

■ NC Unit Specifications / FANUC Series

Item		Specification	0i-Mate TD	0i-TD
Controlled axis	Max. feed axes		3 AXIS	4 AXIS
	Feed axes		X/Z/(Cs)	X/Z/(Cs)
	Max. simultaneously controlled axis		3	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 coordinate interpolation	G12.1, G13.1	○	○
	Cylindrical interpolation	G70.1	○	○
	Variable lead thread cutting	G34	○	○
	Continuous threading		○	○
	Reference position return	G28	○	○
	Reference position return check	G27	○	○
Feed function	Rapid traverse rate override	F0, 25%, 50%, 100%	○	○
	Feedrate override		0~150%	0~150%
Spindle function	Spindle orientation		○	○
	Rigid tapping		○	○
Tool functions	Tool number command	T4-Digt / T2-Digt	T4-Digt	T4-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	○	○
	Direct input of tool offset value measured B		○	○
Program input	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/±9999.999"	○	○
	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	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	○	○
	Display screen		8.4" color	8.4" color
Data input/output	Memory card input/output		○	○
	USB memory input/output		○	○
Editing operation	Part program storage size	512Kbyte(1280m)	○	○
Manual guide i	Manual Guide i		×	○

SAMSUNG Machine Tools

PL15/20/240/240LM CNC TURNING CENTER



SMEC

SAMSUNG MACHINE TOOLS

SMEC Co., Ltd.

666, Gasul-ri, Daesan-myeon, Changwon-si Gyeongsangnam-do, Korea 641-921

Tel +82 55 250 4800 Fax +82 55 253 5355

<http://www.esmec.com>



www.esmec.com



SAMSUNG MACHINE TOOLS

SAMSUNG'S Advanced Engineering and Machine Design

- Cast iron structure for superior dampening characteristics and thermal displacement
- Rigid 45 degree slant bed design for heavy-duty machining
- Torque tube design to minimize bending and twisting
- Integrated box ways for long-term rigidity and heavy-duty machining



PL 15/20/240/240LM a compact, ultra precision Turning Center, combined with Samsung's advanced technological features.

Spindle Speed

6,000 rpm (PL 15)

4,000 rpm (PL 20/240LM)

Spindle Motor (Oi-Mate)

11/15 kW (PL 15)

15/18.5 kW (PL 20/240)

Spindle Motor (Oi-TD)

11/15 kW (PL 20/240LM)

15/18.5 kW (PL 240)

Rapid travel(X/Z)

24/20 m/min (PL 15)

24/24 m/min (PL 20/240LM)

Feed motor(X/Z)

1.8/2.5 kW (PL 15)

1.6/3.0 kW (PL 20)

3.0/3.0 kW (PL 240LM)

Max. Turning Length

300 mm (PL 15/20)

520 mm (PL 15L/20L)

540 mm (PL 240/240LM)

Max. Turning Diameter

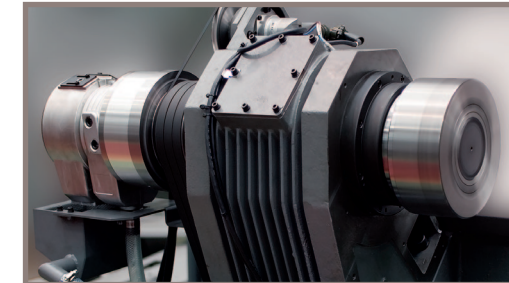
300 mm (PL 15/20)

350 mm (PL 240LM)

■ Highly Reliable and Rigid Structural Design

- One piece Meehanite casting with heavily ribbed torque tube design
- Rigid bed supports for powerful cutting
- Excellent vibration dampening and thermal displacement design

High Accuracy, High Rigidity Spindle

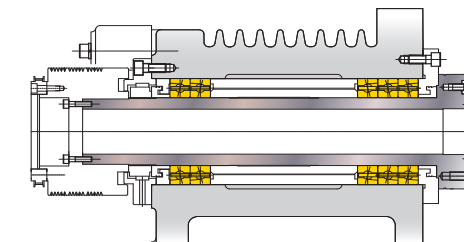


■ Pin Tube Rib Design for Minimal Axis Heat Transfer

Radiator fan-like pin tube rib design dissipates heat, maintaining minimal thermal expansion.

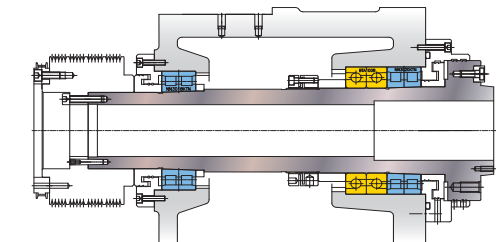
■ **SPINDLE & HEADSTOCK** The Spindle and Headstock are machined and ground in a temperature controlled environment and assembled in a clean room.

PL 15



3 sets of precision angular contact ball bearings are located in the front of the spindle, and 2 set of angular contact bearings are located in the rear to ensure high speed cutting capabilities with precision.

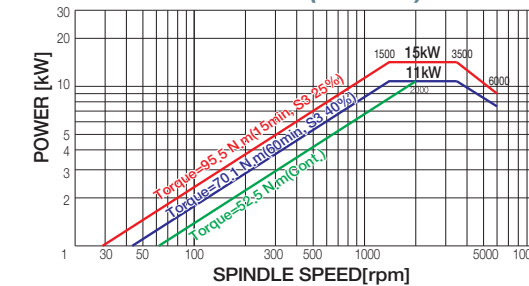
PL 20/240



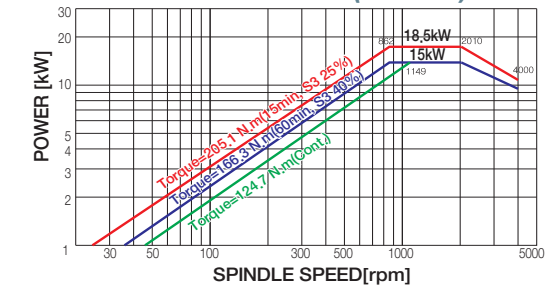
Precision double row cylindrical roller bearings and angular contact ball bearings are located in the front of the spindle, and a double row of cylindrical roller bearings is located in the rear to ensure heavy cutting capabilities with precision.

■ Spindle Power & Torque Diagram

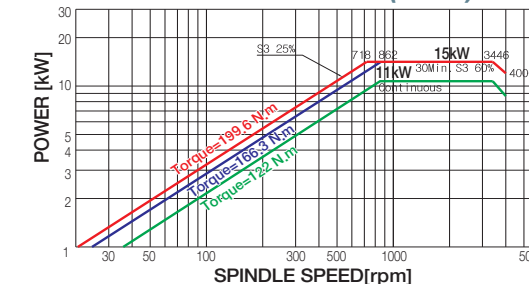
PL 15 (Oi-Mate)



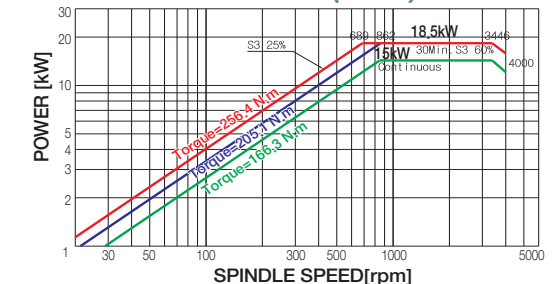
PL 20/240 (Oi-Mate)



PL 20/240LM (Oi-TD)

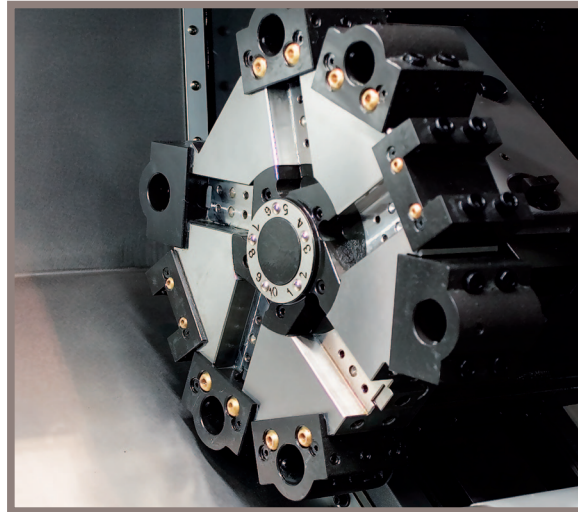


PL 240 (Oi-TD)

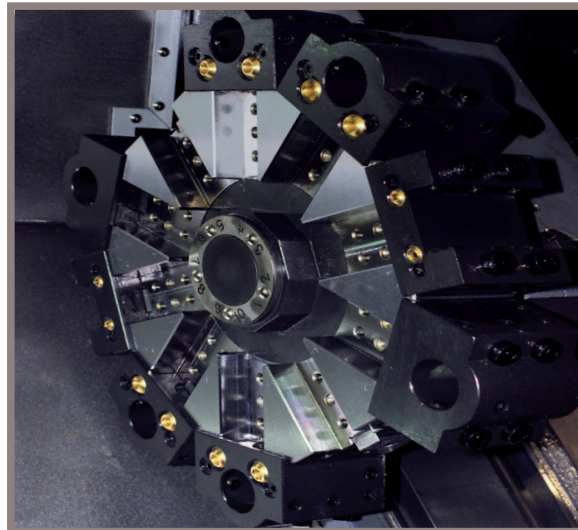


Machine Structure

PL 15/20 (High Speed Hyd. index Turret)



PL 240 (High Speed Hyd. index Turret)

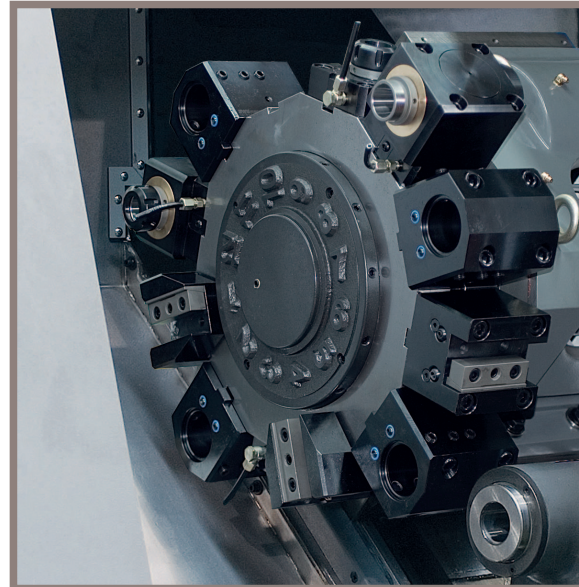


Indexing time
0.25 sec. Number of tool positions
10 stations

High Speed, Heavy Duty Hyd. Index Turret

Driven by a high torque hydraulic index motor, the 10-station heavy-duty turret can accept tools on both left and right side of each station. Turret indexing (repeatability ± 0.0005) is non-stop, bi-directional with a fast 0.25 second next station index time. A large diameter ($\phi 180$) Curvic coupling with 2,300kgf clamping force enables precision as well as heavy-duty cutting.

PL 240LM (High Speed Servo Turret)

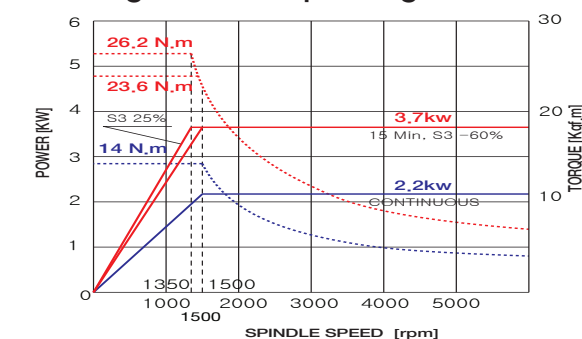


Indexing time
0.2 sec. Number of tool positions
12 stations

BMT Milling Turret (M Type)

PL 240LM is equipped with standard 12-station BMT turret capable of accepting rotary tools at any station, providing flexible machining thru various machining operations in just one set-up. Each BMT holder is securely tightened by 4 screws, allowing the turret to perform heavy-duty cutting, milling and drilling operations. Turret indexing is non-stop, bi-directional with a fast 0.2 second next station index time.

Milling Motor Torque Diagram

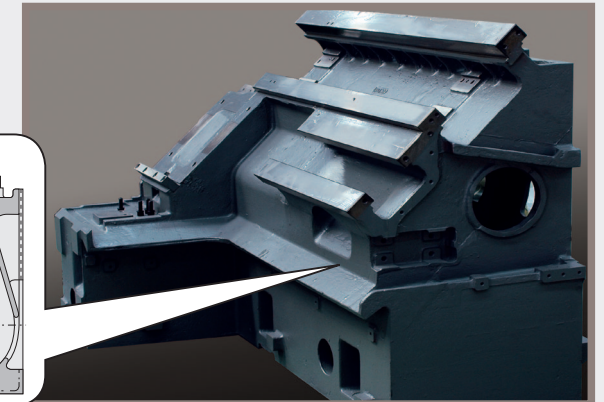
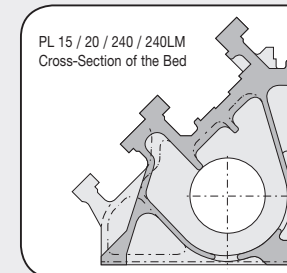


Machine Structure

Rigid 45 degree Slant Bed

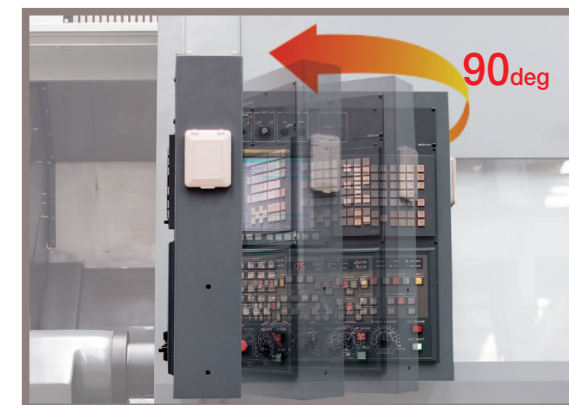
45 degree slant torque tube design bed and wide guide slide way ensure long term rigidity and machining accuracy.

Featuring superior workability and chip-discharging capability, the bed is designed in a single tube structure boasting strong durability even in heavy-duty cutting.

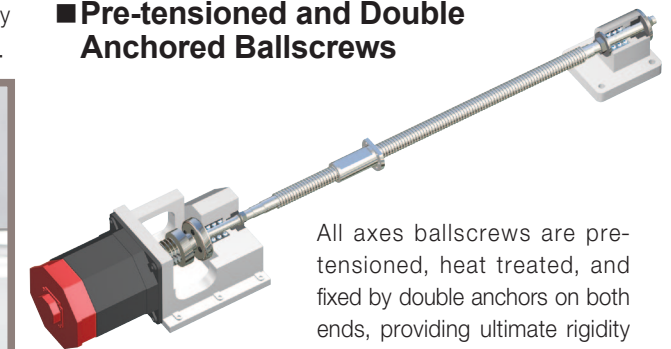


Swivel Operation Panel

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.



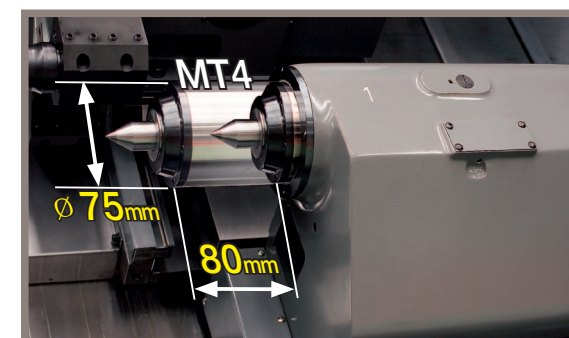
Pre-tensioned and Double Anchored Ballscrews



All axes ballscrews are pre-tensioned, heat treated, and fixed by double anchors on both ends, providing ultimate rigidity and minimal thermal growth.

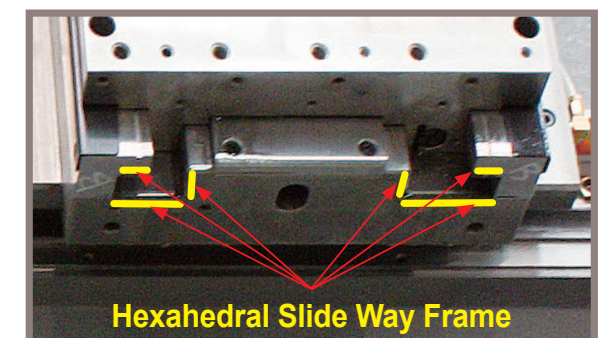
Programmable Tailstock [Opt.] (carriage direct-coupled)

The programmable tailstock body is mounted on wide guide ways to ensure rigid work piece support.



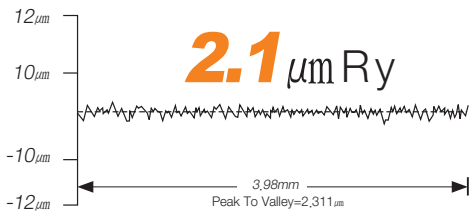
Hexahedral Slide Way Frame

Wide integral way is machined from the casting, induction hardened and precision ground to ensure long-term rigidity, machining accuracy and heavy-duty machining.



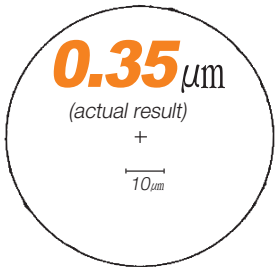
High Precision

Surface Roughness



•Model : PL 20(Material : SM 45C, O.D Cutting)

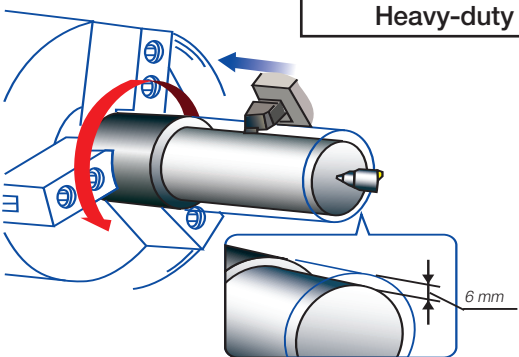
Roundness



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

Processing Speed

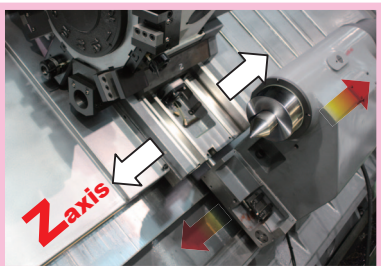
Turning Performance (material:SM45C) PL 20



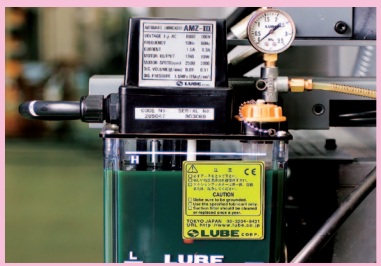
Heavy-duty cutting (O.D) <1 inch × 1 inch qualified tool>

Spindle speed
868 rpm
Cutting speed
120 m/min (393 fpm)
Depth of cut
6 mm <Spindle Load 50%>
Feedrate
0.3 mm/rev (0.08 ipr)

Standard Accessories

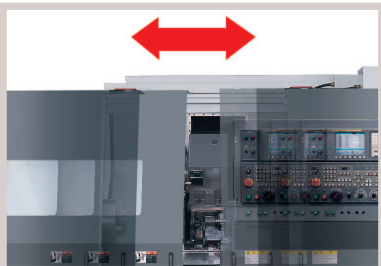


Programmable Tailstock (Opt.[PL 240LM Std.])

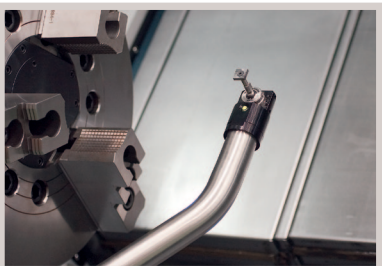


Automatic Lubricator

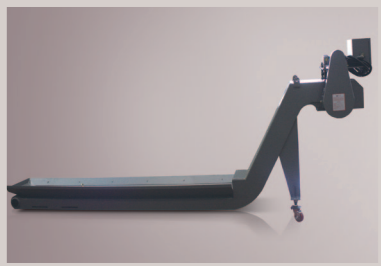
Optional Accessories



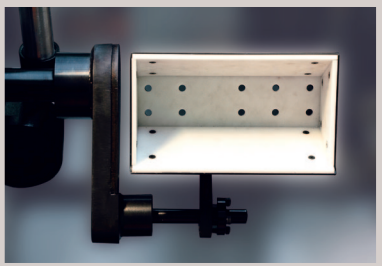
Auto Door



Tool Presetter

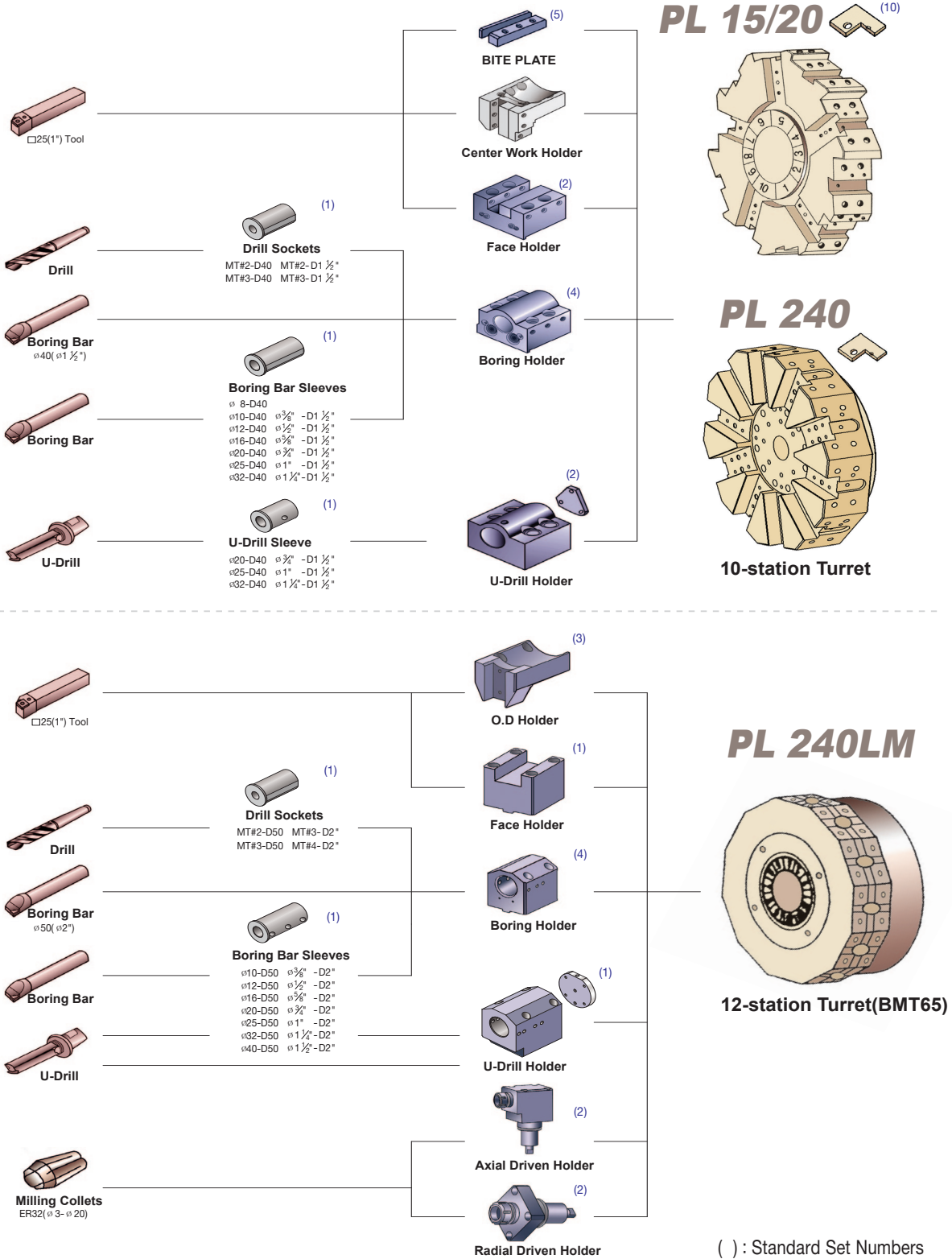


Chip Conveyor



Parts Catcher

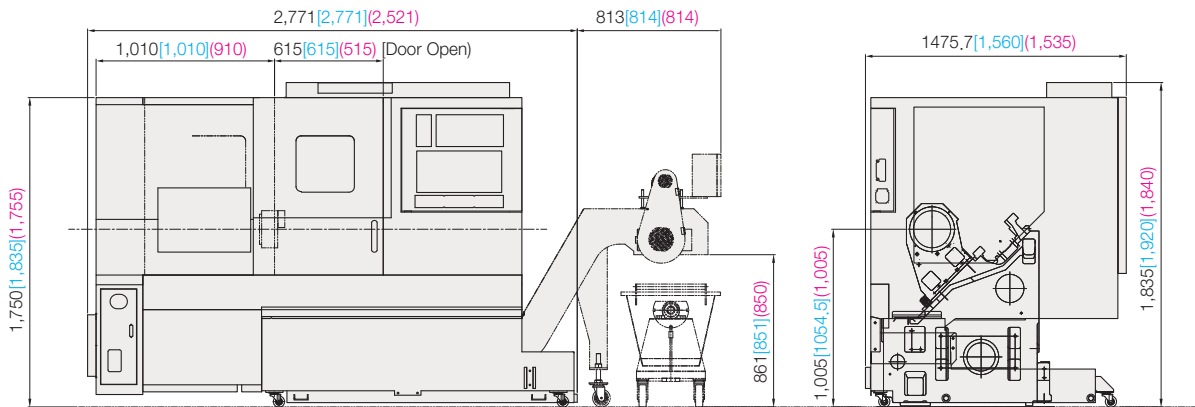
Tooling System



Machine Dimensions

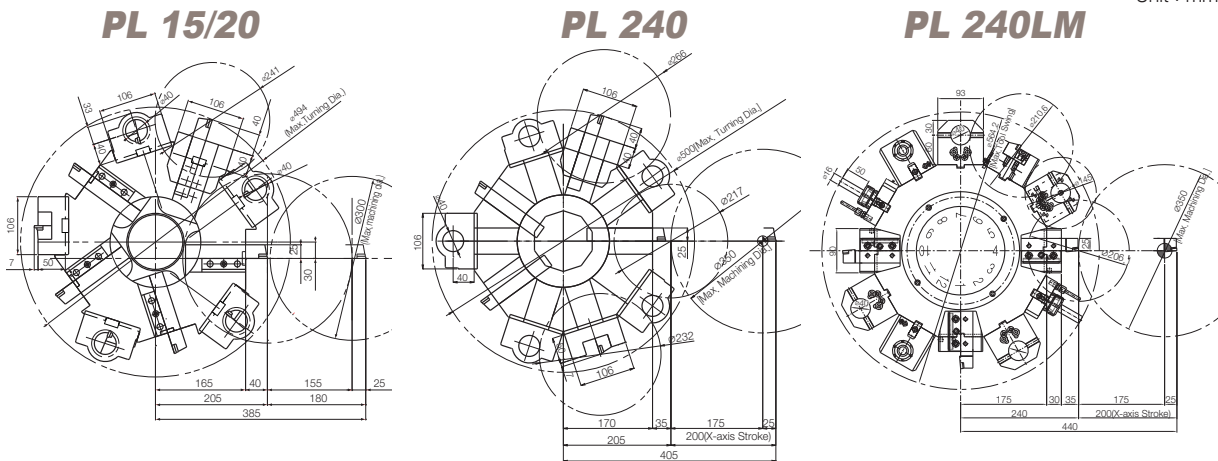
PL 15L/20L/240LM/15/20

Unit : mm



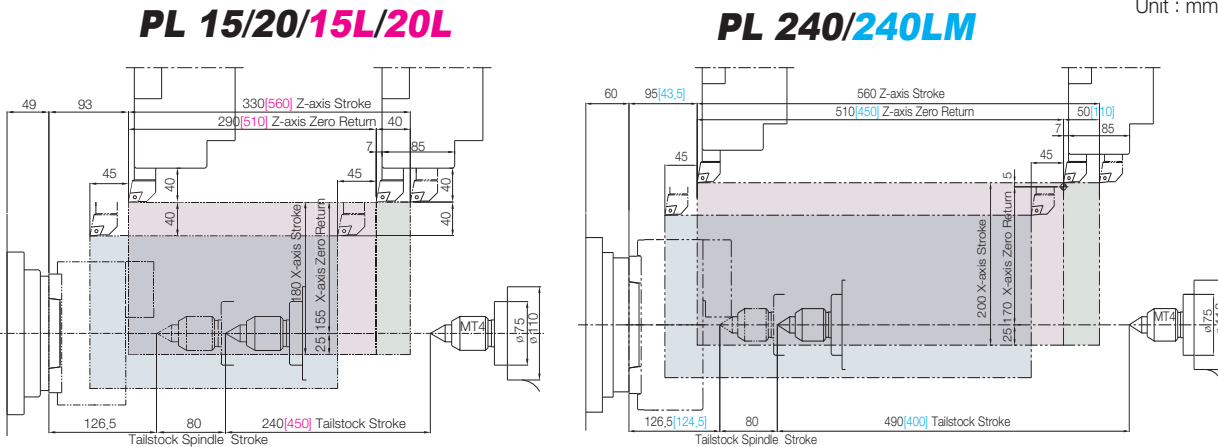
Turret Head Interference

Unit : mm



Work Range

Unit : mm



Major Specifications

DESCRIPTION		PL 15	PL 15L	PL 20	PL 20L	PL 240	PL 240LM
CAPACITY	Swing over the bed	mm				mm	
	Swing over the cross slide	mm				mm	
	Max. machining diameter	mm				mm	
	Max. machining length	300	520	300	520	540	
MAIN SPINDLE	Chuck size	inch		inch		inch	
	Spindle Speed [Big bore]	rpm		rpm		rpm	
	Spindle nose	ASA		ASA		ASA	
	Bore diameter [Big bore]	mm		mm		76	mm
	Draw tube I.D. [Big bore]	mm		mm		66	mm
	Motor (30min/cont.)	kW		kW		kW	
		kW		kW		kW	
TRAVEL	X/Z axis travel	180 / 330	180 / 560	180 / 330	180 / 560	200 / 560	
	X/Z rapid traverse rate	m/min		m/min		m/min	
	X/Z feed motor	kW		kW		1.6 / 3.0	3.0 / 3.0
TURRET	Number of tool positions	st.		st.		10	12
	Indexing time	sec		sec		0.25	0.15
	Shank size for square tool	mm		mm		mm	
	Shank diameter for boring bar	mm		mm		mm	
TAILSTOCK	Tailstock travel	240	450	240	450	490	400
	Tailstock quill travel	mm		mm		mm	
	Tailstock spindle taper	MT		MT		MT	
	Tailstock quill diameter	mm		mm		mm	
ELECTRIC POWER SUPPLY		kVA/V	26 / 220	26 / 220	32 / 220	32 / 220	32 / 220
REQUIRED FLOOR SPACE (L×W)		mm	2170×1475	2530×1475	2771×1835		2753×1560
MACHINE WEIGHT		kg	3,500	3,700	3,700	3,900	4,000
CONTROLLER			Fanuc Oi-Mate TD, Oi-TD				

• Figures in inches are converted from metric measurements.
• Design and specifications are subject to change without notice.

Standard Accessories

- COOLANT SYSTEM
- BUILT-IN WORK LIGHT
- SPLASH GUARD
- HAND TOOLS
- TOOL HOLDER
- 3JAW HYDRAULIC CHUCK
- SOFT JAWS 3 SETS
- LEVELING BLOCK
- PROGRAMMABLE TAILSTOCK (Only PL 240LM))

Optional Accessories

- HARD JAWS 1 SET
- CHIP CONVEYOR
- PARTS CATCHER
- AUTO DOOR
- AIR BLOW UNIT
- AUTO MEASURING SYSTEM
- PROGRAMMABLE TAILSTOCK
- TOOL PRESETTER