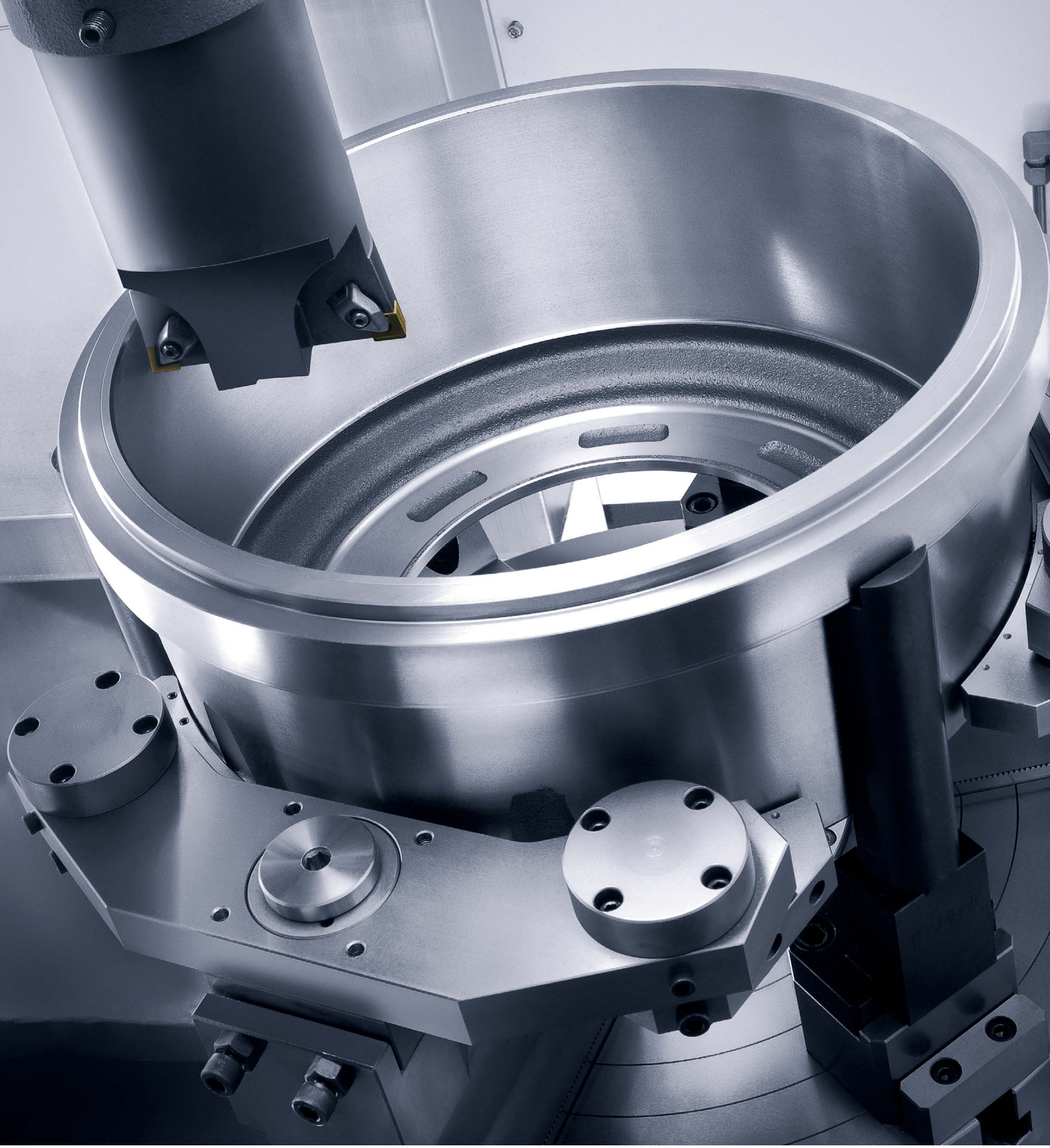


VT-450/650

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

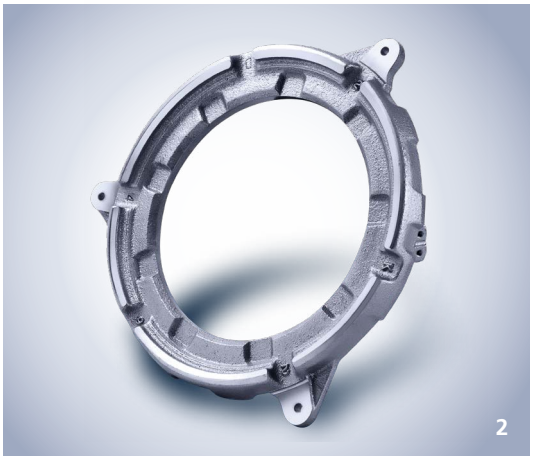
HWACHEON

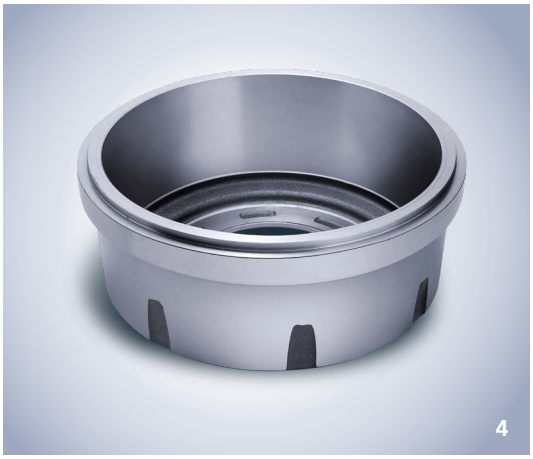
VERTICAL TURNING CENTER 12″-24″ CHUCKER QUICK TURRET TYPE

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.

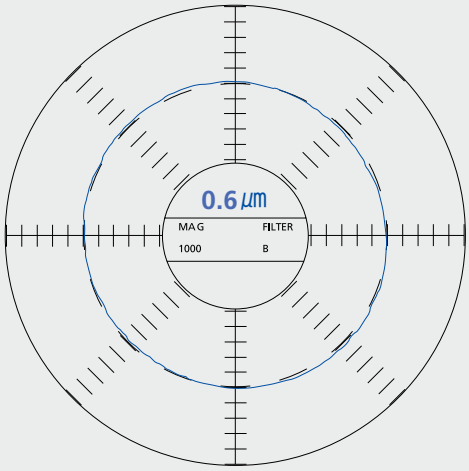
1 Brake Hub / Automobile / GC300 **2** Pressure Plate / Automobile / GC250 **3** Valve Body / Plant Industry / SCW410
4 Brake Drum / Automobile / GC250 **5** Brake Disk / Automobile / GC200





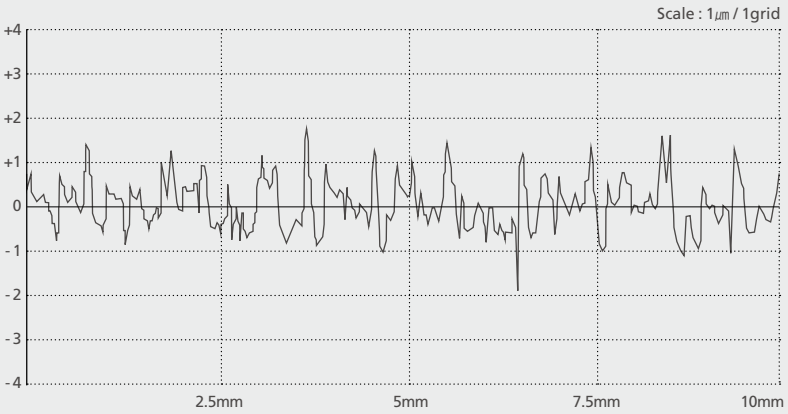
HEAVY DUTY MACHINING STABILITY

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.



Roundness (VT-450)

☐ 0.6㎛



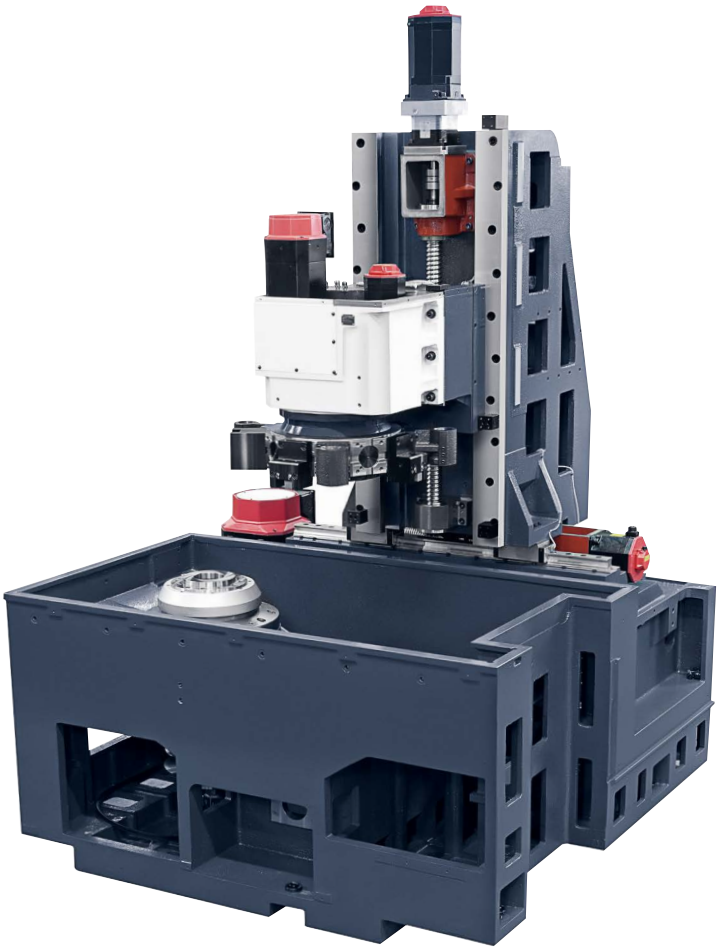
Surface Roughness (VT-450)

☐ Ra : 0.197㎛ ☐ Rz : 1.68㎛ ☐ Rmax : 1.88㎛

☐ 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

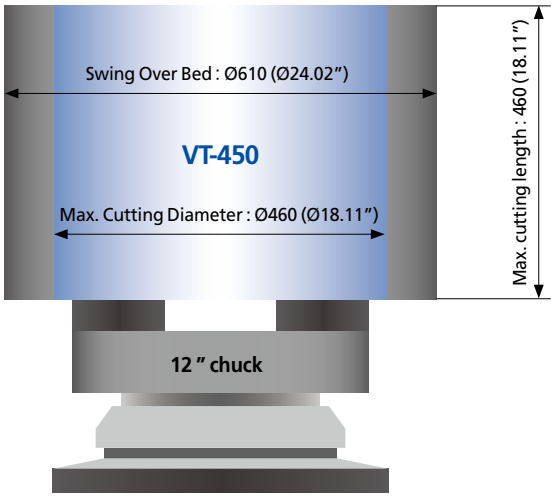
The VT-450/650 turning centers have a one piece bed frame for excellent vibration absorption, it guarantees high precision and surface quality at high speed turning thanks to the frame's ability to limit thermal distortion. The Z-axis guide is built in box way design, the X-axis is designed with linear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

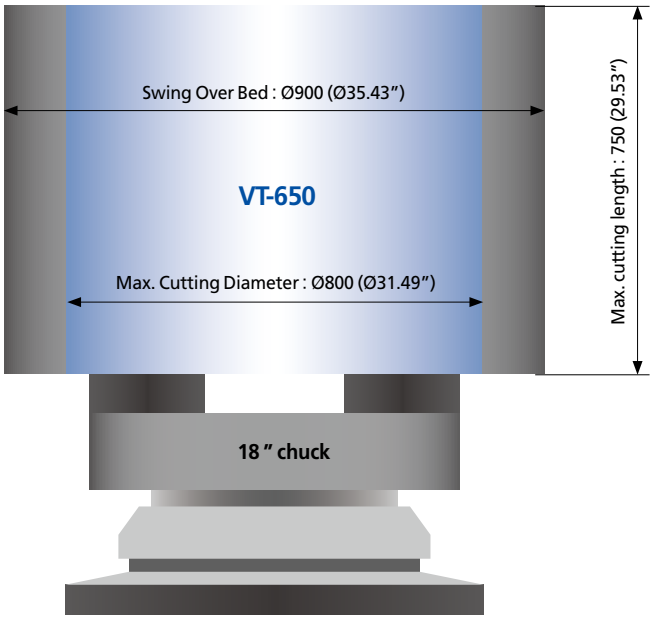


Interference Free Operation

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

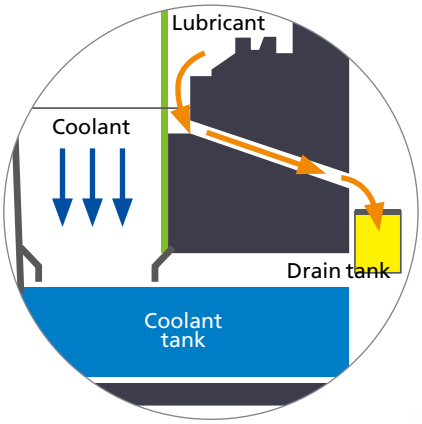
* Unit: mm(inch)

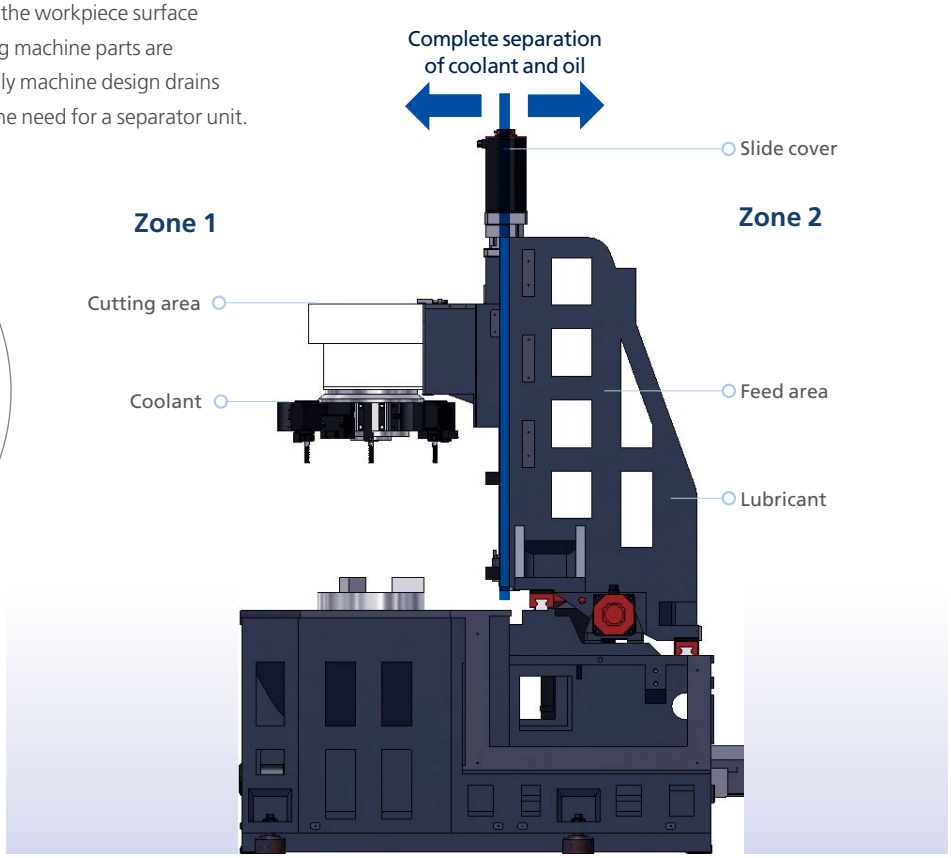




Environment-Friendly Design

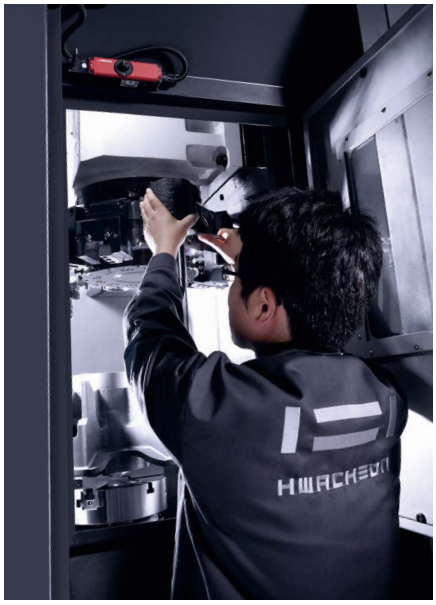
To prevent the lubrication oil from dripping on the workpiece surface during dry cutting, the cutting area and moving machine parts are completely separated. The environment-friendly machine design drains the lubricant oil separately and is eliminating the need for a separator unit.



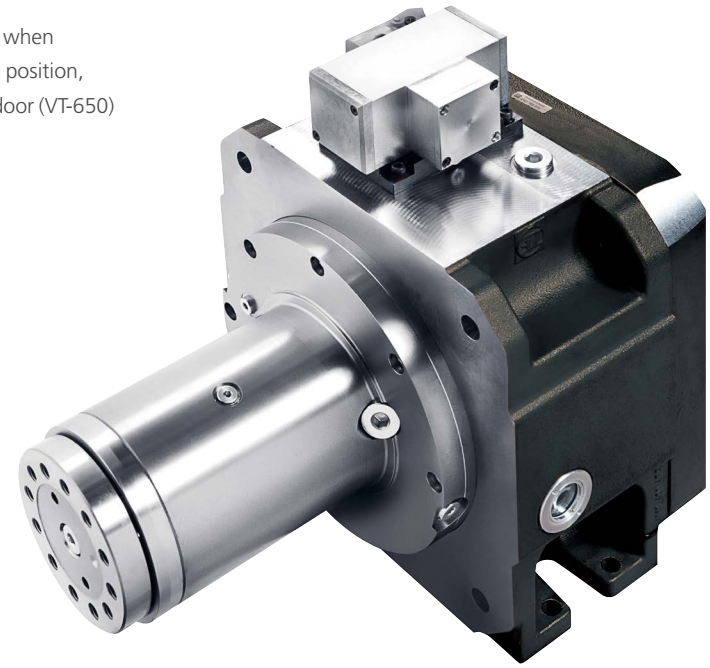


USER FRIENDLY DESIGN, A WIDE RANGE OF OPTIONAL FEATURES

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 (Option)

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	Load Detection Limit 2
Alarm + Feed Hold	Alarm + Machine Stop
> When the LIMIT 1 Alarm sounds, the system holds the feed and the machine goes into standby.	> When the LIMIT 2 Alarm sounds, the system stops the machine, and must be reset to operate it.

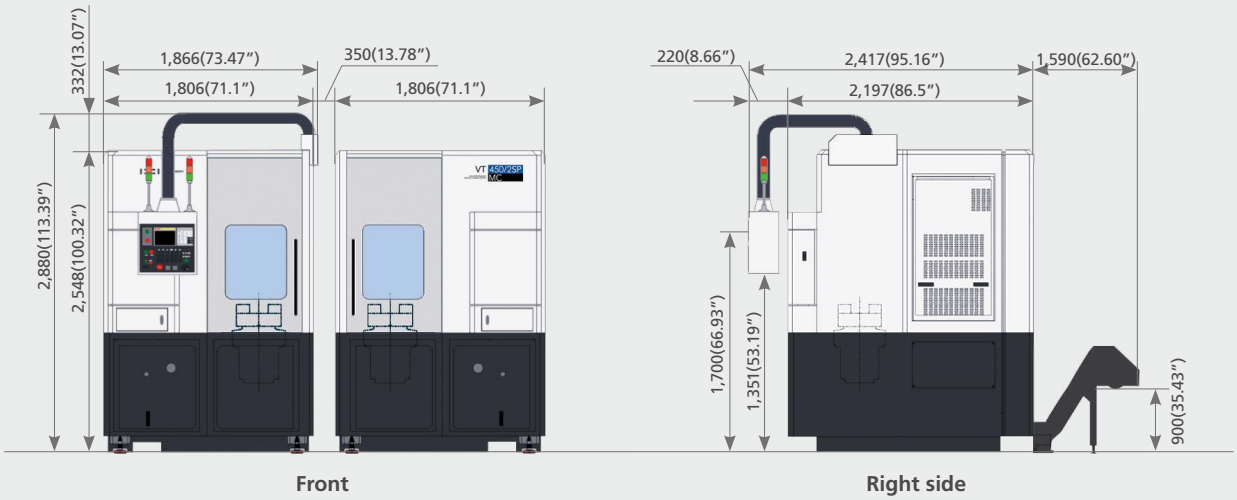
High Torque Gear Box(Option)

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

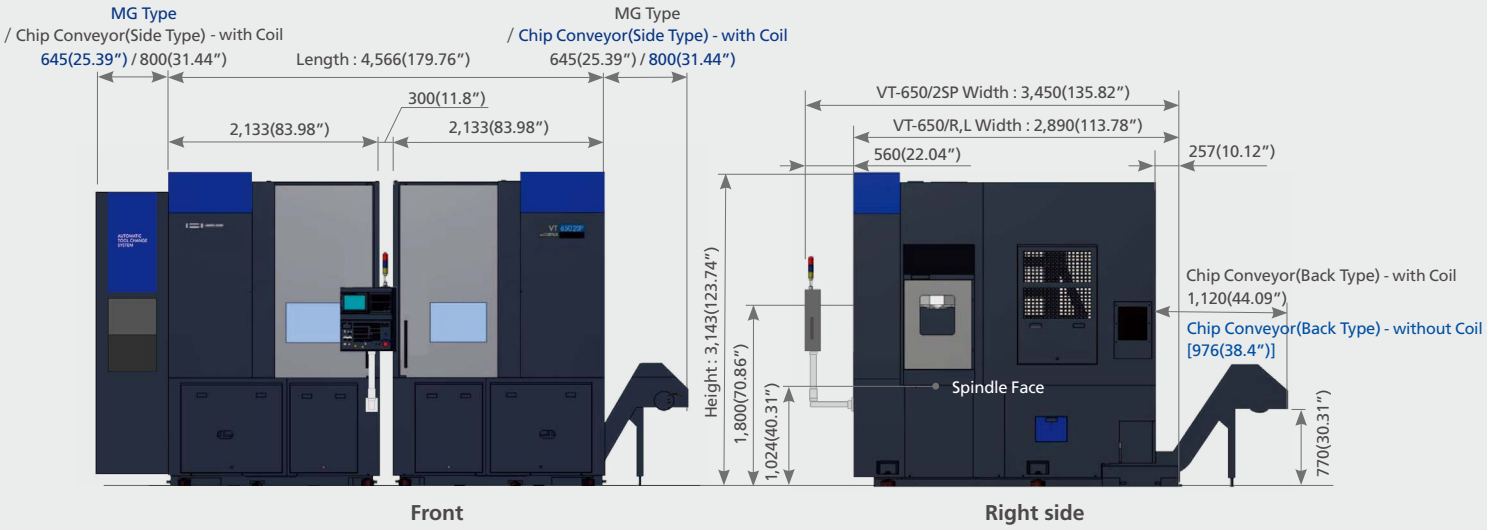
Product Data

* Unit: mm(inch)

VT-450/2SP

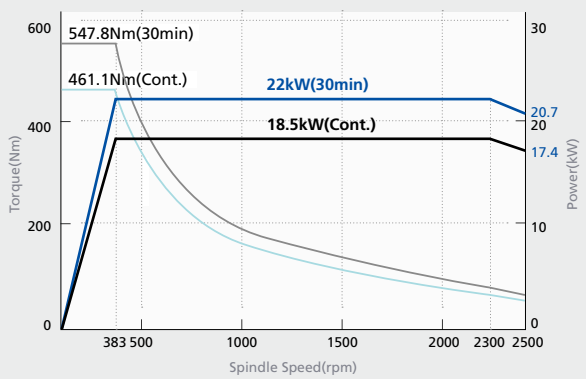


VT-650/2SP

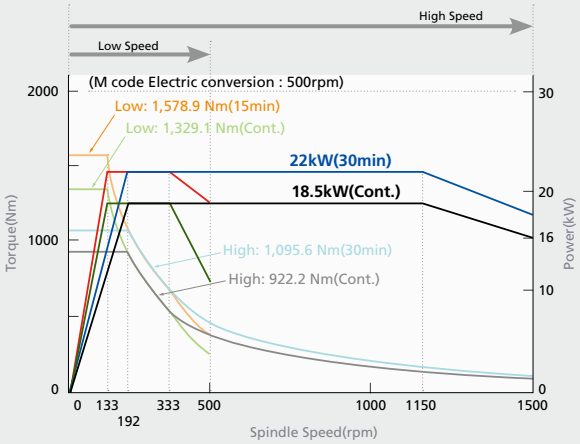


Spindle Power-Torque Diagram

VT-450(STD)



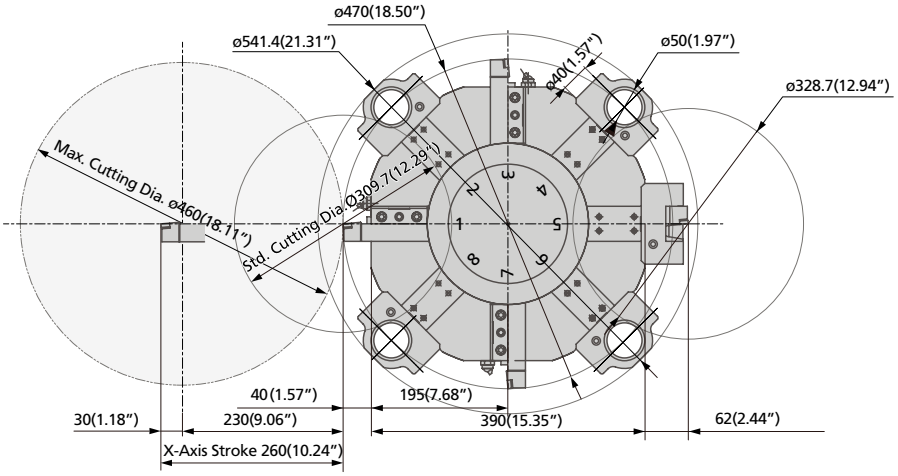
VT-650(STD)



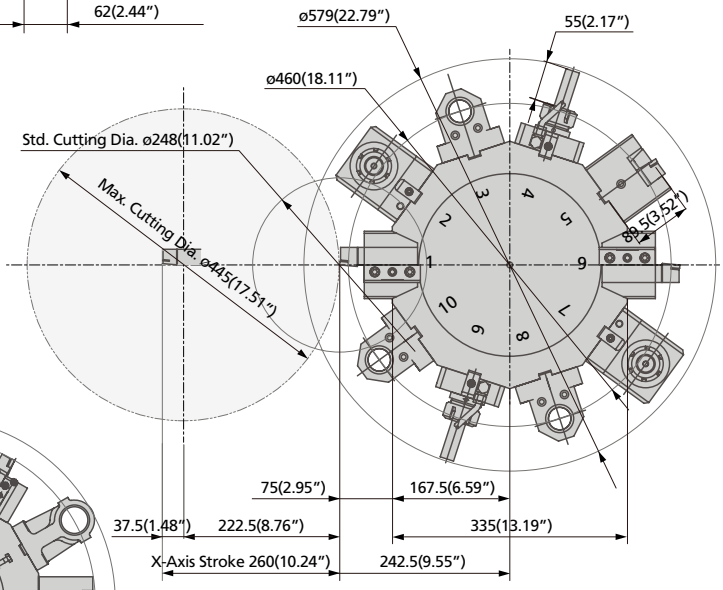
Tool Interference Diagram

※Unit : mm(inch)

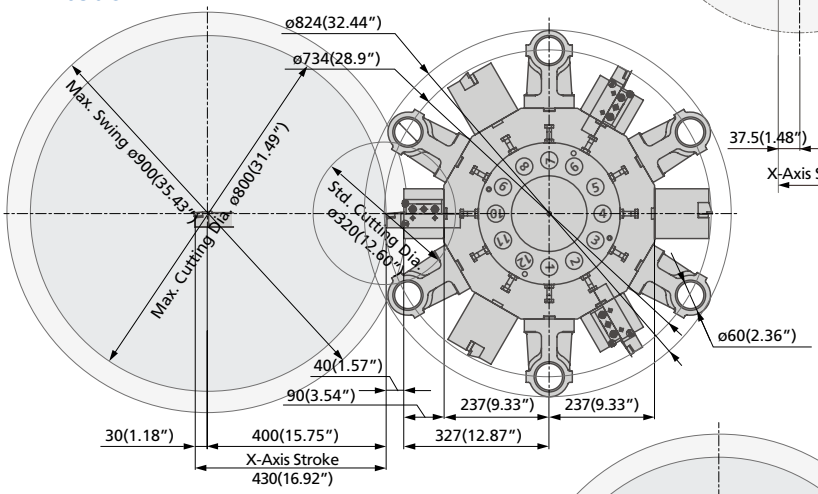
VT-450 STD(8 Stations)



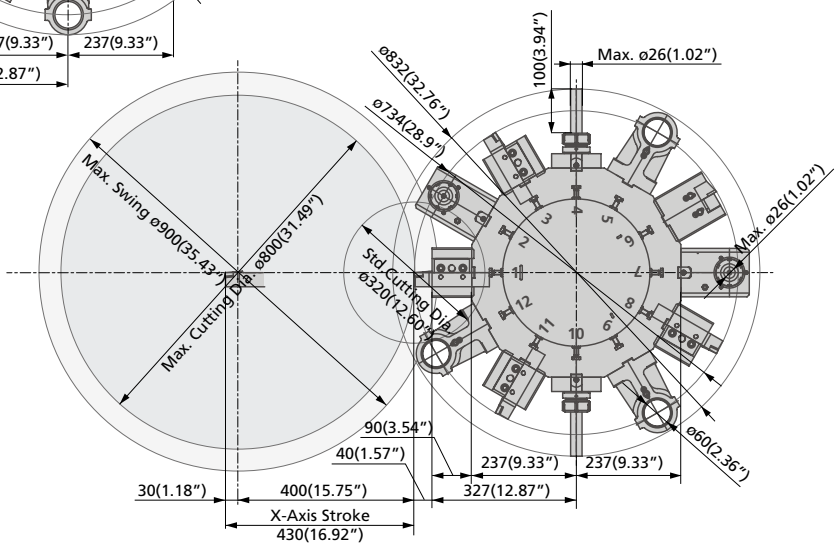
VT-450 MC (10 Stations)



VT-650 STD



VT-650 MC

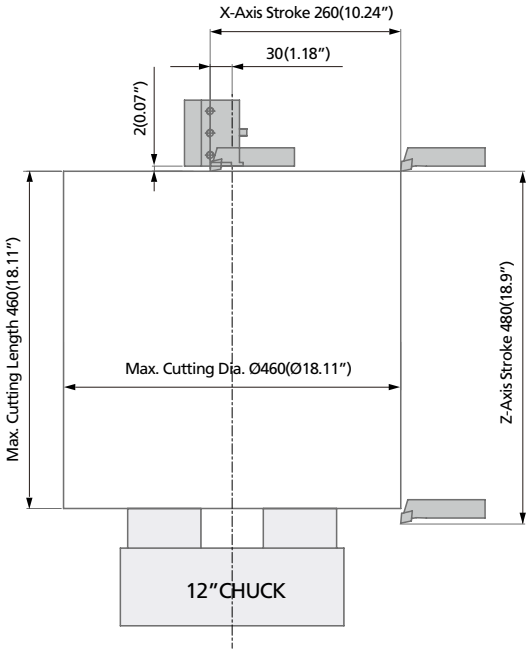


Moving Range

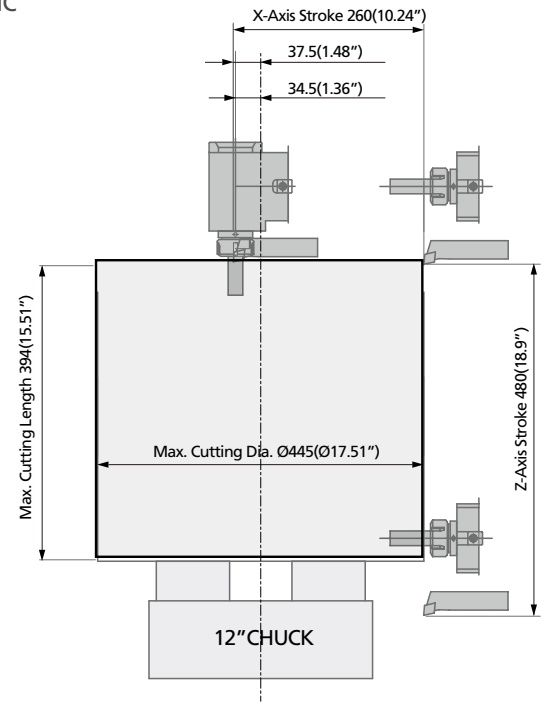
※Unit : mm(inch)

VT-450

STD

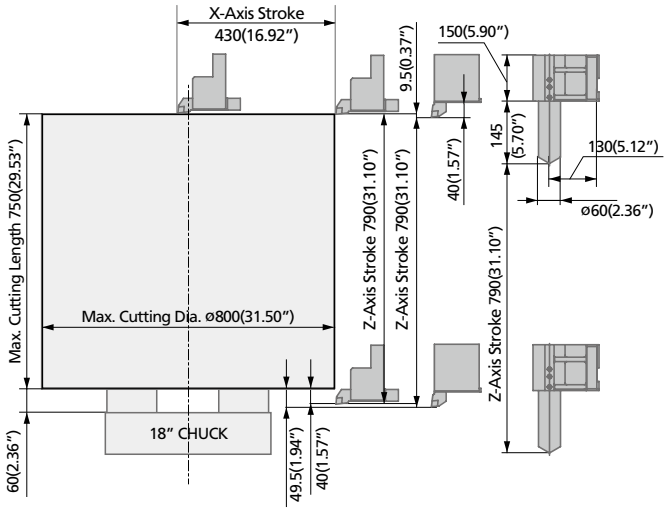


MC

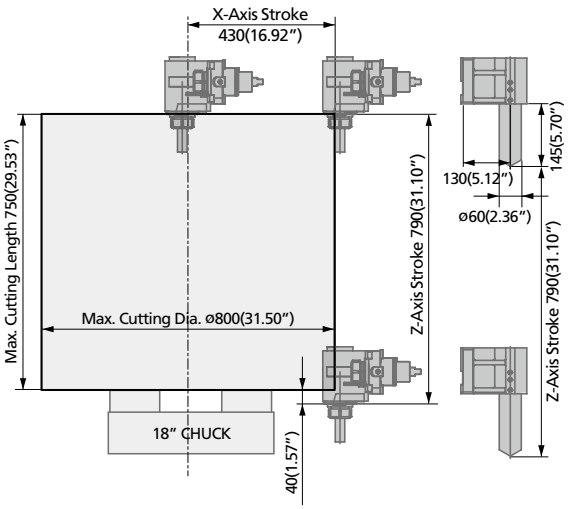


VT-650

STD

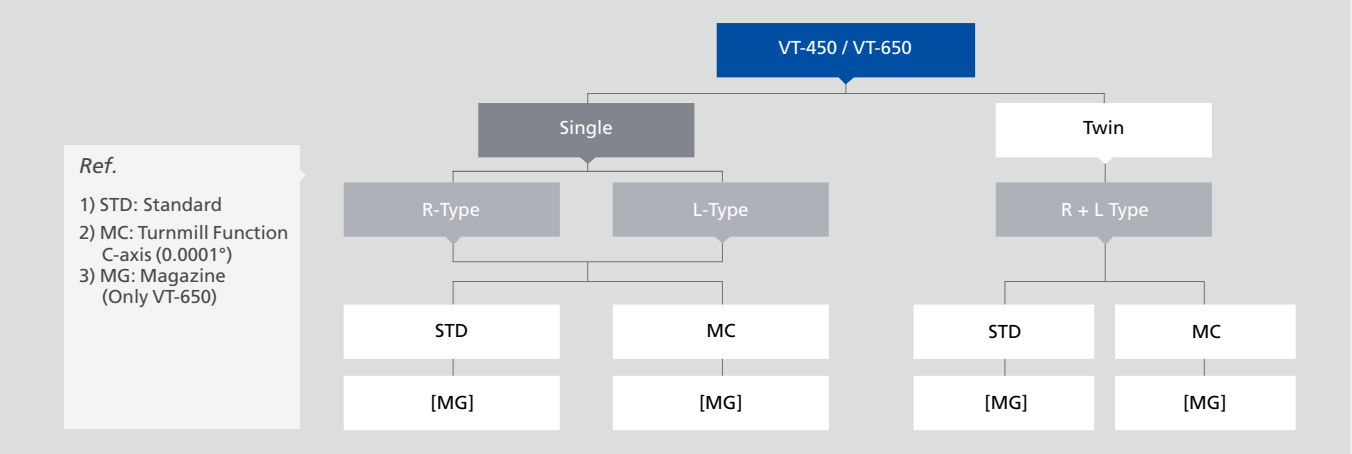


MC



Product Configuration

Each product can be configured to fit your application.



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(Ø12.60")	
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 (Ø6.30")	
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 × Ø50 (□1" × Ø2")		□32 × Ø60 (□1.25" × Ø2.5")	
Turret Indexing Time	sec/step	0.15		0.2	
Axes					
Rapid Speed (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 (L×W)	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_f)	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			

Standard and Optional Product Components

■ VT-450/650 ■ VT-450 ■ VT-650

Standard Accessories		Optional Accessories	
• Coolant System	• Turret 8 Station	• Air Blower	• Magazine 16 tools
• Door Interlock	• Turret 12 Station	• Air Curtain (Head, ATC)	• Manual Guide i
• Dual Pressure (C-axis brake)	• U-Drill Holder 1ea	• Air Gun	• Mist Collector
• Foot Switch	• Work Light	• Auto Door	• NC Cooler
• High Pressure Pump 0.6 MPa	• 10.4" color LCD	• Chip Conveyor & Chip Box(Back Type)	• Spindle Motor Upgrade (α30)37/30kW
• Hydraulic Unit 40kg$_f$/cm^2	• 12" Hydraulic Chuck & Cylinder	• Chip Conveyor & Chip Box	• Spindle Motor Upgrade (α40)45/37kW
• Leveling Bolt & Plate	• 18" Hydraulic Chuck & Cylinder	(Side Type) - with Coil	• Tool & Work Counter, External / Internal
• Lubrication Unit		• Chuck Clamp/Unclamp Confirm Switch	• Tool Life Management
• Manual & Parts List		• Chuck Pressure Check Swith	• Tool Presetter(Automatic)
• Set of Soft Jaws		• Chuck Pressure Compensation	• Tool Presetter(Manual)
• Signal Lamp with 3 Color (R,G,Y)		• Coolant Gun	• Transformer
• Tool Kit & Box		• Dual Pressure (Chuck)	• Turnmill Funtion Including C-axis(0.0001°)
• Tooling System		• Dual Pressure (C-axis brake)	• Turnmill Holder, Axial / Radial
		• Set of Hard Jaw	• Gear Box
		• High Pressure Coolant System, 0.6/1.5 MPa	• Gear Box (α40 only)
		• High Pressure Coolant System 1.5MPa	• 15" Chuck & Cylinder (Spindle A2-11)
		• L-HTLD(Lathe-Hwacheon Tool Load Detect)	• 15",21",24" Chuck & Cylinder
		• Linear Scale(X/Z)	• 15" Color LCD (only FANUC)

NC Specifications [Fanuc 0i-TF]

※ – : Not available S : Standard O : Option

ITEM	SPECIFICATION	STD	MC
Controlled axis			
Controlled axis (Cs axis)	2-Axes	2-Axes	3-Axes
Simultaneously controlled axes	2-Axes	2-Axes	3-Axes
Least input increment	0.001mm, 0.0001deg, 0.0001inch	S	S
Least input increment 1/10	0.0001mm, 0.00001inch	O	O
inch/metric conversion	G20, G21	S	S
Stored stroke check 1,2,3		S	S
Chamfering on/off		S	S
Backlash compensation		S	S
Operation			
Automatic & MDI operation		S	S
Program number search		S	S
Sequence number search		S	S
Dry run, single block		S	S
Manual handle feed	1Unit	S	S
Manual handle feed rate	x1, x10, x100	S	S
Interpolation function			
Positioning	G00	S	S
Linear interpolation	G01	S	S
Circular interpolation	G02, G03	S	S
Dwell (Per seconds)	G04	S	S
Polar coordinate interpolation	G12.1 / G13.1	-	S
Cylindrical interpolation	G7.1	-	S
Threading	G32	S	S
Multiple threading		S	S
Threading retract		S	S
Continuous threading		S	S
Variable lead threading	G34	S	S
Reference position return 1st	G28	S	S
Reference position return check	G27	S	S
2,3,4th reference position return	G30	S	S
Arbitrary Speed Threading		O	O
Feed function			
Rapid traverse override	F0, F25, F50, F100	S	S
Feed per minute (mm/min)	G98	S	S
Feed per revolution (mm/rev)	G99	S	S
Rapid traverse bell-shaped acceleration/deceleration		S	S
Feedrate override	0 - 150 %	S	S
Jog feed override	0 - 1,260 mm/min	S	S
Program input			
Tape code	EIA / ISO	S	S
Optional block skip	9ea	S	S
Program number	O4 - Digits	S	S
Sequence number	N8 - Digits	S	S
Decimal point programming		S	S
Coordinate system setting	G50	S	S
Coordinate system shift		S	S
Workpiece coordinate system	G54 - G59	S	S
Workpiece coordinate system preset	G92.1	S	S
Direct drawing dimension programming		S	S
G code system	A	S	S

ITEM	SPECIFICATION	STD	MC
Program input			
Programmable data input	G10	S	S
Sub program call	10 folds nested	S	S
Custom macro B		S	S
Addition of custom macro -common variables	#100-#199, #500-#999	S	S
Canned cycles		S	S
Multiple repetitive cycle		S	S
Multiple repetitive cycle II		S	S
Canned cycles for drilling		S	S
Manual Guide i		O	O
Spindle speed function			
Constant surface speed control	G96 / G97	S	S
Spindle override	50 - 120%	S	S
Spindle orientation		S	S
Rigid tapping		O	S
Spindle synchronous control		-	-
Tool function / compensation			
Tool function	T4-digits	S	S
Tool offset pairs	128pairs	S	S
Tool nose radius compensation		S	S
Tool geometry/wear compensation		S	S
Tool life management		O	O
Automatic tool offset	Tool presetter option is required	S	S
Direct input tool offset value measured B	Tool presetter option is required	S	S
Editing operation			
Part program storage length	1,280m(512kB)	S	S
Number of register able programs	400ea	S	S
Background editing		S	S
Extended part program editing		S	S
Play back		S	S
Operation/Display			
Clock function		S	S
Self-diagnosis function		S	S
Alarm history display		S	S
Help function		S	S
Run hour and parts count display		S	S
Graphic function		S	S
Dynamic graphic display		O	O
Multi-language display	English, German, French, Italian, Chinese, Spanish, Korean, Portuguese, Polish, Hungarian, Swedish,Russian	S	S
Data input/output			
Reader/Puncher interface CH1	RS232C	S	S
Reader/Puncher interface CH2	RS232C	S	S
Ethernet interface	Embeded Ethernet	S	S
Memory card interface		S	S
USB card interface		S	S
Others			
Display unit	10.4" Color LCD	S	S

Hwacheon Global Network

Hwacheon Headquarter Hwacheon America Hwacheon Europe Hwacheon Asia

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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