



**JOHN FORD**

# Super Turning Centers



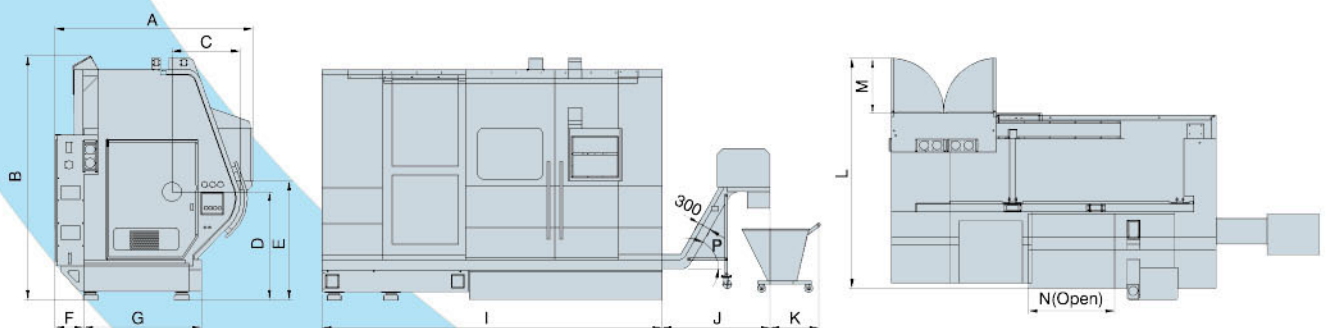
**ST-40/60/70/80/100/130/160/200/240**  
**with Turn-mill (B-Axis) - Order Made**

# Super Turning Center



**ST-40 / 60**

## Dimensions





### ST= SUPER TURNING CENTER

ST -

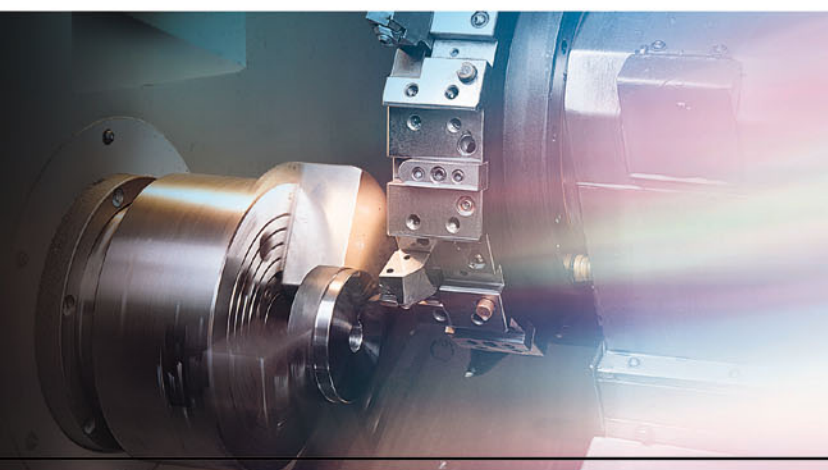
Addition Type  
H-Advance  
X-Opt.

Spindle Type

- A-Bore  $\phi$  4" ( $\phi$  115 mm)/A2-8/3000 rpm
- B-Bore  $\phi$  5" ( $\phi$  132.5 mm)/A2-11/2000 rpm
- C-Bore  $\phi$  6" ( $\phi$  152 mm)/A2-15/1500 rpm
- D-Bore  $\phi$  7" ( $\phi$  185 mm)/A2-15/1000 rpm
- E-Bore  $\phi$  9" ( $\phi$  236 mm)/A2-15/750 rpm
- F-Bore  $\phi$  10" ( $\phi$  255 mm)/A2-15/600 rpm
- G-Bore  $\phi$  12" ( $\phi$  318 mm)/A2-20/500 rpm
- H-Bore  $\phi$  14" ( $\phi$  360 mm)/A2-20/400 rpm
- I -Bore  $\phi$  16" ( $\phi$  410 mm)/A2-28/300 rpm

Modle (Z Axis Travel)

- 40-800 mm      130-3050 mm
- 60-1200 mm    160-4050 mm
- 70-1600 mm    200-5050 mm
- 80-2000 mm    240-6050 mm
- 100-2400 mm



Unit: mm

Model	Item	A	B	C	D	E	F	G	I	J	K	L	M	N	P
ST-40	A/B/C	2270 (89.4")	2765 (108.9")	785 (30.9")	1315 (51.8")	1260 (49.6")	335 (13.2")	1350 (53.1")	3892 (153.2")	1240 (48.8")	560 (22")	2778 (109.4")	713 (28.1")	1030 (40.6")	60°
ST-60	A/B/C	2270 (89.4")	2765 (108.9")	770 (30.3")	1235 (48.6")	1260 (49.6")	335 (13.2")	1350 (53.1")	4292 (169")	1903 (74.9")	560 (22")	2778 (109.4")	713 (28.1")	1250 (49.2")	45°
ST-70	A/B/C	2290 (90.2")	2765 (108.9")	785 (30.9")	1315 (51.8")	1260 (49.6")	335 (13.2")	1350 (53.1")	4692 (184.7")	1790 (70.5")	560 (22")	2778 (109.4")	713 (28.1")	1825 (71.9")	45°

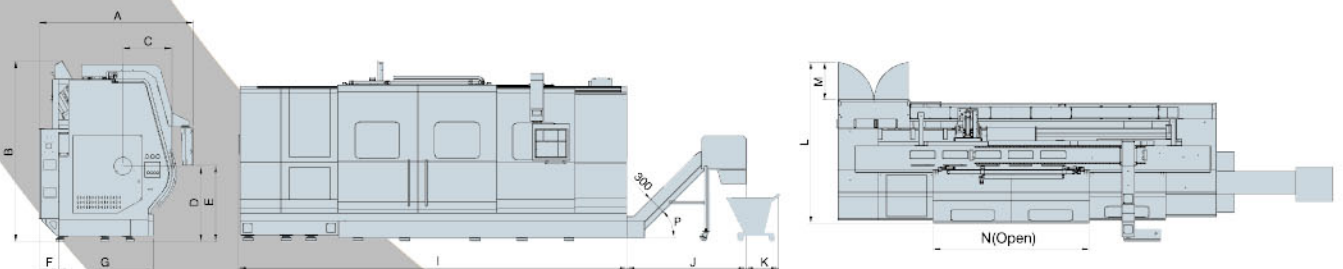
# Super Turning Center



Setting the Standard for the Next Century All New  
JOHNFORD ST Series CNC Turning Center

## ST-130

### Dimensions






**ST-130BX**

The JOHNFORD ST series SUPER TURNING centers are exclusively designed to not only meet today's needs, but also future requirements. These turning centers give you the very finest in turning technology. Rugged construction assures optimum rigidity and stability for years of reliable, trouble free operation. Furthermore, these machines offer the turning accuracy and efficiency that are far beyond ordinary.

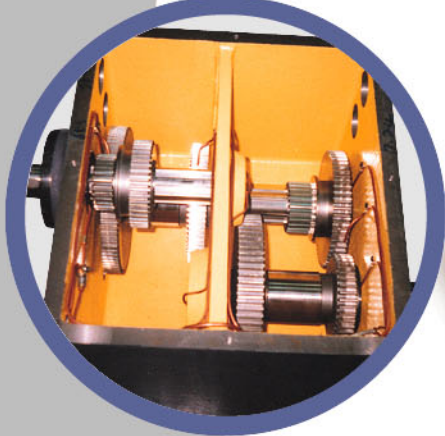
Unit: mm

Model	Item	A	B	C	D	E	F	G	I	J	K	L	M	N	P
ST-80	B/C/D	2460 (96.9")	2870 (113")	740 (29.1")	1270 (50")	1290 (50.8")	335 (13.2")	1350 (53.1")	5402 (212.7")	2010 (79.1")	560 (22")	2803 (110.4")	713 (28.1")	2490 (98")	45°
ST-100	B/C/D	2460 (96.9")	2870 (113")	768 (30.2")	1270 (50")	1290 (50.8")	335 (13.2")	1350 (53.1")	5802 (228.4")	2010 (79.1")	560 (22")	2803 (110.4")	713 (28.1")	2595 (102.2")	45°
ST-130	B/C/D	2460 (96.9")	2870 (113")	768 (30.2")	1270 (50")	1290 (50.8")	335 (13.2")	1350 (53.1")	6602 (259.9")	2010 (79.1")	560 (22")	2803 (110.4")	713 (28.1")	3370 (132.7")	45°
ST-160	B/C/D	2500 (98.4")	2870 (113")	770 (30.3")	1270 (50")	1290 (50.8")	335 (13.2")	1350 (53.1")	8000 (315")	2010 (79.1")	560 (22")	2913 (114.7")	713 (28.1")	4100 (161.4")	45°
ST-200	B/C/D	2500 (98.4")	2870 (113")	770 (30.3")	1270 (50")	1290 (50.8")	335 (13.2")	1350 (53.1")	9000 (354.3")	1846 (72.7")	560 (22")	2913 (114.7")	713 (28.1")	5100 (200.8")	50°
ST-240	B/C/D	2500 (98.4")	2870 (113")	770 (30.3")	1270 (50")	1290 (50.8")	335 (13.2")	1350 (53.1")	10000 (393.7")	1590 (62.6")	560 (22")	2913 (114.7")	713 (28.1")	6100 (240.2")	60°

# Advanced Structure




2-speed Belt Type Gearbox (Std.)



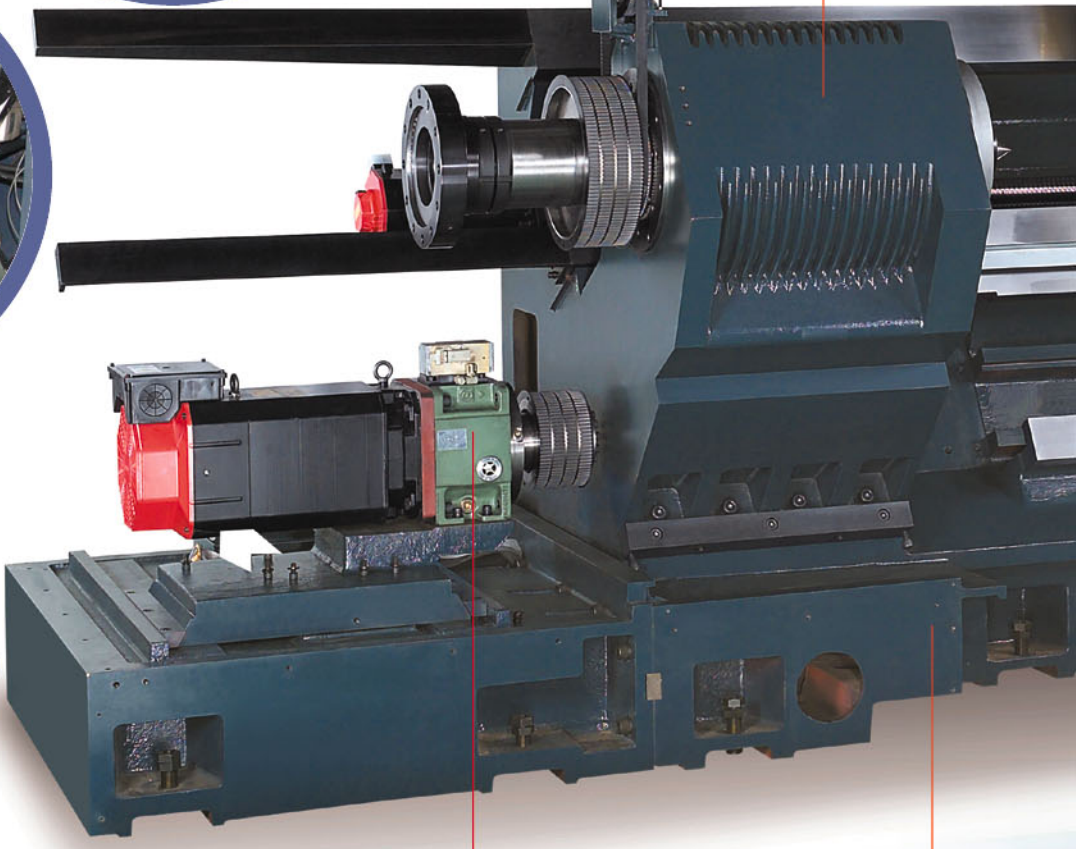
4-speed Belt Type Gearbox (Std.)



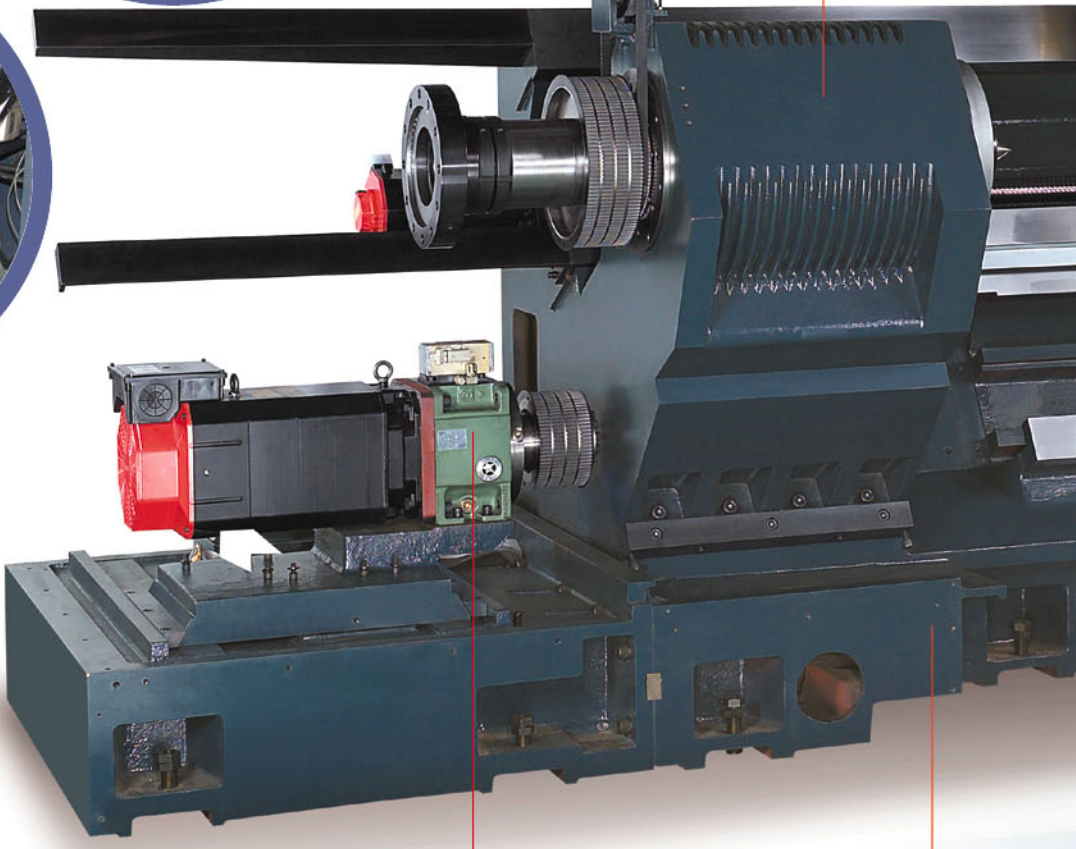
4-speed Geared headstock (Opt.)



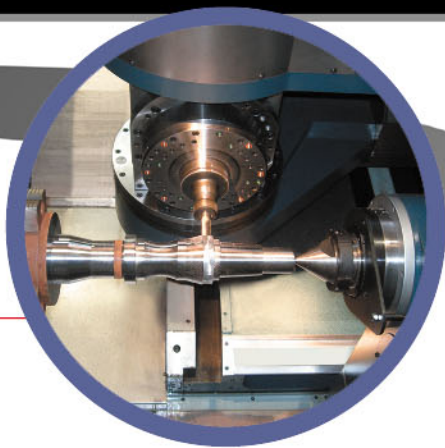
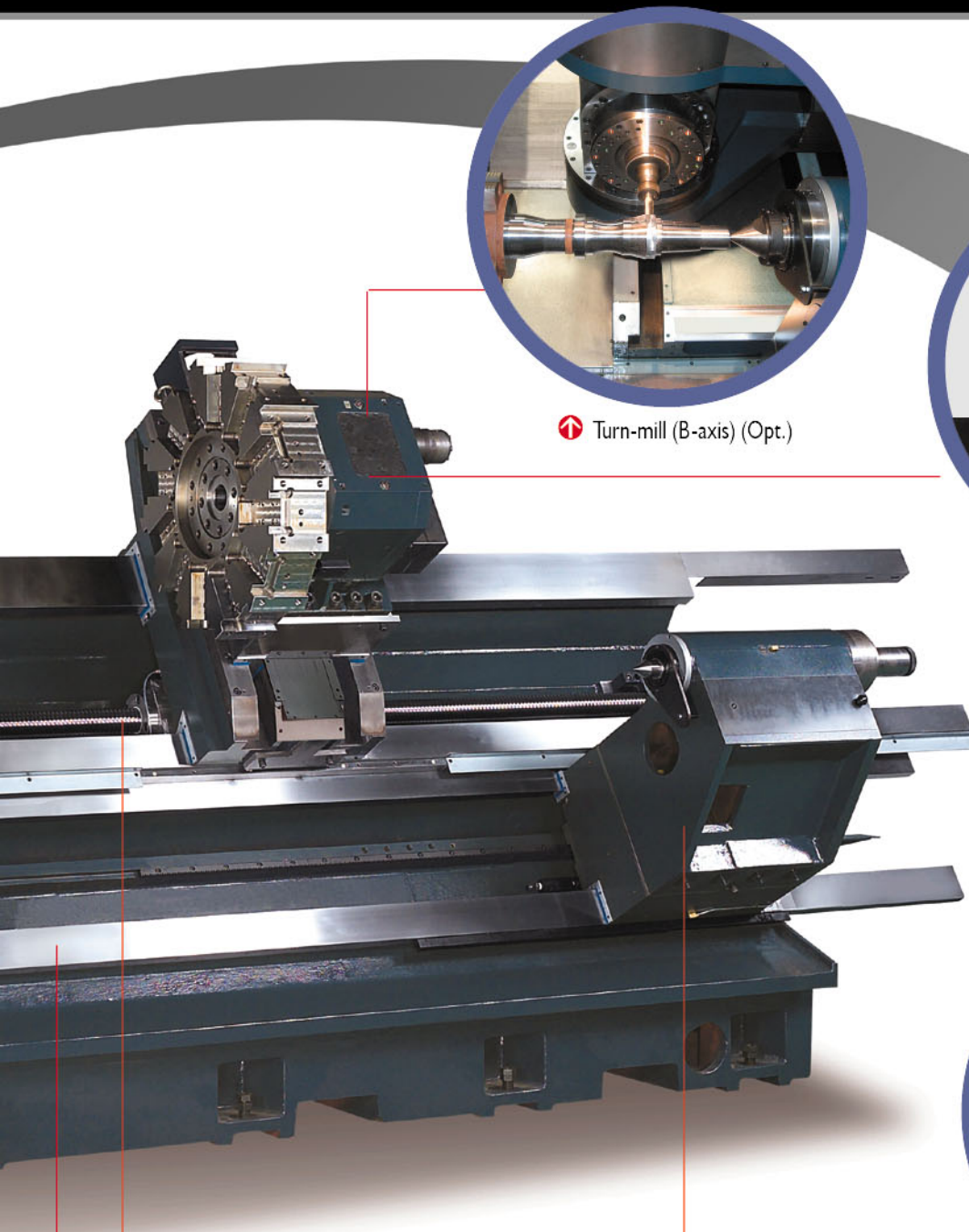
High precision spindle is the most suitable to do heavy cutting with rigid structure. It has great power exceeding the turning machines of the same grade in the industry.



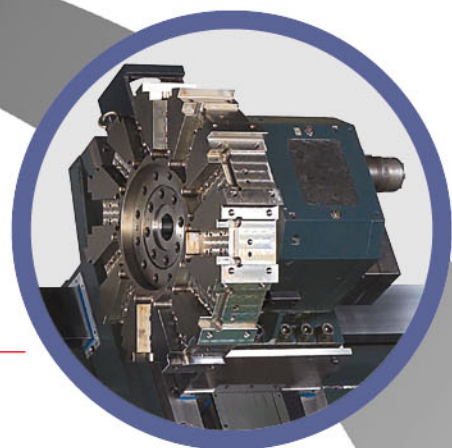
The speed change gearbox is standard on all models which give high torque output for cutting. There are two types of gearboxes for your choice, which are the type of two speeds with auto Hi-Lo steps and the type of auto 4 speeds. They handle heavy duty cutting with ease and offer proper speed range for light and medium cutting as well. There are also two optional gearboxes for your choice, which are 4-speeds Built-in type and 2-speeds ZF gearboxes. If you need extra duty cutting on low speed with high torque, the 4-speeds Built-in type gearbox is your best option.



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



⬆ Turn-mill (B-axis) (Opt.)

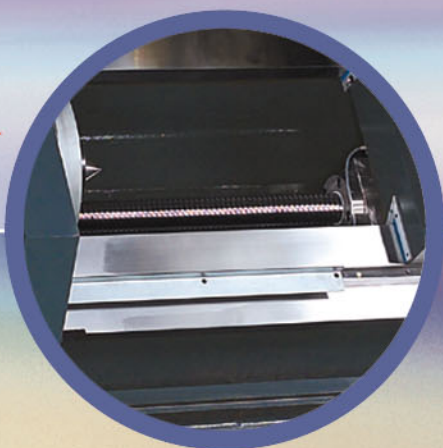


⬆ Turrets

- High stiffness and accuracy (positioning  $\pm 3''$  / repeatability  $\pm 1''$ )
- High loading capacity:
  1.  $\uparrow$  , 1569 kgf-m  $\rightarrow$  1675 kgf-m  $\leftarrow$  800 kgf-m for CLT-160
  2.  $\uparrow$  , 2512 kgf-m  $\rightarrow$  4025 kgf-m  $\leftarrow$  2029 kgf-m for CLT-200/300
- Clamping forces :
  1. 4200 kgf for CLT-160
  2. 11130 kgf for CLT-200 / 300



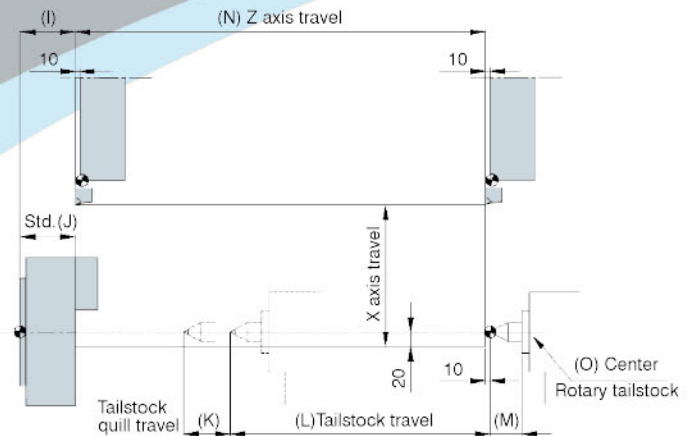
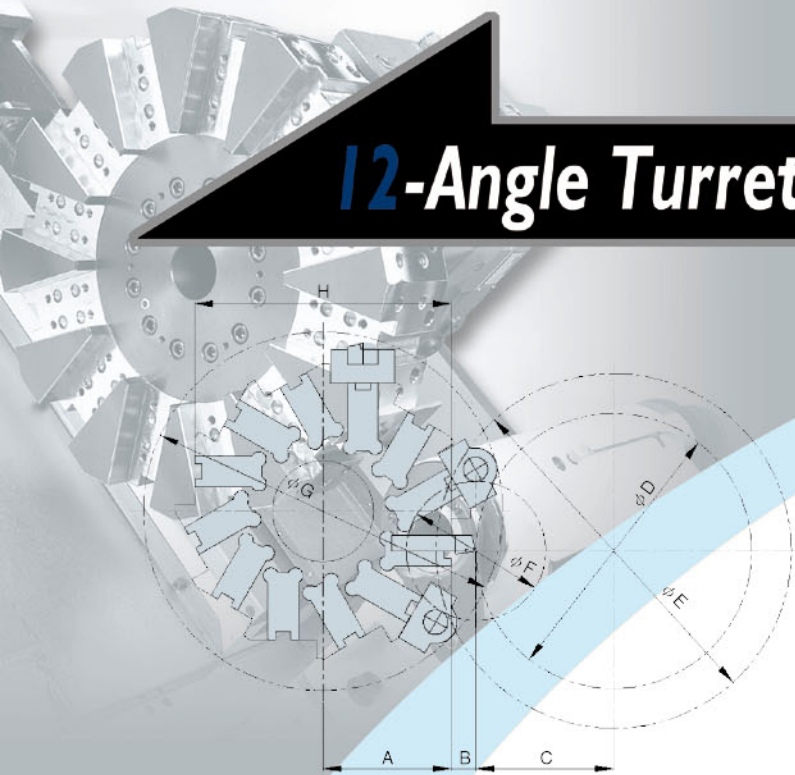
- ⬆ Programmable hydraulic tailstock with
- Larger tailstock quill diameter and taper.
  - Tailstock quill travel with limit switch control.
  - Rotary spindle is standard.



- ⬆ Large diameters of ballscrews are as below:
- ST-40/60/70  $\phi$  50 mm(2") for X axis and  $\phi$  50 mm(2") for Z axis
  - ST-80/100/130  $\phi$  50 mm(2") for X axis and  $\phi$  63 mm(2.5") for Z axis
  - ST-160/200/240  $\phi$  50 mm(2") for X axis and  $\phi$  70 mm(2.8") for Z axis
- They are pretensioned to eliminate thermal growth.

- ⬆ All slideways 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.

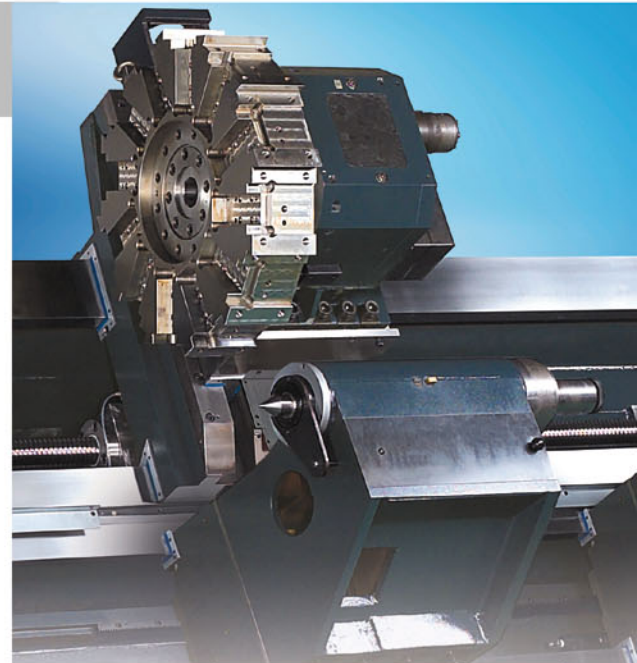
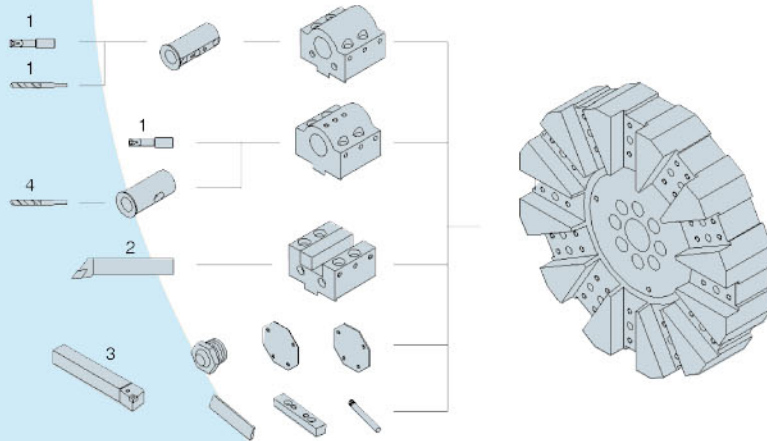
Unit: mm

Model	Item	A	B	C	D	E	F	G	H
<b>Std. series</b>									
ST-40/60/70		230(9")	36(1.4")	300(11.8")	600(23.6")	790(31.1")	160(6.3")	630(24.8")	460(18.1")
ST-60/100/130/160/200/240		320(12.6")	60(2.4")	350(13.8")	700(27.6")	920(36.2")	200(7.9")	875(34.4")	640(25.2")
<b>H series</b>									
ST-40/60/70		230(9")	36(1.4")	350(13.8")	700(27.6")	920(36.2")	160(6.3")	630(24.8")	460(18.1")
ST-60/100/130/160/200/240		320(12.6")	60(2.4")	400(15.7")	800(31.5")	1000(39.4")	200(7.9")	875(34.4")	640(25.2")
<b>X series</b>									
ST-40/60/70		320(12.6")	60(2.4")	400(15.7")	800(31.5")	1020(40.2")	200(7.9")	875(34.4")	640(25.2")
ST-60/100/130/160/200/240		320(12.6")	60(2.4")	500(19.7")	1000(39.4")	1200(47.2")	200(7.9")	875(34.4")	640(25.2")

Model	Item	K	L	M	N	O	Spindle Type	
ST-40		125	500 (19.7")	110	800 (31.5")	MT.5	I / J	
ST-60	(4.9")	900 (35.4")	1200 (47.2")	122	1200 (47.2")			
ST-70		1300 (51.2")	1600 (63")	149	1600 (63")			
ST-80		1700 (66.9")	2000 (78.7")	155	2000 (78.7")			
ST-100		2100 (82.7")	2400 (94.5")	MT.7	155	D type		
ST-130		2800 (110.2")	3050 (120")				155	3050 (120")
ST-160	(5.9")	3600 (141.7")	4050 (159.4")				155	4050 (159.4")
ST-200		4750 (187")	5050 (198.8")				155	5050 (198.8")
ST-240		5400 (212.6")	6050 (238.2")	155	6050 (238.2")	155	6050 (238.2")	

## Tool

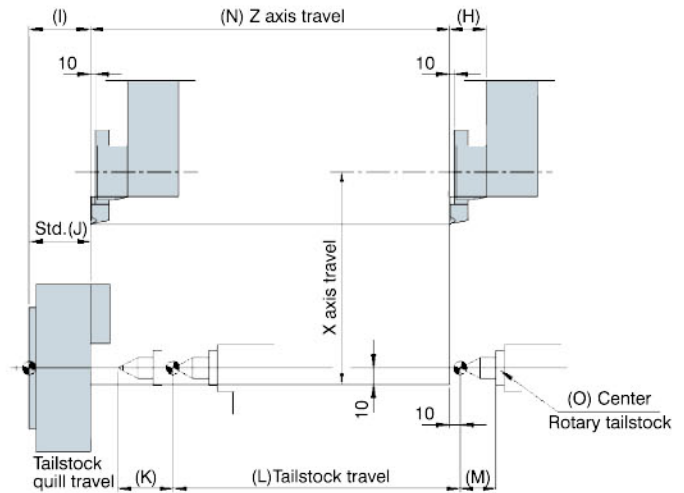
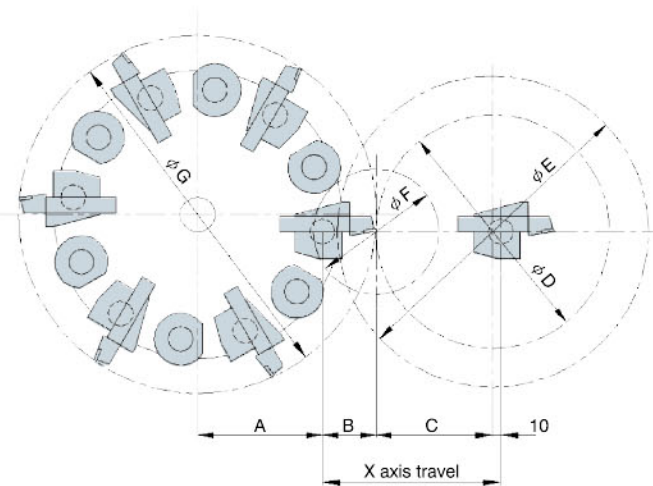
### Direct Mount



No.	Tool Model	ST-40~70 A, AH, B, BH, C, CH series		ST-40~70 AX, BX, CX ST-80~240 B, BH, BX, C, CH, CX, D, DH, DX series	
		Metric System	Imperial System	Metric System	Imperial System
1	Bore	$\phi 12, \phi 16, \phi 20, \phi 25,$ $\phi 32, \phi 40, \phi 50$	$\phi 1/2", \phi 5/8", \phi 3/4", \phi 1",$ $\phi 1-1/4", \phi 1-1/2", \phi 2"$	$\phi 12, \phi 16, \phi 20, \phi 25,$ $\phi 32, \phi 40, \phi 50, \phi 60$	$\phi 1/2", \phi 5/8", \phi 3/4", \phi 1",$ $\phi 1-1/4", \phi 1-1/2", \phi 2", \phi 3"$
2	End	<input type="checkbox"/> 32	<input type="checkbox"/> 1-1/4"	<input type="checkbox"/> 32	<input type="checkbox"/> 1-1/4"
3	Outer dia.	<input type="checkbox"/> 32	<input type="checkbox"/> 1-1/4"	<input type="checkbox"/> 32	<input type="checkbox"/> 1-1/4"
4	Drill	MT#2, #3, #4, #5		MT#2, #3, #4, #5	



# 12-VDI Turret Working Capacity/Range



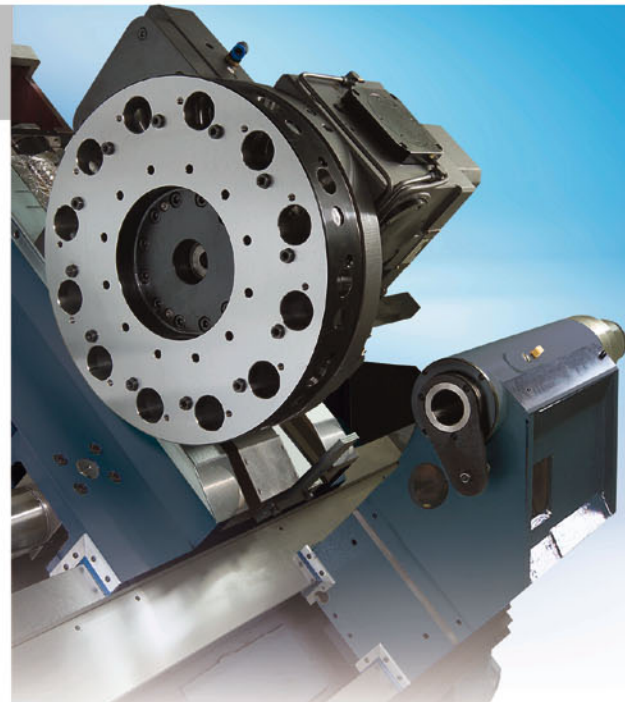
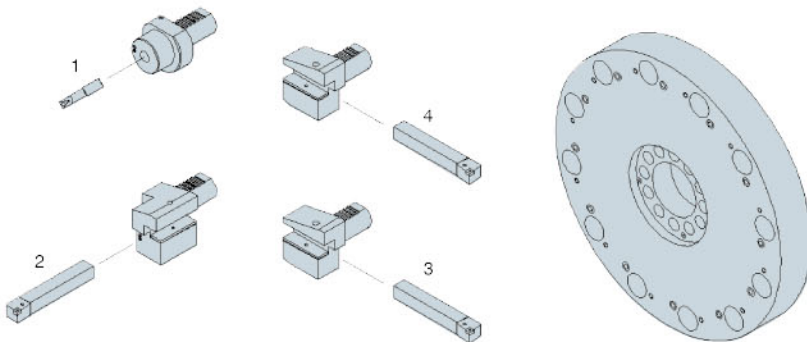
\*See the specification.

Unit: mm

Model	Item	A	B	C	D	E	F	G	H	Model	Item	K	L	M	N	O	Spindle Type
ST-40 / 60 / 70 (A, B, C type)	Std.			246(9.7")	492(19.4")	790(31.1")		720(28.3")		ST-40	125	500 (19.7")	110	800 (31.5")	MT.5	I / J	A type
	H series	200(7.9")	64(2.5")	296(11.7")	592(23.3")	920(36.2")	170(6.7")	820(32.3")	67(2.6")	ST-60	(4.9")	900 (35.4")	(4.3")	1200 (47.2")			
	X series			346(13.6")	692(27.2")	1020(40.2")		900(35.4")		ST-70		1300 (51.2")		1600 (63")			
ST-80 (B, C, D type)	Std.			296(11.7")	592(23.3")	920(36.2")		820(32.3")		ST-80		1700 (66.9")		2000 (78.7")	MT.7	B type	
	H series	200(7.9")	64(2.5")	346(13.6")	692(27.2")	1000(39.4")	170(6.7")	900(35.4")	67(2.6")	ST-100		2100 (82.7")		2400 (94.5")			
ST-100~up(B type)	X series			446(17.6")	892(35.1")	1200(47.2")		1000(39.4")		ST-130	150	2800 (110.2")	126	3050 (120")	MT.7	C type	
ST-100~up (C/D type)	Std.			283.5(11.2")	567(22.3")	920(36.2")		820(32.3")		ST-160	(5.9")	3600 (141.7")	(5")	4050 (159.4")			
	H series	245(9.6")	76.5(3")	333.5(13.1")	667(26.3")	1000(39.4")	212(8.3")	900(35.4")	72(2.8")	ST-200		4750 (187")		5050 (198.8")			
(Bigger Turret)	X series			433.5(17")	867(34.1")	1200(47.2")		1000(39.4")		ST-240		5400 (212.6")		6050 (238.2")	D type		

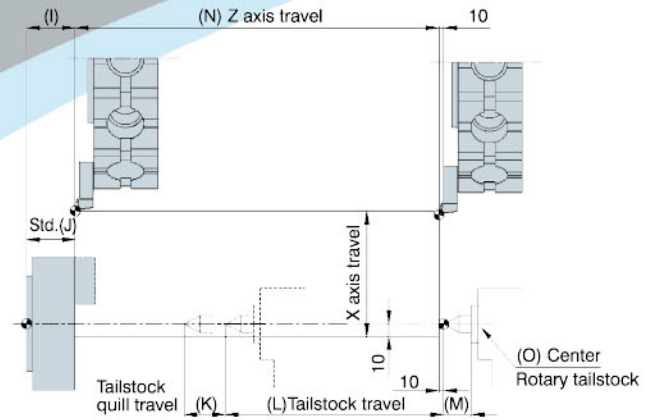
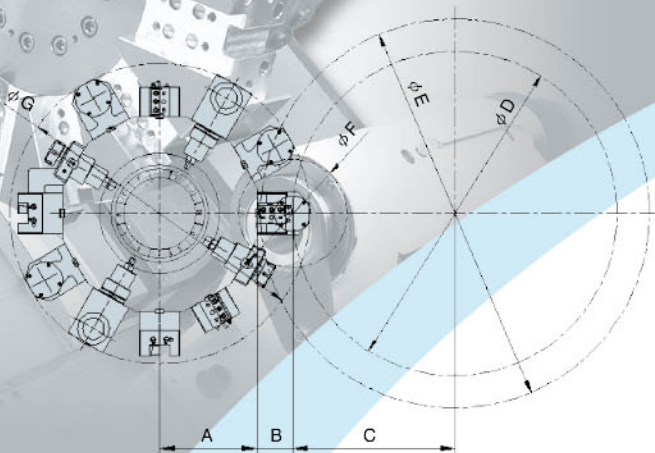
## Tool

VDI (Opt.)



Tool Model	ST-40 / 60 / 70 series	ST-80 / 100 / 130 / 160 / 200 / 240 series
1 Bore	φ 12, φ 16, φ 20, φ 25, φ 30, φ 32, φ 40, φ 50	φ 12, φ 16, φ 20, φ 25, φ 30, φ 32, φ 40, φ 50, φ 60
2 End	□ 32	□ 32
3 Outer dia.	□ 32	□ 32
4 Drill	MT#1, #2, #3	MT#2, #3, #4

# BMT Turret Working Capacity/Range



\*See the specification.

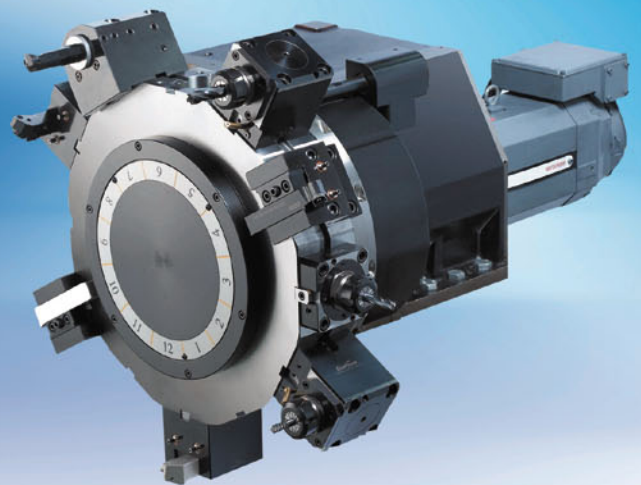
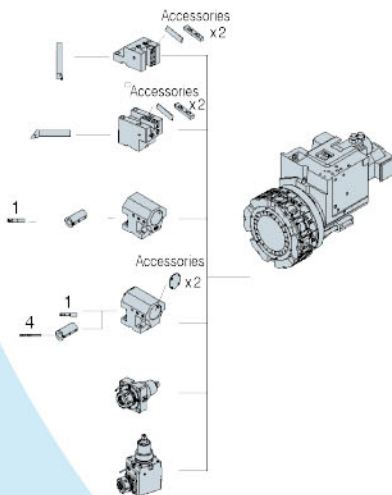
Unit: mm

Model	Item	A	B	C	D	E	F	G
ST-40 / 60 / 70 (A, B, C type)	Std.	265	90	300(11.8")	600(23.6")	790(31.1")	250	720(28.3")
	H series	(10.4")	(3.5")	350(13.8")	700(27.6")	920(36.2")	(9.8")	820(32.3")
	X series			400(15.7")	800(31.5")	1020(40.2")		900(35.4")
ST-80 (B, C, D type)	Std.	265	90	350(13.8")	700(27.6")	920(36.2")	250	820(32.3")
	H series	(10.4")	(3.5")	400(15.7")	800(31.5")	1000(39.4")	(9.8")	900(35.4")
	X series			500(19.7")	1000(39.4")	1200(47.2")		1000(39.4")
ST-100~up(B type)	X series			500(19.7")	1000(39.4")	1200(47.2")		1000(39.4")
ST-100~up (C/D type) (Bigger Turret)	Std.	300	110	350(13.8")	700(27.6")	920(36.2")	280	820(32.3")
	H series	(11.8")	(4.3")	400(15.7")	800(31.5")	1000(39.4")	(11")	900(35.4")
	X series			500(19.7")	1000(39.4")	1200(47.2")		1000(39.4")

Model	Item	K	L	M	N	O	Spindle Type
ST-40	125 (4.9")		300 (11.8")	110 (4.3")	600 (23.6")	MT.5	I / J A type 122 (4.8")
			700 (27.6")		1000 (39.4")		
			1100 (43.3")		1400 (55.1")		
ST-60			1500 (59.1")		1800 (70.9")	MT.7	B type 149 (5.9")
			1900 (74.8")		2200 (86.6")		
			2600 (102.4")		2850 (112.2")		
ST-70	150 (5.9")		3550 (139.8")	126 (5")	3850 (151.6")		C type 155 (6.1")
			4550 (179.1")		4850 (190.9")		
			5200 (204.7")		5800 (228.3")		
ST-80							D type 155 (6.1")
ST-100							
ST-130							
ST-160							
ST-200							
ST-240							

## Tool

### Direct Mount



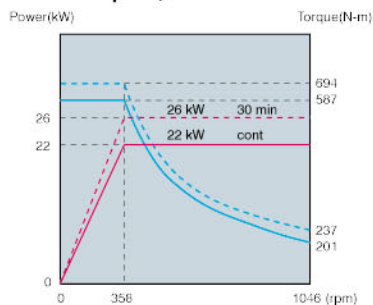
No.	Tool Model	ST-40 / 60 / 70 series		ST-80 / 100 / 130 / 160 / 200 / 240 series	
		Metric System	Imperial System	Metric System	Imperial System
1	Bore	$\phi 12, \phi 16, \phi 20, \phi 25,$ $\phi 32, \phi 40, \phi 50$	$\phi 1/2", \phi 5/8", \phi 3/4", \phi 1",$ $\phi 1-1/4", \phi 1-1/2", \phi 2"$	$\phi 12, \phi 16, \phi 20, \phi 25,$ $\phi 32, \phi 40, \phi 50, \phi 60$	$\phi 1/2", \phi 5/8", \phi 3/4", \phi 1",$ $\phi 1-1/4", \phi 1-1/2", \phi 2", \phi 3"$
2	End	<input type="checkbox"/> 32	<input type="checkbox"/> 1-1/4"	<input type="checkbox"/> 32	<input type="checkbox"/> 1-1/4"
3	Outer dia.	<input type="checkbox"/> 32	<input type="checkbox"/> 1-1/4"	<input type="checkbox"/> 32	<input type="checkbox"/> 1-1/4"
4	Drill	MT#2, #3, #4, #5		MT#2, #3, #4, #5	

# Spindle Power & Torque Chart

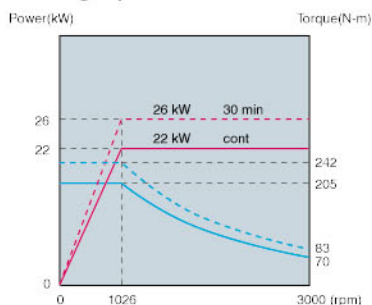
There are any other different kinds of spindle speed for your choice.

## ST-A Series with Auto 2-speed Gear Box

Low speed, ratio=0.23871

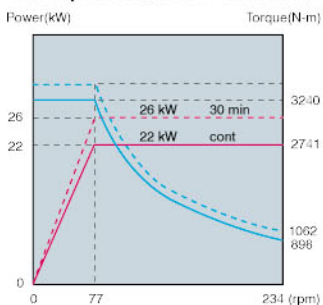


High speed, ratio=0.68403

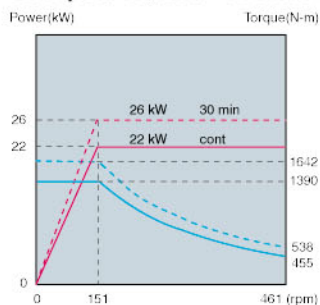


## ST-B Series with Auto 4-speed Gear Box

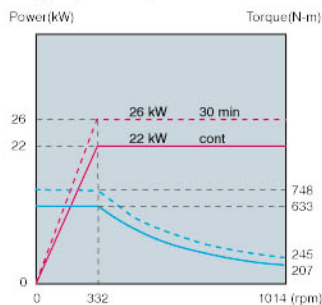
Low speed S1, ratio=0.051095



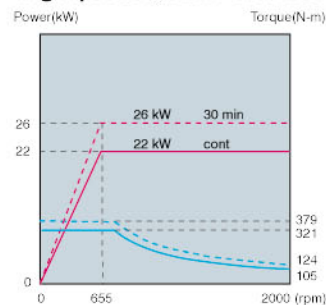
Low speed S2, ratio=0.100805



High speed S3, ratio=0.221463

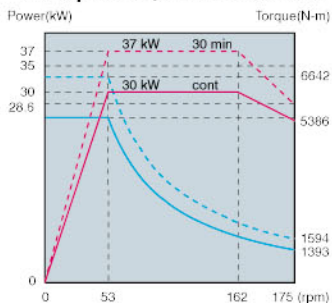


High speed S4, ratio=0.436928

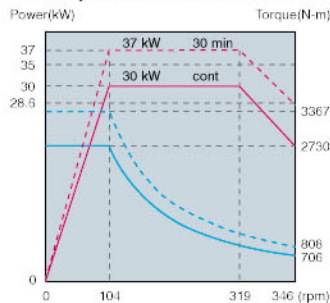


## ST-C Series with Auto 4-speed Gear Box

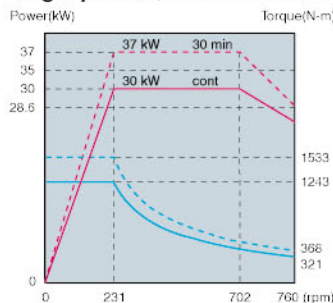
Low speed S1, ratio=0.046254



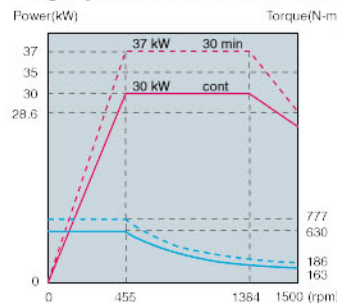
Low speed S2, ratio=0.091255



High speed S3, ratio=0.200483

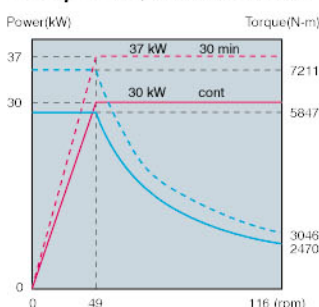


High speed S4, ratio=0.395535

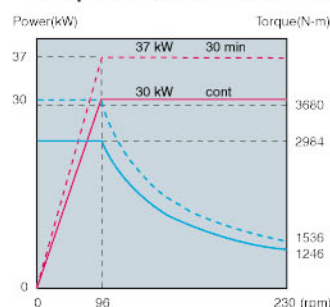


## ST-D Series with Auto 4-speed Gear Box

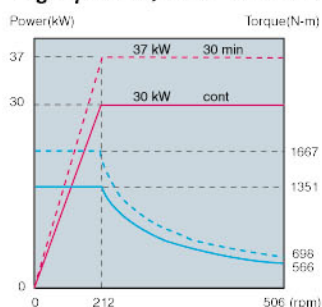
Low speed S1, ratio=0.042662



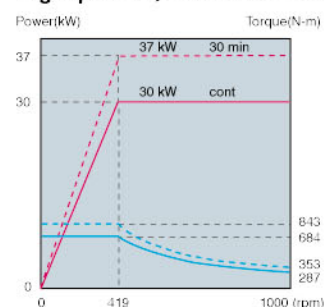
Low speed S2, ratio=0.084168



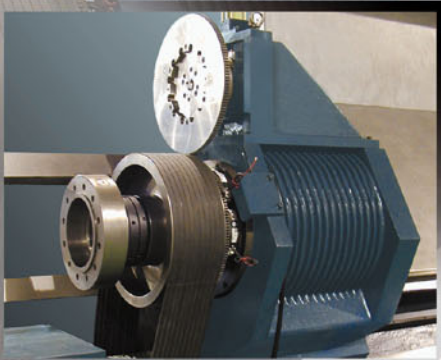
High speed S3, ratio=0.184911



High speed S4, ratio=0.364814



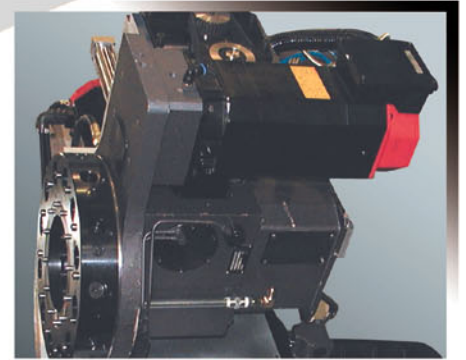
# Power Turret with C-Axis/C+Y-Axis Function



C.F. Axis



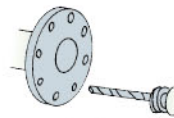
Power Turret with C-Axis



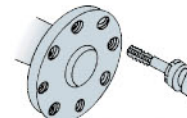
Power Turret with C+Y-Axis

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.

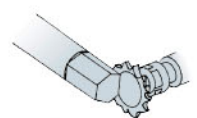
## Examples for Machining with Live Tools



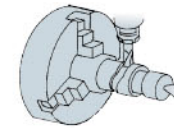
Drilling



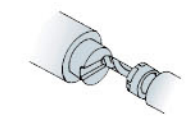
Thread cutting



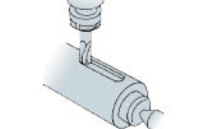
Face cutting



Cam cutting



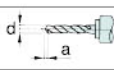
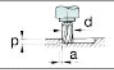

Slot cutting

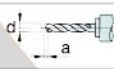
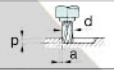



Key way cutting

## Standard Features-Great Equipment

★ Working capacity of rotating tools: (Material type: S45C  $\sigma$  50~70 kgf/mm<sup>2</sup>)

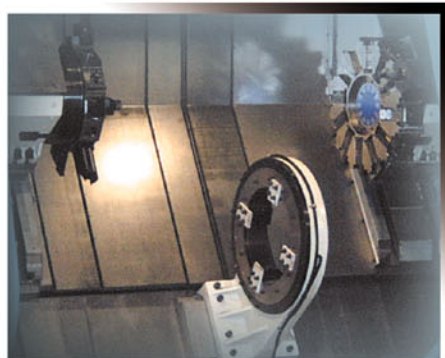
Model	ST-40~70 A, AH, AX, B, BH, BX, C, CH, CX Series ST-80~240 B, BH, BX Series	ST-80~240 C, CH, CX, D, DH, DX Series
Power turret model	TBMA 250 / TBYA250 (for Y-Axis)	TBMA 320 / TBYA320 (for Y-Axis)
Max. speed of turret	3276 rpm	2000 rpm
Twist drilling d x a (mm)x(mm/μ)	 22 x 0.20	25 x 0.5
Slot milling d x P x a (mm)x(mm)x(mm/min)	 25 x 20 x 40 (0.98" x 0.79" x 1.57")	40 x 20 x 35 (1.57" x 0.79" x 1.38")
Tapping d x p (mm)x(mm)	 M18 x 2	M24 x 3
Toolholder shaft size	φ 50	φ 60
Motor horsepower	AC 5.5 / 3.7 kW	AC 7.5 / 5.5 kW

Model	ST-40~70 A, AH, AX, B, BH, BX, C, CH, CX Series ST-80~240 B, BH, BX Series	ST-80~240 C, CH, CX, D, DH, DX Series
Power turret model	BMT 75 / ER 40	BMT 85 / ER 50
Max. speed of turret	3000 rpm	3000 rpm
Twist drilling d x a (mm)x(mm/μ)	 26 x 0.16	34 x 0.14
Slot milling d x P x a (mm)x(mm)x(mm/min)	 30 x 15 x 115 (1.18" x 0.59" x 4.53")	40 x 20 x 95 (1.57" x 0.79" x 3.74")
Tapping d x p (mm)x(mm)	 M22 x 2.5	M26 x 3.0
Toolholder shaft size	φ 75	φ 85
Motor horsepower	AC 5.5 / 7.5 kW	AC 7.5 / 11 kW

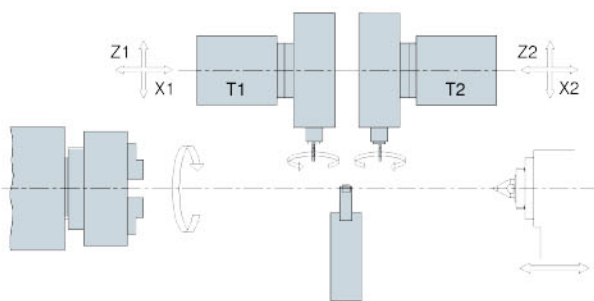
# Twin-Turret CNC Lathes



**Option Application-**  
**LH: Grinding Head**  
**RH: Y Axis+Power Turret**  
**Steady Rest (Auto Self-centering)**



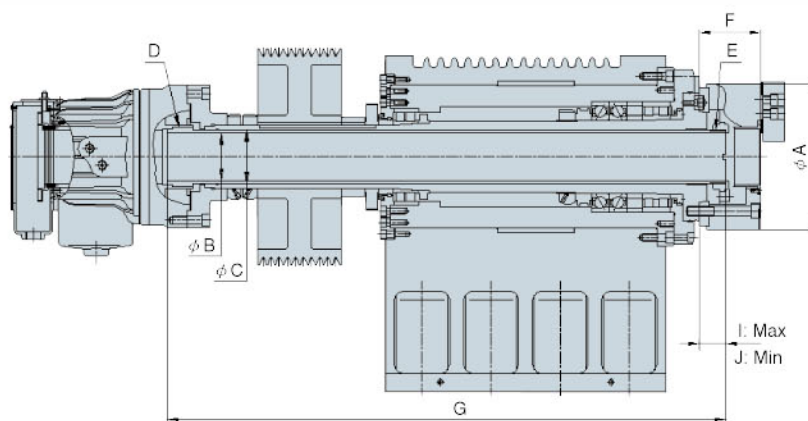
**Option Application-**  
**LH: VDI Turret**  
**RH: 12-Angle Turret**  
**Steady Rest (Special Order Made)**



## Features:

- The ST series machines can be constructed with one spindle plus two turrets. By the two systems, these machines can make the same or different machining on both sides of workpiece.
- For example, when a quill or a tube is machining on this kind of ST machine, it can cut the workpiece on the outer diameter and the inner diameter at the same time to achieve good circularity and performance.
- For performance, this ST machine is constructed like combining two lathes into one. The two systems are not only operated individually but also can work together to finish all of the machining jobs of a workpiece.
- Using this machine is the same as operating two lathes, but it can reduce the floor area on machine, worker employment, and the time for workpiece handling and operation.
- All of the machining jobs of a workpiece can be finished at a time to get good circularity.
- Equipping with a power turret, the ST machine can also do the machining of drilling, milling, or grinding.

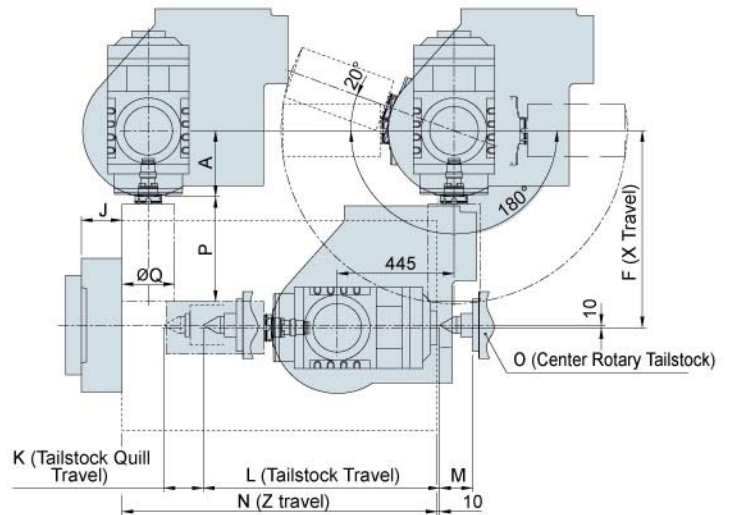
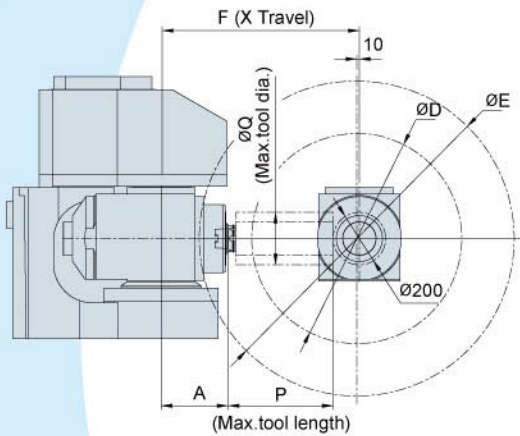
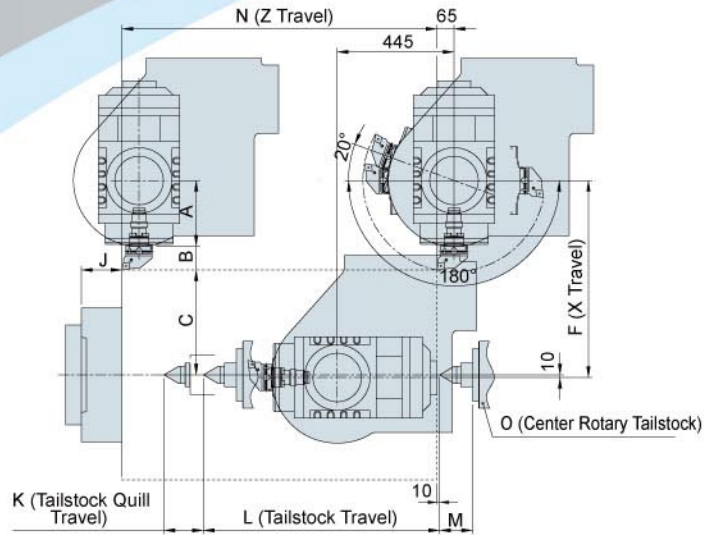
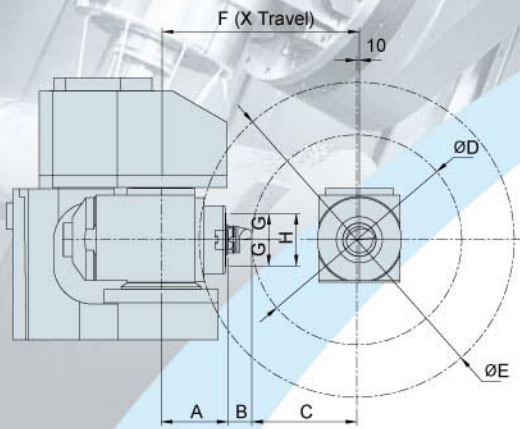
## Spindle Construction



Unit: mm

Model	Dimension	$\phi A$	$\phi B$	$\phi C$	D	E	F	G	I	J
ST-40/60/70, A	Std.	304 (12")	$\phi 91$ (3.6")	$\phi 115$ (4.5")	M100 x P2.0	M100 x P2.0	122 (4.8")	1071 (42")	54 (2.1")	31 (1.2")
	Opt.	381 (15")					160 (6.3")			
ST-40/60/70, B	Std.	381 (15")	$\phi 116$ (4.6")	$\phi 132.5$ (5.2")	M130 x P2.0	M130 x P2.0	149 (5.9")	1088 (42.8")	72 (2.8")	49 (1.9")
	Opt.	450 (17.7")					183 (7.2")			
ST-40/60/70, C	Std.	510 (20.1")	$\phi 139$ (5.5")	$\phi 152$ (6")	M175 x P3.0	M150 x P2.0	155 (6.1")	1264 (49.8")	76 (3")	53 (2.1")
	Opt.	610 (24")					183 (7.2")			
ST-80/100/130/160/200/240, B	Std.	381 (15")	$\phi 116$ (4.6")	$\phi 132.5$ (5.2")	M130 x P2.0	M130 x P2.0	149 (5.9")	1088 (42.8")	72 (2.8")	49 (1.9")
	Opt.	450 (17.7")					183 (7.2")			
ST-80/100/130/160/200/240, C	Std.	510 (20")	$\phi 139$ (5.5")	$\phi 152$ (6")	M175 x P3.0	M150 x P2.0	155 (6.1")	1264 (49.8")	76 (3")	53 (2.1")
	Opt.	610 (24")					183 (7.2")			
ST-80/100/130/160/200/240, D	Std.	510 (20")	$\phi 165$ (6.5")	$\phi 185$ (7.3")	M175 x P3.0	M180 x P3.0	155 (6.1")	1108 (43.6")	76 (3")	53 (2.1")
	Opt.	610 (24")					183 (7.2")			
ST-80/100/130/160/200/240, E	Std.	610 (24")	$\phi 204$ (8")	$\phi 236$ (9.3")	M215 x P3.0	M215 x P3.0	183 (7.2")	1105 (43.5")	96 (3.8")	70 (2.8")

# B-Axis Working Capacity/Range



Model	Item	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q
ST-40												500 (19.7)		800 (31.5)			
ST-60												900 (35.4)		1200 (47.2)	MT.5		
ST-70												1300 (51.2)		1600 (63)			
ST-80												1700 (66.9)		2000 (78.7)			
ST-100		251	90	400	800	1200	960	100	200	155	150	2100 (82.7)	126	2400 (94.5)		400	200
ST-130		(9.9")	(3.5")	(15.7")	(31.5")	(47.2")	(37.8")	(3.9")	(7.9")	(6.1")	(5.9")	2800 (110")	(5")	3050 (120.1")	MT.7	(15.7")	(7.9")
ST-160												3750 (147.6")		4050 (159.4")			
ST-200												4750 (187")		5050 (198.8")			
ST-240												5400 (212.6")		6050 (238.2")			

# B-Axis Function



## Turning-Milling-Drilling Spindle Specifications

Spindle model	-	-
Max. power at 100% duty cycle	kW	38
Max. torque	Nm	252
Max. speed	rpm	6000
Tool system	-	HSK-A100 (Std.) / Capto C8 (Opt.)
Tool clamping system	-	OTT Jaws
Clamping force	Kgf	4500±100
Tooling cleaning	-	Automatic
Spindle bearing front	-	SKF-7020 CD
Bearing lubrication	-	Grease
Spindle cooling	-	Water glycol
Cooling performance	kW	-
Cooling temperature	°C	20
Cooling volume approx	ℓ/min	-
External coolant supply	pcs	4
Coolant thru spindle	bar	20 (Std.) / Max. 70 (Opt.)
Run out of taper bore	mm	≤0.2
Run out of test bar on spindle nose	mm	≤0.2
Run out 300 mm of test bar	mm	≤0.8
Balancing class (ISO 1940)	-	G1

## Rotary unit Specifications

Driver	-	Gear
Diameter of turret	mm	Ø240
Center Height	mm	345
Through hole	mm	-
Servo motor	kW	4
Gear ratio	-	1/120
Max. rotation speed	rpm	25
Min. increment	degree	0.001
Rotation range	degree	-110 / +90
Output rated torque	Nm	1440
Hydraulic brake pressure	bar	40
Brake torque	Nm	1550
Index accuracy	sec	±12
Repeatability	sec	±7
Weight (included spindle)	kg	600
Angular encoder	-	ERM 280-180
Angular encoder accuracy	sec	±12

# Specifications

Item		Model	ST-40A/60A/70A	ST-40B/60B/70B	ST-40C/60C/70C	ST-80B/100B/130B 160B/200B/240B	ST-80C/100C/130C 160C/200C/240C	ST-80D/100D/130D 160D/200D/240D
Swing over bed (mm)			790 (31.1")	790 (31.1")	790 (31.1")	920 (36.2")	920 (36.2")	920 (36.2")
Swing over cross slide (mm)			600 (23.6")	600 (23.6")	600 (23.6")	700 (27.6")	700 (27.6")	700 (27.6")
Chuck size (mm)			304 (12") (Std.) 381 (15") (Opt.)	381 (15") (Std.) 450 (17.7") (Opt.)	510 (20.1") (Std.) 610 (24") (Opt.)	381 (15") (Std.) 450 (17.7") (Opt.)	510 (20.1") (Std.) 610 (24") (Opt.)	510 (20.1") (Std.) 610 (24") (Opt.)
Bar capacity (mm)			91 (3.6") (Std.) 102 (4") (Opt.)	116 (4.6")	139 (5.5")	116 (4.6")	139 (5.5")	165 (6.5")
Spindle nose			A2-8 / A2-11 (Opt.)	A2-11	A2-15	A2-11	A2-15	A2-15
Spindle bore (mm)			115 (4.5")	132.5 (5.2")	152 (6")	132.5 (5.2")	152 (6")	185 (7.3") / Geared headstock 176 (6.9")
Spindle speed, step (s)			Auto Hi-Lo	Auto 4 speeds	Auto 4 speeds	Auto 4 speeds	Auto 4 speeds	Auto 4 speeds
Spindle speed range (rpm)	Belt type gear box		3000 for 12" (91) chuck 2800 for 12" (102) chuck 2500 for 15" (102) chuck	2000	1500 (Std.) 1400 (Opt.)	2000	1500 (Std.) 1400 (Opt.)	1000
	Geared headstock		-	-	1200	-	1200	1000
Spindle motor (kW) (30 min / con.)			22 / 26	22 / 26 (Std.) 30 / 37 (Opt.)	30 / 37 (Std.) 37 / 45 (Opt.)	22 / 26 (Std.) 30 / 37 (Opt.)	30 / 37 (Std.) 37 / 45 (Opt.)	30 / 37 (Std.) 37 / 45 (Opt.)
Spindle bearing diameter (mm)			160 (6.3")	180 (7.1")	200 (7.9")	180 (7.1")	200 (7.9")	240 (9.4")
No. of tools			12					
Cross travel (X-axis) (mm)			320 (12.6")			370 (14.6")		
Y-axis travel (Opt.) (mm)			± 75 (3")					
Longitudinal travel (Z-axis)(mm)			800 / 1200 / 1600 (31.5" / 47.2" / 63")			2000 / 2400 / 3050 (78.7" / 94.5" / 120.1") 4050 / 5050 / 6050 (159.4" / 198.8" / 238.2")		
Rapid traverse (m/min)			X: 15 / Y: 10 / Z: 18			X: 10 / Y: 10 / Z: 12		
Tailstock travel (mm)			500 / 900 / 1300 (19.7" / 35.4" / 51.2")			1700 / 2100 / 2800 (66.9" / 82.7" / 110.2") 3600 / 4600 / 5400 (141.7" / 181.1" / 212.6")		
Tailstock quill travel (mm)			125 (4.9")			150 (5.9")		
Tailstock quill diameter (mm)			φ 125 (4.9")			φ 200 (7.9")		
Tailstock Spindle taper (kW)			MT#5			MT#7		
Servo motor (X-axis) (kW)			4			7		
Servo motor (Y-axis)(Opt.) (kW)			3					
Servo motor (Z-axis) (kW)			4			7		
Bed inclination			60°					
Weight (kg) (lb)			11000 / 12000 / 13100 (24200/26400/28820)	11100 / 12100 / 13200 (24420/26620/29040)	11150 / 13150 / 13250 (24530/ 28930/ 29150)	15000 / 16500 / 20100 (33000/ 36300/ 44220) 24100 / 28100 / 32100 (53020/ 61820/ 70620)	15300 / 16800 / 20300 (33660/ 36960/ 44660) 24200 / 28200 / 32200 (53240/ 62040/ 70840)	15500 / 17000 / 20500 (34100/ 37400/ 45100) 24500 / 28500 / 32500 (53900/ 62700/ 71500)
Machine dimensions (mm)	W x H		2270 x 2765 (89.4" x 108.9") 2290 x 2765 (90.2" x 108.9") (for ST-70)			2504 x 2895 (98.6" x 114")		
	L		5132 / 6195 / 6482 (202" / 243.9" / 255.2")			7412 / 7812 / 8612 / 9926 / 11267 / 11667 (291.8" / 307.6" / 339.1" / 390.8" / 443.6" / 459.3")		

■ All data subject to change without notice.

■ VDI turret working capacity / Range (see page 8).

■ All the specifications are listed with the FANUC CNC system and 12-angle turret.



Item		Model	ST-40AH/ 60AH / 70AH	ST-40BH/ 60BH / 70BH	ST-40CH/ 60CH / 70CH	ST-80BH/100BH/130BH 160BH/200BH/240BH	ST-80CH/100CH/130CH 160CH/200CH/240CH	ST-80DH/100DH/130DH 160DH/200DH/240DH
Swing over bed (mm)			920 (36.2")	920 (36.2")	920 (36.2")	1000 (39.4")	1000 (39.4")	1000 (39.4")
Swing over cross slide (mm)			700 (27.6")	700 (27.6")	700 (27.6")	800 (31.5")	800 (31.5")	800 (31.5")
Chuck size (mm)			304 (12") (Std.) 381 (15") (Opt.)	381 (15") (Std.) 450 (17.7") (Opt.)	510 (20.1") (Std.) 610 (24") (Opt.)	381 (15") (Std.) 450 (17.7") (Opt.)	510 (20.1") (Std.) 610 (24") (Opt.)	510 (20.1") (Std.) 610 (24") (Opt.)
Bar capacity (mm)			91 (3.6") (Std.) 102 (4") (Opt.)	116 (4.6")	139 (5.5")	116 (4.6")	139 (5.5")	165 (6.5")
Spindle nose			A2-8/ A2-11 (Opt.)	A2-11	A2-15	A2-11	A2-15	A2-15
Spindle bore (mm)			115 (4.5")	132.5 (5.2")	152 (6")	132.5 (5.2")	152 (6")	185 (7.3") / Geared headstock 176 (6.9")
Spindle speed, step (s)			Auto Hi-Lo	Auto 4 speeds	Auto 4 speeds	Auto 4 speeds	Auto 4 speeds	Auto 4 speeds
Spindle speed range (rpm)	Belt type gear box		3000 for 12"(91) chuck 2800 for 12"(102) chuck 2500 for 15"(102) chuck	2000	1500 (Std.) 1400 (Opt.)	2000	1500 (Std.) 1400 (Opt.)	1000
	Geared headstock		-	-	1200	-	1200	1000
Spindle motor (kW) (30 min / con.)			22 / 26	22 / 26 (Std.) 30 / 37 (Opt.)	30 / 37 (Std.) 37 / 45 (Opt.)	22 / 26 (Std.) 30 / 37 (Opt.)	30 / 37 (Std.) 37 / 45 (Opt.)	30 / 37 (Std.) 37 / 45 (Opt.)
Spindle bearing diameter (mm)			160 (6.3")	180 (7.1")	200 (7.9")	180 (7.1")	200 (7.9")	240 (9.4")
No. of tools			12					
Cross travel (X-axis) (mm)			370 (14.6")			420 (16.5")		
Y-axis travel (Opt.) (mm)			±75 (3")					
Longitudinal travel (Z-axis) (mm)			800 / 1200 / 1600 (31.5" / 47.2" / 63")			2000 / 2400 / 3050 (78.7" / 94.5" / 120.1") 4050 / 5050 / 6050 (159.4" / 198.8" / 238.2")		
Rapid traverse (m/min)			X: 15 / Y: 10 / Z: 18			X: 10 / Y: 10 / Z: 12		
Tailstock travel (mm)			500 / 900 / 1300 (19.7" / 35.4" / 51.2")			1700 / 2100 / 2800 (66.9" / 82.7" / 110.2") 3600 / 4600 / 5400 (141.7" / 181.1" / 212.6")		
Tailstock quill travel (mm)			125 (4.9")			150 (5.9")		
Tailstock quill diameter (mm)			φ 125 (4.9")			φ 200 (7.9")		
Tailstock Spindle taper (kW)			MT#5			MT#7		
Servo motor (X-axis) (kW)			7					
Servo motor (Y-axis)(Opt.) (kW)			3					
Servo motor (Z-axis) (kW)			7					
Bed inclination			60°					
Weight (kg) (lb)			11000 / 12100 / 13200 (24200/26620/29040)	11200 / 12200 / 13300 (24640/ 26840/ 29260)	11250 / 13250 / 13350 (24750/29150/29370)	15100 / 16600 / 20200 (33220/ 36520/ 44440) 24200 / 28200 / 32200 (53240/ 62040/ 70840)	15400 / 16900 / 20400 (33880/ 37180/ 44880) 24400 / 28400 / 32400 (53680/ 62480/ 71280)	15600 / 17100 / 20600 (34320/ 37620/ 45320) 24600 / 28600 / 32600 (54120/ 62920/ 71720)
Machine dimensions (mm)	W x H		2270 x 2765 (89.4" x 108.9") 2290 x 2765 (90.2" x 108.9") (for ST-70)			2504 x 2955 (98.6" x 116.3")		
	L		5132 / 6195 / 6482 (202" / 243.9" / 255.2")			7412 / 7812 / 8612 / 9926 / 11267 / 11667 (291.8" / 307.6" / 339.1" / 390.8" / 443.6" / 459.3")		

■ All data subject to change without notice.

■ VDI turret working capacity / Range (see page 8).

■ All the specifications are listed with the FANUC CNC system and 12-angle turret.

# Specifications

Item		Model	ST-40AX 60AX/70AX	ST-40BX 60BX/70BX	ST-40CX 60CX/70CX	ST-80BX/100BX/130BX 160BX/200BX/240BX	ST-80CX/100CX/130CX 160CX/200CX/240CX	ST-80DX/100DX/130DX 160DX/200DX/240DX
Swing over bed (mm)			1020 (40.2")	1020 (40.2")	1020 (40.2")	1200 (47.2")	1200 (47.2")	1200 (47.2")
Swing over cross slide (mm)			800 (31.5")	800 (31.5")	800 (31.5")	1000 (39.4")	1000 (39.4")	1000 (39.4")
Chuck size (mm)			304 (12") (Std.) 381 (15") (Opt.)	381 (15") (Std.) 450 (17.7") (Opt.)	510 (20.1") (Std.) 610 (24") (Opt.)	381 (15") (Std.) 450 (17.7") (Opt.)	510 (20.1") (Std.) 610 (24") (Opt.)	510 (20.1") (Std.) 610 (24") (Opt.)
Bar capacity (mm)			91 (3.6") (Std.) 102 (4") (Opt.)	116 (4.6")	139 (5.5")	116 (4.6")	139 (5.5")	165 (6.5")
Spindle nose			A2-8 / A2-11 (Opt.)	A2-11	A2-15	A2-11	A2-15	A2-15
Spindle bore (mm)			115 (4.5")	132.5 (5.2")	152 (6")	132.5 (5.2")	152 (6")	185 (7.3") / Geared headstock 176 (6.9")
Spindle speed, step (s)			Auto Hi-Lo	Auto 4 speeds	Auto 4 speeds	Auto 4 speeds	Auto 4 speeds	Auto 4 speeds
Spindle speed range (rpm)	Belt type gear box		3000 for 12"(91) chuck 2800 for 12"(102) chuck 2500 for 15"(102) chuck	2000	1500 (Std.) 1400 (Opt.)	2000	1500 (Std.) 1400 (Opt.)	1000
	Geared headstock		-	-	1200	-	1200	1000
Spindle motor (kW) (30 min / con.)			22 / 26	22 / 26 (Std.) 30 / 37 (Opt.)	30 / 37 (Std.) 37 / 45 (Opt.)	22 / 26 (Std.) 30 / 37 (Opt.)	30 / 37 (Std.) 37 / 45 (Opt.)	30 / 37 (Std.) 37 / 45 (Opt.)
Spindle bearing diameter (mm)			160 (6.3")	180 (7.1")	200 (7.9")	180 (7.1")	200 (7.9")	240 (9.4")
No. of tools			12					
Cross travel (X-axis) (mm)			420 (16.5")			520 (20.5")		
Y-axis travel (Opt.) (mm)			± 75 (3")					
Longitudinal travel (Z-axis) (mm)			800 / 1200 / 1600 (31.5" / 47.2" / 63")			2000 / 2400 / 3050 (78.7" / 94.5" / 120.1") 4050 / 5050 / 6050 (159.4" / 198.8" / 238.2")		
Rapid traverse (m/min)			X: 12 / Y: 10 / Z: 16			X: 10 / Y: 10 / Z: 10		
Tailstock travel (mm)			500 / 900 / 1300 (19.7" / 35.4" / 51.2")			1700 / 2100 / 2800 (66.9" / 82.7" / 110.2") 3600 / 4600 / 5400 (141.7" / 181.1" / 212.6")		
Tailstock quill travel (mm)			125 (4.9")			150 (5.9")		
Tailstock quill diameter (mm)			φ 125 (4.9")			φ 200 (7.9")		
Tailstock Spindle taper (kW)			MT#5			MT#7		
Servo motor (X-axis) (kW)			7					
Servo motor (Y-axis)(Opt.)(kW)			3					
Servo motor (Z-axis) (kW)			7					
Bed inclination			60°					
Weight (kg) (lb)			11200 / 12200 / 13300 (24640/26840/29260)	11300 / 12300 / 13400 (24860/ 27060/ 29480)	11350 / 13350 / 13450 (24970/29370/ 29590)	15200 / 16700 / 20300 (33440/ 36740/ 44660) 24300 / 28300 / 32300 (53460/ 62260/ 71060)	15500 / 17000 / 20600 (34100/ 37400/ 45320) 24500 / 28500 / 32500 (53900/ 62700/ 71500)	15700 / 17200 / 20700 (34540 / 37840 / 45540) 24700 / 28700 / 32700 (54340/ 63140 / 71940)
Machine Dimensions (mm)	W x H		2270 x 2765 (89.4" x 108.9") 2290 x 2765 (90.2" x 108.9") (for ST-70)			2715 x 3200 (106.9" x 126") (for ST-80) 2645x 3175 (104.1" x 125") (for ST-100 / 130) 2685x 3175 (105.7" x 125") (for ST-160 / 240)		
	L		5132 / 6195 / 6482 (202" / 243.9" / 255.2")			7412 / 7812 / 8612 / 9926 / 11267 / 11667 (291.8" / 307.6" / 339.1" / 390.8" / 443.6" / 459.3")		

■ All data subject to change without notice.

■ VDI turret working capacity / Range (see page 8).

■ All the specifications are listed with the FANUC CNC system and 12-angle turret.

## Standard Accessories:

- Coolant system
- Splash guard
- Through hole 3-jaw chuck
- Programmable hydraulic tailstock
- Chain type chip conveyor
- Tool box and various manuals
- Tool holders (direct mounting type)
- Auto lubrication with alarm
- Halogen working lamp
- FANUC Oi-TD controller
- Manual guide Oi (Oi TD) ;  
Manual guide i (31i -B)

## Optional Accessories:

- C-axis (C.S axis without gear box /  
C.F axis with gear box)
- Touch sensor (manual tool presetter)
- Tool holders (VDI type)
- Twin spindle
- Big bore spindle: φ 236, φ 318, φ 360,  
φ 410, φ 510 for H, X series.
- Steady rest (manual or auto  
self-centering)
- Headstock sheet-metal with dent-area
- Upper washing ramps

# CNC Control Specs

## ■ CNC system type

O: Std. △: Opt. -: Nil

Type	Model	ST-40~240
Fanuc 0i-TD		○
Fanuc 31i-B		△
Siemens 840D		△
Siemens 828D		△

## ■ Fanuc specifications

O: Std. △: Opt. -: Nil

	Item	Specifications	0iTD	31i-B
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	○	-
	with graphic function	Manual guide i	31i-B / 0iTD (10.4" LCD)	△
	No. of tool offset sets		64	99
	No. of variable command sets		500	500
	Work coordinate system	G54~G59	○	○

## ■ Siemens specifications

O: Std. △: Opt. -: Nil

	Item	Specifications	828D	840D
Operator Panel	10.4" color LCD		○	○
	15.1" color LCD		-	△
	Machine panel MCP483C		○	○
	TCU without hard disk	CF card	○	○
	PCU 50 with hard disk		-	△
	Ethernet		○	○
Function	ShopTurn programming		△	△
	Automatic residual material detection		△	△
	Transmit / Peripheral surface transformation		△	△
	Measuring cycles for drilling/milling and turning		△	△



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