

INDIAN INSTITUTE OF TECHNOLOGY, DELHI

Department of Mechanical Engineering

14th Jun 2013

Notice Inviting Quotation

Sealed technical and commercial quotations are invited for purchase of **CNC Machine Structure with 3 Linear and 2 Rotary Slides, Servo Motors, Drives and Motion Controller Hardware and Software** as per below mentioned specifications:

S. No	Items	Qty
1.	<p>Precision Linear Positioners (X & Y-Axes): Complete Linear screw Positioner with extruded aluminum housing, square rail Bearings, Precision ground Ball screw, travel stops & homing sensor. Motor mounting configurations (in-line, parallel). Duty cycle: 100%. IP30 Protection level with stainless strip seal. Acceleration 20 m/sec². Ball screw efficiency 90%. Load carrying capacity - 150 kgs min. Peak torque – 4.00 to 4.50 Nm Screw Rotation Speed – 0 to 3500 rpm Table travel: 150 mm. Bidirectional Repeatability < 1.5 µm Positional Accuracy: 10 µm (max) Home Sensor (1 No.), Travel limit Sensor (2 Nos) Motor Coupling: 0.375” Bellows. Motor Mount: BE 23-In-line-mounting. Linear Encoder: 0.5 micron.</p>	2 nos.
2.	<p>Precision Linear Positioners (Z-Axis): Complete Linear screw Positioner with extruded aluminum housing, square rail Bearings, Precision ground Ball screw, travel stops & homing sensor. Motor mounting configurations (in-line, parallel). Duty cycle: 100%. IP30 Protection level with stainless strip seal. Acceleration 20 m/sec². Ball screw efficiency 90%. Load carrying capacity - 150 kgs min. Peak torque – 4.00 to 4.50 Nm Screw Rotation Speed – 0 to 3500 rpm Table travel: 300 mm. Precision Grade: Repeatability < 1.5 µm Home Sensor (1 No.), Travel limit Sensor (2 Nos) Motor Coupling: 0.375” Bellows. Motor Mount: BE 23-In-line-mounting. Linear Encoder: 0.5 micron.</p>	1 nos.
3.	<p>Rotary positioning and indexing table. Table diameter – 6 in, 150 mm.</p>	2 nos.

	<p>Gear Ratio – 180:1. Magnetic home switches. Motor coupling – 0.375 in bore, bellows (required for precision grade). Standard table top. Repeatable indexing (12 arc-sec) Load capacity 200 lbs, (60Kgf) 360 degrees continuous travel. Worm gear drive. Dual race angular contact support bearing. Input Velocity (Max.) 15 revs./sec. Positional repeatability (unidirectional) 0.2 arc-min.</p>	
4.	<p>Servo motor (X, Y, Theta 1) Stall Torque 12.8 lb-in, (1.43 Nm) Peak Torque 4.38 lb-in, (0.49 Nm) Rated Torque 11.8 lb-in, (1.32 Nm) Frame magnet length – 233. Feedback – 2000 line encoder (8000 ppr post-quadrature) Rated Speed - 3500 rpm Compatible and assembled with Precision Linear and Rotary positioner (item 1 & 3)</p>	3 nos.
5.	<p>Servo motor with brake (Z, Theta 2) Stall Torque Continuous 10.1 lb-in, (1.13 Nm) Peak Torque 30.2 lb-in, (3.38 Nm) Rated speed 5500 rpm Slot less Design. Frame, Magnet Length – 233. Stall Current Continuous – 2.7. Compatible and assembled with Precision Linear and Rotary positioner (item 2,& 3)</p>	2 nos.
6.	<p>Ethernet powerlink Digital Servo amplifier with dual encoder to drive servo motors (item 4 & 5) and compatible with Programmable Automation Controller (item 8)</p>	5 nos.
7.	<p>Programmable Automation Controller with 5 axis and Ethernet powerlink. Axes/controller – 5 EPL Axes (min) Processor – 32-bit floating- point DSP @ 150 MFLOPS/ 75 MHz Flash - based Firmware. Multi-tasking RTOS. 8 coordinated systems/16 text programs/8 ladder programs. Interpolation - Linear, circular, sinusoidal, helical, elliptical, spline, 3D arcs. Ethernet Powerlink: Ethernet powerlink V2. Integrated 2-port Hub, RJ-45 connectors Supports EPL DS402 Drives on Interpolated position Mode. Serial Communication: 1 serial port (RS232 and/or RS422). Ethernet: 10/100 Base-T, RJ-45 connector .supports IP Protocols TCP/UDP, Ethernet/IP. USB: USB 2.0, Type B connection. CAN Open: Standard 9-pin D- Sub connector, Supports DS401 protocol for I/O devices. Languages Supported: Libraries for C++, VB6, C#, VB.NET, LabVIEW. Segmented Electronic camming.</p>	1 nos.

	Electronic gearing with realtime phase advance. Backlash and ballscrew compensation. CE (EMC & LVD), UL and cUL Recognized. Multitasking of up to 24 simultaneous programs. Time-based moves. Hardware & capture registers. Digital Inputs-16 Channel Digital Output-16 Channel Analog Input-8 Channel Analog Output-8 Channel	
8.	CNC Machine Structure To house all slides, motors, drives and automation controller (items 1 to 7). Maximum Size 1000 X 800 X 2000 mm with provision to integrate computer. Light weight structure, provision for door closing.	1 no.
9.	Complete set of Accessories including cables, power supplies, fasteners, mountings etc. to make complete system functional	1 set.

Terms and Conditions:

1. Payment terms: As per IIT norms.
2. Technical compliance chart should be strictly attached with the bid.
3. All quoted hardware should be of same make and compatible with each other.
4. Bid has to be submitted for supply of all items. No partial quotation or supply will be acceptable.
5. Support for following shall be provided:
 - a. Assembly, integration and commissioning,
 - b. Software development
6. Warranty should be 2 years.
7. All supplies should be complete within 8-10 weeks.
8. Quotations not sent in separate covers for technical and commercial bids are bound to be rejected.
9. Quotation validity should be minimum 60 days.
10. IIT Delhi reserves the right to accept or rejects any quotation without assigning any reasons thereof.

Please submit technical and commercial bid in separate sealed envelopes. The quotations may reach the following on or before **1st July 2013 up to 5.00 PM**

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