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By REGD. Post.
स. NSTL/BEX-219/MD/FE/2016-17/GT/02.

नौसेना विज्ञान तथा प्रौद्योगिकी प्रयोगशाला
रक्षा अनुसंधान तथा विकास संगठन, भारत सरकार
विज्ञान नगर, विशाखापट्टणम - ५३० ०२७.

Naval Science & Technological Laboratory
Defence Research & Development Organisation,
Government of India,
Vigyan Nagar, VISAKHAPATNAM - 530 027

TO

DATED: 31 : 05:2016.

FAX.NO. 00-972-3-5291953.

EMBASSY OF INDIA IN TEL AVIV,
140 HAYARKON STREET,
P.O.BOX. 3368, TEL AVIV- 61033, ISRAEL..

SUB: LASER WELDING MACHINE FOR LI-ION CELL SEALING

REF: TENDER NO.NSTL/BEX-219/MD/FE/2016-17/GT/02.
(Brief specifications enclosed as per Annexure- I & II.)

The Director, NAVAL SCIENCE AND TECHNOLOGICAL LABORATORY,
VISAKHAPATNAM- 530 027 on behalf of the President of INDIA desires the following
from Original Manufacturer (s)/ accredited supplier(s).

“LASER WELDING MACHINE FOR LI-ION CELL SEALING” (Qty 01 SET)
LAST DATE FOR ISSUE OF TENDER DOCUMENTS: - 03-AUGUST-2016.

LAST DATE FOR SUBMISSION OF TENDER DOCUMENTS : 04-AUGUST:2016 UPTO 17.00 HOURS.


TENDER OPENING DATE & TIME:05-AUGUST-2016 AT 15.00 HOURS(Techno Commercial Bid only)

THE TENDER DOCUMENTS ARE APPEARING IN DRDO WEB SITE [http:// www.drdo.org](http://www.drdo.org)

And Indian Govt Website:- www.tender.gov.in

It is requested to contact Manufacturer's in this field located at your country/
place and advise them, if required, to contact us for issue of Tender Documents
and Detailed Specifications.

Please acknowledge.


* Shashara Raju
वैज्ञानिक "एफ"
Scientist 'F'
वृत्त निदेशक, नौ विज्ञान
for DIRECTOR NSTL
विशाखापट्टणम-५३० ०२७
Visakhapatnam

Specifications of LASER welding machine for Li-ion cell sealing

A LASER welding machine with microprocessor controlled and programmable 4-axis stage movement is required for welding of prismatic containers made of Aluminum (Al) / Stainless steel (S.S.) for Li-ion battery application. The equipment should contain a LASER source, all necessary optics, workstation with 4-axis CNC control, suitable chiller, and other accessories. The LASER welding unit should be capable of operating in a 1% RH dry room.

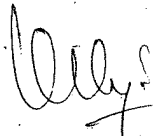
Detailed specifications of the unit are given below:

1.0	Application	Welding of Al/S.S containers of maximum thickness 1.0 to 2.0 mm.
1.1	Laser Type	Pulsed Nd:YAG or equivalent
1.2	Wavelength	1064 nm
1.3	Average power	Average power 600 W. Average power at the work piece to be not less than 500 W. The power should be measured and displayed.
1.4	Peak Power	10 kW
1.5	Pulse Energy	> 70 J
1.6	Max. Frequency	500 Hz or higher
1.7	Pulse Width Range	0.2 to 20 milli sec adjustable
1.8	Pulse to Pulse Stability	± 3% or better
1.9	Standard Fiber Length	Minimum 5 meter
1.10	Number of outputs required	01 (One only)
1.11	Cooling	Water chiller of suitable capacity (to be placed outside the 1% RH dry room)
1.12	Materials to be welded	Al alloy/Stainless Steel
1.13	Flexible work station	Compatible work station integrated with the LASER source, CNC control, programable and monitoring of work piece with software.
1.14	LASER control	Integral to the workstation either as control panel or separate PC. The LASER parameters, CNC control of the work piece, live video monitoring of welding process, gas control etc should be programmable/controllable and recordable. Necessary software to be provided.



1.15	Standard linear Tooling	<p>The job should be mounted in the fixture, integral in system enclosure and can be movable in the following axis to accommodate and weld Li-ion cell of dimensions 140 mm x 28 mm x 95 mm (height x thickness x Width):</p> <p>X: 300 mm Y: 200 mm Z: 150 mm or higher.</p> <p>Rotary movement on Y axis: 360° continuous</p> <p>Max. Speed: 300 mm/sec in all axis</p> <p>Accuracy, Repeatability: 1 µm in all axis</p> <p>Max Load: 15 kg</p> <p>Stage to be at least 400 mm x 400 mm</p>
1.16	Features required	<ul style="list-style-type: none"> • Camera for monitoring the welding process mounted in z-axis and displayed on HMDI panel/Computer • Class I eye-safe enclosures with large windows for process viewing • Interlock for door opening • Interior lighting • Multi-axis CNC motion components and tooling • High mechanical stability with < 20 microns relative movement under normal operation. • Power ramping and pulse shaping • Necessary lens for focusing • Camera capable of atleast 70x magnification with option to capture and save images
1.17	Gas control	<ul style="list-style-type: none"> • Provision for Gas purging with on/off and flow control, inside ducting etc. • Provision for Fume extraction.
1.18	Electrical Requirements	Should operate on 415V/220V, 50 Hz Power
1.19	Standards	Should comply with international standards like Low voltage directive, EMC Immunity & emissions, Safety of Machinery, Safety of LASER products, CDRH and CE etc.
1.20	Warranty	2 years




 Shashara Raju
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 विज्ञान भवन-५३० ०२७
 विक्रम नगर, दिल्ली-११००२७

List of Deliverables:

LASER welding machine consisting of the following:


- LASER Power source – 1No.
- Chiller – 1No.
- Work station with 4 axis stage movement, fume extraction, Optical fiber, Welding head, PLC interface unit -1 Set.
- Spares kit consisting of all essential spares like flash lamp, O-rings, fuses, lights, for 2 years trouble free operation– 1 set
- LASER protection glasses- Minimum 2 No.

Acceptance Criteria:

- Meeting to the specifications mentioned in Annexure-I
- Satisfactory performance of the equipment tested in terms of the specified application
- The equipment must satisfactorily operate in 1% RH dry room
- Demonstration of welding two Aluminium/S.S. containers after installation at NSTL.
- Training of personnel for the operation and maintenance
- Complete supply of documentation related to various systems.

Terms and Conditions

1. Only reputed manufacturers or their authorized dealers to quote (authorization certificate to be enclosed).
2. The vendor must have supplied similar LASER welding equipment in India/Abroad other than their own country. List/details of recent installations within India should be produced.
3. Detailed catalogs of the equipment are to be enclosed.
4. Indian vendors to quote in Rupees and foreign vendors to quote in foreign currency along with clear FOB/CIF charges.
5. Service-& repair support must be available within India.


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