



## **Schedule of Tender**

For

## **Nitrogen Parallel Seam Sealer**

**Central Manufacturing Technology Institute  
Tumkur Road, Bangalore – 560 022. INDIA**

**Central Manufacturing Technology Institute  
Tumkur Road, Bangalore 560 022**

**“Nitrogen Parallel Seam Sealer”  
Schedule of Tender**

**(To be filled in by the tenderer and returned and duly signed along with enclosure to the Schedule of Tender)**

1. Name of Purchaser	Central Manufacturing Technology Institute Tumkur Road, Bangalore 560 022
2. Place of delivery	Central Manufacturing Technology Institute Tumkur Road, Bangalore 560 022
3. Delivery of Machine Required	Within 5 months after placing the purchase order
4. Date of receipt of the Tender	On or before <b>30th Nov 2015</b>
5. Earnest Money Deposit	<b>Rs.25,000/-</b> as EMD is payable by Demand Draft drawn in favour of Central Manufacturing Technology Institute, payable at Bangalore.  A tender fee amount of Rs.1145/- is to be submitted along with tender through a demand draft in favour of "Central Manufacturing Technology Institute, Bangalore"
6. Validity of the tender	Tender should be valid for a period of not less than 3 months from the date of offer and unless otherwise specified by the tenderer, the tender shall be treated as valid even thereafter.
7. Technical details/ Requirements for which the tender is invited.	<p>a. As per specification enclosed.</p> <p>b. All details that are required in the specification must be included in the offer. Incomplete tenders are liable to be rejected.</p> <p>c. Wherever numerical values are specified, tenderer shall respond with numerical values that actually correspond to the product. Any additional features/ details pertaining to the product should be enclosed separately.</p> <p>d. The equipment will be finally accepted based on the compliance of the equipment with the Acceptance Criteria. The final Acceptance Criteria will be based on mutual agreement and will be finalized at the time of placing the order. Hence, the bidder has to go through the <b>Acceptance Criteria</b> and convey their <b>acceptance unambiguously</b>. They may also suggest a suitable method of verification if the proposed method is not acceptable to the bidder.</p>
8. Price offered	<p>a. The quotation should be furnished in <b>TWO</b> parts in different sealed covers in the following manner.</p> <p>b. The first part should contain complete technical details of the item offered along with name and address of the manufacturer, full name and address of the authorised agent, guaranteed delivery period and 2 sets of the latest catalogues. This part should not contain the price details. The EMD as indicated should also be enclosed along with the technical details. The cover should be sealed and superscribed with " Tender Enquiry Reference and Date" and <b>"Nitrogen Parallel Seam Sealer"</b></p> <p>c. The second part should contain the Price and other commercial terms. The price should be quoted F-O-R, Bangalore. The cover should be sealed and superscribed</p>

## TENDER FOR Nitrogen Parallel Seam Sealer

	<p>with “Tender Enquiry Reference and Date” and “<b>Nitrogen Parallel Seam Sealer</b>”</p> <p>d. Both these covers should be put together in an outer cover sealed and superscribed with “Tender Enquiry Reference and Date” and “<b>Nitrogen Parallel Seam Sealer</b>”.</p> <p>e. Break up cost for optional features and optional equipment/ accessories are to be clearly indicated.</p> <p>f. If two different models to be offered, Both shall be produced in separate sealed covers.</p>
9. Payment Terms	To be indicated
10. Transit Insurance	To be arranged by the supplier from supplier’s warehouse to the place of delivery and to be billed at actuals.
11. Notes	<p>a. Late offers will not be entertained or accepted.</p> <p>b. All the items in the tender Specifications are to be filled in. In complete Tender Specifications may not be considered.</p> <p>c. The Director of the Institute reserves the right to reject any tender / all tenders without assigning any reason.</p> <p>d. In case of unsuccessful tender, the EMD will be refunded only after finalisation of contract.</p> <p>e. In case of the tenderer whose offer is accepted, the EMD will be refunded only after receipt, inspection and acceptance of the equipment at CMTI, treating it as a security deposit.</p> <p>f. If the supplier fails to fulfil the terms of purchase order or when the purchaser is satisfied that it is not in the interest of the purchaser to persist with the defaulting supplier, the EMD stands forfeited. Further the purchaser is at liberty to place the order on another supplier at the risk and cost of original supplier.</p>
12. General Terms and Conditions	<ul style="list-style-type: none"> <li>• Latest software release version to be given at the time of installation.</li> <li>• All software provided should be licensed to CMTI.</li> <li>• Maintenance, Enhancement, automatic up-gradation, and Support for 1 year for all software</li> <li>• User manuals, all necessary training and training material to be provided.</li> <li>• Original Software to be supplied on CD-ROM / DVD-ROM media.</li> <li>• Installation commissioning testing training and proving all the features and functions of the system supplied should be the responsibility of the vendor.</li> </ul>

# **Technical Specifications of Nitrogen Parallel Seam Sealer**

**Annexure - I**

Nitrogen Parallel Seam Sealer is a resistive welding of Metal/Ceramic Packages to the Metal Lids, to hermetically seal the microelectronic components. Package to Lid resistive welding is to be carried out in nitrogen environment which is at positive pressure with respect to atmosphere.

Sl. No.	Indicated Specification	Description	Remarks	
<b>A</b>	<b>Processes</b>			
	1	Welding process	Seam sealing type.	Essential
	2	Tack welding	Tack weld or spot welding.	Essential
	3	Matrix/Multiple packages sealing in one fixture	Sealing should be possible in single setup, with jigs that can accommodate multiple packages	Essential
	4	Ceramic Package & Lid Metal Package & Lid	Parallel seam sealing in dry nitrogen atmosphere. The same needs to be proved at the time of installation.	Essential
<b>B</b>	<b>Package and lid sealing</b>			
	1	Package size range	Package sizes from 3mm to 150mm or better	Essential
	2	Package type	Circular, Rectangular and Square packages. Vendor should prove resistive welding of all three types of packages at the time of installation.	Essential
	3	Corner radius of lid	Capable of handling packages with curved corners of minimum radius of 0.5mm or better.	Essential
	4	Lid thickness range	0.1mm to 0.12mm	Essential
<b>C</b>	<b>Process parameter</b>			
	1	Weld Force range (resolution)	250g to 950g ( resolution: ≤50g) or better	Essential
	2	Linear Weld Speed range (resolution)	3 to 35mm/sec (resolution: ≤0.3mm/s) or better	Essential
	3	Theta weld speed range (resolution)	3 to 35mm/sec (resolution: ≤0.3mm/s) or better	Essential
	4	Current output range (resolution)	100 to 400 amps (resolution: <2 amps) or better	Essential
	5	Minimum Current pulse width	≤0.5msec	Essential
	6	Process parameters recipe	Facility to make recipe using process parameters and store.	Essential
<b>D</b>	<b>X Y Stage</b>			
	1	X and Y Stage movement range	150mm x 150mm or better	Essential
	2	X and Y Stage movement resolution	≤25.4um	Essential

TENDER FOR Nitrogen Parallel Seam Sealer

Sl. No.	Indicated Specification	Description	Remarks	
<b>D</b>	3	Theta angle range (resolution)	360 <sup>0</sup> (resolution: ≤1 <sup>0</sup> )	Essential
	4	Z stroke	1. Up and down movement 2. Controllable soft contact of Electrodes onto the Package while moving down.	Essential
	5	Driving electrodes gap resolution	≤100um	Essential
	6	Fixture mechanism	Tooling plate, which allows datum set-up of all assemblies, with the use of simple setting gauges or dimensional measurements.	Essential
	7	Axis control	Stage should have a controller to position and feed the package, for welding. Control system should have I/O communication, Data control, Data storage and Status Monitoring System.	Essential
	8	Control Panel	Start, Stop, Bonding selection, Reset, Jog and Emergency stop operations should be integrated into control panel.	Essential
<b>E</b>		<b>Vacuum Bake oven</b>		
	1	Oven Maximum Temperature	250°C	Essential
	2	Oven Temperature set up resolution	≤5°C	Essential
	3	Oven Maximum vacuum level	≤2 x 10 <sup>-2</sup> mbar	Essential
	4	Oven Pressure gauge	For measurement and display of vacuum level inside oven.	Essential
	5	Oven dimensions and shelves	Shelf type. Please specify oven dimensions.	Essential
	6	Material	Stainless Steel	Essential
	7	Oven parameters control	For time period, temperature measurement and vacuum setting. Interlocks to manage access doors between oven and glove box.	Essential
	8	Oven cooling system	Suitable oven cooling system.	Essential
<b>F</b>		<b>Glove Box</b>		
	1	Glove box Moisture Detection Range	-20 <sup>0</sup> C to -80 <sup>0</sup> C dewpoint temperature with monitor function.	Essential
	2	Number of glove ports	2 or 4	Essential
	3	Nitrogen gas unit	Equipped with a flow meter and regulator ranging from 0.1kgf/cm <sup>2</sup> to 1 kgf/cm <sup>2</sup> , with 0.1kgf/cm <sup>2</sup> resolution	Essential
	4	Nitrogen pressure range	0.01Mpa to 0.1Mpa or better	Essential
	5	Glove box volume		Please specify
	6	Nitrogen gas inlet port types		Please specify
7	Nitrogen gas outlet	Using a Relief Valve	Essential	

TENDER FOR Nitrogen Parallel Seam Sealer

Sl. No.	Indicated Specification	Description	Remarks
F	8	Transparent front panel	Essential
	9	Nitrogen pressure gauge	To measure the pressure level inside Glove Box Essential
G		<b>Pass box</b>	
	1	Dimensions	Please specify
	2	N2 based purging or vacuum based venting	Essential
	3	Material	Stainless steel Essential
H		<b>Nitrogen inlet pressure, purity and flow rate requirements</b>	Please specify
I		<b>Cooling system accessories requirements</b>	Please specify
J		<b>Accessories</b>	
	1	Dry pump	For vacuum suction of vacuum bake oven Essential
	2	Electrodes	Cu electrodes Essential
	3	Jigs/fixtures	Vendor should provide Jigs/fixtures required to carry out welding operations on various packages possible. Essential
	4	Dew point sensor and display	To measure and display moisture level for specified range Essential
	5	Monitor and controller/computer	Display and control system to show process parameters and to control the same. Essential
	6	Glove, Regulators/connectors, Flexible bellows, O-ring, Isolation valve, Center ring, Clamp ring	All items should come with the system and a <b>set of spares</b> . Please specify any other parts that are needed in spares. Essential
	7	Preventive maintenance tool kit	Essential
	8	Requirements for installation	1. Vendor should provide details of all the utilities required for installation 2. Vendor should take care of N2 cylinder requirements during installation. 3. Drawings of machine hook ups, details of pipes and fittings with dimensions, valves and gauges etc Essential
	9	N2 cylinders	Vendor needs to provide Nitrogen cylinder of 99.999% pure with a capacity of 7 cubic meter, 2 in numbers, Cylinders may be procured from third party locally. Essential
10	Packages and Lids	Vendor has to supply 5 different types of Metal and Ceramic packages with suitable lids. Quantity 20no.s of each type. For training at CMTI Essential	

TENDER FOR Nitrogen Parallel Seam Sealer

	Sl. No	Indicated Specification	Description	Remarks
<b>J</b>	11	Power supply	The system should work on 230V, AC single phase 50 Hz voltage variation $\pm 10\%$ . Frequency variation: $\pm 2\text{Hz}$ . Please specify wattage requirements.	Essential.
<b>K</b>		<b>Additional recommended and essential accessories with detailed specifications</b>		Please specify
<b>L</b>		<b>Documents/ manuals for Parallel Seam Sealer</b>	2 sets of hard copy of the following with 1 set of soft copy in English	
	1	Operating manual		Essential
	2	Maintenance manual		Essential
	3	Service manual		Essential
	5	Spare parts list with source of supply and prices		Essential
	6	The supplier should provide details regarding the safety measures adopted in the system.		Essential
	7	Manuals of bought out items incorporated in the system		Essential
<b>M</b>		<b>Acceptance</b>	The capabilities of the machine, part accuracies must be proved by supplier as per CMTI's acceptance criteria at OEM's place and also at CMTI after installation, free of cost.	Essential
<b>N</b>		<b>Installation</b>	Installation and commissioning at CMTI must be done by OEM or authorized personnel at free of cost.	Essential
<b>O</b>		<b>Training</b>	Suppliers to provide training for at least 2 persons on programming, operation and maintenance at CMTI, free of cost.	Essential
			Suppliers to provide training for at least 2 persons on programming, operation and maintenance at OEM's place, free of cost.	Optional



TENDER FOR Nitrogen Parallel Seam Sealer

Sl. No.	Indicated Specification	Description	Remarks
P	<b>Safety and Certifications</b>	All the necessary safety regulations such as CE compliance, low voltage directive, EMC regulations compliance details, Alarms and emergency switch-off in case of any malfunctioning must be provided. The system must be equipped with all the necessary safety interlocks.	Essential
Q	<b>Warranty - inclusive of parts and labour</b>	The complete system and its associated hardware / software should have a standard warranty of 12 months from the date of installation, commissioning and acceptance of the system at CMTI. Supplier modification(s) / Software upgrades shall be intimated and same will be made available free of cost during the warranty period.	Essential
		Additional 12 months extended warranty may be quoted as an option	Optional
R	<b>List of Users</b>	Provide a list of users for the quoted model in India with full contact details.	Essential
S	<b>Service Support</b>	The supplier should support the system minimum for 10 years (post warranty, with all spares and services). Exact lifecycle of the offered unit has to be specified.	Essential

### Acceptance Criteria for Nitrogen Parallel Seam Sealer

Sl. No.	Indicated Specification	Description	Inspection type	
<b>A</b>	<b>Processes</b>			
	1	Welding process	Seam sealing type.	Functional verification
	2	Tack welding	Tack weld or spot welding.	Functional verification
	3	Matrix/Multiple packages sealing in one fixture	Sealing should be possible in single setup, with jigs that can accommodate multiple packages	Physical verification
4	Ceramic Package & Lid Metal Package & Lid	Parallel seam sealing in dry nitrogen atmosphere. The same needs to be proved at the time of installation.	Functional verification	
<b>B</b>	<b>Package and lid sealing</b>			
	1	Package size range	Package sizes from 3mm to 150mm or better	Physical Measurement
	2	Package type	Circular, Rectangular and Square packages. Vendor should prove resistive welding of all three types of packages at the time of installation	Physical verification
	3	Corner radius of lid	Capable of handling packages with curved corners of minimum radius of 0.5mm or better.	Functional verification
4	Lid thickness range	0.1mm to 0.12mm	Functional verification	
<b>C</b>	<b>Process parameter</b>			
	1	Weld Force range (resolution)	250g to 950g ( resolution: $\leq 50$ g) or better	Functional verification
	2	Linear Weld Speed range (resolution)	3 to 35mm/sec (resolution: $\leq 0.3$ mm/s) or better	Functional verification
	3	Theta weld speed range (resolution)	3 to 35mm/sec (resolution: $\leq 0.3$ mm/s) or better	Functional verification
	4	Current output range (resolution)	100 to 400 amps (resolution: $< 2$ amps) or better	Functional verification
	5	Minimum Current pulse width	$\leq 0.5$ msec	Functional verification
6	Process parameters recipe	Facility to make recipe using process parameters and store.	Functional verification	
<b>D</b>	<b>X Y Stage</b>			
	1	X and Y Stage movement range	150mm x 150mm or better	Physical Measurement
	2	X and Y Stage movement resolution	$\leq 25.4$ um	Physical Measurement
3	Theta angle range (resolution)	$360^0$ (resolution: $\leq 1^0$ )	Physical Measurement	

TENDER FOR Nitrogen Parallel Seam Sealer

Sl. No.	Indicated Specification	Description	Inspection type	
<b>D</b>	4	Z stroke	1. Up and down movement 2. Controllable soft contact of Electrodes onto the Package while moving down.	Functional verification
	5	Driving electrodes gap resolution	≤100um	Physical Measurement
	6	Fixture mechanism	Tooling plate, which allows datum set-up of all assemblies, with the use of simple setting gauges or dimensional measurements.	Physical verification
	7	Axis control	Stage should have a controller to position and feed the package, for welding. Control system should have I/O communication, Data control, Data storage and Status Monitoring System.	Functional verification
	8	Control Panel	Start, Stop, Bonding selection, Reset, Jog and Emergency stop operations should be integrated into control panel.	Functional verification
<b>E</b>		<b>Vacuum Bake oven</b>		
	1	Oven Maximum Temperature	250°C	Functional verification
	2	Oven Temperature set up resolution	≤5°C	Functional verification
	3	Oven Maximum vacuum level	≤2 x 10 <sup>-2</sup> mbar	Physical Measurement
	4	Oven Pressure gauge	For measurement and display of vacuum level inside oven.	Functional verification
	5	Oven dimensions and shelves	Shelf type. Please specify oven dimensions.	Physical verification
	6	Material	Stainless Steel	Physical verification
	7	Oven parameters control	For time period, temperature measurement and vacuum setting. Interlocks to manage access doors between oven and glove box.	Functional verification
8	Oven cooling system	Suitable oven cooling system.	Functional verification	
<b>F</b>		<b>Glove Box</b>		
	1	Glove box Moisture Detection Range	-20°C to -80°C dewpoint temperature with monitor function.	Functional verification
	2	Number of glove ports	2 or 4	Physical verification
3	Nitrogen gas unit	Equipped with a flow meter and regulator ranging from 0.1kgf/cm <sup>2</sup> to 1 kgf/cm <sup>2</sup> , with 0.1kgf/cm <sup>2</sup> resolution	Functional verification	

TENDER FOR Nitrogen Parallel Seam Sealer

Sl. No.	Indicated Specification	Description	Inspection type	
<b>F</b>	4	Nitrogen pressure range	0.01Mpa to 0.1Mpa or better	Functional verification
	5	Glove box volume		Please specify
	6	Nitrogen gas inlet port types		Please specify
	7	Nitrogen gas outlet	Using a Relief Valve	Physical verification
	8	Transparent front panel		Physical verification
	9	Nitrogen pressure gauge	To measure the pressure level inside Glove Box	Functional verification
<b>G</b>		<b>Pass box</b>		
	1	Dimensions		Please specify
	2	N2 based purging or vacuum based venting		Functional verification
	3	Material	Stainless steel	Physical verification
<b>H</b>		<b>Nitrogen inlet pressure, purity and flow rate requirements</b>		Please specify
<b>I</b>		<b>Cooling system accessories requirements</b>		Please specify
<b>J</b>		<b>Accessories</b>		
	1	Dry pump	For vacuum suction of vacuum bake oven.	Physical verification
	2	Electrodes	Cu electrodes	Physical Verification
	3	Jigs/fixtures	Vendor should provide Jigs/fixtures required to carry out welding operations on various packages possible.	Physical verification
	4	Dew point sensor and display	To measure and display moisture level for specified range	Physical verification
	5	Monitor and controller/computer	Display and control system to show process parameters and to control the same.	Functional verification
	6	Glove, Regulators/connectors, Flexible bellows, O-ring, Isolation valve, Center ring, Clamp ring	All items should come with the system and a <b>set of spares</b> . Please specify any other parts that are needed in spares.	Physical verification

TENDER FOR Nitrogen Parallel Seam Sealer

Sl. No.	Indicated Specification	Description	Inspection type	
<b>J</b>	7	Preventive maintenance tool kit	Physical verification	
	8	Requirements for installation	1. Vendor should provide details of all the utilities required for installation 2. Vendor should take care of N2 cylinder requirements during installation. 3. Drawings of machine hook ups, details of pipes and fittings with dimensions, valves and gauges etc	Physical verification
	9	N2 cylinders	Vendor needs to provide Nitrogen cylinder of 99.999% pure with a capacity of 7 cubic meter, 2 in numbers	Physical verification
	10	Packages and Lids	Vendor has to supply 5 different types of Metal and Ceramic packages with suitable lids. Quantity 20no.s of each type. For training at CMTI	Physical verification
	11	Power supply	The system should work on 230V, AC single phase 50 Hz voltage variation $\pm 10\%$ . Frequency variation: $\pm 2\text{Hz}$ . Please specify wattage requirements.	Physical verification
<b>K</b>	<b>Additional recommended and essential accessories with detailed specifications</b>		Please specify	
<b>L</b>		<b>Documents/ manuals for Parallel Seam Sealer</b>	2 sets of hard copy of the following with 1 set of soft copy in English	
	1	Operating manual	Physical verification	
	2	Maintenance manual	Physical verification	
	3	Service manual	Physical verification	
	5	Spare parts list with source of supply and prices	Physical verification	
	6	The supplier should provide details regarding the safety measures adopted in the system.	Physical verification	
	7	Manuals of bought out items incorporated in the system	Physical verification	

TENDER FOR Nitrogen Parallel Seam Sealer

Sl. No.	Indicated Specification	Description	Inspection type
<b>M</b>	<b>Training</b>		Suppliers to provide training for at least 2 persons on programming, operation and maintenance at CMTI, free of cost.
			Suppliers to provide training for at least 2 persons on programming, operation and maintenance at OEM's place, free of cost.
<b>P</b>	<b>Safety and Certifications</b>		All the necessary safety regulations such as CE compliance, low voltage directive, EMC regulations compliance details, Alarms and emergency switch-off in case of any malfunctioning must be provided. The system must be equipped with all the necessary safety interlocks.
<b>Q</b>	<b>Warranty - inclusive of parts and labor</b>		The complete system and its associated hardware / software should have a standard warranty of 12 months from the date of installation, commissioning and acceptance of the system at CMTI. Supplier modification(s) / Software upgrades shall be intimated and same will be made available free of cost during the warranty period.
			Additional 12 months extended warranty may be quoted as an option

Note:

- 1 The final Acceptance Criteria will be based on mutual agreement and will be finalized at the time of placing the order. The equipment will be finally accepted based on the compliance of the equipment with the Acceptance Criteria. Hence, the bidder has to go through the Acceptance Criteria and convey their acceptance unambiguously. They may also suggest a suitable method of verification if the proposed method is not acceptable to the bidder.