

SMEC

PL 250V/VM 300V/VM

VERTICAL TURNING CENTER



SMEC Co., Ltd.

157-10, Goldenroot-ro, Juchon-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Tel +82 55 340 4800 Fax +82 55 340 4740

<http://www.esmec.com>

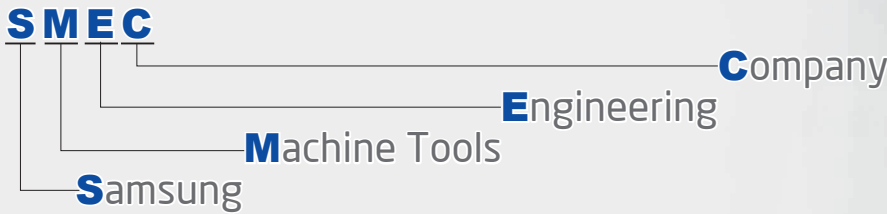


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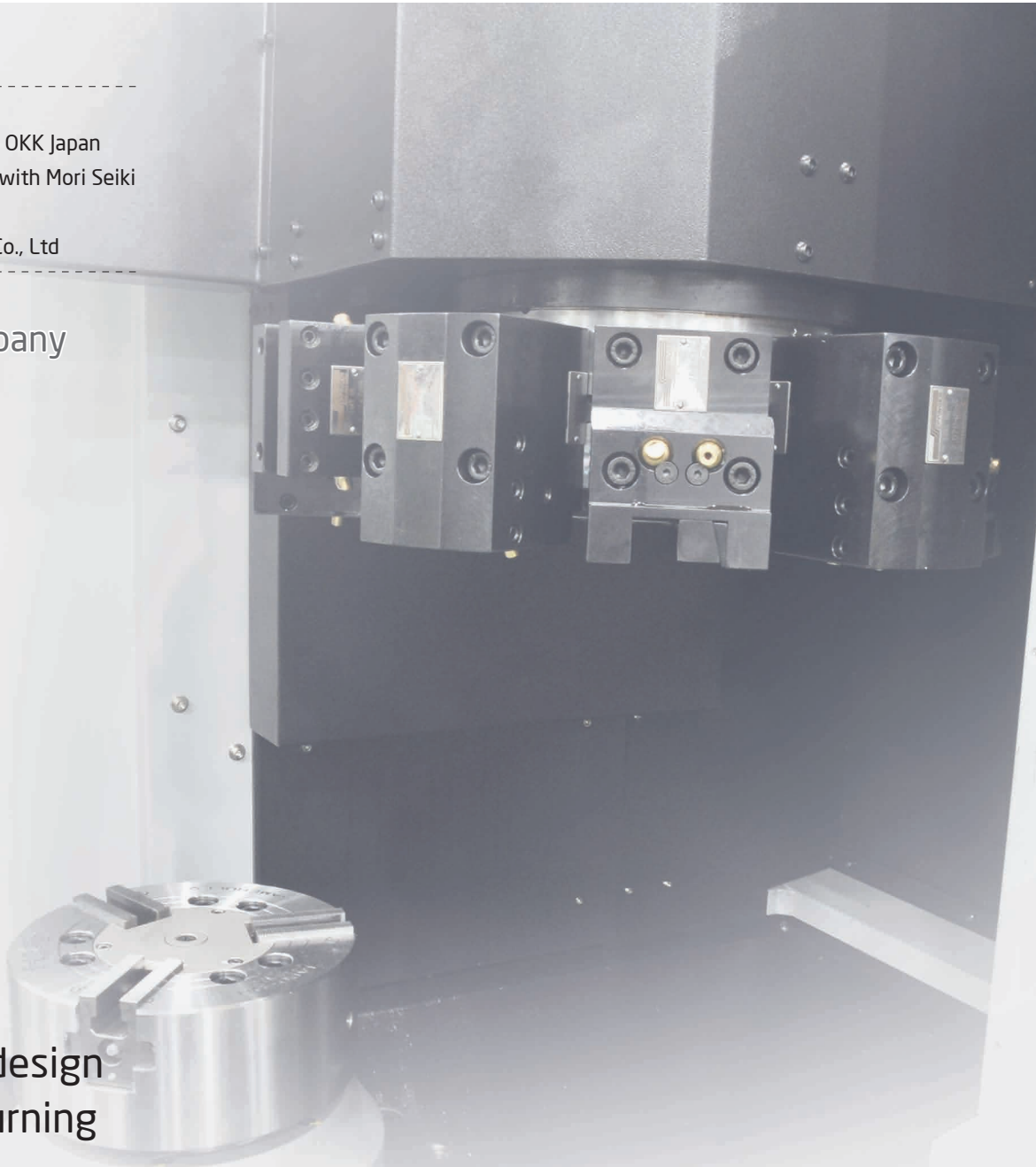
- 1988 - Started as Samsung Heavy Industries Machine Tools Business
- 1989 - Horizontal and vertical machining center technology partnership with OKK Japan
- 1991 - Turning center and vertical machining center technology partnership with Mori Seiki
- 1996 - 5-sided processing center technology partnership with Toshiba
- 1999 - Spun out from Samsung Aerospace Industries and established SMEC Co., Ltd



PL 250V
PL 250VM
PL 300V
PL 300VM

Strongest in class with superb structural design
Simultaneous heavy duty and precision turning

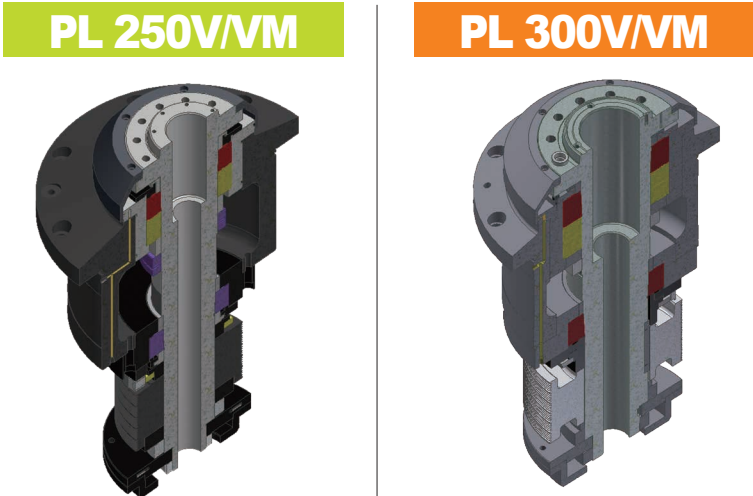
- High speed, precision and high rigidity spindle
- Stable machine structure
- Significantly reduced non-cutting time and high productivity



High Accuracy, High Rigidity Spindle

Main Spindle Structure

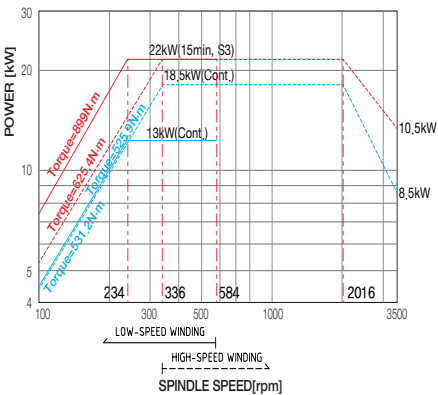
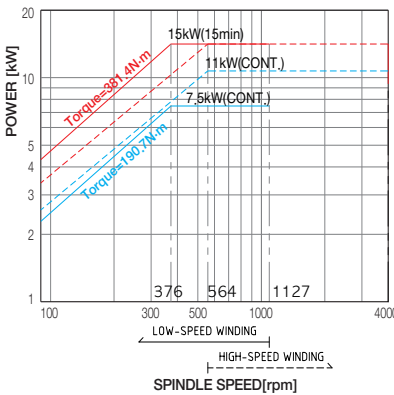
High torque main spindle motor is supported by strong Double Cylindrial Roller bearings and Angular Thrust bearings which allow heavy duty cutting and minimize acceleration/ deceleration times.



Spindle Motor(Max/cont.)
15/11 kW
Spindle Speed
4,000 rpm

Spindle Motor(Max/cont.)
22/18.5 kW
Spindle Speed
3,500 rpm

Spindle Power & Torque Diagram



An innovative high precision, heavy duty CNC Lathe, integrated with all of **SMEC's** advanced technology - **PL 250V/VM, 300V/VM**



Spindle motor(Max./Cont.)
15/11 kW (PL250V/VM)
22/18.5 kW (PL 300V/VM)

Spindle speed
4,000 mm (PL250V/VM)
3,500 mm (PL 300V/VM)

Max. machining diameter
400 mm (PL250V/VM)
355 mm (PL 300V/VM)

Max. machining length
245 rpm

Rapid traverse(X/Z)
24/24 m/min

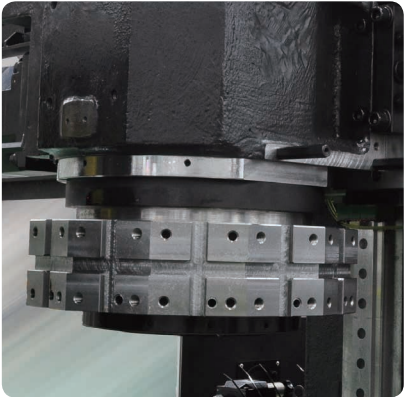
Feed motor (X/Z)
3.0/4.0 kW

Highly Reliable and Rigid Structural Design

Ensure heavy duty and precise cutting with excellent structural design



Standard Turret



Mill Turret



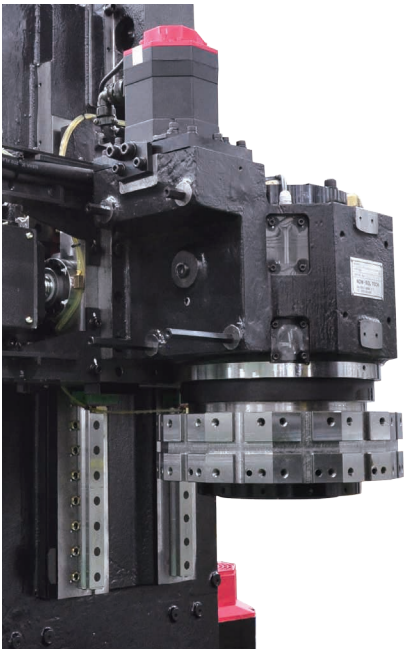
Indexing Time Number of tool positions
0.15 sec **12 stations**

High Speed, Heavy Duty Servo Turret

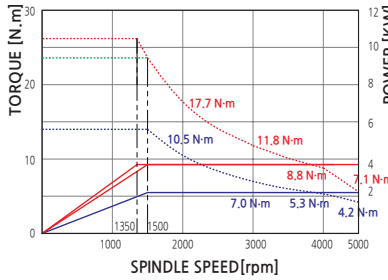
Driven by a reliable high torque servo motor, the 10-station heavy-duty turret indexes nonstop, bi-directionally with a fast 0.15 second from station to station. Large diameter precision Curvic coupling with 6,350kg-f of turret clamping force enables precision as well as heavy-duty cutting.

PL250VM is equipped with standard 12-station BMT 55 turret, capable of accepting rotary tools at any station.

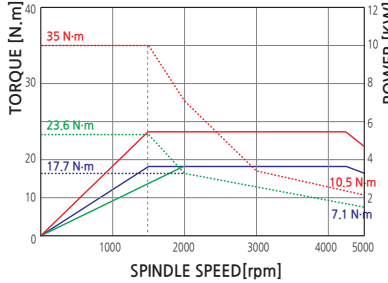
PL 300VM : 12-station BMT65

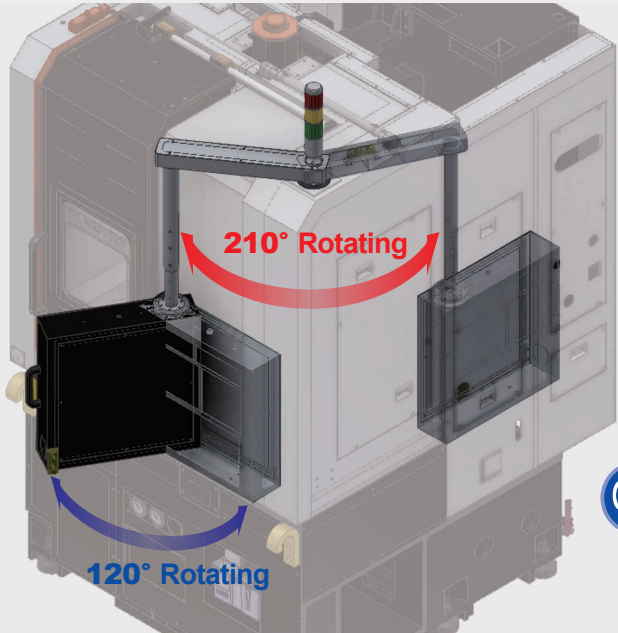


Milling Motor Torque Diagram



PL 300VM Milling Motor





Opt.

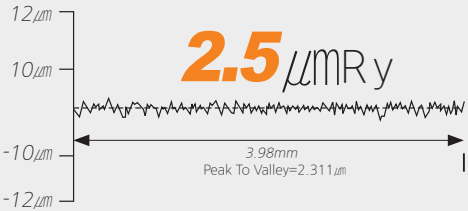
Pendant Type Operator's

Swivel operation panel of 10.4 inch color TFT LCD monitor can turn to 90 degree, providing operators with easy access to the control panel while working on the machine.

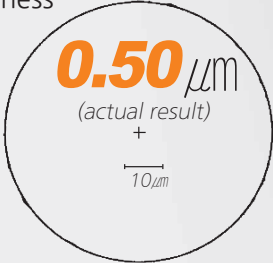
High Precision

Unit : mm

Surface Roughness



Roundness

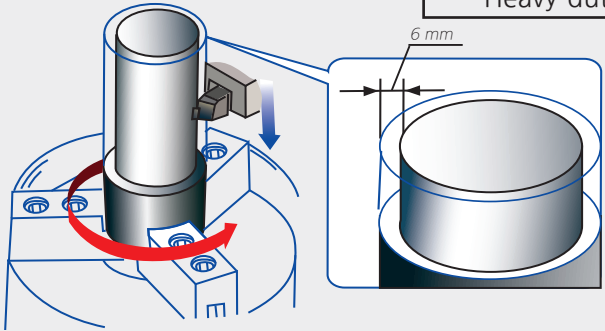


Cutting condition	
Tool	Diamond tool <nose radius 0.020 inch>
Material	AL150<Aluminum>
Cutting speed	230 m/min
Feedrate	0.05 mm/rev
Depth of cut	0.1 mm
Outer diameter	200 mm
Filter	1-50

Cutting speed

Turning Performance (material:SM45C)

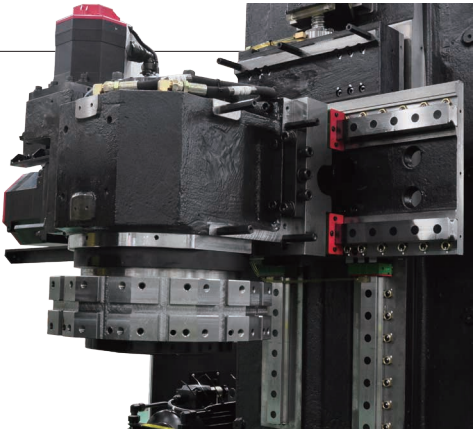
Heavy-duty cutting (O.D) <20mm×20mm qualified tool>



Spindle speed
868 rpm
Cutting speed
120 m/min (383 fpm)
Depth of cut
6 mm <Spindle Load 50%>
Feedrate
0.3 mm/rev (0.08 ipr)

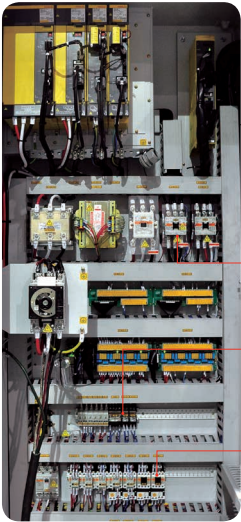
Roller Guide System

PL250V/VM has Roller Guide to ensure longer life time, fast and precise cutting.



Fuse Box Made with Highly Reliable Components

- Magnet switch, circuit breaker, Key S/W(Fuji)
- Relay(Widemuller, Omron)



Reliable Lubrication Dispenser

Lubrication pump adopted LUBE which is one of the most reliable brand and offers exact amount of oil on each face.

- Capacity : **3 Liter**
- Pressure : **1.5 Mpa**



Optimal automation line

Perfect installation in narrow space.
Optimal solution for automation line such as automotive, electrical devices. Also for multi axis robot and gantry robot.

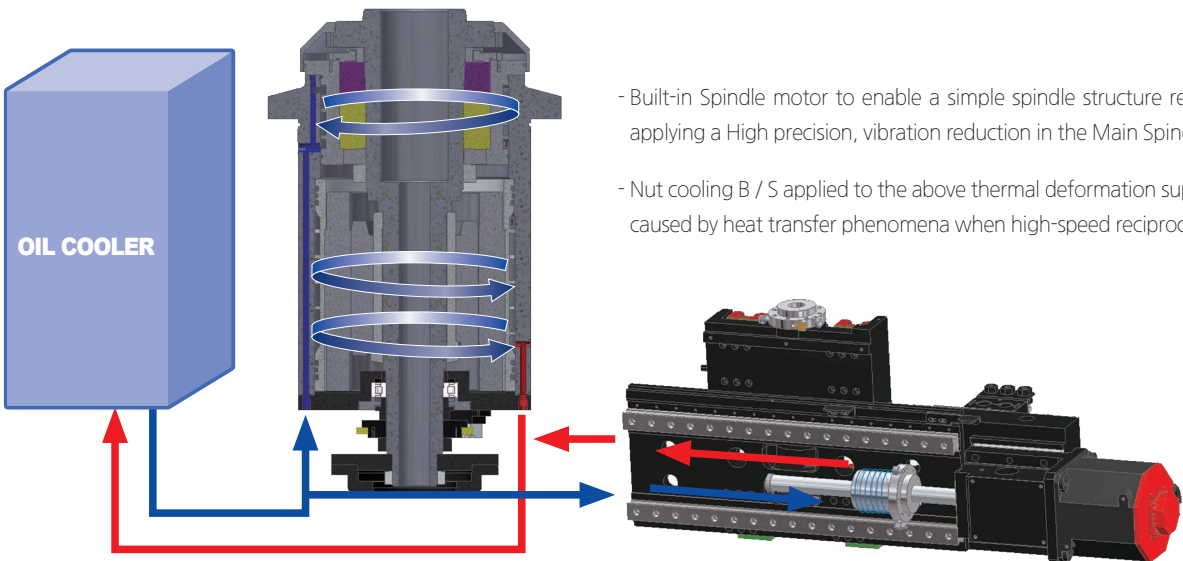


High power air cylinder(Side/Front door)

Optimized for auto parts automated production line configuration.Excellent utilization of vertical multi-articulated robots, SCARA robots. GANTRY ROBOT must also be applied

Special Option (Cooling System)

- Spindle : Built-in TYPE SPINDLE (15/11 kw)
- Axis : NUT COOLING BALLSCREW SYSTEM.

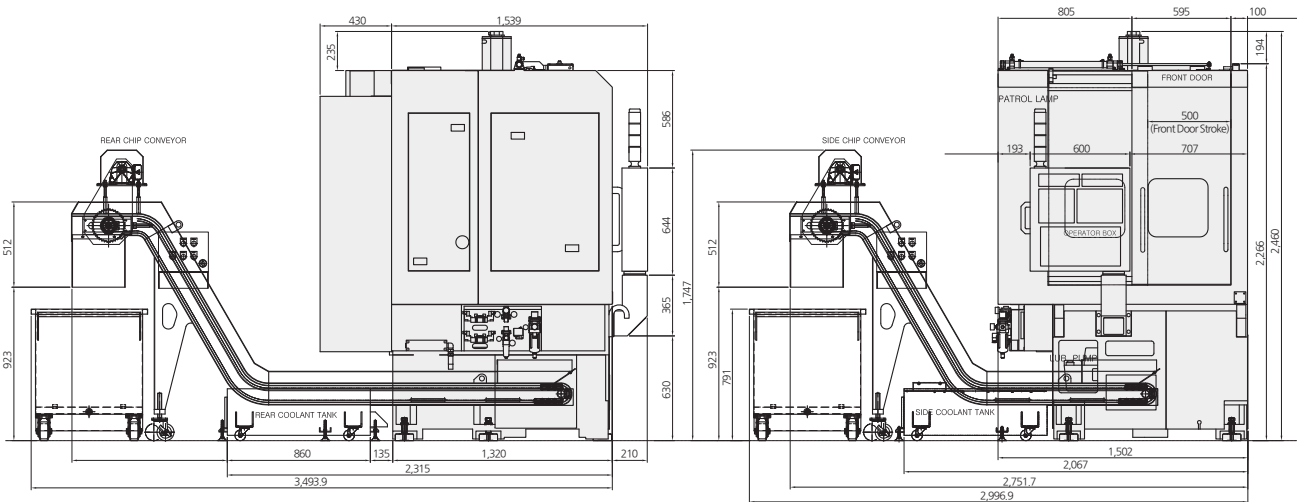


- Built-in Spindle motor to enable a simple spindle structure realized by applying a High precision, vibration reduction in the Main Spindle.
- Nut cooling B / S applied to the above thermal deformation suppression caused by heat transfer phenomena when high-speed reciprocating.

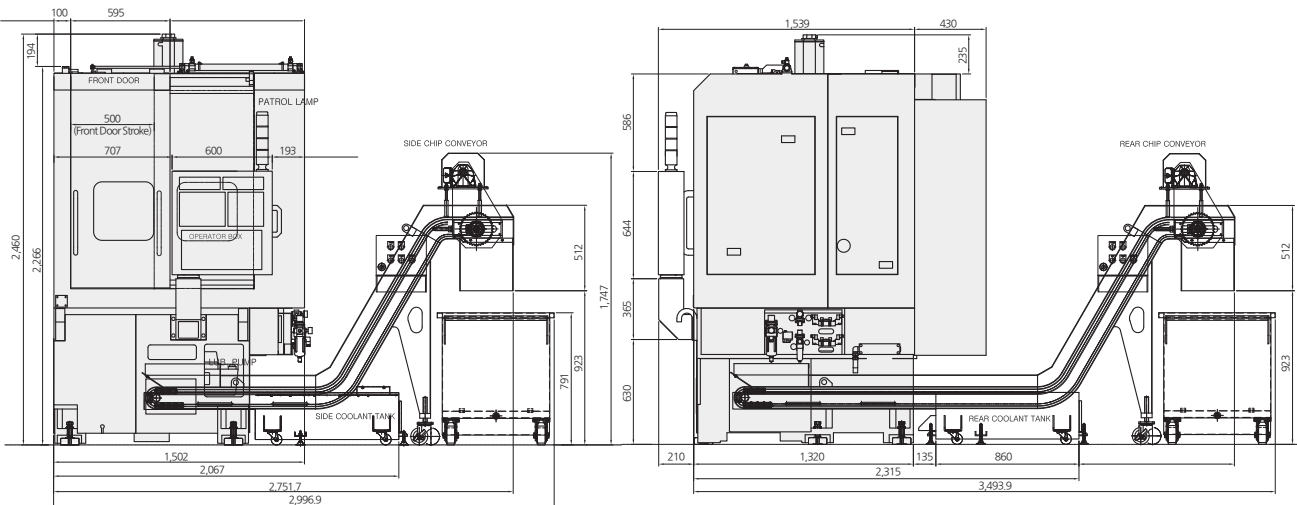
Machine Dimensions

Unit : mm

PL 250V/VM, 300V/VM (RH)



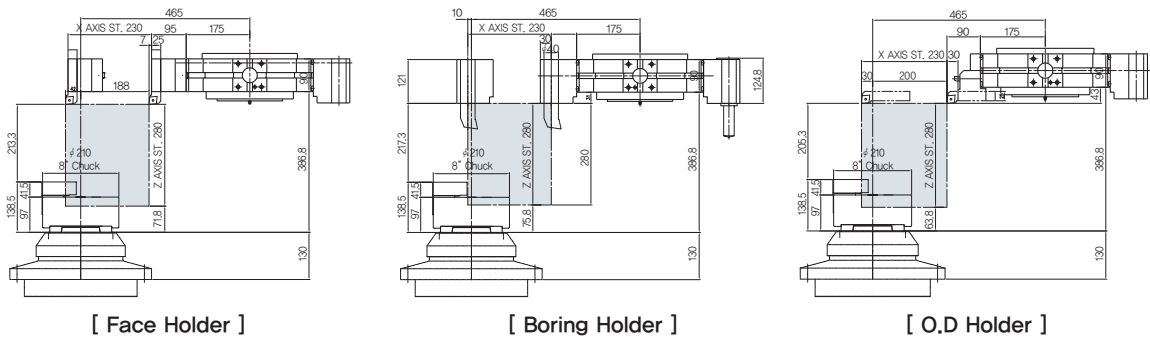
PL 250V/VM, 300V/VM (LH)



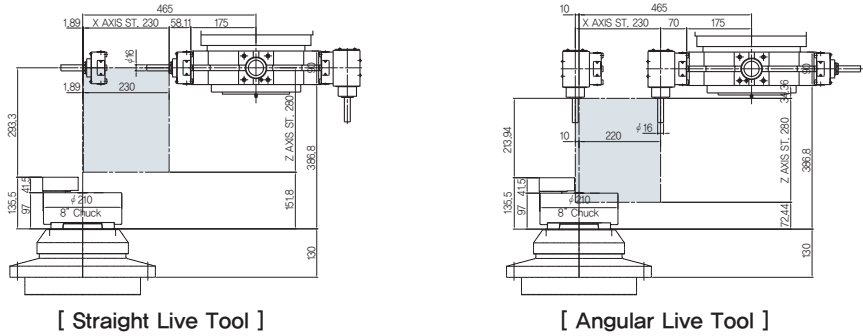
Work Range

Unit : mm

PL 250V



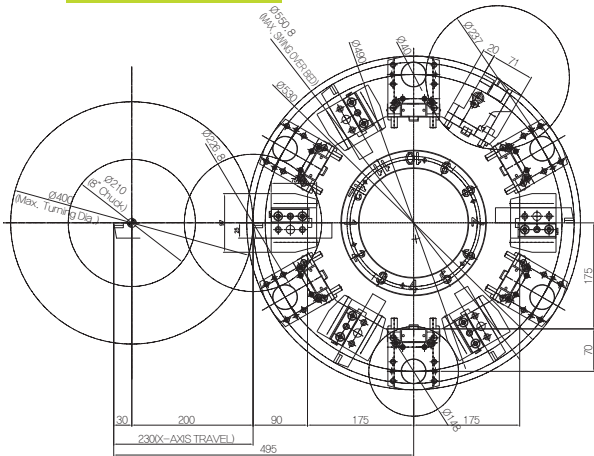
PL 250VM



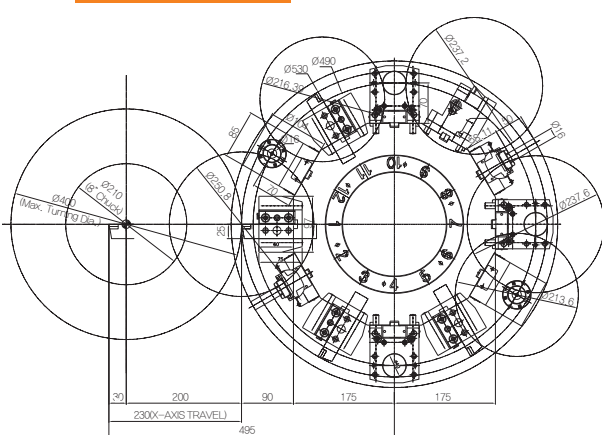
Turret Head Interference

Unit : mm

PL 250V



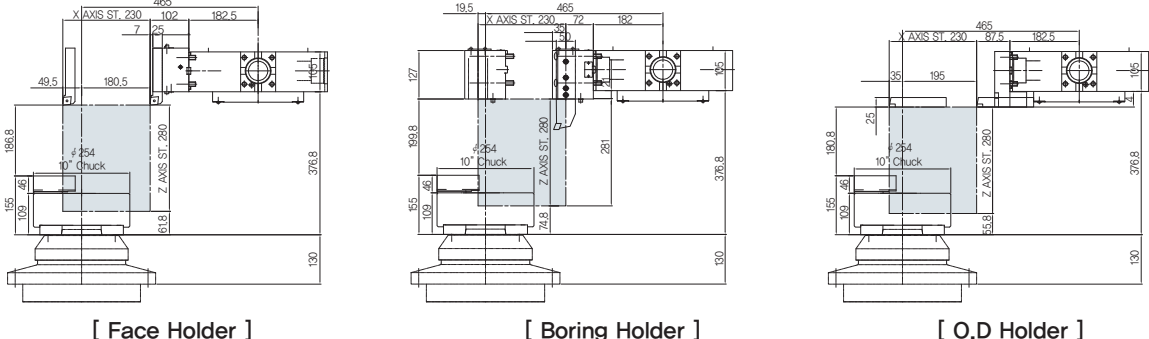
PL 250VM



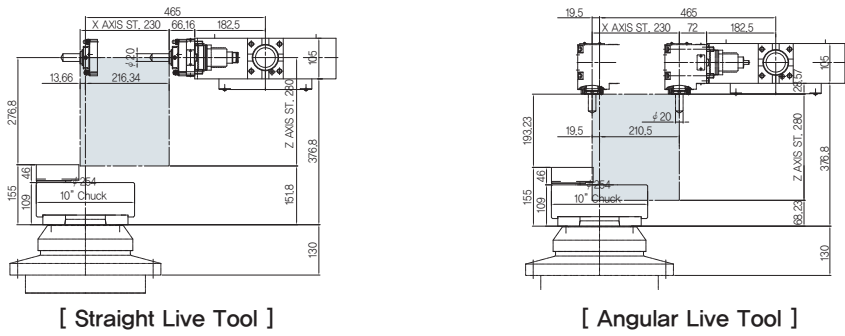
Work Range

Unit : mm

PL 300V



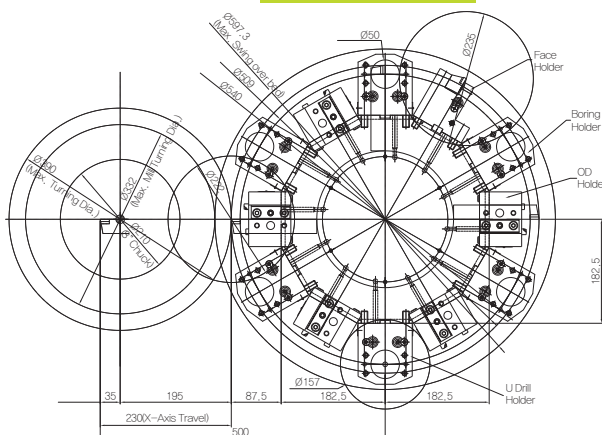
PL 300VM



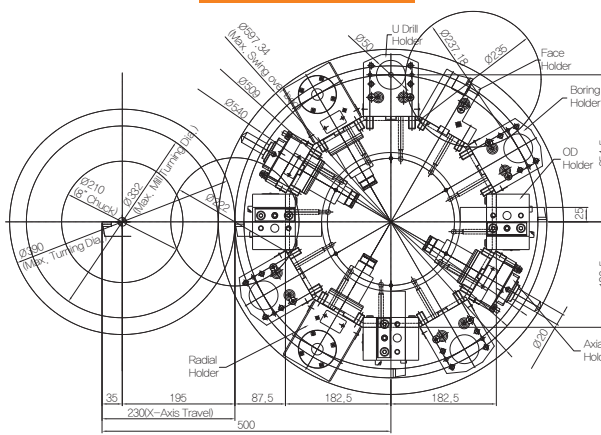
Turret Head Interference

Unit : mm

PL 300V

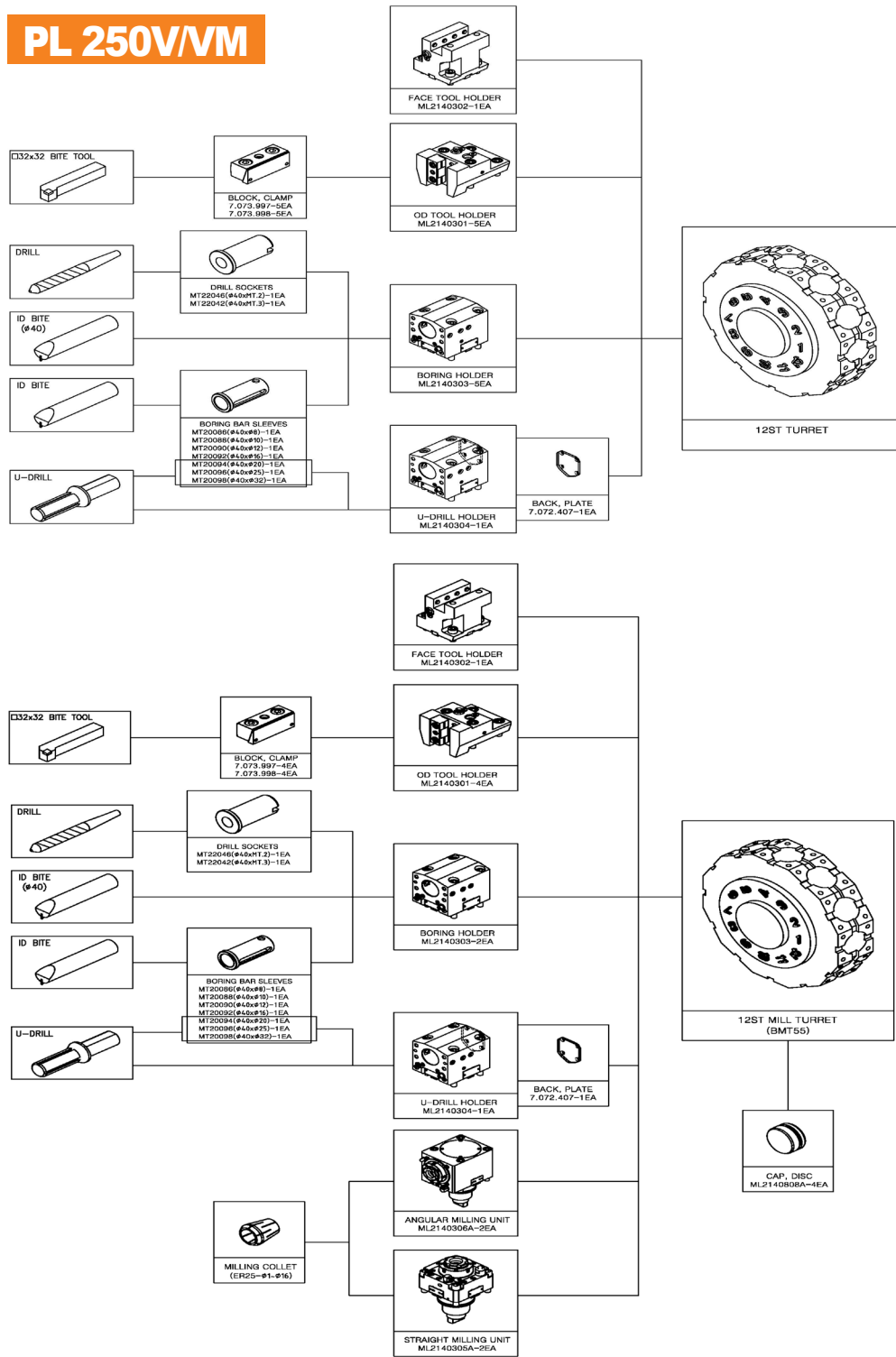


PL 300VM



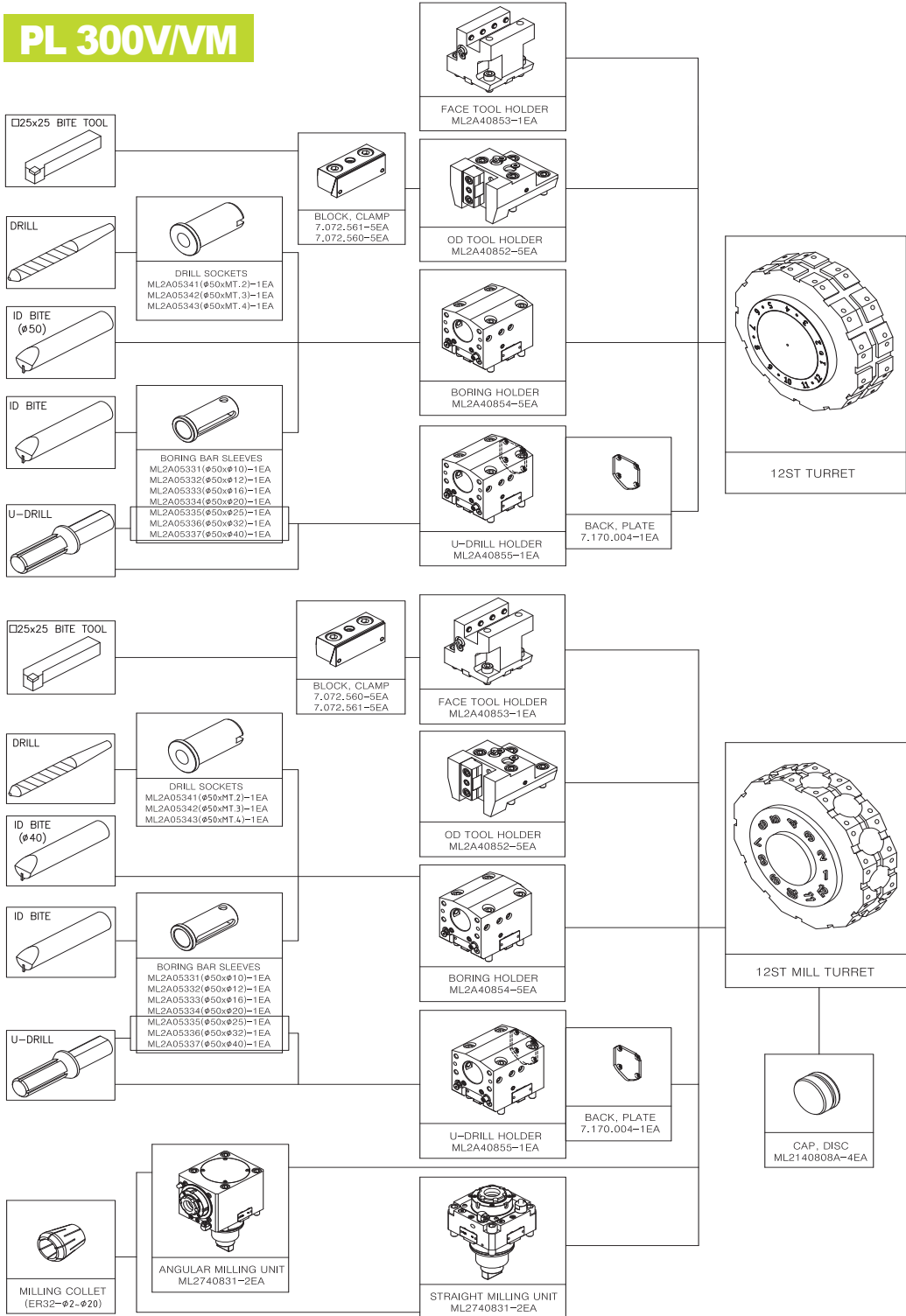
Tooling System

Unit : mm



Tooling System

Unit : mm



Major Specifications

DESCRIPTION			PL 250V	PL 250VM	PL 300V	PL 300VM
CAPACITY	Swing over bed	mm	Ø550		Ø550	
	Swing over saddle	mm	Ø400		Ø400	
	Max. Turning diameter	mm	Ø210		Ø254	
	Max. Turning length	mm	Ø400		Ø400	
	Chuck size	mm	245		245	
MAIN SPINDLE	Spindle speed	mm	230		230	
	Spindle nose	mm	280		280	
	Spindle bearing diameter (Front)	m/min	24/24		24/24	
	Spindle drive	-	Linear Guide(Roller)		Linear Guide(Roller)	
TRAVEL	Cs spindle index angle	rpm	4,000 (3,500)		3,500	
	X-axis travel	ASA	A2-6		A2-8	
	Z-axis travel	mm	Ø42		Ø60	
	Rapid traverse rate (X/Z)	mm	Ø100		Ø130	
	Guide way type (X/Z)	deg	-	0.001	-	0.001
	Max. number of tool	-	BELT Drive		BELT Drive	
	OD tool shank size	N.m	381		899	
TOOL POST	Boring bar diameter	ea	12	12 [BMT55]	12	12 [BMT65]
	Turret clamping force	mm	□ 25X25		□ 25X25	
	Rotary tool size	mm	Ø40		Ø50	
	Rotary tool spindle speed	sec	0.15		0.15	
	Indexing time	rpm	-	6,000	-	5,000
MOTOR	Main spindle motor (Cont./Max.)	kW	15/11		22/18.5	
	Servo motor (X/Z)	kW	3/4		3/4	
	Rotary tool spindle motor(Cont./Max.)	kW	-	3.7/2.2	-	5.5/3.7
	Toolpost rotation motor	kW	1.2		1.2	
Electric power supply		kVA	29	33	29	33
Machine dimension (L×W×H)		mm	1,502×1,969×2,460		1,502×1,969×2,460	
Machine weight		kg	5,000	5,100	5,400	5,500
CONTROLLER			Fanuc Oi-TD		Fanuc Oi-TD	

※Design and specifications subject to change without notice.

(): Option

Standard Accessories

- Door interlock

- Foot switch

- Leveling bolt & Plate

- Spindle air curtain

- Tooling system

- 3 color patrol lamp

- 10.4" LCD monitor

- Coolant pump

- 12 std. turret
- Auto lubrication pump

- Tool & work box

- S/G & side coolant tank

- Hyd. Solid chuck (8")

- Soft jaw (1 set)

- Manual & Parts list

- Safety precaution name plate

Optional Accessories

- Air blower

- Air gun

- Chip conveyor & bucket (side/rear)

- Coolant gun

- Coolant blower

- Tool & Work counter

- Tool life management

- Transformer

- NC box airconditioner
- High pressure coolant pump
(5, 7.5, 10, 15, 20bar)

- Linear scale (X,Z)

- Oil skimmer

- Coolant chiller

- Coolant level switch

- Nut cooling ballscrew(X,Z)

- A2-6, A2-8 Built-in motor

- Tool presetter (removable)

NC Specifications / FANUC Series

Item		Specification	Oi-TD
Controlled axis	Max. feed axes		4 AXIS
	Feed axes		X/Z/(Cs)
	Max. simultaneously controlled axis		4
	Least command increment	0.001mm / 0.0001"	○
Operation functions	Pulse handle feed	X1, X10, X100	○
	Feedrate per minute	G98	○
	Feedrate per revolution	G99	○
Interpolation functions	Linear interpolation	G01	○
	Circular interpolation	G02, G03	○
	Dwell	G04	○
	Polar cordinate interpolation	G12.1, G13.1	○
	Cylindrical interpolation	G70.1	○
	Variable lead thread cutting	G34	○
	Continuous threading		○
	Reference position return	G28	○
Feed function	Reference position return check	G27	○
	Rapid traverse rate override	F0, 25%, 50%, 100%	○
Spindle function	Feedrate override		0~150%
	Spindle orientation		○
Tool functions	Rigid tapping		○
	Tool number command	T4-Digt / T2-Digt	○
	Tool nose radius compensation	G40 ~ G42	○
	Tool offset pairs		○
	Tool geometry/wear offset	GEOMETRY & WEAR DATA	○
	Tool life management		○
	Tool path graphic display		○
	Automatic tool offset	G36, G37	○
Program input	Direct input of tool offset value measured B		○
	Absolute/Incremental programming		○
	Multiple repetitive cycle	G70 ~ G76	○
	Canned cycles	G90, G92, G94	○
	Inch/metric conversion	G20 / G21	○
	Program restart		○
	Retraction for rigid tapping		○
	Max. programmable dimension	±99999.999mm/±9999.9999"	○
	M function	M3 digit	○
	Custom macro		○
	Canned cycle for drilling		○
	Direct drawing dimension programming		○
	Programmable data input	G10	○
	Optional block skip		○
	Workpiece coordinate system	G52 ~ G59	○
	Number of registerable programs		400EA
Setting and display	Alarm & Operator history display	ALARM & OPERATION DISPLAY	○
	Run hour and parts count display	RUNNING TIME & PART NO. DISPLAY	○
	Display spindle & servo overload	SPINDLE & SERVO LOAD DISPLAY	○
	Self-diagnosis function		○
	Extended part program editing	COPY,MOVE, CHANGE OF NC PROGRAM	○
Data input/output	Display screen		10.4" color
	Memory card input/output		○
Editing operation	USB memory input/output		○
	Part program storage size	512Kbyte(1280m)	○
Manual guide i	Manual Guide i		○