



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL PURCHASE / MATERIALS MANAGEMENT / MANUFACTURING

An ISO 9001
Company

ENQUIRY	Phone: +91 431 257 79 38 Fax : +91 431 252 07 19 Email : tvenkat@bheltry.co.in Web : www.bhel.com
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	Enquiry Number: 2620700032	Enquiry Date: 13.07.2007	Due date for submission of quotation: 06.09.2007
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Your are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order

Item	Description	Quantity	Delivery Schedule
10	Tube Insert Scarfer as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	8 Nos.	30.04.2008
20	Tube End Scarfer as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	12 Nos.	30.04.2008

BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats along with technical specifications can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference “2620700032”.

Tenders should reach us before 14:00 hours on the due date Tenders will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present	Yours faithfully, For BHARAT HEAVY ELECTRICALS LIMITED Manager / Capital Purchase / MM / Manufacturing
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PART A - QUALIFYING CRITERIA

The **BIDDER / VENDOR (OEM)** has to provide the following details and meet the subsequent requirements to get qualified for submitting an offer for the supply of *PNEUMATICALLY OPERATED PORTABLE HEAVY-DUTY TUBE END CHAMFERING MACHINE*

S. No.	REQUIREMENTS	BIDDER's RESPONSE
1.0	The BIDDER / VENDOR (OEM) shall have a minimum of FIVE Years of Continuous Experience in the Design, Manufacture & Supply of Special Purpose / Custom Built Pneumatically operated portable machines for metal working.	
2.0	Profile of the Company bringing-out the years of Experience and Capability of the BIDDER / VENDOR (OEM) in the field of design, manufacture and supply of Custom Built Pneumatically Operated portable metal working machines	
3.0	The BIDDER / VENDOR (OEM) shall have supplied a minimum of two numbers of special purpose pneumatically operated portable metal working machines, till date and shall be in the working condition for more than a year. [Indicate the number of such machines sold in India, till date].	
4.0	Performance Certificate in the enclosed FORMAT for a period, not less than one year, from CUSTOMERS and Reference List of Customers with full contact details of CONTACT PERSON, who are the End Users of the Pneumatically Operated Portable Metal Working Machines, are to be provided.	
5.0	BHEL 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 get rejected.	
6.0	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centres in India, to be furnished compulsorily.	

S.No.	REQUIREMENTS	BIDDER's COMPLIANCE
7.0	The BIDDER shall submit the offer in TWO PARTS - Technical [with PART A & PART B] & Commercial and Price Bid.	
8.0	The OFFER shall contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by the Bidder, against each Clause. A just 'YES' or 'CONFIRMED' or 'NO-DEVIATION' or 'COMPLIES' or 'ACCEPTED' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer.	
9.0	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and/or complete technical details / literature on the QUOTED MODELS of Metal Working Machines.	
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 of the inclusion of all the accessories, tooling, attachments, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.	
11.0	Earlier performance & field experience (service support) with BHEL (if any) will be a reckoning factor for the technical qualification of the OFFER.	
12.0	Bidder's Offer has to abide by the Technical Specifications in TOTAL, as the equipment is meant for specific application for shop floor production output, which is comparatively quite high (which has to be met by least Operator Fatigue).	

PERFORMANCE CERTIFICATE – SAMPLE FORMAT
(On Customer's Letter Head)

1. Supplier of the Equipment/Machine :

2. Make & Model of the Equipment :

3. Month & Year of Commissioning :

4. Application for which Machine is used :

5. a. Machine Serial Number :
b. Size of Tube [OD x Thickness in mm] :
c. Pneumatic Input Pressure in psi :
d. Compressed Air Supply Rate in cfm :

6. Performance of the Machine : Best in the market /
(with reasons for recommendation) Satisfactory /
Good /
Average /
Not Satisfactory

7. Any other remarks:

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

PNEUMATICALLY OPERATED PORTABLE HEAVY-DUTY TUBE END CHAMFERING MACHINE

INSERT-SCARFER TECHNICAL SPECIFICATIONS

5 Pages

S.No.	EQUIPMENT FEATURES	BHEL SPECIFICATION	SUPPLIER'S SPECIFICATION	DEVIATIONS
1	PURPOSE/FUNCTION	The equipment is to be used for the edge preparation of rough flame-cut TUBE Ends (coming inside the openings created in Panels made of Tubes) for butt-joint fit-up and welding. The flame-cut ends will be hardened and irregular in the plane of cut.		
a	O.D.Chamfering	Outside Bevelling on the tubes to get a 37.5° or 45.0° angle and 'J' style edge preparation for 'U' seam welding. All the above styles shall have a land of 1.0 mm to 2.0 mm in the edge preparation.		
b	Facing	End Facing of Tubes. i.e., to get a square cut face with smooth finish.		
c	I.D.Boring	Internal Taper Turning in the I.D. of tubes to get a taper angle of 10 ° to 12 ° to the tube axis, and to a minimum depth of 30 mm from the tube end face.		
d	Machining Mode	The above three operations shall be possible to be done independently and in a single setting with proper tool holders.		
2	JOB DETAILS			
a	Diameter Range of Tubes	31.8 mm to 76.1mm (Outside Diameter)		
b	Wall Thickness	Minimum - 3 mm ; Maximum - 12.5 mm		
c	Material	Carbon Steel, Alloy Steel, Stainless Steel		

S.No.	EQUIPMENT FEATURES	BHEL SPECIFICATION	SUPPLIER'S SPECIFICATION	DEVIATIONS
2 d	Tube End Condition	The tube ends may either of loose/single tubes or flame-cut ends coming by way of making rectangular openings in panels made of tubes or part of tubes coming in tubular coils.		
e	Working Area	The size (length x width) of the slots / openings, where the equipment has to work is only 500mm x 65 mm.		
f	Accuracy of End Preparation Styles	Bevelling Roundness : +/- 0.1 mm Bevelling Angle : +/- 1.0 Degree		
3	MACHINE OPERATION	Pneumatically Operated and run on Compressed Air.		
a	Inlet Air Supply	60 psi to 70 psi. (volume of compressed air is not a restriction)		
b	Filter, Regulator & Lubricator (FRL) Unit	A suitable Air Regulator, Filter & Lubricator/Oiler unit shall be mounted on the equipment.		
c	Air Consumption	Bidder to Specify		
4	MACHINE CONFIGURATION	The equipment shall be of compact and robust construction with high output air-motor, to deliver a relatively high cutting torque for a continuous duty, to meet the specific job application of inserting into the openings created in tubular panels.		
a	Job/Tube Clamping	O.D. Clamping with a Locking Lever actuated by a pneumatic cylinder (suitable bases for varying job diameter to be provided)		
b	Tube Clamping Force	a. Around 25 k N at an air inlet pressure of 5 kg/sq.cm.		
4 c	Air Motor Output Power	Not less than 4000 W at an air inlet pressure of 5 kg/sq.cm.		

S.No.	EQUIPMENT FEATURES	BHEL SPECIFICATION	SUPPLIER'S SPECIFICATION	DEVIATIONS
d	Spindle Torque	Not less than 65 N m at an air inlet pressure of 5 kg/sq.cm.		
e	Noise Level	Not more than 85dB, at a distance of 1.0 Mtr. from the source of sound. Suitable SILENCERS are to be provided.		
f	Spindle Free Speed (at peak power)	Around 175 rpm at an air inlet pressure of 5 kg/sq.cm.		
g	Tool Feed	Manual - through a Hand Feed Wheel		
h	Spindle Stroke	Minimum 30 mm		
j	Tube Centering	To be ensured by pneumatic clamping system by means of suitable clamp block.		
k	Construction	The Machine Body has to be so constructed that the machine can be inserted into panel openings for tube edge preparation.		
l	Location of Parts	Location of Air Motor, Silencer, FRL Unit, etc. shall be such that they do not foul with the job surface, when the equipment is inserted in the panel openings.		
m	Machine Component	Material /Make		
	Machine Body	Bidder to Specify		
	Gears	Bidder to Specify		
	Worm Wheel	Bidder to Specify		
	Worm	Bidder to Specify		
	Bolts	Bidder to Specify		
	Bearings	SKF/TIMKEN make		
	Machine Spindle	Bidder to Specify		
	Tool Holder	Bidder to Specify		
	Control Valve	Reputed make like FESTO		
	F R L Unit	FESTO or NORGRAN make		
	Spindle/Valve Handle	Bidder to Specify		
Machine Painting	Poly Urethane – Apple Green Colour			

S.No.	EQUIPMENT FEATURES	BHEL SPECIFICATION	SUPPLIER'S SPECIFICATION	DEVIATIONS
4	n Lifting Hook	A suitably designed Lifting Hook shall be provided at the top of the machine, for handling by EOT Crane and ensure equilibrium of machine geometry.		
	p Air Couplings	Two sets of Quick Dis-Connect Couplings (size 3/4 inch) are to be provided with the equipment, for air hose connection.		
	q Weight	Around 200 kgs.		
5	TOOLINGS			
	a O D Clamping Bases (to clamp on to the outer diameter of tubes)	The machine shall be capable of clamping tubes with OD 21.3/31.8/33.7/ 38 / 44.5 / 51.0/ 57.0/60.3/63.5 /76.1mm.(10 sizes)		
	b Cutting Tool	HSS Tool Bits (HSS with COBALT inclusion)		
	c Cutters and Tool Bits	1) 37.5° and 45.0° for O.D.Beveling 2) Facing 3) 10 ° and 12° for I.D.Taper Boring 4) 'J' style for 'U' Seam Weld EP		
6	SPARES			
	a Main Equipment	Complete List of Spares including Air Motor Bearings, Seals, Bushes, Spindle, Air Cylinder, Air Valve for Clamp & Revolution, etc. to be LISTED ITEMWISE with quantity.		
	b Cutting Tools	Cutting Heads to hold tool bits, Tool Bits for Cutting Operations mentioned under 5 c to be LISTED ITEMWISE with quantity.		
7	MANUALS			
	a No of Copies	3 (Three) for Each Machine		
	b Language	English		

S.No.	EQUIPMENT FEATURES	BHEL SPECIFICATION	SUPPLIER'S SPECIFICATION	DEVIATIONS
7 c	O & M Manual Details :	Manual shall contain BLOW-UP details on assembly / dismantling, part numbers with part description for Maintenance, Safety Instructions while using, Operating Sequence for using the equipment for Beveling, Trouble Shooting Chart.		
8	GENERAL			
a	Cost Details	Price break-up shall be given separately for main equipment, accessories, cutting tools, spares, etc.		
b	Inspection/Testing	The equipment shall be offered for inspection by BHEL for performance evaluation, prior to despatch. Test Certificate shall be submitted.		
c	Commissioning	Supplier's representative shall be deputed for commissioning and performance prove-out of the equipment at BHEL works, free of cost.		
d	Guarantee	The equipment shall be guaranteed for a minimum of twenty-four months from the date of commissioning.		
e	Technical Data	The offer shall be accompanied with appropriate technical drawings/leaflets, showing the capability to supply the offered equipment.		
f	Incomplete Offer	The offer without point to point specification confirmation, unpriced price-bid, technical data, list of spares, etc. shall be liable for disqualification, without notice.		

PNEUMATICALLY OPERATED PORTABLE HEAVY-DUTY TUBE END CHAMFERING MACHINE

END-SCARFER TECHNICAL SPECIFICATIONS

4 Pages

S.No.	EQUIPMENT FEATURES	BHEL SPECIFICATION	SUPPLIER'S SPECIFICATION	DEVIATIONS
1	PURPOSE/FUNCTION	The equipment is to be used for the edge preparation of rough flame-cut TUBE Ends (coming in High Pressure Boiler Applications) for butt-joint fit-up and welding. The flame-cut ends will be hardened and irregular in the plane of cut.		
a	O.D.Chamfering	Outside Bevelling on the tubes to get a 37.5° or 45.0° angle and 'J' style edge preparation for 'U' seam welding. All the above styles shall have a land of 1.0 mm to 2.0 mm in the edge preparation.		
b	Facing	End Facing of Tubes. i.e., to get a square cut face with smooth finish.		
c	I.D.Boring	Internal Taper Turning in the I.D. of tubes to get a taper angle of 10 ° to 12 ° to the tube axis, and to a minimum depth of 30 mm from the tube end face.		
d	Machining Mode	The above three operations shall be possible to be done independently and in a single setting with proper tool holders.		
2	JOB DETAILS			
a	Diameter Range of Tubes	31.8 mm to 76.1mm (Outside Diameter)		
b	Wall Thickness	Minimum - 3 mm ; Maximum - 14 mm		
c	Material	Carbon Steel, Alloy Steel, Stainless Steel		
d	Tube End Condition	The tube ends may either of loose/single tubes or flame-cut ends coming at the end of panels made of tubes or part of tubes coming in tubular coils.		
e	Accuracy of End Preparation Styles	Bevelling Roundness : +/- 0.1 mm Bevelling Angle : +/- 1.0 Degree		

S.No.	EQUIPMENT FEATURES	BHEL SPECIFICATION	SUPPLIER'S SPECIFICATION	DEVIATIONS
3	MACHINE OPERATION	Pneumatically Operated and run on Compressed Air.		
a	Inlet Air Supply	60 psi to 70 psi. (volume of compressed air is not a restriction)		
b	Filter, Regulator & Lubricator (FRL) Unit	A suitable Air Regulator, Filter & Lubricator/Oiler unit shall be mounted on the equipment.		
c	Air Consumption	Bidder to Specify		
4	MACHINE CONFIGURATION	The equipment shall be of compact and robust construction with high output air-motor, to deliver a relatively high cutting torque for a continuous duty, to meet the specific job application. The following parameters are only for design guidance.		
a	Job/Tube Clamping	O.D. Clamping with a Locking Lever actuated by a pneumatic cylinder (suitable bases for varying job diameter to be provided)		
b	Tube Clamping Force	Not less than 28 k N at an air inlet pressure of 5 kg/sq.cm.		
c	Air Motor Output Power	Not less than 4.2 k W at an air inlet pressure of 5.0 kg/sq.cm.		
d	Spindle Output Toque	Bidder to SPECIFY but NOT less than 68 Nm at an air inlet pressure of 5 kg/sq.cm.		
e	Noise Level	Not more than 85dB, at a distance of 1.0 Mtr. from the source. Suitable SILENCERS are to be provided.		
f	Spindle Free Speed (at No Load)	Not less than 175 rpm at an air inlet pressure of 5 kg/sq.cm.		
g	Tool Feed	Manual - through a Hand Feed Wheel		
h	Tube Centering	To be ensured by pneumatic clamping system by means of suitable clamp block.		
4 j	Spindle Stroke	Minimum 30 mm		

S.No.	EQUIPMENT FEATURES	BHEL SPECIFICATION	SUPPLIER'S SPECIFICATION	DEVIATIONS
4 k	Machine Component	Material /Make		
	Machine Body	Bidder to Specify		
	Gears	Bidder to Specify		
	Worm Wheel	Bidder to Specify		
	Worm	Bidder to Specify		
	Bolts	Bidder to Specify		
	Bearings	SKF/TIMKEN make		
	Machine Spindle	Bidder to Specify		
	Tool Holder	Bidder to Specify		
	Control Valve	Reputed make like FESTO		
	F R L Unit	FESTO or NORGRAN make		
	Spindle/Valve Handle	Bidder to Specify		
Machine Painting	Poly Urethane – Apple Green Colour			
l	Base of Machine	Suitable for placing the machine on floor (standing steady due to self-weight) for loose tube end machining.		
m	Lifting Hook	A suitably designed Lifting Hook shall be provided at the top of the machine, for handling by EOT Crane and shall ensure equilibrium while holding.		
n	Air Couplings	Two sets of Quick Dis-Connect Couplings (size - 3/4 inch) are to be provided with the equipment, for air hose connection.		
p	Weight	Around 225 kgs.		
5	TOOLINGS			
a	O D Clamping Bases (to clamp on to the outer diameter of tubes)	The machine shall be capable of clamping tubes with OD 21.3/31.8/33.7/ 38 / 44.5 / 51.0/ 57.0/60.3/63.5 /76.1mm.(10 sizes)		
b	Cutting Tool	HSS Tool Bits (HSS with COBALT inclusion)		
5 c	Cutters and Tool Bits	1) 37.5° and 45.0° for O.D.Beveling 2) Facing 3) 10 ° and 12° for I.D.Taper Boring 4) 'J' style for 'U' Seam Weld EP		
6	SPARES			

S.No.	EQUIPMENT FEATURES	BHEL SPECIFICATION	SUPPLIER'S SPECIFICATION	DEVIATIONS
a	Main Equipment	Complete List of Spares for Air Motor including Bearings, Seals, Bushes, Spindle, Air Cylinder, Air Valve for Clamp & Revolution, etc. to be LISTED ITEMWISE with quantity.		
7	MANUALS			
a	No of Copies	3 (Three) for Each Machine		
b	Language	English		
c	O & M Manual Details :	Manual shall contain BLOW-UP details on assembly / dismantling, part numbers with part description for Maintenance, Safety Instructions while using, Operating Sequence for using the equipment for Beveling, Trouble Shooting Chart.		
8	GENERAL			
a	Cost Details	Price break-up shall be given separately for main equipment, accessories, cutting tools, spares, etc.		
b	Inspection/Testing	The equipment shall be offered for inspection by BHEL for performance evaluation, prior to despatch. Test Certificate shall be submitted.		
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