

# SMEC

## SL 4500Y series

CNC TURNING CENTER



**SMEC**  
SMEC CO.,LTD.

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https://www.youtube.com/c/smecmachinetools

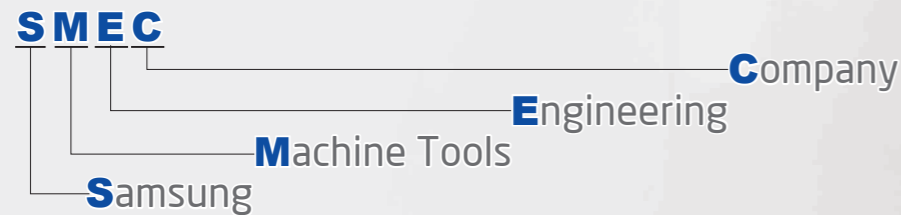
**SMEC**  
Smart One,  
Global One

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❖ Design and specifications subject to change without notice.

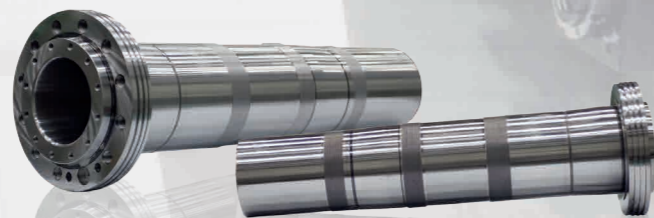
- 1988 - 삼성중공업 공작기계 사업 착수
- 1989 - Started as Machine Tools Division of Samsung Heavy Industries, Ltd.  
Horizontal and vertical machining center technology partnership with OKK Japan
- 1991 - Turning center and vertical machining center technology partnership with Mori Seiki
- 1996 - 5-sided processing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



## SMEC'S Advanced Engineering and Machine Design

**SL 4500XY/LY/XLY**  
**A Type : 18[15]"**  
**B Type : 21"**  
**C Type : 24"**

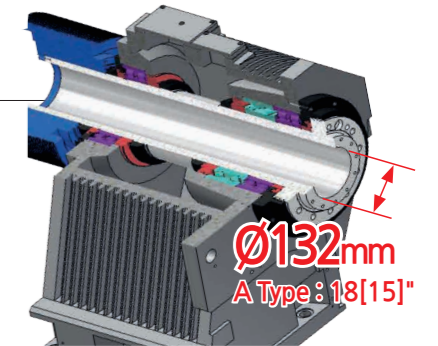
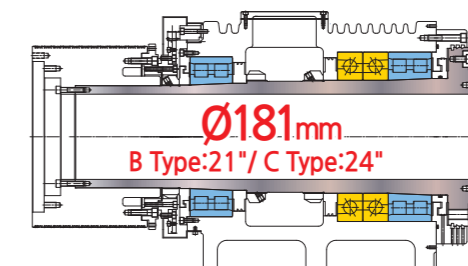
- Cast iron structure for superior dampening characteristics and thermal displacement
- Rigid 45 degree slant bed design for heavy-duty machining
- Torque tube design to minimize bending and twisting
- Integrated box ways for long-term rigidity and heavy-duty machining



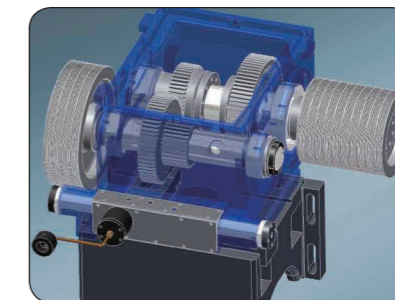
## High Accuracy, High Rigidity Spindle

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

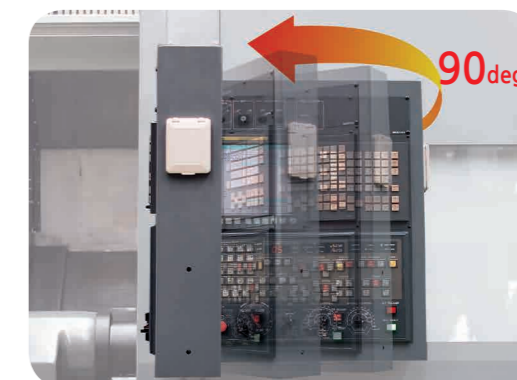
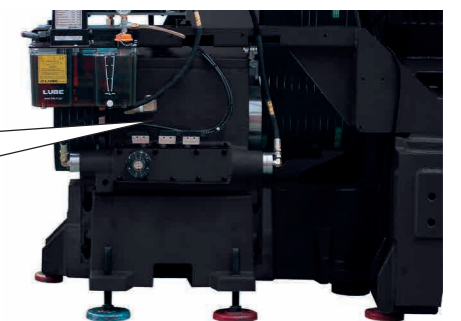
Radiator fan-like pin tube rib design dissipates heat generated by axis movements, maintaining minimal thermal expansion.



### Output Converting Transmission



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

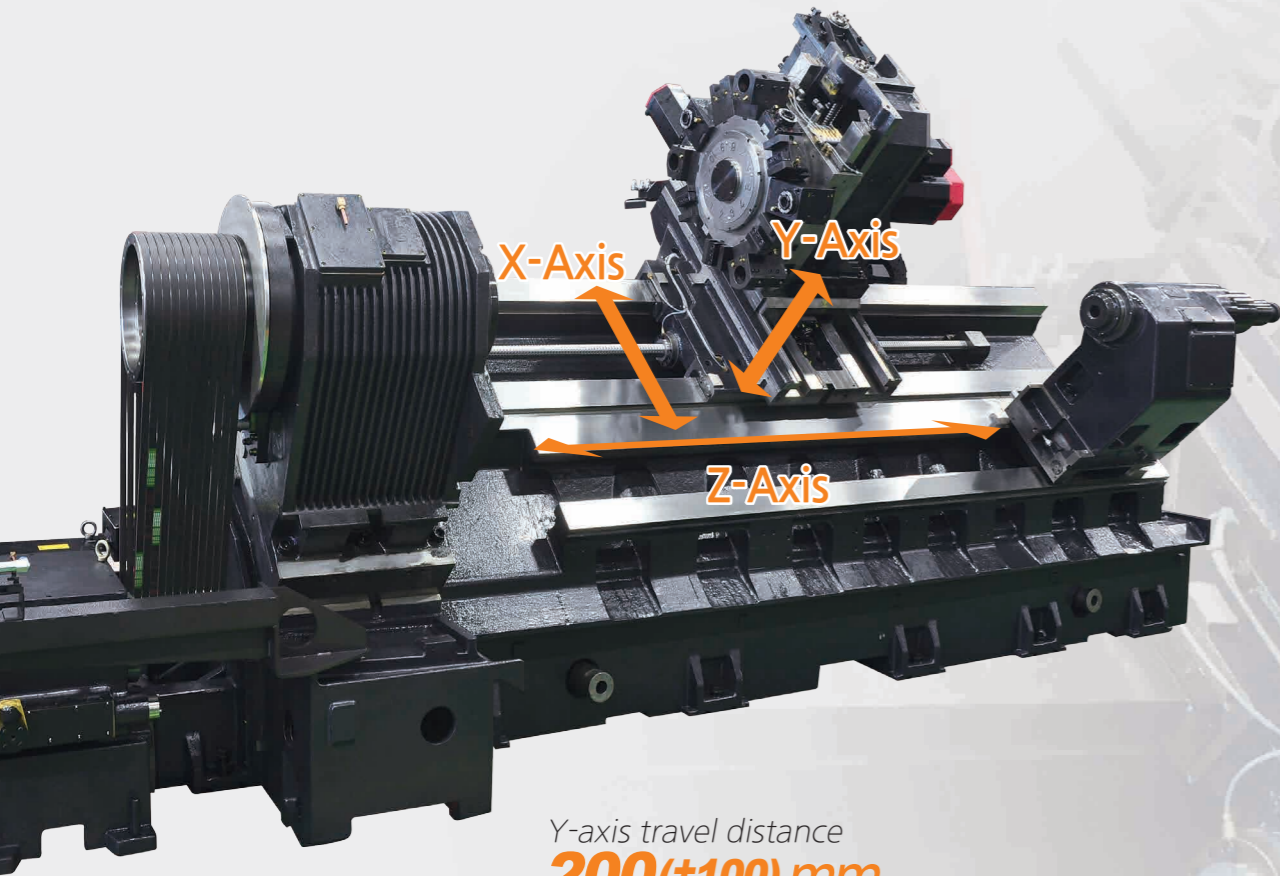


### Swivel Operation Panel

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.

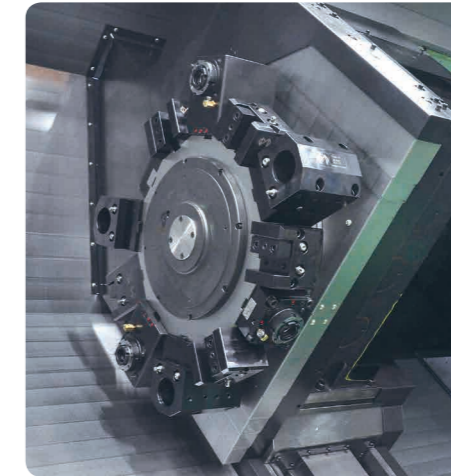


SL 4500Y Series is a heavy duty, ultra precision Turning Center, combined with **SMEC's** advanced technological features.



Y-axis travel distance  
**200(±100) mm**

Y-axis rapid traverse rate  
**15 m/min**



Max. Spindle Speed  
**1,800 rpm A Type 18"**  
**2,000 rpm A Type 15"**  
**1,500 rpm B Type 21"**  
**1,200 rpm C Type 24"**

Spindle Motor(cont./Max)  
**30/37 kW**

Rapid Travel(X/Y/Z)  
**20/15/18 m/min**

Number of tool positions  
**12 stations**

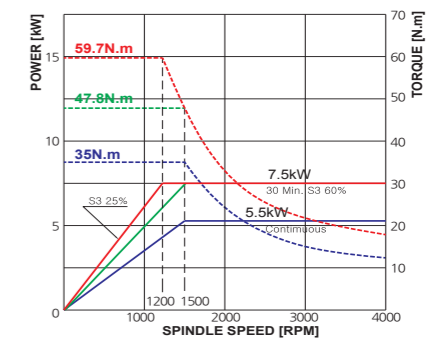
Indexing Time  
**0.25 sec (60 Hz)**

#### Virtual Y-axis function

In the Y-axis plane, tools can move in a plus or minus direction perpendicular to the Z-axis and spindle center line. Viewed from the operator's perspective, this Y-axis motion is toward or away from the door of the machine while X-axis moves from floor to ceiling.

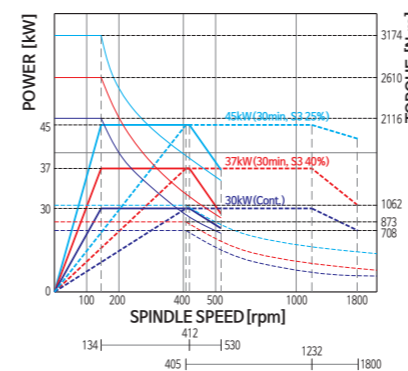
Y-axis enables various shape of cutting. Y-axis is realized virtually by the linear interpolation and synchronous movement of X1 and X2-axis that make it possible to lower machine height for stability.

#### Turret Torque Diagram

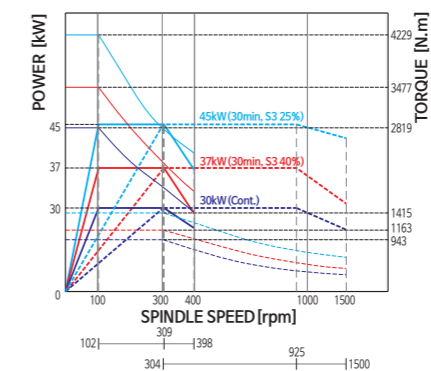


#### Spindle Power & Torque Diagram

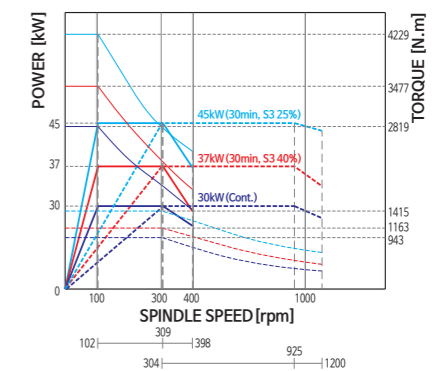
SL 4500XY/LY/XLY (CA Type)



SL 4500XY/LY/XLY (B Type)



SL 4500XY/LY/XLY (C Type)





# High-productivity Compact Turning Center with Y-axis Based on SL 4500 Series

## SL 4500 Series

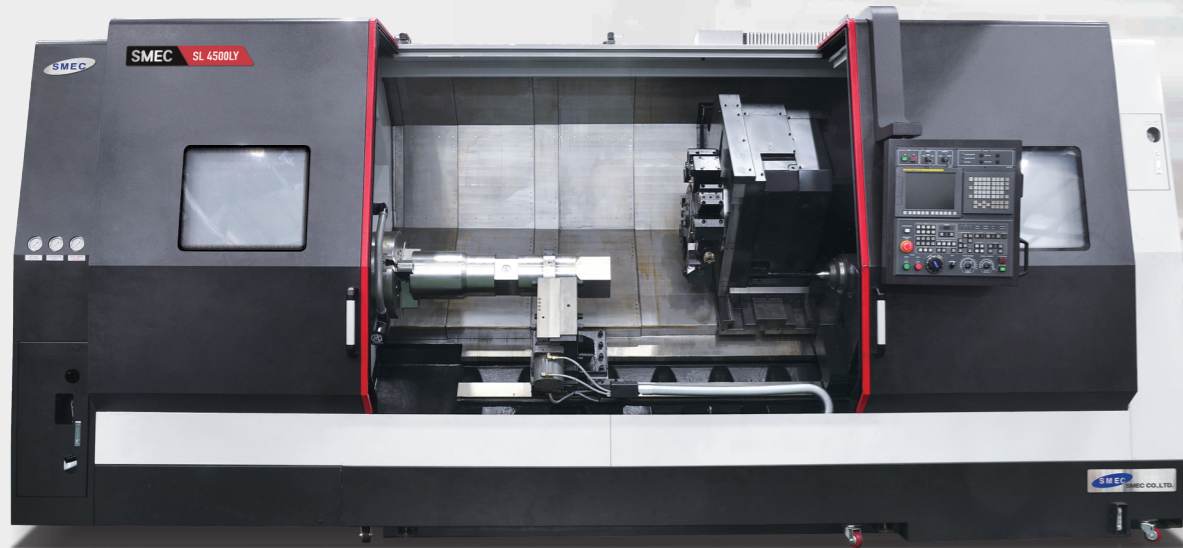
SL 4500 series addition of stable and rigid Y-axis based on SL 4500 model makes possible to complete machining in 1 set-up. The longest Y-axis off-center machining is available, and through reducing cycle time and non cutting time provides your productivity improvement.

## Added with Y-axis

The addition of Y-axis to the SL 4500 Series provides travel stability, higher precision and higher rigidity leading to improved productivity.

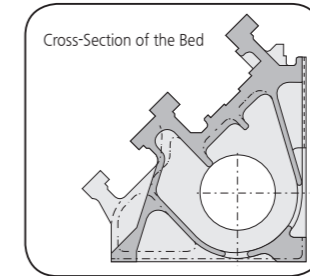
## High productivity

All the axis are applied with fast, accurate and high rigidity, box guide minimize idle time and maximize productivity.

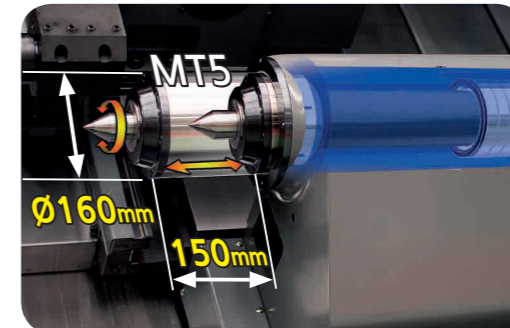
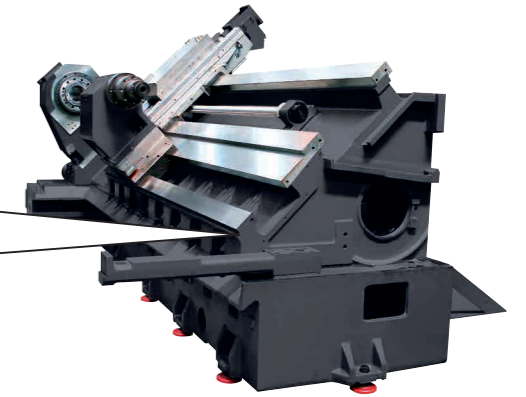


## Rigid 45 degree Slant Bed

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.

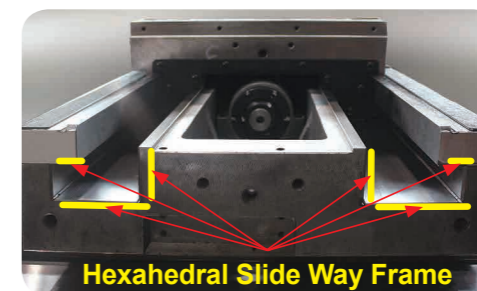


## Programmable ailstock (Carriage direct-coupled)

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

## 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.



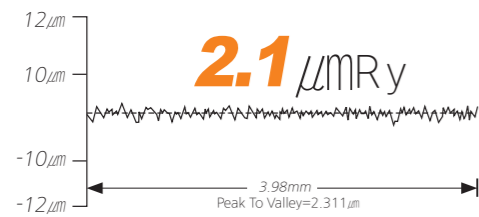
## Hexahedral Slide Way Frame

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



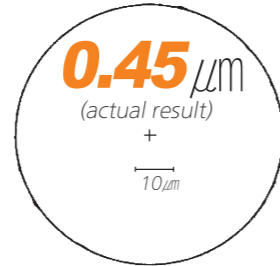
### High Precision

Surface Roughness <O.D. cutting>



Model : SL 4500LY

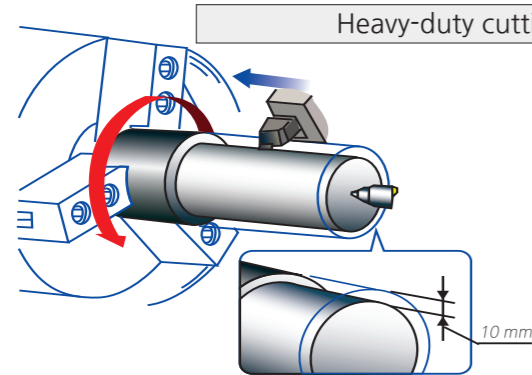
Roundness



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

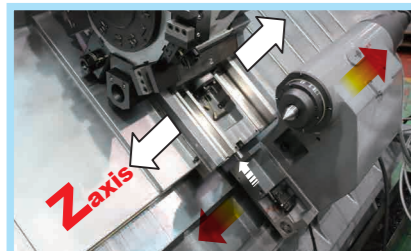
### Processing Speed

Turning Performance (material:SM45C) SL 4500LY

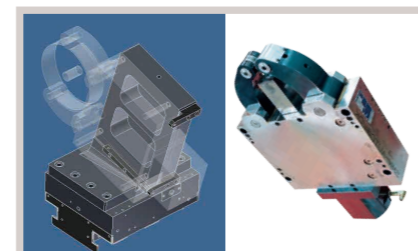
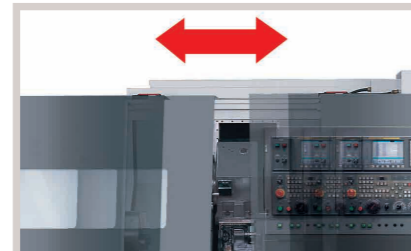


Spindle speed  
**367 rpm**  
Cutting speed  
**150 m/min**  
Depth of cut  
**10 mm <Spindle Load 65%>**  
Feedrate  
**0.4 mm/rev**

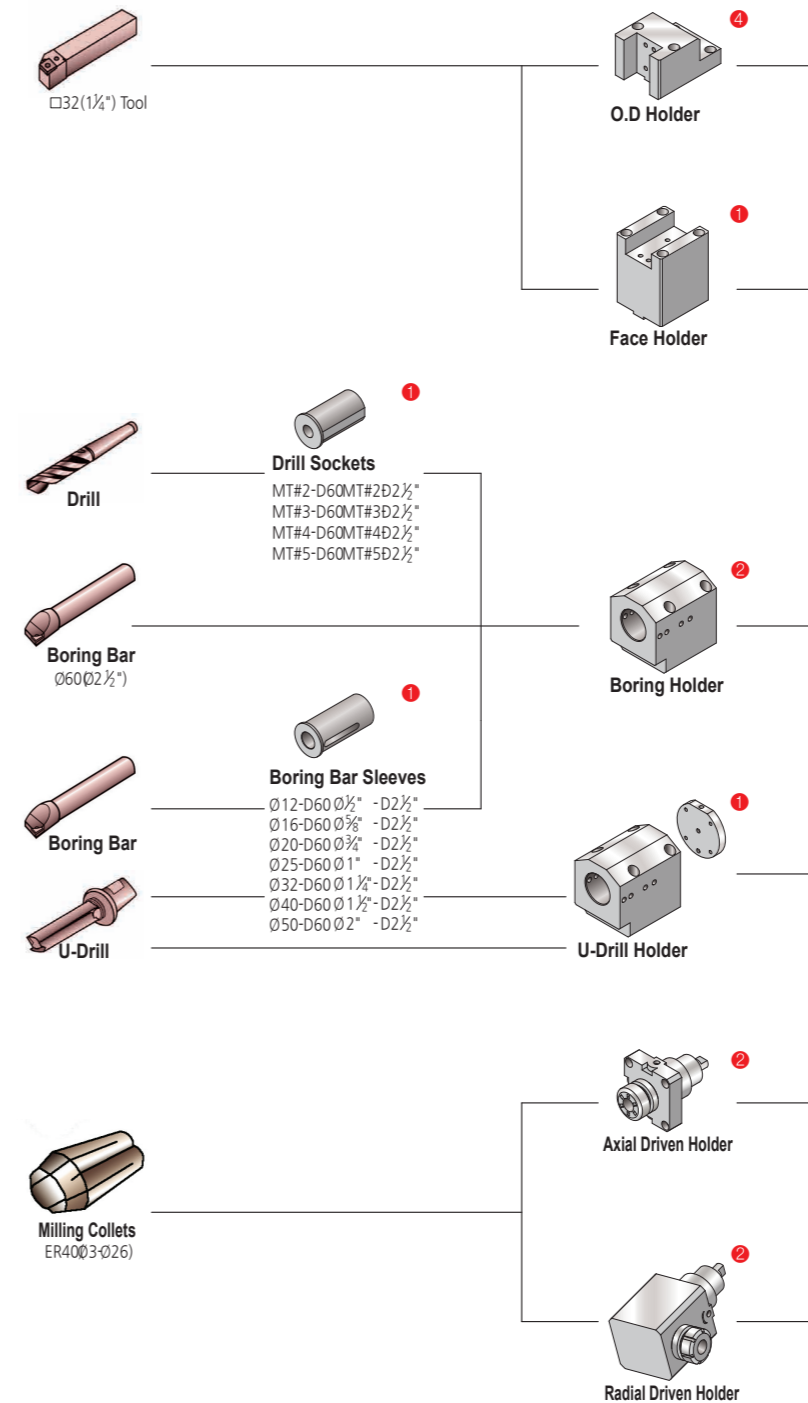
### Standard Accessories



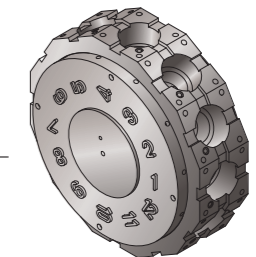
### Optional Accessories



### Tooling System



**SL 4500Y Series**



**12-station Turret(BMT 75)**

● : Standard Set Numbers





Major Specifications

DESCRIPTION			SL 4500XY		
			A type	B type	C type
Chuck	Chuck size	inch	18[15]"	21"	24"
Capacity	Swing over bed	mm	975	975	975
	Swing over cross slide	mm	830	830	830
	Max. turning diameter	mm	620	620	620
	Max. milling diameter	mm	704	704	704
	Max. machining length	mm	2,140	2,117	2,117
Spindle	Spindle speed	rpm	1,800[2,000]	1,500	1,200
	Spindle nose	ASA	A2-11	A2-15	A2-15
	Draw tube ID	mm	117.5	140	166.5
	Spindle bore diameter	mm	132	181	181
	Spindle motor (Cont./Max)	kW	30/45	30/45	30/45
Travels	X-axis travel	mm	350	350	350
	Y-axis travel	mm	200 (±100)	200 (±100)	200 (±100)
	Z-axis travel	mm	2,270	2,270	2,270
	X-axis Rapid traverse rate	m/min	20	20	20
	Y-axis Rapid traverse rate	m/min	15	15	15
	Z-axis Rapid traverse rate	m/min	18	18	18
Turret	Number of tool stations	ea	12 (BMT75)	12 (BMT75)	12 (BMT75)
	Turning tool shank size	mm	32	32	32
	Boring bar diameter	mm	60	60	60
	Turret index time(next station swivel time)	sec	0.25	0.25	0.25
	Rotary tool speed	rpm	4,000	4,000	4,000
	Rotary tool motor (Cont./Max)	kW	5.5/7.5	5.5/7.5	5.5/7.5
Tailstock	Quill diameter	mm	160	160	160
	Quill stroke	mm	150	150	150
	Spindle taper	MT	MT5 (Built-in)	MT5 (Built-in)	MT5 (Built-in)
Machine	Size (with Side Chip conveyor) L×W×H	mm	5,570(6,530) × 2,303 × 2,659		
	Size (with Rear Chip conveyor) L×W×H	mm	-		
	weight	kg	17,000	17,000	17,000
	Coolant tank capacity	Liter	400	400	400
ELECTRIC POWER SUPPLY		kVA/V	63/220	63/220	63/220
CONTROLLER			FANUC, SIEMENS		

※Design and specifications subject to change without notice.

Major Specifications

DESCRIPTION			SL 4500LY		
			A type	B type	C type
Chuck	Chuck size	inch	18[15]"	21"	24"
Capacity	Swing over bed	mm	975	975	975
	Swing over cross slide	mm	830	830	830
	Max. turning diameter	mm	620	620	620
	Max. milling diameter	mm	704	704	704
	Max. machining length	mm	2,930	2,930	2,930
Spindle	Spindle speed	rpm	1,800[2,000]	1,500	1,200
	Spindle nose	ASA	A2-11	A2-15	A2-15
	Draw tube ID	mm	117.5	140	166.5
	Spindle bore diameter	mm	132	181	181
	Spindle motor (Cont./Max)	kW	30/45	30/45	30/45
Travels	X-axis travel	mm	350	350	350
	Y-axis travel	mm	200 (±100)	200 (±100)	200 (±100)
	Z-axis travel	mm	3,060	3,060	3,060
	X-axis Rapid traverse rate	m/min	20	20	20
	Y-axis Rapid traverse rate	m/min	15	15	15
	Z-axis Rapid traverse rate	m/min	10	10	10
Turret	Number of tool stations	ea	12 (BMT75)	12 (BMT75)	12 (BMT75)
	Turning tool shank size	mm	32	32	32
	Boring bar diameter	mm	60	60	60
	Turret index time(next station swivel time)	sec	0.25	0.25	0.25
	Rotary tool speed	rpm	4,000	4,000	4,000
	Rotary tool motor (Cont./Max)	kW	5.5/7.5	5.5/7.5	5.5/7.5
Tailstock	Quill diameter	mm	160	160	160
	Quill stroke	mm	150	150	150
	Spindle taper	MT	MT5 (Built-in)	MT5 (Built-in)	MT5 (Built-in)
Machine	Size (with Side Chip conveyor) L×W×H	mm	6,350(7,327) × 2,303 × 2,659		
	Size (with Rear Chip conveyor) L×W×H	mm	-		
	weight	kg	22,000	22,000	22,000
	Coolant tank capacity	Liter	600	600	600
ELECTRIC POWER SUPPLY		kVA/V	63/220	63/220	63/220
CONTROLLER			FANUC, SIEMENS		

※Design and specifications subject to change without notice.

Major Specifications

DESCRIPTION			SL 4500XLY		
			A type	B type	C type
Chuck	Chuck size	inch	18[15]"	21"	24"
Capacity	Swing over bed	mm	975	975	975
	Swing over cross slide	mm	830	830	830
	Max. turning diameter	mm	620	620	620
	Max. milling diameter	mm	704	704	704
	Max. machining length	mm	5,000	5,000	5,000
Spindle	Spindle speed	rpm	1,800[2,000]	1,500	1,200
	Spindle nose	ASA	A2-11	A2-15	A2-15
	Draw tube ID	mm	117.5	140	166.5
	Spindle bore diameter	mm	132	181	181
	Spindle motor (Cont./Max)	kW	30/45	30/45	30/45
Travels	X-axis travel	mm	350	350	350
	Y-axis travel	mm	200 (±100)	200 (±100)	200 (±100)
	Z-axis travel	mm	5,090	5,090	5,090
	X-axis Rapid traverse rate	m/min	20	20	20
	Y-axis Rapid traverse rate	m/min	15	15	15
	Z-axis Rapid traverse rate	m/min	10	10	10
Turret	Number of tool stations	ea	12 (BMT75)	12 (BMT75)	12 (BMT75)
	Turning tool shank size	mm	32	32	32
	Boring bar diameter	mm	60	60	60
	Turret index time(next station swivel time)	sec	0.25	0.25	0.25
	Rotary tool speed	rpm	4,000	4,000	4,000
	Rotary tool motor (Cont./Max)	kW	5.5/7.5	5.5/7.5	5.5/7.5
Tailstock	Quill diameter	mm	160	160	160
	Quill stroke	mm	150	150	150
	Spindle taper	MT	MT5 (Built-in)	MT5 (Built-in)	MT5 (Built-in)
Machine	Size (with Side Chip conveyor) L×W×H	mm	8,700(9,897) × 2,493 × 2,683		
	Size (with Rear Chip conveyor) L×W×H	mm	-		
	weight	kg	25,000	25,000	25,000
	Coolant tank capacity	Liter	850	850	850
ELECTRIC POWER SUPPLY	kVA/V	63/220	63/220	63/220	
CONTROLLER		FANUC, SIEMENS			

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NC Unit Specifications / FANUC Series

	Item	Specification	Fanuc Series
Controlled axis	Max. feed axes		4 AXIS
	Feed axes		X/Z/(Cs)
	Max. simultaneously controlled axis		4
Operation functions	Least command increment	0.001mm / 0.0001"	○
	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	M19	○
Tool functions	Rigid tapping		○
	Tool number command	T4-Digt / T2-Digt	T4-Digt
	Tool nose radius compensation	G40 ~ G42	○
	Tool offset pairs	128	○
	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/±9999.9999"	○
	M function	M3 digit	○
	Custom macro	#100-#199, #500-#999	○
	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	○
	Display screen		10.4" 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		○