

# SMEC

## SL 5500 series

HORIZONTAL TURNING CENTER



**SMEC**  
SMEC America Corp.

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◆ Design and specifications subject to change without notice.

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**SMEC**  
SMEC America Corp.

Samsung  
Machine Tools  
Engineering  
Company  
**SMEC**

## Company History

- **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**
- **2018** - **SMEC America Corp** established to provide factory support to the distributor network and customers

## SL 5500/5500M

**A Type : Chuck Size 21"**  
**B Type : Chuck Size 24"**  
**C Type : Chuck Size 32"**

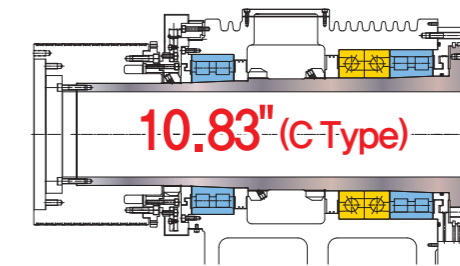
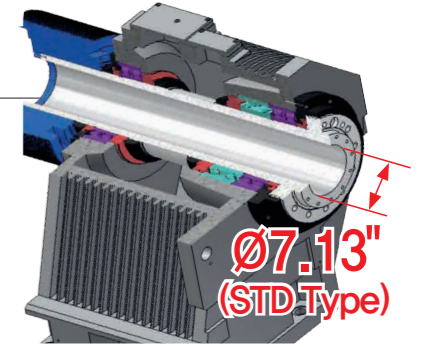
Strongest in class with superb structural design  
Simultaneous heavy duty and precision turning

- 45 degree torque tube type bed to support heavy duty turning
- Significantly reduced non-cutting time and efficient turning
- Low-center of gravity reducing vibration, thermal deformation and improving rigidity

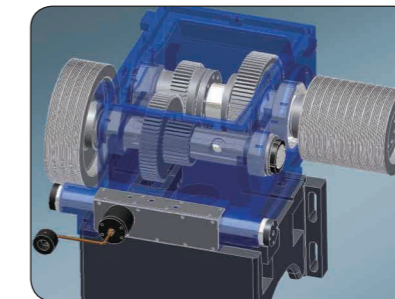
## High Accuracy, High Rigidity Spindle

### Pin Tube Rib Design for Minimal Axis Heat Transfer

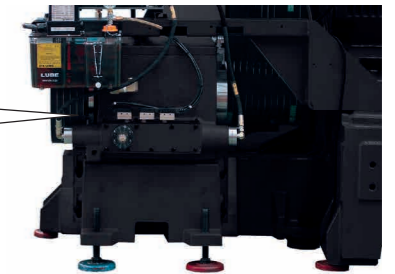
Radiator fan-like pin tube rib design dissipates heat generated by axis movements, maintaining minimal thermal expansion.



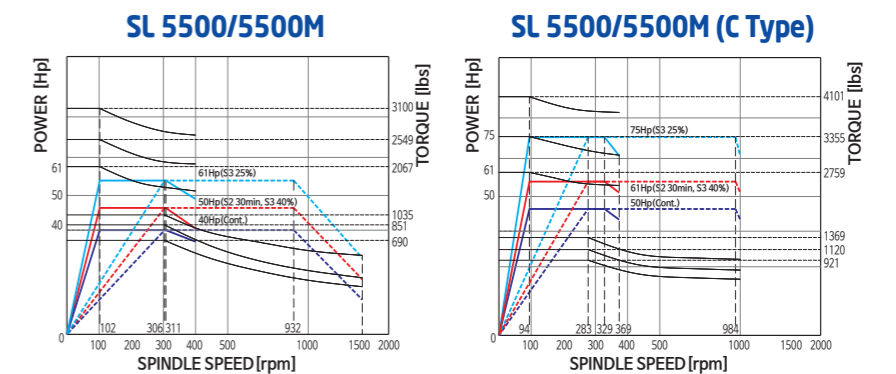
### Output Converting Transmission



Equipped as standard feature, high Output Converting Transmission provides heavy-duty machining.



### Spindle Power & Torque Diagram



An innovative high precision, heavy duty CNC Lathe,  
integrated with all of SMEC's advanced technology  
- **SL 5500 series**

Spindle speed  
**1,500 rpm** (STD Type)  
**1,000 rpm** (Big Bore Type)



Max. machining length[MC(BMT 75/85)]  
**43.19 [(43.19/41.14)] inch** (SL 5500/M)  
※Machining Length : 2000, 3000 Possible

Spindle motor(cont./30min)  
**40/60 Hp** (STD Type)  
**49/73 Hp** (Big Bore Type)

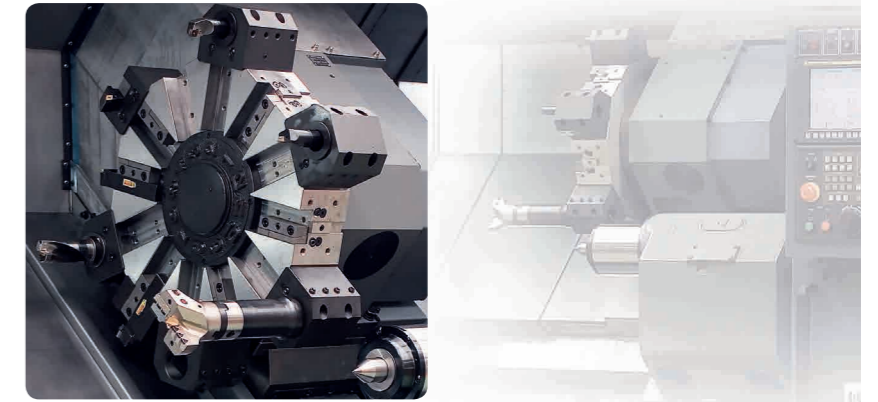
Rapid traverse(X/Z)  
**787.4/787.4 ipm**

Max. machining dia.[BMT 85]  
**Ø27.17 [Ø25.59] inch**

**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

SL 5500 (High Speed Servo Index Hydraulic Turret)



Indexing Time  
**0.25 sec(60 Hz)**

Number of tool positions  
**12 stations**

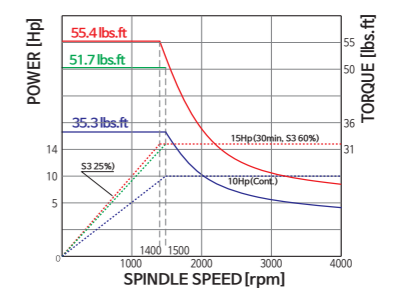
**High Speed, Heavy Duty Servo Turret**

Driven by a high torque servo motor, the 12-station heavy -duty turret can accept tools on both left and right side of each station. Turret indexing (repeatability ± 0.01) is non-stop, bi-directional with a fast 0.25 second next station index time. Large diameter (Ø320) precision Curvic coupling with 159,300N clamping force enables precision as well as heavy-duty cutting.

SL 5500M (BMT High Speed Turret)



Turret Torque Diagram(BMT75)



Indexing Time  
**0.25 sec(60 Hz)**

Number of tool positions  
**12 stations**

Milling Spindle Speed  
**4,000 rpm(3,000 with BMT85/opt.)**

Tool Holder  
**BMT 75(85 Opt.)**

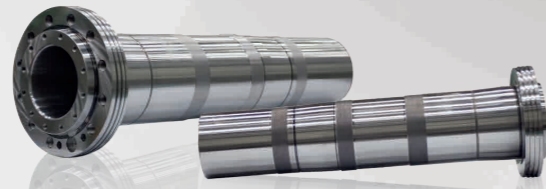
**BMT Milling Turret (M Type)**

SL 5500M 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 4~6 screws, allowing the turret to perform heavy-duty cutting, milling and drilling operations. Turret indexing is non-stop, bi-directional with a fast 0.25 second next station index time.



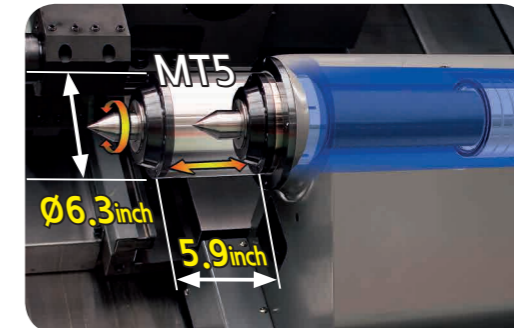
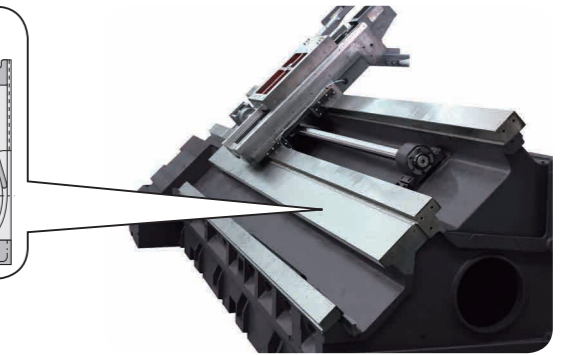
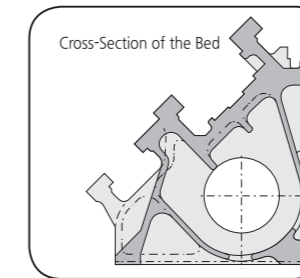
### Centralized Operation Panel

The centralized operation panel with its 10.4 inch color TFT LCD monitor is able to swivel 90 degrees, providing operators with easy access to the control panel while working on the machine.



### Rigid 45 degree Slant Bed

45 degree slant torque tube design bed and wide guide slide way ensure long term rigidity and machining accuracy. Also, the Slant Type structure allows for easier access to the workpiece and superb chip discharge.

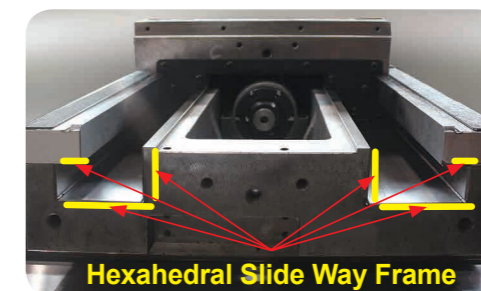
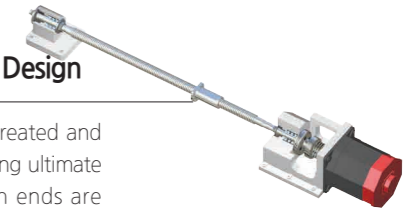


### Programmable Tailstock (Carriage direct-coupled) [Std.]

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

### Fast Indexing and Heavy-Duty Turret Design

All axes ballscrews are pre tensioned, heat treated and fixed by double anchors on both ends, providing ultimate rigidity and minimal thermal growth. Both ends are supported by P4 class high precision angular bearing and run by big Dia. high precision ballscrews.

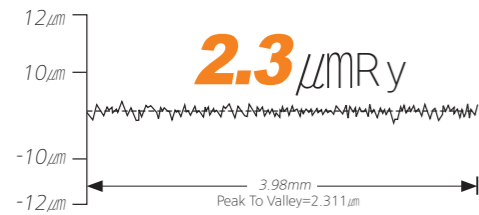


### Hexahedral Slide Way Frame (X-axis)

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

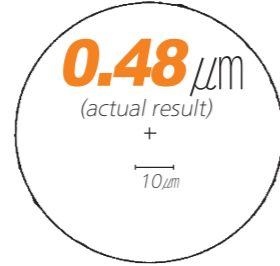
### High Precision

#### Surface Roughness



Model : SL 5500

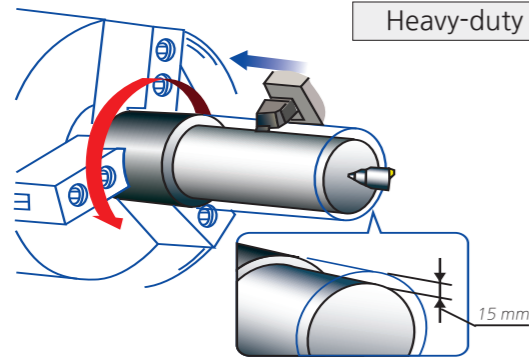
#### Roundness



Cutting condition	
Tool	Diamond tool <nose radius 0.5mm>
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) SL 5500

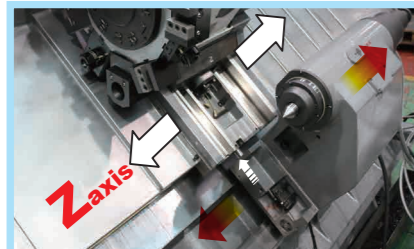


Heavy-duty cutting (O.D) <1.25inch×1.25inch qualified tool>

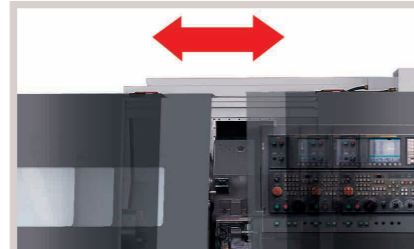
Spindle speed  
**367 rpm**  
Cutting speed  
**150 m/min**  
Depth of cut  
**0.6 inch <Spindle Load 65%>**  
Feedrate  
**0.4 mm/rev**

#### Standard Accessories

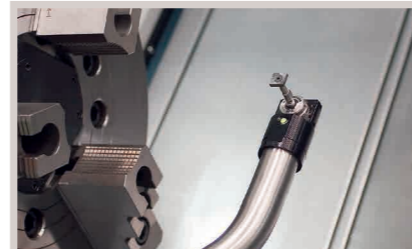
#### Optional Accessories



Programmable Tailstock



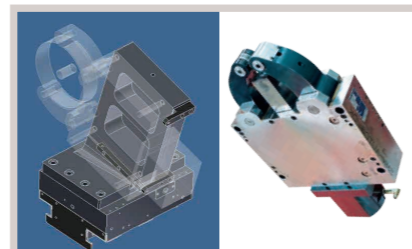
Auto Door



Tool Presetter



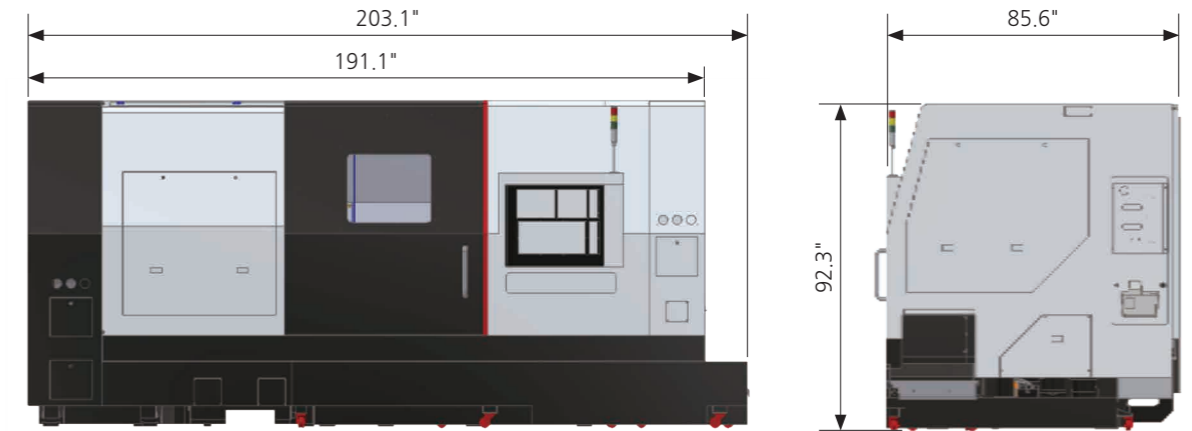
Chip Conveyor



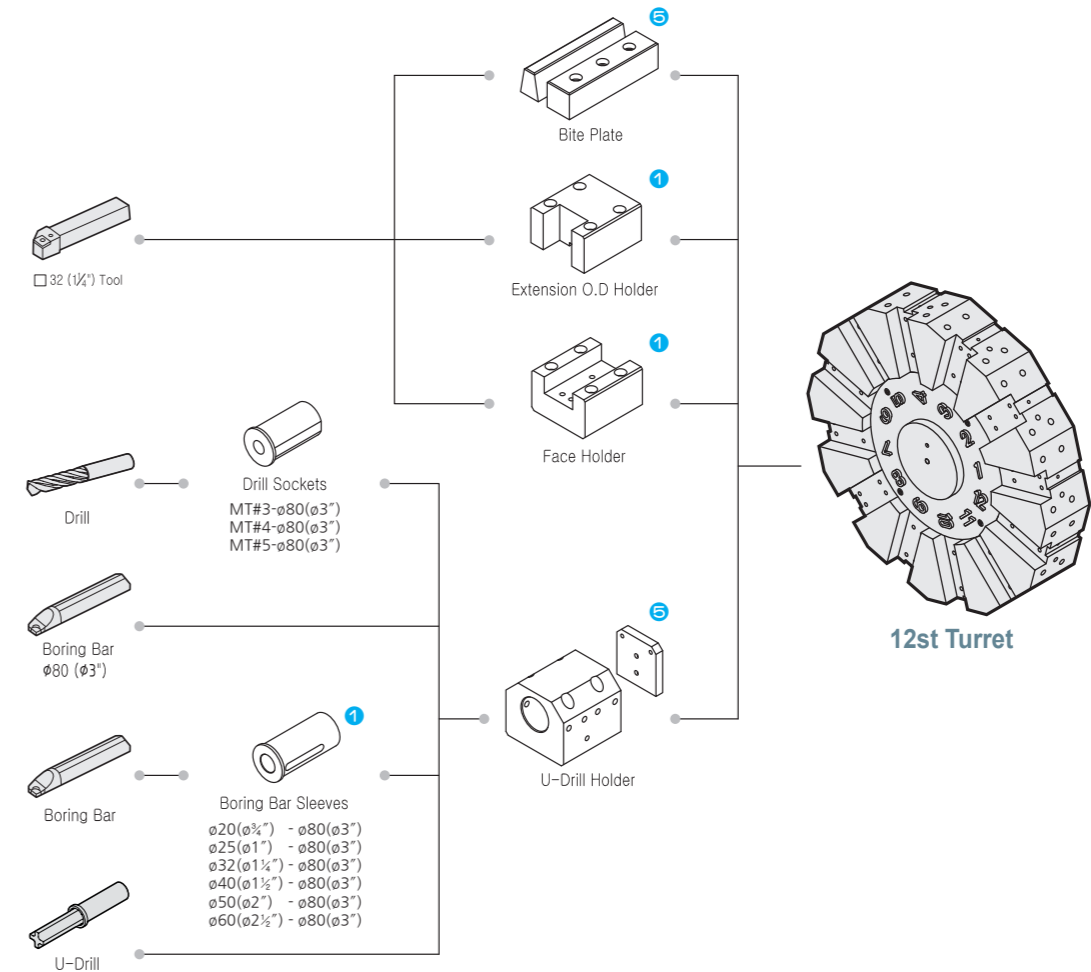
Steady Rest & Preparation

### Machine Dimensions

Unit : inch

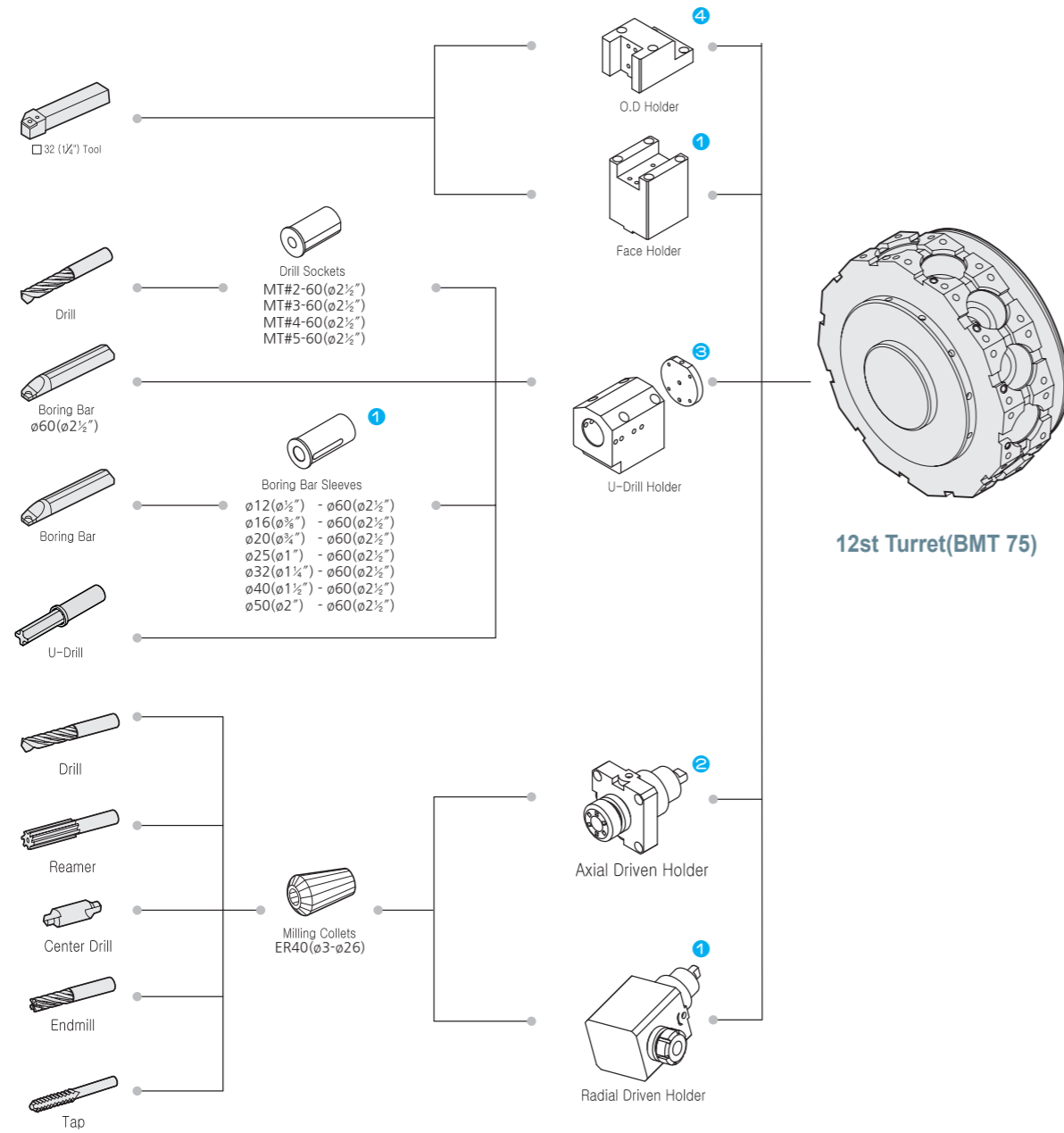


### Tooling System



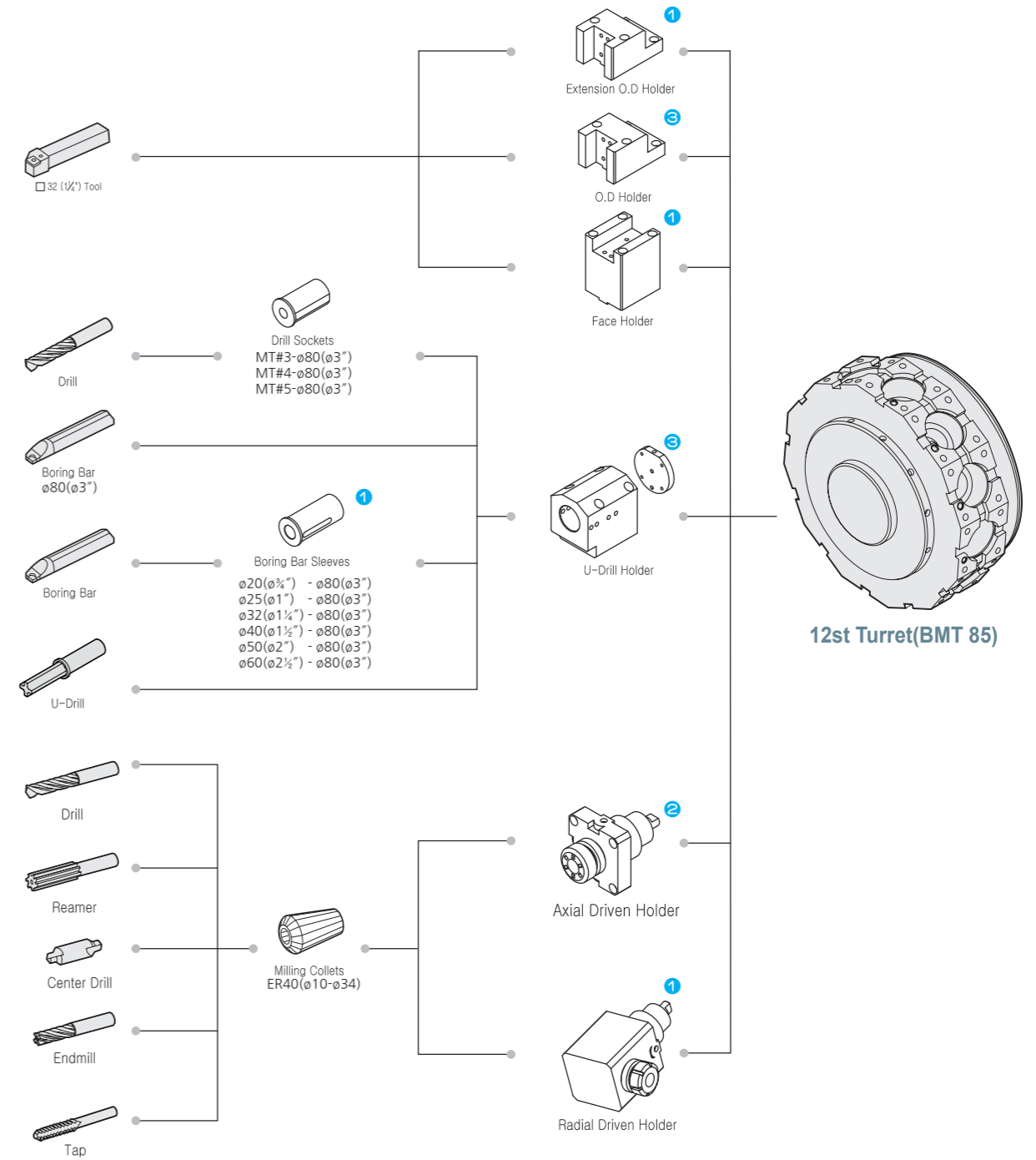
● : Standard Set Numbers

Tooling System



● : Standard Set Numbers

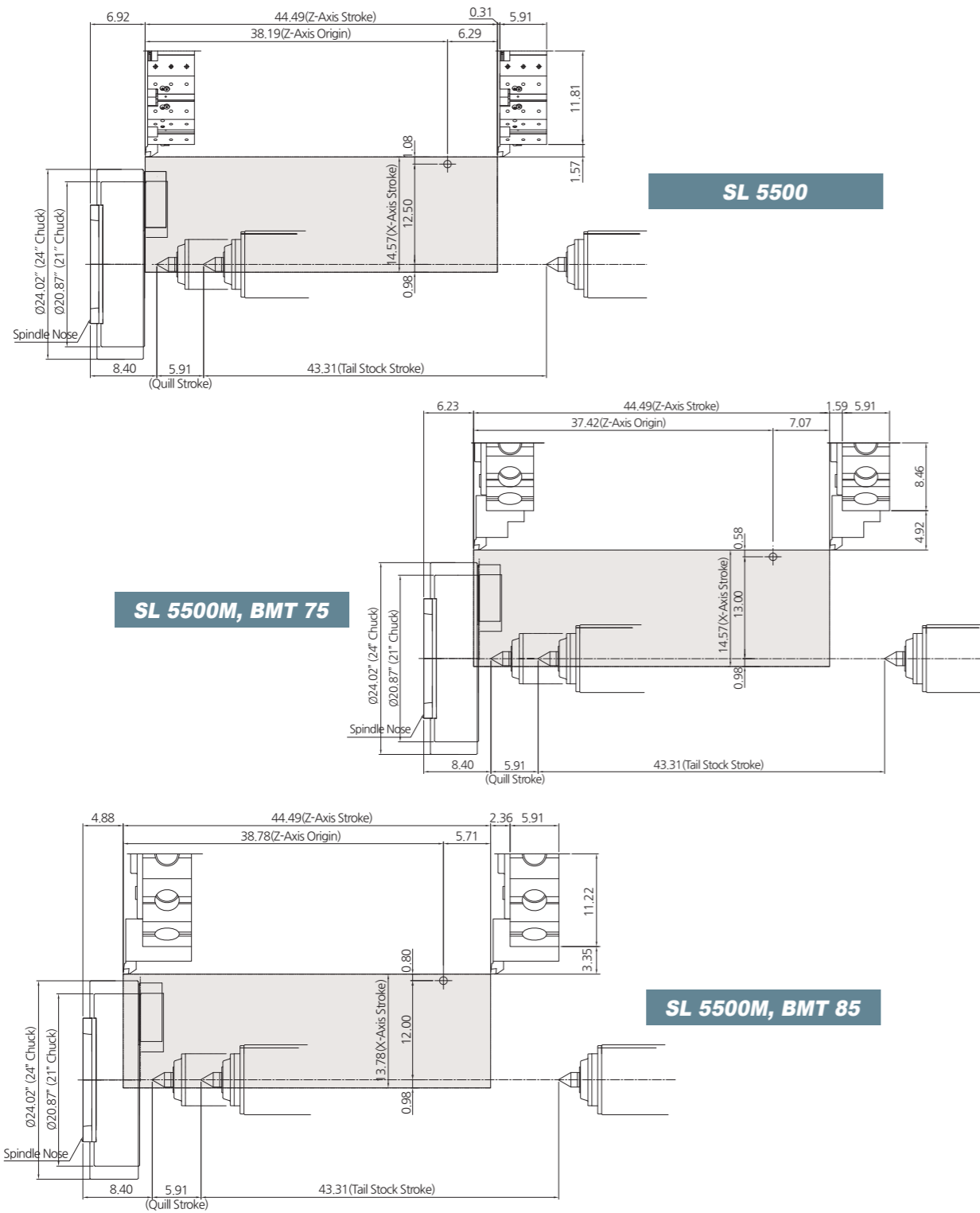
Tooling System



● : Standard Set Numbers

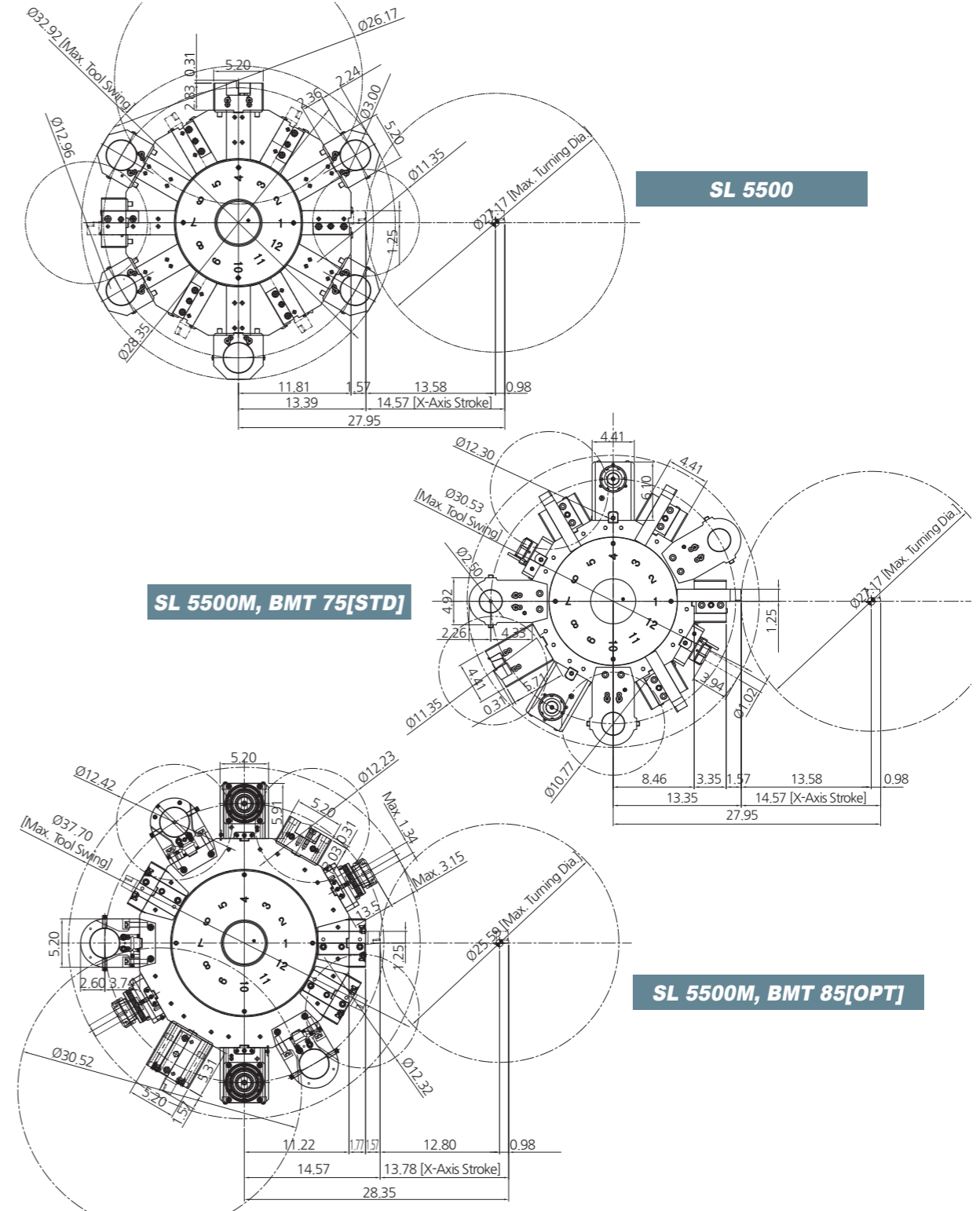
Work Range

Unit : inch



Turret Interference

Unit : inch



**Major Specifications**

DESCRIPTION			SL 5500	SL 5500M
Chuck	Chuck size	inch	A Type:21", B Type:24", C Type:32"	A Type:21", B Type:24", C Type:32"
Capacity	Swing over the bed	inch	35.43	35.43
	Swing over the cross slide	inch	31.5	31.5
	Max. turning diameter	inch	27.17	27.17[25.59]
	Max. Milling diameter	inch	-	31.22(23.22)
	Max. turning length (*)	inch	43.19(*)	43.19[41.14](*)
	Draw tube ID	inch	6.56(9.09)	6.56(9.09)
Travels	X axis travel	inch	14.57	14.57 [13.78]
	Z axis travel	inch	44.49	44.49
Main Spindle	Max. spindle speed	rpm	1,500[1,200](1,000)	1,500[1,200](1,000)
	Spindle nose	ASA	A2-15(A2-20)	A2-15(A2-20)
	Spindle bore diameter	inch	7.13(10.8)	7.13(10.8)
	Min. spindle indexing angle(C-Axis)	deg	-	0.001
Turret	Number of tool stations [option]	ea	12	12/BMT75 [BMT85]
	Shank size for square tool	inch	1.25	1.25
	Shank diameter for boring bar	inch	3.14	2.3[3.14]
	Indexing time	sec	0.25	0.25
	Rotary tool spindle speed	rpm	-	4,000[3,000]
Feed Rate	Rapid traverse (X/Z)	ipm	787.4 / 787.4	787.4 / 787.4
Motor	Spindle drive motor(cont./30min)	Hp	40/60[49/73]	40/60[49/73]
	Rotary tool spindle motor(cont./30min)	Hp	-	10/14.6
Tailstock	Tailstock quill stroke	inch	5.91	5.91
	Quill diameter	inch	6.3	6.3
	Quill bore taper	MT	MT5(BUILT-IN)	MT5(BUILT-IN)
ELECTRIC POWER SUPPLY		kVA/V	62/220[71/220](71/220)	62/220[71/220](71/220)
FLOOR SPACE(with chip conveyor)(LxWxH)		inch	203.11(237.8)×85.55×92.28	
MACHINE WEIGHT		lbs	33,069(34,172)	34,172(35,274)
CONTROLLER			Fanuc Series	

※Figures in inches are converted from metric measurements.  
 (\*) : 2000, 3000 Possible

[ ] : Option  
 ( ) : C Type

**Standard Accessories**

- Coolant System (4.5 bar-60Hz)
- Work light (Led lamp)
- Splash guard with side coolant tank
- Tool box
- 21" Hyd. Hollow chuck(SL 5500/M)
- Soft Jaw
- Leveling unit
- Main spindle orientation
- Chuck clamp foot switch
- Chuck clamp confirmation
- Chuck pressure switch
- Manual/Part list
- Door interlock
- Patrol Lamp

**Optional Accessories**

- Chuck(SL 5500C/CM)
- Side chip conveyor
- Chip bucket
- Special chuck
- Dual pressure chucking
- Air gun
- Air blower
- Oil skimmer
- Chuck coolant
- Coolant gun
- Steady Rest(ASR 4.0/5.1)
- Hard Jaw

**NC Specifications / FANUC Series**

Item		Specification
Controlled axis	Controlled Axes	2 axis(X,Z)
	Max. Simultaneously Controlled Axes	Positioning(G00) / Linear Interpolation(G01) Circular Interpolation(G02, G03)
	Least Input Increment	0.001mm
Spindle Function	Spindle Speed Control	S5 (5 digit)
	Spindle Speed Override	0~120%
	Spindle Orientation	M19
Feed Function	Feedrate Override (10% increase)	0~150%
	Dwell	G04
	Reference Position Return	G27, G28
	Manual Pulse Generator	0.001/0.01/0.1mm
	Dry Run	F0(Fine Feed), 25/50/100%
Tool Functions	Rapid Traverse Override	F0(Fine Feed), 25/50/100%
	Tool Number Command	T2(2 Digit), T4(Digit)
	Tool nose radius compensation	G40 ~ G42
	Tool offset pair	128EA
Programming Function	Tool geometry/wear offset	GEOMETRY & WEAR DATA
	Canned Cycle	G70~G72, G74~G76
	Decimal Point Input	Able to input up to decimal point
	Sub Program	4Phase
	Work Coordinate System	G52~G59
Tape Functions	Max Program Dimension	±99999.999mm
	M Function	M3(3 Digit)
	Input Code	ISO/EIA Auto Recognition
	I/O Interface	RS232C
	rogram Storage Space	1280M(512kb)
Other Functions	Number of stored programs	400EA
	Display Unit / MDI	10.4" color LCD / Soft input type MDI
	Synchronized Tapping	Rigid Tapping Function
	Background Tapping	Program saving/editing during automatic operation
	Backlash Compensation	Pitch Error Offset Compensation for Each Axis
	Search Function	Sequence / program number search
	Safety Function	Emergency stop / overtravel
	Program Test Function	Machine Lock / Single Block
	Control Function	Memory / MDI / Manual
	Mirror Image	
Run hour and parts count display		
Custom Macro	#100 ~ #199, #500 ~ #999	