

2-axis CNC Slant Bed Bench Turning Centre with closed loop servo motor control fitted with Industrial Control (Siemens, Fanuc, Tesca) with options for automation. Full industrial control panel with color monitor, MPG, operator panel. Standard features include 8-station tool turret, built-in chip tray, coolant tank, panel cooler for control box. Compact footprint designed for ease of installation in labs for CNC training, prototyping. Can be linked with industrial loading arm, Robot, CAD/CAM and FMS (Flexible Manufacturing System).



**Optional accessories:**

1. Automatic door
2. Pneumatic or Hydraulic chuck

**Objective**

Interpret the components, concept of intermittent level industrial machine and learn about the advanced Fanuc/Siemens/Tesca controller handling & programming skills for a turning machine to produce different kinds of components with optimized cycles and execute different kinds of practical applications simulated as exercises.

**Learning Objectives:**

Having successfully completed this lab, the student will demonstrate knowledge in –

- Learn about techniques to optimize the cutting parameters
- Advanced programming techniques matching industrial standards.
- Advanced machining cycles & control techniques.
- Knowledge on centralized Lubrication and re-circulating coolant system
- Learn about Intricate Tool changers system.
- Maintenance of CNC machineries and Trouble shooting

SPECIFICATIONS	In metric units		In US Customary units	
<b>CAPACITY</b>				
Chuck Size	mm	100	in	4
Chuck Type	Type Manual / Pneumatic /Hydraulic			
Swing over bed	mm	306	in	12.1
Swing over cross slide	mm	80	in	3.2
Swing over way covers / carriage	mm	246	in	9.7
Maximum turning Diameter	mm	80	in	3.2
Maximum turning Length	mm	190	in	7.5
Bed	type	45 deg Slant bed	type	45 deg Slant bed
No. of axes	no	2	no	2
Distance between centers	mm	300	in	11.9
Height of center from floor		1150	in	45.3
<b>ACCURACY</b>				
Positioning Accuracy	mm	0.01	in	0.0004
Repeatability	mm	+/- 0.005	in	+/- 0.0002
<b>SPINDLE</b>				
Spindle nose taper		A2-3/MT3		A2-3/MT3
Bore through spindle	mm	20	in	0.8
Bar stock Dia for Manual chuck		19	in	0.8
Programmable spindle speed	rpm	150-4000	rpm	150-4000
Spindle motor	kW	"3.7 (Fanuc, Tesca)		
2.2 (Siemens)"	Hp	"5(Fanuc, Tesca)		
3 (Siemens)"				
<b>CNC detail</b>				
Control system	SIEMENS 828D / FANUC 0i TF/ Tesca			
<b>Turret</b>				
Tool cross section	mm	12 x 12	in	0.5 x 0.5

Note: Specifications are subject to change.

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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	0.7
<b>Axes</b>				
X- axis travel	mm	95	in	3.8
Z - axis Travel	mm	210	in	8.3
Ball Screw X / Z	mm	Ø16 x 5 - C3 Class	in	Ø0.6 x 0.2- C3 Class
Programmable feed rate	mm/min	0 - 5000	in/min	0 - 196.9
Rapid feed rate	mm/min	5000	in/min	196.9
Axis motor X / Z Type		AC Servo motor		AC Servo motor
Slides		Linear motion guide ways		Linear motion guide ways
<b>Tailstock</b>				
Tailstock base travel	mm	170	in	6.7
Tail stroke Quill Stroke	mm	40	in	1.6
Quill Diameter	mm	35	in	1.4
Tail stroke Taper		MT-2		MT-2
<b>Coolant / Lubrication</b>				
Capacity	L	60	Ga	15.8
Coolant motor	kW	0.08	hp	0.1
Lubrication	-	Automatic		Automatic
<b>Power source</b>				
Main supply (±10 %)	415V, 3 Ph., 50/60 Hz, 32 Amps			
Stabilizer	3 phase servo type			
<b>Machine dimensions</b>				
L x W x H	mm	1700 x 1100 x 1650	in	67x43.4x65
Weight (approx.)	Kgs	800	lbs.	1760
<b>Features</b>				
Compatibility / Upgradable		FMS / CIM system		FMS / CIM system
<b>TOOLING PACKAGE</b>				
Turning & facing Tool			Nos.	1
Dura carbide CCMT – 09 (Insert )			Nos.	1
Copy Turning Tool LH,			Nos.	1
Dura carbide DCMT ( Insert )			Nos.	1
Copy Turning Tool RH,			Nos.	1
Dura carbide DCMT ( Insert )			Nos.	1
Copy Turning Tool N.			Nos.	1
Dura carbide DCMT ( Insert )			Nos.	1
External Threading Tool			Nos.	1
Dura Carbide ER – 16 (insert )			Nos.	3
Boring Bar Dia -8 mm			Nos.	2
Dura carbide CCMT – 0604 (insert )			Nos.	1
Boring Bar Dia -12 mm			Nos.	1
Dura carbide CCMT – 0604 (insert )			Nos.	1
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
<b>Note:</b> Total Tool Length should be 70mm and Shank length should be at least 25 to 30 mm				

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<b>Standard Lathe Operations and Maintenance Tools:</b>		
Allen Key	Set	1
Double Ended Spanner - 8x9, 10x11, 12x13,14x15,16x17 mm	Set	1
Screwdriver (No: 600)	Nos.	1
Oil can	Nos.	1
63mm Brush Cleaning brush 63mm	Nos.	1
Billets (AL DIA 32X70-2 nos., AL DIA 25X70-3nos., MS DIA 32X70-OPT for Tesca control only)	Nos.	5
Dead Center MT2	Nos.	1
0.18 SQMM 6 PAIR TWISTED PAIR CABLE (10 CORE)SHIELDED	Mts.	1
RS 232 cable	Nos.	1
emergency stop.	Set	1
Limit switch for door (Optional)	Set	1
Essential Keys :		
Lathe Chuck Key	Nos.	1
Vibration Pad	Nos.	4
<b>NOTE: Oil and coolant to be purchased locally by the user, as international shipment is being restricted by customs rules</b>		
<b>Optional Accessories</b>		
a) Pneumatic or Hydraulic Chuck dia 100mm	no.	1
b) Automatic Door	no.	1
c) 133X Compact Flash (1GB) Card for Fanuc Only	no.	1
<b>OPTIONAL: SET OF STANDARD OPERATION AND MAINTENANCE SPARES FOR ONE YEAR</b>		
0.25 Sq mm 12 Pair Twisted pair Cable	Mts.	1
ASF4(L) 2A,24 VDC	No.	1
AC MCB, 3 pole, 415V AC, 32A	No.	1
MPCB 0.63 -1 A GV2 -ME05	Nos.	2
Contactora 24V DC with 6A LP1 -K06-10BD	Nos.	3
DC MCB, 1 pole ,1A PTR A 031DC01	Nos.	1
AC MCB, 1 pole ,3A PTR A 101PC03	Nos.	2
DC MCB, 1 pole ,4A PTR A 031DC04	No.	1
DC MCB, 1 pole ,2A PTR A 031DC02	Nos.	2
AC MCB, 2 pole ,4A PTR A 101PC04	No.	1
DC MCB, 1 pole ,6A PTR A 031DC06	No.	1
12V DC Output:12VDC, 5A DIN Rail mounting type	No.	1
Relay board 8 relay RB81-TT-G2R1DC 24	No.	1
Interface module 50 pin FR-50	No.	1
50 Core ribbon cable	Mts.	2
50 Pin FRC Female connector	No.	1
Mushroom head pushbutton EMERGENCY with 1NO+1NC	No.	1
Work light led	No.	1
illuminated push button square Green	No.	1
illuminated push button type,square Red	No.	1
Spindle Belt - 8 Pk 1143 )	No.	1
Z axis Belt - 5m - 450 - 15	No.	1
x axis Belt - 5 m - 500 - 12	No.	1
Encoder Belt - 5m - 550 - 12	No.	1

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

**For FLEXTURN CNC MACHINE :**

Servo Stabilizer 10 KVA,3 Phase - 1 no.

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### Training Skills

- Study on Process Planning
- User friendly and graphically assisted different canned cycles
- Discussion on Program Zero and Offset definition
- Discussion on Programming Elements
- Discussion on Industry Standard ISO G and M Codes
- Discussion on Various Tools to be used in a CNC Turning Operation
- Discussion on Various Machining Cycles used in CNC Turning Programming
- Identification of the Components of the CNC System
- General machine Maintenance

**Note:** As part of continuous improvement, Tesca reserves the right to alter machine design and specification without prior notice.

Order Code	Description
<b>54003I</b>	CNC Turning Machine with Tesca Industrial Controller
<b>54003II</b>	CNC Turning Machine with SIEMENS 828D SL Industrial Controller
<b>54003III</b>	CNC Turning Machine with FANUC Industrial Controller

### Ordering Details

SN.	Order Code	Details
1.	<b>54003I to 54003III</b>	<b>Included in the package:</b> Manual Chuck Manual Tail stock 8 station Programmable Tool Turret Set of Operation and Maintenance Manuals CNC Mechanik for commissioning and demo of machine Teacher handbook and student workbook
2.	<b>54003A</b>	<b>Tooling Package</b>
3.	<b>54003B</b>	<b>OPTION: Pneumatic Chuck (110mm/ 4.4in)</b>
4.	<b>54003C</b>	<b>OPTION: Automatic Door</b>
5.	<b>54003D</b>	<b>Export Packing</b>

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