

**BHARAT HEAVY ELECTRICALS LIMITED
HEAVY POWER EQUIPMENT PLANT
RAMACHANDRAPURAM, HYDERABAD-502032**

Technical requirements of BHEL to be filled by the vendor for the supply of Motorized Notch Broaching machine:

Sl.no	Description of the requirement	Offered	Deviation	remarks
1	Purpose: The motorized Notch broaching machine is required for the preparation of Charpy V & U notches in impact specimens of ferrous and non-ferrous samples of hardness upto 42 HRC. Vendor shall quote the model offered with the technical details. Only one model shall be quoted otherwise the offer is liable for rejection.			
2	The notch broaching machine shall be capable of cutting U & V notches meeting the dimensional accuracies required by the following standards.			
	IS 1598			
	IS 1757			
	IS 1499			
	ASTM E23			
	ASTM A 370			
	DIN 50115			
3	Technical details			
i)	Approximate size of Machine: 450mm (length) x450mm (width) x1250mm (height). Minor variations in the size of the machine can be accepted by BHEL provided it is possible to accommodate in the available space in BHEL labs and provide comfortable operation of the machine. However the vendor has to specify the dimensions of the quoted model.			
ii)	The machine shall accommodate the samples of size 10X10X75 mm & 10X10X55mm with or without fixtures.			

iii)	Machine shall be operated by using either fixed or variable speed type motors. Motor power rating & power supply requirements shall be specified in the offer. (Required: single phase/three phase, frequency: 50Hz).			
iv)	Up and down motion of broach must be controlled by limit switch and must be equipped with over travel safety trip mechanism. If any equivalent mechanism is provided in the machine same shall be explained in their technical offer.			
v)	Lubricating oil required to run the equipment successfully during commissioning and for prove out shall be supplied. Type and grade of the lubricating oil used with the machine shall be informed in the technical offer for future purpose.			
vi)	The machine shall be supplied along with minimum 5 meters of the power cables.			
vii)	Foundation bolts and other foundation accessories required must be supplied along with the machine.			
4.	Machine shall be supplied with the following standard accessories/spares (suitable with the model quoted by the vendor).The prices of the accessories/spares shall be inclusive in the machine cost itself. No separate prices shall be quoted for the same.			
i)	Notch depth calipers for both 5mm U and 2mm V notches. 01 no each. The dimensions of the gauges shall be in line with ASTM E23 notch tolerance.			
ii)	2-mm V-notch broach tool of HSS material (M42 grade) having hardness of 60-65 HRC shall be supplied along with the machine- 01no.			
iii)	5-mm U-notch broach tool of HSS material (M42 grade) having hardness of 60-65 HRC shall be supplied along with the machine- 01 no.			
	The drawings of the 2 mm V-notch broach and 5 mm U-notch broaching tools suitable for usage with the quoted model shall be provided along with the technical offer.			
iv)	Instructional Manual/schematic drawings/civil foundation drawings. 2 sets each (2 sets of hard copies and 2 sets of soft copies each) if any has to be supplied along with machine.			

v)	Wire brushes for cleaning the broaches-02 no.s			
vi)	PVC cover for machine- 01 no.			
5.	Prove out of the machine			
	The supplier must prove out the machine's performance using the broaches supplied at the time of commissioning at BHEL Labs only.			
6	The Vendor shall furnish technical catalogue of the proposed equipment along with quotation and customer's reference in India for the above equipment.			
7	Inspection:			
	BHEL engineers will inspect above equipment prior to shipment at Vendor's works. It is the responsibility of the Vendor to prove all conditions of specification by providing required samples & tools at Vendor works. Sufficient advance inspection call to be given to BHEL and shall make necessary arrangements for the pre-dispatch inspection, However BHEL will bear expenditure of travelling, boarding & lodging of the BHEL inspector.			
8	Erection & commissioning:			
i)	Vendor to take full responsibility for carrying out the erection, startup, testing of the system, it's control & all types of other supplied equipment/accessories etc. Service requirement like power shall be provided by BHEL at only one point to be indicated by Vendor in their foundation / layout drawing. Other requirement like helping manpower shall be provided by BHEL.			
ii)	Training: Suitable training on all operational aspects and routine maintenance to be given by Vendor to BHEL engineers.			
iii)	The offer shall include following modality for erection & commissioning of the machine:			
	i) Complete erection and commissioning on turnkey basis.			

	ii) The Vendor shall do commissioning and provide necessary training to BHEL personnel and guidance during commissioning, Vendor has to repeat all geometrical accuracy tests, for which all tools etc. are to be arranged by the vendor at their risk.			
	iii) All foundation bolts/ anchoring materials/fixators/levelling shoes etc. required for final erection of the machine shall be provided by the Vendor along with basic machine			
9.	Foundation: Foundation Design: In case any special foundation is required for installing the machine, detailed foundation drawings to be offered. The vendor should agree to supply 3 copies of machine layout and drawings within one month of placement of LOI/Order.			
10.	Guarantee:			
i)	The machine shall be guaranteed for satisfactorily and trouble free service for at least 24 months from the date of commissioning and final acceptance.			
ii)	The Vendor shall explain in detail how the after sales service will be organized. The number of service engineers trained, qualified and experienced to attend service calls and details about ready availability of spares Shall be mentioned. Time taken for service engineers to Reach the site upon receipt of break down call shall be Indicated and assured.			
11.	Qualification requirements:			
i)	The Vendor shall have a minimum experience of 5 years in manufacturing/supplying of Notch Broaching machine as per IS 1598/ IS 1757/ IS 1499/ ASTM E23 /ASTM A 370/ DIN 50115 and should have supplied at least 2 equipment to various reputed organizations preferably in India from the date of issue of this enquiry.			
ii)	The Vendor shall submit a Reference List of Customers for the model quoted including the names of the user contact persons, telephone numbers and e mail addresses.			

iii)	Performance Certificate from CUSTOMERS (minimum 2 Customers) preferably in India with full contact details of CONTACT PERSON shall be submitted for the quoted model of the machine which were commissioned not less than 2 years from the date of issue of this enquiry.			
12.	If any thing missing in the above specifications it has to be strictly meet latest standards of IS 1598, IS 1757, IS 1499, ASTM E23, ASTM A 370, DIN 50115.			
13.	In case of the offer from dealers/ agents, authorization letters/certificate shall be submitted from the OEM for the supplies and servicing of the notch broaching machine.			
14.	Packing:			
	Rigid packing to be made for all items of complete machine, 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. Packing list to be provided in the box.			