

NC Specifications



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ITEM	SPECIFICATIONS	FANUC-0i TD
CONTROL AXIS		
Control axis		X,Z,C
FUNCTION		
Feedrate override	0~150%(10% unll)	○
Reference position return	G27,G28,G30	○
Rapid traverse override	F0/25/50/100%	○
SPINDLE FUNCTION		
Cs control		○
AXIS CONTROL FUNCTION		
Simultaneously control axis expansion (Total)	Max,4axes	○
Increment system 1/10	0.0001mm/0.0001deg/0.00001"	○
Polar coordinate interpolation	G21.1,G31.1	○
TOOL FUNCTION		
Tool number command	T4-digit	○
Tool nose radius compensation	G40~G42	○
Tool offsets		○
Tool life management		○
Automation tool offset		○
PROGRAM EDIT FUNCTION		
Multi repetitive canned cycle	G70~G76	○
Circular interpolation	G01,G03	○
Sub program call	10 folds nested	○
Work coordinate system selection	G52~G59	○
Maximum command dimension	+/-99999.999mm/(+/-9999.9999inch)	○
Continuous thread cutting		○
Programmable data input	G10	○
TAPE FUNCTION		
I/O interface	RS-232C	○
Part program storage length	512 kB	○
No. of Registered programs	400 EA	○
MDI/DISPLAY unit	10.4" LCD	○
OTHER FUNCTION		
Running time / parts number display	Auto running time & Parts No. display	○
Optional block skip	9	○
Ethernet function	Embedded ethernet function	○

Standard accessories

Hydraulic chuck	Soft jaw	Tool & tool box	Hydraulic unit
Door interlock	Coolant supply equipment	Worklight	Levelling bolt & plate
Foot switch			

Optional accessories

Auto door	Collet chuck	Parts catcher
Tool presetter	Chuck air blow	C-axis
Chip conveyor (side)	Chip bucket	Barfeeder interface
Transformer	Oil Skimmer	Automatic power turn-off fuction
Special chuck	Tool counter	Additional tool holder & sleeve
Air gun	Oil mist collector	Coolant gun

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TURNING CENTER

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KDL S SERIES



MACHINE TOOLS

KDL S SERIES

- KDL 25 / 30(M)
- KDL 35(M) / 40(M)
- KDL 45(M) / 55(M)
- KDL 60(M) / 65

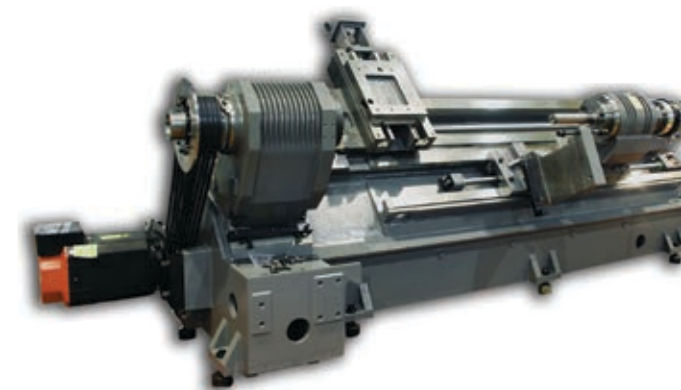
High-efficiency, High-strongrigidity

KDL series is designed to offer best features of heavy duty cutting, sufficiently large work space, heat distortion prevention system, highly-efficient machining to satisfy customer needs. With the various range of selection from small-size to large-size long axis machining, KDL series can greatly enhance productivity at your work place.



High-efficiency, High-strongrigidity

High rigidity machine structure

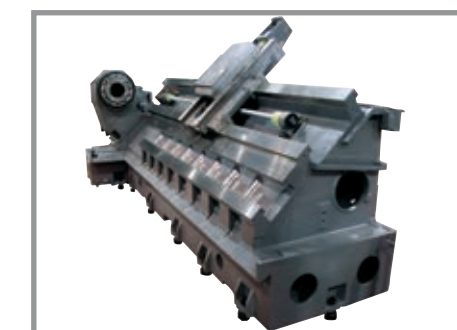
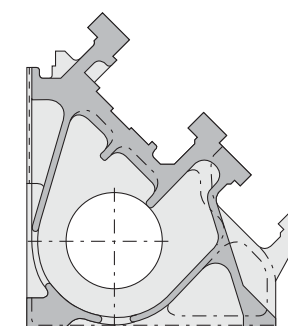


Strongly stabilized slant bed design mechanism to improve performance of high speed heavy duty cutting and interrupted cutting

Strong 6-face arresting type Turcite BOX way design with minimized vibration mechanism, large ballscrew is adopted with a combination of strong spindle, hydraulic curvic coupling type turret for the best performance in its class.

Strong box way 45 degree slant bed for the high performance

Adopted single tube, 45 degree slant bed design to allow easy access to the work-piece, efficient chip disposal, convenient operation for the better life-time of the machine. Torque tube design bed with 6-face arresting box way sliding structure to prevent distortion and ensure the best performance



Pre-tensioned and triple-anchored ballscrew



All axes with pretension heat treated large ballscrews, fixed by triple(3) anchors on middle and both ends to eliminate backlash and vibration

Box way slide way on all axis



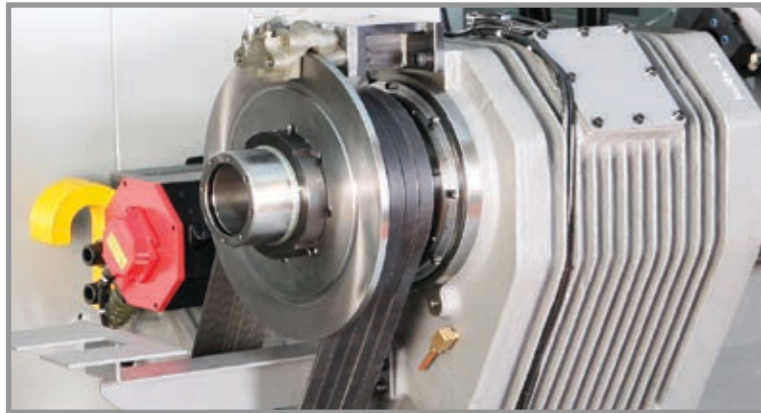
Wide and Unique 6 faces arresting type box-way with high frequency heat treated and precision grounded slide ways to ensure machine life-time and high accuracy

KDL S series

Turning center

High-efficiency, High-strongrigidity

High precision, High rigidity headstock

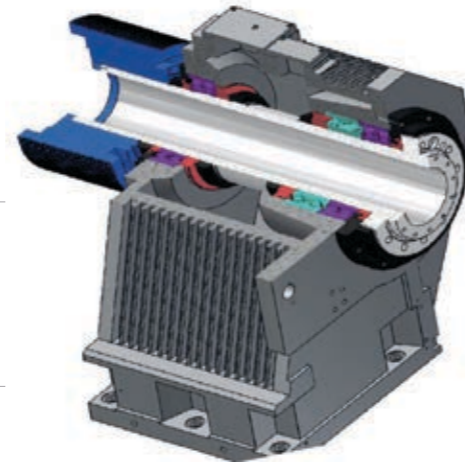


Supported by 2 Raw high precision bearing with double angular ball bearings in between, it maximize its best spindle performance and minimize its distortions.

Main spindle

Spindle motor
50 / 60 Hp (KDL 60)

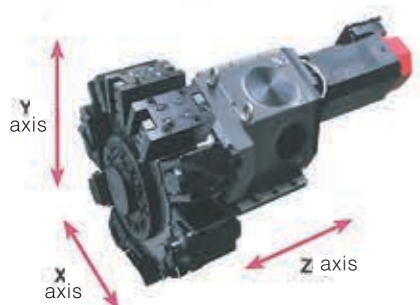
Spindle speed
3,500 rpm (KDL 25)



Heat radiating fan type headstock with minimum heat distortion

Heat radiation fan typed Rib structure minimizes headstock distortion by heat generation and prevents change of accuracy according to temperature increase. In addition, balanced heat generation design of headstock also minimizing heat effect.

High performance Y- axis

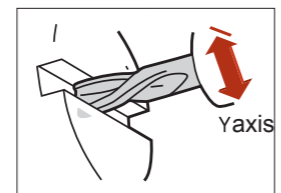


With live tools C-axis, Y-axis capability, and subspindle complex machining operations can be done in just one set-up, reducing unnecessary set-up time and significantly improving machining accuracy and productivity.

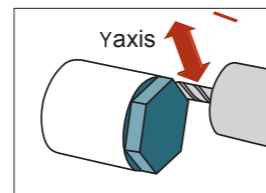
Y-axis stroke
3.15 inch

Y-rapid traverse
394 ipm

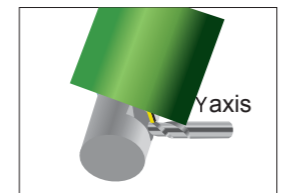
Simultaneous X, Y, Z axis feed control and C axis function and X/Y axis circular interpolation function can make available for complex shape workpiece easy machining at high accuracy.



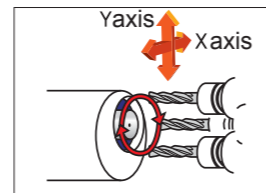
Groove finishing cutting using Y-axis



Multi face machining



Off centered milling



Y&X axis circular interpolation

Turret

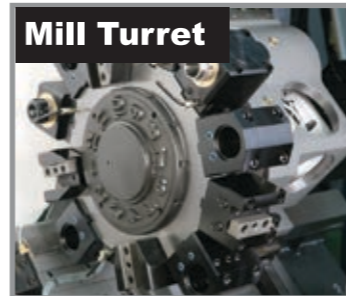
STANDARD



0.2 sec(t-t) fast Servo indexing turret

Scientifically designed servo motors for turret indexing enables 0.2seconds(T-T) non-stop time and high rapid traverse to minimize idle time.

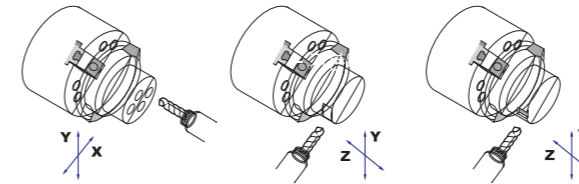
Mill Turret



BMT Milling Turret[M Type]

The built-in largest curvic coupling and powerful hydraulic clamping 12D BMT turret has the largest tool holders in its class to ensure high rigidity and accuracy (0.2 sec/face).

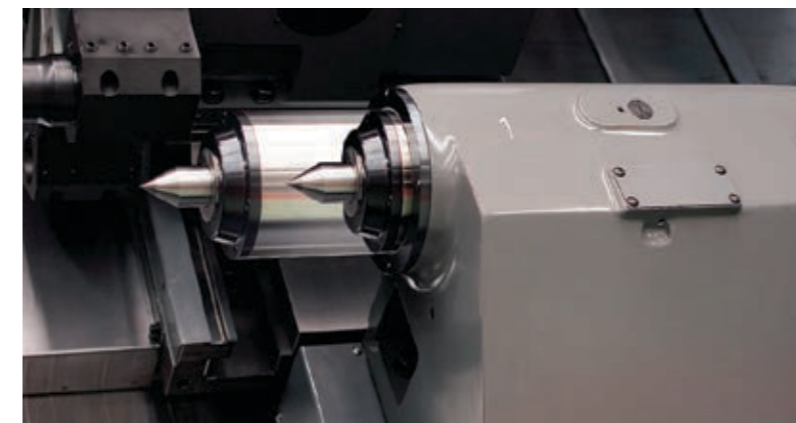
Live tools



Cutting Condition		EWS
Emd Mill ϕ 16(Hss)	Cutting Depth	11mm
2 Blades		
V : 50 m/min	Chip disposal volume	40cm ³ /min
S : 1,200 rpm		
F : 0.2mm/rev		

Equipped with BMT tool holders(Radial & Axial) to provide not only the easiest installation of tool holder in & out but also the most efficient performance including milling drilling and tapping.

Tailstock(built in tailstock KDL 35~60 : Standard)



The largest in its class, this ultra-strength tailstock offers long-lasting lifetime with a built-in live center. Tailsleeve can be easily controlled with a foot switch or M-codes

- Programmable tailstock
[KDL 25/30 : option, KDL 35~60 : standard]
The tailstock and sleeve are operated by M-code automatically.

KDL S series

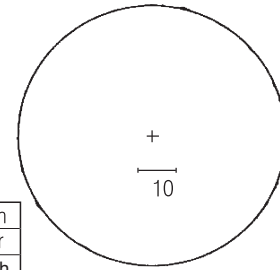
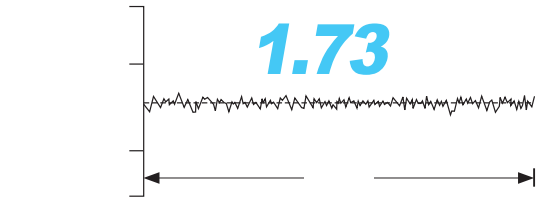
Turning Center

High-efficiency, High-strongrigidity

Accuracy

■ Surface Roughness <O.D. cutting>

■ Roundness

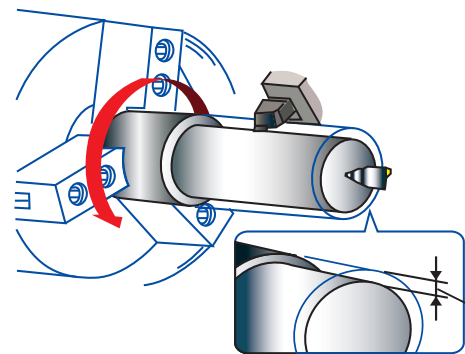


Model	KDL 30
Tool	Diamond tool <nose radius 0.020 inch>
Material	AL 150 <Aluminum>

Cutting speed	745.6 fpm
Feedrate	0.0020 ipr
Depth of cut	0.004 inch
Outer diameter	7.91 mm

Model	KDL 30
Tool	Diamond tool <nose radius 0.1mm >
Material	AL 150 <Aluminum>
Cutting speed	745.6 fpm
Feedrate	0.0020 ipr
Depth of cut	0.004 inch
Out diameter	7.91 inch

Cutting speed



O.D. Cutting example

	KDL 25	KDL 45
Tool	1 X 1 inch	1 1/4 X 1 1/4 inch
Main Spindle Speed	890 rpm	367 rpm
Cutting speed	5512 ipm	5906 ipm
Cutting depth ^(a)	8 mm[Spindle road 50%]	10 mm[Spindle road 65%]
Feed rate	0.3 mm/rev	0.4 mm/rev

Centralized control panel



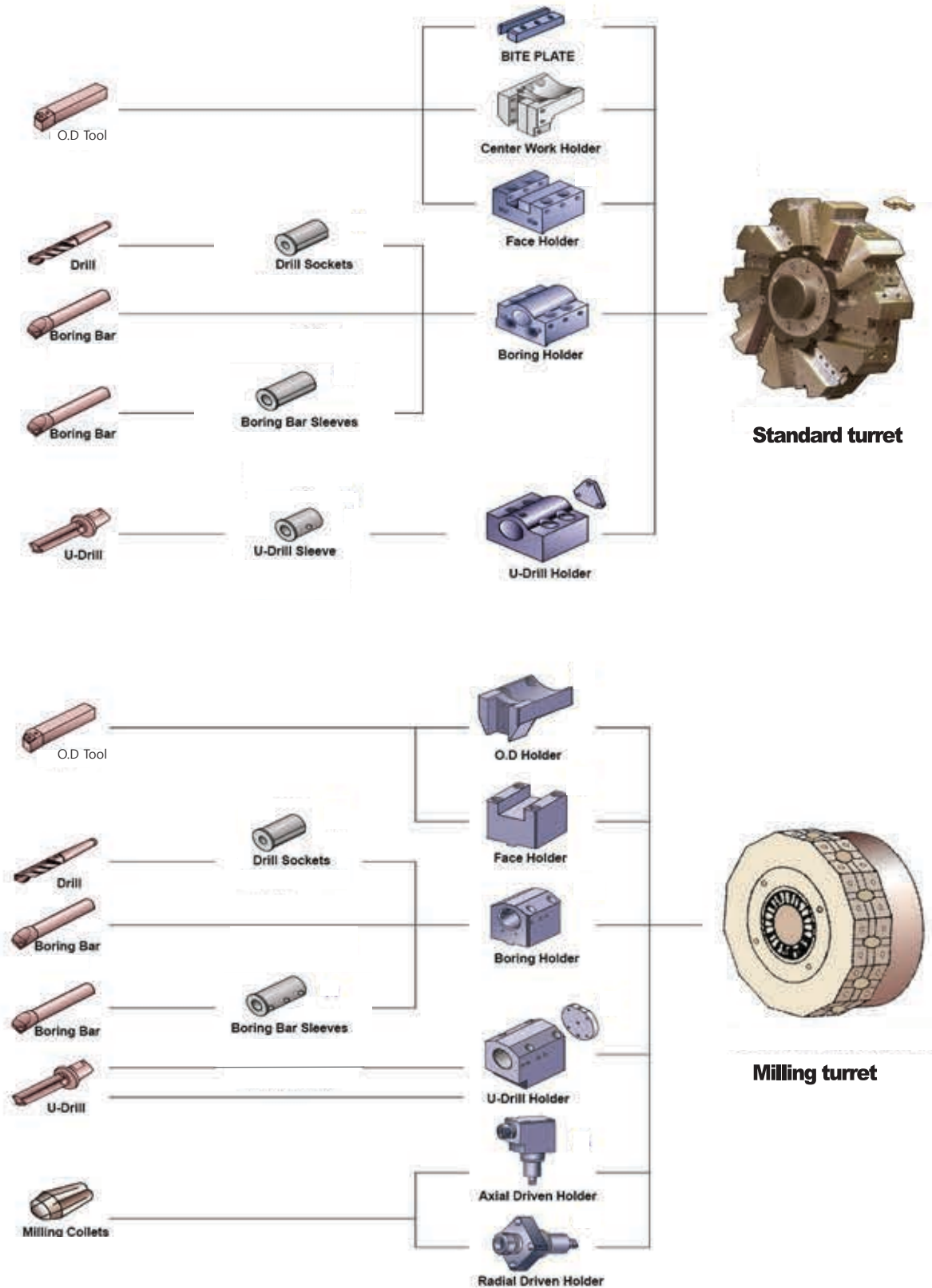
The centralized control panel with 10.4 inch color TFT LCD monitor rotates 90°, and offers great convenience by providing wide range of alarm messages.

Coolant tank



To ensure stable machining, coolant tank is safely separated from heat from the chip and coolant. Large capacity coolant tank makes tasks of chip removal, coolant change, and maintenance easy and simple.

Tooling diagram

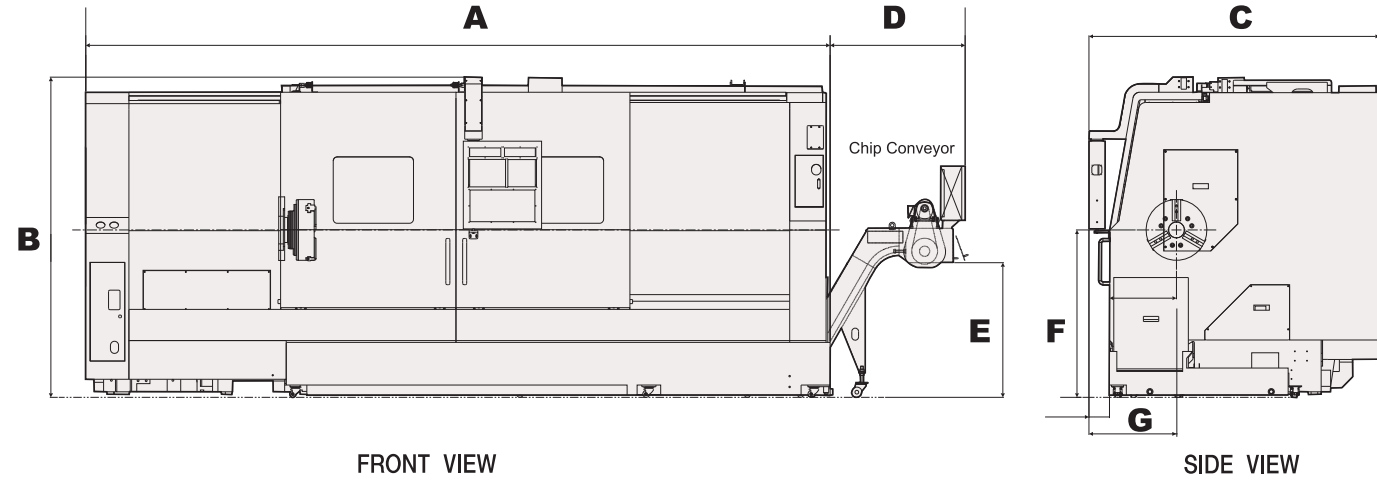


KDL S series

Turning Center

High-efficiency, High-strongrigidity

Machine Lay-out



FRONT VIEW

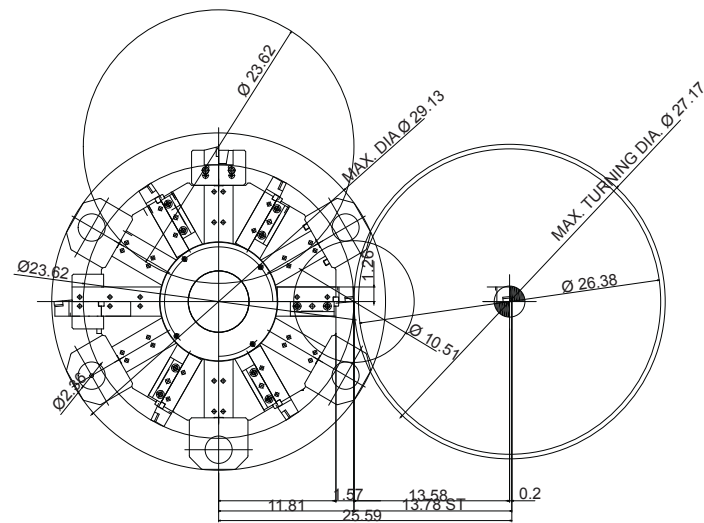
SIDE VIEW

(inch)

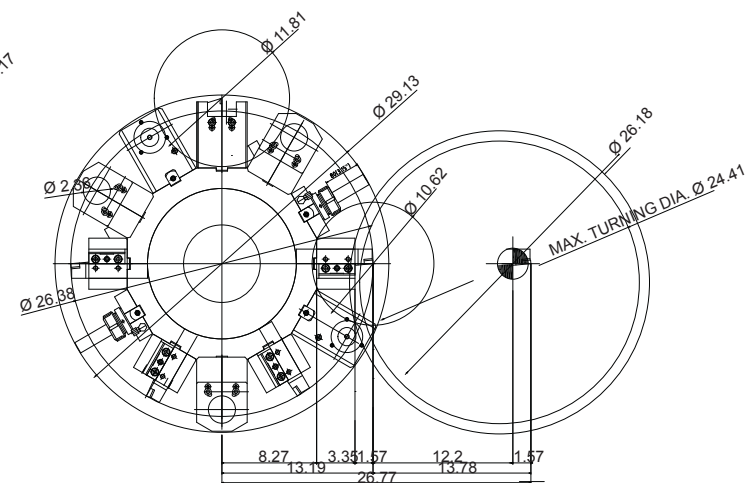
ITEM	A	B	C	D	E	F	G
KDL 25/30	159.45	76.38	73.39	38.11	36.89	39.09	19.88
KDL 25L/30L	198.82	76.38	73.39	38.11	36.89	39.09	19.88
KDL 35/40	175.2	83.86/85.43	72.99/74.8	38.11	36.89	43.31/44.69	18.11
KDL 35L/40L	190.94	83.86/85.43	72.99/74.8	38.11	36.89	43.31/44.69	18.11
KDL 45/55	198.82	95.87	85.94	35.43	41.34	48.82	18.07
KDL 45L/55L	230.32	95.87	85.94	35.43	41.34	48.82	18.07
KDL 60/60L	204.33/291.34	102.36	114.17	39.37	39.37	48.35	22.44
KDL 65	204.33	102.36	114.17	39.37	39.37	48.35	22.44

Tool interference diagram

► KDL 45 / 55

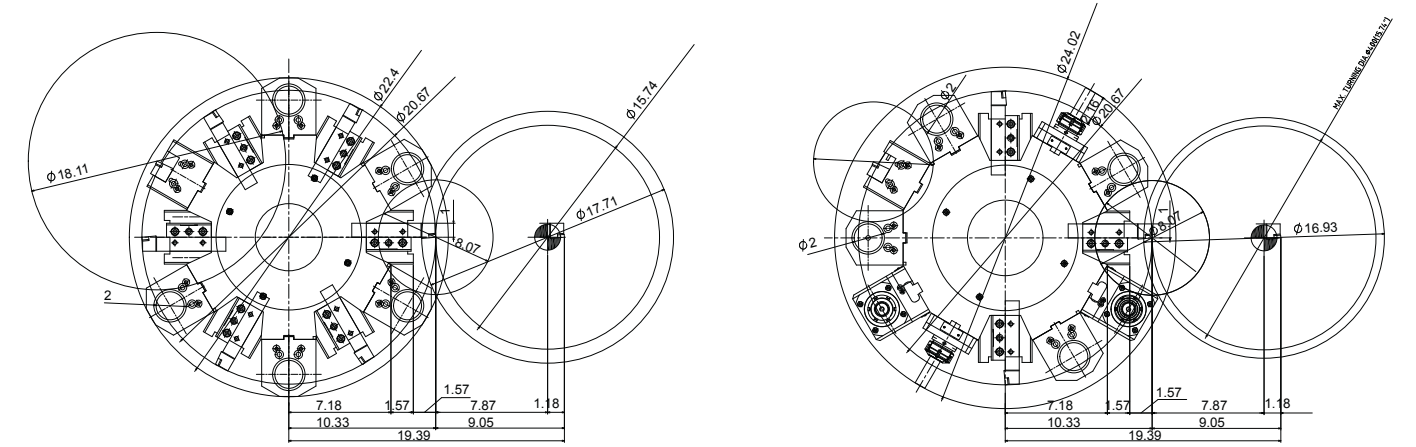


► KDL 45M / 55M

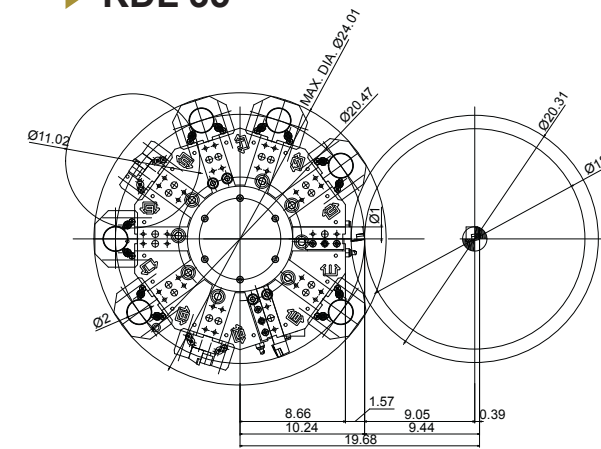


Tool interference diagram

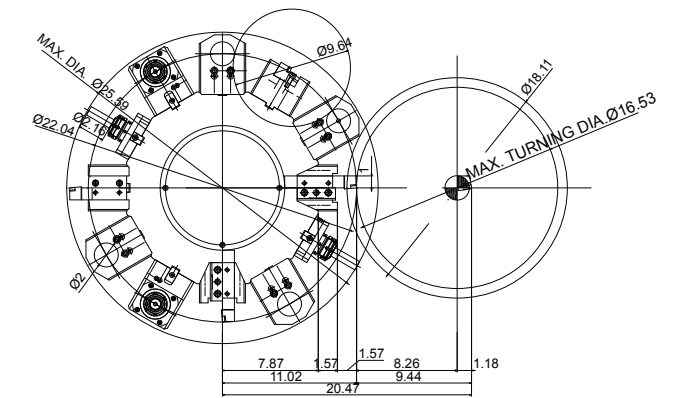
► KDL 25 (30)



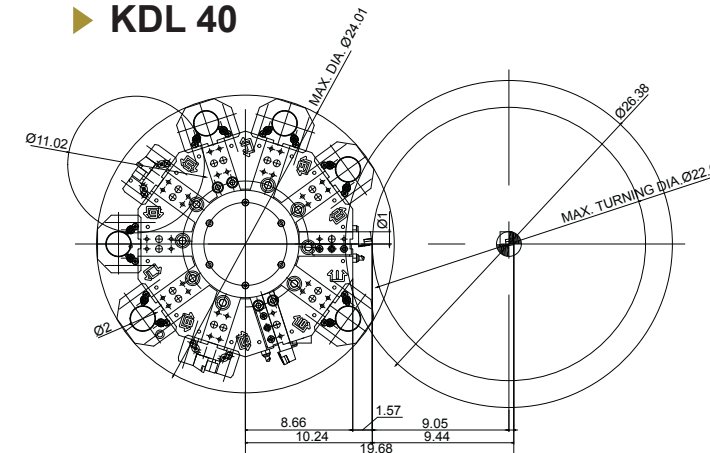
► KDL 35



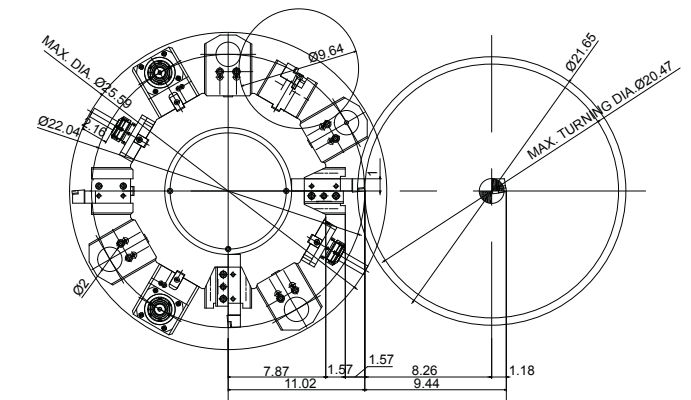
► KDL 35M



► KDL 40



► KDL 40M



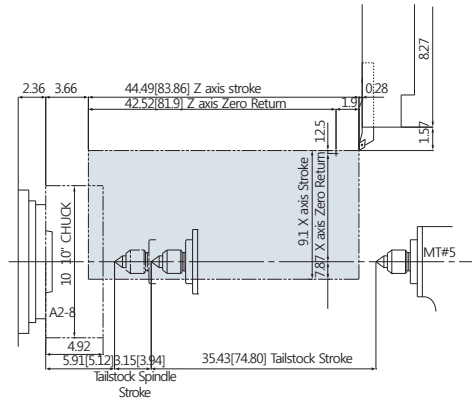
KDL S series

Turning Center

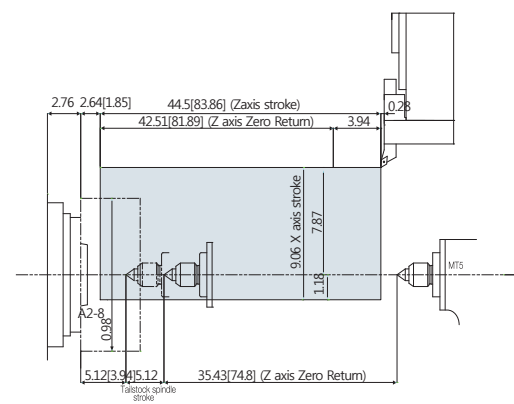
High-efficiency, High-strongrigidity

Working range

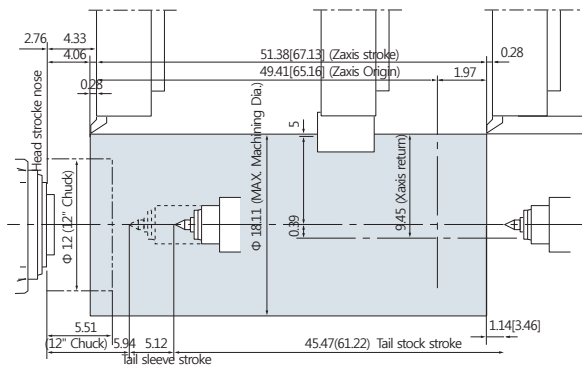
► KDL 25 / 30 (KDL 30L)



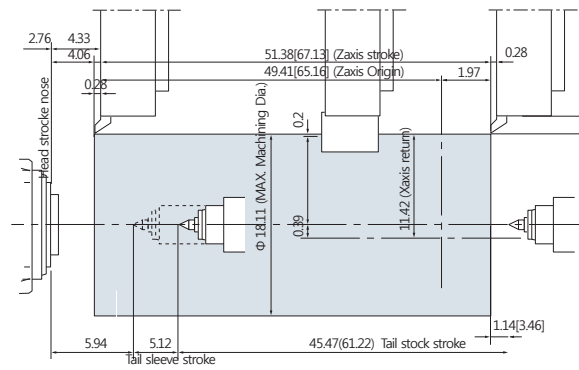
► KDL 30M (KDL 30LM)



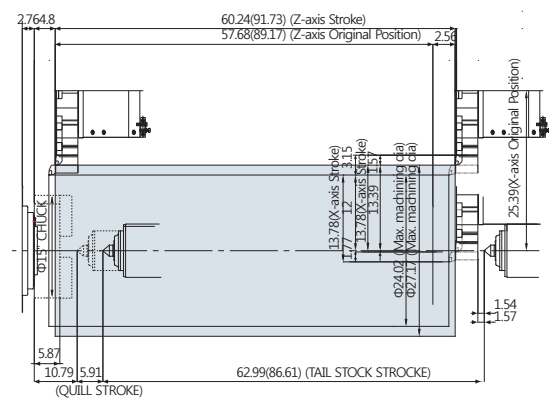
► KDL 35 (KDL 35L)



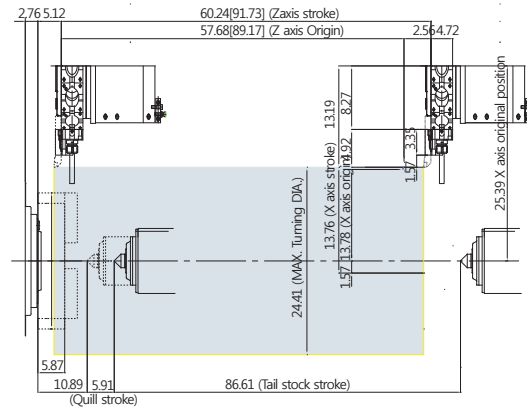
► KDL 40 (KDL 40L)



► KDL 45 / 55

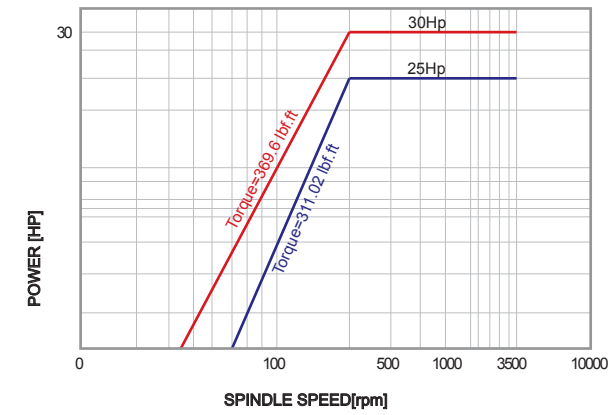


► KDL 45M / 55M (KDL 45LM / 55LM)

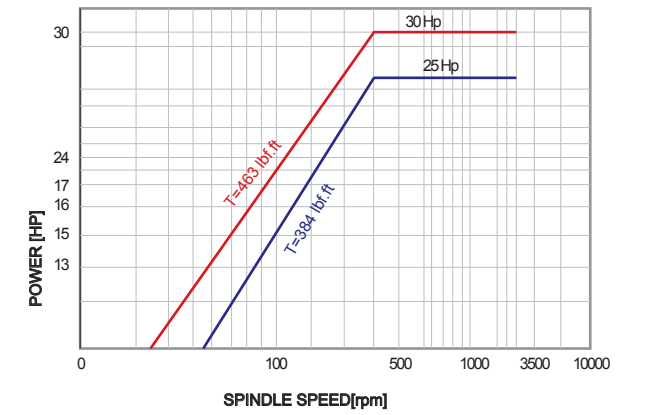


Main spindle power & Torque diagram

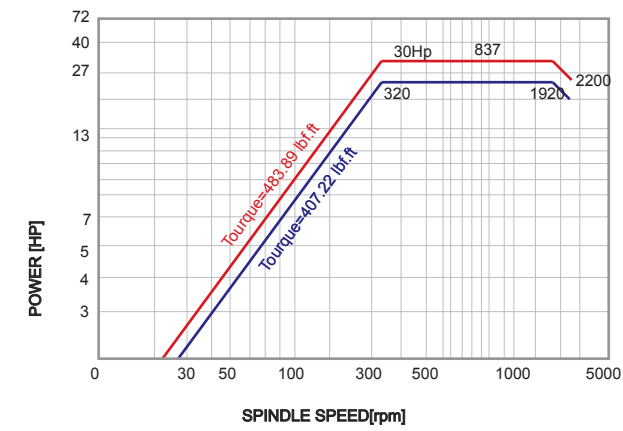
► KDL 25



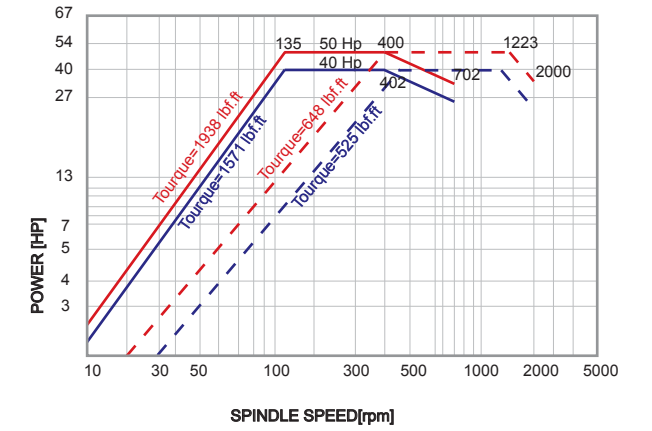
► KDL 30



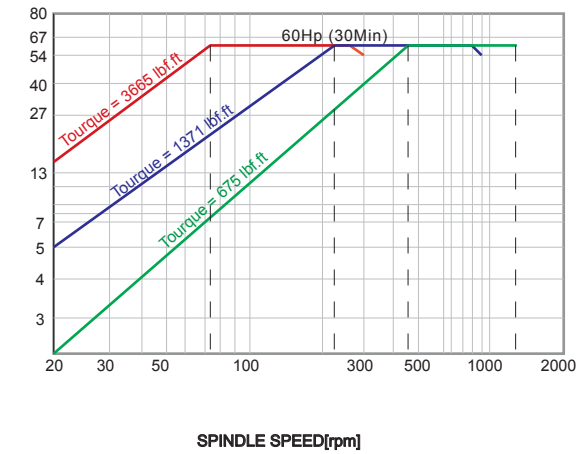
► KDL 35 / 40



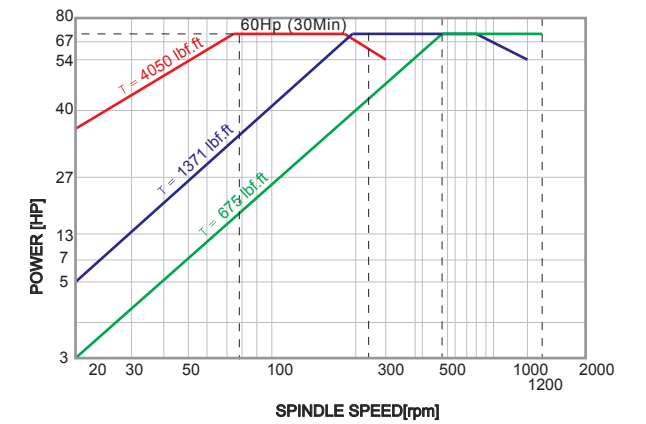
► KDL 45 / 55



► KDL 60 / 60M



► KDL 65



KDL S series

Turning Center

High-efficiency, High-strongrigidity

Machine major specifications

Specifications	Unit	KDL 25	KDL 30	KDL 30L	KDL 30M	KDL 30LM	KDL 30LMSY
Capacity	Swing over bed(Max. swing dia.)	inch 24.02					
	Swing over cross slide	inch 18.9					
	Max. turning dia.	inch 15.75	16.54				
	Max. turning length	inch 42.52	81.89	42.52	81.89	77.95	
Main spindle	Max. spindle speed	rpm 3,500	2,500				
	Spindle nose	- A2-8					
	Spindle bore diameter	inch 3.39	4.02				
	Max. spindle torque	lbf-ft 368.88	462.91				
Sub spindle	Standard chuck size	inch 10	12				
	Chuck size	inch -					6
Motor	Spindle speed	rpm -	6000				
	Main spindle motor(Cont./30min)	hp 25/30					
	X axis servo motor	hp 4					
	Z axis servo motor	hp 4					
	Mill spindle motor(Cont./30min)	hp -	3/5				
Bed Saddle Cross slide	X axis travel	inch 9.06					
	Z axis travel	inch 44.49	83.86	44.49	83.86	91.73	
	Y/B axis travel	- 80(±40)/2,330					
	Guideway type(X/Z)	- BOX Way					
	X axis rapid traverse rate	ipm 787.4					
	Z axis rapid traverse rate	ipm 944.88	708.66	944.88	708.66	708.66	
Turret	Y/B axis rapid traverse rate	- 10/24					
	Turret index type	- Servo					
	Max. no. of tools	ea 12	12 / BMT 65				
	Turning tool shank size	inch 1					
	Boring bar diameter	inch 1¾					
Tailstock	Turret indexing time (1st swivel)	sec 0.2					
	Tailstock quill diameter	inch 4.33					
General	Tailstock quill stroke	inch 3.94					
	Machine weight	lbf 15,653	18,959	15,653	18,959	19,400	
	Machine height	inch 76.38					
Floor space	Length	inch 159.45	198.82	159.45	198.82		
	Width	inch 1,864					
Power capacity	kVA 34	40					
Controller	-	F0i- TD					F31i-A

[] OPT

Machine major specifications

Specifications	Unit	KDL 35	KDL 35L	KDL 35M	KDL 35LM	KDL 40	KDL 40L	KDL 40M	KDL 40LM
Capacity	Swing over bed	inch 25.59				29.53			
	Swing over cross slide	inch 16.69				20.67			
	Max. turning dia.	inch 16.54				20.47			
	Max. turning length	inch 49.41	65.16	49.41	65.16	49.41	65.16	49.41	65.16
Main spindle	Max. spindle speed	rpm 2,500				2,000			
	Spindle nose	- A2-11							
	Spindle bore diameter	inch 5.2							
	Max. spindle torque	lbf-ft 477.38(1,446.6)							
Motor	Standard chuck size	inch 12				15			
	Main spindle motor(Cont./30min)	hp 25/29							
	X axis servo motor	hp 4							
	Z axis servo motor	hp 5							
Bed Saddle Cross slide	Mill spindle motor(Cont./30min)	hp -	5/7			-		5/7	
	X axis travel	inch 9.45				11.42			
	Z axis travel	inch 51.38	67.13	51.38	67.13	51.38	67.13	51.38	67.13
	Guideway type(X/Z)	- BOX Way							
	X axis rapid traverse rate	ipm 708.66							
	Z axis rapid traverse rate	ipm 787.4	590.55	787.4	590.55	787.4	590.55	787.4	590.55
Turret	Turret index type	- Servo							
	Max. no. of tools	ea 10	12/BMT65			10		12/BMT65	
	Turning tool shank size	inch 1							
Tailstock	Boring bar diameter	inch 1¾							
	Turret indexing time (1st swivel)	sec 0.25							
General	Tailstock quill diameter	inch 5.12							
	Tailstock quill stroke	inch 4.72							
Floor space	Machine weight	lbf 18,739	19,841	18,739	19,841	18,959	20,062	18,959	20,062
	Machine height	inch 83.86				85.43			
	Length	inch 175.19	190.94	175.19	190.94	175.19	190.94	175.19	190.94
		Width	inch 72.99				74.80		
Power capacity	kVA 45	60			45		60		
Controller	-	F0i-TD							

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KDL S series

Turning Center

High-efficiency, High-strongrigidity

Machine major specifications

Specifications	Unit	KDL 45	KDL 45L	KDL 45M	KDL 45LM	KDL 55	KDL 55L	KDL 55M	KDL 55LM	
Capacity	Swing over bed	inch 30.51								
	Swing over cross slide	inch 24.80								
	Max. turning dia.	inch 27.17		inch 24.41		inch 27.17		inch 24.41		
	Max. turning length	inch 57.68	inch 89.17	inch 57.68	inch 89.17	inch 57.68	inch 57.68	inch 57.68	inch 57.68	
Main spindle	Max. spindle speed	rpm 1,800				rpm 1,500				
	Spindle nose	- A2-11				- A2-15				
	Spindle bore diameter	inch 5.2				inch 7.13				
	Max. spindle torque	lbf-ft 1938.44								
	Standard chuck size	inch 18[15]				inch 21				
Motor	Main spindle motor(Cont./30min)	hp 40/50								
	X axis servo motor	hp 9								
	Z axis servo motor	hp 8	hp 12	hp 8	hp 12	hp 8	hp 12	hp 8	hp 12	
	Mill spindle motor(Cont./30min)	hp -		hp 5/7		hp -		hp 5/7		
Bed Saddle Cross slide	X axis travel	inch 13.78								
	Z axis travel	inch 60.24	inch 91.73	inch 60.24	inch 91.73	inch 60.24	inch 91.73	inch 60.24	inch 91.73	
	Guideway type(X/Z)	- BOX Way								
	X axis rapid traverse rate	ipm 787.4								
	Z axis rapid traverse rate	ipm 708.66								
Turret	Turret index type	- Servo								
	Max. no. of tools	ea 12		ea 12/BMT75		ea 12		ea 12/BMT75		
	Turning tool shank size	inch 1¼								
	Boring bar diameter	inch 2¼								
	Turret indexing time (1st swivel)	sec 0.25								
Tailstock	Tailstock quill diameter	inch 6.3								
	Tailstock quill stroke	inch 5.91								
General	Machine weight	lbf 20,282	lbf 29,100	lbf 20,282	lbf 29,100	lbf 20,282	lbf 29,100	lbf 20,282	lbf 29,100	
	Machine height	inch 95.87								
	Floor space	Length	inch 198.82	inch 230.32	inch 198.82	inch 230.32	inch 198.82	inch 230.32	inch 198.82	inch 230.32
		Width	inch 85.94							
	Power capacity	kVA 68	kVA 73	kVA 68	kVA 73	kVA 68	kVA 73	kVA 68	kVA 73	
	Controller	- F0i-TD								

Machine major specifications

Specifications	Unit	KDL 60	KDL 60L	KDL 65	KDL 60M	KDL 60LM	
Capacity	Swing over bed(Max. swing dia.)	inch 40.5					
	Swing over cross slide	inch 31.5					
	Max. turning dia.	inch 35.43					
	Max. turning length	inch 39.37	inch 125.98	inch 39.37	inch 125.98	inch 125.98	
Main spindle	Max. spindle speed	rpm 1,200		rpm 750	rpm 1,200		
	Spindle nose	- A2-15		- A1-20	- A2-15		
	Spindle bore diameter	inch 5.98		inch 12.6	inch 5.98		
	Max. spindle torque	lbf-ft 3,665		lbf-ft 4,874	lbf-ft 3,665		
	Standard chuck size	inch 24		inch DEPENDING ON USER	inch 24		
Motor	Main spindle motor(Cont./30min)	hp 50/60					
	X axis servo motor	hp 5					
	Z axis servo motor	hp 8					
	Mill spindle motor(Cont./30min)	hp -			hp 10/15		
Bed Saddle Cross slide	X axis travel	inch 18.5					
	Z axis travel	inch 41.34	inch 128.74	inch 41.34	inch 128.74	inch 128.74	
	Guideway type(X/Z)	- BOX Way					
	X axis rapid traverse rate	ipm 472.44					
	Z axis rapid traverse rate	ipm 708.66	ipm 393.7	ipm 708.66	ipm 393.7	ipm 393.7	
Turret	Turret index type	- Servo					
	Max. no. of tools	ea 12			ea 12/BMT85		
	Turning tool shank size	inch 1¼					
	Boring bar diameter	inch 2.99					
	Turret indexing time (1st swivel)	sec 0.25					
Tailstock	Tailstock quill diameter	inch 6.3		inch -	inch 6.3		
	Tailstock quill stroke	inch 5.9		inch -	inch 5.9		
General	Machine weight	lbf 36,376	lbf 48,501	lbf 35,273	lbf 36,376	lbf 48,501	
	Machine height	inch 102.36					
	Floor space	Length	inch 204.33	inch 291.34	inch 204.33	inch 291.34	inch 291.34
		Width	inch 111.22			inch 114.17	
	Power capacity	kVA 67			kVA 75		
	Controller	- F0i-TD					