

SMEC

SL 2000/2500SY(Y) series

Y-AXIS HORIZONTAL TURNING CENTER



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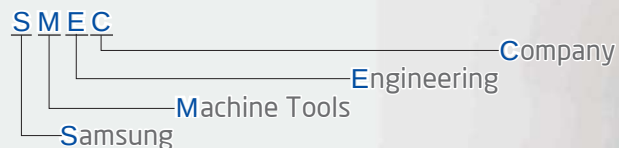


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SMEC
SMEC CO.,LTD.

- 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



SL 2000 series SL 2000SY/2000Y(A/B Type)

SL 2500 series SL 2500SY/2500Y(A/B Type)

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

- 30 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



Pin Tube Rib Design for Minimal Thermal Growth

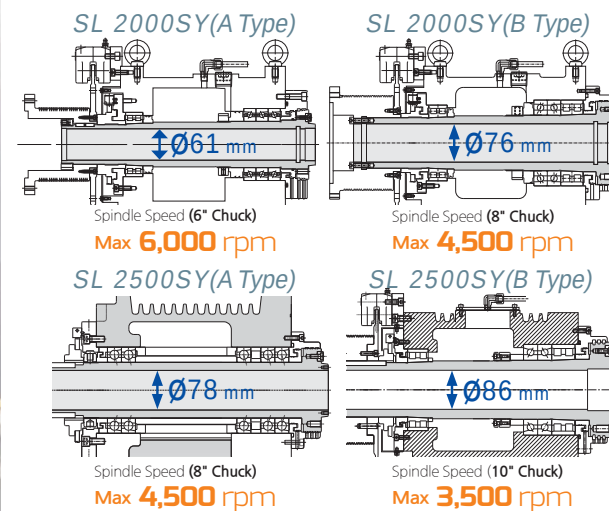
The pin tube rib design of the Headstock ensures minimal thermal growth, and precision (class P4) angular contact ball bearings in the front and rear provides high rigidity for heavy-duty machining and unsurpassed surface finish.



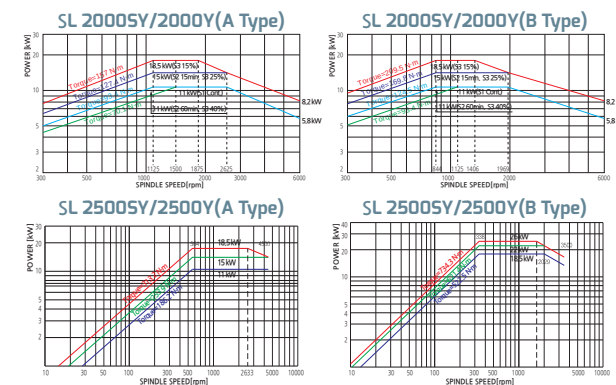
High Accuracy, High Rigidity Spindle

SPINDLE & HEADSTOCK

The Spindle and Headstock are machined and ground in temperature controlled environment and assembled in a clean room.



Main-Spindle Power & Torque Diagram



SL 2000/2500SY(Y) series

Y-axis Horizontal Turning center

SL 2000Y/SY, 2500Y/SY is a heavy-duty, ultra precision Turning Center, combined with SMEC's advanced technological features.

Spindle motor(Cont./30min)

11/18.5 kW [SL 2000SY/Y series]
11/18.5 kW [SL 2500SY/Y(A Type)]
18.5/26 kW [SL 2500SY/Y(B Type)]

Spindle speed

6,000 rpm [SL 2000SY/Y(A Type)]
4,500 rpm [SL 2000SY/Y(B Type)]
4,500 rpm [SL 2500SY/Y(A Type)]
3,500 rpm [SL 2500SY/Y(B Type)]

Rapid traverse(X/Y/Z/B)

24/10/30/24 m/min [SL 2000SY/Y(A,B Type)]
18/12/24/24 m/min [SL 2500SY/Y(A,B Type)]

Max. Turning Length

490 mm [SL 2000SY/Y(A Type)]
450 mm [SL 2000SY/Y(B Type)]
520 mm [SL 2500SY/Y(A,B Type)]
535 mm [SL 2500SY/Y(A,B Type)]

Max. Turning Diameter

Ø395 mm [SL 2000SY/Y(A,B Type)]
Ø360 mm [SL 2500SY/Y(A,B Type)]

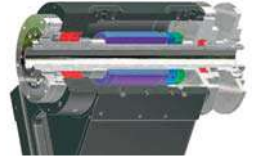
Highly Reliable and Rigid Structural Design

- 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 Sub-Spindle

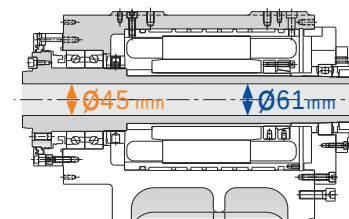
Built-in Sub-Spindle Motor

The sub-spindle with full C-axis allows milling, drilling and tapping on the back side of parts, and a powerful 7.5kW Fanuc built-in motor provides fast acceleration with high torque (6kgf.m)



Precision angular contact ball bearings located in the front and double row cylindrical roller bearings in the rear of the sub-spindle ensure heavy-duty cutting as well as unsurpassed surface finish.

Sub-Spindle & Headstock



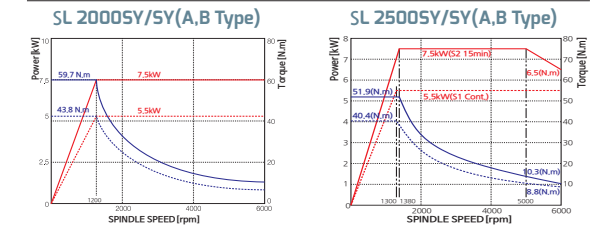
Spindle Speed (6" Chuck)

Max 6,000 rpm
 SL 2000SY & 2500SY (A TYPE)

Spindle Speed (8" Chuck)

Max 4,500 rpm
 SL 2500SY (B TYPE)

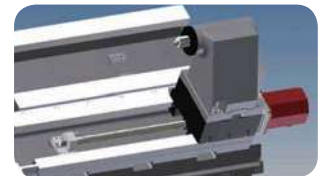
Sub-Spindle Power & Torque Diagram



Servo Tailstock Interface

Tailstock positioning and quill thrust force are simple to set up using the specially designed servo tailstock interface.

The high speed servo driven tailstock offers high speed high precision positioning and digitally controlled thrust force settings. Quill thrust force can be set according to part length & diameter. This results in reduced down time and increased manufacturing efficiency.



SL 2000/2500SY(Y) series

Y-axis Horizontal Turning center



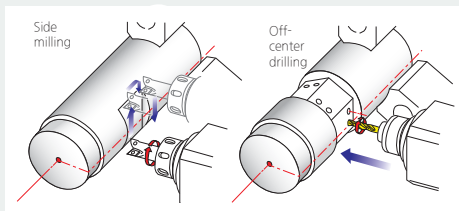
Swivel Operation Panel

Swivel operation panel of 10.4 inch color TFT LCD monitor can turn to 81 degree, providing operators with easy access to the control panel while working on the machine.

Y-Axis Machining

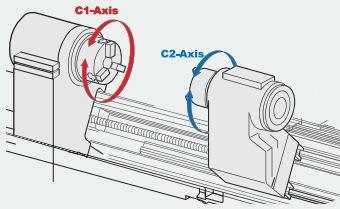
Y-axis adds integrated machining feature to a conventional turning center, providing machining capability on the workpiece that is not parallel or perpendicular to the spindle center line.

Bar machining with Y-axis control



Synchronized C1 and C2-Axis Indexing

Synchronized C1-axis(main spindle) and C2-axis(sub-spindle) indexing provides machining flexibility in a wide variety of workpiece configurations. From simple turning and milling to multi-axis simultaneous machining, all operations can be completed in one set-up.



Y axis Travel

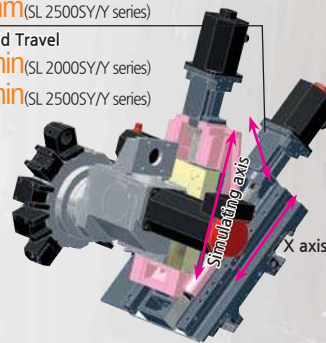
$\pm 52.5 \text{ mm}$ (SL 2000SY/Y series)

$\pm 50 \text{ mm}$ (SL 2500SY/Y series)

Y axis Rapid Travel

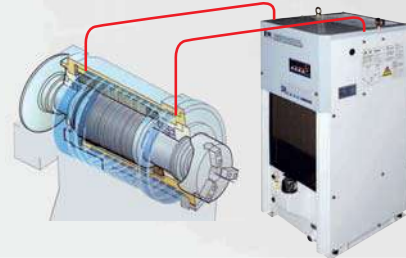
10 m/min (SL 2000SY/Y series)

12 m/min (SL 2500SY/Y series)



Sub-Spindle Oil Cooling Unit

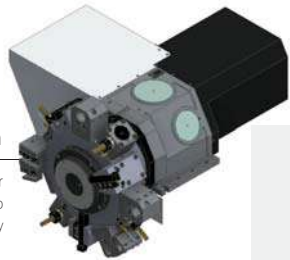
Sub-spindle is surrounded by an oil jacket cooling system to minimize thermal displacement and to ensure machining accuracy regardless of different machining conditions.



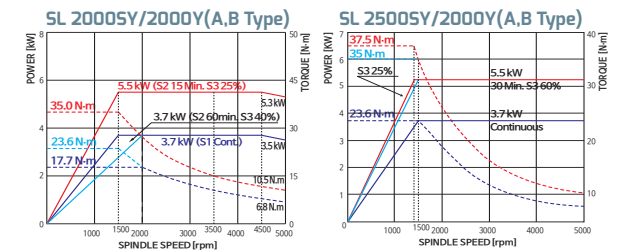
Fast Indexing and Heavy-Duty Turret Design

The 12 station heavy-duty turret features a large diameter 3-piece Curvic coupling and 7,816 lbs of hydraulic clamp force. The heavy-duty design provides high rigidity for heavy cutting, unsurpassed surface finishes and long tool life.

Turret rotation, deceleration and clamp are all controlled by a reliable high torque servo motor. Turret indexing is non-stop bi-directional with a 0.2 second next station index time. Each turret station is capable of accepting both milling and turning tools.



Turret Torque Diagram



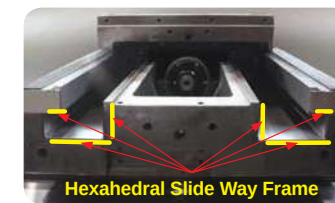
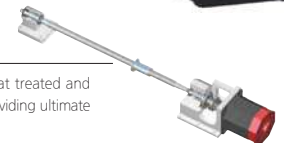
Rigid 30 degree Slant Bed

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



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 (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.

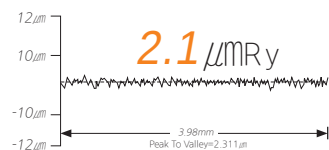
SL 2000/2500SY(Y) series

Y-axis Horizontal Turning center

SMEC Smart One, Global One

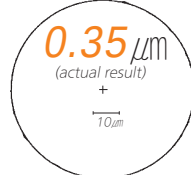
High Precision

Surface Roughness



Model : SL 2500ASY

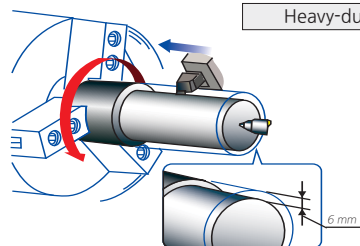
Roundness



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) SL 2500SY



Heavy-duty cutting (O.D) <25mm×25mm qualified tool>

Spindle speed

518 rpm

Cutting speed

120m/min

Depth of cut

6 mm <Spindle Load 40%>

Feedrate

0.3 mm/rev

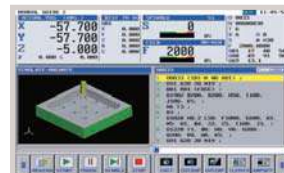
Optional Accessories



Tool Presetter



Parts Catcher



Manual Guide i

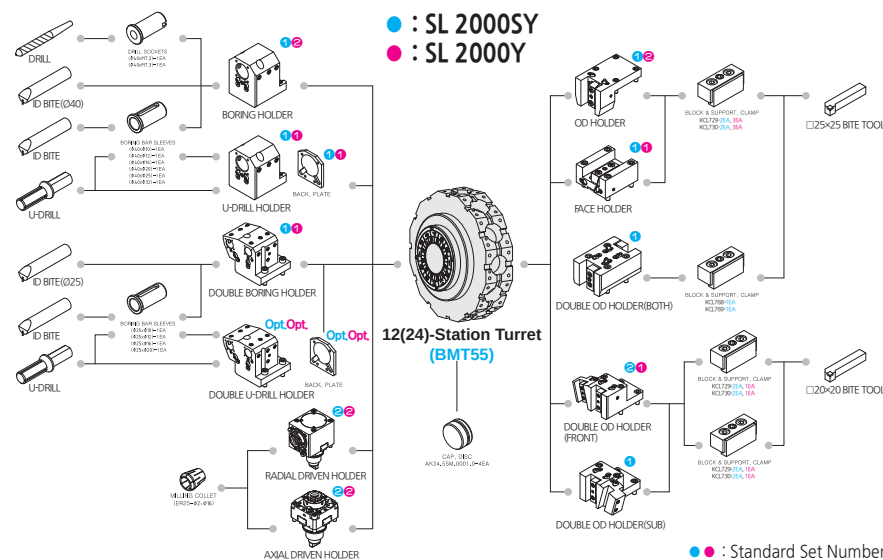
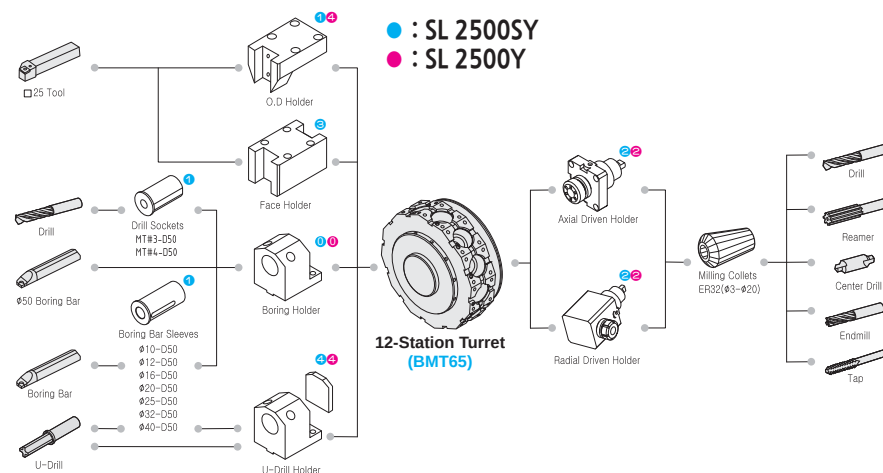


Auto Door



Chip Conveyor

Tooling System



● : Standard Set Numbers

SL 2000/2500SY(Y) series

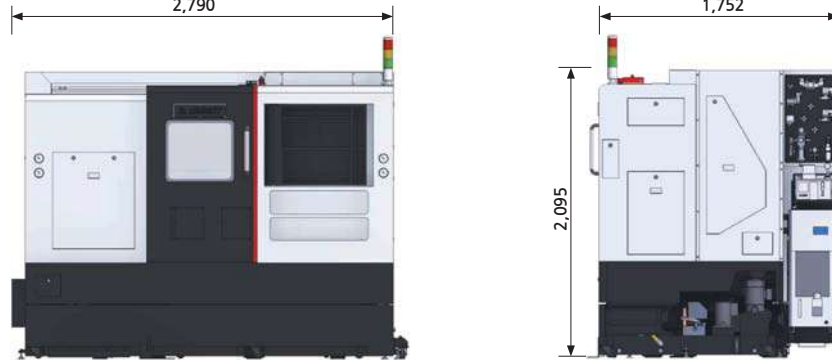
Y-axis Horizontal Turning center

SMEC Smart One, Global One

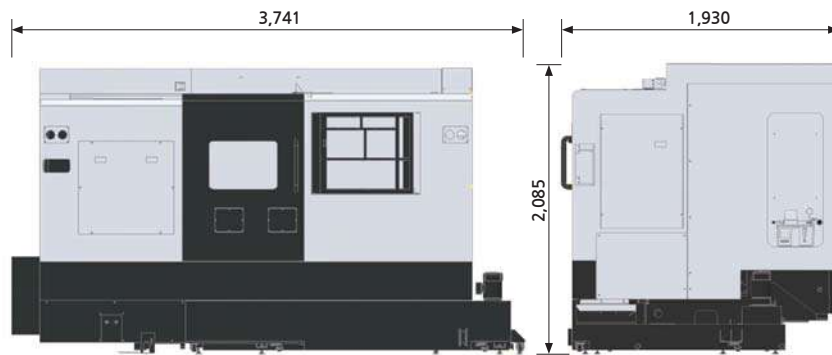
Machine Dimensions

Unit : mm

SL 2000SY/Y series



SL 2500SY/Y series



Standard Accessories

- Coolant unit (1.5bar-60Hz)
- Work light (Led lamp)
- Splash guard with side coolant tank
- Tool/Work box
- Hyd. Hollow chuck
6" [SL 2000SY/Y(A Type)]
8" [SL 2000SY/Y(B Type)]
- Soft jaw
- Leveling unit
- Chuck clamp foot switch
- Chuck clamp confirmation
- Chuck pressure switch
- Manual/Part list
- Safety precaution name plate
- Door interlock
- Oil cooler (for Sub spindle)

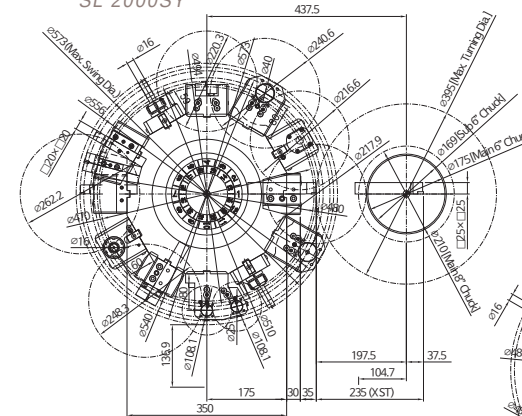
Optional Accessories

- Side chip conveyor
- Rear chip conveyor with coolant tank
- Chip bucket
- Dual pressure chucking
- Auto door
- Air gun
- Part catcher
- Hard jaw
- Oil skimmer
- Chuck coolant
- Coolant gun
- 3 step patrol light
- High pressure coolant
- Linear scale(X,Y,Z)
- Tool presetter

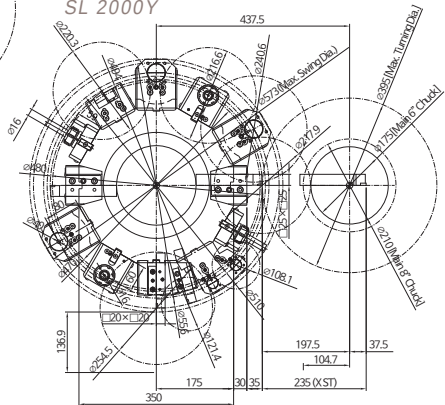
Turret Head Interference

Unit : mm

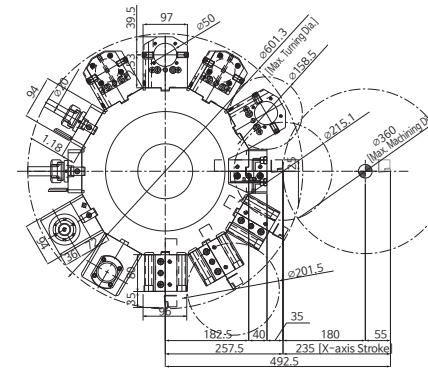
SL 2000SY



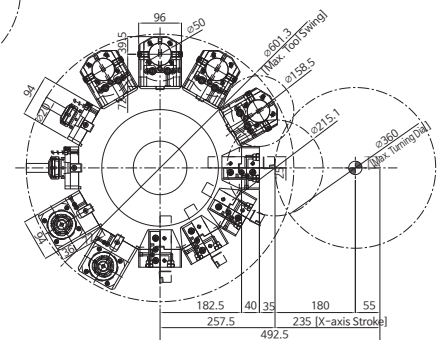
SL 2000Y



SL 2500SY



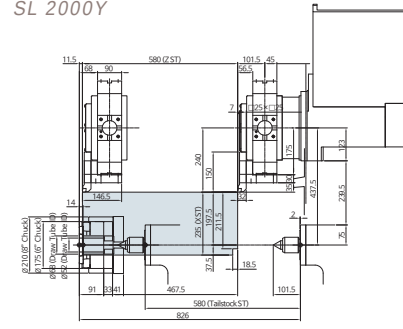
SL 2500Y



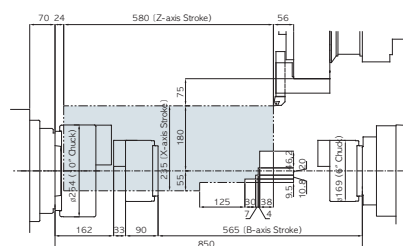
Y-axis Horizontal Turning center

Unit : mm

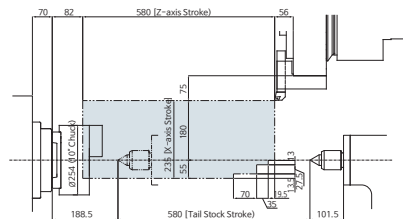
SL 2000Y



SL 2500SY(B Type)



SL 2500Y(B Type)



DESCRIPTION			SL 2000SY		SL 2000Y	
					A Type	B Type
Chuck	Chuck size	inch	6"	8"	6"	8"
Capacity	Swing over the bed	mm	650	650	650	650
	Swing over the cross slide	mm	540	540	540	540
	Max. machining diameter	mm	395	395	395	395
	Max. machining length	mm	490	450	490	450
Main Spindle	Speed	rpm	6,000	4,500	6,000	4,500
	Spindle nose	ASA	A2-5	A2-6	A2-5	A2-6
	Bore diameter	mm	61	76	61	76
	Draw tube I.D.	mm	52	68	52	68
	Motor(cont./30min)	kW	11/18.5	11/18.5	11/18.5	11/18.5
Sub Spindle	Chuck size	inch	6	6	-	-
	Speed	rpm	6,000	6,000	-	-
	Spindle nose	ASA	A2-5	A2-5	-	-
	Bore diameter	mm	45	45	-	-
	Draw tube I.D.	mm	36	36	-	-
	Motor(cont./30min)	kW	5.5 / 7.5	5.5 / 7.5	-	-
Travel	X/Y/Z/B axis travel	mm	235/105/580/580	235/105/580/580	235/105/580/580	235/105/580/580
	X/Y/Z/B rapid traverse rate	m/min	24/10/30/24	24/10/30/24	24/10/30/24	24/10/30/24
Turret	Number of tool positions	st.	12[24]	12[24]	12[24]	12[24]
	Indexing time	sec	0.15	0.15	0.15	0.15
	Shank size for square tool	mm	□25	□25	□25	□25
	Shank diameter for boring bar	mm	40	40	40	40
	Live tool type		BMT55	BMT55	BMT55	BMT55
	Live tool speed	rpm	5,000	5,000	5,000	5,000
	Milling motor (cont./30min)	kW	3.7 / 5.5	3.7 / 5.5	3.7 / 5.5	3.7 / 5.5
ELECTRIC POWER SUPPLY		kVA	49/220	49/220	41/220	41/220
REQUIRED FLOOR SPACE (L×W×H)		mm	2,790×1,752×2,095	2,790×1,752×2,095	2,790×1,752×2,095	2,790×1,752×2,095
MACHINE WEIGHT		kg	4,150	4,200	3,850	3,900
CONTROLLER			Fanuc Series / SINUMERIK 828D			

- [] : Option

SL 2000/2500SY(Y) series

Y-axis Horizontal Turning center

Major Specifications

DESCRIPTION			SL 2500SY		SL 2500Y	
			A Type	B Type	A Type	B Type
Chuck	Chuck size	inch	8"	10"	8"	10"
Capacity	Swing over the bed	mm	650	650	650	650
	Swing over the cross slide	mm	540	540	540	540
	Max. machining diameter	mm	360	360	360	360
	Max. machining length	mm	520	520	535	535
Main Spindle	Speed	rpm	4,500	3,500	4,500	3,500
	Spindle nose	ASA	A2-6	A2-8	A2-6	A2-8
	Bore diameter	mm	78	86	78	86
	Draw tube I.D.	mm	68	77	68	77
	Motor(cont./30min)	kW	11/18.5	18.5/26	11/18.5	18.5/26
Sub Spindle	Chuck size	inch	6	6[8]	-	-
	Speed	rpm	6,000	6,000[4,500]	-	-
	Spindle nose	ASA	A2-5	A2-5[A2-6]	-	-
	Bore diameter	mm	45	45[61]	-	-
	Draw tube I.D.	mm	36	36 [52]	-	-
	Motor(cont./30min)	kW	5.5/7.5	5.5/7.5[11/15]	-	-
Travel	X/Y/Z/B axis travel [8"]	mm	235/100/580/580	235/100/580/565 [204/100/580/545]	235/100/580/580	235/100/580/565
	X/Y/Z/B rapid traverse rate	m/min	18/12/24/24	18/12/24/24	18/12/24/24	18/12/24/24
Turret	Number of tool positions	st.	12[24]	12[24]	12[24]	12[24]
	Indexing time	sec	0.2	0.2	0.2	0.2
	Shank size for square tool	mm	□25	□25	□25	□25
	Shank diameter for boring bar	mm	50	50	50	50
	Live tool type		BMT65	BMT65	BMT65	BMT65
	Live tool speed	rpm	5,000	5,000	5,000	5,000
	Milling motor (cont./30min)	kW	3.7 / 5.5	3.7 / 5.5	3.7 / 5.5	3.7 / 5.5
ELECTRIC POWER SUPPLY		kVA/V	45/220	58[66]/220	36/220	48/220
REQUIRED FLOOR SPACE		mm	3,643×1,930×2,085	3,643×1,930×2,085	3,643×1,930×2,085	3,643×1,930×2,085
MACHINE WEIGHT		kg	5,800	5,600	5,600	5,800
CONTROLLER			Fanuc Series			

※Design and specifications subject to change without notice.

• [] : Option

NC Specifications / Fanuc Series

	Item	Description
Controlled axes	Controlled axes	Z-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	50~120%
	Spindle orientation	M19
	Feedrate override (10% increase)	0~200%
Feed function	Dwell	G04
	Reference position return	G27, G28
	Manual pulse generator	0.001/0.01/0.1mm
	Dry run	F0(Fine Feed), 25/50/100%
	Rapid traverse override	F0(Fine Feed), 25/50/100%
Tool function	Tool number command	T2 (2 Digit)
	Tool nose radius compensation	G40 ~ G42
	Tool offset pairs	128EA
	Tool geometry / wear offset	GEOMETRY & WEAR DATA
Programming function	Canned cycle	G70~G72, G74~G76
	Decimal point input	Able to input up to decimal point
	SUB program	4 phase
	Work coordinate system	G52~G59
	Max program dimension	±99999.999mm
Tape Functions	M function	M3 (3 digit)
	Input code	ISO/EIA auto recognition
	I/O interface	RS232C
	Program storage space	1280M(512kb)
Other features	Number of stored programs	400ea
	Display unit / MDI	10.4" color LCD / Soft input type MDI
	Synchronized tapping	Rigid tapping function
	Background editing	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