



# CNC Super Lathes



SL-20/30/35/40/40L/50/60/65/70/80/100/120

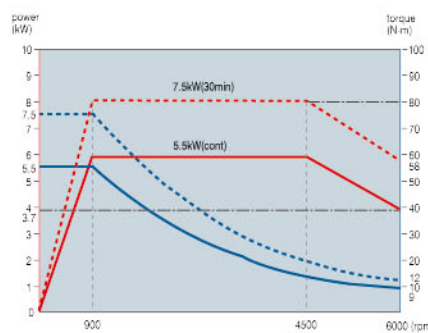
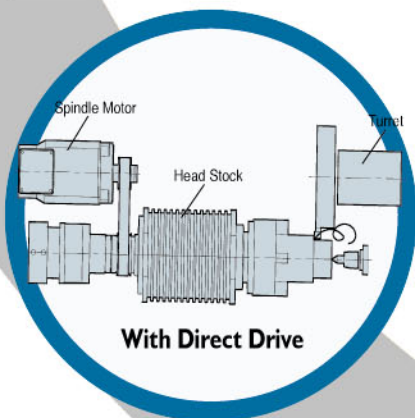
# CNC Super Lathes



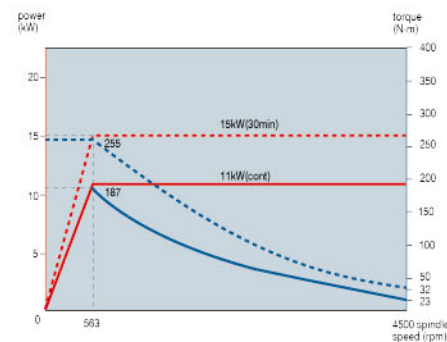
**JOHNFORD** CNC Super La  
 building and test to provide  
 The CNC Super Lathes also  
**JOHNFORD's** outstanding  
 to achieve a mass producti

## SL-20 / 30 / 40 / 40L

### Torque Power Chart



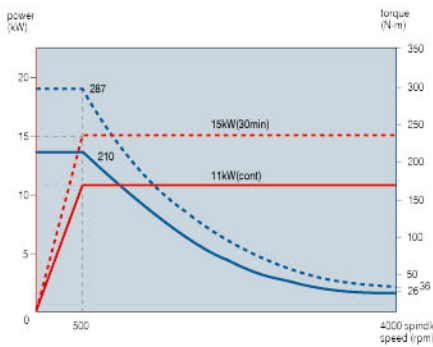
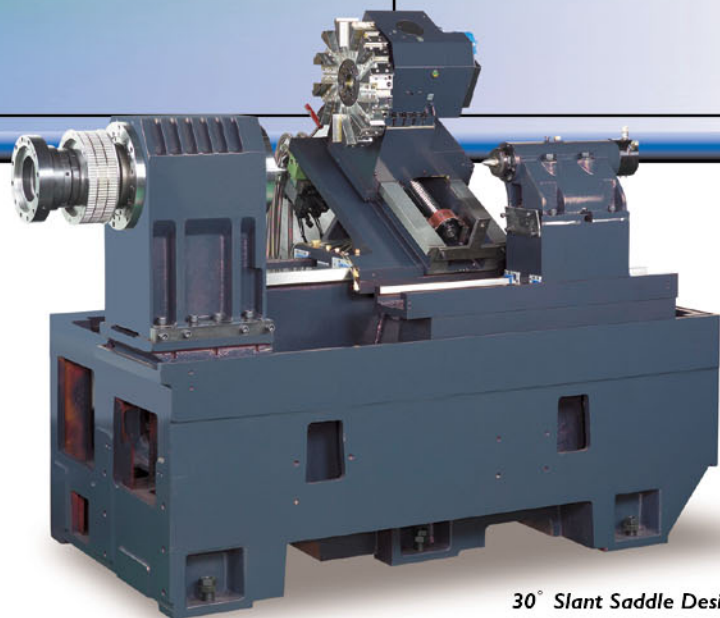
SL-20 FANUC AC @ 6i



SL-30/35 FANUC AC @ P22



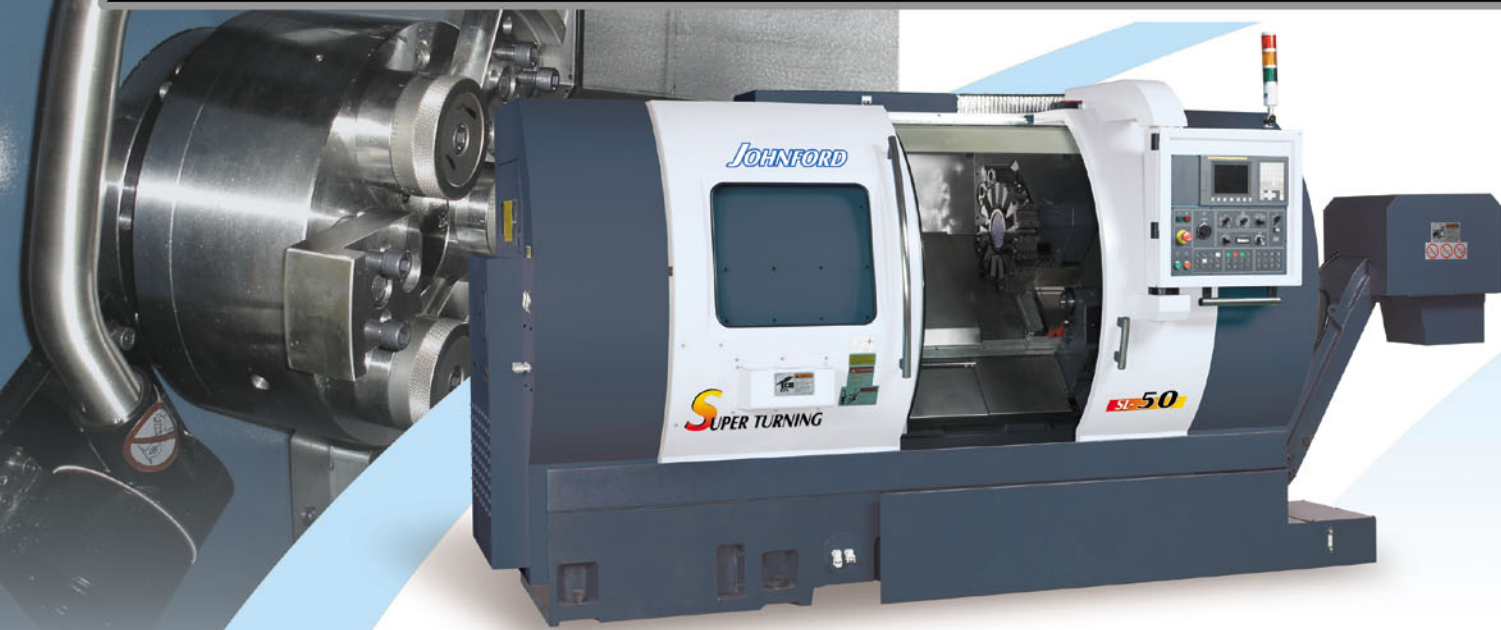
These are under strict engineering,  
 you the best machining quality.  
 bring you profitable operations.  
 technology experience will help you  
 on and down the cost.



SL-40/40L FANUC AC or P22

30° Slant Saddle Design  
 (for SL-20/30/40/40L)

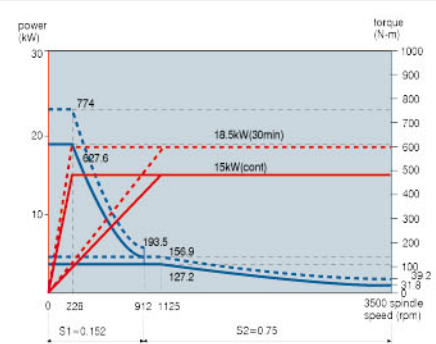
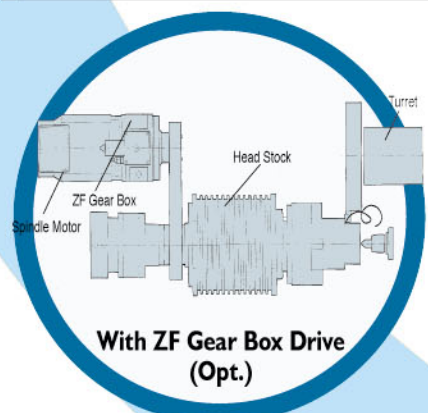
# CNC Super Lathes



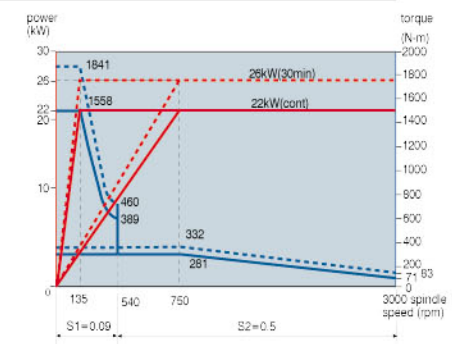
## SL-35 / 50 / 60 / 65 / 70 / 80 / 100 /

### Torque Power Chart

\* About the power chart of SL-35, please refer to the content of Page 1.



SL-50/60/65 FANUC AC α 15

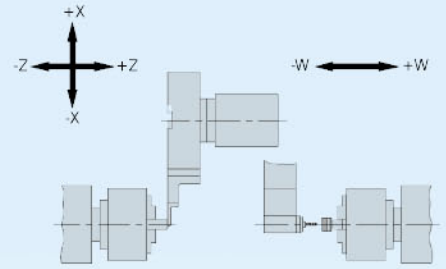


SL-50A/60A/65A/70A/80A/100A FANUC AC α 22

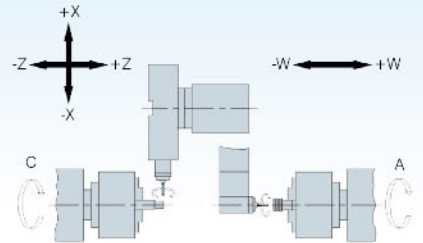
INCREASE YOUR PROFIT WITH JOHNFORD



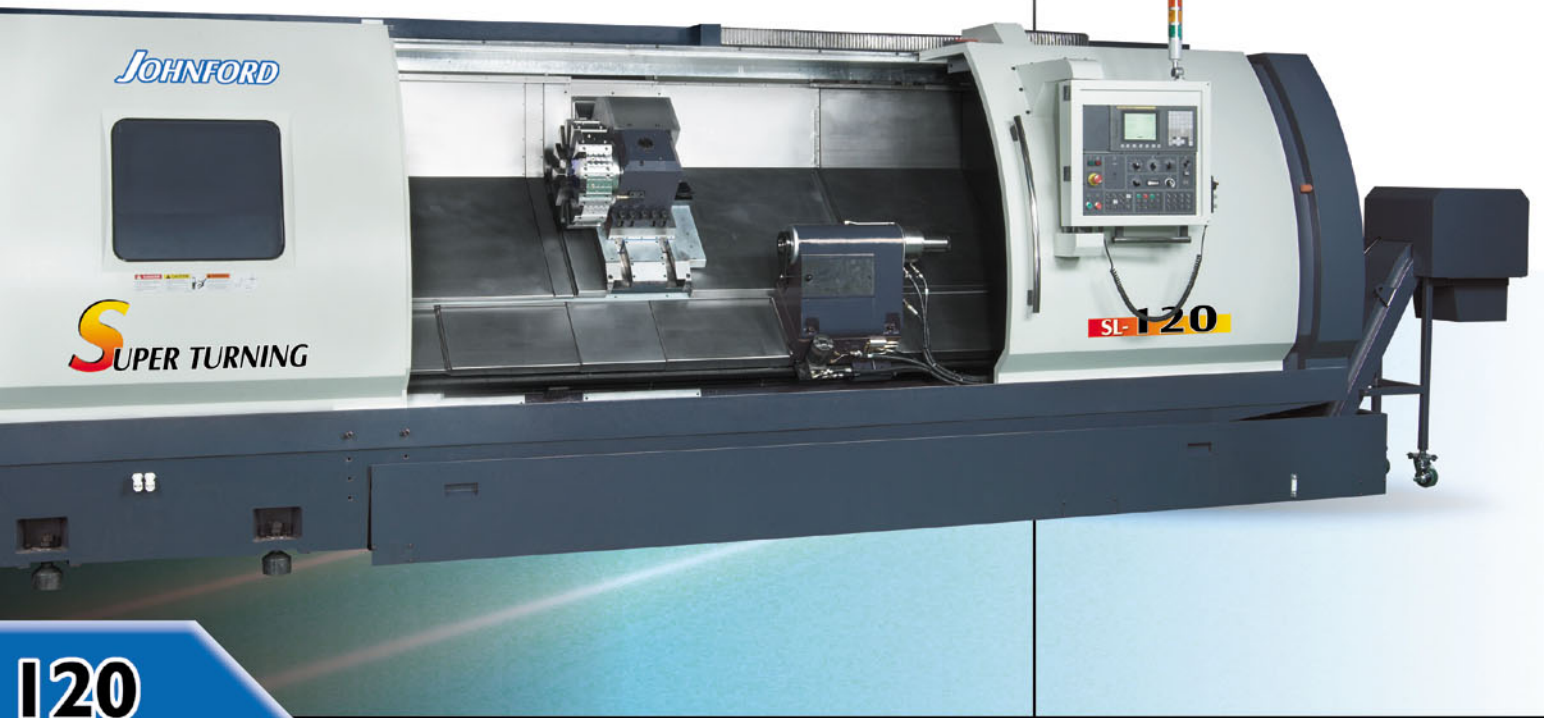
➔ Sub-Spindle Series (SL-35/50/60/50A/60A/70A/80A/100A-2S)



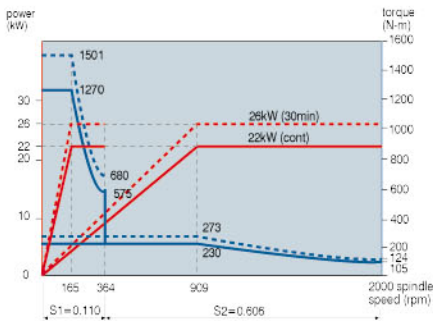
2S Series



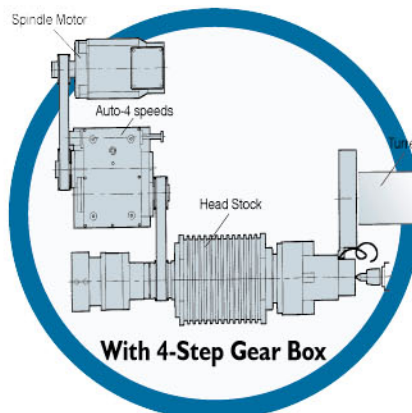
2S+C-Axis Series



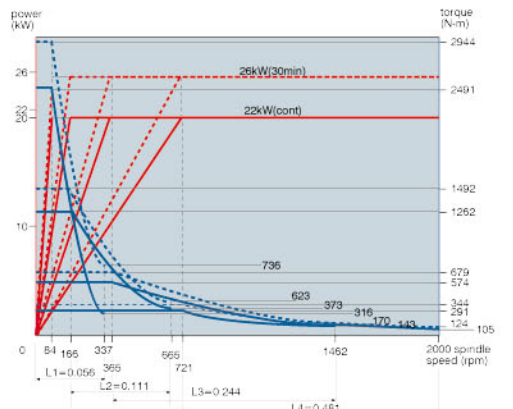
120



SL-50B/60B/65B FANUC AC @ 22



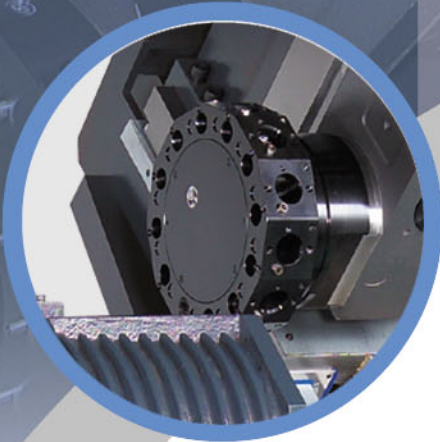
With 4-Step Gear Box



SL-70B/80B/100B FANUC AC @ 22

# Advanced Structure

\* This construction is only for SL-35/50/60/65/70/80/100/120



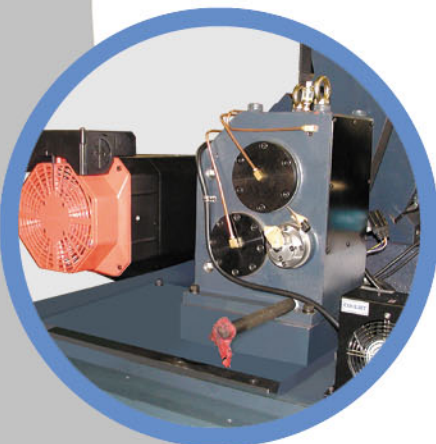
## ← Turrets

- High stiffness and accuracy (positioning  $\pm 3''$  / repeatability  $\pm 1''$ )
- High loading capacity:
  1.  $\uparrow$ , 369 kgf-m  $\rightarrow$  410 kgf-m  $\leftarrow$  174 kgf-m for CLT-80
  2.  $\uparrow$ , 600 kgf-m  $\rightarrow$  1008 kgf-m  $\leftarrow$  420 kgf-m for CLT-100
  3.  $\uparrow$ , 1535 kgf-m  $\rightarrow$  1646 kgf-m  $\leftarrow$  809 kgf-m for CLT-160
- Clamping forces :
  1. 2530 kg for CLT-80
  2. 3400 kg for CLT-100 / 160



## ← High precision spindle is the most suitable to do heavy cutting with rigid structure. It has great power exceeding the turning machines of the same grade in the industry.

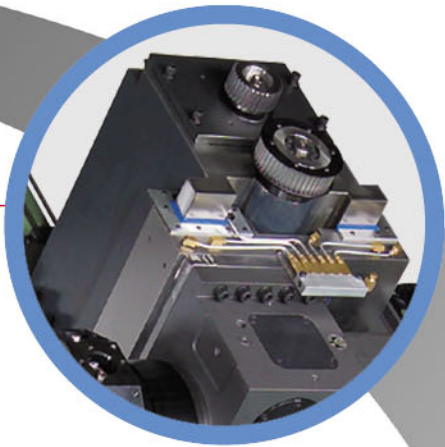
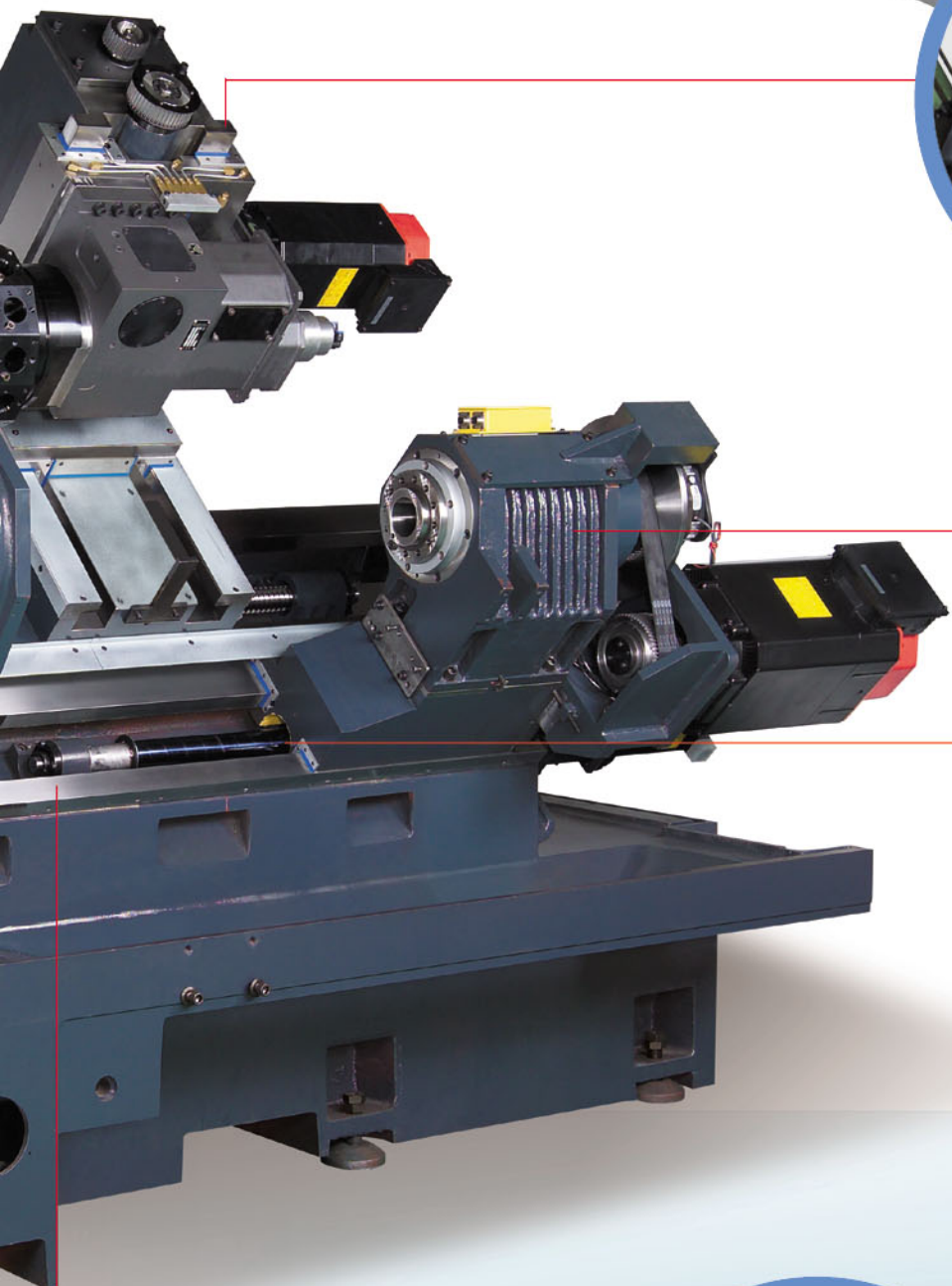
- Bar capacity:
- $\phi 42$  mm ( $\phi 1.7''$ ) / A2-5
  - $\phi 51$  mm ( $\phi 2''$ ) / A2-6
  - $\phi 76.5$  mm ( $\phi 3''$ ) / A2-8
  - $\phi 91$  mm ( $\phi 3.6''$ ) / A2-8
  - $\phi 102$  mm ( $\phi 4''$ ) / A2-11 (Opt.)
  - $\phi 116$  mm ( $\phi 4.6''$ ) / A2-11



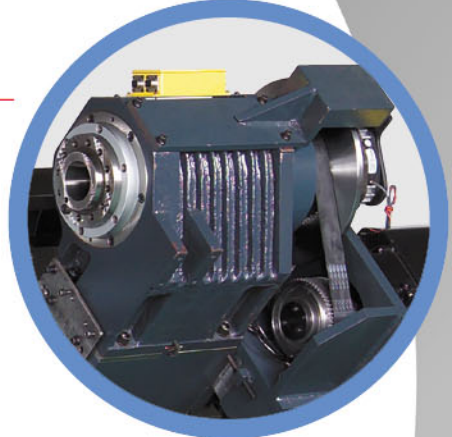
- ↑ The speed change gear box can give high torque output for cutting. It handles heavy duty cutting with ease and offer proper speed range for light and medium cutting as well. On the models of SL-20/30/35/40/40L, the gear box is optional. The ZF gear box is also optional for your choice.



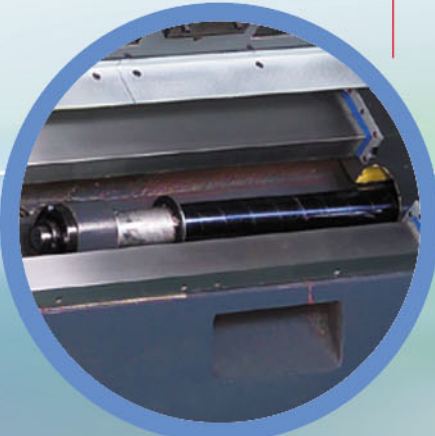
- ↑ The bed of machine is made from high quality Meehanite cast iron, one piece cast and scientifically constructed for high stability, rigidity, and accuracy.



⤴ The optional Y axis with C axis can provide you flexible turning operations to make the special parts.



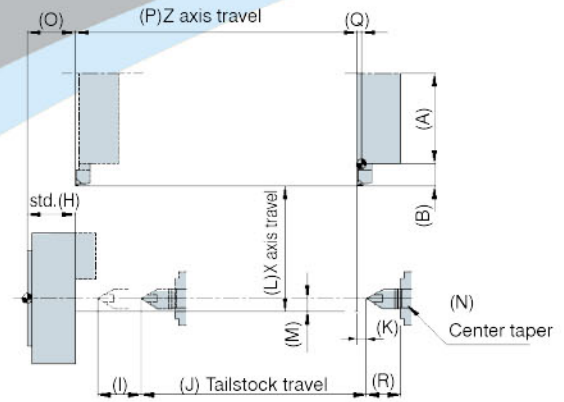
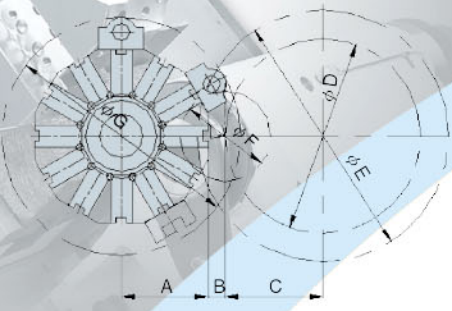
⤴ There are two types of tailstocks used on the SL machines, hydraulic tailstock and programmable hydraulic tailstock. The hydraulic tailstock is standard for SL-20/30/40/40L and the programmable hydraulic tailstock is standard for SL-35/50/60/65/70/80/100/120. Both of the tailstocks have larger tailstock quill diameter and taper, and the rotary quill is optional. The quill travel on the programmable hydraulic tailstock is controlled with limit switch.



⤴ High rigid and accurate ballscrews are  $\phi 28$  mm ( $\phi 1.1$ ") and  $\phi 40$  mm ( $\phi 1.6$ ") for X axis and  $\phi 40$  mm ( $\phi 1.6$ ") and  $\phi 50$  mm ( $\phi 2$ ") for Z axis. Large diameter of ballscrew is  $\phi 40$  mm ( $\phi 1.6$ ") for the optional Y axis. They are pretensioned to eliminate thermal growth.

⤴ All sideways are hardened, precision ground coated with TURCITE-B plus master scraping, ensuring smoothness, accuracy and durability.

# 12-Angle Turret Working Capacity/Range



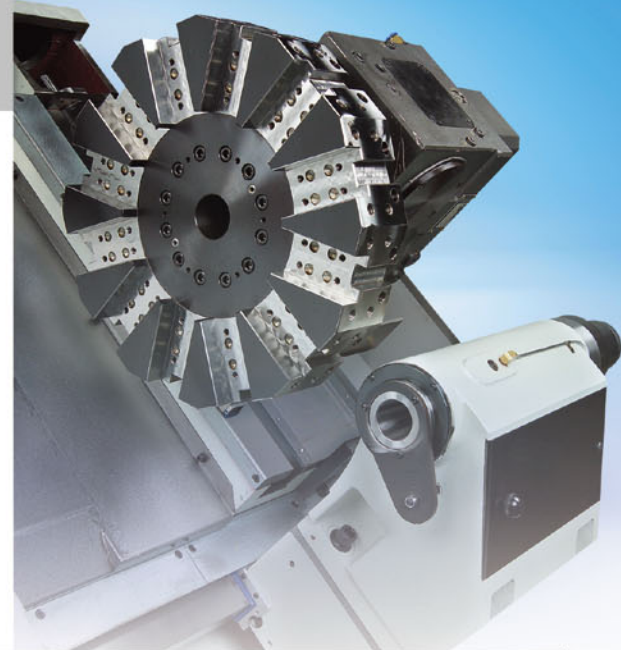
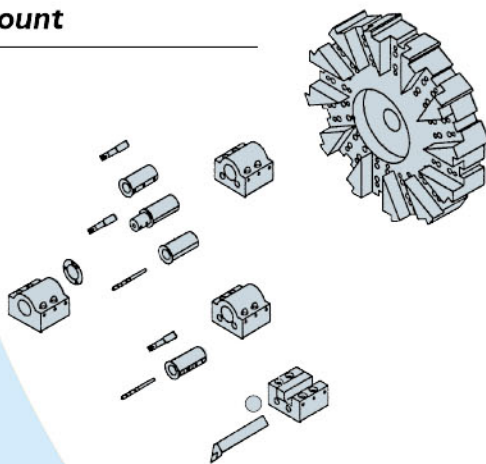
See the specification.

Unit: mm

Model	Item	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SL-20				165	330	400			91		500		180			91	600		
SL-30				175	350		165	460	103		320		190	15	MT.4	103	400		68
SL-35	170	35								60			240				600		
SL-40											500						1000		
SL-40L											900						113	650	10
SL-50			225	450	580				113		530					113	1040		
SL-60	210	40					209	550		100	900	10	250				1500		
SL-65											1300						1550		
SL-70											1200			25	MT.5		2000		90
SL-80											1700					122	2500		
SL-100	234	36	270	540	700	246	658	122	125		2200		295				3000		
SL-120											2700								

## Tool

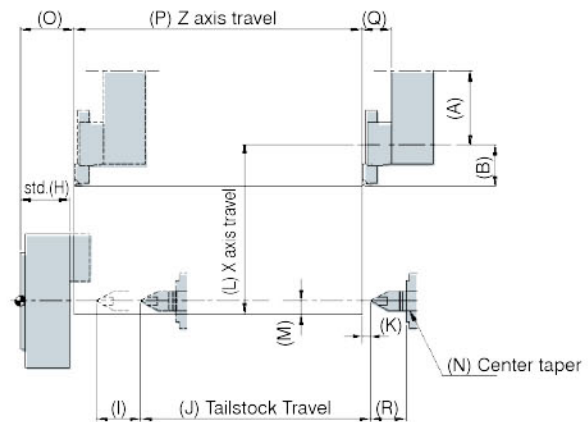
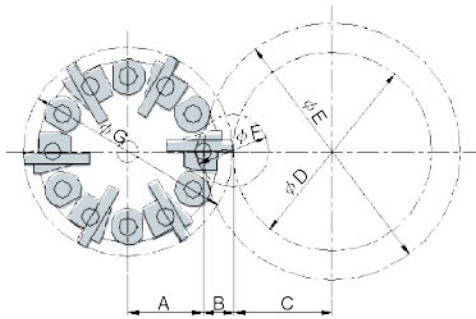
### Direct Mount



Tool	Model	SL-20 / 30 / 35 / 40 / 40L	SL-50 / 60 / 65	SL-70 / 80 / 100 / 120
Bore		φ8, φ10, φ12, φ16 φ20, φ25, φ32	φ8, φ10, φ12, φ16 φ20, φ25, φ32, φ40	φ12, φ16, φ20, φ25 φ30, φ32, φ40, φ50
Outer dia		□25, □20 (Opt.)	□25	□32
End		□25, □20 (Opt.)	□25	□32
Tap		φ16	φ20	φ32
Drill		MT#2, #3	MT#2, #3, #4	MT#2, #3, #4, #5



# 12-VDI Turret Working Capacity/Range



See the specification.

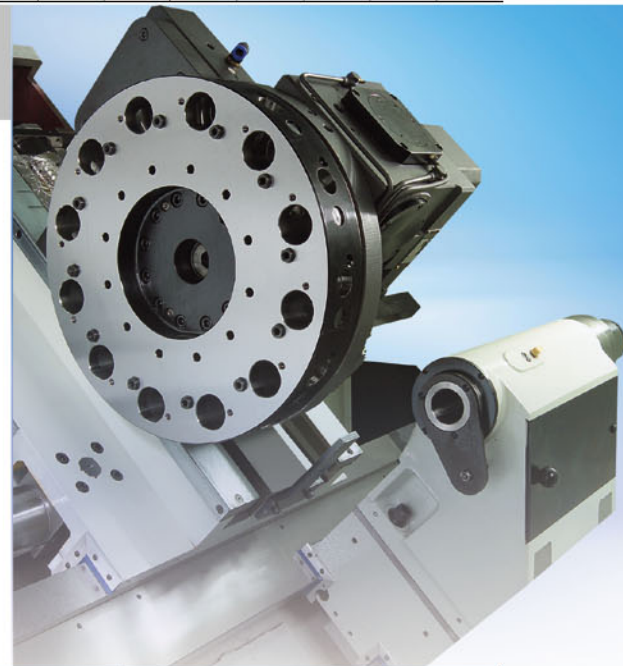
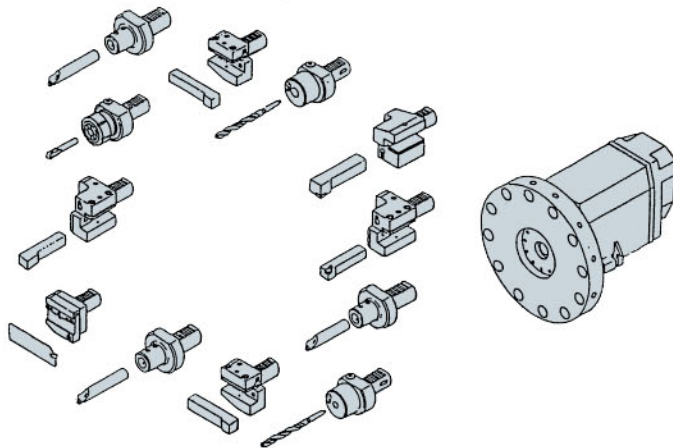
\*When the machine is equipped with the optional Y-axis function, the Z-axis travel (P) and the tailstock travel (J) are less 100 mm than the specifications on the table.

Unit: mm

Model	Item	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SL-20				125	250	400			91		500		180			91	600		
SL-30																			
SL-35	133	45		135	270		161	460	103	60	320		190		MT.4	103	400	45	68
SL-40											500		240				600		
SL-40L											900						1000		
SL-50				185	370	580			113		530					113	650		
SL-60	170	55					154	620		100	900	10	250	10			1040	55	
SL-65											1300						1500		
SL-70											1200						1550		90
SL-80											1700				MT.5		2000		
SL-100	200	64	221	442	700	224	685	122	125		2200		295			122	2500	67	
SL-120											2700						3000		

## Tool

### VDI (Opt.)



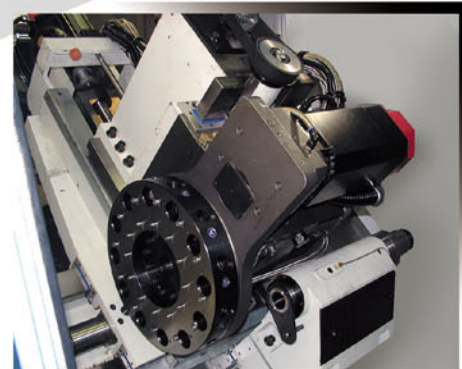
Tool	Model	SL-20 / 30 / 35 / 40 / 40L	SL-50 / 60 / 65	SL-70 / 80 / 100 / 120
Bore		$\phi 8, \phi 10, \phi 12, \phi 16$ $\phi 20, \phi 25, \phi 32$	$\phi 8, \phi 10, \phi 12, \phi 16$ $\phi 20, \phi 25, \phi 32, \phi 40$	$\phi 12, \phi 16, \phi 20, \phi 25$ $\phi 30, \phi 32, \phi 40, \phi 50$
Outerdia		$\square 25$	$\square 20, \square 25$	$\square 25, \square 32$
End		$\square 25$	$\square 20, \square 25$	$\square 25, \square 32$
Tap		$\phi 16$	$\phi 20$	$\phi 32$
Drill		MT#1, #2, #3	MT#2, #3, #4	MT#2, #3, #4, #5

# Power Turret with C-Axis/C+Y-Axis Function

C-axis or C+Y-axis provides flexible turning performance for handling cam or special profiled parts that need milling / drilling / tapping operations. 0.001 degree indexing allows accurate circular positioning.

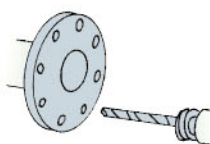


Power Turret with C-Axis

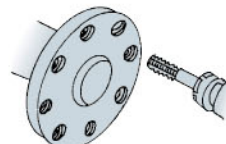


Power Turret with C+Y-Axis

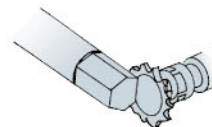
## Examples for Machining with Live Tools



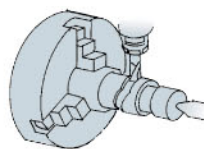
Drilling



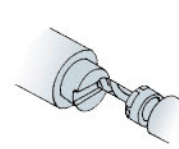
Thread cutting



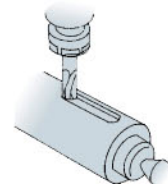
Face cutting



Cam cutting

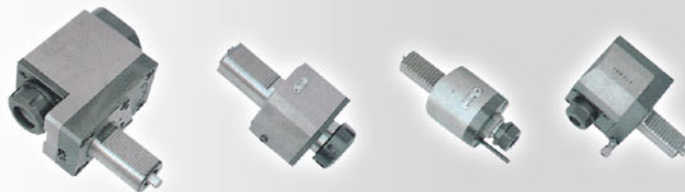


Slot cutting






Key way cutting

## Live Tooling



## Specifications

Item	Model	SL-20 / 30 / 35 / 40 / +C		SL-50 / 60 / 65 / +C		SL-70 / 80 / 100 / 120 +C	
		TBMA 160	TBYA 160*	TBMA 200	TBYA 200*	TBMA 250	TBYA 250*
Power turret model (* for Y-axis)		TBMA 160	TBYA 160*	TBMA 200	TBYA 200*	TBMA 250	TBYA 250*
Max. speed of turret		4800 rpm		3800 rpm		3276 rpm	
Twist drilling	$d \times a$ (mm)x(mm/it)			12 x 0.20		20 x 0.20	
Slot milling	$d \times P \times a$ (mm)x(mm)x(mm/min)			20 x 10 x 40		25 x 20 x 40	
Tapping	$d \times p$ (mm)x(mm)			M8 x 1.25		M16 x 2	
Toolholder shaft size		$\phi 30$		$\phi 40$		$\phi 50$	
Motor horsepower		AC 3.7 / 2.2 kW		AC 5.5 / 3.7 kW		AC 5.5 / 3.7 kW	

# High Performance Spindles

## Spindle



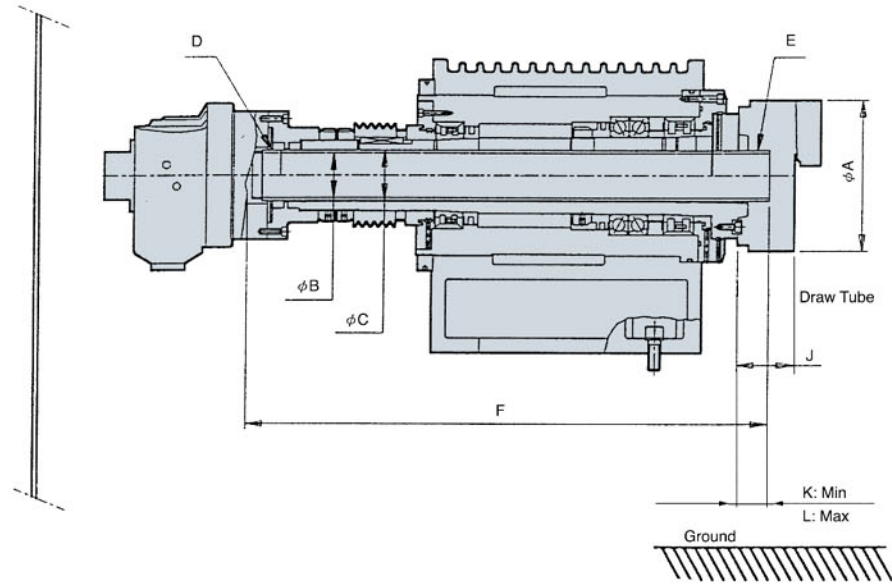
The spindle is mounted on precision-double-row roller bearings in conjunction with angular contact ball bearings, providing highest rigidity and accuracy.

The spindle is manufactured from alloy steel, heat treated and precision ground for maximum uniformity and durability.

The quill inner and outer lining is precision ground for fit with the spindle, thus ensuring extreme concentricity and accuracy of turned parts, and spindle service life is greatly extended.

## Spindle Construction

- Accuracy
- Rigidity
- Durability
- Efficiency



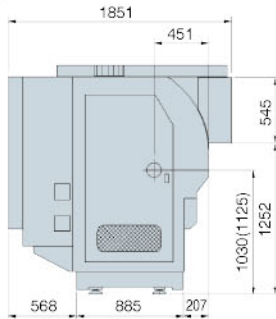
Unit: mm

Model	Dimension	φ A	φ B	φ C	D	E	F	J	K	L
SL-20		φ 165	φ 42	φ 55	M55 x P2.0	M55 x P2.0	426	85	32	54
SL-30 / 35		φ 210	φ 51	φ 65	M60 x P1.5	M60 x P2.0	665	103	32	54
SL-40 / 40L		φ 210	φ 76.5	φ 86	M85 x P2.0	M85 x P2.0	677	115	32.5	57.5
SL-50 / 60 / 65		φ 254	φ 76.5	φ 86	M87 x P2.0	M85 x P2.0	871.5	113	32.5	51.5
SL-50A / 60A / 65A / 70A / 80A / 100A / 120A		φ 304	φ 91	φ 115	M100 x P2.0	M100 x P2.0	1071	122	31	54
SL-50A / 60A / 65A / 70A / 80A / 100A / 120A (Opt.)		φ 315	φ 102	φ 115	M130 x P2.0	M115 x P2.0	1118	134	47	70
SL-50B / 60B / 65B / 70B / 80B / 100B / 120B		φ 381	φ 116	φ 132.5	M130 x P2.0	M130 x P2.0	1084	149	49	72

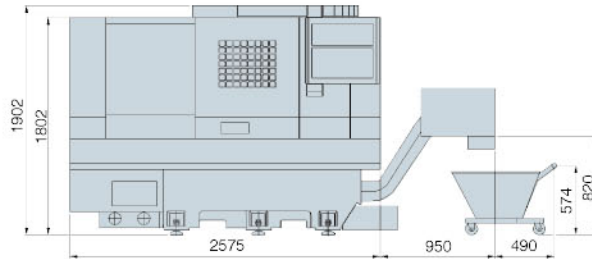
# Dimensions

## SL-20 / 30 / 40

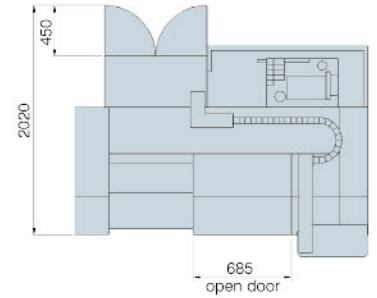
( ) For SL-40



Side View

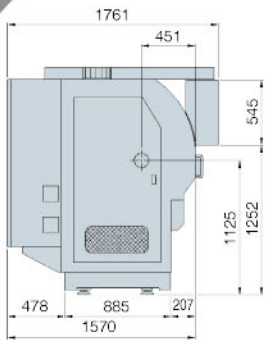


Front View

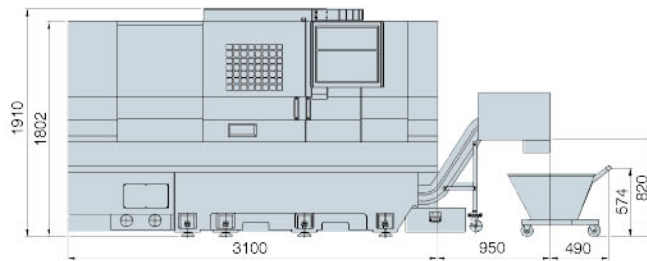


Top View (floor space required)

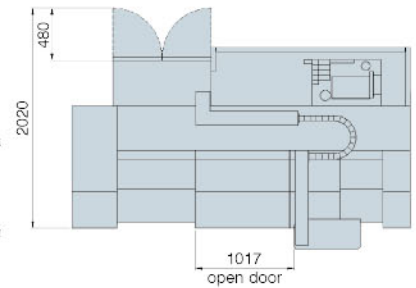
## SL-40L



Side View

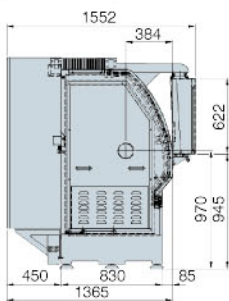


Front View

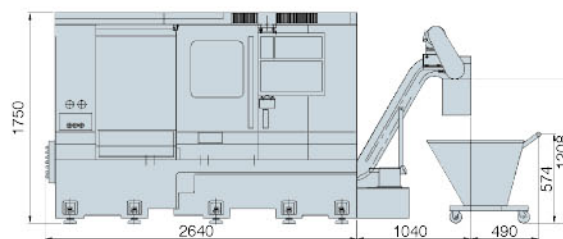


Top View (floor space required)

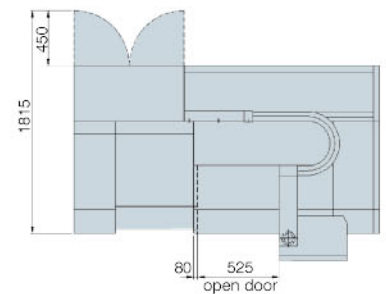
## SL-35



Side View



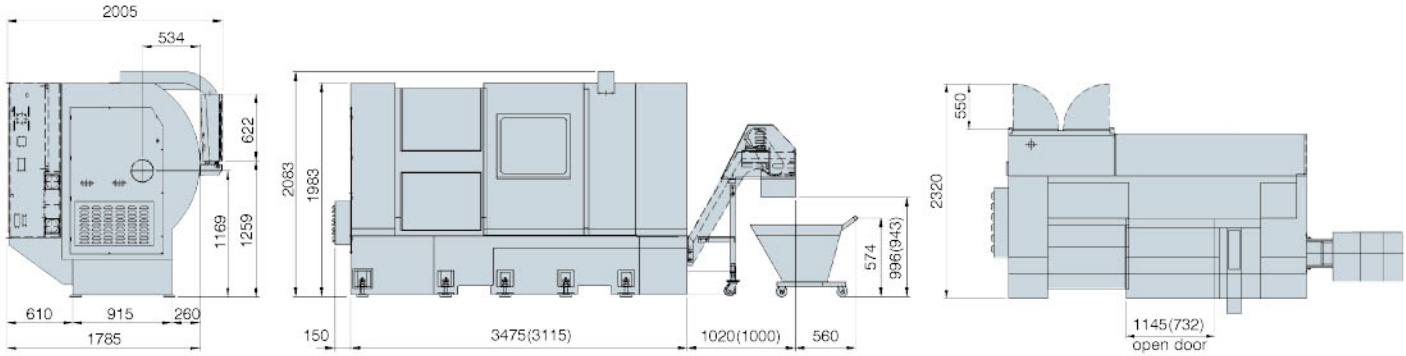
Front View



Top View (floor space required)

**SL-50 / 50A / 50B / 60 / 60A / 60B**

( ) For SL-50 / 50A / 50B

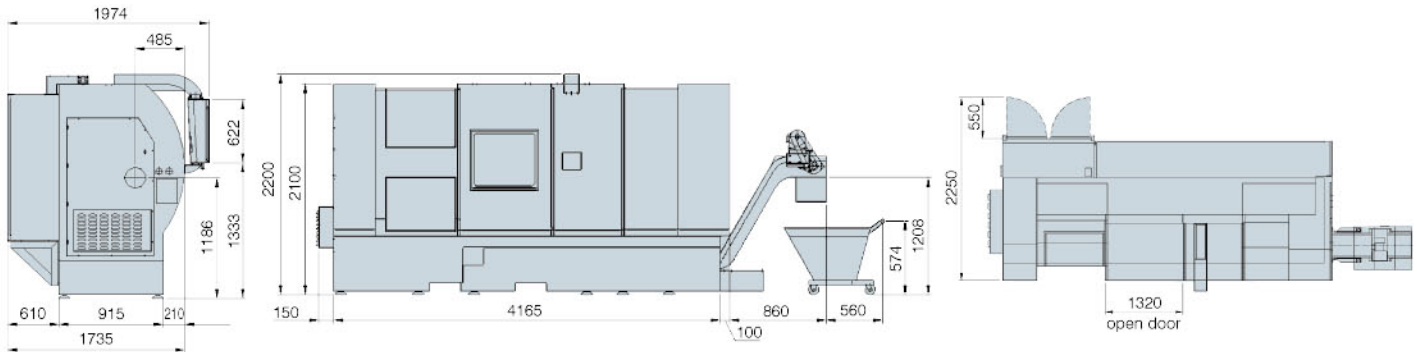


Side View

Front View

Top View (floor space required)

**SL-65 / 65A / 65B**



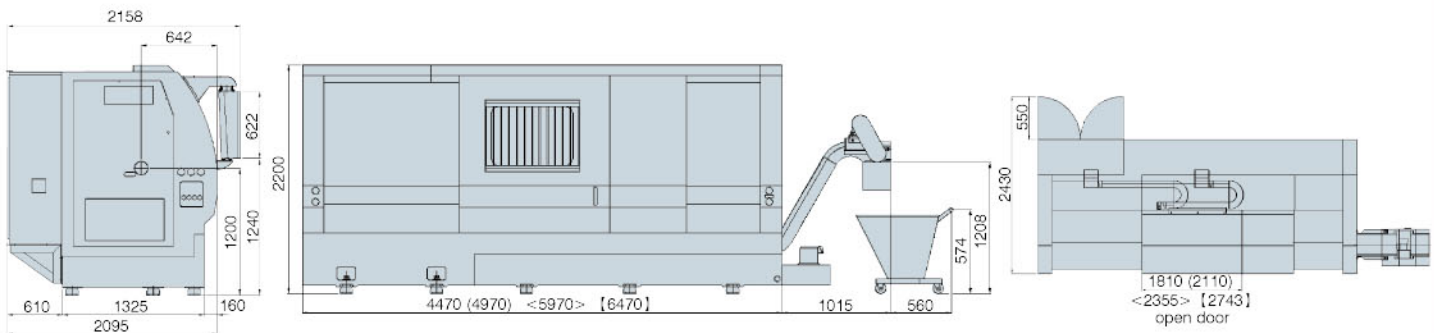
Side View

Front View

Top View (floor space required)

**SL-70A / 80A / 100A / 120A / 70B / 80B / 100B / 120B**

( ) For SL-80A / 80B    < > For SL-100A / 100B    [ ] for SL-120A / 120B



Side View

Front View

Top View (floor space required)

# Specifications

Item	Model	SL-20	SL-30	SL-35	SL-40	SL-40L	SL-50	SL-60	SL-65	SL-50A	SL-60A	SL-65A	
Swing over bed (mm)		φ 400			φ 580								
Swing over cross slide (mm)		φ 330		φ 350		φ 450							
Chuck size (inch)		6	8		10				12				
Bar capacity (mm)		φ 42	φ 51		φ 76.5				φ 91 / φ 102 (Opt.)				
Spindle nose		A2-5	A2-6		A2-8				A2-8 / A2-11 (Opt.)				
Spindle bore (mm)		φ 55	φ 65		φ 86				φ 115				
Spindle speed step		One speed					Auto Hi-Lo						
Spindle speed (rpm)		6000	4500		4000		3500			3000 / 2800 (Opt.)			
Spindle motor (kW)		5.5 / 7.5		11 / 15			15 / 18.5			22 / 26			
Spindle bearing diameter (mm)		φ 90	φ 100		φ 120		φ 130			φ 160			
No. of tools		12											
Cross travel (X-axis) (mm)		180	190		240		250						
Y-axis travel (mm)		-		±40									
Longitudinal travel(Z-axis)(mm) (forY-axis)		600		400 (300)	600 (500)	1000 (900)	650 (550)	1040 (940)	1500 (1400)	650 (550)	1040 (940)	1500 (1400)	
Rapid traverse (X/Y/Z) (m/min)		24 / - / 24		24 / 10 / 24		20 / 10 / 20		15 / 10 / 18					
Tailstock travel (mm) (forY-axis)		500		320	500 (400)	900 (800)	530 (430)	900 (800)	1300 (1200)	530 (430)	900 (800)	1300 (1200)	
Tailstock quill travel (mm)		60					100						
Tailstock quill diameter (mm)		φ 60					φ 85						
Tailstock	Fixed	MT#4					MT#5						
spindle taper	Rotary	MT#3 (Opt.)					MT#4 (Opt.)						
Servo motor (X-axis) (kW)		1.6					3 / 4 (forY-axis)						
Servo motor (Y-axis) (kW)		-		1.6									
Servo motor (Z-axis) (kW)		1.6			3		4						
Power turret motor (Y-axis)(kW)		-		3.7 / 5.5									
Inclination: Bed / Saddle(*)		30° (*)		45°	30° (*)		45°						
Weight (kg)		3800	4000	4200	4500	5500	6500	8500	10500	7000	9000	11000	
Machine dimensions (mm)	W x H	1851 x 1862		1552x1710		1851 x 1862		2320 x 2060	2320 x 2060	2250 x 2160	2320 x 2060	2320 x 2060	2250 x 2160
	L	3525		3680	3525	4050	4265	4645	5275	4265	4645	5275	

■ All data subject to change without notice.

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## Standard Accessories:

- Coolant system
- Splash guard
- Through hole 3-jaw chuck
- Programmable hydraulic tailstock (for SL-35/50/65/70/80/100/120)
- Hydraulic tailstock quill (for SL-20/30/40/40L)
- Chain type chip conveyor
- Tool box and various manuals
- Tool holders (direct mounting type)
- Auto lubrication with alarm
- Halogen working lamp
- Type of guide ways: box ways

Item	Model	Model											
		SL-70A	SL-80A	SL-100A	SL-120A	SL-50B	SL-60B	SL-65B	SL-70B	SL-80B	SL-100B	SL-120B	
Swing over bed (mm)		φ 700				φ 580			φ 700				
Swing over cross slide (mm)		φ 540				φ 450			φ 540				
Chuck size (inch)		12							15				
Bar capacity (mm)		φ 91 / φ 102 (Opt.)							φ 116				
Spindle nose		A2-8 / A2-11 (Opt.)							A2-11				
Spindle bore (mm)		φ 115							φ 132.5				
Spindle speed step		Auto Hi-Lo						4 steps					
Spindle speed (rpm)		3000 / 2800 (Opt.)							2000				
Spindle motor (kW)								22 / 26					
Spindle bearing diameter (mm)		φ 160							φ 180				
No. of tools								12					
Cross travel (X-axis) (mm)		295				250			295				
Y-axis travel (mm)		± 50				± 40			± 50				
Longitudinal travel(Z-axis)(mm) (forY-axis)		1550 (1450)	2000 (1900)	2500 (2400)	3000 (2900)	650 (550)	1040 (940)	1500 (1400)	1550 (1450)	2000 (1900)	2500 (2400)	3000 (2900)	
Rapid traverse (X/Y/Z) (m/min)		12 / 10 / 15				15 / 10 / 18			12 / 10 / 15				
Tailstock travel (mm) (forY-axis)		1200 (1100)	1700 (1600)	2200 (2100)	2700 (2600)	530 (430)	900 (800)	1300 (1200)	1200 (1100)	1700 (1600)	2200 (2100)	2700 (2600)	
Tailstock quill travel (mm)		125				100			125				
Tailstock quill diameter (mm)		φ 125				φ 85			φ 125				
Tailstock	Fixed	MT#5				MT#5			MT#5				
spindle taper	Rotary	MT#5 (Opt.)				MT#4 (Opt.)			MT#5 (Opt.)				
Servo motor (X-axis) (kW)								3					
Servo motor (Y-axis) (kW)		3.8				1.6			3.8				
Servo motor (Z-axis) (kW)								4					
Power turret motor (Y-axis)(kW)								3.7 / 5.5					
Inclination: Bed / Saddle(*)								45°					
Weight (kg)		14000	15000	16000	17000	7500	9500	11500	14000	15000	16000	17000	
Machine	W x H	2430 x 2160				2320 x 2060	2320 x 2060	2250 x 2160	2430 x 2160				
dimensions (mm)	L	5485	5985	6985	7485	4265	4645	5275	5485	5985	6985	7485	

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#### Optional Accessories:

1. C-axis (C.S axis with angle encoder but no gear box / C.F axis with gear box)
2. C+Y-axis
3. Contact tool setting system (Renishaw TS20 or BULM NT-A2/NT-A3)
4. Parts catcher
5. Tool holders (VDI type)
6. Programmable hydraulic tailstock (for SL-20/30/40/40L)
7. Bar feeder interface (or bar feeder)
8. Auto Hi-Lo gear box (SL-20/30/35/40/40L)
9. Rotary tailstock
10. Manual guide *i* / *0i* (0i/TC) ; Manual guide *i* (18iT / 21iT)
11. Angle encoder for C-axis

Item		Model	Sub-Spindle							
			SL-35-2S	SL-50-2S	SL-60-2S	SL-50A-2S	SL-60A-2S	SL-70A-2S	SL-80A-2S	SL-100A-2S
Swing over bed (mm)		φ 400	φ 580			φ 700				
Swing over cross slide (mm)		φ 280	φ 450 / φ 370 (Y-axis)			φ 540				
Chuck size (inch)		8	10		12					
Bar capacity (mm)		φ 51	φ 76.5		φ 91 / φ 102 (Opt.)					
Spindle nose		A2-6	A2-8		A2-8 / A2-11 (Opt.)					
Spindle bore (mm)		φ 66	φ 86		φ 115					
Spindle speed step		One speed			Auto Hi-Lo					
Spindle speed (rpm)		4500	3500		3000 / 2800 (Opt.)					
Spindle motor (kW)		9 / 11	15 / 18.5		22 / 26					
Spindle bearing diameter (mm)		φ 100	φ 130		φ 160					
Sub-spindle chuck size (inch)		6	8							
Sub-spindle bar capacity (mm)		φ 42	φ 51							
Sub-spindle nose		A2-5	A2-6							
Sub-spindle bore (mm)		φ 55	φ 66							
Sub-spindle speed step		One speed								
Sub-spindle speed (rpm)		6000	4500							
Sub-spindle motor (kW)		5.5 / 7.5	11 / 15							
Sub-spindle bearing diameter (mm)		φ 85	φ 100							
No. of tools		12								
Cross travel (X-axis) (mm)		155	250 / 200 (for Y-axis)			295				
Y-axis travel		—	± 40			± 50				
Longitudinal travel (Z <sub>1</sub> /Z <sub>2</sub> -axis) (mm)		400	500	900	500	900	1400	1800	2300	
Rapid traverse (X, / Y / Z, / Z <sub>2</sub> )(m/min)		16 / — / 20 / 24	15 / 10 / 18 / 18			12 / 10 / 15 / 15				
Servo motor (X-axis) (kW)		1.6	3 / 4 (for Y-axis)							
Servo motor (Y-axis) (kW)		—	1.6			3.8				
Servo motor (Z <sub>1</sub> /Z <sub>2</sub> -axis) (kW)		1.6	4.0							
Power turret motor (Y-axis) (kW)		—	3.7 / 5.5							
Inclination: Bed		45°								
Weight (kg)		5000	6500	7800	6500	7800	14000	14500	15000	
Machine dimensions (mm)	W x H	1670 x 1750	2100 x 2120			2520 x 2200				
	L	3933	4400	5210	4675	5540	5485	5985	6485	

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# CNC Control Specs



## ■ CNC system type

O: Std. △: Opt. -: Nil

Type	Model	SL-20/30/35/40/40L/50/60/65/70/80/100/120
Fanuc 0i-TD		○
Fanuc 31iB		△
Siemens 840D(571.5)		△
Siemens 840D(572.5)		△

## ■ Fanuc specifications

O: Std. △: Opt. -: Nil

	Item	Specifications	0iTD	31iB
Display unit	8.4" color LCD		○	-
	10.4" color LCD		△	○
	Data Server with 2GB CF card		△	△
	NC program memory	1280M (512KB)	○	○
Function	Conversational programming	Manual guide 0i 0iTD	○	-
	with graphic function	Manual guide i 31iB / 0iTD (10.4" LCD)	△	○
	No. of tool offset sets		64	32
	No. of variable command sets		500	500
	Work coordinate system	G54~G59	○	△



## ■ Siemens specifications

O: Std. △: Opt. -: Nil

	Item	Specifications	840D
Operation Panel	10.4" color LCD		○
	12.1" color LCD		△
	15.1" color LCD		△
	Machine Panel MCP483C		○
	PCU 20 without hard disk		○
	Network/disk drive management	CF card	△
	PCU 50 with hard disk	Include HD & Ethernet	△
Function	ShopTurn operation (copy licence)		○
	ShopTurn programming (copy licence)		△
	Measuring cycles for drilling/milling and turning		△





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