

3 Axes CNC Milling Machine 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. 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 solutions, Robot, CAD/CAM and FMS (Flexible Manufacturing System).

Optional Accessories:

1. 8 Station Automatic Tool Changer
2. Automatic Door
3. Hydraulic vice

Objective

Interpret the components, concept of intermittent level industrial machine and learn about the advanced Fanuc/Siemens/Tesca controller handling & programming skills for a milling 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	
Travel				
X axis	mm	250	in	9.9
y axis	mm	150	in	6
Z axis	mm	220	in	8.7
Table				
Table size	mm	480 x 180	in	18.9 x 7.1
T- Slot	mm	3 x 10 x 50	in	3 x 0.4 x 2
Load on table	Kgs	40	lbs.	88
Spindle				
Spindle	Direct Drive, Cartridge type			
Spindle nose to table top	mm	90-310	in	3.6 to 12.3
Spindle to Column	mm	200	in	7.9
Spindle nose taper		BT 30		BT 30
Spindle motor capacity	Kw	1.10	hp	1.5
Programmable spindle speed	rpm	150-4000	rpm	150-4000
CNC detail				
Control system	Siemens 828D BASIC / Fanuc 0i MF			
Feed rate				
Programmable feed rate	mm/min	0 - 5000	in/min	0 - 196.9
Rapid feed	mm/min	5000	in/min	196.9
Accuracy				
Positioning accuracy	mm	0.010	in	0.0004
Repeatability	mm	0.005	in	0.0002
Axis				
Axis resolution	mm	0.001	in	0.0001
Average positioning variation in VDI/DGQ 3441 in X/Y/Z	mm	0.01	in	0.0004

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,
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Axis motor		AC motor		AC motor
Guide ways/ Ball screws				
Slides	Linear motion guide ways			
Ball screws X/Y/Z	mm	Ø16x5 - C3 class	in	Ø0.6 x 0.2- C3 Class
Power source				
Main supply	415V, 3 Ph., 50/60 Hz; 32 Amps			
Machine dimensions				
L x W x H	mm	1450x 1320 x 2040	in	58x53x82
Weight (approx.)	Kgs	810	lbs.	1782
Coolant / Lubrication				
Coolant Capacity	ltrs	60	Ga	15.8
Coolant motor	Kw	0.08	hp	0.1
Lubrication		Centralized system		Centralized system
Features				
Compatibility / Upgradable		FMS / CIM system		FMS / CIM system
* Rigid tapping is optional and requires purchase of the option				
Optional Accessories				
Hydraulic Vice (95mm opening)			no.	1
Manual Vice (95mm opening)			no.	1
Automatic Door			no.	1
AUTOMATIC TOOL CHANGER				
Tool Shank	Type	BT30	Type	BT 30
No of Tool	No	8	No	8
Actuation type	Type	Hydraulic	Type	Hydraulic
Maximum tool dia	mm	16	in	0.7
Maximum tool length	mm	40	in	1.6
Max tool weight	Kgs	3	lbs.	6.6
TOOLING PACKAGE				
Collet Chuck BT 30/A45 RD 25 with Pull Stud			Nos.	1
Collet Chuck BT 30/A45 RD 16 with Pull Stud			Nos.	1
RD 25 Collets Dia 6,			Nos.	1
RD 25 Collets Dia 8,			Nos.	1
RD 25 Collets Dia 10,			Nos.	1
RD 25 Collets Dia 12,			Nos.	1
RD 25 Collets Dia 16,			Nos.	1
Rd 16 Collets Dia 5,mm			Nos.	1
Spanner Er -16 mm			Set	1
Spanner Er -25 mm			Nos.	1
HSS End Mill Dia 10			Nos.	1
HSS End Mill Dia 12			Nos.	1
HSS Slot Drill Dia 5			Nos.	1
HSS Slot Drill Dia 6			Nos.	1
HSS Slot Drill Dia 8			Nos.	1
HSS Slot Drill Dia 10			Nos.	1
HSS Slot Drill Dia 12			Nos.	1
2 lipped carbide cutter Dia 25 Shank Dia 16mm			Nos.	1
APMT 1212 insert			Nos.	2
6 mm carbide Cutter			Nos.	1
Clamping Kit			Nos.	1
Note: Total Tool Length should be 70mm and Shank length should be at least 25 to 30 mm				
Standard operations and maintenance tools				
Allen Key			Set	1

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Screwdriver Set	Set	1
Double Ended Spanner -10x11, 12x13,14x15, 16x17 mm (Each 1)	Nos.	2
Spanner M or Box Type - E 25	Nos.	1
Spanner - E 16	Nos.	1
Oil can	Nos.	1
63mm Brush	Nos.	1
Billets (AL 90X90X12 – 4, MS 10X90X12-1)	Nos.	5
Manual Vice	Nos.	1
NATC Lever (optional only for NATC machines)	Nos.	1
Vibration Pad	Nos.	4
Control box key/Side door	Nos.	1
RS 232 cable	Nos.	1
Limit switch has to be provided to door for emergency stop.	Set	1
NOTE: Oil and coolant to be purchased locally by the user, as international shipment is being restricted by		
OPTIONAL: SET OF STANDARD OPERATION AND MAINTENANCE SPARES FOR ONE YEAR		
0.25 Sq mm 12 Pair Twisted pair Cable	Mts.	1
0.5 SQMM 2 core cable	Mts.	5
AC MCB, 3 Pole ,32A	No.	1
MPCB 0.63 -1 A	Nos.	2
Contactora 24 VDC coil VG, 6A	Nos.	2
DC MCB, 1 pole ,1A	No.	1
DC MCB, 1 pole ,4A	No.	1
DC MCB, 1 pole ,2A	Nos.	2
AC MCB, 1 pole ,4A	No.	1
AC MCB, 2 pole ,4A	No.	1
AC MCB, 2 pole ,16A	No.	1
Relay board 8 relay	No.	1
Interface module 50 pin	No.	1
50 Pin FRC female connector with Lock	Nos.	6
50 way flat cable (grey)	Mts.	2
Mushroom head pushbutton 1 NO+1 NC	No.	1
Illuminated push button 24 VDC Green	No.	1
Illuminated push button 24 VDC Red	No.	1
ASF4(L) 2A, 24VDC, With end plate	Nos.	5
Contactora 24 VDC 6A	Nos.	2
MPCB 0.25 To 0.4A	No.	1
M5 Inductive sensor Spec: PNP-No sensing distance 2mm	No.	1
M8 Inductive sensor Spec: PNP-No sensing distance 2mm	No.	1
REQUIRED EQUIPMENT AT SITE FOR CNC MACHINES (OR) UTILITIES TO BE PROVIDED BY THE BUYER DURING COMMISSIONING, DEMONSTRATION & TRAINING		
For 54004 CNC MACHINE :		
Servo Stabilizer 6 KVA,3 Phase – 1 no.		

Training Skills

- User friendly and graphically assisted different canned cycles
- Identification of the Components of the CNC System
- Cutter Radius Compensation and Tool Length Compensation Definition 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 Milling Operation
- Discussion on Various Machining Cycles used in CNC Milling Programming

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Order Code - 54004I - 54004III
Intermediate CNC Milling Machine

Order Code	Description
54004I	CNC Milling Machine with Tesca Industrial Controller
54004II	CNC Milling Machine with SIEMENS 828 Industrial Controller
54004III	CNC Milling Machine with FANUC 0i MDIndustrial Controller

Ordering Details		
SN.	Order Code	Details
1.	54004I to 54004II	Included in the package: Manual Vice Set of Operation and Maintenance Manuals CNC Mechanik for commissioning and demo of machine Teacher handbook and student workbook
2.	54004A	Tooling Package
3.	54004B	OPTION: 8 Automatic Tool Changer
4.	54004C	OPTION: Pneumatics vice
5.	54004D	OPTION: Automatic Door
6.	54004E	Export Packing

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