

Ref.#	<u>19/ASX/1454(MD0)</u>	Date :	15-05-2019
M/s.:		Fax # :	
Attention :		E-mail :	

Title:- **PURCHASE OF UNIVERSAL CNC VERTICAL MILLING MACHINE**

Kindly send us your best prices on **C&F basis** which should be (firm & Fixed) for each item for the **Universal CNC Vertical Milling Machine** as per attached **Annex-A** along with technical literature.

The prices should be quoted for each individual item.

Country of **Origin** should be mentioned

Price validity should be **90 days**.

Reference # & opening-date should clearly be mentioned in quotations (envelopes, fax e-mail).

Quotation should be submitted along with Technical Literature **by 03-06-2019** positively.

Note. Payment will be made through L/C.

Specifications of Universal CNC Vertical Milling Machine

A) MACHINE DESCRIPTION

- Universal CNC Vertical Milling Machine (3 + 2 Axis) with Built-in Tilting/ Rotary Table

Note:

- Separate Type of Tilting/ Rotary Table is not acceptable
- Machine with Tilting Head is not acceptable

B) TECHNICAL SPECIFICATIONS

Working Area:

- Traverse Range X-axis : 620 ~ 650 mm
- Traverse Range Y-axis : 520 ~ 550 mm
- Traverse Range Z-axis : 460 ~ 500 mm
- Distance Spindle Nose to table Surface : Min. 150 mm, Max. 610 mm

Table (B/C axis):

- Table (B/C axis) built-in with Basic Machine
- Table Size : Ø (500 ~ 650) mm
- Maximum Work Piece Size (Dia x Length) : Ø (500 ~ 650) mm x L (450 ~ 500) mm
- Swivel rotary Table powered B/C Axis
- Tilting Range B : B = -50°/+110°
- Rotary Range C : C = n x 360°
- Table Load : 300 ~ 500 Kg
- Table Clamping : Automatic/ Hydraulic

Direct Drive Spindle:

- Programmable Spindle Speed (Max.) : 12000 rpm
- Spindle Taper : SK-40/ BBT-40
- Coolant through Spindle (CTS) : 12 ~ 15 bar
- Maximum Cutting Feed Rate X/Y/Z-axis : 20 m/min
- Rapid Feed Rate Linear Axis X/Y/Z : 30 m/min
- Spindle Heat Compensation System/ Thermal Compensation Z-axis

Accuracy:

- Least incremental input (X/Y/Z, B/C) : 0.001 mm, 0.001°
- Positional Accuracy (X/Y/Z, B/C) : ± 0.003 mm, ± 4 Sec.
- Repeatability (X/Y/Z, B/C) : ± 0.002 mm, ± 3 Sec.

Tool Magazine:

- Tool Magazine Capacity : 30 ~ 40 Tools
- Maximum Tool Length : 250 ~ 300 mm
- Maximum Tool Diameter : Ø (75 ~ 90) mm

Electric Connection:

- Electric Connection : 3 Phase, 400±10% Volts, 50Hz

Specifications of Universal CNC Vertical Milling Machine

C) CONTROL

- **3D-Control SIEMENS 840D SL with ShopMill** or equivalent
- 19" TFT Display with full ASCII Keyboard
- SIEMENS ShopMill
- Workpiece oriented programming with 3D graphic support
- **SIMULATION:** SIEMENS 3D-Workpiece Simulation supported for tilting and rotary axis
- **Hard Disk Drive:**
Hard Disk Capacity: 12 GB or higher
- **Co-ordinate Transformations:**
Linear Shifting, Scaling, Mirroring, Rotation, Polar in machining plane.
- **Plane Definitions:**
Automatic transformation from X/Y plane to a newly defined plane in space due to Tilting B-Axis
- **Contour control:**
through straight line, tangential or vertical through circle, through helical lines.
- **Interpolation:**
Linear: 3 NC axes
Circular: 2 NC axes circular interpolation.
Helical: Overlapping of circle and straight line.
- SIEMENS NX CAD/CAM programming station with certified post-processor
- **Data Transfer:** USB 2.0, Ethernet

D) MEASURING/ MONITORING

- **Heidenhain Absolute Linear Scale X/Y/Z/B/C-Axis**
- Latest **Radio/Infrared Touch Probe** from **RENISHAW/ Heidenhain** with complete set of Styli. Complete Measuring/Inspection Cycles must be loaded in the control.
- Latest **Tool Measuring Device** from **RENISHAW/ Heidenhain** for Tool Length and Diameter Measurement with cleaning air-blast and calibration tool.
- **KinematicOpt:** Automatic Measurement and Optimization of Machine Kinematics. KinematicOpt includes Tool kit for control and compensation of the cinematic accuracy of 5 axis machine configurations.

E) MACHINE ACCESSORIES

- Remote MPG/ Electronic Hand Wheel
- Z-axis Motor with Brake System
- Safety Package for Power Failure.
- Rigid Tapping
- Overload Limiter.
- Undervoltage Monitoring.
- Hydraulic clamping of C/A-axis during roughing operation via M Code.
- Coolant through Spindle (CTS): 12 ~ 15 bar
- Coolant Tank Capacity: 360L

Specifications of Universal CNC Vertical Milling Machine

- Scraper-type Chip Conveyor with Cart.
- Coolant Spray Gun.
- Air through Spindle (ATS) for dry machining (external switchable via M-Function)
- 3 Colour Status Light
- Oil Mist Separator
- Active cooling Unit for Electrical Cabinet.
- Maintenance Kit for machining center
- Central lubrication system
- Transformer
- Chip Flushing System and Bed Wash
- 02 Year Standard warranty of Machine and Controller.

F) SPARE PARTS

- 10 Years Mechanical Spare Parts
- 10 Years Electrical & Electronics Spare Parts including I/O Card, Axis Module, Spindle Module, Linear Scales & Rotary Encoders
- Detail of all Spare with Documentation & Prices.

G) STANDARD DOCUMENTATION (in English)

The manufacturer has to provide the following documents in original for machine in English Language:

03 Sets each

Hard copies

- All set of Machine Manuals and Control Manuals as per Manufacturer Standards

01 Set each

Soft copies

- Electrical Drawings, PLC program lists LADDER/STL, Re-loadable machine initialization data and machine parameters, Operating system for PLC/NC control

H) PRE-DELIVERY INSPECTION AND TRAINING

- Two weeks Inspection and Training by 02 Engineers at manufacturer's premises.

I) PACKING

- Packing Sea case basic machine along with all standard & optional accessories and spares.

J) COUNTRY OF ORIGIN

- Europe, Japan, South Korea, China, Turkey and Taiwan.

NOTE:

- All suppliers/ manufacturers must provide catalogue/brochures having pictures of the offered machine showing its configurations from inside and outside. Diagrammatic illustration of Machine, Axis Travel, B/C axis orientation and Table size must be elaborated.