

**54001** CNC slant bed turning centre with Tesca industrial control with Fanuc compatible programming, industrial control panel with advanced Digital graphics simulation. 54001 is benchtop machine with full metal cutting capabilities, handling materials such as brass, aluminium, mild steel, nylon, etc. Driven by CNC industrial control, programmed using Fanuc compatible G&M codes, with facility for proving programs using tool path graphics. Option of linking to CAD/CAM and FMS (Flexible Manufacturing System) and CIM system.

**Accessories available:**

- Workbench,
- Pneumatic vice,
- Automatic Door
- Loading/ Unloading Arm

**Learning Objectives:**

- Having successfully completed this lab, the student will demonstrate
- knowledge in Demonstrate an in-depth knowledge on cutting parameters·
  - Knowledge on Tooling, process planning·
  - Learn about standard machine operations·
  - Learn about CNC basic Programming ·
  - Basic Maintenance of CNC machinery



SPECIFICATIONS	In metric units		In US Customary units	
<b>CAPACITY</b>				
Chuck Size	mm	100	in	3.9
Chuck Type		Manual / Pneumatic		Manual / Pneumatic
Swing over bed	mm	230	in	9.1
Swing over cross slide	mm	78	in	3.1
Swing over way covers / carriage	mm	168	in	6.6
Maximum turning Diameter	mm	32	in	1.3
Maximum turning Length	mm	120	in	4.7
Bed	type	45 deg Slant bed	Type	45 deg Slant bed
No. of axes	no	2	No.	2
Distance between centers	mm	250	in	9.9
Height of center from floor	mm	1100	in	43.3
<b>ACCURACY</b>				
Positioning Accuracy	mm	0.015	in	0.0006
Repeatability	mm	± 0.008	in	± 0.0004
<b>SPINDLE</b>				
Spindle nose taper	A2-3			A2-3"
Bore through spindle	mm	20	in	0.8
Programmable spindle speed	rpm	150 - 3000	RPM	150-3000
Spindle motor	kW	0.75 AC Induction Motor	hp1	hp AC Induction Motor
<b>CNC detail</b>				
Control system		Tesca Industrial Control		Tesca Industrial Control
<b>Turret</b>				
Tool cross section		12 x 12	in	0.5 x 0.5
No. of Station	no	8	No.	8
Indexing Time Adjacent Tool & 180 Deg	Sec	2.3 / 9.5	sec	2.3 / 9.5
Boring bar size(capacity)	mm	16	in	0.6
<b>Axes</b>				
X- axis travel	mm	80 (160 in dia)	in	3.2 (6.4 in dia)

Note: Specifications are subject to change.

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Z - axis Travel	mm	140	in	5.5
Ball Screw X / Z	mm	Ø12x2.5 / Ø16x5-C5 Class	in	Ø0.47x0.1 / Ø0.63 x 0.2-C5 Class
Programmable feed rate	mm/min	0 – 1000	in/min	0 - 39.4
Rapid feed rate	mm/min	1200	in/min	47.3
Axis motor X / Z Type		Stepper Motor		Stepper Motor
Slides		Linear Motion Guideways		Linear Motion Guideways
<b>Accuracy</b>				
Positioning accuracy	mm	0.015	in	0.0006
Repeatability	mm	±0.008	in	± 0.0004
<b>Tailstock</b>				
Tailstock base travel	mm	180	in	7.1
Tail stroke Quill Stroke	mm	30	in	1.2
Quill Diameter	mm	26	in	1.0
Tail stroke Taper		MT-2		MT-2
<b>Coolant / Lubrication</b>				
Coolant		Optional: Oil Mist Coolant		Optional: Oil Mist Coolant
Lubrication		"Centralized, Manual Single shot		"Centralized, Manual Single shot
Optional: Automated"				
Optional: Automated"				
<b>Power source</b>				
Main supply (±10 %)		110V & 12A / 230V & 6A, Single Ph., 50/60 Hz		110V & 12A / 230V & 6A, Single Ph., 50/60 Hz
Stabilizer		1 phase servo type		1 phase servo type
<b>Machine dimensions</b>				
L x W x H	mm	1000 x 575 x 650	in	39.4x22.7x25.6
Weight (approx)	Kgs	144	lbs	316.8

<b>TOOLING PACKAGE</b>		
SCLCR1212 turning & facing Tool	Nos.	1
Dura carbide CCMT - 09 (Insert )	Nos.	1
SDSCN 1212 11 F3 copy Turning Tool LH,	Nos.	1
Dura carbide DCMT ( Insert )	Nos.	1
SDSCL 1212 11 F3 copy Turning Tool RH,	Nos.	1
Dura carbide DCMT ( Insert )	Nos.	1
SDSCR 1212 11 F3 Copy Turning Tool N.	Nos.	1
Dura carbide DCMT ( Insert )	Nos.	1
ER 1212 shank External Threading Tool	Nos.	1
Dura Carbide ER - 16 (insert )	Nos.	1
S08SCLCR06 Boring Bar Dia -8 mm	Nos.	1
Dura carbide CCMT - 0604 (insert )	Nos.	1
S12SCLCR06 Boring Bar Dia -12 mm	Nos.	1
Dura carbide CCMT - 0604 (insert )	Nos.	1
IR 1212 shank internal Threading	Nos.	1
Dura Carbide IR -16 (insert )	Nos.	1
Addison Center drill shank dia 8mm	Nos.	1
Addison stub drill dia 8,	Nos.	1
Addison stub drill dia 12	Nos.	1
OPTIONAL TOOLS	Nos.	1
Grooving tool holder LH & porting tool holder	Nos.	1
Kyocera GDM2020N - 020 ph Grooving insert	Nos.	1

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**Note:** Total Tool Length should be 70mm and Shank length should be at least 25 to 30 mm

**OPERATION AND MAINTENANCE TOOLS**

Allen Key Set	Set	1
Double ended spanner - 8 X 9, 10 X 11, 12 X 13,14X15, 16X17mm (each 1 No)	Set	1
Screwdriver (No: 600)	Nos.	1
Oilcan	Nos.	1
Cleaning Brush 63mm	Nos.	1
Fuses (6.3 A, 3.15 A each 3 no.)	Set	1
Billets (AL DIA 32X70-2 nos., AL DIA 25X70-3nos., MS DIA 32X70-OPT for Tesca control only)	Nos.	5
Dead Centre MT2	Nos.	1
Manual Single shot lubrication pump	Nos.	1
Machine Manual CD	Nos.	1
Control box key	Nos.	1
Set of Hardened Jaws (3)	Nos.	1
Chuck key	Nos.	1
Manual Chuck	Nos.	1
USB Lock (PC Based Control Only)	Nos.	1
USB Cable	Nos.	1

**Optional Accessories**

Work Bench (L x B x H)	mm	1050 x 630 x 825 (~ 860 height with mounting leg)	in	42 x 25.2 x 33 (34.4 height with mounting legs)
Work Bench Weight	Kgs	55	lbs	121
Pneumatic or Hydraulic Chuck dia 100mm (depending on supplier availability)	mm	100	in	4
Automatic Door		Yes		Yes

**OPTIONAL: SET OF STANDARD OPERATION AND MAINTENANCE SPARES FOR ONE YEAR**

Spindle Poly V' Belt – 813J	no.	1
Encoder Timing Belt -140XL x 10mm	no.	1
Z Axis Timer Belt – 120XL x 10mm	no.	1
X Axis Timer Belt -100XL x 15mm	no.	1
Emergency Stop Switch	no.	1
Tool post Limit Switches	nos.	2
Limit Switches D43 Q1 RA	nos.	2
MCB 1 Pole 6 Amps	no.	1
MCB 1 Pole 2 Amps	no.	1
Stepper Drive	no.	1
Machine Lamp	no.	1

**REQUIRED EQUIPMENT AT SITE AND UTILITIES TO BE PROVIDED BY THE BUYER DURING COMMISSIONING, DEMONSTRATION & TRAINING**

**For 54001 CNC MACHINE :**

Servo Stabilizer-3KVA, Single Phase output voltage 110V ac-1 no. (required if power fluctuation over +/- 10%)  
"Air compressor for pneumatic chuck, if ordered.

- 100 Litre tank Capacity, 6 to 8 Bar (100 – psi) (for ATC Operation) -1 no."

*Desktop computer on network*

- \* Operating System : Windows 7 Professional or Higher
- \* Intel Pentium /C2D/PDC/i3-2.4 to 3.2 GHZ
- \* Ram – 2GB Min (4 GB Recommended)
- \* Graphics – NVIDIA Geforce 210 -1 GB or Higher (Optional)
- \* one free USB port (DVD drive)
- \* 18.5"/19" TFT Monitor

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Ordering Details		
SN.	Order Code	Details
1.	54001	<b>Included in the package:</b> CNC desktop Lathe Manual Chuck 8 station Programmable Tool Turret Manual tailstock Set of Operation and Maintenance Manuals Teacher handbook and student workbook CNCTrain Turning Software (Single User License)
2.	54001A	<b>Tooling Package</b>
3.	54001B	<b>Safety Interlock</b>
4.	54001C	<b>Export Packing</b>
5.	54001D	<b>OPTION: Pneumatic chuck</b>
6.	54001E	<b>OPTION: Automatic Door</b>
7.	54001F	<b>OPTION Workbench</b>

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