

JTEKT

JTEKT Toyoda Americas Corporation

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JTEKT Toyoda Americas Corporation

VT16

Vertical Turning Center

WELE
a TOYODA Strategic Alliance Company

Designed and built by Wele Mechatronic in Taiwan, this machining center is sold and serviced exclusively by JTEKT Toyoda Americas Corporation and our exclusive representatives in the Americas.

Machine Specifications

Turning Table Diameter	1,600 mm (62.9")
Maximum Workpiece Swing	2,000 mm (78.7")
Maximum Turning Diameter	2,000 mm (78.7")
Maximum Turning Height	760mm (29.9")
X Axis Travel (Radial)	-810~1,180 mm (-31.8~46.4")
Z Axis Travel (Axial Spindle)	760 mm (29.9")
Max Height from Table top to Spindle Nose	960 mm (37.8")
Turning Table Load Capacity	8,000 kg (17,600 lb)
Turning Table Speed	2-260 RPM
Turning Table Motor Power	45/37 kw (60/50 HP)
Max Turning Table Torque	19,000 Nm (14,014 Ft Lbs)
Turning Table Transmission	Two Steps Geared
Ram Cross Section	226 mm ² / 8.9" ²
Ram Spindle Motor Power (30 min/cont)	(Only available on VTM) 11/15 Kw (15/20 HP)
Spindle Bearing Diameter	(Only available on VTM) 115 mm / 4.5"
Ram Spindle Speed	(Only available on VTM) 1,600 RPM
Max Ram Spindle Torque	(Only available on VTM) 304 Nm (224 Ft Lbs)
Milling Spindle Transmission	(Only available on VTM) Geared, Step less
Rapid Feedrate (X Axis)	12,000 mm/min (472 ipm)
Rapid Feedrate (Z Axis)	8,000 mm/min (315 ipm)
Maximum Cutting Feedrate	2m/min (78.7 ipm)
Ball Screw Diameter x Pitch (Z Axis)	50 mm x 10 (1.97 x 0.47)
Fanuc Servo Motor (Z, Axes)	a22iB (x 2 for W)
Fanuc Servo Motor (X Axis)	a22i

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Machine Specifications

ATC Capacity (Std)	2 Heads + 12 BT50 Pockets
Maximum Tool Length (Milling)	(Only available on VTM) 300 mm (11.8")
Maximum Tool Weight (Milling)	(Only available on VTM) 15kg/33 lbs
Maximum Tool Weight (Turning)	105Kg / 231lbs
Tool Holder (Milling / Turning)	BT50 / Wele
Pull Stud	BT50
Tool Change Time: Tool to Tool	12 sec
Tool Selection	Fixed
Tool Access	Bi-Directional
Positioning Accuracy (X, Z Axes)	$\pm 0.007 / 500 \text{ mm}$ ($\pm 0.00027'' / 19.5''$)
Repeatability (All Axes)	± 0.006 ($\pm 0.00023''$)
Total Power Required	AC 220 V $\pm 10\%$ (80 kVA)
Air Resource	90 Psi @ 3.78 CFM
Power Supply Frequency	60 Hz
Control Voltage	24 Volt
Control Type	Fanuc Oi-TD
Axis Guideways	Hardened and Ground Box Ways
Machine Weight	20,000 kg (44,000 lb)
Machine Length *	(Without chip conveyor) 5140 mm (202")
Machine Width *	4,320 mm (170")
Machine Height *	4,800 mm (189")

Note: Machine is 220V, 3 Phase and 80 Hz. Any other voltage requires a transformer at an additional charge.

Machine Options Factory Installation Only:

- ❖ (1) Heavy Turning Holder 40 X 40 Curvic Coupling
- ❖ ATC Tool Holder Arms Turning 12 Sets

- ❖ Caterpillar Type Chip Conveyor 51.3" Discharge Height
- ❖ ATC BT50 16 Spaces (2 Head stations 12 Tool Pockets)

- ❖ AI Countour Control II (40 bkl Look Ahead)
- ❖ Fagor Linear Scale Feedback on X & Z Axis
- ❖ CTS 20 bar/ 280 psi (Vertical Only)
- ❖ Fanuc Helical Interpolation A02B-0319-J819

Optional Features:

- ❖ VTM Upgrade to Live Spindle 1600 rpm 15/11Kw (20/15 hp)
- ❖ Turning Table Indexable in .001 Degree Increments
- ❖ Ugraded Turning Table Motor 75/60Kw (100/80Hp)
- ❖ 200MM Column Risers
- ❖ 24 space ATC in lieu of Std 16 Space

- ❖ 32 space ATC in lieu of Std 16 Space

- ❖ Additional (1) Set Turning or Milling ATC Tool Holders

- ❖ Right Angle Attachment

Control Options

❖ **Data Server (2 GB) Fast ethernet**

❖ **2MB program memory upgrade**

❖ **Canadian & Ontario Electrical & Safety Codes (ESA & PHSR)**

Toyoda will schedule a licensed Professional Engineering firm to inspect the equipment and submit a report defining any and all issues of regulatory non-compliance. Based on these findings, JTEKT Toyoda Americas Corporation will review all issues and submit a quotation for full compliance to ESA & PHSR regulations. The customer has the option of contracting JTAC (additional PO required), using a 3rd party electrical contractor or performing the work themselves.

(Per machine/model/ site visit. VMC & Grinder Product line only)

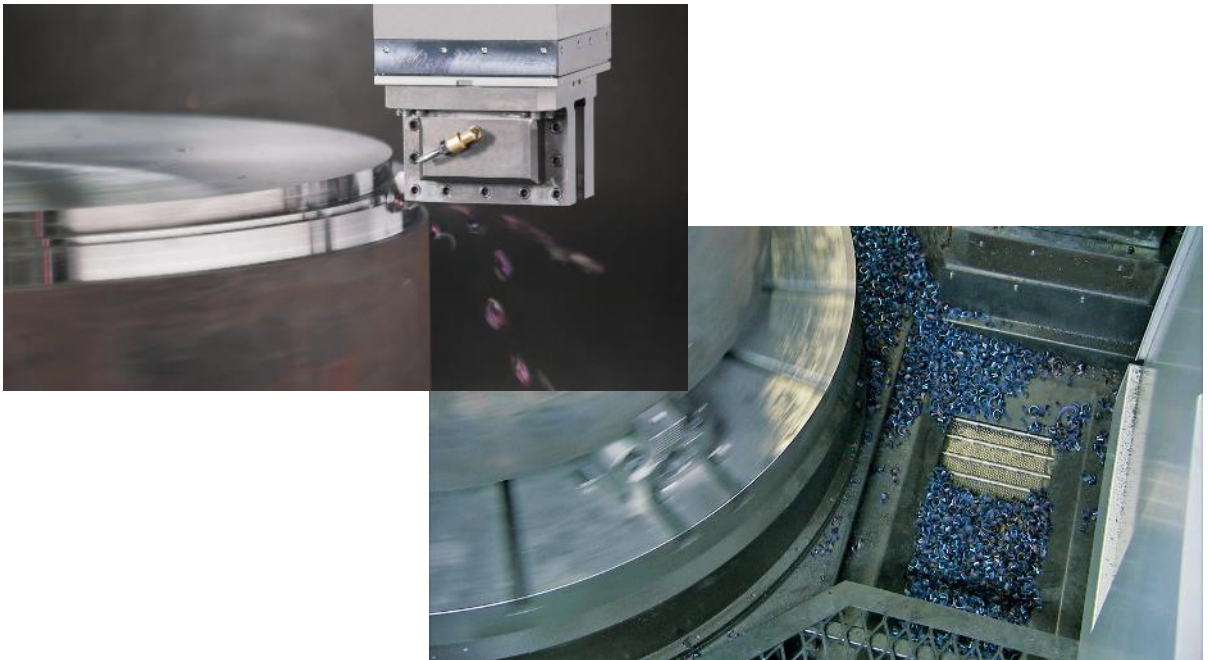
❖ **Local Municipality Electrical Code Preparation Inspection Only**

Toyoda will schedule a licensed Professional Engineering firm to inspect the equipment and submit a report defining any and all issues of regulatory non-compliance. Based on these findings, JTEKT Toyoda Americas Corporation will review all issues and submit a quotation for full compliance to the MEC. The customer has the option of contracting JTAC (additional PO required), using a 3rd party electrical contractor or performing the work themselves.

(Per machine/model/ site visit. All product lines)

Included with this Model:

1. Centralized Guide Ways Lubrication System
2. Coolant System and Tank with 420 Liter (111 gal) Capacity
3. Dual Feedback System on all Axes
4. Finish and Alarm Lamp
5. Foundation and Leveling Kits
6. Full Non Roofed Splash Guard with Sliding Operator Doors
7. MPG Remote Handwheel
8. Operation and Maintenance Manual
9. Recycling Collector for Lubrication Oil on Three (3) Axes
10. RS-232 Interface
11. Caterpillar Type Chip Conveyor 51.3" Discharge Height
12. Turning Table Two Step Variable Gear Transmission
13. Work Light
14. Air Pistol, Coolant Pistol
15. Torque Limit Clutch on all Axes
16. Bed Flushing
17. 2 Head Stations plus 12 positions for tool pockets



Fanuc OiTD Control Functions

10.4" Color LCD with graphic display	Dwell (G04)
Fanuc Full Key Operator Panel	Exact Stop (G09)
Ethernet (RJ45) Interface	Exact Stop Mode (G61)
RS323 interface	Single Direction Positioning (G60)
Memory Socket (PCMCIA Interface ATA Flash Card Slot)	Helical Interpolation, Cylindrical Interpolation
Program Storage (1280M)	Conical Interpolation, Spiral Interpolation
Registered Programs (400pcs)	M.S.T. Function
Background Editing	Spindle Speed Over ride (50%, 60%, 70%120%)
Extendable Program Edit	Spindle Orientation (M19)
Manual Guide I (Training Not Included)	Rigid Tapping (M29)
Controlled axes: 4	M-code Air Blow (M82, M84)
Simultaneous Controllable axes 4	Auto Power Off (M30)
Increment System (.001mm/.00001 "/.001 deg)	Tool Offsets (400 sets)
Metric/Inch Conversation (G20, G21)	Tool Offset C (G40,G41,G42)
Machine Lock	Tool Position Offset G45~G48)
Z axis lock	Tool Offset Memory C
Emergency Stop	Tool Length Measurement
Soft Limit Check Before Movement	Alarm Message Display
Backlash Compensation	Alarm Message History Display
Pitch Error Compensation	Operation Message History Display
DNC Operation (Requires RS-232 interface or data server, PC)	Machine Time Predict Display
Single Block	Run Hour, Parts Count Display
Manual Data Input	Language Display (English, Chinese)
Handle Wheel Feed Rate (1 Handle Wheel)	Graphics Display
Handle Feed Rate Magnification (x1,.x10,x100)	HRV Control (HRV3)
Handle Interruption	Automatic Corner Deceleration
Dry Run	Rapid Traverse ACC/DEC
Program Restart	AI Control 40 block look- ahead
Playback	Data Server + 2GB CF Card
	Dwell (G04)
	Exact Stop (G09)

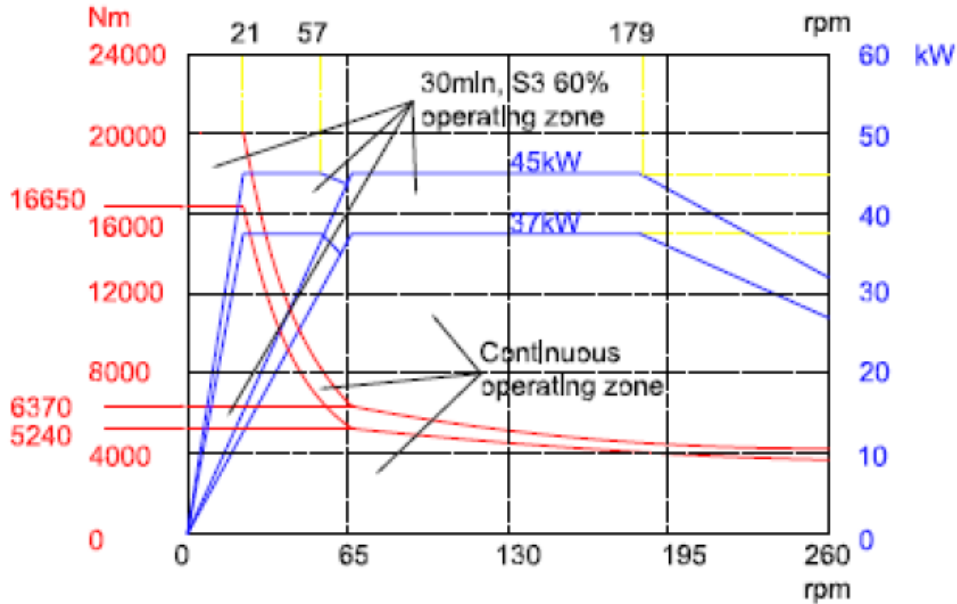
Toyota Standard Additional Package

1. Dwell (G04)
2. Exact Stop (G09)
3. Exact Stop Mode (G61)
4. Single Direction Positioning (G60)
5. Helical Interpolation, Cylindrical Interpolation
6. Conical Interpolation, Spiral Interpolation
7. M.S.T. Function
8. Spindle Speed Over ride (50%, 60%, 70%120%)
9. Spindle Orientation (M19)
10. Rigid Tapping (M29)
11. M-code Air Blow (M82, M84)
12. Auto Power Off (M30)
13. Tool Offsets (400 sets)
14. Tool Offset C (G40,G41,G42)
15. Tool Position Offset G45~G48)
16. Tool Offset Memory C
17. Tool Length Measurement
18. Alarm Message Display
19. Alarm Message History Display
20. Operation Message History Display
21. Machine Time Predict Display
22. Run Hour, Parts Count Display
23. Language Display (English, Chinese)
24. Graphics Display
25. HRV Control (HRV3)
26. Automatic Corner Deceleration
27. Rapid Traverse ACC/DEC
28. AI Control 40 block look- ahead
29. Data Server + 2GB CF Card



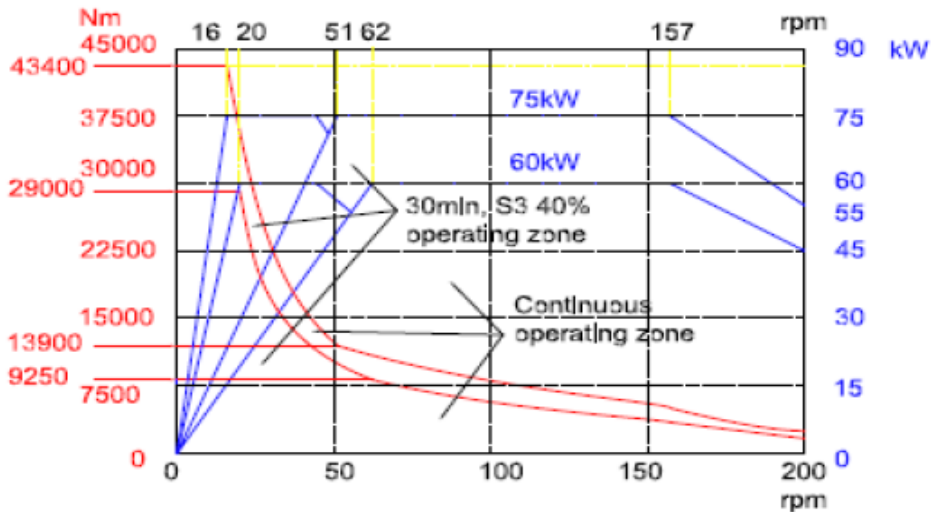
Turning Table Power Chart

Speed up to 260 rpm with gear-driven of Fanuc a40HVi-6000 spindle motor (37/45 kW)

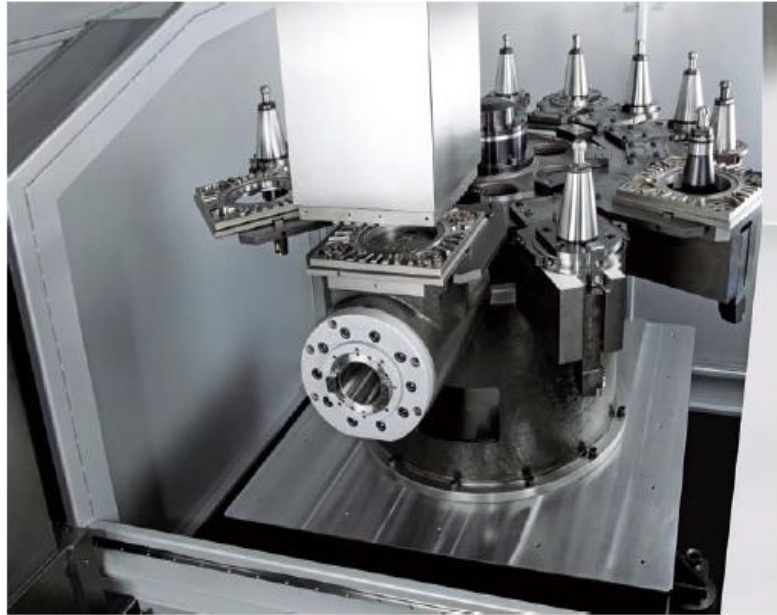


Optional Turning Table Power Chart

Speed up to 200 rpm with gear-driven of Fanuc a60HVi-4500 spindle motor (60/75 kW)



Example Tool Changer Picture Two (2) Heads Ten (10) Tools:

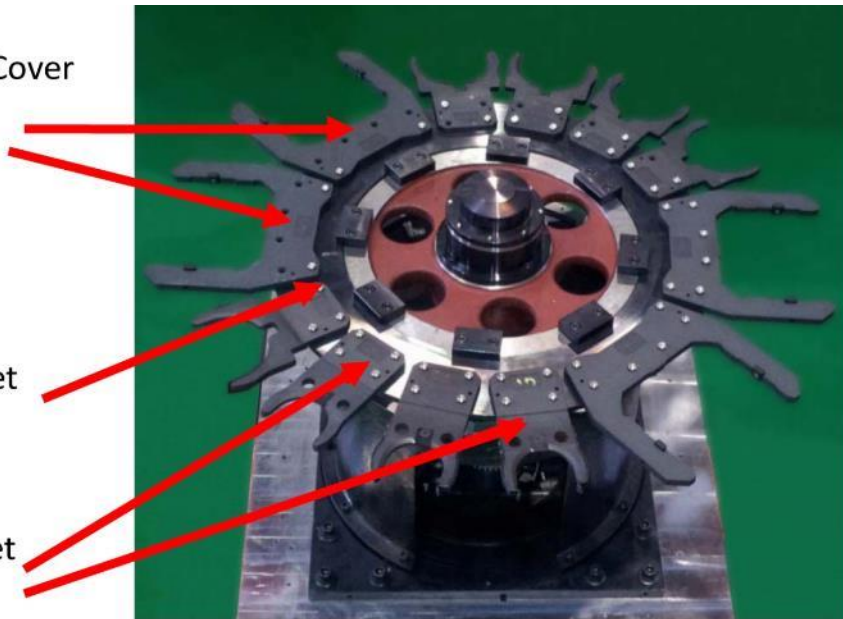


Typical ATC Configuration:

Holder for Heads/ Cover
Occupies 2 spaces
Each

Turning Tool Pocket
Occupies 1 Space

Milling Tool Pocket
Occupies 1 Space

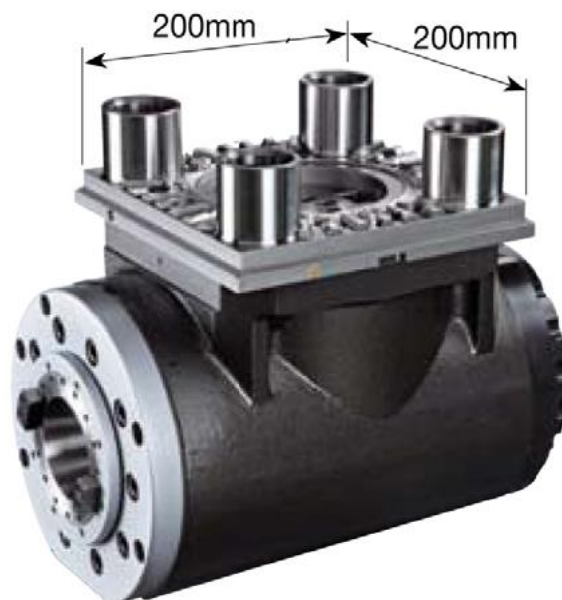


Example Shown: 1 Cover, 3 Heads, 5 Turning, 3 Milling Pockets

Standard Heavy Turning Head with Curvic Coupling (Axial or Radial Tool Mount):

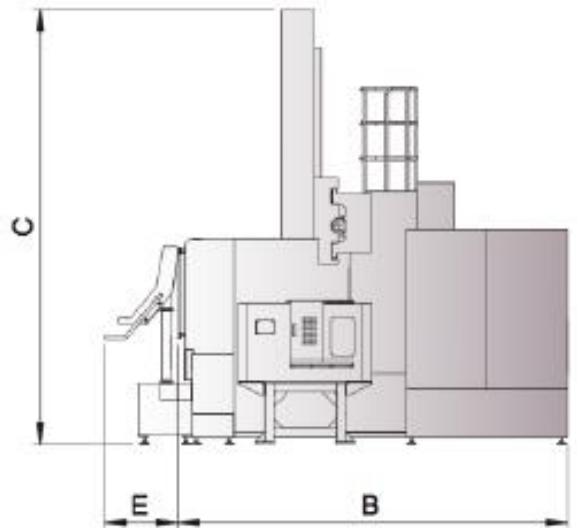
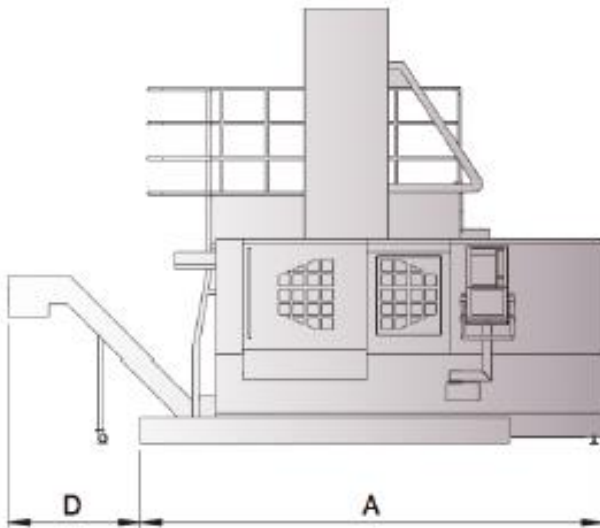


Optional Automatic 90° Angular Milling Head:



Clamping Method:	Automatic
Gear Ratio:	1:1
Maximum Output HP:	110/15Kw/15/20hp
Spindle Revolution:	1,600 rpm
Spindle Taper at Output Side:	BBT50
Tool Change	Auto

Machine Overview



	A	B	C	D (option)	E
VT/VTM16-20	5140/202.3	4320/170	4800/188.9	1470/57.8	1825/32.4

Unit in mm/in.