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10.03.2021

Department of Electrical Engineering

Corrigendum-2

Tender Reference no: EE/2021/IOE/COE/237/LASER

Name of the Item: Laser welding Machine

Corrigendum details: Changes in Technical specification.

Laser welding machine Specifications:

a. Welding Capabilities	Cylindrical/Prismatic/Pouch cell welding capabilities
	Battery pack welding Capabilities
	Bus Bar welding on each cell and group of cells
	Dissimilar metal welding like copper, Nickle, MS, Aluminium
b. Features	Welding Head
	Position measurement
	Focus Measurement
	Laser Process Control
	Cross Hair
	Digital Vision system
	Inline vision system
	Weld monitoring
	Welds with a low thermal influence Zone
	Fume Suction
CE Laser Class I	
Laser Specifications	
a. Laser	IPG / IFA
b. Laser wavelength	1070 ± 20nm
c. Operational mode	Continuous wave (CW)

d. Laser output Power	>3000 W
e. Output Beam Quality	<10
f. Light to Light Efficiency	>50%
g. Modulation Frequency	Up to 10 kHz
h. Polarization	Random
i. Spectral bandwidth	<6 nm
j. Optical power tuning range	10% - 100%

k. Output power stability	± 5%
l. Cooling Method	Liquid cooled
m. Operating Temperature Range	10°C to 50°C
Machine Specification	
a. Controller	Siemens, Simtron, B&R or Allen Bradley
b. Programming Method	Scripting + GCODE
c. Adjustable job size	Upto 1000 × 500 × 500 mm
	Gantry System
d. Max. Weight carrying capacity of table	200 kg
e. Position Accuracy	± 50 µm
f. Repeatability	± 5 µm
g. Speed	50 m/min
h. Depth of weld penetration	Up to 500 µm
Beam Delivery/vision system Specification	
n. Hermetic seal optical arrangement	Yes
o. Cooling Method	Liquid Cooled
p. Back-reflection Isolation	Yes >80%
q. Air knife arrangement	Yes
r. Shielding Gas arrangement	Yes
s. Digital Control Shielding Gas valve	Yes
t. Shielding Gas flow meter arrangement	Yes
u. ccd/viewport arrangement	Yes
v. Cross hair arrangement for easy alignment	Yes

w. vision system method	Inline
Welding Material and Thickness (Lap welding)	
a. Mild Steel or equivalent	2 mm Min.
b. Aluminium 6061 or equivalent	Upto 3 mm Min.
c. Copper alloys or equivalent	Upto 1.5 mm
d. Nickel	Upto 1.2 mm
Quality and Inspection Criteria	Spectral width measurement during inspection
	M ² measurement during inspection
	Laser Interferometer report
	Welding Test reports
	Vibration test
	ISO 15609-4 compliant
	Pre-Inspection for agreed weldment of cells and Packs and other mentioned functionality in the specification will be done during the technical evaluation process.
	Life expectancy-15 yrs
	1 Years Warranty and one-year extended warranty to be quoted.
	Machine Uptime >98%
AMC after warranty period to be quoted during bidding process separately. (It is mandatory for the vendor to quote for AMC).	

Tender Inviting Authority:

The Senior Manager, Project Purchase,
I.I.T. Madras, Sardar Patel Road, IC & SR Building, 2nd floor,
Chennai – 600 036.