

DUGARD

Machine Tools That Create Solutions Since 1939

Mega Slant and Mega Turn Heavy Duty CNC Lathes



Machine Features

- 60° for SA-Series, 45° for SS-Series slant bed construction ensures maximum stability and convenient chip disposal
- Powerful spindle motor. High torque output at low speed is excellent for heavy duty machining
- Fast tool change - in less than one second
- Programmable tailstock for convenient operation
- Fully enclosed splash guard provides operational safety
- Bed is made of Meehanite cast iron
- High precision ball screw assures backlash free transmission
- Bed slideways are protected by telescopic guard
- Bed slideways are hardened and precision ground, Turcite-B is used on sliding elements
- Independant coolant system for headstock ensures normal temperature at high speed running
- Optical scale on X, Z axes ensures high positioning accuracy

SS Series



Bore 6"
Centre distance 1,700mm

SS-27

- Swing over bed - 700mm (27.5")
- Distance between centres 700~5,200mm
- 12 station turret
- Fanuc 18iT control
- Spindle motor - 40/50HP
- Spindle bore 5"~12.5"

SS-31

- Swing over bed - 790mm (31")
- Distance between centres 700~5,200mm
- 12 station turret
- Fanuc 18iT control
- Spindle motor - 40/50HP
- Spindle bore 5"~14"

SS-35

- Swing over bed - 890mm (35")
- Distance between centres 700~5,200mm
- 12 station turret
- Fanuc 18iT control
- Spindle motor - 40/50HP
- Spindle bore 5"~14"



Bore 12.5"
Centre distance 3,200mm
Double Chuck



Bore 22"
Centre distance 2,200mm
Double Chuck

SA Series

SA-35

- Swing over bed - 890mm (35")
- Distance between centres 700~5,200mm
- 12 station turret
- Fanuc 18iT control
- Spindle motor - 50/60HP
- Spindle bore 6"~16"

SA-40

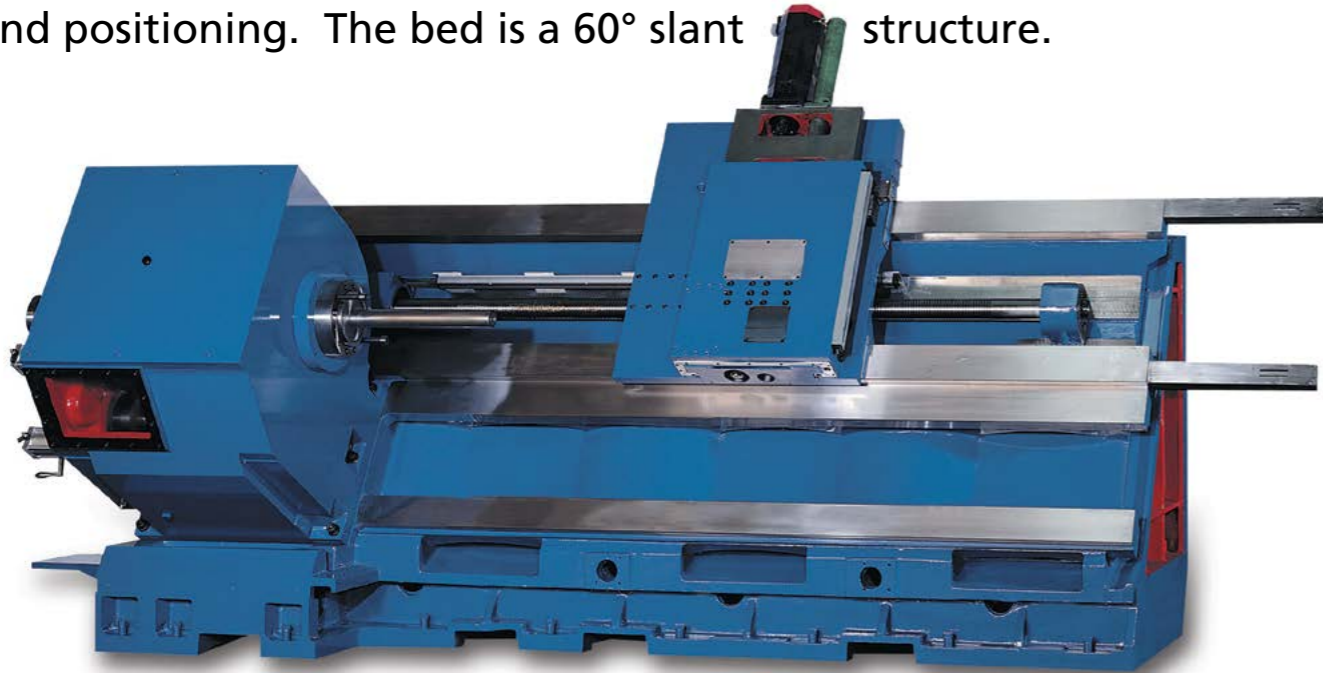
- Swing over bed - 1,020mm (40")
- Distance between centres 700~5,200mm
- 12 station turret
- Fanuc 18iT control
- Spindle motor - 50/60HP
- Spindle bore 6"~21"

SA-45

- Swing over bed - 1,145mm (45")
- Distance between centres 700~5,200mm
- 12 station turret
- Fanuc 18iT control
- Spindle motor - 50/60HP
- Spindle bore 6"~24"

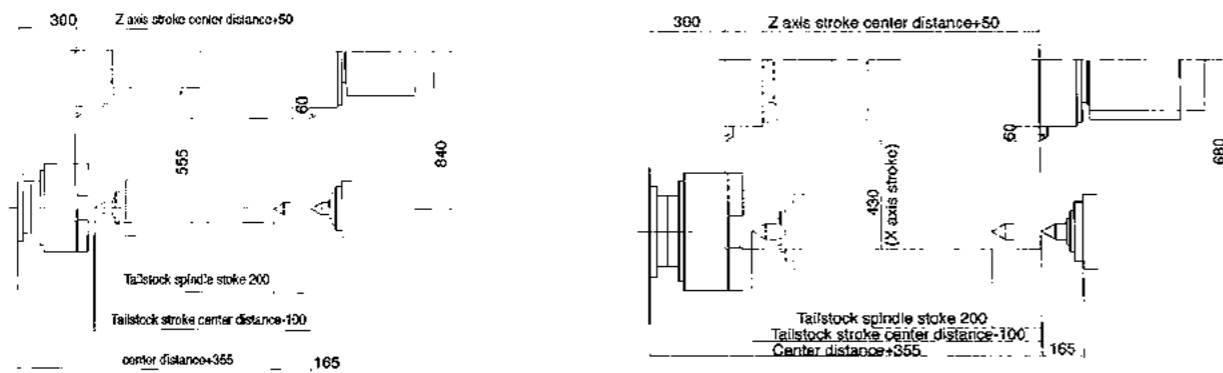
Rugged Construction

The bed is manufactured from high tensile Meehanite cast iron, hardened to hardness over HS70 and precision ground. All sliding elements are coated with Turcite-B and precision scraped to ensure high accuracy of traverse and positioning. The bed is a 60° slant structure.

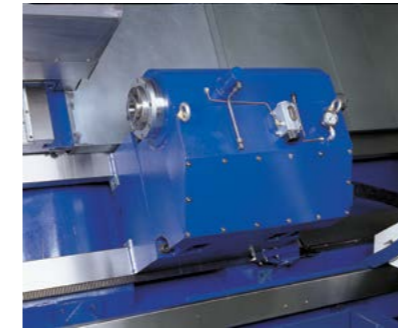
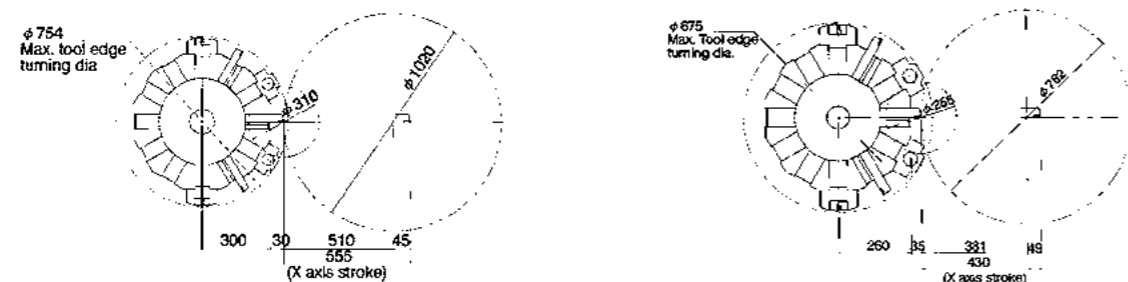


SA35 Centre Distance 1,700mm
Spindle Bore 6" (Ø153mm)

Turret Working Range

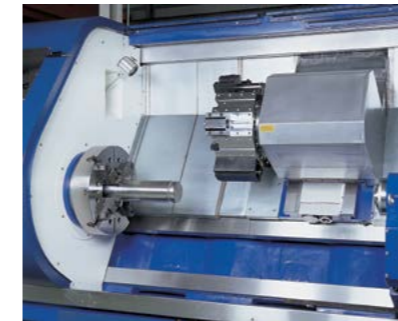


Turret Tooling Capacity



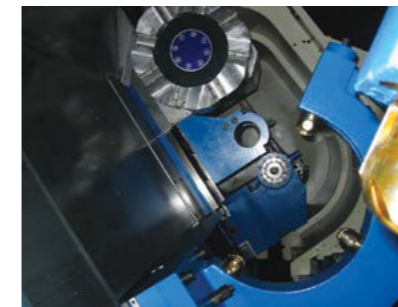
Massive Tailstock

The heavy tailstock construction assures maximum stability in heavy duty machining. Extra long quill travel reduces interference with the tool turret. Tailstock motions are programme controlled for operational convenience.



Fast and Precise Turret

The turret employs a conical clutch for high accuracy positioning, and features bi-directional random tool selection. Tool change is quickly accomplished in only one second (adjacent tool), and 2.7 seconds (opposite tool). CF axis turret is optional.



Boring Bar Holder (optional)

The boring bar holder is designed for providing chatter-free turning especially when performing deep hole machining. The boring bar holder is supplied as optional with specifications made to meet specific customer requirements.

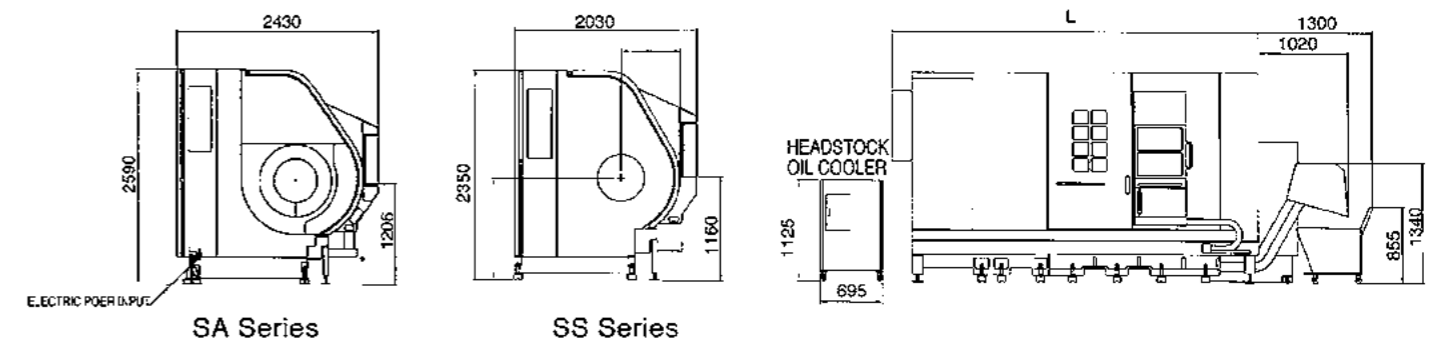


Precision Spindle

The spindle is precision manufactured from high quality alloy steel. It runs on large angular contact roller bearings to resist radial and axial load in heavy duty machining. Four ranges of variable spindle speed suits various workpiece materials.

Dimensions

L	SA Series	5565	6065	6565	7065	8065	9065	10065
	SS Series	4840	5340	5840	6340	7340	8340	9340
Centre Distance		700	1200	1700	2200	3200	4200	5200



Series Specifications

Standard Accessories

- Headstock oil coolant system (18,000 BTU)
- Rotary tailstock quill
- Tailstock power off safety device
- X & Z axes linear scale feedback
- Hydraulic system
- Chip conveyor and bin
- Cabinet refrigeration

Optional Accessories

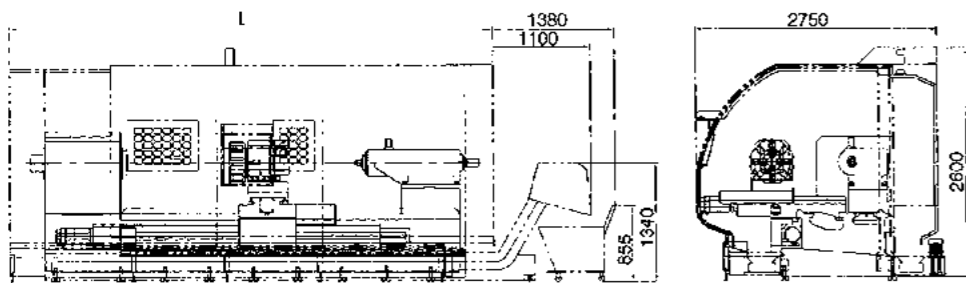
- C axis
- Double turret
- Tool presetter
- Sub spindle
- Hydraulic steady rest
- Manual steady rest
- 3-jaw chuck
- Power chuck
- Finger chuck
- Tool holders

Specifications are subject to change requests, without notice, for improvement

Item	Unit	SS-27	SS-31	SS-35	SA-35	SA-40	SA-45		
Capacity									
Swing over bed	mm (in)	700 (27.5)	790 (31.1)	890 (35)	890 (35)	1020 (40)	1145 (45)		
Swing over cross-slide	mm (in)	550 (21.6)	640 (25.2)	740 (29)	740 (29)	870 (34)	995 (39)		
Max cutting diameter	mm (in)	700 (27.5)	790 (31.1)	890 (35)	890 (35)	1020 (40)	1145 (45)		
Distance between centres	mm (in)	700 (28), 1200 (47), 1700 (67), 2200 (87), 3200 (126), 4200 (165), 5200 (205)							
Bed and Carriage									
Bed shape		One piece bed							
Bed width/slant angle	mm (in) / °	1145 (45) / 45			1430 (53.5) / 60				
Carriage bearing on bed way	mm (in)	830 (32.67)			950 (37.4)				
Width of cross slide	mm (in)	500 (19.68)			600 (23.6)				
Headstock									
Spindle nose		A2-11,	A2-15,	A2-15,	A2-20,	A2-20,	A2-28,	A2-28,	A2-32
Spindle bore	mm (in)	153 (6.02)	230 (9.05)	255 (10.03)	318 (12.51)	360 (14.17)	410 (16.14)	535 (21.06)	610 (24.02)
Spindle step		Auto 4 step							
Spindle speeds	1 range - rpm	20~140,	16~120,	13~95,	14~100,	12~85,	10~75,	8~60,	4~25
	2 range - rpm	38~280,	30~200,	25~185,	26~180,	23~160,	18~110,	15~95,	8~50
	3 range - rpm	95~550,	70~420,	60~400,	60~350,	55~300,	45~250,	35~200,	20~140
	4 range - rpm	200~1200,	150~700,	120~600,	130~450,	95~400,	65~350,	55~300,	40~220
Spindle nose / bore / step / rpm		A2-11 / 132 / 1 / 200~2000 SS only							
Turret									
Standard turret model		Baruffaldi TB320			Baruffaldi TB400				
Disc shape / no of tool stations		Polygon disc or VDI disc / 12							
Tool shank cross section	mm (in)	32 x 32 (1.25)							
Tool shank diameter max	mm (in)	60 (2.5) - SS, 102 (4) - SA							
Travel									
Cutting tool rate	mm/rev (in/rev)	X axis: 0.001~250 (0.00004~9.84), Z axis: 0.001~400 (0.00004~15.75)							
Rapid travel	m/min (ft/min)	X axis: 8 (26.24), Z axis: 10 (32.8)							
Ball screw diameter	mm (in)	X axis: 45 (1.77), Z axis: 63 (2.48)			X axis: 50 (2), Z axis: 80 (3.15)				
Tailstock									
Quill type		Built-in type, Rotating tailstock quill							
Quill diameter	mm (in)	160 (6.29)			235 (9.25)				
Quill travel	mm (in)	200 (7.87)							
Inner taper of quill		MT#5			MT#6				
Motor									
Main spindle motor	kW (HP)	30/37 (40/50) STD, 37/45 (50/60) OPT			37/45 (50/60)				
X axis servo motor	kW (HP)	3.8 (5.1)			4.5 (6)				
Y axis servo motor	kW (HP)	3.8 (5.1)			4.5 (6)				
Hydraulic pump motor	kW (HP)	3.7 (5)			5.5 (7.5)				
Coolant pump motor	kW (HP)	1.05 (1.4)							
Headstock oil refrigerator		18,000 BTU							
Cabinet refrigerator		3,000 BTU							
Control		Fanuc 18iT (STD)			Other required (OPT)				
Machine									
700mm centre distance	kg (lb)	11,000 (24,200)	11,400 (25,080)	11,800 (26,000)	16,500 (36,300)	17,000 (37,400)	17,500 (38,500)		
Weight									
Each extra 500mm weight	kg (lb)	1,500 (3,300)			2,200 (4,800)				

CN Series

4 bedway design
Bore 9"
Centre distance 4,000mm



CN-35

- Swing over bed - 880mm (35")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 50/60HP
- 4-way track

CN-40

- Swing over bed - 1,040mm (40")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 50/60HP
- 4-way track

CN-45

- Swing over bed - 1,135mm (45")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 50/60HP
- 4-way track

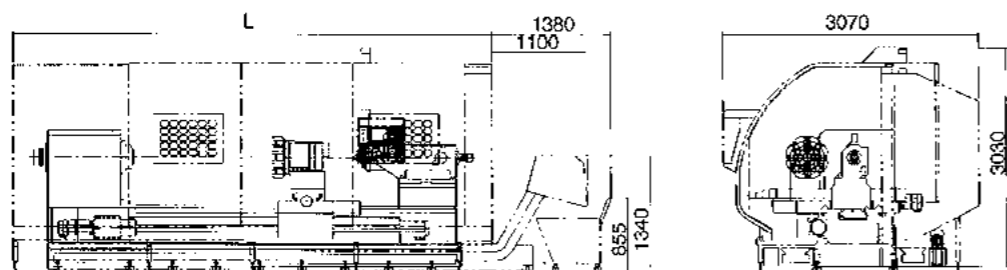
CN-50

- Swing over bed - 1,275mm (50")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 50/60HP
- 4-way track

CN Series	L	5470	6470	7470	8470	9470	10470	11470	12470	13470	14470	15470
Centre Distance		2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000



Bore 9"
Centre distance 3,000mm



BN Series	L	5560	6560	7560	8560	9560	10560	11560	12560	13560	14560	15560
Centre Distance		2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

LC Series

Bore 6", Centre distance 6,000mm



LC-35

- Swing over bed - 880mm (35")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 40/50HP
- 2-way track

LC-40

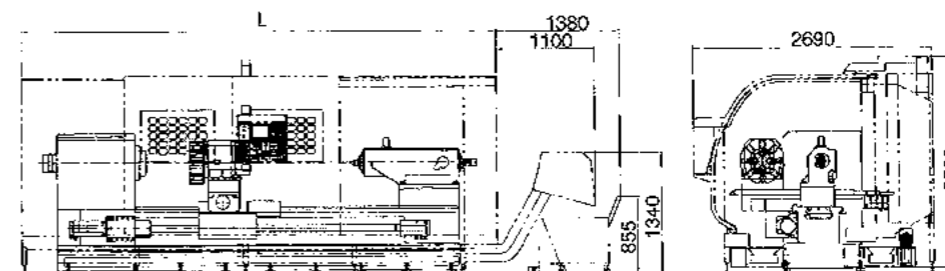
- Swing over bed - 1,040mm (40")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 40/50HP
- 2-way track

LC-45

- Swing over bed - 1,135mm (45")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 40/50HP
- 2-way track

LC-50

- Swing over bed - 1,275mm (50")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 40/50HP
- 2-way track



LC Series	L	5260	6260	7260	8260	9260	10260	11260	12260	13260	14260	15260
Centre Distance		2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

BN Series



Bore 10"
Centre distance 2,000mm

BN-45

- Swing over bed - 1,135mm (45")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 50/60HP
- 2-way track. 3-V shape

BN-50

- Swing over bed - 1,275mm (50")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 50/60HP
- 2-way track. 3-V shape

BN-60

- Swing over bed - 1,527mm (60")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 50/60HP
- 2-way track. 3-V shape

BN-70

- Swing over bed - 1,790mm (70")
- Distance between centres 1,500~12,000mm
- Fanuc 18iT control
- Spindle motor - 50/60HP
- 2-way track. 3-V shape

Series Specifications

Standard Accessories

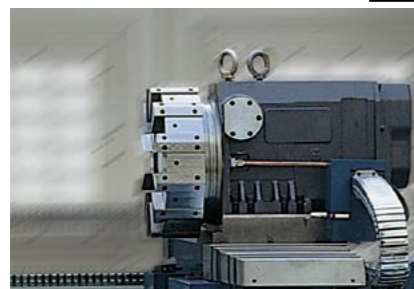
- Coolant system
- Auto lubrication
- Work lamp
- Safe guarding
- Tools and tool box
- Various manuals
- Programmable tailstock
- Turnable tailstock spindle
- Chip conveyor, 2 sets
- Headstock oil cooler
- Cabinet refrigerator

Optional Accessories

- Double turret
- Steady rest (manual or hydraulic)
- Follow rest
- C axis
- Double chuck
- Linear scales

Specifications are subject to change requests, without notice, for improvement

Item	Unit	LC-35	LC-40	LC-45	LC-50	BN-45	BN-50	BN-60	BN-70	CN-35	CN-40	CN-45	CN-50
Capacity													
Centre height	mm (in)	440 (17.5)	505 (20)	568 (22.5)	638 (25)	568 (22.5)	638 (25)	764 (30)	895 (35)	440 (17.5)	505 (20)	573 (22.5)	638 (25)
Swing over bed	mm (in)	880 (35)	1010 (40)	1135 (45)	1275 (50)	1135 (45)	1275 (50)	1527 (50)	1790 (70)	880 (35)	1010 (40)	1145 (45)	1275 (50)
Swing over cross-slide	mm (in)	510 (20)	640 (25)	765 (30)	905 (35)	710 (28)	850 (33)	1102 (43)	1365 (53)	400 (16)	530 (21)	665 (26)	795 (31)
Distance between centres	mm (in)	1500 (60), 2000 (80), 2500 (100), 3000 (120), 3500 (140), 4000 (160), 5000 (200), 6000 (240), 7000 (280), 8000 (320), 9000 (360), 10000 (400), 11000 (440), 12000 (480)											
Bed													
Width	mm (in)	560 (22)				715 (28)				1020 (40)			
Headstock													
Spindle nose		A2-11,		A2 - 15,		A2-15,		A2-20,		A2-20,		A2-28,	
Spindle bore	mm (in)	153 (6.02)		230 (9.05)		255 (10.03)		318 (12.51)		360 (14.17)		410 (16.14)	
Spindle step		Auto 4 steps											
Spindle speeds	1 range - rpm	18 ~ 130,		16 ~ 120,		13 ~ 95,		12 ~ 85,		10 ~ 75,		8 ~ 50,	
	2 range - rpm	35 ~ 260,		30 ~ 200,		25 ~ 185,		23 ~ 170,		20 ~ 150,		15 ~ 100,	
	3 range - rpm	85 ~ 550,		870 ~ 420,		60 ~ 400,		55 ~ 300,		50 ~ 250,		35 ~ 200,	
	4 range - rpm	165 ~ 1000,		150 ~ 700,		120 ~ 600,		110 ~ 400,		195 ~ 350,		65 ~ 300,	
Turret													
Standard tool post		Auto 4-way or Polygon Disc or VDI Disc											
Number of tool stations		H4, H6				12				8 or 12			
Tool shank cross section	mm (in)	32 x 32 (1.25)											
Tool shank diameter	mm (in)	60 (2.5)											
Travel													
Cutting feed rate	mm/rev (in/rev)	X axis: 0.001 ~ 250 (0.00004 ~ 9.84)						Z axis: 0.001 ~ 400 (0.00004 ~ 15.75)					
Rapid travel	m/min (ft/min)	X axis: 6 (19.68)						Z axis: 8 (26.24)					
Ball screw diameter	mm (in)	X axis: 40 (1.57) Z axis: 63 (2.48)				X axis: 45 (1.77) Z axis: 80 (3.15)				X axis: 50 (1.97) Z axis: 80 (3.15)			
Tailstock													
Quill type		Built-in type, Rotating tailstock quill											
Quill diameter	mm (in)	235 (9.25)											
Quill travel	mm (in)	200 (7.87)											
Inner taper of quill		MT #6											
Motor													
Main spindle motor	kW (HP)	30/37 (40/50) std, 37.5/45 (50/60) opt						37.5/45 (50/60)					
X axis servomotor	kW (HP)	3.8 (5.1)				4.5 (6)							
Y axis servomotor	kW (HP)	3.8 (5.1)				4.5 (6)							
Hydraulic pump motor	kW (HP)	3.7 (5)											
Coolant pump motor	kW (HP)	1.05 (1.4)											
Control													
Fanuc 18iT (STD)						Other required (OPT)							
Machine Weight													
2000mm centre distance	kg (lb)	13000 (28600)	13350 (29370)	13700 (30140)	14050 (30910)	16200 (35640)	16600 (36520)	17400 (38280)	18200 (40040)	20700 (45540)	21700 (47740)	22700 (49940)	23700 (52140)
Each extra 1000mm weight	kg (lb)	1000 (2200)				1600 (3520)				2500 (5500)			



Servo Turret

- High stiffness and accuracy (positioning 3"/repeatability 1")
- High loading capacity: 1,500kg-m, 1,600kg-m, 800kg-m



Hydraulic Steady Rest

- Suitable for machining long workpieces
- Available to select automatic or manual traverse modes



Tailstock

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

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Tools

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