

317-8001/J1-18

Electron Beam Welding Machine (Qty=01 Nos.)

Ann: A P2/4

Electron beam welding Machine with vertically mounted Electron Gun and with CNC Control Interpolations.	
Material to Weld	<ul style="list-style-type: none"> • Stainless Steel & Alloys • Copper & Copper based alloys • Aluminum and Aluminum Alloys • Nickel & Nickel based Alloys
Gun Position & Type	Vertically mounted outside the chamber with Direct Heating Cathode (Cathode mounting device with minimum change time and without beam adjustment after cathode change.)
Gun accelerating voltage	60KV Stability: $\pm 0.5\%$, Reproducibility: $\pm 0.5\%$
Beam Power	6 KW
Beam current	0-100 mA Stability: $\pm 0.5\%$, Reproducibility: $\pm 0.5\%$
Beam Focusing system	Adjustable Focus current (CNC and Manual beam focus control) Focus control by magnetic Lens Stability: $\pm 0.5\%$, Reproducibility: $\pm 0.5\%$
Beam Deflection System	CNC and Manual Deflection Control X & Y Deflection angle: $\pm 3^\circ$ or better X&Y deflection independent of each other Frequency: 01 to 2000Hz or better Beam oscillation by function generator Function Generator: Sine ,Square ,circle, Ellipse, double sine etc.
Gun vacuum system	Upto 10^{-6} mbar or better Isolation valve to ensure gun vacuum.
Chamber Vacuum System	Working vacuum 10^{-5} mbar or better Pumping time less than 4 minutes. Leak detection in vacuum lines, isolation valve Vacuum gages to show vacuum data on the PLC. Note: All the vacuum components should be from same reputed manufacturer only.
Gun travel	250mm or better
Gun travel speed	0.1- 2 meter/minute
Position accuracy	± 0.03 mm
Welding Chamber Size & Specifications	350 mmx350mmx1500mm (inside effective) & should be extendable Horizontally from rear side Rear side should be free from any hindrance Front access door, viewing port and sealing system
Work handling system	1. Horizontal Rotary chuck mounted externally on left of chamber 2. CNC controlled X&Y Table mounted on bottom of chamber
Chuck(Rotary system) capacity	Nature: 3-jaw self-aligning (non-magnetic) Speed: Adjustable 1-50 rpm ,speed stability: $\pm 1\%$ Through hole dia: 70 mm, Minimum gripping dia: 5 mm Servo motor drive system (CNC controlled) Axis accuracy: ± 0.03 mm

X Y Table Capacity	Table Size: 150X150 mm or better X&Y speed: 1-2000mm/min (adjustable) Accuracy X&Y Axis: ± 0.03 mm, Load capacity: 20 kg
Wire Feeder	Quote Wire feeder option also.
Control system	(SINUMERIK or FANUC Control only) CNC with auto diagnostic maintenance and alarm Control of accelerating voltage, Beam current ,Focus current, X&Y Beam deflection, Gun movement, XY Table axis, Chuck speed etc. Welding program should have data of full welding cycle including vacuum up, dwell time and vacuum down.
Parameter Display	Parameter display on control panel Vacuum level in chamber &Gun Speed and position of chuck and XY Table Speed and position of Gun Beam current , Focus current, Beam deflection Valve position indicators etc. Separate windows for circular welding and XY Table welding to input parameters.
Welding Programs	Specific welding program should be included in the machine Welding program for circular (pipe) welding Welding program for XY table welding
Standard Spare Parts & tools	Necessary spares for gun maintenance, cathode mounting device, filaments, mechanical& Electrical kit, pump maintenance kits, oils, O-rings/seals etc. will be provided with the machine.
Optional spares & accessories	Quote other optional spares and accessories separately.
Safety& Protection systems	Machine should include safety systems from high voltage, X-ray radiation (<1μSv/hr), rotary drives etc. Automatic protection against over kV, filament failure, accidental beam "On" without sufficient vacuum and opening of isolation valve.
Viewing & Beam Alignment system	Beam viewing & alignment system including Color Camera with autofocus system& magnification of 10X,work illumination and optics Screen monitor with adjustable cross hair. Cross hair to precisely position the beam on joint Seam tracking, Online data monitoring and storage.
Input Electrical Supply	Voltage : 415± 10% Volts Frequency: 50Hz ± 1%
Documentation (must be in English Language)	<ul style="list-style-type: none"> • Instructional Manual • Maintenance Manual with diagnostic of each alarm • Technical manual of major parts • Electrical, Pneumatic& Electronics Diagrams • Spare part list • Soft copy of each manual • Soft Copy of Specific CNC programs • Backup/reinstallation CD for PC and PLC system • Calibration certificates of Vacuum gages, X Ray radiation safety, control system and other requirements as per international standards.

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Installation	<ul style="list-style-type: none"> Free Installation and commissioning of the machine and running of specific welding application by the manufacturer.
Inspection	<p>The following parameters will be checked during inspection</p> <ul style="list-style-type: none"> Maximum Accelerating voltage & Stability Maximum Beam power Depth penetration on different materials Beam current and Stability Beam Focus Range Beam Deflection & Generator functions Data monitoring and Acquisition system
Training	<p>Training of 02 buyer's Engineers shall be provided at manufacture's place for at least 02*weeks for free of cost. The training will cover operation, programming & Maintenance of the Machine.</p>
Warranty	<p>The Machine should have a standard warranty period of 24 months from the date of installation. Any Maintenance/repair of any hardware/software part during warranty will be done free of cost.</p>
Make	<p>PTR, Germany or Techmeta France or other European origin machines only</p>
<p>Note: Quotation should include detail specifications, catalogue/drawings in English language.</p>	