

BHARAT HEAVY PLATE & VESSELS LIMITED.,
(A Subsidiary Bharat Heavy Electricals Limited)
A Government of India Enterprises
Visakhapatnam – 530 012 INDIA.
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NOTICE INVITING TENDER(NIT)

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

**SUB: Header Stub End Cutting & Edge
Preparation Machine**

Our Ref: **MM/2/10/2005/CAP/W-053/5055**

DATE: 21.06.2013

Sealed quotations in duplicate are invited from suppliers on **or before 23.07.2013** **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.	Header Stub End Cutting & Edge Preparation Machine	1 Nos
	Encl: 1. Technical Specifications 23 Pages 2. Annexure-1 1 Page 3. Annexure-2 2 Pages 4. General Terms/ commercial terms and conditions (INCLUDING CHECK LIST) 10 pages	

For BHARAT HEAVY PLATE & VESSELS LIMITED,

For Dy. GENERAL MANAGER (MM)

**HEADER SUB END CUTTING & EDGE PREPARATION MACHINE
(CNC TUBE PARTING & EDGE PREPARATION MACHINE)**

SECTION – I : QUALIFYING CRITERIA

The BIDDER has to compulsorily meet the following requirements to get qualified for considering the technical offer:

Sl. No.	REQUIREMENTS	VENDOR's RESPONSE
1	<p>Only those vendors (OEMs), who have supplied and commissioned at least ONE CNC LATHE TYPE PARTING & EDGE PREPARATION MACHINES FOR TUBE DIA. 76 MM OR HIGHER in the past ten years (from the date of opening of Tender) and such machine is presently working satisfactorily for more than one year after commissioning (from the date of opening of Tender) should quote.</p> <p>However, if such machine had already been supplied to BHPV / BHEL, then that machine should be presently working satisfactorily for more than six months after its commissioning and acceptance (from the date of opening of Tender).</p> <p>Performance certificate from at least one customer regarding satisfactory performance of machine supplied to them. For obtaining the performance certificate from the customer, a suggestive format is provided in SECTION – IV</p>	
The vendor should submit following information where similar machine has been supplied for qualification of their offer.		
1.1	Name and postal address of the customer or company where similar machine 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 machine.	
1.5	Application for which the machine is supplied	
1.7	BHPV reserves the right to verify the information provided by vendor (including visit by a team of BHPV Officials to the Customer Works of the Vendor). In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	
2.0	DELIVERY - The bidder shall quote the best possible delivery. However the delivery shall not exceed 8 months with an additional grace period of 3 months. The additional grace period will attract a loading which is explained in the commercial terms of the enquiry. The delivery period shall be reckoned from date of purchase order to despatch from the vendor works.	

**HEADER SUB END CUTTING & EDGE PREPARATION MACHINE
(CNC TUBE PARTING & EDGE PREPARATION MACHINE)**

PART A
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SECTION – II

The BIDDER / VENDOR is requested to provide the following information:

Sl. No.	REQUIREMENTS	VENDOR's RESPONSE
3.0	The BIDDER/VENDOR to furnish Reference List of Customers, with full address, details of contact person, where CNC TUBE PARTING & EDGE PREPARATION M/Cs have been supplied in the past.	
4.0	Details of CNC TUBE PARTING & EDGE PREPARATION M/Cs supplied to other BHPV / BHEL units, if any. (Year of commissioning, Spindle size of machine, Spindle motor power)	
5.0	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centers in India. [Details on the number of trained personnel with field of experience to handle the service needs of BHPV in time]	
6.0	Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

**HEADER SUB END CUTTING & EDGE PREPARATION MACHINE
(CNC TUBE PARTING & EDGE PREPARATION MACHINE)**

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SECTION – III

The BIDDER to note:

Sl. No.	REQUIREMENTS	VENDOR'S RESPONSE
7.0	The BIDDER / VENDOR shall submit the offer in TWO PARTS. 1. Technical Offer [with PART A & PART B]& commercial offer 2. Price Bid.	
8.0	The Technical Offer shall contain a comparative statement of Technical Specifications demanded by BHPV and Offer Details submitted by the Bidder , against each clause. A just 'CONFIRMED' or 'COMPLIED' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer.	
9.0	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.	
10.0	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.	

**HEADER SUB END CUTTING & EDGE PREPARATION MACHINE
(CNC TUBE PARTING & EDGE PREPARATION MACHINE)**

PART A
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SECTION – IV

The performance certificate should be produced **on Customer's Letter Head.**

PERFORMANCE CERTIFICATE

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

1. Supplier of the Machine :

2. Make & Model of the Machine :

3. Month & Year of Commissioning :

4. Application for which Machine is used :

5.
 - a. Max. size of Tube dia. :
 - b. Spindle Power :
 - c. CNC System :

6. Performance of the Machine : Satisfactory / Good /
(Strike off whichever is not applicable) Average / Not Satisfactory

7. Any Other remarks :

8. Contact Details
Name of the Contact Person :
Phone No. :
Fax No. :
E-mail ID :

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

TECHNICAL SPECIFICATIONS for CNC TUBE PARTING & EDGE PREPARATION MACHINE

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER'S OFFER [with Complete Technical Details]																																	
1.0	APPLICATION	<p>This machine is meant for cutting to length, outside & inside chamfering and preparation of 'V' & 'J' style edge preparation on seamless steel tubes to form high-pressure components for Power Boilers and Industrial boilers for Process Industries. The machine shall be CNC Controlled</p> <p>End preparation of one end of tube is to be done in a single setting, while the other end is to be prepared on the same machine by loading the tube again. A lathe type cut-off and end preparation machine is envisaged</p> <p>The machine shall have a tube storage rack and tube feeding system on the in-feed side and a finished cut tube collecting dump at the out feed side.</p>																																		
2.0	TUBE SIZES:	<p>All are OD (outer diameter) Controlled tubes with thickness tolerance of Maximum +22 %</p> <table border="1" data-bbox="573 797 1619 1279"> <thead> <tr> <th data-bbox="573 797 667 873">Sl. No.</th> <th data-bbox="667 797 974 873">OUTERDIAMETER in mm</th> <th data-bbox="974 797 1619 873">WALL THICKNESS RANGE in mm (Tolerance: Max. +22 %)</th> </tr> </thead> <tbody> <tr> <td data-bbox="573 873 667 914">1</td> <td data-bbox="667 873 974 914">31.8</td> <td data-bbox="974 873 1619 914">3.2 / 3.6 / 4.0 / 5.0</td> </tr> <tr> <td data-bbox="573 914 667 954">2</td> <td data-bbox="667 914 974 954">38.1</td> <td data-bbox="974 914 1619 954">3.2 / 4.0 / 5.0 / 6.3</td> </tr> <tr> <td data-bbox="573 954 667 995">3</td> <td data-bbox="667 954 974 995">44.5</td> <td data-bbox="974 954 1619 995">4.0 / 4.5 / 5 / 6.3 / 8 / 9 / 10</td> </tr> <tr> <td data-bbox="573 995 667 1036">4</td> <td data-bbox="667 995 974 1036">47.63</td> <td data-bbox="974 995 1619 1036">5 / 6.3 / 8 / 10</td> </tr> <tr> <td data-bbox="573 1036 667 1076">5</td> <td data-bbox="667 1036 974 1076">51.0</td> <td data-bbox="974 1036 1619 1076">3.6 / 4 / 4.5 / 5 / 6.3 / 8 / 10 / 12</td> </tr> <tr> <td data-bbox="573 1076 667 1117">6</td> <td data-bbox="667 1076 974 1117">54.0</td> <td data-bbox="974 1076 1619 1117">3.6 / 4 / 4.5 / 5 / 6.3 / 8 / 10 / 12</td> </tr> <tr> <td data-bbox="573 1117 667 1157">7</td> <td data-bbox="667 1117 974 1157">57.0</td> <td data-bbox="974 1117 1619 1157">4 / 5 / 6.3 / 8 / 10</td> </tr> <tr> <td data-bbox="573 1157 667 1198">8</td> <td data-bbox="667 1157 974 1198">60.3</td> <td data-bbox="974 1157 1619 1198">4 / 5 / 6.3 / 8 / 10 / 12.5</td> </tr> <tr> <td data-bbox="573 1198 667 1239">9</td> <td data-bbox="667 1198 974 1239">63.5</td> <td data-bbox="974 1198 1619 1239">4.8 / 5.6 / 6.3 / 10 / 12.5</td> </tr> <tr> <td data-bbox="573 1239 667 1279">10</td> <td data-bbox="667 1239 974 1279">76.1</td> <td data-bbox="974 1239 1619 1279">7.1 / 10 / 12.5</td> </tr> </tbody> </table>	Sl. No.	OUTERDIAMETER in mm	WALL THICKNESS RANGE in mm (Tolerance: Max. +22 %)	1	31.8	3.2 / 3.6 / 4.0 / 5.0	2	38.1	3.2 / 4.0 / 5.0 / 6.3	3	44.5	4.0 / 4.5 / 5 / 6.3 / 8 / 9 / 10	4	47.63	5 / 6.3 / 8 / 10	5	51.0	3.6 / 4 / 4.5 / 5 / 6.3 / 8 / 10 / 12	6	54.0	3.6 / 4 / 4.5 / 5 / 6.3 / 8 / 10 / 12	7	57.0	4 / 5 / 6.3 / 8 / 10	8	60.3	4 / 5 / 6.3 / 8 / 10 / 12.5	9	63.5	4.8 / 5.6 / 6.3 / 10 / 12.5	10	76.1	7.1 / 10 / 12.5	
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3.0	MATERIALS:	<p>a. CARBON STEEL : SA 192, SA 209 Gr. T1, SA 210 Gr.A1/Gr. C (ASTM)</p> <p>b. ALLOY STEEL: SA 213 Gr.T2, T11, T12, T22, T91 (ASTM)</p> <p>c. STAINLESS STEEL: SA 213 304H, 316L, 347H (ASTM)</p> <p>d. GOST Standards: 12X1Mφ / Steel 20</p>																																		

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER'S OFFER [with Complete Technical Details]
4.0	JOB SPECIFICATIONS:		
4.1	Tube Diameters	Minimum: 31.8 mm Maximum: 76.1 mm	
4.2	Tube Wall Thickness	Minimum: 3.2mm Maximum: 15.25mm	
4.3	Reference Tube Size for establishing the machine capacity	(Diameter x Thickness) 76.1 x 12.5mm: 31.8 x 3.2mm: 63.5 x 12.5mm (Alloy Steel / SS)	
4.4	Raw Material Tube (Mother tube) lengths	Minimum: 2000mm Maximum: 14000mm	
4.5	Finished Tube lengths	Minimum: 50mm Maximum: 3000mm	
4.6	Edge Preparation	B, C, D styles and 'J' groove as per drawing Annexure-1	
4.7	Chamfering angles	37½° and 45° chamfering.	
4.8	Max. ID boring required	50mm + Taper angle for smooth merging. Bore ID (d1) as given in the drg Annexure I to be maintained	
4.9	Max. OD machining	5mm straight and Taper angle of 180 after that. (not shown in the Annexure)	
4.10	Machine production output required	Not less than 500 ends / shift (on 44.5 x 6.3 / SA 106 Gr C tubes)	
5.0	MACHINE SPECIFICATIONS		
5.1	Machine configuration: The machine shall be a lathe type cutoff and end preparation machine in which the tube can be fed from the rear of the headstock through the bore of the chuck. Vendor to give the details of the machine with Tube Rotating, Stationary Cutting tool post with tool holders configuration. A general arrangement drawing of the machine to be provided along with the offer.	Vendor to furnish details	

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER's OFFER [with Complete Technical Details]
5.2	No. of Tool Slides (Sequence of operation has to be explained in the offer)	Vendor to Specify	
5.3	Feed for Tool Slides - Servo controlled Ball Screws	Vendor to confirm	
5.4	Machining Operations	1. Parting 2. Inside boring 3. Chamfering or Profile as per EP style 4. OD machining (Operations 1, 2 & 3 are to be done in a single setting of tools. Operations No 2 and 3 are to be carried out simultaneously)	
5.5	TUBE FEEDING ARRANGEMENT:		
5.5.1	Inclined Tube Storage Table, Tube Conveyor, Kick-in arrangement for feeding single tube at a time from the Storage Table to the Tube Conveyor, and Tube Conveyor drive for feeding tube to the in-feed side of the machine The inclined tube storage table shall have a capacity to store 50 tubes of Dia. 76.1 x 12.5 mm tubes at a time	Vendor to furnish details & confirm	
5.5.2	Tube feeding system of the machine:		
	a) Tube feeding shall be through spindle	Vendor to confirm	
	b) Suitable positive tube feeding arrangement shall be provided at the rear of the head stock of machine to feed the tube through the spindle bore	Vendor to specify	
	c) Tube feed arrangement drive type and power rating	Vendor to specify	
	d) The tube feeding should be interlocked with collet closing mechanism so that tube feeding is disengaged once collet clamps the tube	Vendor to confirm & furnish details of the offered system	
5.6	TUBE CLAMPING & LENGTH SETTING		
5.6.1	Tube Clamping	Tube clamping shall be by means of Hydraulic actuated self-centering collet chuck.	

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER's OFFER [with Complete Technical Details]
5.6.2	Hydraulic Clamping - Dual pressure – reduced pressure for thin wall	Vendor to confirm & furnish details.	
5.6.3	Tube lift adjustment	Mechanism to ensure that pipe centre line coincides with the chuck centre line for various diameters of the pipes should be provided.	
5.6.4	Length setting (For finished lengths mentioned in clause 4.5 above)		
a)	Length setting shall be by a servo positioned tube stopper moving on a overhead beam in front of the headstock. The stopper should be rigid enough to take the impact loads. (Details of the arrangement should be furnished in the offer)	Vendor to confirm	
b)	Tube stopper position setting	By CNC control	
c)	Tube stopper Clamping at programmed position	Vendor to specify arrangement	
d)	The stopper should retract clear of the tube once the collet clamps the tube (Details of the arrangement should be furnished in the offer)	Vendor to confirm	
5.6.5	Tolerance on length setting	± 0.2 mm	
5.7	SPINDLE		
5.7.1	Spindle speed (Infinitely variable)	Vendor to Specify	
5.7.2	No. of spindle speed ranges	Vendor to Specify	
5.7.3	Spindle speed range selection through CNC	Vendor to Confirm	
5.7.4	KW rating of AC spindle drive motor - around 20 KW - the Spindle motor shall be energy efficient (Vendor to furnish complete technical details along with offer)	Vendor to Specify & furnish details	
5.8	CONTROLS		
5.8.1	CNC Control	Vendor to Confirm	
5.8.2	Machine shall be operated in three modes viz., Automatic, semi-Automatic and Manual.	Vendor to Confirm	
5.8.3	All feedback systems & elements shall have easy accessibility for maintenance	Vendor to Confirm	

Sl. No.	PARTICULARS & BHPV SPECIFICATION	BIDDER'S OFFER [with Complete Technical Details]
5.8.4	All control logics used in the machine to be detailed out in the manual.	Vendor to Confirm
5.8.5	Operator control shall be positioned for easy and safe operation of the machine	Vendor to Confirm
5.9	CNC SYSTEM & FEATURES:	
5.9.1	CNC System Simple and user friendly CNC system. Storing of Pre-programmed styles of edge preparation and to be selectable with data keying of different Diameters and Thicknesses of tubes.	Vendor to specify
5.9.2	CNC features	No. of axis controlled by CNC to be specified by the vendor.
5.9.3	Make: Fanuc / Siemens	Vendor to specify
5.9.4	Model: (Suitable and Latest version, as available at the time of ordering, should be supplied).	Vendor to specify
5.9.5	Details of Standard features	Vendor to specify
5.9.6	Details of optional features, recommended by vendor.	Vendor to Specify
5.9.7	Details of other optional features	Vendor to Specify
5.9.8	Automatic diagnostic alarm feature with error display	Vendor to Confirm
5.10	AIR CONDITIONERS:	
5.10.1	Air Conditioners with Dehumidifiers of suitable / sufficient capacity to be provided for all Electrical / Electronic Panels / Cabinets including Operator's Panel considering specified ambient conditions. Make: Rittal / Warner & Finley Detailed specifications to be submitted.	Vendor to indicate the make & submit details
5.11	COOLANT SYSTEM	
5.11.1	Coolant system has to be provided for machining. An integral coolant return system to be provided to avoid coolant spillage.	Vendor to Specify
a)	Coolant tank capacity	Vendor to Specify
b)	Coolant flow rate	Vendor to Specify
c)	Coolant pressure	Vendor to Specify
d)	Coolant motor rating	Vendor to Specify

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER'S OFFER [with Complete Technical Details]
5.11.2	Coolant tank shall be easily removable	Vendor to Confirm	
5.12	HYDRAULICS		
5.12.1	The System should be centralized, modular / stacked valve construction having minimum number of pipes / pipe joints and located on ground level with easy accessibility of components for maintenance.	Vendor to Furnish Details	
5.12.2	Pumps, valves, accessories etc shall be of 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	
5.12.3	Each pump should have an independent motor. Tandem pumps shall be avoided.	Vendor to Confirm	
5.12.4	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. (Details to be submitted).	Vendor to confirm & furnish details	
5.12.5	The flexible hoses used in the system shall be of Gates / Aeroquip / Parker.	Vendor to specify	
5.12.6	Failure indication for oil level, temperature, pressure, filter clogging should be provided	Vendor to confirm & furnish details	
5.12.7	Refrigerated type cooling system of sufficient capacity to maintain complete Hydraulic System at a temperature not exceeding 50 deg C irrespective of the ambient conditions. BHPV prefers to have direct cooling of oil in the chiller rather than indirect water cooling type. Complete details should be submitted with the offer.	Vendor to confirm & furnish details	
5.12.8	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	
5.12.9	Maximum Operating Pressure of hydraulic system	Vendor to specify	
5.12.10	Main Pump flow in lpm and Motor Power in kW. It is preferable to use standard 1450 rpm motor in the hydraulic system.	Vendor to specify	
5.12.11	Reservoir capacity (in litres)	Vendor to specify	

Sl. No.	PARTICULARS & BHPV SPECIFICATION	BIDDER'S OFFER [with Complete Technical Details]
5.12.12	All oil pipelines shall be of seamless steel and should undergo pickling process.	Vendor to confirm
5.12.13	Pressure measuring minimess check points (preferably with ¼” BSP stud end) shall be provided for important pressure measurements from operation, trouble shooting and maintenance point of view. Two sets of hand held minimess pressure gauge of suitable range with minimess hose (1.0 to 1.5m length) also to be supplied along with the power pack.	Vendor to furnish details
5.12.14	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
5.12.15	Suitable stand-by pump unit, filter unit, etc shall be provided for critical areas	Vendor to furnish details
5.12.16	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
5.12.17	All the pipe / hose end fittings shall be of standard weld nipple with O-ring seating type (DIN 3865 or equivalent) - female swivel nut with 240 cone and o-ring and no ferrule joints are to be used in the hydraulic system. All threaded connections shall be of metric sizes	Vendor to confirm
5.12.18	Suitable vibro-mounts, compensators (flexible bellows), flexible hose at the pump outlet, polypropylene clamps for pipes & hoses, etc are to be provided to minimize the vibration induced and transmitted to the hydraulic joints.	Vendor to confirm
5.12.19	The oil to be used shall be of standard ISO Viscosity Grades – 32 / 46 / 68	Vendor to specify
5.12.20	The maximum pressure of the system should preferably not to exceed 310 bar	Vendor to specify
5.12.21	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

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER's OFFER [with Complete Technical Details]
5.12.22	The pipelines to be painted with standard colors as per the color coding accepted internationally for hydraulic systems.	Vendor to furnish details	
5.12.23	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	
5.12.24	Suitable leakage oil collection metallic tray to be provided wherever required.	Vendor to confirm	
5.12.25	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	
5.12.26	First filling of all required Oils & Grease etc. should be supplied by vendor. Indigenous (Indian) source or Indian equivalent and specifications of oils/ greases are also to be provided by the vendor.	Vendor to confirm & provide Indian equivalents.	
5.13	Machine lubrication: Automatic centralized lubrication system with timer control and suitable metering cartridges to be supplied.	Vendor to confirm & provide details	
5.14	ELECTRICAL:		
5.14.1	415V + 10% / -10%, 50HZ +/-3 Hz, 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 connections to the machine from the BHPV terminal point shall be in the scope of vendor.	Vendor to confirm	
5.14.2	Tropicalization: All electrical / electronic equipment shall be tropicalized.	Vendor to confirm	
5.14.3	All electrical & electronic control cabinets & panels should be dust and vermin proof	Vendor to confirm	
5.14.4	All electrical components in the cabinets should be mounted on DIN Rail	Vendor to confirm	

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER's OFFER [with Complete Technical Details]
5.14.5	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	
5.14.6	All motors shall be from reputed makers like FANUC, SIEMENS, ABB, Allen Bradley.	Vendor to confirm	
5.14.7	All electrics shall be of reputed make like Siemens / SEW / ROCKWELL Allen Bradley / Telemecanique.	Vendor to confirm	
5.14.8	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	
5.14.9	Vendor should ensure the proper earthing for the machine and its peripherals.	Vendor to confirm	
5.14.10	In-cycle hour counter with reset facility should be provided.	Vendor to confirm	
5.14.11	All Electric enclosures shall have IP 54 protection	Vendor to confirm	
5.15	Chip conveyor: Vendor to quote for a suitable chip conveyor.	Vendor to confirm & furnish details	
5.16	Collecting dumps: Wheel mounted collecting dump to collect finished tubes from the machine.	Vendor to confirm	
5.17	SAFETY ARRANGEMENTS:		
5.17.1	Following safety features in addition to other standard safety features should be provided on the machine:	Vendor to confirm	
5.17.2	The stopper shall be provided with safety guard interlocked, such that the machine will start only when the safety guard is closed.	Vendor to confirm	
5.17.3	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. Machine functions should be continuously monitored and alarm / warning indications through lights/ alarm number with messages (on CNC display and panels) should be available.	Vendor to specify	
5.17.4	A detailed list of all alarms / indications provided on machine should be submitted by the Vendor.	Vendor to specify	

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER's OFFER [with Complete Technical Details]
5.17.5	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	
5.17.6	All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations and suitably guarded.		
5.17.7	Emergency Switches at suitable locations as per International Norms should be provided.		
5.17.8	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	
5.18	ENVIRONMENTAL PERFORMANCE OF THE MACHINE (The Machine should confirm to following factors related to environment):		
5.18.1	Noise level shall not exceed 85 dB(A) at normal load condition, 1meter away from the machine with correction factor for back ground noise.	Vendor to demonstrate compliance to noise level,	
5.18.2	There shall not be any emissions from the machine except fumes of cutting fluid during machining.	Vendor to Confirm	
5.18.3	If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	Vendor to Confirm	
5.18.4	Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.	Vendor to Confirm	
6.1	ULTRA ISOLATION TRANSFORMER		
6.1.1	Indian make Ultra Isolation Transformer suitable for complete machine, its drives, controls, PLC etc. shall be supplied	Vendor to confirm	
6.1.2	Make NEEL / AEI / SERVO MAX	Vendor to confirm	
6.1.3	Model and Rating	Vendor to specify and noise level also	
6.1.4	Catalogue of the Ultra Isolation Transformer shall be submitted with the offer.	Vendor to submit	
6.2	SERVO VOLTAGE STABILISER (SVS):		
6.2.1	Indian make Oil / Air Cooled servo Controlled Voltage Stabilizer suitable for complete machine, its drives, controls, PLC etc with no undesirable Harmonics in the stabilizer output.		

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER's OFFER [with Complete Technical Details]
6.2.2	Make NEEL / AEI / SERVO MAX	Vendor to confirm	
6.2.3	Model & Rating (Suitable for the machine load. Vendor to specify the noise level also)	Vendor to specify	
6.2.4	Spares Package for the Voltage Stabilizer for 2 years working should also be offered.	Vendor to Confirm	
6.2.5	Catalogue of the Voltage Stabilizer shall be submitted with the offer.	Vendor to Submit	
6.2.6	First fill of oil if the SVS is oil cooled	Vendor to confirm	
7.0	TOOLING:		
7.1	No.of Tool Holders	Vendor to specify	
7.2	Tooling system should consist of ISO indexable carbide inserts, capable of generating all the edge preparation styles as indicated in annexure 1 & clause 5.4. (Sufficient number of tools and inserts of each type should be quoted for one month operation on 3-shift basis at the output rate specified. Quantity to be indicated separately in the technical offer and price in the price offer) Cutting speed: Up to 150 meters per minute.	Vendor to specify	
8.0	DIAGNOSTIC SYSTEM		
8.1	TELE-DIAGNOSTIC SERVICE:		
8.1.1	Tele-diagnostic service should be provided through International telephone lines along with required Hardware / Software package for the supplied CNC system for remote diagnosis and correction of the problems in both CNC System and PLC of the machine. This should be provided free of charge for the guarantee period. The Vendor should inform terms and conditions for the service after guarantee period. Subsequently, it should be possible to use other platforms, such as Internet, subject to their availability in future. BHPV will provide the necessary telephone line near the machine.	Vendor to confirm	
8.2	FAULT DIAGNOSTIC SYSTEM:		
8.2.1	Vendor's own diagnostic system with required hardware and software should be supplied and installed on the CNC system. This should include customized auto-diagnostic system with supporting hardware and software, which shows detailed cause, and remedy for the fault on the display for faults related to mechanical and electrical maintenance.	Vendor to confirm	
8.2.2	Help guide should be provided to use both diagnostic systems	Vendor to confirm	

Sl. No.	PARTICULARS & BHPV SPECIFICATION	BIDDER'S OFFER [with Complete Technical Details]
9.0	LEVELLING & ANCHORING SYSTEM	
9.1	Complete anchoring system including foundation bolts, anchoring materials, fixators, leveling shoes etc should be supplied	Vendor to confirm
10.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE:	
10.1	The Vendor shall bring special tools and equipment required for erection of the machine. A tool kit for operation and maintenance of the machine should be supplied. List of such tools should be submitted with offer.	Vendor to confirm
10.2	Any Test mandrel required for checking & alignment of the machine, machine parts etc. should be supplied along with the machine.	Vendor to confirm.
11.0	SPARES:	
11.1	Itemized breakup of mechanical, hydraulic, electrical and electronic spares used on the machine in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation on three shifts continuous running basis should be offered by vendor. The list to include following, in addition to other recommended spares: (Unit Price of each item of spare should be offered)	Vendor to confirm
11.2	Mechanical & Hydraulic Spares: All types of Pumps, Valves, Pressure Switches, Transducers, Flow Switches, Filters, Seals, O-rings, Hydraulic Hoses etc.	Vendor to confirm
11.3	Electrical /Electronic / CNC Spares: All types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch, Encoders, , spares for CNC, Servo Motors for Feed Drives, Power Module & Control Cards for Main Drive as well as Feed Drives etc.	Vendor to confirm
11.4	All types of spares for total machine and accessories should 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
11.5	Recommended set of spares for all attachments are to be offered with details.	Vendor to confirm
11.6	Spares listed in Annexure – II shall be supplied along with the machine	Vendor to confirm

Sl. No.	PARTICULARS & BHPV SPECIFICATION	BIDDER'S OFFER [with Complete Technical Details]
11.7	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
12.0	DOCUMENTATION:	
12.1	Set of Documents to be submitted along with the Offer for technical evaluation:	Vendor to confirm
12.1.1	General Lay-out of the machine with major and critical dimensions in line with the specification	Vendor to furnish
12.1.2	General Arrangement drawing of the machine with bill of materials and critical dimensions	Vendor to furnish
12.1.3	Sub-assembly drawings with bill of materials and critical dimensions for all the major sub-assemblies in the machine.	Vendor to furnish
12.1.4	List of bought out items with make and specification along with catalogues: Motors, Gear boxes, Controllers, Drives, Cylinders, Seals, CNC system, PLC, Hydraulics, Lubrication, Pneumatics, etc.	Vendor to furnish
12.1.5	Hydraulic / Pneumatic Circuit with Bill of Materials giving specification and make of components used.	Vendor to furnish
12.1.6	Lubrication / Coolant Circuit with Bill of Materials giving specification and make of components used.	Vendor to furnish
12.1.7	Electrical Circuit with Bill of Materials giving specification and make of components used.	Vendor to furnish
12.1.8	Video images on CD /Hard copy of literature with photographs & drawings explaining the technical features.	Vendor to furnish
12.1.9	Sequence of operation to be explained.	Vendor to furnish
12.1.10	Details & drawings of the Length setting and stopper arrangement.	Vendor to furnish
12.2	Set of Documents to be submitted after placement of order for approval / verification before manufacturing:	Vendor to confirm
12.2.1	General Lay-out of the machine with major and critical dimensions in line with the specification and Preliminary Foundation drawing.	Vendor to confirm

Sl. No.	PARTICULARS & BHPV SPECIFICATION	BIDDER'S OFFER [with Complete Technical Details]
12.2.2	General Assembly drawing of the machine with bill of materials and critical dimensions	Vendor to confirm
12.2.3	Sub-assembly / Arrangement drawings with bill of materials and critical dimensions for all the subassemblies in the machine.	Vendor to confirm
12.2.4	Hydraulic / Pneumatic Circuit with Bill of Materials giving specification and make of components used.	Vendor to confirm
12.2.5	Lubrication / Coolant Circuit with Bill of Materials giving specification and make of components used.	Vendor to confirm
12.2.6	Electrical Circuit with Bill of Materials giving specification and make of components used.	Vendor to confirm
12.2.7	Sequence of operation.	Vendor to furnish
12.2.8	Details & drawings of the Length setting and stopper arrangement with bill of materials.	Vendor to furnish
12.2.9	Quality plan	Vendor to confirm
12.3	Set of Documents to be submitted along with machine:	Vendor to confirm
12.3.1	Three sets 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.	Vendor to confirm
12.3.2	One set of complete documents as Hard copy and complete documents in CD / Pen drive to be submitted during inspection at supplier's works for verification. This forms part of acceptance criteria at supplier's works.	Vendor to confirm
12.3.3	Operating Manuals of Machine & CNC system	Vendor to confirm
12.3.4	Programming Manuals for the machine & CNC system.	Vendor to confirm
12.3.5	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.	Vendor to confirm
12.3.6	Hydraulic / Pneumatic Circuit with Bill of Materials giving specification and make of components used. Function diagram of the Hydraulic / Pneumatic system to be provided with the circuit.	Vendor to confirm

Sl. No.	PARTICULARS & BHPV SPECIFICATION	BIDDER'S OFFER [with Complete Technical Details]
12.3.7	Lubrication / Coolant Circuit with Bill of Materials giving specification and make of components used.	Vendor to confirm
12.3.8	Details & drawings of the Length setting and stopper arrangement with bill of materials.	Vendor to furnish
12.3.9	Electrical Circuit with Bill of Materials giving specification and make of components used.	Vendor to confirm
12.3.10	Maintenance, Interface & Commissioning Manuals for CNC system, spindle & feed drives.	Vendor to confirm
12.3.11	Manufacturing drawings for all wearing components like bushes, pulleys, gears, clutch plates, etc.	Vendor to confirm
12.3.12	Manufacturing drawings for all supplied tool holders, cutting tools, adapters, sleeves, fixtures etc.	Vendor to confirm
12.3.13	Catalogues, O&M Manuals of all bought out items including drawings, wherever applicable highlighting the specific model used in the supplied machine.	Vendor to confirm
12.3.14	Detailed specification of all rubber items, hoses, fittings, etc. List of bearings, belts used to be provided.	Vendor to confirm
12.3.15	Operating Manuals, Maintenance Manuals & Catalogues for all supplied Accessories including Voltage stabilizer, Isolation transformer, etc.	Vendor to confirm
12.3.16	Complete Master List of parts used in the equipment.	Vendor to confirm
12.3.17	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.	Vendor to confirm
12.3.18	PLC program printouts with comments in English.	Vendor to confirm
12.3.19	PLC program on CD, NC data & PLC data on CD	Vendor to confirm
12.3.20	Complete back up of hard disk on CD and clear written Instructions (3 copies) to take back up and reloading of a new hard disk.	Vendor to confirm
13.0	TRAINING:	
13.1	The Vendor shall train Three BHPV's Engineers in Operation and Maintenance (Mechanical, Electrical/Electronics and CNC System) of the Machine at Vendor's works for a period of three working days	Vendor to confirm

Sl. No.	PARTICULARS & BHPV SPECIFICATION	BIDDER'S OFFER [with Complete Technical Details]
13.2	The Vendor shall impart training to BHPV's Machine Operators and Maintenance crew in Operation and Maintenance after the commissioning of the Machine at BHPV works for 3 working days	Vendor to confirm
13.3	Competent, English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHPV personnel	Vendor to confirm
13.4	The training shall include specialised coaching in a) Safety b) Operation of the machine c) CNC System Operation, d) Trouble-Shooting, e) Software Application f) All special features of the machine g) Electrical / Mechanical / Electronics systems	Vendor to confirm
14.0	FOUNDATION:	
14.1	Vendor shall submit the preliminary layout drawing for getting BHPV's approval within one month from the date of Purchase Order. Complete Foundation details including static / dynamic load shall be submitted by the Vendor within three months after getting BHPV's approval. The layout should consist of all requirements pertaining to complete machine including space requirement for, Isolation Transformer, & any other accessories. BHPV shall construct complete foundation for the machine as per the Vendor's recommendation and drawing.	Vendor to confirm
15.0	ERECTION & COMMISSIONING	
15.1	Vendor to take full responsibility for supervision of erection & commissioning of the machine. Vendor shall start up, test the machine, it's control & all types of other supplied equipment, carrying out machining of test pieces etc. 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 helping personnel shall also be provided by BHPV.	Details of these requirements should be informed by Vendor in advance

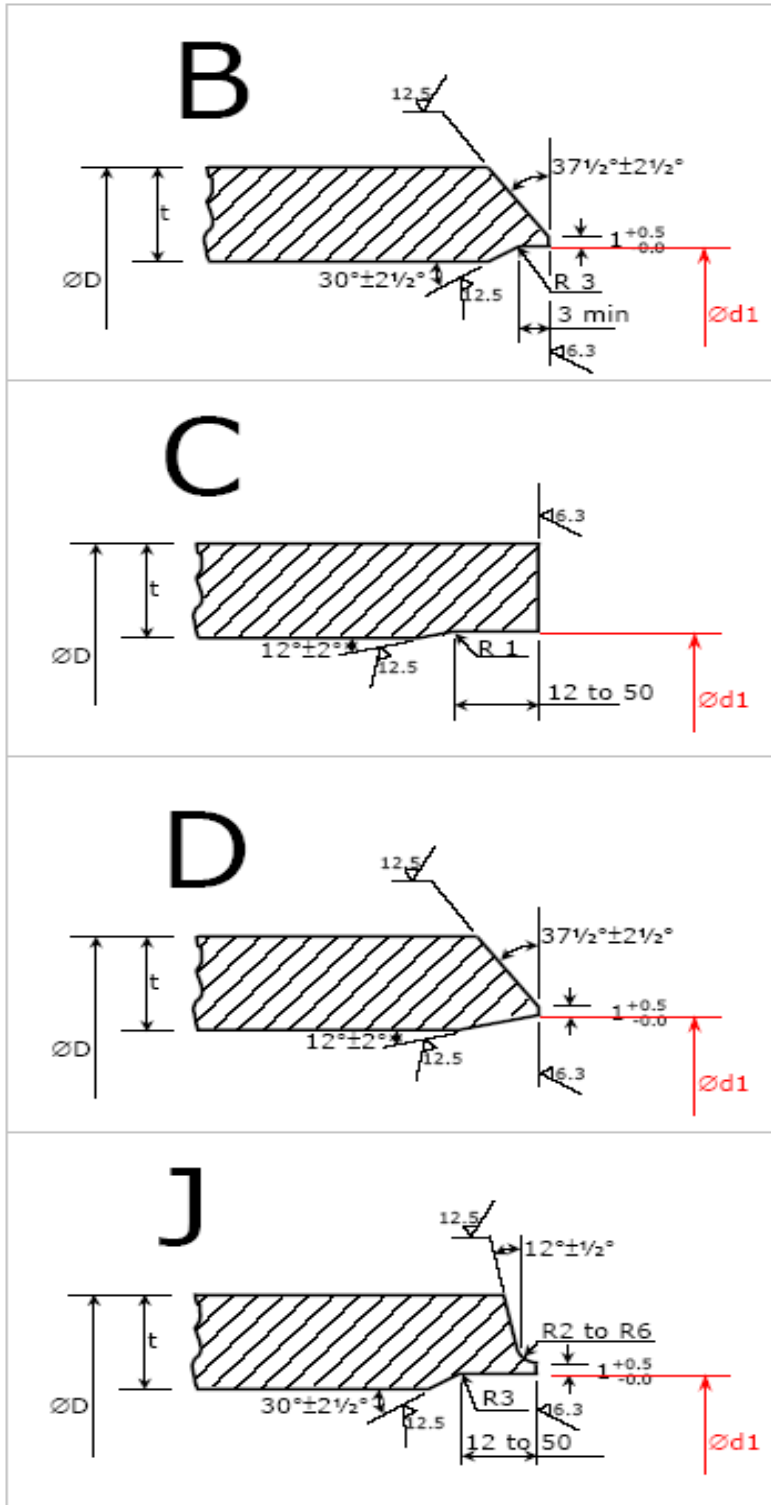
Sl. No.	PARTICULARS & BHPV SPECIFICATION	BIDDER'S OFFER [with Complete Technical Details]	
15.2	Erection & Commissioning of, Isolation Transformer shall also be responsibility of the Vendor.	Vendor to confirm	
15.3	Successful proving of BHPV components by the Vendor shall be considered as part of commissioning. All tests, as mentioned in (clause 19.0) shall form part of the commissioning activity.	Vendor to confirm	
15.4	Tools, Tackles, instruments and other necessary equipment including any Laser equipment required to carry out all above activities should be brought by the Vendor.	Vendor to confirm	
15.5	Necessary tools like Torque Wrench, Spanners, Keys, grease guns etc. for operation and maintenance of the machine should be supplied. List of such tools should be submitted with offer	Vendor to confirm	
15.6	Special equipments, like test mandrel, straight edge, dial indicators etc., should be supplied along with the machine.	Vendor to confirm	
15.7	Commissioning spares, required for commissioning of the machine within stipulated time, shall be arranged by the vendor.	Vendor to confirm	
15.8	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	
15.9	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to confirm	
15.10	Charges, duration, terms & conditions for E&C should be furnished in detail separately by Vendor along with offer.	Vendor to confirm	
16.0	AMBIENT CONDITIONS & THERMAL STABILITY:		
16.1	Total machine including CNC system and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Power Supply: Voltage: 415 V ± 10%, Frequency: 50 Hz ± 3%, 3 Phase The machine shall be suitable for an ambient temperature of +50° C and relative humidity of 90 % respectively, but both do not occur simultaneously	Vendor to confirm	

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER's OFFER [with Complete Technical Details]
16.2	Weather conditions are tropical, Atmosphere may be dust laden during some part of the year. Machine shall be kept in the normal shop floor condition	Vendor to confirm	
17.0	INSPECTION:		
17.1	The Machine shall be offered for inspection and performance trials to test the design capabilities of the machine in the presence of BHPV Engineers, at Supplier's works before Dispatch.	Vendor to confirm	
18.0	PROVEOUT OF BHPV COMPONENTS At BHPV WORKS:		
18.1	The prove-out trials of the edge preparation shall be for some of the tube sizes mentioned at Sl. No. 2.0.	Vendor to confirm	
19.0	MACHINE ACCEPTANCE: (Tests/Activities to be Performed by Vendor)		
19.1	Tests/Activities to be carried out at Vendor's works on the machine before dispatch:		
19.1.1	Geometrical accuracies as per applicable standard test chart recommended by the Vendor. Detailed Test Charts for the same, clearly showing the accuracies to be achieved on the machine, shall be submitted with the offer.	Vendor to confirm	
19.1.2	Positioning accuracies as per Applicable standard method recommended by the Vendor.	Vendor to confirm	
19.1.3	Full load test to demonstrate the maximum power & cutting capacity of the machine.	Vendor to confirm	
19.1.4	Demonstration of all features of the machine, control system & accessories	Vendor to confirm	
19.1.5	The machine production output, as specified in 4.10 shall be demonstrated at the supplier's works, for around 30 minutes continuous operation of the machine. Tube material shall be arranged by vendor	Vendor to confirm	
19.2	Tests / Activities to be carried out at BHPV works while commissioning the machine:		
19.2.1	Geometrical accuracies as per. Applicable standard test chart recommended by the Vendor	Vendor to confirm	
19.2.2	Positioning accuracies as per Applicable standard method recommended by the Vendor.	Vendor to confirm	
19.2.3	Full load test to demonstrate the maximum power & cutting capacity of the machine.	Vendor to confirm	

Sl. No.	PARTICULARS & BHPV SPECIFICATION		BIDDER's OFFER [with Complete Technical Details]
19.2.4	Demonstration of all features of the machine, control system & accessories to the satisfaction of BHPV for efficient and effective use of the machine	Vendor to confirm	
19.2.5	The production output of the machine shall be proved out by the commissioning Engineer at BHPV works for the Production rate mentioned in the specification. (Clause 4.10)		
20.0	PACKING:		
20.1	Sea worthy & rigid packing for all items of complete machine, CNC 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	
21.0	GUARANTEE:		
21.1	12 months from the date of acceptance of the machine at BHPV or 18 months from dispatch whichever is earlier.	Vendor to confirm	
22.0	GENERAL:		
22.1	Machine Model No.	Vendor to specify	
22.2	Total connected load (KVA):	Vendor to specify	
22.3	Floor area required (Length, Width, Height) for complete machine & accessories	Vendor to specify	
22.4	Machine lubrication	Automatic centralized lubrication system.	
22.5	Hydraulic, Pneumatic & 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	
22.6	Painting of machine / electrical panel	RAL6011Reseda Green (Polyurethane paint)	
22.7	All gears are to be hardened and ground	Vendor to specify	
22.8	Total weight of the machine (approx)	Vendor to specify	
22.9	Weight of heaviest part of machine (approx)	Vendor to specify	
22.10	Weight of the heaviest assembly / sub-assembly of the Machine (approx)	Vendor to specify	
22.11	Dimensions of largest part / sub-assembly / assembly of the machine	Vendor to specify	
22.12	Detailed catalogues, sketch / photographs of the m/c and accessories / attachments should be submitted with the offer.	Vendor to confirm	

TUBE EDGE PREPARATION DETAILS

ANNEXURE 1



D : Tube OD
 t : Tube thickness
 d1 : Bore ID

All Dimensions are in mm
 Drawing No.: HSCEP-001
 BHPV, Visakhapatnam

SPARES LIST for CNC TUBE PARTING & EDGE PREPARATION MACHINE

SL. NO.	DESCRIPTION	QTY
I	MECHANICAL & HYDRAULIC SPARES	
1	Set of gaskets, Oil seals and O rings (1 Set means – 100% quantity available in the entire machine) – list to be provided with part nos. at the time of drawing approval stage.	2 Sets
2	Friction rolls	2 Nos.
3	Feed rolls	2 Nos.
4	Drive belts, Feed belts and Toothed belts (1 Set means – 1 No. in each type available in the entire machine)	2 Sets
5	Hydraulic pumps (1 Set means – 1 No. of each type of pump available in the hydraulic system)	1 Set
6	Set of contactors, relays and limit switches (1 Set means – 1 No. in each type available in the entire machine)	2 Sets
7	Hydraulic Valves (1 Set means – 1 No. in each type available in the entire machine hydraulic system)	1 Set
8	Pneumatic Valves (1 Set means – 1 No. in each type available in the entire machine pneumatic system)	2 Sets
9	Coolant Valves (1 Set means – 1 No. in each type available in the entire machine coolant system)	1 Set
10	Pneumatic Cylinders (1 Set means – 1 No. in each type available in the entire machine)	2 Sets
11	Hydraulic & pneumatic Pressure switches (1 Set means – 1 No. in each type available in the entire machine)	2 Sets
12	Filter elements (1 Set means – 1 No. in each type available in the entire machine)	3 Sets
13	Hydraulic cylinder Seal kits (1 Set means – complete seal kit including O rings for each type cylinder available in the entire machine) – list to be provided with part nos. at the time of drawing approval stage.	2 Sets
14	Hydraulic hoses (1 Set means – 1 No. in each type available in the entire machine)	2 Sets
15	Lubrication pump	1 No.
16	Coolant pump	1 No.
17	Spindle bearings (1 Set means – complete set of bearings available in the spindle assembly)	1 Set

SL. NO.	DESCRIPTION	QTY
II	ELECTRICAL, ELECTRONIC AND CNC SYSTEM SPARES	
1	Proximity switches with suitable proximity switch cord (1 Set means – 1 No. in each type available in the entire machine)	2 Sets
2	Push buttons (1 Set means – 1 No. in each type available in the entire machine)	3 Sets
3	Indicating lamps (1 Set means – 1 No. in each type available in the entire machine)	5 Sets
4	Semiconductor fuses (1 Set means – 1 No. in each type available in the entire machine)	5 Sets
5	Special fuses (1 Set means – 1 No. in each type available in the entire machine)	2 Sets
6	Circuit breakers (1 Set means – 1 No. in each type available in the entire machine)	2 Sets
7	Encoders (1 Set means – 1 No. in each type available in the entire machine)	1 Set
8	CNC System spares (list to be provided by vendor along with offer)	1 Set
9	Servo motor (Model to be provided by vendor)	1 No.

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)

BHPV Tender No: & Date:	Bidders Confirmation / response
Prices have been quoted on "FIRM PRICE" basis only (Yes / No)	
Prices have been quoted on "F.O.R BHPV" basis only (Yes / No)	
P & F (Please confirm whether included or not)	
Freight (Please confirm whether included or not)	
Insurance (Please confirm whether included or not)	
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%) (Yes / No)	
Risk Purchase as per clause 5.13 (Yes / No) (Offers from vendors not accepting the Risk Purchase terms will be rejected)	
Payment terms (As per Clause No. 5.7.1) (Yes / No)	
Contract Execution Bank Guarantee (CEBG) as per Clause 5.10 (Yes / No) (Offers from vendors not accepting to submit CEBG will be rejected)	
Performance Bank Guarantee (PBG) as per Clause 5.11 (Yes / No) (Offers from vendors not accepting to submit PBG will be rejected)	
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) (Offers from vendors not accepting to the guarantee period will be rejected)	
Inspection (please Specify the Place of Inspection)	
Erection & Commissioning/ Installation/ Training (Please confirm whether charges are included in the total cost or not)	
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
Prices have been quoted on "FIRM PRICE" basis only (Yes / No)	
Prices basis (FOB/CFR/CIF – Please Specify)	
Insurance (Please confirm whether included or not)	
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)	
Delivery period from the date of Letter of Intent (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 (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) (Offers from vendors not accepting to submit CEBG will be rejected)	
Performance Bank Guarantee (PBG) as per Clause 5.11 (Yes / No) (Offers from vendors not accepting to submit PBG will be rejected)	
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)	
Inspection (please Specify)	
Erection & Commissioning/ Installation/ Training (Please confirm whether charges are included in the total cost or not)	
Dimension of the Largest Part (please Specify)	
Packing Schedule (No of containers and their Sizes) (please Specify)	
Approximate Net Weight of the total Consignment (please Specify)	
Approximate Gross Weight of the total Consignment (please Specify)	

Signature & Office Seal of the bidder