

54014 a 3 Axes CNC Vertical Machining Centre with FANUC, Siemens Control and with option of 8 Station Automatic Tool Changer.

- 54014 is a smart CNC vertical milling machine designed specifically for industrial specifications.
- It is a precision milling machine totally enclosed high visibility sliding guard.
- It uses industrial controls such as FANUC / SIEMENS
- The machine is provided with widely placed precision LM guide ways for increased rigidity and high accuracy.
- The machine is equipped with cartridge type spindle power with 8 station carousel type ATC , integrated base with coolant tank.



Objective

Interpret the components, concept of intermittent level industrial machine and learn about the advanced Fanuc/Siemens 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

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Travel		
X axis	mm	300
y axis	mm	250
Z axis	mm	250
Table		
Table size	mm	500 x 250
T- Slot	mm	3 x 14 x 80
Load on table	Kgs	80
Spindle		
Spindle		Direct coupled, Cartridge Type
Spindle nose to table top	mm	105-355
Spindle to Column	mm	290
Spindle nose taper		BT 30
Spindle Motor Power S1 (15 minute rating in parenthesis)	Kw	3.7 (5.5)
Programmable spindle speed	rpm	100-6000
CNC detail		
Control system		FANUC 0i MF / SIEMENS 828D
Positioning accuracy	mm	0.01
Repeatability	mm	±0.005
Axis motor		AC Servo motor
Programmable feed rate	mm/min	0 - 10000
Rapid motion speed and feed rate X, Y, Z	m/min	15/15/10
Guideways	mm	P Grade Ball type LM guideways Size 20/20/25
Ball screws X/Y/Z	mm	C3 Class Dia 25 x 10

Note: Specifications are subject to change.

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Power source		
Main supply		415V, 3 Ph., 50/60 Hz, 12 KVA, 32A
Coolant / Lubrication		
Coolant Capacity	ltrs	80
Pump Output	Lpm	40
Coolant motor	Kw	0.1
Lubrication		Automatic lubrication system
Machine dimensions		
Machine Dimensions L x W x H (approx)	mm	1550 x 2180 x 2150
Weight (approx.)	Kgs	1400
Features		
Compatibility / Upgradable		FMS / CIM system
Standard operations and maintenance tools		
User Manual CD	No.	1
Allen Key (full Set)	Set	1
Double Ended Spanner 6-7,8-9,10-11,12-13,14x15,16-17,18-19,22-24,32-36	Set	1
Screwdriver (Full Set)	Set	1
Oilcan	Nos.	1
Brush 63mm	Nos.	1
Billets MS 100x100x25mm	Nos.	3
Control box Key	Nos.	1
MOP Key	Nos.	1
Ethernet Cable	Nos.	1
Vice with Handle	Nos.	1
Vibration Pad with bolt	Nos.	1
Eye Bolt M16	Nos.	4
Mechanical Edge Finder(shank dia 10mm)	Nos.	1
Clamping Kit M8	Set	1
Tool Clamping Fixture BT30	Nos.	1
E Type Spaner E25	Set	1
Flash Card 2GB	Nos.	1
Adapter (For Fanuc only)	Nos.	1
Card Reader with Cable	Nos.	1
Touchup Paint (small can)	Nos.	1
Air Gun with 8mm Spiral hose and Connector	Set	1
NOTE: Oil and coolant to be purchased locally by the user, as international shipment is being restricted by customs rules		
Optional Accessories		
Pneumatic Vice width 150 mm x opening 110 mm	No	1
Automatic Door (Pneumatic)	No	1
OPTIONAL AUTOMATIC TOOL CHANGER		
Tool Shank		BT 30
No of Tool		8
ATC type	Indexing Type - Hydraulic Actuation	
Maximum tool dia	mm	60
Maximum tool length	mm	180
Max tool weight	kg	3
OPTIONAL: 4th Axis Rotary Table		
Worktable diameter	mm	125
Table height (Horizontal)	mm	150
Center height (Vertical)	mm	110
Center bore diameter	mm	25 H 7

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T - slot size	mm	12 H7
Guide block size	mm	14 H7
Repeatability	seconds	4
Indexing precision	seconds	40
Clamp torque	kg-m	8
Clamp method	kg/cm2	Pneumatic pressure 5
Load capacity		
Vertical	Kgs	50
Horizontal	Kgs	100
Tail-stock used	Kgs	100
Allowable inertia force	kg-cm-sec2	2
Allowable turntable torque	kg - m	8.5
Net Weight (motor exclude)	kg	25 kg
Servo motor (model excluded)	FANUC/ SIEMENS B4 / 1FK7042	
Speed reduction ratio		1/60
Minimum input increment	degrees	0.001o
Table rotation speed	RPM	83.3 r.p.m. (Motor 3000 r.p.m.)
OPTIONAL: Standard Tool Package		
Collet Chuck Holder and Pullstud BT30/A45 RD25	Nos.	2
Drill Chuck Holder and Pullstud BT30/JTA6	No.	1
Side Lock Holder BT30/ Dia 16 Side Lock Holder	No	1
Drill Collet RD25 (10-9, 12-11mm)	Set	1
Cutter Tools (Slot Mill 2 lipped carbide slot mill for facing shank dia 16mm)	No.	1
Twist Drill Dia 5, 6,8, 11 mm	Set	1
Slot Drill Dia 10, 12 mm	Set	1
End Mill Dia 10, 12 mm	set	1
CHAMFER CUTTER 45°	No.	1
CENTRE DRILL SHANK DIA. 8MM TIP DIA 2 MM	No.	1
Boring Bar with Insert Dia 12 mm	No.	1
Vice with Handle (110 mm opening)	Nos.	1
OPTIONAL: SET OF STANDARD OPERATION AND MAINTENANCE SPARES FOR ONE YEAR		
0.18 SQMM 6 PAIR TWISTED PAIR CABLE (10 CORE)SHIELDED OUTSIDE DIA OF THE CABLE : 6 MM	Mts.	1
0.5 SQMM 2 CORE CABLE	Mts.	5
ACMCB, 3POLE ,415VAC, 32 A PTR103PB32	No.	1
MPCB 0.63-1 A GV2 -ME05	Nos.	2
CONTACTOR +24 VDC , COIL VG, WITH COIL SUPPRESSOR, 6A LP1K06 10BD	Nos.	2
DCMCB , 1 POLE, 1A PTR1031DC01	No.	1
DCMCB , 1POLE, 4A PTR1031DC04	No.	1
DCMCB , 1POLE, 2A PTR1031DC02	Nos.	2
AC MCB ,1 POLE,4 A PTR101PC04	No.	1
AC MCB ,2 POLE,4 A PTR102PB04	No.	1
AC MCB ,2 POLE,16 A PTR102PB16	No.	1
RELAY BOARD 8 RELAY 1 CHANGEVER - RB81-TT-G2R1DC24	No.	1
INTERFACE MODULE 50PIN FR-50	No.	1
50 PIN FRC FEMALE CONNECTOR WITH LOCK	Nos.	6
50 WAY FLAT CABLE(grey)	Mts.	2
Mushroom head pushbutton latch type for Emergency with 1NO+1NC	No.	1
ILLUMINATED PUSH BUTTON 18X18 FLUSH TYPE, SQUARE 24VDC OPERATED GREEN with 1 NO D16LMS1abHG	No.	1
ILLUMINATED PUSH BUTTON 18X18 FLUSH TYPE, SQUARE 24VDC OPERATED RED with 1 NC D16LMS1abHR	No.	1

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ASF4(L) 2A,24VDC, WITH END PLATE	Nos.	5
CONTACTOR +24 VDC , COIL VG, WITH COIL SUPPRESSOR, 6A LP1K06 10BD	Nos.	2
MPCB 0.25 - 0.4 A GV2 -ME03	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 AND UTILITIES TO BE PROVIDED BY THE BUYER DURING COMMISSIONING, DEMONSTRATION & TRAINING		
Servo Stabilizer 11 KVA,3 Phase – 1 no.		
Compressor - 100 Litre tank Capacity, 6 to 8 Bar (100 – psi) (for Auto Door and 4th Axis) -1 no.		

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

Ordering Details		
SN.	Order Code	Details
1.	54014	Included in the package: CNC Vertical Machining Center (500 x 250 mm table, 3.7 Kw Spindle) Control Option: Siemens 828D or Fanuc Oi TF or Equivalent”
2.	54014A	Tooling Package Bt30
3.	54014B	8 Tool ATC (Umbrella Type)

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