

**CNC TURNING CENTER**  
***SKT15/21 Series***

**HYUNDAI-KIA MACHINE**



**HYUNDAI-KIA MACHINE**

# World Top Class Quality HYUNDAI-KIA Machine

High Speed, High Accuracy, High Rigidity

SKT  
15/21 series

## SKT15/21 series

CNC Turning Center

High Productivity, Versatile & Integrated Lathe

- High Speed, High Accuracy
- High Rigidity, ensures Long Tool Life and Machining Accuracy
- Integrated Operation
- Easy Control
- Convenient Operation



SKT15 Series

SKT21 Series

MAX. SWING ON BED	∅ 550mm(21.7")	∅ 550mm(21.7")
MAIN SPINDLE SPEED	6,000rpm	4,000rpm
SUB SPINDLE SPEED	6,000rpm	6,000rpm
SPINDLE MOTOR	11/7.5kW(15/10HP)	15/11kW(20/15HP)

HYUNDAI-KIA

## To Realize The Best Productivity Popular 6"/ 8" CNC Lathe



### ■ No. of Tool

12 Stations of Tool : ID and OD tool holder can be attached at any position.

### ■ Tool Size

**SKT 15** □25 × ø 32mm (□1" × ø 1.25")

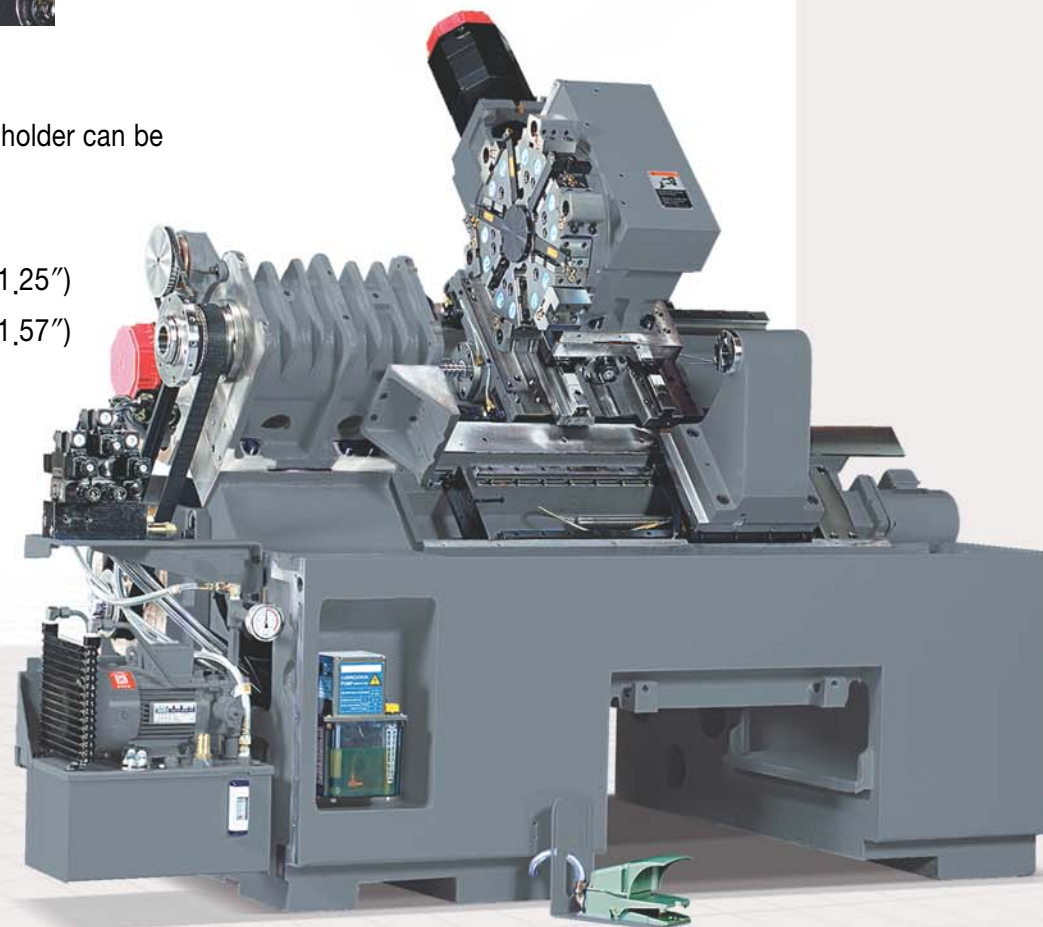
**SKT 21** □25 × ø 40mm (□1" × ø 1.57")

### ■ Indexing Time

1step **0.2sec** full (6step) **0.6sec**

### ■ Rapid Traverse (X/Z)

**36m/min** (1,417ipm)



Reduce Non - Cutting Time with High Speed Rapid Traverse

**0 ⇨ 36m/min(1,417ipm) : 0.1sec**



### ○ Rigid and Reliable Servo Turret Index

- High-performed AC servo motor and high-accurate 3-pieces coupling construction.
- Powerful turret clamping force by hydraulic system. (3,390kg<sub>f</sub>, 7,458lb<sub>f</sub>)

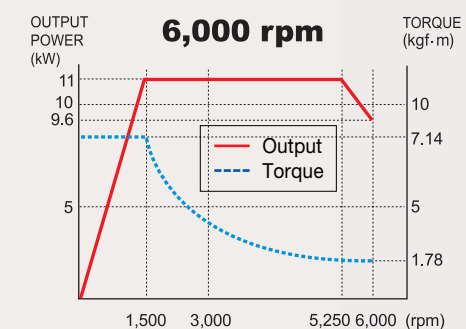
### ○ Wide Range of Constant Power

The wide range of constant power enables the machine to do an excellent heavy duty cutting at low speed with high power and torque of spindle motor.

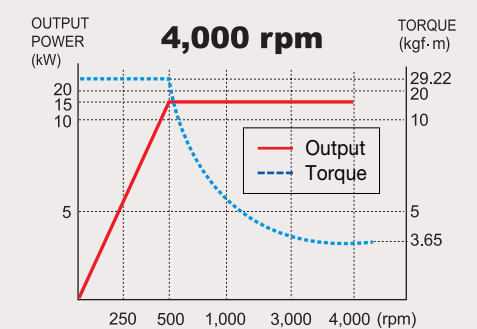
- SKT15 7.14kg<sub>f</sub>·m (51.1ft·lb<sub>f</sub>)

- SKT21 29.22kg<sub>f</sub>·m (211.3ft·lb<sub>f</sub>)

**SLT15 Series**

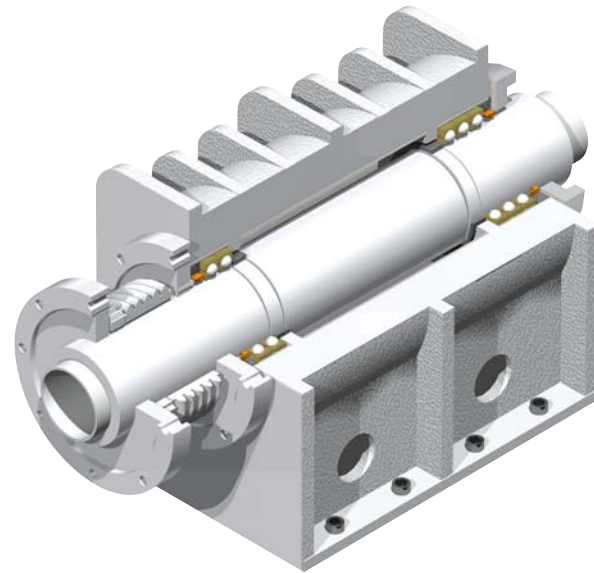


**SLT21 Series**



### ○ One Bed Cast Construction Contains High - Accuracy & High - Rigidity

At the saddle, Built-in Construction has been applied to X-axis to get much rigidity & accuracy that make users be satisfied.



### Thermally Symmetrical Headstock

Spindle is supported with angular contact ball bearings in the rear for high-accuracy and rigidity.

### Gearless Type Spindle

Spindle has a wide range of generating power and is designed for minimizing thermal distortion as a high-precision lathe. It can be obtained a high-accuracy during high-speed operating, as well as reducing a noise and realizing a good surface roughness due to gearless type spindle.

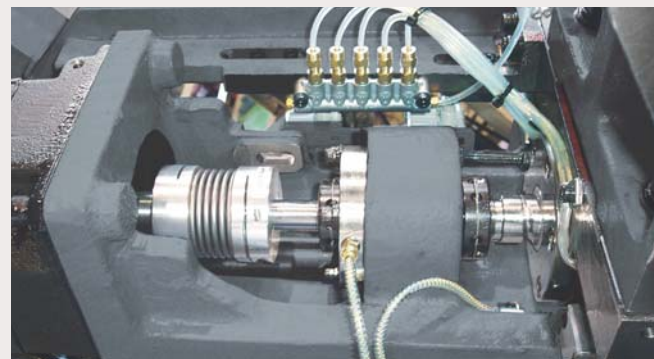
### Pre-tensioned and Double Anchored Ballscrew

Each Axis is designed with a large diameter ballscrew, fixed by double anchor on both ends, to provide you with high-rigidity and minimize thermal distortion.



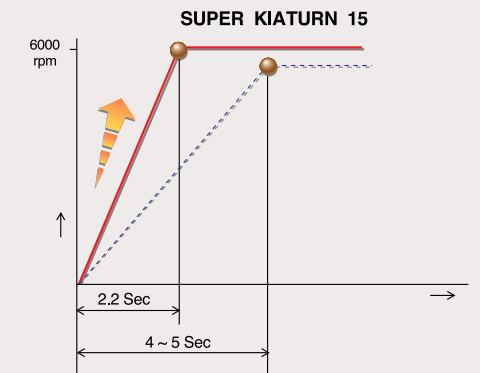
### Direct Connection Servo Motors with Ballscrews

- By directly connecting ballscrews of every axis with servo motors, it makes possible to obtain high accuracy.
- One-piece built-in casting construction greatly improves rigidity and accuracy with high power and torque.



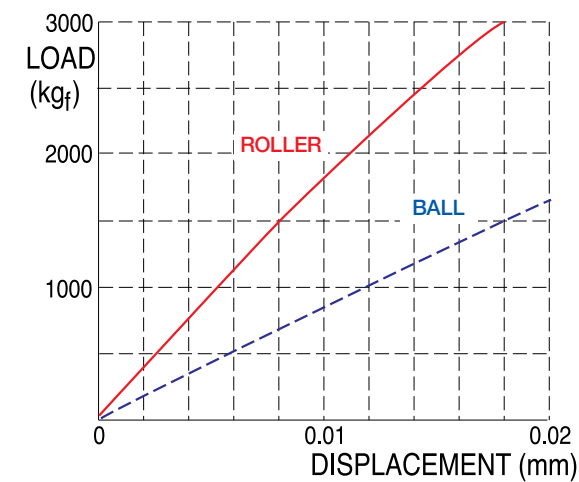
### Quick spindle Acc./Dec. Time

Accelerating and decelerating time of the main spindle is greatly reduced in comparison with other machines by high-performance of spindle motor.

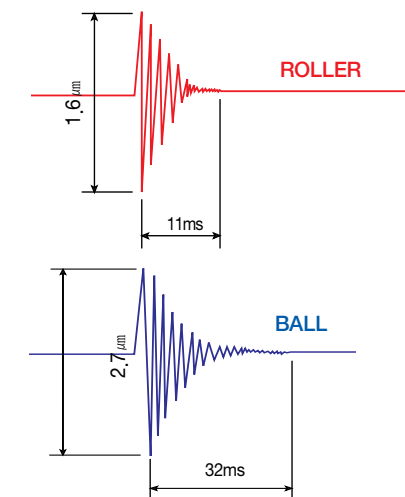


### High Rigid and Excellent damping ability of Roller Guide

#### High rigidity



#### Excellent damping



### High-tolerance & Excellent Cutting Capacity

	Cutting Condition	
	ROUGH CUTTING	FINISH CUTTING
MATERIAL	BRASS	
SPINDLE SPEED	2,300 rpm	2,700 rpm
DEPTH OF CUT	1,5 mm(0,06")	0,02 mm(0,0008")
FEED	0,3mm(0,01")/rev.	0,02mm(0,0008")/rev.
COOLANT	USE	
DIA. OF WORK	φ 42(1,6") [2 PASSCUT]	φ 36(1,4") [1 PASSCUT]
TOOL	DIAMOND	

※ This data is taken after full warming up operation.

## Q-Setter



The tool offset is to be automatically memorized by tools, touching onto the Q-setter without so much time of trial cutting, measuring, tool offset input and so on. Even a beginner can finish tool compensation within 40 seconds with it.

## One - touch Tailstock

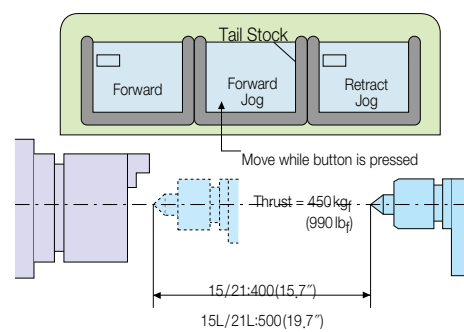
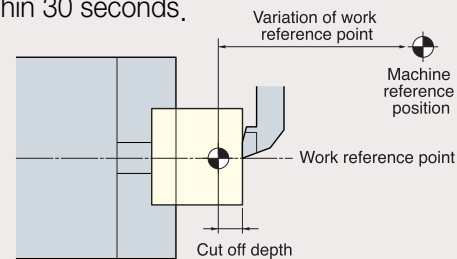
- Complete tailstock positioning within 9 sec. by only pushing button.
- Minimize non-cutting time by doubling the retract time.

**Forward : 3m/min (118ipm)**  
**Retract : 6m/min (236ipm)**

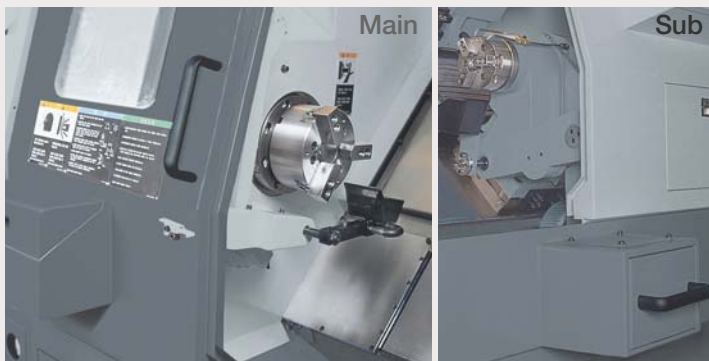
- Clamping and unclamping are fully automatic. No tightening or loosening of bolts are required.
- When machining of a work with long length, center drilling, center forward and turning operation can be integrated as one operation. Therefore, non-cutting time and set-up time are greatly reduced.

## Easy Work Coordinate Setting

Work coordinate is automatically set by just input the cut off depth on control panel as a parameter after slightly cutting the work surface. Neither measuring nor calculating is needed, and work coordinate can be set within 30 seconds.



## Parts Catcher (Option)

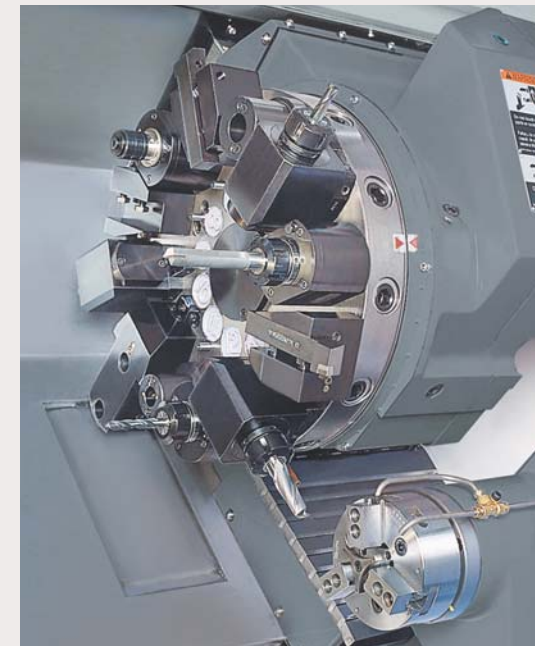


This device automatically collects the finished works, after job completion, without opening the door.

Parts catcher is available not only for main spindle but also for sub spindle. Parts are completely finished through the combination of Bar feeder, live tool, sub spindle and final sub spindle parts catcher. At the same time both side of machining was completed without operator's loading & unloading.

## SKT15/21 Series

Provides you with superior rigidity and accuracy



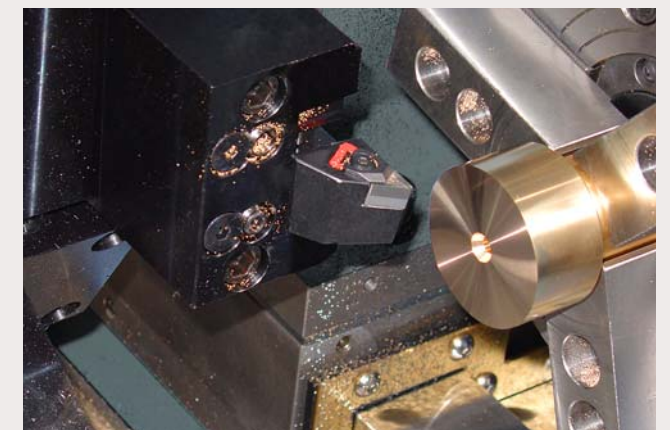
## Live Tool [LM & LMS Series]

VDI live tool enables the machine to do continuous Drilling and End-milling after turning with one set-up. This integrated operation greatly reduces set-up time.

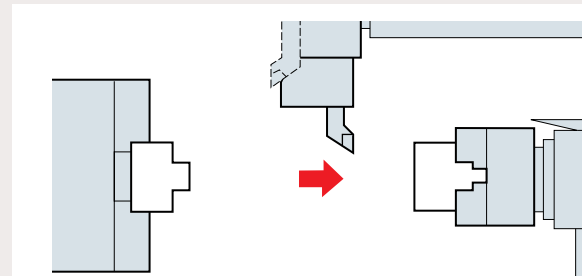
- No. of Tool on Turret : 12EA
  - Live tool could be installed at every station regardless of X and Z direction
- Live Tool Capacity
  - Drilling :  $\phi$  20mm(3/4")
  - Tapping : M16 (5/8")
  - End-milling :  $\phi$  20mm(3/4")
- Max. Speed of Live Tool : 4,000rpm
- Motor Output of Live Tool : AC 3.7 kW(5HP)

## Sub spindle & B-Axis

- Chuck Size :  $\phi$  135mm( $\phi$  5.3")
- Sub-spindle speed : SKT15/21LS,LMS (6,000 rpm)
- Motor : AC 3.7/2.2 kW (5/3HP)
- Rapid Traverse of B axis : 30m/min(1,181 ipm)
- 5° Degree Indexing device is available for complicated applications (Option)



## Synchronizing of Sub-Spindle With Main Spindle



As the turning operation of outer diameter with main spindle is completed, then the sub-spindle synchronize with main spindle to pick up the work for machining the back surface while the main spindle is rotated.

## SKT15/21 Series can provide a variety of choices for factory automation

### C - Axis for Live Tool



This function is available for limited models (LM, LMS Series)

### QJC Chuck (Option)



The QJC chuck is not the conventional type chuck which is assembled by blots and serration. It only takes a minute to change precise three jaws of QJC chuck to another

### Big-Bore for Bar Feeder

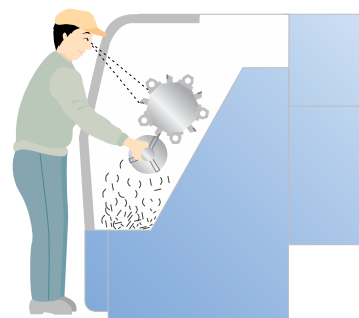


■ SKT15 : MAX  $\phi$  45mm (1.77")  
 ■ SKT21 : MAX  $\phi$  66.5mm (2.62")

ITEM	UNIT	SKT15	SKT21
Bar Capacity	mm (in)	$\phi$ 45 (1.77")	$\phi$ 66.5 (2.62")
Spindle Hole Size	mm (in)	$\phi$ 51 (2")	$\phi$ 78 (3.07")
Hollow Chuck Size	mm (in)	$\phi$ 165 (6")	$\phi$ 210 (8")

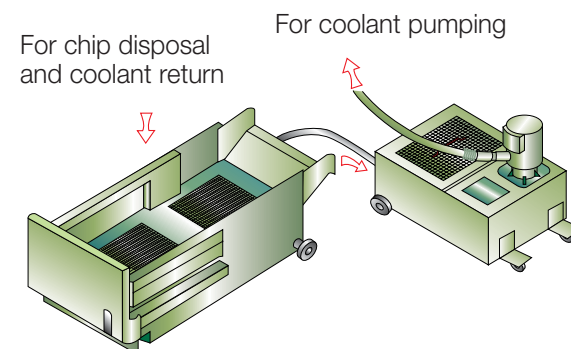
### Better Chip Disposal

Chips fall directly into the chip box. The separate type chip box can be easily cleaned. A large opening in the right side of the machine is provided for easy chip discharge.



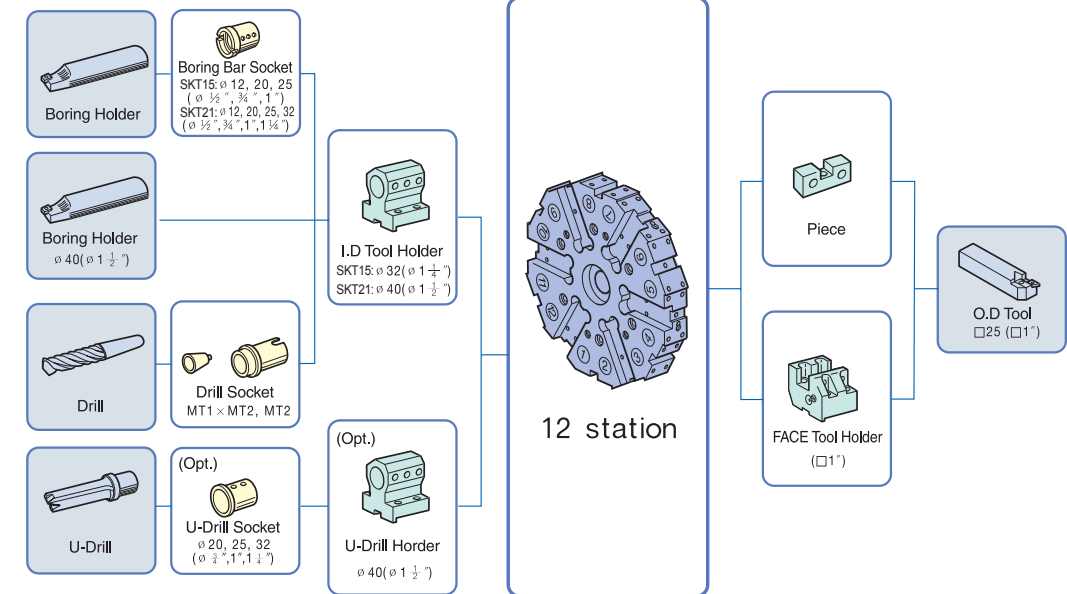
### Separated Coolant Tank

Separated coolant tank has large capacity [145(38gal)] and is designed to prevent the machine body from heat transferring and to ensure easy cleaning and cooling.

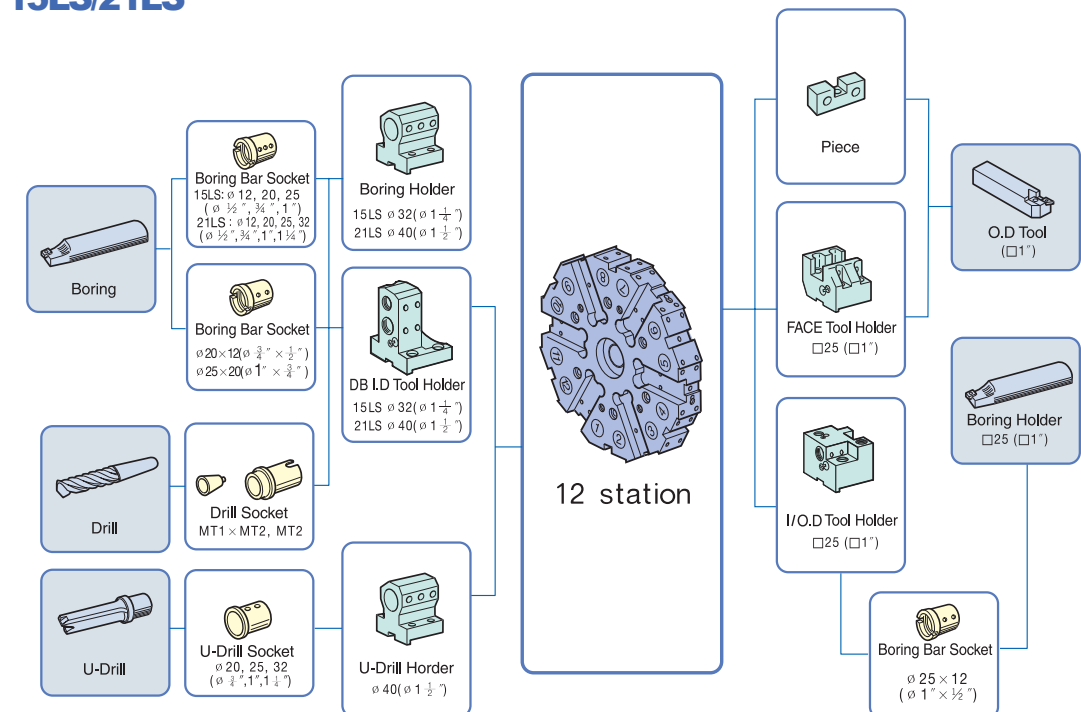


### Tooling System

#### SKT15/15L/21/21L



#### SKT15LS/21LS



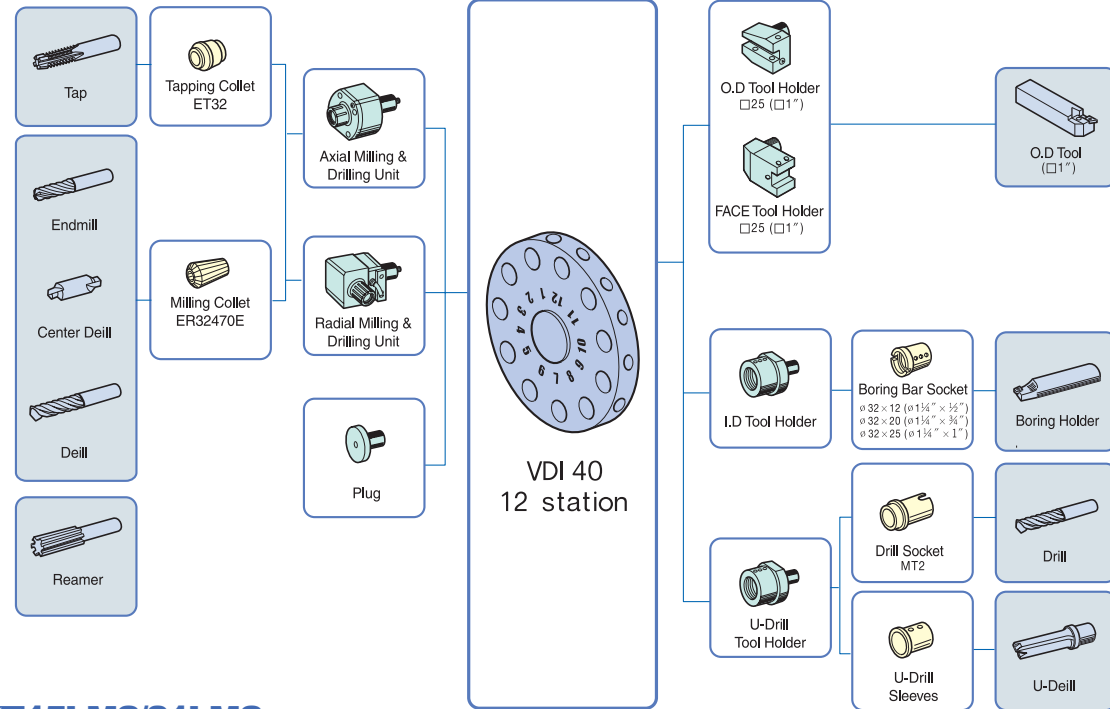
\* Tools are not provided

# Specification

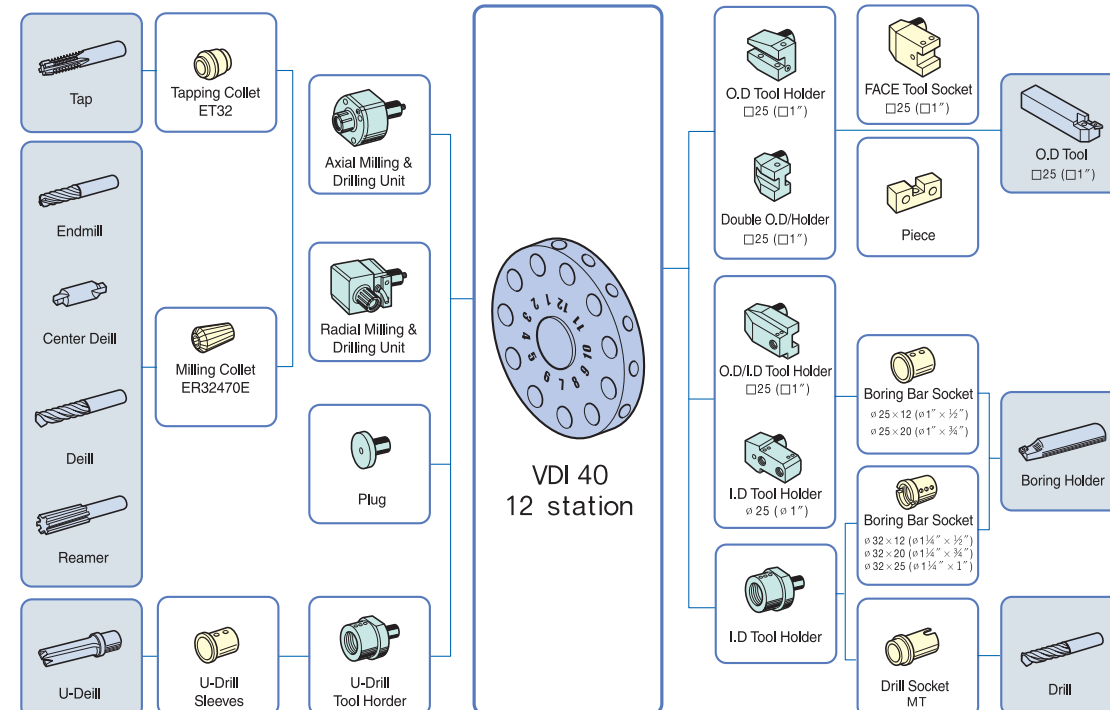
CNC Turning Center **SKT15/21 Series**

## Tooling System

### SKT15LM/21LM



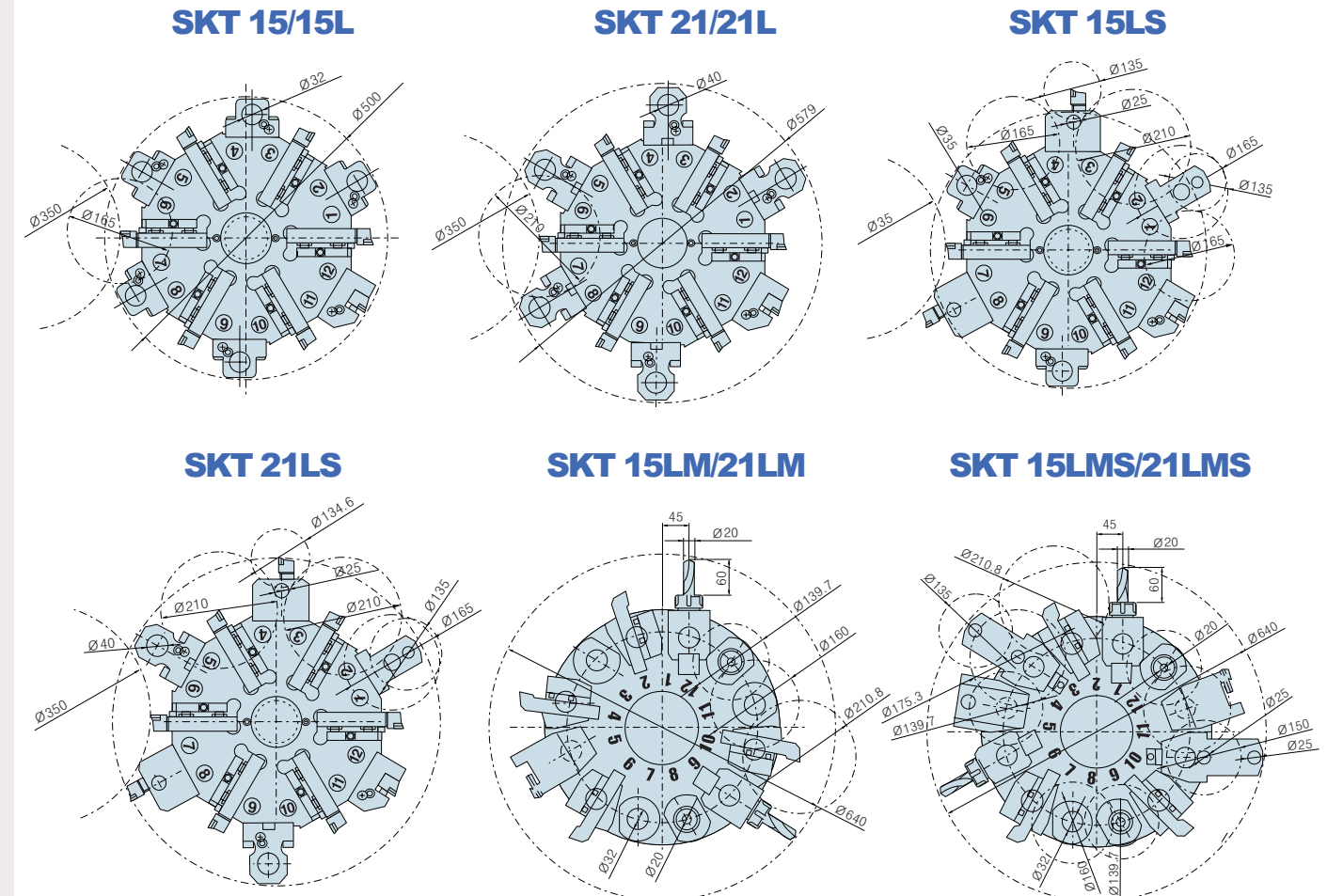
### SKT15LMS/21LMS



\* Tools are not provided

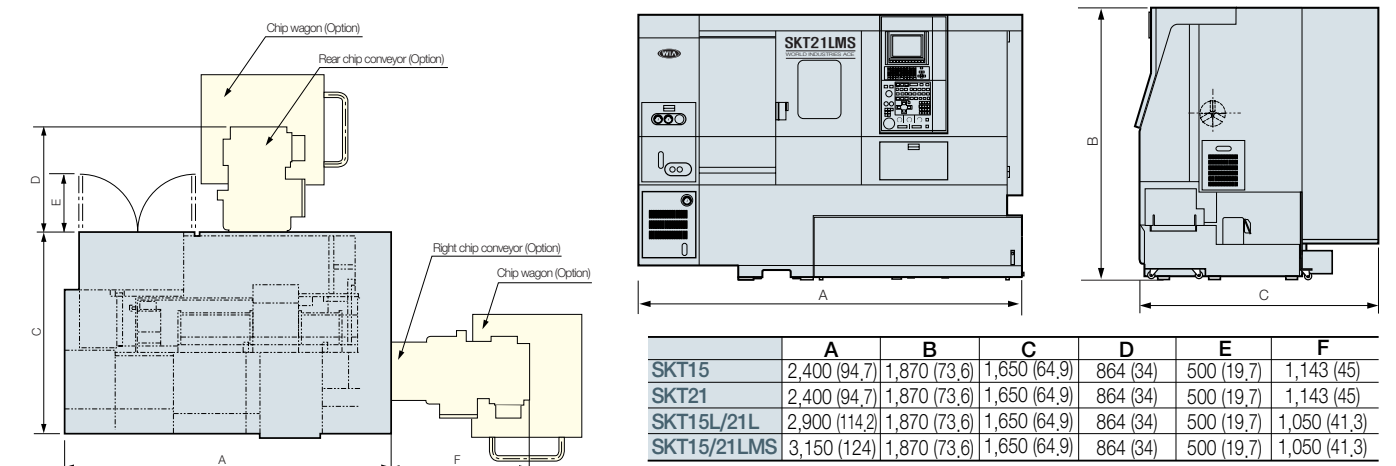
## Tooling Interference

Unit:mm(in)



## External Dimensions

Unit:mm(in)



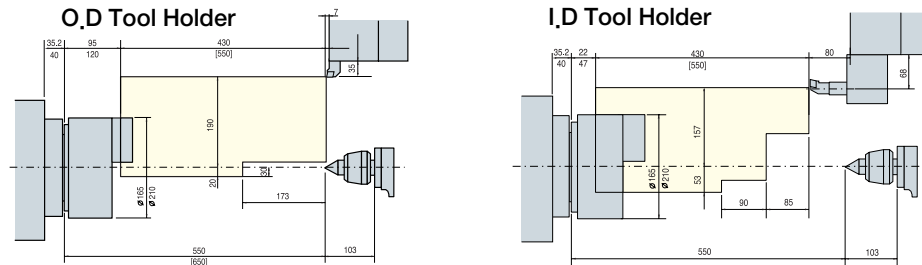
# Specification

CNC Turning Center **SKT15/21 Series**

## Tooling Travel Range

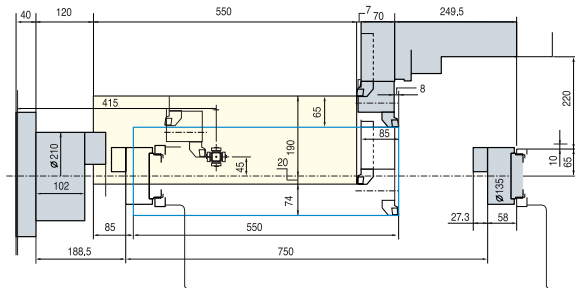
Unit:mm(in)

### SKT15/21 [SKT15L/21L]

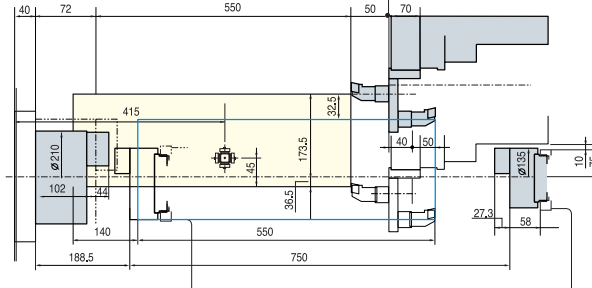


### SKT 15LS/21LS

#### O.D. Tool Holder

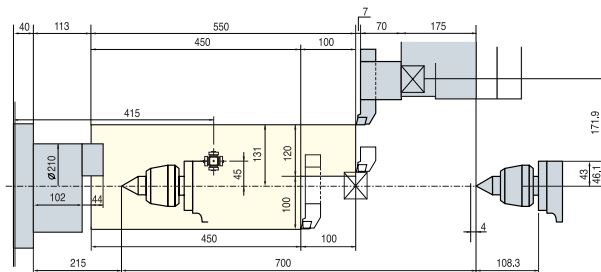


#### Double I.D. Tool Holder

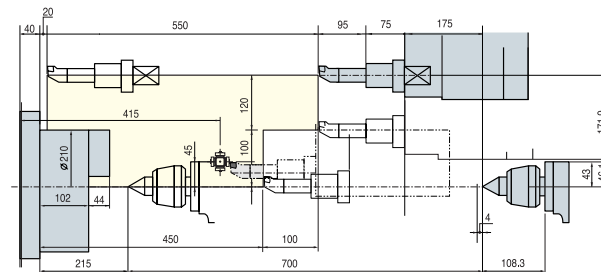


### SKT 15LM/21LM

#### O.D. Tool Holder

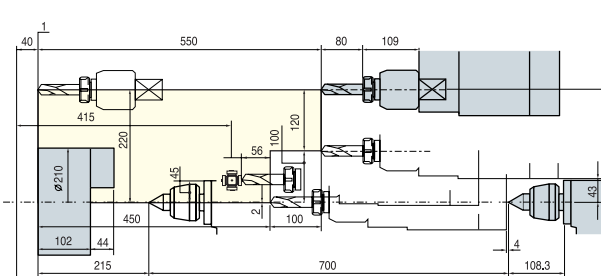


#### I.D. Tool Holder

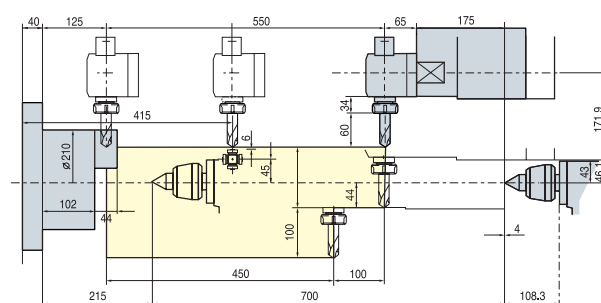


### SKT 15LM/21LM

#### Live Tool (Axial)



#### Live Tool (Radial)

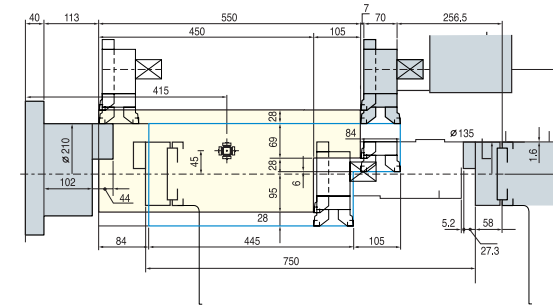


## Tooling Travel Range

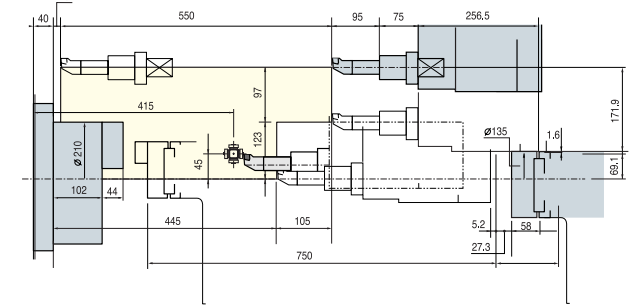
Unit:mm(in)

### SKT 15LMS/21LMS

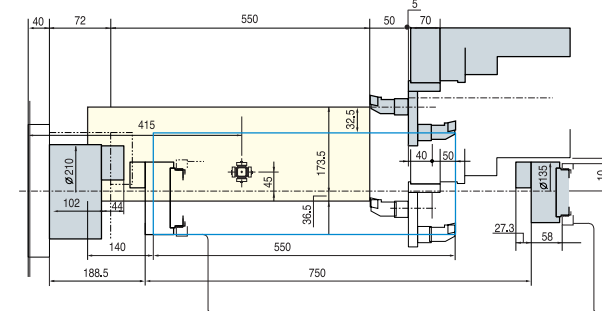
#### O.D., Double O.D. Holder



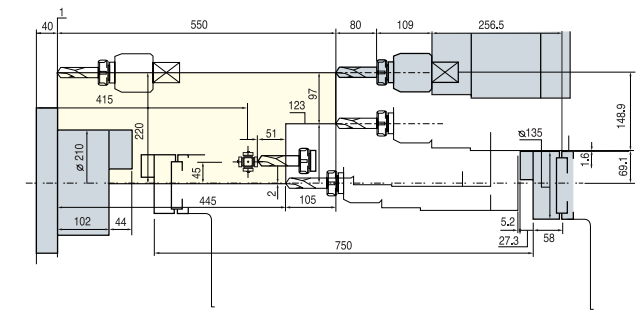
#### I.D. Tool Holder



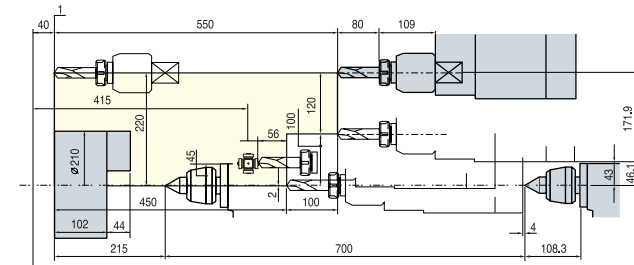
#### Double I.D. Holder



#### Live Tool (Axial)



#### Live Tool (Radial)





# Specification

CNC Turning Center **SKT15/21 Series**

## Specifications

ITEMS		15	15L	21	21L	15LM	21LM	15LS	21LS	15LMS	21LMS	
CAPACITY	SWING OVER BED	mm(in) $\varnothing$ 550(21.7")										
	MAX. TURNING DIA.	mm(in) $\varnothing$ 350(13.8")				mm(in) $\varnothing$ 255(10")		mm(in) $\varnothing$ 350(13.8")		mm(in) $\varnothing$ 255(10")		
	CHUCK SIZE	MAIN	mm(in) $\varnothing$ 165(6")	mm(in) $\varnothing$ 210(8")		mm(in) $\varnothing$ 165(6")	mm(in) $\varnothing$ 210(8")	mm(in) $\varnothing$ 165(6")	mm(in) $\varnothing$ 210(8")	mm(in) $\varnothing$ 165(6")	mm(in) $\varnothing$ 210(8")	
		SUB	mm(in) $\varnothing$ 135(5.3")									
	SWING OVER CROSS SLIDE	mm(in) $\varnothing$ 350(13.8")										
	MAX. TURNING LENGTH	mm(in) 410(16.14") 530(20.87") 410(16.14")				mm(in) 530(20.87")						
BAR CAPACITY	mm(in) $\varnothing$ 45(1.77")		mm(in) $\varnothing$ 66.5(2.62")		mm(in) $\varnothing$ 45(1.77")		mm(in) $\varnothing$ 66.5(2.62")		mm(in) $\varnothing$ 45(1.77")		mm(in) $\varnothing$ 66.5(2.62")	
SPINDLE	SPEED	MAIN	rpm 6,000	rpm 4,000	rpm 6,000	rpm 4,000	rpm 6,000	rpm 4,000	rpm 6,000	rpm 4,000	rpm 4,000	
		SUB	rpm 6,000									
	Bearing inner Dia.	MAIN	mm(in) $\varnothing$ 80(3.1")	mm(in) $\varnothing$ 110(4.33")		mm(in) $\varnothing$ 80(3.1")	mm(in) $\varnothing$ 110(4.33")	mm(in) $\varnothing$ 80(3.1")	mm(in) $\varnothing$ 110(4.33")	mm(in) $\varnothing$ 80(3.1")	mm(in) $\varnothing$ 110(4.33")	
		SUB	mm(in) $\varnothing$ 60(2.36")									
	NOSE	MAIN	ASA A2-5	ASA A2-6	ASA A2-5	ASA A2-6	ASA A2-5	ASA A2-6	ASA A2-5	ASA A2-6	ASA A2-6	
		SUB	ASA FLAT $\varnothing$ 115									
NO. OF TOOLS	st 12											
TURRET	TOOLS DIMENSION	mm(in) $\square$ 25 / $\varnothing$ 32 (1) (1 $\frac{1}{2}$ )		mm(in) $\square$ 25 / $\varnothing$ 32 (1) (1 $\frac{1}{2}$ )		mm(in) $\square$ 25 / $\varnothing$ 32 (1) (1 $\frac{1}{2}$ )		mm(in) $\square$ 25 / $\varnothing$ 32 (1) (1 $\frac{1}{2}$ )		mm(in) $\square$ 25 / $\varnothing$ 32 (1) (1 $\frac{1}{2}$ )		
	INDEXING TIME(1 STEP/FULL)	sec 0.2/0.4		sec 0.3/0.6		sec 0.2/0.4		sec 0.3/0.6		sec 0.3/0.6		
	MECHANISM	SERVO										
	MILL TOOL SPEED	rpm -				rpm 4,000		rpm -		rpm 4,000		
	DRILL/TAP SIZE	mm(in) -				mm(in) $\varnothing$ 20/M16 ( $\varnothing$ 3/4, 5/8")		mm(in) -		mm(in) $\varnothing$ 20/M16 ( $\varnothing$ 3/4, 5/8")		
		mm(in) -										
FEED	RAPID TRAVERSE	X	m/min(ipm) 36(1,417)				m/min(ipm) 36(1,417)					
		Z	m/min(ipm) 36(1,417)				m/min(ipm) 36(1,417)					
		B	m/min(ipm) -				m/min(ipm) 30(1,181)					
		C	min <sup>-1</sup> -				min <sup>-1</sup> 100					
	TRAVEL	X	mm(in) 210(8.3")		mm(in) 220(8.7")		mm(in) 210(8.3")		mm(in) 220(8.7")		mm(in) 220(8.7")	
		Z	mm(in) 430(16.93") 550(21.65") 430(16.93")		mm(in) 550(21.6)							
B	mm(in) 750(29.5")											
TAIL STOCK	TAPER / DIA	MT4 / $\varnothing$ 56(2.2")										
	TRAVELS	mm(in) 400(15.75") 520(20.47") 400(15.75") 520(20.47")		mm(in) 720(28.35")								
	THRUST	kg(lbf) 450(992)										
	TRAVEL TYPE	AUTO POSITION										
MOTOR	SPINDLE	MAIN	kW(HP) 11/7.5 (15/10)	kW(HP) 15/11 (20/15)	kW(HP) 11/7.5 (15/10)	kW(HP) 15/11 (20/15)	kW(HP) 11/7.5 (15/10)	kW(HP) 15/11 (20/15)	kW(HP) 11/7.5 (15/10)	kW(HP) 15/11 (20/15)	kW(HP) 15/11 (20/15)	
		SUB	kW(HP) 3.7/2.2(5/3)									
	FEED	X	kW(HP) 3 (4)									
		Z	kW(HP) 3 (4)									
		B	kW(HP) -				kW(HP) 1.6 (2.13)					
ELECTRIC POWER SUPPLY	kVA 20				kVA 25				kVA 30			
WEIGHT	kg(lbs) 4,000 (8,900)	kg(lbs) 4,300 (9,500)	kg(lbs) 4,100 (9,100)	kg(lbs) 4,400 (9,680)	kg(lbs) 4,300 (9,500)	kg(lbs) 4,400 (9,680)	kg(lbs) 4,500 (9,900)	kg(lbs) 4,400 (9,680)	kg(lbs) 4,500 (9,900)	kg(lbs) 4,500 (9,900)		
CONTROLLER	FANUC Oi-T [FANUC 21i-TB]											

※ Specifications are subject to change for improvement without notice.

### STANDARD

• HYDRAULIC HOLLOW CHUCK	1SET	• SPINDLE SPEED METER	1SET
• SOFT JAW	1SET(3EA)	• SPINDLE LOAD METER	1SET
• Q-SETTER	1SET	• CALL LIGHT(YELLOW)	1SET
• TOOL SOCKETS & SLEEVES	1SET	• WORK COUNTER	
• SPLASH GUARD	1SET	(NC FUNCTION : DISPLAY ON THE CRT)	
• FLOOD COOLANT	1SET	• RUN HOUR DISPLAY	
• WORK LIGHT	1SET	(NC FUNCTION : DISPLAY ON THE CRT)	
• LEVELING PADS	1SET		

### OPTION

• CHIP CONVEYOR (REAR / RIGHT)	• FOOT SWITCH FOR TAILSTOCK
• CHIP WAGON WITH CASTER	• SPINDLE INNER STOPPER
• AIR BLOW (FOR CHUCK/THROUGH SPINDLE)	• AUTO DOOR
• HIGH PRESSURE COOLANT	• BAR FEEDER INTERFACE
• CHUCK OPEN - CLOSE CONFIRMATION DEVICE	• PARTS CATCHER
	• TOWER CALL LIGHT (3 COLORS)

## Controller

# FANUC Oi-T

	ITEM	SKT15/21, SKT15L/21L	SKT15MS/S, SKT21MS/S
Controls	Controlled Axes	2(X, Z) axes. (Max. 4 axes are available)	Max. 4(X, Z, B and C) axes
	Simultaneous Controllable Axes	2 axes / Linear and circular. (Max. 4 axes)	Max. 4(X, Z, B and C) axes / Linear and Circular
	Least Input Increment	X axis : 0.001mm (0.0001") Z axis : 0.001mm (0.0001") C axis : 0.001deg.	
	Least Command Increment	X axis : 0.001mm (0.0001") Z axis : 0.001mm (0.0001") C axis : 0.001deg	
Spindle Functions	Spindle Speed Command	S5 digits, Binary Output	
	Spindle Speed Override	50% ~ 150% (10Steps)	
	Spindle Orientation (1 Position)	Provided	
Programming Functions	Maximum Programmable Dimensions	+/- 9999.9999"	
	Interpolation Functions	Positioning/ Linear/ Circular (G00/G01/G02/G03)	
	Cylindrical Interpolation	-	Provided
	Absolute and Incremental Command	G90 ~ 91	
	Constant Surface Speed Control	G96 SXXXX	
	Decimal Point Input	Provided	
	Direct Drawing Dimension Programming	Provided	
	Miscellaneous Function	M2	
	Canned Cycle : G90, G92, G94	Turning, Threading, Facing	
	Multiple Canned Cycle : G70 ~ G72, G74 ~ F76	Finish, Rough, Peck Drilling, Grooving, Threading	
Multiple Canned Cycle : G80, G83, G83 ~ G88	-	Deep Hole Drilling, Tapping and Boring for X & Z	
Rigid Tap	-	Provided	
Feed Functions	Program Stop	M00, M01	
	Program End	M02, M30	
	Programmable Data Input (G10)	Provided	
	Manual Jog Feed : Rapid, Jog, Feed, Handle	Provided	
	Manual Handle Feed-rate	x1, x10, x100	
	Feed Command	F code Feed-rate Direct Command	
	Feed-rate Override	0 ~ 200% (21 Steps)	
	Jog Override	0 ~ 2,000mm/min [79 ipm] (21 Steps)	
	Rapid Traverse Override	F0, F5, F25/F50, F100%	
	Override Cancel	Provided	
	Dwell	G40, 0 ~ 9999.9999 sec	
	Manual Continuous Feed	Simultaneous, 1 Axis	
Jog- Handle (Same Mode)	Provided		
Incremental Feed	X1-1000		
Reference Functions	Manual Reference Point Return	Provided	
	Automatic Reference Point Return	G28, g29	
	Reference Point Return Check	G27	
	Second Reference Point Return	G30	

# Specification

CNC Turning Center **SKT15/21 Series**

## Controller

# FANUC 0i-T

ITEM	SKT15/21, SKT15L/21L	SKT15MS/S, SKT21MS/S	
<b>Tool Functions</b>	Tool Offset Amount	G40 ~ G42	
	Tool Function	T7 + 1 / T6 + 2 digits	
	Geometry / Wear Compensation	Provided	
	Direct Input of Tool Offset Value Measured B	Provided	
	Tool Offset Amount	+/- 6 digits	
	Tool Offset Pairs	32 Pairs	
<b>Coordinate Functions</b>	Tool Life Management	Provided	
	Inch / Metric Conversion	Provided	
	Polar Coordinate Interpolation	-	Provided
<b>Tape Functions</b>	Work-piece Coordinate System (G2 ~g 59)	Provided	
	Tape Code	EIA RS-244-A/ISO 840 (Automatic Recognition)	
	Number of Register-able Program	200EA	
	Part Program Storage Length	320M (1,050 FT)	640M (2,100 FT)
	Reader / Puncher Interface	RS232C	
<b>Other Functions</b>	Buffer Register (256Byte)	Provided	
	Custom Macro B	Provided	
	Manual Absolute : "ON" fixed	Provided	
	Block Skip	Provided	
	Optional Block Skip (/2 ~/9)	Provided	
	Backlash Compensation	+/- 0 ~ 255 Pulses	
	Sequence Number Search	Provided	
	Program Number Search	Provided	
	Machine Lock	All axis	
	Program Check Function : Dry Run, Spindle Stop	Provided	
	Single Block	Provided	
	Function	G3, M3, T4, O4 digits	
	Optional Chamfering / Corner R	Provided	
	CRT / MDI	7.2" MONO LCD	8.4" Color LCD
	Memory Lock	Provided	
	Language	English	
	Stored Stroke 1, 2, 3 (G22, G23)	Provided	
Display of Spindle Speed and T code at all Screens	Provided		
Self-Diagnosis Function	Provided		
Emergency Stop	Provided		
Stored Pitch Error compensation	Provided		
Interlock	Each Axis		
Back Ground Editing	Provided		
Run Hour / Parts count Display	Provided		
Actual Cutting Feed-rate Display	Provided		
Erase CRT Screen Display	Provided		
Program Restart	Provided		
Graphic Display	Provided		

- Figures in inch are converted from metric values.
- Design and specifications subject to change without notice.



Head Office

## HYUNDAI-KIA MACHINE



Namsan Plant

Jungdong Plant

Banwol Plant

Gwangju Plant

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