



**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ORISSA**

(Form to be used for purchases above Rs.1.0 lakh; to be sent to at least six firms)

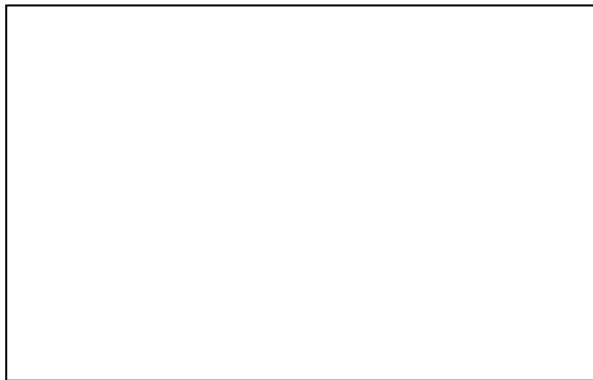
Advertised/Limited Tender Enquiry

Department: Industrial Design

Enquiry No: NITR/PW/ID/2017/1659

Date: 14.11.2017

Important Dates



Event	Date	Time
Pre-bid Conference	NA	NA
Last Date of submission of quotation	11.12.2017	3.30PM
Quotation Opening date	11.12.2017	3.40pm

Dear Sir,

We intend to purchase the commodities specified below and invite quotations in accordance with the terms and conditions detailed in the bid document. If you are interested, kindly send your offer with prices and complete terms within the time mentioned above.

Please send your quotation to:

Yours sincerely,

Head,
Department of Industrial design
Attn.: Dr.B.B.V.L.Deepak
NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ORISSA

Name Dr.B.B.V.L.Deepak
Co-PI, BRNS
Project(SR/16/ID/002)
Department of Industrial Design
NIT Rourkela-769008

Encl :

- (1) Schedule of requirement, specifications, dates etc.
- (2) Bid document containing detail terms and conditions.

1. Schedule of requirements

Sl. No.	Description of Goods/Service	Quantity
01.	<p><u>Laser Sensor Integrated Robotic Arc Welding Setup</u></p> <ul style="list-style-type: none"> • Laser sensor for seam tracking of MIG robotic welding for obtaining 3D information about seam or weld path and weld gap for automated robotic welding. • Robotic arc welding setup for joining of mild steel plate (5mmthickness). <p>Detailed Specification as per attached Annexure - I</p>	1 unit

2. Specifications and allied Technical Details

<ul style="list-style-type: none"> • Provide user’s list along with the quotation
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3. Format of Quotation (tick appropriate box)

It is a single bid; please give all technical specifications and price bid in one envelope.

OR

It is a two-part bid with separate techno-commercial and price bids. Please see item 1.12 of instructions for method of bidding.

4. The bid envelope should be super-scribed with

<p>Bid for <u>Laser Senor Integrated Robotic Welding Setup</u> vide Enquiry No. <u>NITR/PW/ID/2017/1659</u> Dated <u>14/11/2017</u></p>
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5. Quotations should be valid for a period of **90 days** from the closing date of the bid.

6. Some important dates:

- i. Pre-bid Conference: Date: _____ Time: _____
- ii. Last date for receipt of quotation: Date: 11.12.2017 Time: 3:30PM
- iii. Opening of techno-commercial bid: Date: 11.12.2017 Time: 3:40 PM
- iv. Opening of Financial bid: Date: _____ Time: _____

- 7. Excise Duty:** The Institute is exempt from Excise Duty. Please state applicable excise duty as a separate item.
- 8. GST:** GST should be charge according to applicable rates.
- 9. Bid Security:** NA
- 10. Performance Security:** NA
- 11.** Please go through the enclosed "bid document" carefully for other bidding instructions.
- 12(a)** Please send your quotations by Registered/Speed Post or Courier Service to:

Head, Department of Industrial Design. Attention: <u>Dr. B.B.V.L.Deepak</u> National Institute of Technology, Rourkela – 769 008, Orissa

OR (b) drop the quotation in the Tender Box kept in the office of the Department during the normal working hours of the Institute. Please do not hand over the quotation to any person by hand.

- 13.** For technical details, you may contact

Dr.B.B.V.L.Deepak Co-PI, BRNS Project(SR/16/ID/002) DEPARTMENT OF INDUSTRIAL DESIGN NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA – 769 008, ORISSA Phone: 0661 – 2462855(o);+91-8984180965(m) E-mail: bbv@nitrkl.ac.in;deepak.bbvl@gmail.com

Form PPIM-1B (Contd.)

[Para 1.17(ii)]

**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ORISSA****BID DOCUMENT****1. Instructions to the bidders**

- 1.1 Sealed bids are invited on behalf of the Director, National Institute of Technology (NIT), Rourkela – 769 008, Orissa, from the intending bidders for supply of the goods/stores/equipments for the Institute as detailed in the enquiry letter.
- 1.2 The bidders should quote their offer/rates in clear terms without ambiguity.
- 1.3 The rates should be quoted both in figures and words and legibly written without any over-writings. In case of any correction, the same must be attested by the bidder with full signature. However, no over-writing is permissible. Manufacturer's price-list, where applicable, should be submitted along with the bid.
- 1.4 In case of any discrepancy between the rates in figures and that in words, the rate in words will be accepted as correct.
- 1.5 The last date for receipt of the bid is marked in the enquiry. In case the above date is declared a holiday for NIT, Rourkela, and the bids will be received up to the appointed time on the next working day.
- 1.6 The bids may be sent by registered or speed post or by courier service, so as to reach the concerned department before the last date of receipt, or alternatively, be dropped in the tender box kept at the Department office. The name of the Department is mentioned in the Enquiry.
- 1.7 The bidder may modify his bids before the last date appointed for receipt of the bids by sending an amendment to the bid. No bid shall be modified after the deadline for receipt of the bids.
- 1.8 If a prospective bidder requires any clarification in regard to the bidding documents, he may make a request the concerned officer or faculty member at least 15 days before the deadline for receipt of bids.
- 1.9 Bids received after the deadline of receipt shall not be taken in to consideration.

- 1.10 Each bidder shall submit only one bid. A bidder, who submits more than one bid, shall be disqualified and considered non-responsive.
- 1.11 The cover containing the bid must be sealed and super-scribed "Bid for Laser Sensor Integrated Robotic Welding Setup vide No. NITR/PW/ID/2017/1659 Dated 14.11.2017" as given in the enquiry.
- 1.12 The bids shall be opened in the **Departmental Office at the Date and Time** given on the top of the document. The bidders may send their authorized representatives to attend the bid opening, if they so desire. In the event of the above bid opening date being declared holiday for the NIT, Rourkela, the bids will be opened at the appointed time and place on the next working day.
- 1.13 The bidder has to sign in full at all pages of the bidding document.

2. Conditions of the bid

- 2.1 The rates quoted should preferably be net, inclusive of packing, forwarding, freight, Insurance and all other incidental charges. In case these charges are quoted extra in addition to the quoted rates, the amount thereof or advolerum rate must be specified. Packing, forwarding, freight etc., when quotes separately are reimbursable at actuals. If external agencies are employed, their receipts must be enclosed with the invoice.
- 2.2 Duties and Taxes are to be quoted separately. Advolerum rates thereof should be clearly indicated with reference to the relevant Acts and Rules.

It may be noted that the Institute is exempt from paying Excise Duty vide Government Notification No. 10/97 dated 01.03.1997 [Registration No.: TU/V/RG-CD(227)/2001, dated 10.12.2001]. The Institute is not authorized to issue C or D forms. GST may be charged at applicable rates.

- 2.3 The goods are required to be delivered at the indenting Department of NIT, Rourkela, and must be dispatched within **60 days** from the date of placement of the supply of order under the risk and arrangement of the bidder and offers with delivery beyond the above period shall be treated as unresponsive. In case the delivery time is higher, the same must be mentioned clearly in the quotation.

- 2.4 The bid should remain valid for a period of **90 days** from the date of opening. In case your offer has a different validity period that should be clearly mentioned in the quotation.
- 2.5 Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.
- 2.6 The goods offered should strictly conform to the specification and technical details mentioned in **Annexure-I**.
- 2.7 The Institute may like to conduct pre-dispatch inspection of goods, where applicable.
- 2.8 Period of guarantee/warranty, where applicable, should be specified in the bid.
- 2.9 If the successful bidder, on receipt of the supply order, fails to execute the order within the stipulated period, in full or part, it will be open to the Director, NIT, Rourkela to recover liquidated damage from the firm at the rate of 1 percent of the value of undelivered goods per month or part thereof, subject to a maximum of 5 percent of the value of undelivered goods. Alternatively, it will also be opened to the Director, to arrange procurement of the required goods from any other source at the risk and expenses of the bidder.
- 2.10 The successful bidder may be required to execute a contract, where applicable.
- 2.11 The bidder has to furnish up to date GST and Income Tax Clearance Certificate along with the bid.
- 2.12 Payment (*100 percent*) will be made by Account Payee Cheque/Bank Draft, within 30 days from the date of receipt of the goods in good condition or receipt of the bill, commissioning of the equipment, where applicable, whichever is later/latest.
- 2.13 In the event of any dispute arising out of the bid or from the resultant contract, the decision of the Director, NIT, Rourkela shall be final.
- 2.14 The bid document/resultant contract will be interpreted under Indian Laws.

ANNEXURE - I**Laser sensor integrated robotic welding setup****A. Welding Robot Specifications:**

The robot manipulator has to be of a well-known brand with excellent performance capable of delivering welding outputs of highest quality. The system integration and software to be user friendly with minimal intervention.

Item	Specifications	
Controlled Axis	6 – vertically articulated	
Payload	6 kgs	
Reach from P Point	1440 mm	
Repeatability	+/- 0.08 mm	
Range of Motion (degrees)	S – axis (turning)	- 170 - + 170
	L – axis (lower arm)	- 90 - + 155
	U – axis (upper arm)	- 175 - + 240
	R – axis (wrist roll)	- 150 - + 150
	B – axis (wrist pitch / yaw)	- 135 - + 90
	T – axis (wrist twist)	- 210 - + 210
Maximum Speed	S – axis (turning)	4.01 rad/s 230 deg/s
	L – axis (lower arm)	3.49 rad/s 200 deg/s
	U – axis (upper arm)	4.01 rad/s 230 deg/s
	R – axis (wrist roll)	7.50 rad/s 430 deg/s
	B – axis (wrist pitch / yaw)	7.50 rad/s 430 deg/s
	T – axis (wrist twist)	11.00 rad/s 630 deg/s
Allowable Moment	R – axis (wrist roll)	10.5 N.m
	B – axis (wrist pitch / yaw)	10.5 N.m
	T – axis (wrist twist)	3.2 N.m
Allowable Inertia (GD2/4)	R – axis (wrist roll)	0.28 kg.m2
	B – axis (wrist pitch / yaw)	0.28 kg.m2
	T – axis (wrist twist)	0.06 kg.m2
Approx. Mass	130 kg	
Ambient Conditions	Temperature	0 – 45 deg C
	Humidity	20 – 80% RH (non-condensing)
	Vibration	4.9 m2/sec or less
	Others	-Free from corrosive gases or liquids or explosive gases - Free from exposure to water, oil or dust - Free from excessive electrical noise (plasma)
Power Requirements	1.5 kVA	
Note :	<ul style="list-style-type: none"> • Conforms to ISO 9283 • Varies in accordance with applications and motion patterns • SI Units are used for the specifications 	
<u>Controller specifications</u>	<ul style="list-style-type: none"> • Dust proof • Possible to control 3 external axes • Indirect cooling system • Ambient temp during operation 0 to 45 deg C and during storage -10 to +60 deg C • 3 phase power supply 200 VAC / 220 VAC • 100 Ohms or less grounding resistance • Serial encoder positioning system • PCI : 2 slots • Lan / Interface 1/RS-232 : 1ch 	

<ul style="list-style-type: none"> • Servo control software 	
<u>Programming pendant specifications</u> <ul style="list-style-type: none"> • <u>Reinforced plastics</u> • <u>Multiple functions operation device (specify various keys)</u> • <u>Emergency stop</u> • <u>IP65 IEC Protection class</u> 	
<u>Power source specifications</u> <ul style="list-style-type: none"> • <u>350 Amps welding power source</u> • <u>Wire feeder with mounting base</u> • <u>Shock sensor cable</u> • <u>Welding torch and welding interface cable</u> • <u>Power cable, conduit cable, wire feeder cable</u> • <u>Shock sensor, gas hose, torch cable</u> 	
Welding unit (MIG) Specifications The MIG welding unit should be supplied with all accessories including the torch.	
Welding Power Source Ratings & Specifications	
Rated input voltage	3 phase, 200-220 VAC +/- 10% / 3 phase, 380-415 VAC +/- 10% (tap changing)
Frequency	50 / 60 Hz
Rated input	20 Kva
Rated output current *1	30-350 Amps
Rated output voltage *1	12-36 V
Wire feeding speed	1.0 – 1.8 m / min
Welding method	CO2 short circuiting arc welding MAG short circuiting arc welding
Welding material	Iron
Rated operation rate	60% (for 10 min)
Control method	Unified / Independent

*1 : Depending on wire diameter

*2 : Does not include projecting parts such as eye bolts or screws

B. Non-contact seam tracking sensor (laser seam tracking sensor) Specifications

General specifications: The aim of the laser sensor is to identify the weld path laser seam tracking on the welding component. The program console should be capable of teaching the laser unit to track differently shaped components and weld accordingly.