



MISSISSIPPI STATE
UNIVERSITY™

INVITATION FOR BIDS

OFFICE OF PROCUREMENT & CONTRACTS

1. INSTRUCTIONS FOR BIDDERS

- a. Sealed bids will be received in the Office of Procurement & Contracts, Mississippi State University, for the purchase of the items listed herein.
- b. All bids must be received in the Office of Procurement & Contracts on or before the bid opening time and date listed herein. Delivery of bids must be during normal working hours, 8:00 a.m. to 5:00 p.m. CST, except on weekends and holidays when no delivery is possible.
- c. Bidders shall submit their bids either electronically or in a sealed envelope. To submit electronically, follow the instructions below. Bids CANNOT be emailed.
 - i. Sealed bids should include the bid number on the face of the envelope as well as the bidders' name and address. Bids should be sent to: 245 Barr Avenue, 610 McArthur Hall, Mississippi State, MS 39762.
 - ii. At this time we only accept non-ITS bids electronically. For electronic submission of bids, go to: portal.magic.ms.gov and use the RFX number on the next page as your reference number.
- d. All questions regarding this bid should be directed to the Office of Procurement & Contracts at 662-325-2550.

2. TERMS AND CONDITIONS

- a. All bids should be bid "FOB Destination"
- b. Bidders must comply with all rules, regulations, and statutes relating to purchasing in the State of Mississippi, in addition to the requirements on this form. General Bid Terms and Conditions can be found here:
https://www.procurement.msstate.edu/procurement/bids/Bid_General_Terms_May_2019_V2.pdf
- c. Any contract resulting from this Invitation for Bid shall be in substantial compliance with Mississippi State University's Standard Contract Addendum:
<https://www.procurement.msstate.edu/contracts/standardaddendum.pdf>

Bid Number/RFX Number: 25-33/RFX #3160007316

Opening Date: April 29, 2025 at 2:00 p.m.

Description: Stitching Equipment

Vendor Name: _____

Vendor Address: _____

Telephone Number: _____

Days the Offer is Firm: _____

Authorized Signature: _____

Name: _____

Title: _____

Item	Quantity	Description	Unit Price	Total Price
1	1	Stitching Equipment		

1.0 Scope

This requirement discusses an increase in capability for an automated robotic stitching for large-scale composite structures.

2.0 Applicable Documents

ACI Documents

Customer Documents

Industry Specifications, Standards and Handbooks

Abbreviations, Acronyms and Terms used in this document are in accordance with ASME Y14.38M, Abbreviations and Acronyms.

3.0 Requirements

Gantry System Expansion

- Increase the size and capability of the gantry system to enable application of functional stitching to a large fuselage shaped component with the dimensions of
 - 12ft Wide x 8 ft high x 36 ft long

- Stitch placement requirements
 - Max stitch placement on the part in the horizontal (XY) plane - 8 ft from the floor
 - Min stitch placement on the part in the horizontal (XY) plane - floor level
 - Min stitch placement on the part in the vertical (YZ/XZ) plane - 1 ft 2in from the floor
 - Max stitch placement on the part in the vertical (YZ/XZ) plane - 11 ft from the floor
- Constraints
 - Clearance from floor to bottom of ceiling trusses - 25 ft 11 in
- Gantry modifications to include
 - Replacement of the 6-axis robot with a 3-axis rotary wrist to provide improved manipulation of the sewing head over and around the surface of the part to be stitched.
 - Expansion of X-axis rail length to accommodate increased travel requirement along the length of the cell.
 - Addition of a second X-axis rail, First and second X-axis rails mounted directly above a series of four (4) support columns for each rail
 - Addition of a Y-axis rail which spans the distance between the two X-axis rails as well support Z-axis rail transport across the entire width of the cell
 - Addition of a Z-axis rail to enable movement of the sewing head vertically relative to the part to be stitched
- Deliverables
 - Design, engineer and build of an enlarged overhead gantry system consisting of eight (8) support columns, two (2) integral linear x-axis transfer rails, one (1) linear y-axis transfer rail, one (1) linear z-axis transfer rail and a 3-axis rotary wrist mechanism. A robot controller will be used to control the three (3) linear axes of the gantry as well as the three (3) rotary axes of the wrist mechanism.
- Linear Axes Requirements
 - Beamlength
 - X-axis - 17700 mm (58.1 ft)
 - Y-axis - 7200 mm (23.5 ft)
 - Z-axis - 4120 mm (14.5 ft)
- Carriage stroke
 - X-axis - 16034 mm (52.6 ft)
 - Y-axis - 6020 mm (19.75 ft)
 - Z-axis - 3000 mm (9.8 ft)
 - Velocity: X=0.5 m/s, Y=0.5 m/s, Z=0.25 m/s
 - Acceleration: X=1 m/s², Y=1 m/s², Z=0.5 m/s²
- 3-axis rotary wrist requirements
 - Rotation
 - C axis: +/- 180 degrees
 - B axis: +/-90 degrees
 - A axis: +/- 180 degrees
 - Velocity
 - C axis: 60 degrees/sec
 - B axis: 60 degrees/sec
 - A axis: 60 degrees/sec
 - Acceleration
 - C axis: 60 degrees/sec²
 - B axis: 60 degrees/sec²
 - A axis: 60 degrees/sec²
 - Minimum Payload: 120 kg (EOAT)

- Other
 - Electrical control panel modifications & added servo motors for additional 2 linear and 3 rotary axes
 - Added length to high flex cables running from controller cabinet to existing linear axis drive motor, new cables required for additional linear & rotary drive axes
- Wrist Dress Pack
 - Includes power and communication cables required for sewing head control and power supply boxes.
- Additional gantry/wrist programming for interface to sewing head motion control system, RT software modifications/adaptation and system testing as required.
- Delivery, Installation & Startup
 - Additional safety fencing & service doors, enlarged part entry door and additional electronic door interlocks
 - Fully assembled gantry system tuning & calibration on-site at MSU
 - Foundation upgrades at MSU

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