

S.No	Description	Qty
1	Horizontal CNC Lathe Machine with C-Axis	01 set
	A Horizontal CNC slant bed lathe Machine is required for Machining of very tough and hard materials with cast Iron base for extreme rigidity. Thermal stability and high accuracy. The machine must have the following specifications as well	
TURNING Capacity		
Swing over bed	Ø 800 mm	
Max. turning diameter with OD tool	Ø 590 mm	
Standard cutting diameter	Ø 375 ~ 400 mm	
Max. turning length	2,100 ~ 2,500 mm	
Chuck size	18"	
Machine bed		
Machine bed material	Cast iron	
Box way design for rigidity and vibration damping		
Machine Positioning		
Repeatability	+ 2 µm	
Accuracy	6 µm	
Travel		
Travel in X	345 mm	
Travel in Z	2,100 ~ 2,600 mm	
Spindle		
Type of spindle nose	A2-15	
Max. spindle speed	1,800 rpm	
Max. bar size	Dia 180 mm	
Spindle motor	30 ~ 40 kw	
Gear box for higher torque transmission		
Electro-Mechanical Servo Turret		
Turret type (Radial)	BMT or VDI	
Number of tool station	12 minimum	
Tool size OD	32x32 mm	
Boring bar size	Dia 60 mm	
TURNMILL (MC)		
Spindle motor	7.5/5.5 kw	
Max. spindle speed	4,000 rpm	
Max. drill/tap size	Dia 32mm	
Min. index angle	0.001°	
FEED RATES		
Rapid speed (X/Z)	20/20 m/min	
Feed motor (X/Z)	4/7 kw	
X/Z-axis resolution	0.001 mm	
NUMERICALLY CONTROLLED TAILSTCK		
Quill dia	Ø120mm	
Quill stroke	150mm	
Quill taper	MT5	
Power supply		
Mains	3-phase 400 V ± 10%, 50 Hz	
Operable temperature range	+ 10 to + 35 °C	
LUBRICATION SYSTEM		
Automatic central oil lubrication system		
Tank capacity.	12 lit	
CHIP CONVEYOR BELT TYPE AND CHIP TROLLEY		
Chip conveyor control	Manual + machine	
Chip trolley		
Coolant system		
Coolant system tank capacity	380 lit. & above	
High pressure coolant pump	20-30 bar	
Make & country of Origin	Korea Taiwan, Europe USA & Japan only	

2) **MACHINE CONTROL FEATURES**

Latest Fanuc control with all standard features and cycles along with the following specifications.

- CNC control language must be English
- Manual guide-i
- Polar & cylindrical interpolation
- Polygon turning
- Simultaneously controlled 3-axes
- Least input increment. 0.001 mm, 0.001 deg
- ISO G-Code programming feature
- Automatic tool offset
- PCMCIA card. 2 GB for program storage
- Ethernet interface.
- USB port.
- Rigid tapping
- Thread repair feature
- Custom macro B
- Program restart option at specific block

3) **MACHINE INTEGRATED SYSTEMS/ACCESSORIES.**

- Renishaw automatic tool pre setter (HPMA)
- High resolution linear encoders on both linear axes
- Portable electronic hand wheel
- Hydraulic system
- Steady rest
- Chuck pressure compensation
- Follower rest
- oil mist separator in accordance with the machine
- Air mist separator in accordance with the machine
- Air conditioning system for electrical cabinet
- Foot pedal switch for chuck and tail stock
- Working area light
- Three color machine status light
- Foundation leveling screws & pads
- Front door interlock
- Coolant gun
- Industrial coolant chiller (Refrigerant type) compatible with machine in all aspects
- Machine maintenance & operational tool kit

4) **warranty**

- Two years warranty of the entire machine including CNC controller, PLC and power supply modules.

5) **SPARE PARTS.**

- Mechanical spare parts.
- Electrical & Electronics spare parts
- Detail of all spares with documentation and prices

6) **PRE DELIVERY INSPECTION & TRAINING**

- The machine will be subjected to detail inspection according to latest ISO & ASME standards using latest equipment (Laser interferometer and ball bar test etc. for pitch error compensation and axes synchronization) at the manufacturer's premises by the engineers of the buyers before dispatch. The machine will be rejected if not found in accordance with the contract clauses without any liability on the buyer's side.
- The manufacturers will provide necessary hands on comprehensive training to engineers of the buyers at manufacturer's premises for installation/commissioning, operation & setting, programming, mechanical and electrical/electronic maintenance.

7) **TOOLING AND WORK HOLDING PACKAGE.**

Note. All these tool Holders should be in accordance with the machine turret and spindle type.

S.#	Description	Qty
1	Turning tool post for outer machining	10
2	Boring bar holders for internal machining	10
3	Axial milling holders	6
4	Radial milling holders	6
5	U-drill holders	6
6	Collet set for milling holders	4 set
7	Collet set for tapping	4 set
8	Set of wrench for collet chuck holder	1
9	3 jaw Hydraulic chuck 18" in accordance with spindle nose	1
10	Set of soft jaws for 18" chuck	15
11	Set of hard jaws for 18" chuck	1
12	3 jaw manual chuck 15" in accordance with spindle nose	1
13	Set of soft jaws for 15" chuck	15
14	3 jaw Hydraulic chuck 15" in accordance with spindle nose	1
15	Set of soft jaws for 15" chuck	15
16	Set of Hard jaws for 15" chuck	1
17	Mandrel for Turret Alignment	1
18	Mandrel for spindle alignment	1

Please quote details of extra tooling and accessories which are necessary and important for smooth operation of machine.

8. **Packing:** sea worth packing of machine along-with accessories.

9. **Documentation:** the manufacturer has to provide the following documents in original for machine in English language.

3 sets each

Hard Copies

- Machine operation, programming and maintenance manuals.
- Alarm message and fault diagnostics scheme, procedure for Re-initialization of the machine
- Fanuc manual guide-I, operator, parameter, maintenance and all other relevant manuals.
- Electrical/Electronic Repair and maintenance manuals.
- Electrical/Electronic detailed parts catalogue.
- Machine initialization data and parameter list.
- PLC program lists in LADDER/STL
- Original literature/leaflets/test reports of all parts purchased from other vendor bearing model number and address of the vendors.
- Machine test reports
- Tool turret service and maintenance manual.

1 set each

Soft copies (Reproducible)

- Electrical drawings
- PLC program lists LADDER/STL
- Re-loadable machine initialization data and machine parameters

1 set each

Software (Backup copies)

- Operating system for PLC/NC control
- NC guide software for training
- Other necessary software