



VT-450/650

Vertical Turning Center
12" - 24" Chuck with Quick Turret Type





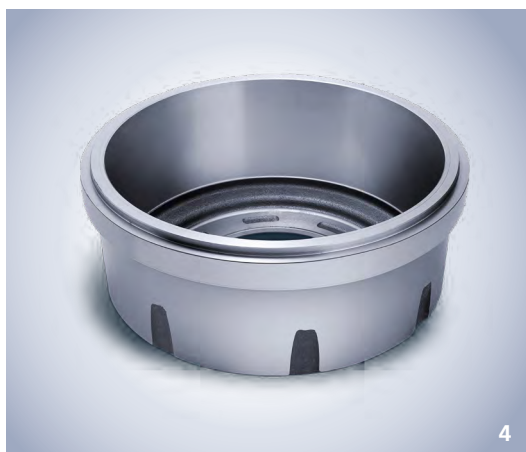
VERTICAL TURNING CENTER 12"-24" CHUCKER QUICK TURRET TYPE

12"-24" Vertical Turning Center for Mass Production

VT-450/650 turning centers reducing cutting time, the rigid high-speed tool turret is durable with high speed indexing, providing consistent and stable machining performance most suitable for mass production.

1 Brake Hub / Automobile / GC300 2 Pressure Plate / Automobile / GC250 3 Valve Body / Plant Industry / SCW410

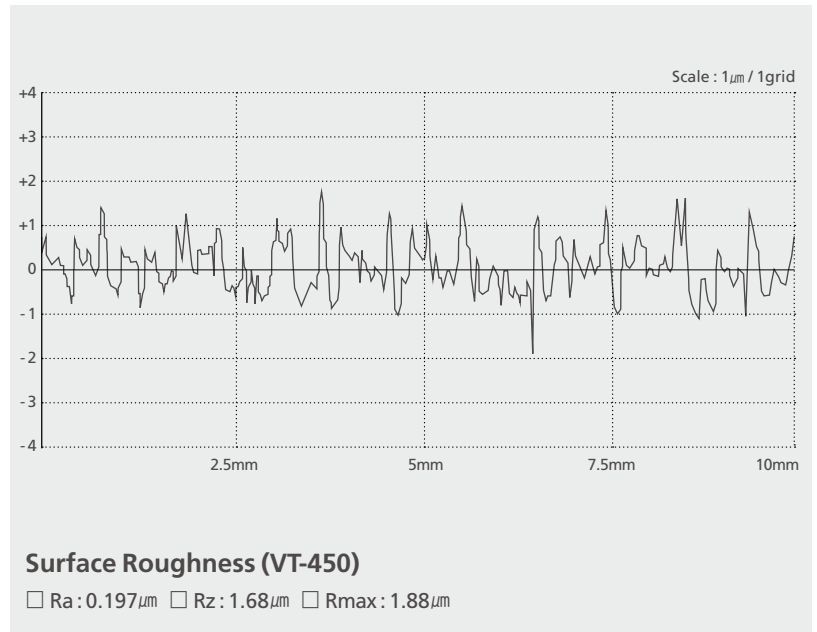
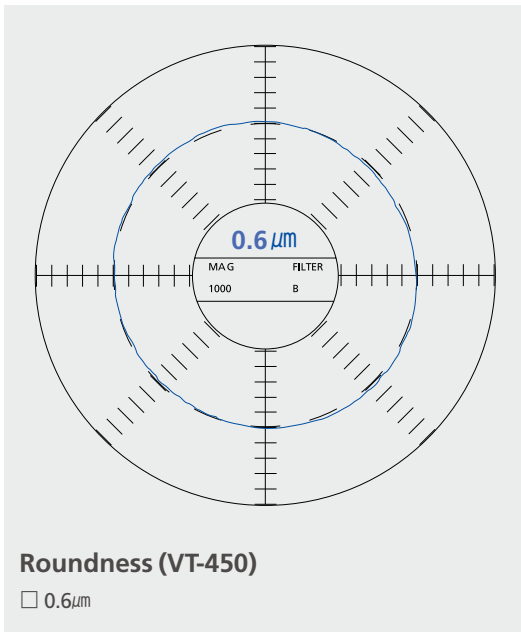
4 Brake Drum / Automobile / GC250 5 Brake Disk / Automobile / GC200



HEAVY DUTY MACHINING STABILITY

VT-450/650 turning centers have been the preferred choice for many Manufacturers around the world. They have demonstrated exceptional capabilities by machining brake discs, brake drums, hubs and valves. The one piece machine bed design limits thermal distortion and absorbs vibration effectively and it guarantees high surface quality and precision at high speed. These turning centers can be ordered with the spindle on the left or the right side, or as double machine where the operator can work on two machines with one control. The fast and effective chip disposal and the environment friendly oil-water separation design will make your production more efficient and cost effective.

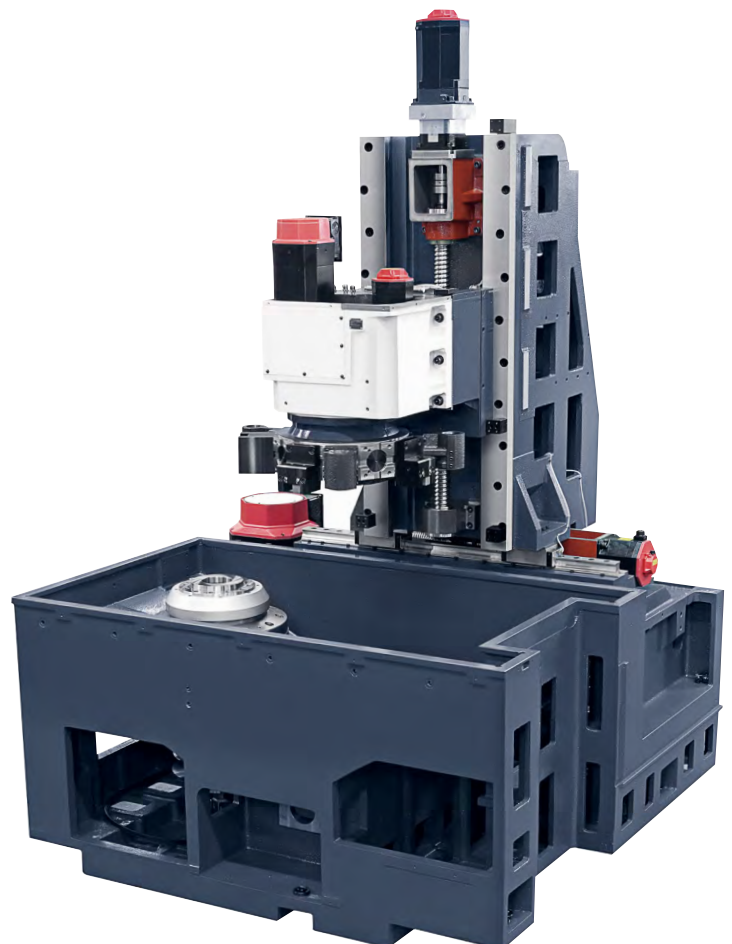




- Tool : DNMG150608 □ Material : Brass □ External diameter : 100mm
- Cutting depth : 0.1mm □ Spindle RPM : 1,000rpm □ Feedrate : 0.06mm/rev

Highly Rigid and Durable One Piece Frame Structure

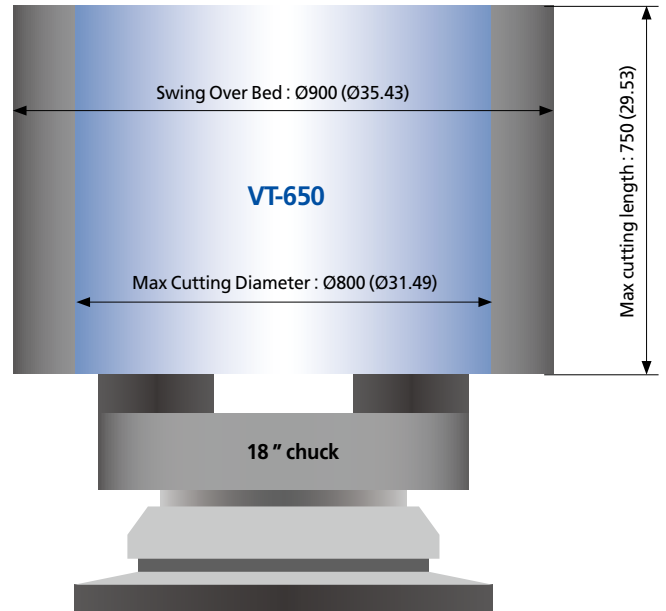
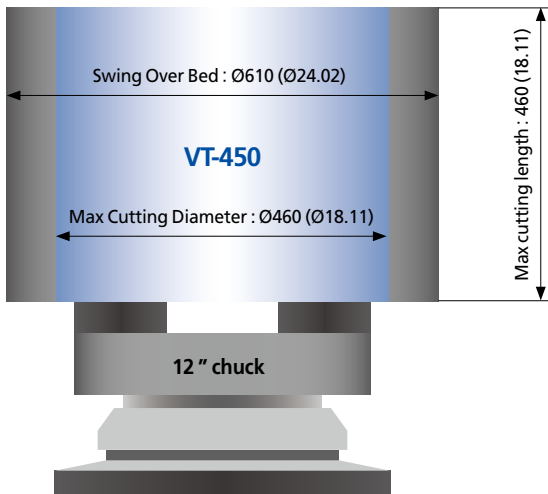
The VT-450/650 turning centers have a one piece bed frame for excellent vibration absorption, it guarantees high precision and surface quality at high speed turning thanks to the frame's ability to limit thermal distortion. The Z-axis guide is built in box way design, the X-axis is designed with linear Roller Guides for precision and rigidity to keep machine fast, sturdy and stable during long hours of operation.



Interference Free Operation

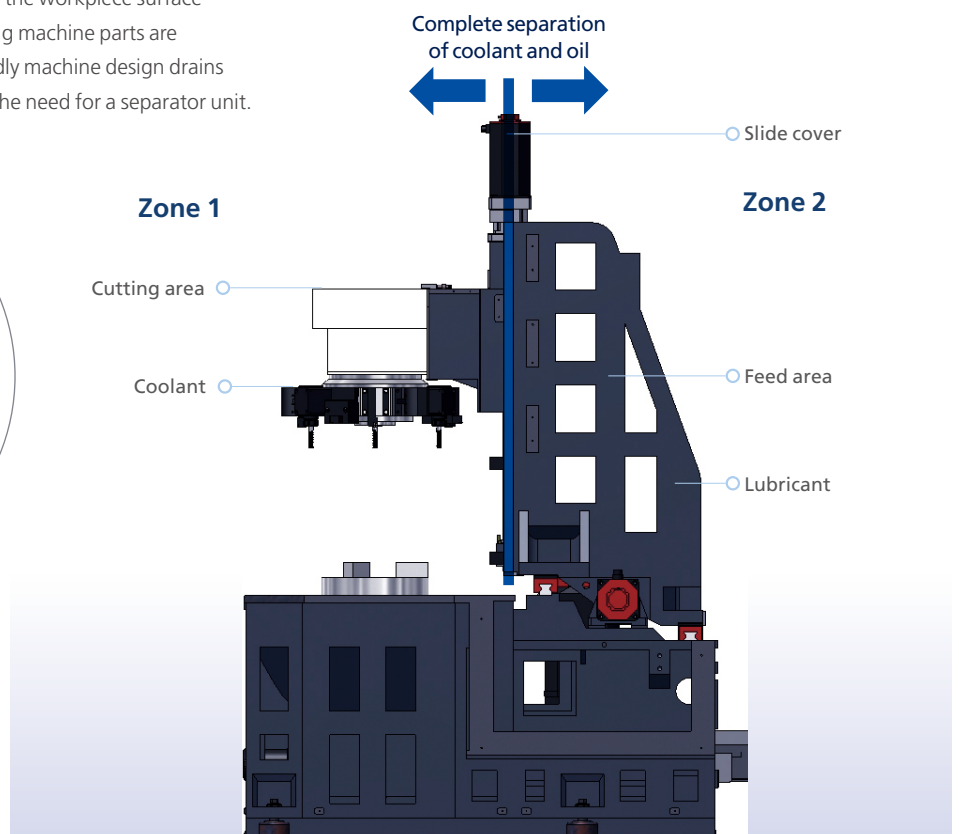
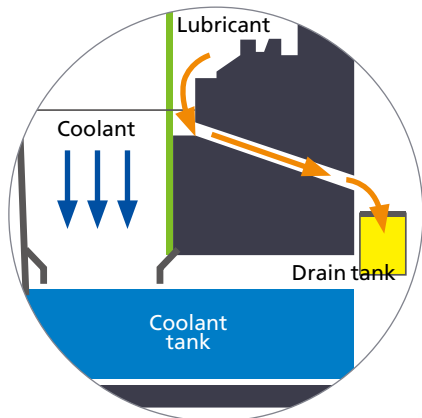
The max. turning diameter zone is designed to provide interference free operations. Providing same max. diameter at full length even on larger workpieces.

* Unit: mm(inch)



Environment-Friendly Design

To prevent the lubrication oil from dripping on the workpiece surface during dry cutting, the cutting area and moving machine parts are completely separated. The environment-friendly machine design drains the lubricant oil separately and is eliminating the need for a separator unit.



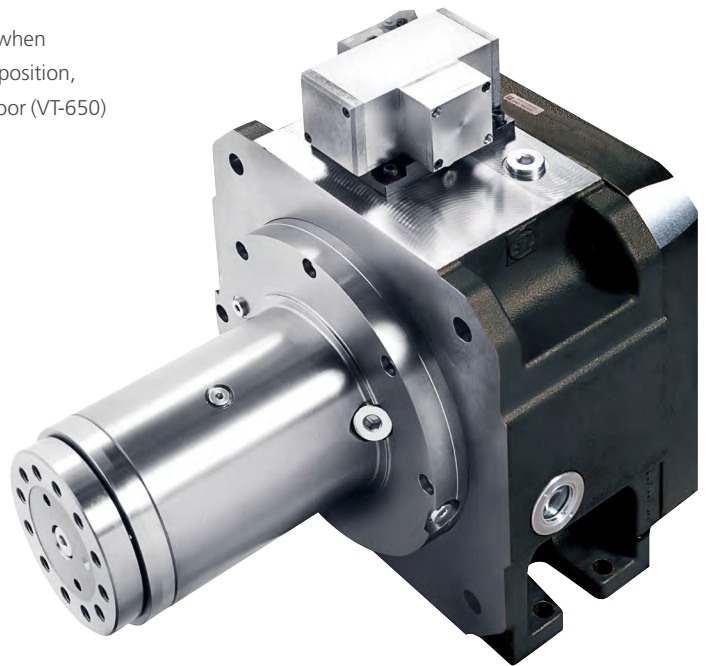


USER FRIENDLY DESIGN, A WIDE RANGE OF OPTIONAL FEATURES

VT-450/650 turning centers are designed with the end user in mind. The user-friendly machine design and a variety of supplementary options made for stronger, faster, and more precise machining performance.



Changing tools is convenient when the ATC returns to its parking position, according to the side access door (VT-650)



L-HTLD: Hwacheon Lathe Tool Load Detect System (Standard)



The Hwacheon Lathe Tool Load Detect System constantly detects and diagnoses the tool load under process to prevent tool wear and damage, and to keep your machine and tools in optimal shape.

Load Detection Limit 1

Alarm + Feed Hold

> When the LIMIT 1 Alarm sounds, the system holds the feed and the machine goes into standby.

Load Detection Limit 2

Alarm + Machine Stop

> When the LIMIT 2 Alarm sounds, the system stops the machine, and must be reset to operate it.

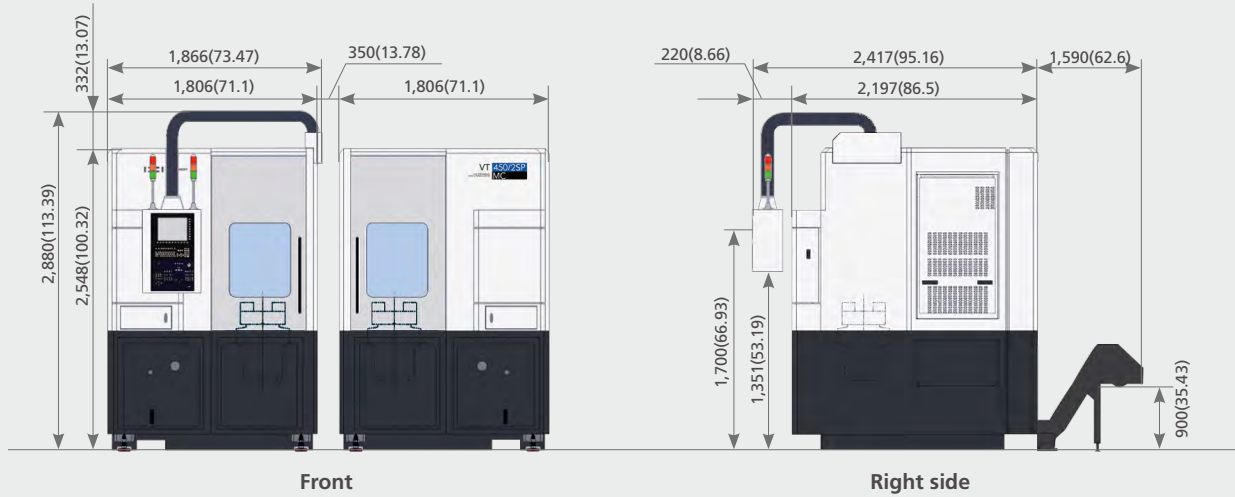
High Torque Gear Box(Optional)

Power is delivered to the spindle through a two speed transmission allowing high spindle speed as well as powerful low torque

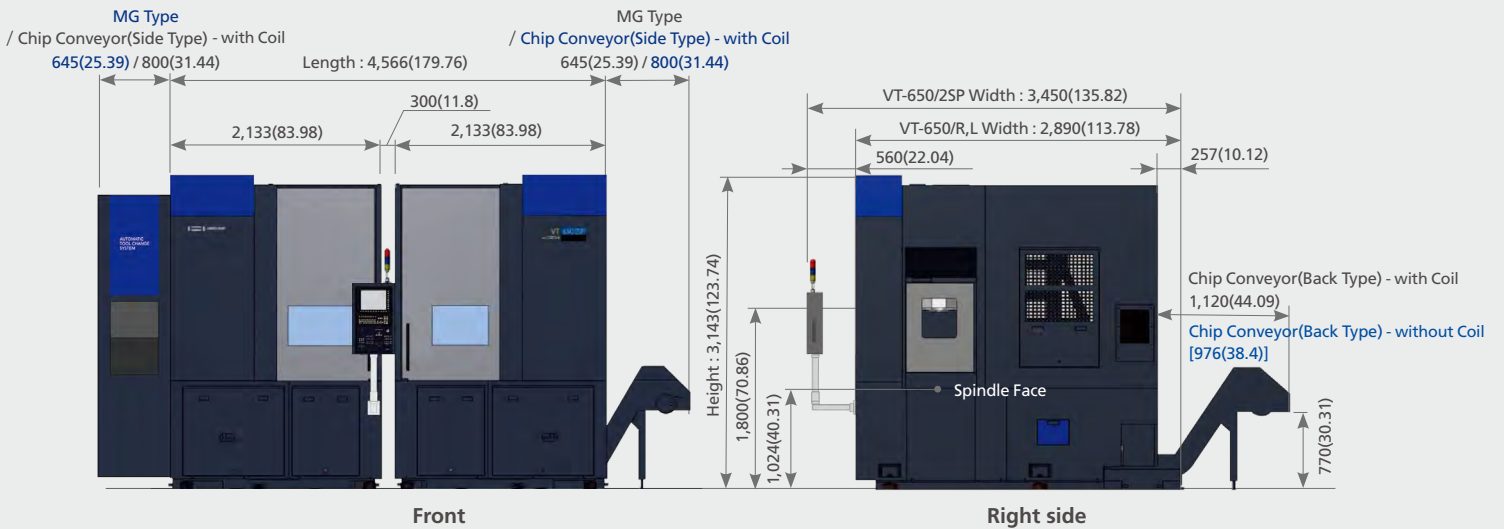
Product Data

* Unit: mm(inch)

VT-450/2SP

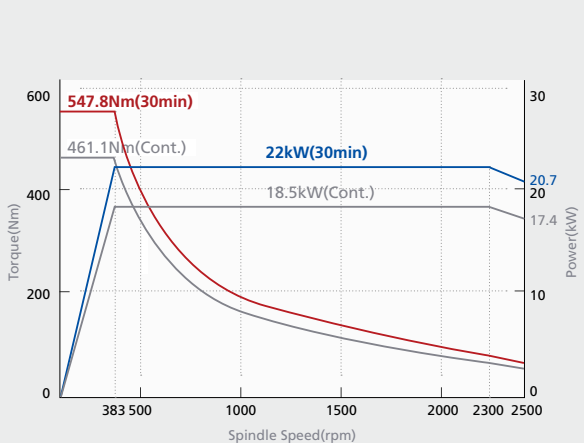


VT-650/2SP

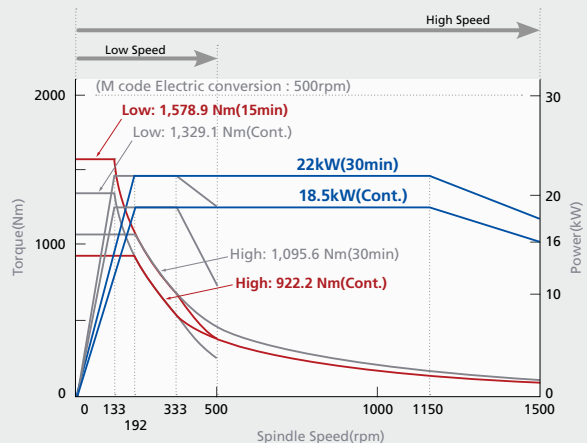


Spindle Power-Torque Diagram

VT-450(STD)



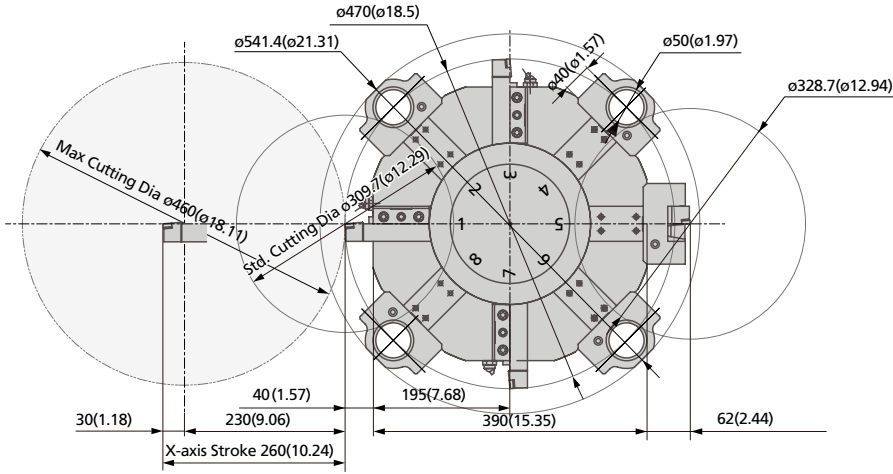
VT-650(STD)



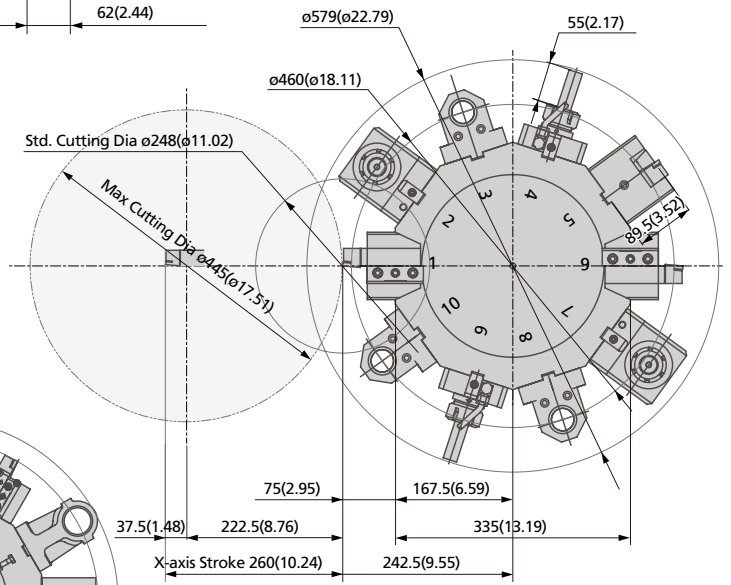
Tool Interference Diagram

※Unit : mm(inch)

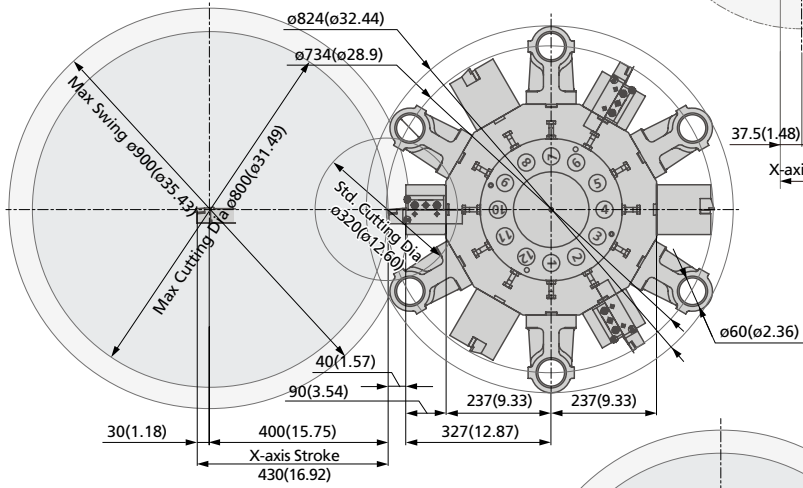
VT-450 STD(8 Stations)



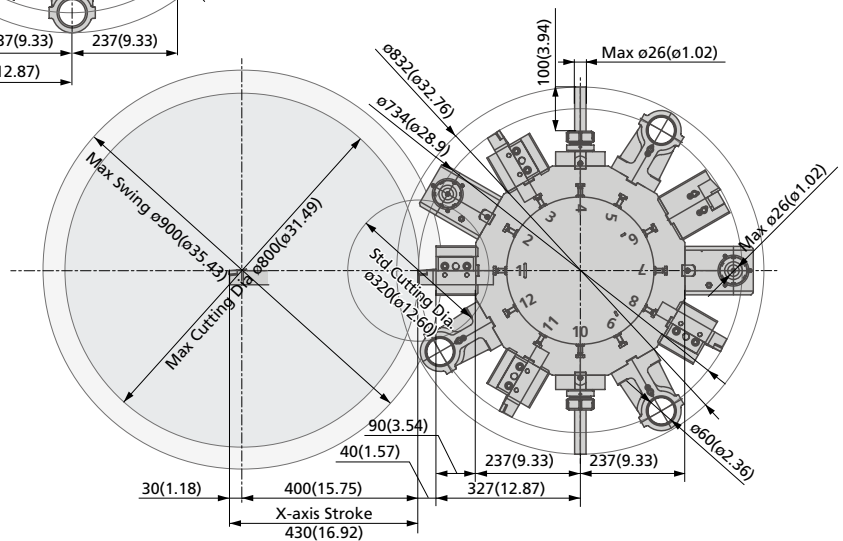
VT-450 MC (10 Stations)



VT-650 STD



VT-650 MC

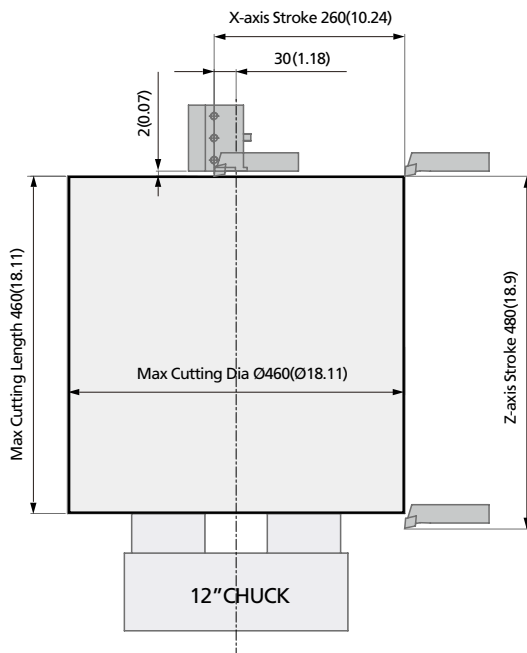


Moving Range

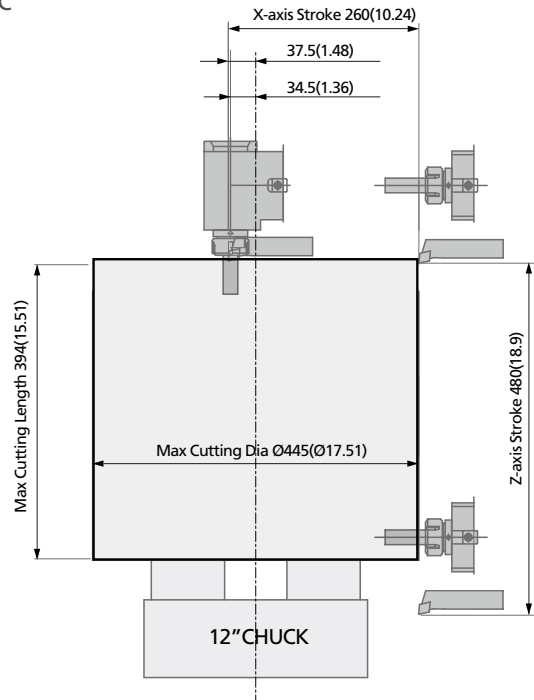
※Unit : mm(inch)

VT-450

STD

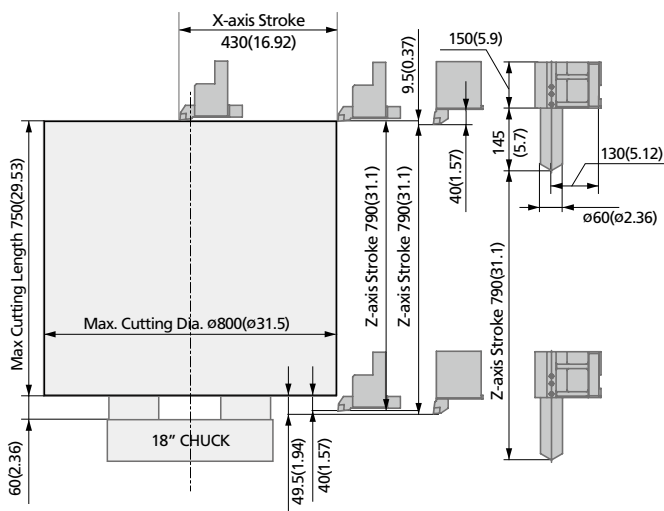


MC

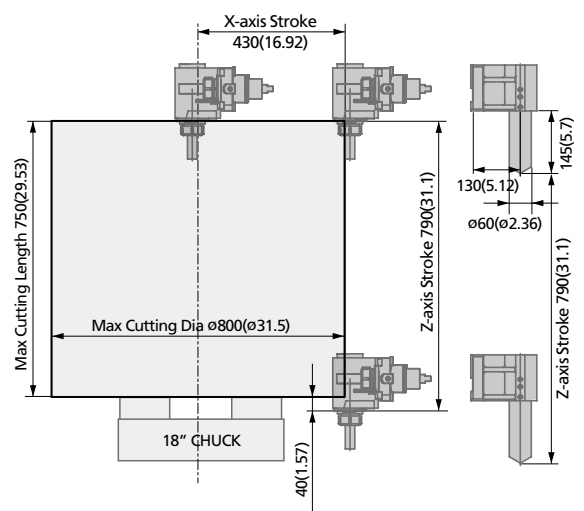


VT-650

STD

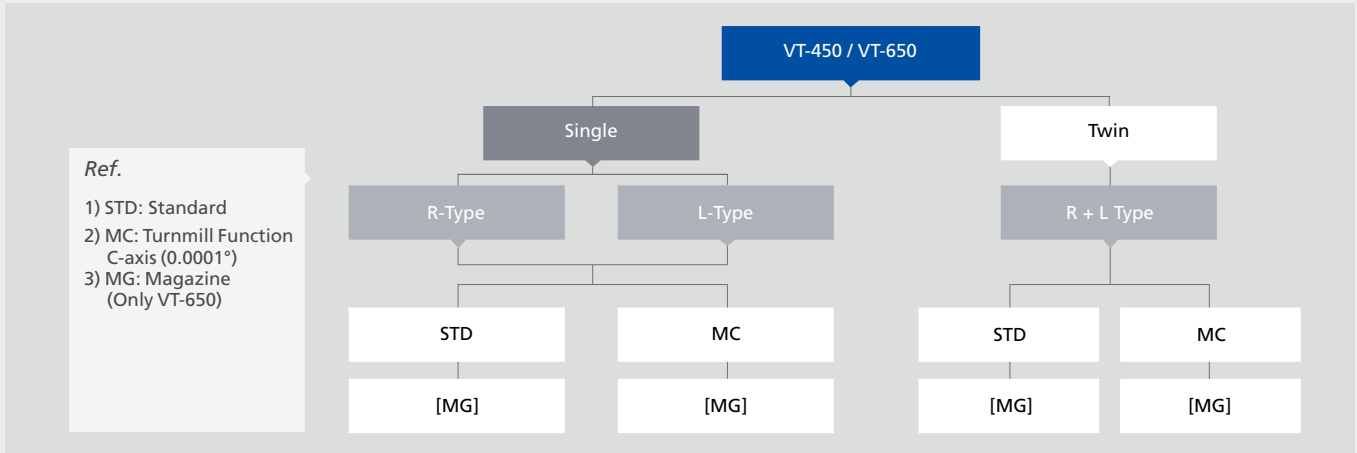


MC



Product Configuration

Each product can be configured to fit your application.



Ref.
 1) STD: Standard
 2) MC: Turnmill Function
 C-axis (0.0001°)
 3) MG: Magazine
 (Only VT-650)

Machine Specifications

ITEM		VT-450 (R, L)	VT-450MC (R, L)	VT-650 (R, L) [MG]	VT-650MC[MG]
Capacity					
Swing over Bed	mm(inch)	Ø610 (Ø24.02)		Ø900 (Ø35.43)	
Max Cutting Diameter	mm(inch)	Ø460 (Ø18.11)	Ø445 (Ø17.51)	Ø800 (Ø31.49)	
Standard Cutting Diameter	mm(inch)	Ø305 (Ø12.01)	Ø248.2 (Ø9.77)	Ø320 (Ø12.6)	
Max Cutting Length	mm(inch)	460 (18.11)	394 (15.51)	750 (29.53)	
Chuck Size	inch	12		18	
Spindle					
Type of Spindle Nose	ASA	A2-8		A2-11	
Max Spindle Speed	rpm	2,500		1,500	
Spindle Bearing Inner Diameter	mm(inch)	Ø130 (Ø5.12)		Ø160 (Ø6.3)	
Spindle Motor	kW(HP)	22 / 18.5 (30 / 25)		22 / 18.5 (30/25)	
Turret					
Number of Tool Station	ea	8	10	12 [10 (MG:16 Capto C5)]	
Tool Size	mm(inch)	□25 x Ø50 (□1 x Ø2)		□32 x Ø60 (□1.25 x Ø2.5)	
Turret Indexing Time	sec/step	0.15		0.2	
Axes					
Rapid Traverse (X/Z)	m/min(ipm)	24 / 20 (945 / 787)		20 / 16 (787 / 630)	
Max Stroke (X/Z)	mm(inch)	260 / 480 (10.24 / 18.9)		430 / 790 (16.92 / 31.10)	
Feed Motor (X/Z)	kW(HP)	4.0 / 4.0 (5.4 / 5.4)		3.0 / 4.0 (4 / 5.4)	
Turnmill					
Spindle Motor	kW(HP)	-	3.7 / 2.2 (5 / 3)	-	5.5 / 3.7 (7.5 / 5)
Max Spindle Speed	rpm	-	3,000	-	3,000
Max Drill/Tap Size	mm (inch)	-	Ø16 (Ø0.63) / M12	-	Ø26 (Ø1) / M20
Min Index Angle	deg	-	0.0001	-	0.0001
Tank Capacity					
Lubrication	ℓ (gal)	12 (3.17)		12 (3.17)	
Hydraulic	ℓ (gal)	11 (3)		50 (13)	
Coolant	ℓ (gal)	150 (40)		195 (52)	
Power Sources					
Electrical Power Supply	kVA	40		40	
Dimension					
Height	mm(inch)	2,548 (100.32)		3,143 (123.74)	
Floor Space (LxW)	mm(inch)	1,806 x 2,197(71.1 x 86.5)		2,133 x 2,890 (83.97 x 113.78)	
Weight	kg _f (lb _r)	7,500 (16,535)	7,550 (16,645)	10,000 (22,046) [11,000 (24,251)]	10,100 (22,267) [11,100 (24,471)]
NC Controller		Fanuc 0i-TF Plus			

Standard and Optional Product Components

■ VT-450/650 ■ VT-450 ■ VT-650




Standard Accessories		Optional Accessories	
• Coolant System	• Lubrication Unit	• Air Blower	• Magazine 16 tools
• Door Interlock	• Manual & Parts List	• Air Curtain (Head, ATC)	• Mist Collector
• Dual Pressure (C-axis brake)	• Manual Guide i	• Air Gun	• NC Cooler
• Foot Switch	• Set of Soft Jaws	• Auto Door	• Spindle Motor Upgrade (α30)37/30kW
• High Pressure Pump 0.6 MPa	• Signal Lamp with 3 Color (R,G,Y)	• Chip Conveyor & Chip Box(Back Type)	• Spindle Motor Upgrade (α40)45/37kW
• Hydraulic Unit 40kg _f /cm ²	• Tool Kit & Box	• Chip Conveyor & Chip Box (Side Type) - with Screw	• Tool & Work Counter, External / Internal
• HLVC (Hwacheon Lathe Vibration Control)	• Tool Life Management	• Chuck Clamp/Unclamp Confirm Switch	• Tool Presetter(Automatic)
• L-HTLD (Lathe-Hwacheon Tool Load Detect)	• Tooling System	• Chuck Pressure Check Switch	• Tool Presetter(Manual)
• L-CAL (Lathe Calculator Function)	• Turret 8 Station	• Chuck Pressure Compensation	• Transformer
• L-COUNT (Work / Tool Counter Management)	• Turret 12 Station	• Coolant Gun	• Turnmill Function Including C-axis(0.0001)
• Leveling Bolt & Plate	• U-Drill Holder tea	• Dual Pressure (Chuck)	• Turnmill Holder, Axial / Radial
	• Work Light	• Dual Pressure (C-axis brake)	• Gear Box
	• 15" Non touch display (only FANUC)	• Set of Hard Jaw	• Gear Box (α40 only)
	• 12" Hydraulic Chuck & Cylinder	• High Pressure Coolant System, 0.6/1.5 MPa	• 15" Chuck & Cylinder (Spindle A2-11)
	• 18" Hydraulic Chuck & Cylinder	• High Pressure Coolant System 1.5MPa	• 15",21",24" Chuck & Cylinder
		• Linear Scale(X/Z)	• 15" Touch type display (only FANUC)

NC Specifications [Fanuc Oi-TF Plus]

※ - : Not available S : Standard O : Option

ITEM	SPECIFICATION	STD	MC	ITEM	SPECIFICATION	STD	MC
Controlled axis				Program input			
Controlled axis (Cs axis)	2-Axes	2-Axes	3-Axes	Decimal point programming		S	S
Simultaneously controlled axes	2-Axes	2-Axes	3-Axes	Coordinate system setting	G50	S	S
Least input increment	0.001mm, 0.0001deg, 0.0001inch	S	S	Coordinate system shift		S	S
Least input increment 1/10	0.0001mm, 0.00001inch	O	O	Workpiece coordinate system	G52-G59	S	S
inch/metric conversion	G20, G21	S	S	Workpiece coordinate system preset	G92.1	S	S
Stored stroke check 1,2,3		S	S	Direct drawing dimension programming		S	S
Chamfering on/off		S	S	G code system	A	S	S
Backlash compensation		S	S	Programmable data input	G10	S	S
Operation				Sub program call	10Folds Nested	S	S
Automatic & MDI operation		S	S	Custom macro B		S	S
Program number search		S	S	Addition of custom macro -common variables	#100-#199, #500-#999	S	S
Sequence number search		S	S	Canned cycles		S	S
Dry run, single block		S	S	Multiple repetitive cycle		S	S
Manual handle feed	1Unit	S	S	Multiple repetitive cycle II		S	S
Manual handle feed rate	x1, x10, x100	S	S	Canned cycles for drilling		S	S
Interpolation function				Manual Guide i		S	S
Positioning	G00	S	S	Spindle speed function			
Linear interpolation	G01	S	S	Constant surface speed control	G96 / G97	S	S
Circular interpolation	G02, G03	S	S	Spindle override	0-150%	S	S
Dwell (Per seconds)	G04	S	S	Spindle orientation		S	S
Polar coordinate interpolation	G12.1/G13.1	-	S	Rigid tapping		S	S
Cylindrical interpolation	G7.1	-	S	Spindle synchronous control		-	-
Threading	G32	S	S	Editing operation			
Multiple threading		S	S	Part program storage length	5,120 m (2MB)	S	S
Threading retract		S	S	Number of register able programs	Max.1000 ea	S	S
Continuous threading		S	S	Background editing		S	S
Variable lead threading	G34	S	S	Extended part program editing		S	S
Reference position return 1st	G28	S	S	Play back		S	S
Reference position return check	G27	S	S	Operation/Display			
2,3,4th reference position return	G30	S	S	Clock function		S	S
Arbitrary speed threading		O	O	Self-diagnosis function		S	S
Feed function				Alarm history display		S	S
Rapid traverse override	F0, F25, F50, F100	S	S	Help function		S	S
Feed per minute (mm/min)	G98	S	S	Run hour and parts count display		S	S
Feed per revolution (mm/rev)	G99	S	S	Graphic function		S	S
Rapid traverse bell-shaped acceleration/deceleration		S	S	Multi-language display	English, German, French, Italian, Chinese, Spanish, Korean, Portuguese, Polish, Hungarian, Swedish,Russian	S	S
Feedrate override	0-150 %	S	S				
Jog feed override	0-1,260 mm/min	S	S	Data input/output			
Tool function / compensation				Ethernet interface		S	S
Tool function	T4-digits	S	S	Memory card interface		S	S
Tool offset pairs	128pairs	S	S	USB card interface		S	S
Tool nose radius compensation		S	S	Others			
Tool geometry/wear compensation		S	S	Display Unit	15" Non touch display	S	S
Tool life management		S	S	Fanuc i-HMI	15" Touch type display	O	O
Automatic tool offset	Tool presetter option is required	S	S	HWACHEON Machining Software			
Direct input tool offset value measured B	Tool presetter option is required	S	S	L-HTLD (Hwacheon Tool Load Detect System)		S	S
Program input				L-CAL (Lathe Calculator Function)		S	S
Tape code	EIA / ISO	S	S	L-COUNT (Work / Tool Counter Management)		S	S
Optional block skip	9ea	S	S	HLVC (Hwacheon Lathe Vibration Control)		S	S
Program number	O4-digits(1-9999)	S	S	M-VISION Pro		O	O
Sequence number	N8-Digits	S	S				

Hwacheon Global Network

 Hwacheon Headquarter  Hwacheon America  Hwacheon Europe  Hwacheon Asia



HWACHEON

Please contact us for product inquiries.

www.hwacheon.com

The product design and specifications may change without prior notice.
Read the operation manual carefully and thoroughly before operating the product,
and always follow the safety instructions and warnings labels attached on the surfaces of the machines.

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