Vendor to confirm
17.13	All indication lamps should be provided with LED Indication Lamp.	Vendor to confirm
17.14	All components/devices/terminals are to be incorporated with numbered ferrules.	Vendor to Confirm
17.15	External wiring from / to control panel, control desk, external motors etc shall be by means of screened multi-core cables.	Vendor to Confirm
17.16	All electrical motors, limit switches etc, on the machine shall be wired using PVC sheathed cable running in conduits and converging to common terminal block.	Vendor to Confirm
17.17	All feedback systems & field sensors, limit switches, proximity switches, pressure switches, temperature controllers, should be for heavy duty application and wired up with flexible PVC insulated screened cables. All field elements shall have easy accessibility for maintenance.	Vendor to Confirm
17.18	Air Conditioners with Dehumidifiers of suitable capacity to be provided for all Electrical / Electronic Panels / Cabinets including Operator's Panel considering specified ambient conditions (ambient temperature of +50° C and relative humidity of 93 %) Make: Rittal / Warner & Finley. Detailed specifications to be submitted.	Vendor to Specify
17.19	Vendor to specify total power consumption in KW at Maximum load	Vendor to Specify
18.0	MACHINE LIGHTS	
18.1	Machine Spot Lights and suitable fluorescent light or metal halide lamps to be provided for sufficient illumination in the welding zone and in the pit where bottom torches are mounted.	Vendor to Confirm
18.2	All light fittings, consumables, adapters/receptacles should have compatibility with Indian equivalent	Vendor to Confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
19.0	MACHINE FOUNDATION:	
19.1	Vendor shall submit the preliminary layout drawing for getting BHPV's approval within one month from the date of Letter of Intent (LOI). Complete details like static and dynamic loads, foundation loadings etc required for foundation design shall be submitted by the Vendor within three months after getting BHPV's approval.	Vendor to Confirm
19.2	BHPV shall design and construct complete foundation for the machine as per the Vendor's recommendation	Vendor to Confirm
19.3	Complete anchoring system including fixators, levelling shoes required for anchoring system should be supplied by vendor.	Vendor to Specify
20.0	MACHINE SPARES:	
20.1	List of spares with itemized break-up of mechanical, hydraulic, pneumatic, electrical and electronic spares used in the machine in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation on three shifts continuous running basis shall be furnished by vendor along with offer. The list is to include following, in addition to other recommended spares: (Unit Price for each item of spare shall be offered)	Vendor to Confirm
20.2	Mechanical, Hydraulic, Pneumatic Spares: All types of Pumps, Valves, Pressure Switches, Transducers, Flow Switches, Filters, Seals, O-rings, Hydraulic Hoses, hoses, bearings, sprockets, chains etc.	Vendor to Confirm
20.3	Electrical / Electronic / PLC Spares: All types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch, Encoders, Spares for PLC, Servo Motors for Feed Drives, Power Module & Control Cards for Main Drive as well as Feed Drives etc.	Vendor to Confirm
20.4	Welding Consumable spares such as Contact tips, Gas nozzles, Tip adapters, Other torch spares for at least 6 months continuous operation shall be provided.	

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
20.5	Spare Torches, Torch cables and Wire feed conduits, Wire feed rollers may also be offered for 6 months.	
20.6	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 & suppliers to enable BHPV to procure these in advance, if required	Vendor to Confirm
20.7	Vendor to confirm that complete list of spares for machine and accessories, along with item part no / specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine	Vendor to Confirm
20.8	A set of Service Tools for dismantling and assembling of machine components such as roller sets etc. may be quoted.	Vendor to Confirm
21.0	DOCUMENTATION:	
21.1	GA drawings, Machine detailed constructional drawings with dimensions, Civil Foundation layout drawings, Hydraulic / Pneumatic / Electrical / Electronic circuits with BOM, are to be submitted within 45 days from the date of ordering (in case of an order) for approval by BHPV.	Vendor to Confirm
21.2	Tooling drawings for the ordered tooling are to be submitted within 60 days from the date of placing order, for BHPV approval before manufacturing, in case of an order.	Vendor to Confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
22.0	MACHINE INSPECTION & ACCEPTANCE:	
22.1	PRE-DISPATCH INSPECTION AT SUPPLIER'S WORKS:	
22.1.1	Complete Panel Welding station with all sub-systems and accessories shall be assembled and offered for inspection by BHPV Engineers at supplier's works	Vendor to Confirm
22.1.2	All systems of the machine have to be operated and demonstrated to the BHPV Engineers in proper working condition.	
22.1.3	Two full panels of 12m length / 2.5m width to be welded and shown. The Tubes and fins will along with the welding consumables have to be arranged by the supplier. All the other consumables have to be arranged by supplier. Welding wire shall be either in 25kg spools or Jumbo packs.	Vendor to Confirm
22.1.4	The Weld quality shall be tested as per Annexure-I and as per Clause 3.21 & 3.22.	Vendor to Confirm
22.2	PROVE-OUT AND ACCEPTANCE AT BHPV WORKS:	
22.2.1	After the machine erection and energizing at BHPV works, all systems of the machine have to be operated and demonstrated in proper working condition.	Vendor to Confirm
22.2.2	25m long and 2.5m wide panels shall be welded and proved out with 25 Kg spools & 300 Kg Jumbo Coils with wire specification ER70S6 – 1.2mm Solid wire.	Vendor to Confirm
22.2.3	All welding consumables shall be in vendor's scope. All tubes and fins will be supplied by BHPV.	Vendor to Confirm
22.2.4	The welding shall be smooth and without interruptions as specified under clause 3.11.	Vendor to Confirm
22.2.5	The machine shall be accepted after trouble free welding of panels for SIX consecutive shifts. Weld quality test shall be done as per Clause 3.21 & 3.22	Vendor to Confirm
23.0	TRAINING:	
23.1	The supplier shall train TWO BHPV Engineers in Operation and Maintenance (Mechanical, Electrical/ Electronics and Programming) of the Machine for FIVE working days at supplier's works after the pre-dispatch inspection.	Vendor to Confirm
23.2	Airfare, board & lodging for the BHPV Engineers who will be visiting supplier's works for pre-dispatch inspection and training, shall be borne by BHPV.	Vendor to note

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
23.3	The Supplier shall impart training to BHPV's Machine Operators and Maintenance crew in Operation and Maintenance (Mechanical, Electrical/ Electronics and PLC System) during commissioning of the Machine at BHPV works for TEN working days.	Vendor to Confirm
23.4	The training shall include specialized coaching in i) Safety ii) Operation of the machine iii) PC based System & Operation, iv) Trouble-Shooting, v) Software Application vi) All special features of the machine vii) Electrical / Mechanical / Electronics systems	Vendor to Confirm
23.5	Competent, English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHPV personnel	Vendor to Confirm
24.0	ERECTION & COMMISSIONING	
24.1	Supplier to take full responsibility for Supervision of the erection and for start up, testing and commissioning of machine, its controls and accessories. Supplier shall send suitable qualified Engineers for supervision of Erection and Commissioning of the machine at BHPV works. Commissioning Engineers who will be deputed to BHPV shall be English speaking or English interpreters have to be arranged by the supplier for the entire duration from start of erection till the machines are commissioned and handed over to BHPV with complete training.	Vendor to Confirm
24.2	Service requirement like power, air & water shall be provided by BHPV at only one point to be indicated by Vendor in their foundation/layout drawings. Other requirements like crane and personnel shall also be provided by BHPV.	Vendor to Confirm
24.3	All tests, as mentioned (Machine Acceptance) shall form part of the commissioning activity.	Vendor to Confirm
24.4	Commissioning spares, required for commissioning of the machine shall be supplied free of cost	Vendor to Confirm
24.5	Test Mandrels, Instruments and other necessary equipment including Laser equipment, if required, to carry out all above activities should be brought by the Vendor.	Vendor to Confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
24.6	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.	Vendor to Confirm
25.0	IN-BUILT SAFETY ARRANGEMENTS	
25.1	Following safety features in addition to other standard safety features should be provided on the machine:	
25.2	Panel Welding Machine shall have Safety Guards / Sliding Doors for protection against the welding arc / splash / flashing for the Machine Operators. Safety Doors to have visible glasses for clear vision also. Bidder to submit details on this arrangement offered.	Vendor to specify
25.3	A detailed list of all alarms / indications provided on machine should be submitted by the Vendor.	Vendor to Specify
25.4	Suitable safety enclosure to be provided with glass windows for the fin width correction machine.	Vendor to Confirm
25.5	All the pipes, cables etc. on the machine should be well supported and protected. These should not create any hindrance to machine operator's movement for effective use of machine.	Vendor to Confirm
25.6	Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistakes.	Vendor to Specify
25.7	Machine functions should be continuously monitored and alarm / warning indications through lights/ alarm number with messages (on the display and operator panels) should be available.	Vendor to Confirm
25.8	All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations and suitably guarded.	Vendor to Confirm
25.9	Emergency Switches should be provided at suitable locations as per International Norms.	Vendor to Confirm
25.10	All lubricated parts like Bed, guide ways shall have provision for collecting the used Lubrication oil from machine guide ways and preventing them from spilling over on to the ground.	Vendor to Confirm

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
26.0	THERMAL STABILITY FOR AMBIENT CONDITIONS & ENVIRONMENTAL PERFORMANCE OF THE MACHINE:	
26.1	The machine shall be suitable for an ambient temperature of +50 deg C and relative humidity of 93% respectively, but both do not occur simultaneously.	Vendor to Confirm
26.2	The vendor should ensure trouble free operation of the machine with Thermal Stability of the complete machine and accuracy requirements of BHPV components, keeping in view of ambient conditions as mentioned above.	Vendor to Confirm
26.3	The machine, including attachments and accessories, should be suitable for continuous operation on three shifts a day.	Vendor to Confirm
26.4	If any safety / environmental protection enclosure is required it shall be built in the machine by the vendor.	Vendor to Confirm
26.5	Paint of the machine should be oil / coolant resistant and should not peel off	Vendor to Confirm
26.6	Maximum noise level shall be 85 dB(A) at normal load condition..	Vendor to Confirm
27.0	PAINTING:	
27.1	Painting of entire Machine / Electrical Panels: RAL 6011 Apple Green (Polyurethane Paint) Heat resistant paint on the inside of the machine in the welding zone.	Vendor to Confirm
28.0	MACHINE PACKING:	
28.1	Sea worthy & rigid packing for all items of complete machine, PLC System, 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	Vendor to Confirm
29.0	GUARANTEE:	
29.1	Performance Guarantee to be given for 12 months from the date of commissioning OR 18 months from the date of dispatch whichever is earlier.	Vendor to Confirm
30.0	GENERAL:	
30.1	Machine Model No.	Vendor to Specify
30.2	Total connected load (KVA):	Vendor to Specify
30.3	Total air volume in cu.m/min	Vendor to Specify
30.4	Floor area required (Length, Width, Height) for complete machine & accessories	Vendor to Specify

20 TORCH – PANEL WELDING STATION (PART B)

Sl. No.	SPECIFICATION / DESCRIPTION		BIDDER'S OFFER WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS
30.5	Total weight of the machine (approx)		Vendor to Specify
30.6	The general arrangement drawing showing the machine & associated systems with salient dimensions shall be submitted along with the offer. The drawing should be clear and legible		Vendor to provide compulsorily
31.0	OPTIONAL ACCESSORIES or SUPPORTING SYSTEMS		
31.1	Weld Quality Scanner	A suitable hand held or machine mounted instrument with recording / live indicating facility to check the quality of weldment in the panel, after the welding operation. Bidder to provide details if such a system is optionally offered.	
31.2	Seam Tracking System	A mechanical or laser seam tracking system for the bead to be in position. Bidder to provide details if such a system is optionally offered.	
31.3	Camera for monitoring the weld bead particularly of the bottom torches	Camera arrangement for viewing the bead, to ensure operators are able to monitor the bead with ease and produce welds free from defects. Bidder to provide details if such a system is optionally offered.	
31.4	Sensor to detect distance	Sensor for automatic detection of contact tip to work distance. Bidder to provide details if such a system is optionally offered.	

ENCLOSURE : ANNEXURE – 1: Visual inspection of Weld quality

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.

- 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 90% payment (90% of basic price + 100% Taxes) will be made within 45 days of receipt of material and balance 10% will be made after acceptance of material/commissioning of the equipment at BHPV, Visakhapatnam and on submission of Performance Bank Guarantee.
- 5.7.2 **Foreign Bidders**
An Irrevocable letter of Credit shall be established for 80% of FOB/FCA/CFR/ (excluding Indian Agent's commission) 2 months prior to shipment and valid for 3 months for negotiation against shipment Letter of Credit shall be opened through a branch of State Bank of India in the country where order shall be placed. In case, in the country where order is placed, State Bank of India is not there, Letter of Credit will be confirmed by foreign banker. 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.
- 5.7.3 **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 + 2%, which shall be computed for the differential period between BHPV terms of payment and the offered basic price.
- 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

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)

BHPV Tender No: & Date:	Bidders Confirmation / response
Technical Confirmation to BHPV's Specification	Furnished /Not Furnished
Prices have been quoted on "FIRM PRICE" basis only.	Yes / No
Prices have been quoted on "F.O.R BHPV" basis only.	Yes / No
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – please Specify)	
Sales Tax (please Specify)	
Excise Duty (please Specify)	
Delivery period from the date of Purchase Order (please Specify). 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 (Offers from vendors not accepting the Risk Purchase terms will be rejected)	Yes / No
Payment terms : 90% payment will be made within 45 days of receipt of material and balance 10% will be made after acceptance of material/commissioning of the equipment at BHPV Visakhapatnam and on submission of Performance Bank Guarantee.	
Contract Execution Bank Guarantee (CEBG) as per Clause 5.10 (Offers from vendors not accepting to submit CEBG will be rejected)	Yes / No
Performance Bank Guarantee (PBG) as per Clause 5.11 (Offers from vendors not accepting to submit PBG will be rejected)	Yes / No
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). (Offers from vendors not accepting to the requested guarantee period will be rejected)	Yes / No
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)

BHPV Tender No: & Date:	Bidders Confirmation / response
Technical Confirmation to BHPV's Specification	Furnished / Not Furnished
Prices have been quoted on "FIRM PRICE" basis only.	Yes / No
Prices have been quoted on "F.O.R BHPV" basis only.	Yes / No
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – please Specify)	
Currency in which quoted (please Specify)	
Port of loading (please Specify)	
Country of Origin (please Specify)	
Sales Tax (please Specify)	
Excise Tax (please Specify)	
Delivery period from the date of Letter of Intent (please Specify)	
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 (Offers from vendors not accepting the Risk Purchase terms will be rejected)	Yes / No
Payment terms (An irrevocable Letter of Credit shall be established for 80% of FOB/FCA/CFR (excluding Indian Agent's Commission) 2 months prior to shipment and valid for 3 months for negotiation against shipment. Letter of Credit shall be Opened through a branch of State Bank of India in the country where Order shall be Placed. In case, in the Country where order is placed State Bank of India is not there, Letter of credit will be opened through our bankers or as permitted by Government of India. Letter of Credit will not be confirmed by foreign banker. 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 and Commissioning of the Equipment by sight draft against Certificate issued by the competent authority as per clause 5.7.2)	
Agency commission (refer clause 5.14)	Acceptable / Not acceptable
Contract Execution Bank Guarantee (CEPG) as per Clause 5.10 (Offers from vendors not accepting to submit CEBG will be rejected)	Yes / No
Performance Bank Guarantee (PBG) as per Clause 5.11 (Offers from vendors not accepting to submit PBG will be rejected)	Yes / No
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). (Offers from vendors not accepting to the requested guarantee period will be rejected)	Yes / No
Approximate Net Weight of the total Consignment	
Approximate Gross Weight of the total Consignment	

Signature & Office Seal of the bidder