

SINCE 1944

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# DL S series

(Sub spindle / Y axis)

*Multi Axis CNC Turning Center (En)*

DL 22LMS / DL 22LSY / DL 25MS / DL 25Y / DL 25SY

[www.ffg-dmc.com](http://www.ffg-dmc.com)



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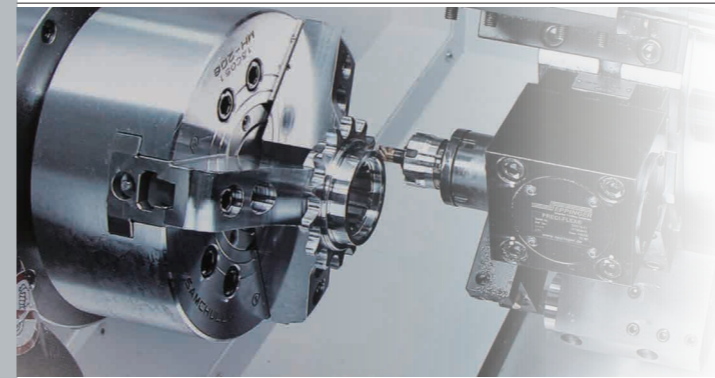
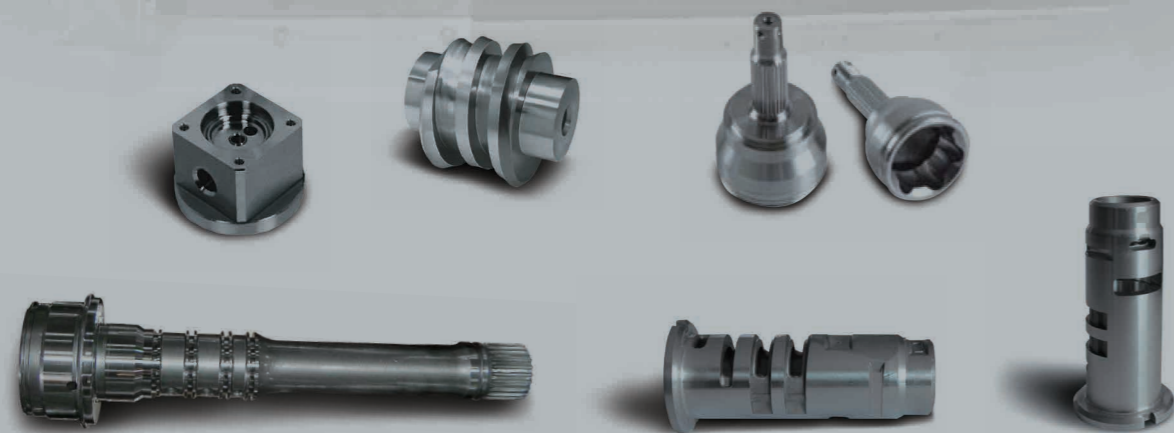
# DL S series

(Sub spindle / Y axis)

DL 22LMS / DL 22LSY

DL 25MS / DL 25Y / DL 25SY

One time setup for complete part machining.



## DL 22LMS

Travel (X/Z/B/Y) (mm)(inch)	190 × 550 × 580 × -	(7.48 × 21.65 × 22.83 × -)
Guideway Type (X/Z/B/Y)	BOX Way/-	
Main spindle speed (rpm)	4,000	
Number of tools (pcs)	12	



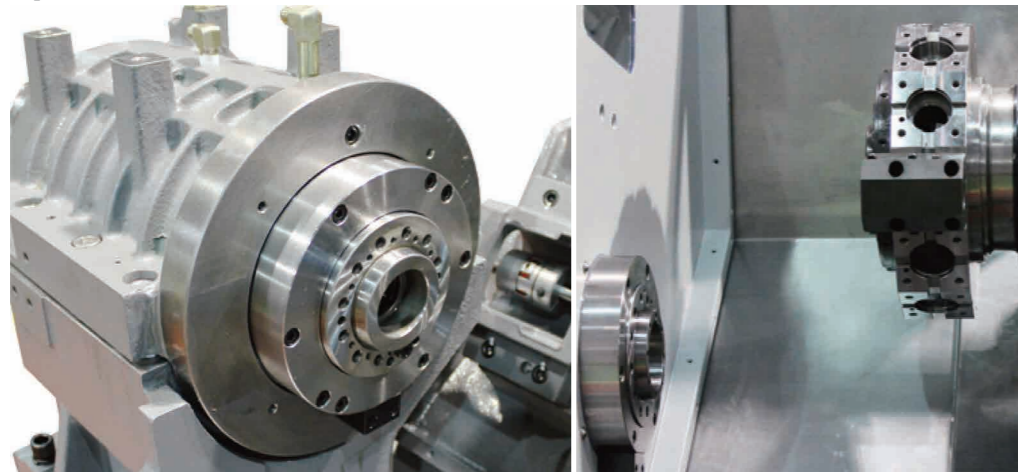
## DL 25SY

Travel (X/Z/B/Y) (mm)	220 × 1,050 × 940 × ±55
(inch)	(8.66 × 41.34 × 37 × ±2.17)
Guideway Type (X/Z/B/Y)	BOX Way
Main spindle speed (rpm)	3,500
Number of tools (pcs)	12



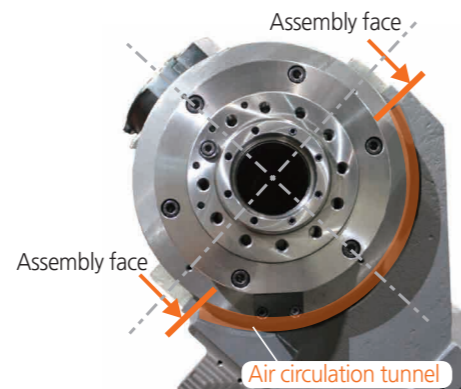
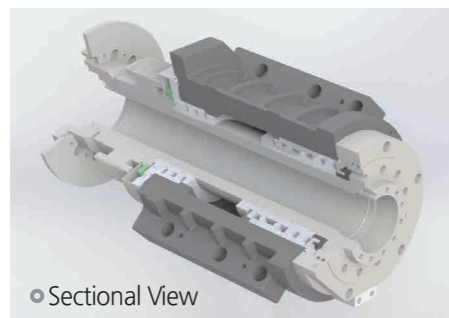
## High Productivity

### Spindle



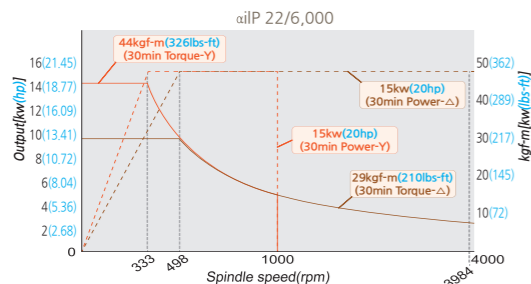
### Bilateral symmetry structure stable and precise spindle

- Because of assembly between Spindle Cartridge and Head Body, it can block the transfer of heat.
- When repairing, only Cartridge needs to be changed.
- Cooling effect as designed Air Circulation Tunnel[Aerial Exposure in the bottom of structure]
- Keep high precision with blocking vibration and heat strain.



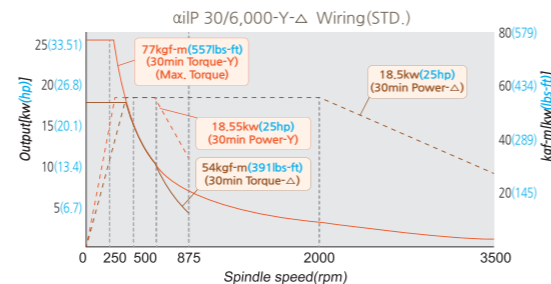
DL 22LMS, *DL 22LSY	
Max. Spindle Speed[rpm]	4,000
Main Spindle Motor[kw(hp)]	15 (20)
Max. Spindle Torque[kgf-m(lbs-ft)]	45(326), *18.4(133)

\*:Developing Model

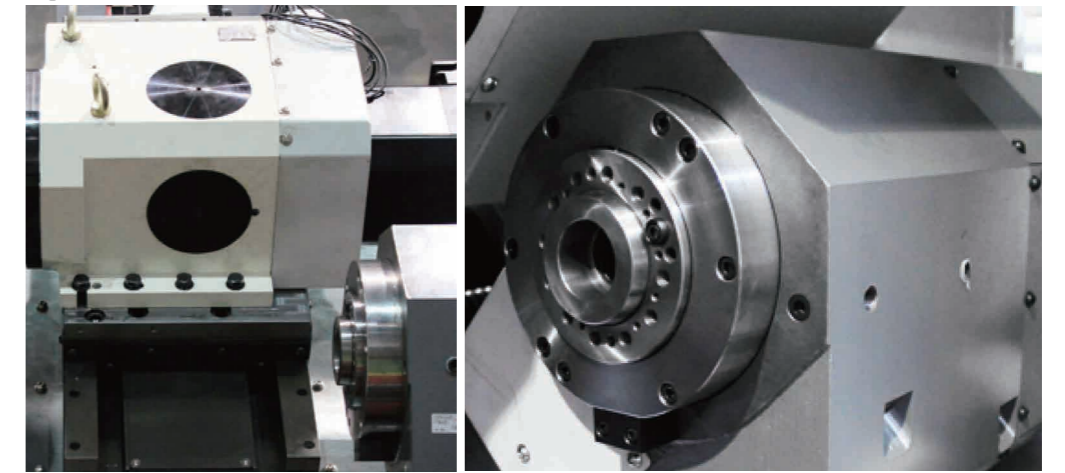


DL 25MS, *DL 25Y, DL 25SY	
Max. Spindle Speed[rpm]	3,500
Main Spindle Motor[kw(hp)]	18.5(25)
Max. Spindle Torque[kgf-m(lbs-ft)]	35.7(258)

\*:Developing Model

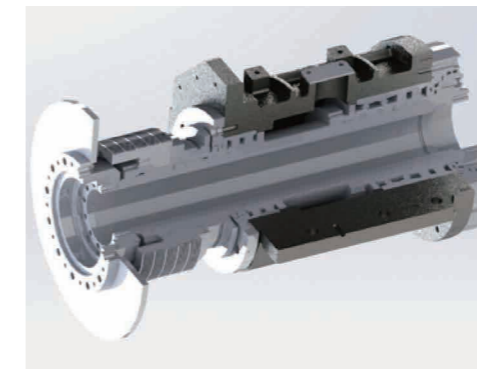


### Spindle



### High Productivity sub spindle

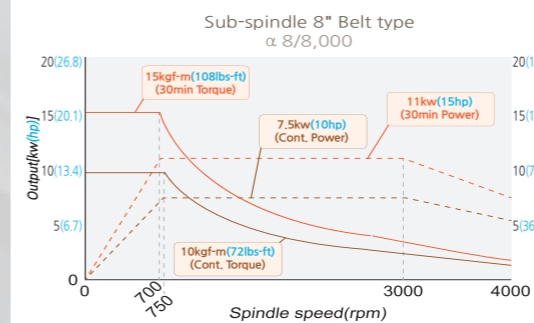
- Belt type sub spindle



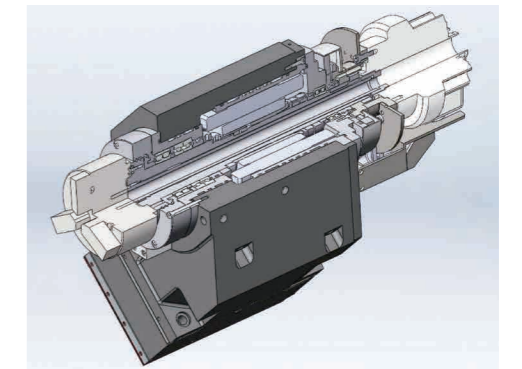
8" model : DL 25MS, \*DL 25Y, DL 25SY

CHUCK size : 8"	
Max. Spindle Speed[rpm]	4,000
Main Spindle Motor[kw(hp)]	11 (15)
Max. Spindle Torque[kgf-m(lbs-ft)]	15(108)

\*:Developing Model



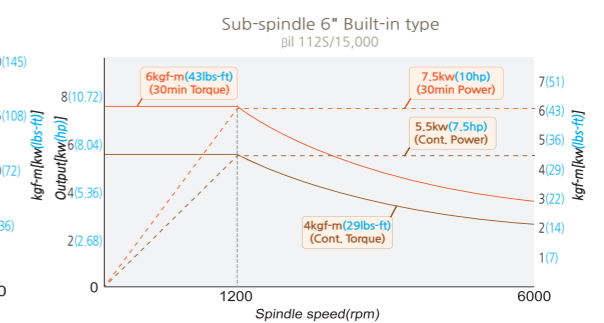
- Built-in type sub spindle



6" model : DL 22LMS, \*DL 22LSY  
DL 25MS(OPT), DL 25SY(OPT)

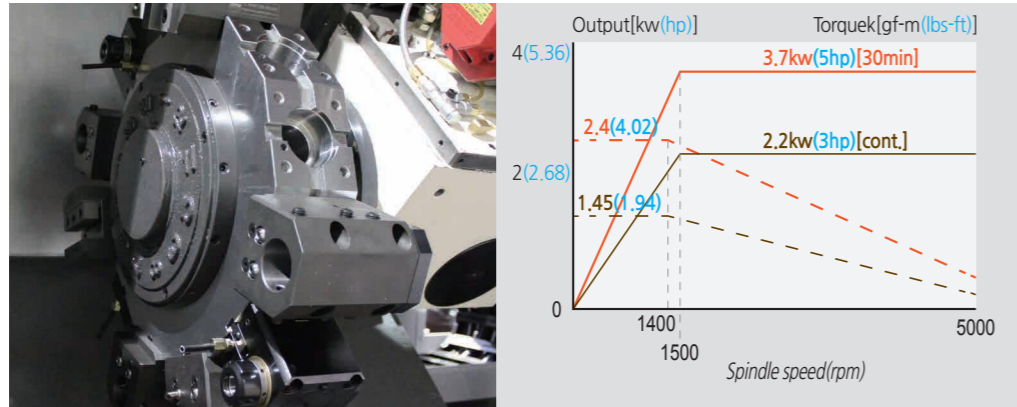
CHUCK size : 6"	
Max. Spindle Speed[rpm]	6,000
Main Spindle Motor[kw(hp)]	7.5 (10)
Max. Spindle Torque[kgf-m(lbs-ft)]	6(43)

\*:Developing Model



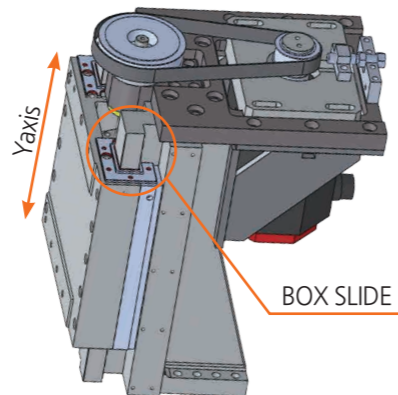
### High Productivity

#### High-performance Y axis



Spindle Center, Y axis are perpendicular to X axis structure  
Easy operation and shorten the non-machining time

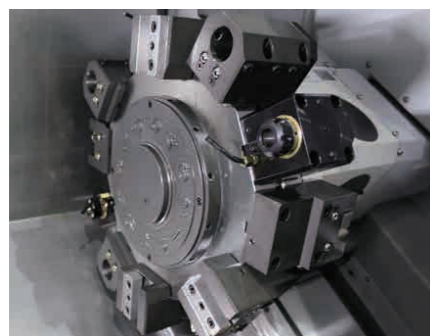
Adding perpendicular type control method Y axis, after once chucking then can do many multiple work, easy operation and don't need C axis division, so can save non-machining time, can do the milling outer centered position and drilling machining.



	*DL 22LSY	*DL 25Y/SY
Y axis Travel[mm(inch)]	±55(2.17)	±55(2.17)
Y axis rapid traverse rate[m/min(ipm)]	10(393.70)	10(393.70)

\*:Developing Model

### BMT turret



#### 12D BMT Turret with Curvic coupling and powerful hydraulic clamping

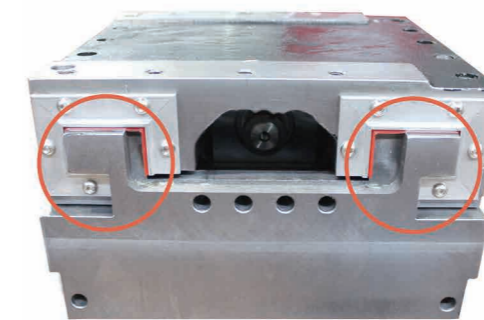
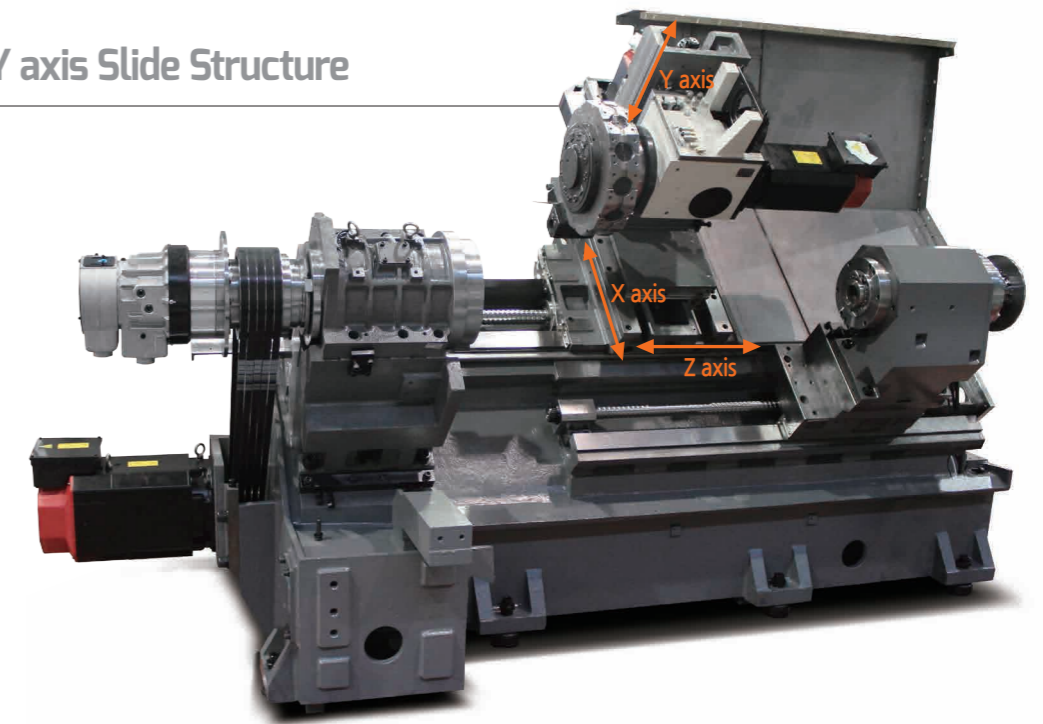
The built-in largest curvic coupling and powerful hydraulic clamping 12D BMT turret has the largest tool holders in its class to ensure high rigidity and accuracy(0.2 sec/face).

CHUCK size	8"~10"
Max. No. of Tool	12ea
Tool system	BMT 55
Tool size OD/ID[mm(inch)]	□25/□40(□1/□2)
Turret Indexing Time (1st swivel)	0.15sec

#### Mill tool power torque

- Spindle Motor : 3.7kw(5hp)
- Max spindle speed : 5,000rpm

### Y axis Slide Structure



High rigidity, High accuracy, compact structure

➤ BOX TYPE SLIDE apply

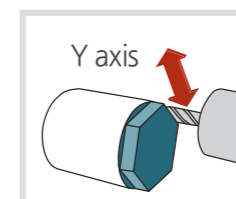
- Using the strong structure Box Type Slide that has no shake vibration short speed cutting, make the possibility of strong cutting, guaranteed more stable machining face than LM Guide.

### Y axis Machining Example

- 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.



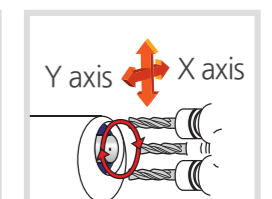
Groove finishing cutting using Y-axis



Multi face machining



Off centered milling



Y&X axis circular interpolation

## High Productivity

### Rapid Traverse

Unit : m/min(ipm)

X/Z/B/Y axis **24/24/24/10**(944.88/944.88/944.88/393.70)

	DL 22LMS	*DL 22LSY	DL 25MS	*DL 25Y	DL 25SY
X axis	24(944.88)	24(944.88)	20(787.40)	20(787.40)	20(787.40)
Z axis	24(944.88)	24(944.88)	24(944.88)	24(944.88)	24(944.88)
B axis	24(944.88)	24(944.88)	24(944.88)	-	24(944.88)
Y axis	-	10(393.70)	-	10(393.70)	10(393.70)

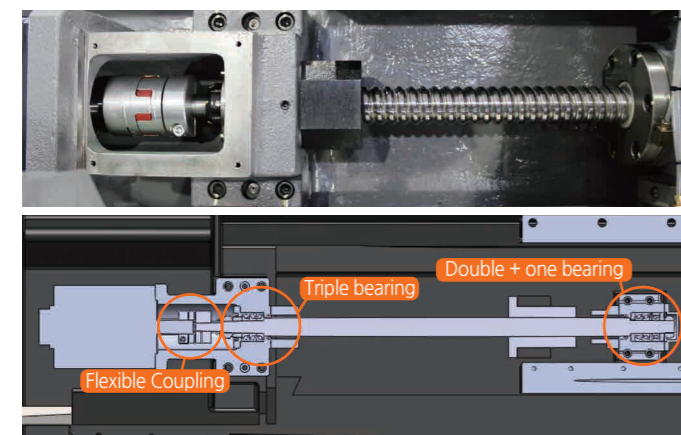
### Travel

Unit : mm(inch)

	DL 22LMS	*DL 22LSY	DL 25MS	*DL 25Y	DL 25SY
X axis	190(7.48)	190(7.48)	220(8.66)	220(8.66)	220(8.66)
Z axis	550(21.65)	550(21.65)	1050(41.34)	1050(41.34)	1050(41.34)
B axis	580(22.83)	580(22.83)	940(37)	-	940(37)
Y axis	-	±55(2.17)	-	±55(2.17)	±55(2.17)

\* : Developing Model

### Axis



- Double Anchoring Ball Screw Supporting structure
- Optimal combination of triple angular ball bearing, double angular ball bearing, and radial bearing for the highest rigidity and strength in thrust or radial direction moving.
- Minimized heat distortion with pretension process
- Flexible coupling connects ball screw and servo motor for intact power supply without lost motion and vibration damping ability.

**Biggest diameter in same class**  
(DL 22LMS, DL 22LSY, DL 25SY, DL 25Y)

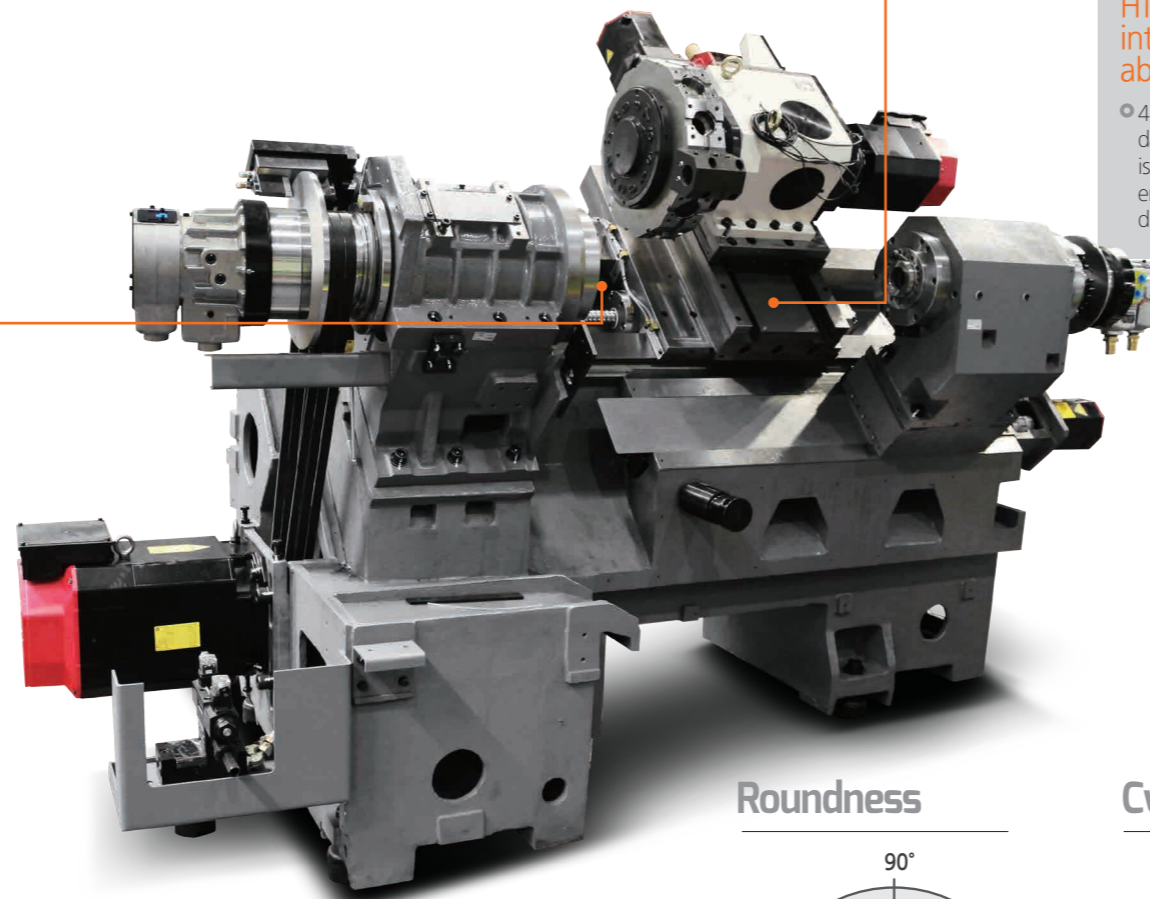
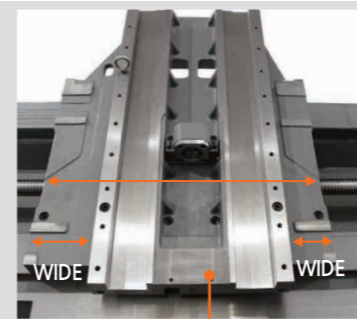
Ball Screw diameter :

X/Z/B/Y axis **Ø32/40/28/32mm**  
**(Ø1.26/1.57/1.10/1.26inch)**

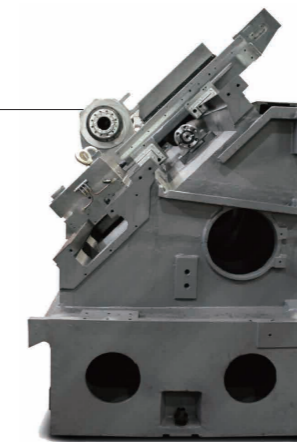
### Wide saddle

Wide saddle, minimized machining vibration

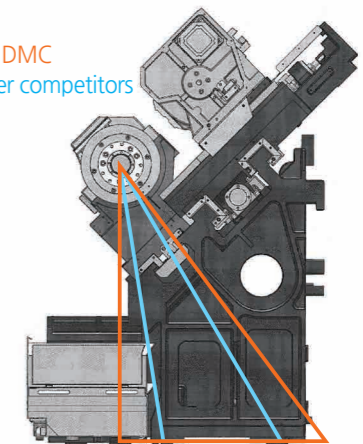
- Best High Rigidity in Class
- Wide and Unique 6 faces arresting type box-way with high frequency heat treated and precision grounded slide ways to ensure machine life-time and high accuracy



### BED



— FFG DMC  
— Other competitors



Highest precision even in intermittent cutting with great absorption ability

- 45degree slant bed is great for vibration-dampening capability. High precision quality is guaranteed in a heavy duty cutting and enhanced machine life with elimination of distortion or deformation.

Offers Wide Bed Leveling

- Spindle overhang prevention (provides greater stability)
- **DMC** : Right triangle
- **Other company** : Obtuse triangle
- Guaranteed stability against cutting resistance.
- Reduced vibration during high-speed rotation.
- Strong structure against any deformation in long-term.
- Protruding bed leveling boss ensures greater stability in performance.

### Box way

DL S series (Sub spindle / Y axis)  
All Models (X,Z) slide Structure

X, Y, Z axis

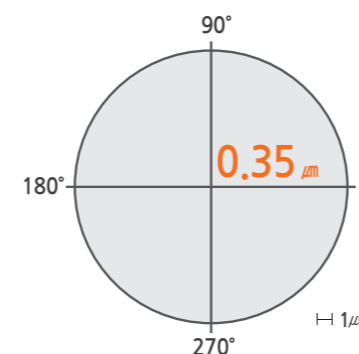
Wide & thick inner 6-faces Slide way, after high frequency Heat Treatment, can be precision ground so that keep high precision, strong cutting long-time.



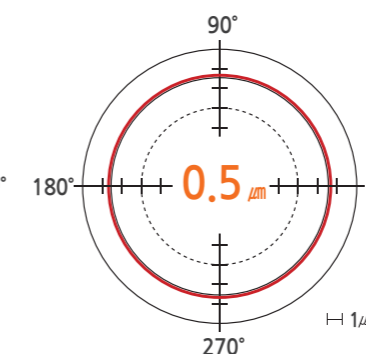
### Hydraulic Steady Rest

The hydraulic steady rest provides stable and accurate machining of long workpiece. **Option**

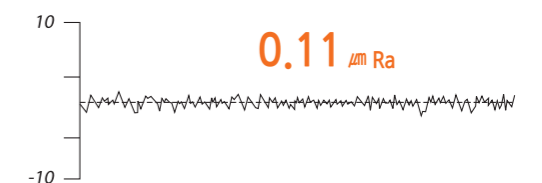
### Roundness



### Cylindricity



### Surface Roughness (O.D. cutting)

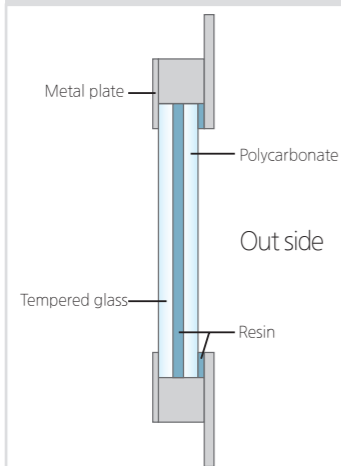


Model	DL 22LMS
Workpiece size	Ø50mmxL50mm(Ø1.97"xL1.97") (SM45C)
Spindle speed	4,000 r/min
Depth of cut	0.02mm(0.0008")
Feedrate	0.025mm/rev(0.001ipr)

• This is actual cutting result. It might be not available under certain circumstances.

### User-Friendly, Safe and Designed for Operator Efficiency / Ergonomics

#### 2-Panel Safety Glass



#### LED Working Light

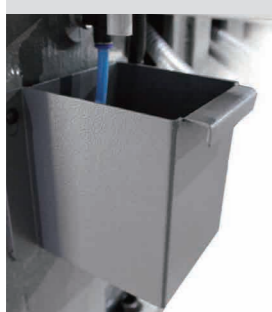


+ Long-life LED lighting creates well lighted work environments.

#### Chuck open/close identification

+ Chuck status is regularly checked for smooth operation

#### Oil retrieval box

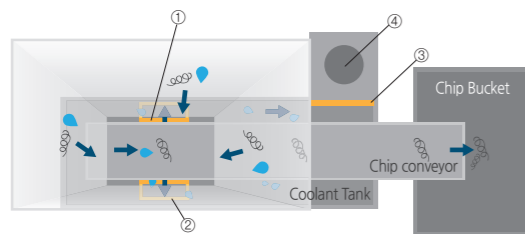


#### Oil leak prevention

+ Cover to ensure the pleasant work place.  
+ Long-lasting life with wiper protection.

#### 3 steps filter coolant tank Easy Clean-up & Prevent Coolant over flow

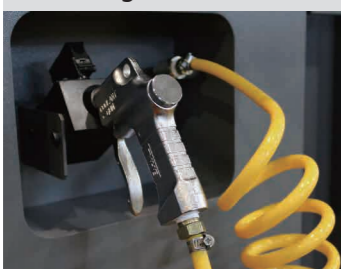
+ Chip conveyor installation - front/side type



- ① 1st step : Mesh filter
- ② 2nd step : Bucket mesh
- ③ 3rd step : Mesh filter
- ④ 4th step : Motor suction filter

#### Option

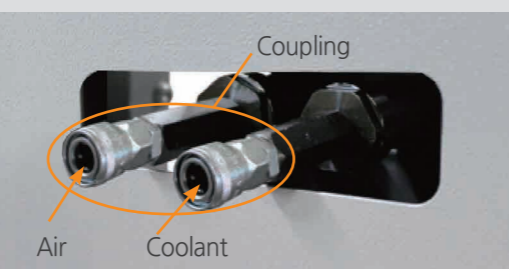
#### Coolant gun



#### Air gun



#### Nipple (air, coolant)



#### Spindle load meter for the visual spindle load time check



#### Patrol light

+ LED 3 color wrapped folded when shipping

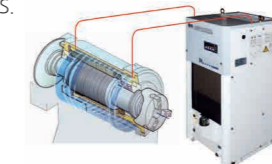
#### Front Door Interlock Device



+ CE standard safety switch can sense door open and close; door is closed during operation

#### Sub-spindle oil cooling unit (Built-in)

+ Sub spindle is surrounded by oil cooling system, so minimized the heat distortion, guaranteed high-speed, high-accuracy machining at multi work environments.

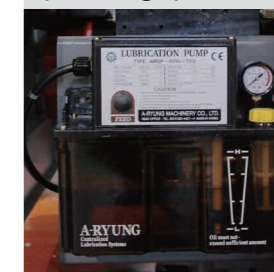


#### RS232C (Input/output interface)



+ USB port

#### Lubrication unit (34/0.79gal)



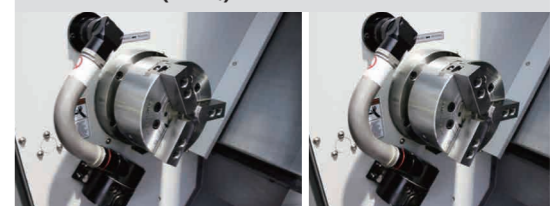
+ Front assembled to be able to confirm by operator

#### Movable CNC panel



+ Convenient swiveling CNC panel

#### Tool setter(OPT.)



#### Manual

+ Manual Tool setter  
+ Aluminum metallic tube, compact design

#### Automatic

+ Auto Tool setter  
+ Fully authenticated components

#### Easy Clean-up Removable Coolant



+ Big size tank  
+ Drawer-type oil tank with wheels is detachable from the coolant tank for easy daily maintenance.

## Option

### Various standard options and Specialized features for customers

#### Features

Hydraulic chuck, Soft jaw, Tool box, Hydraulic unit, Door interlock, Cutting oil supplying device, Work light, Leveling bolt&plate, Foot switch, Air unit, Lubrication unit, 3-step patrol light, Chuck open/close identification, RS232C

#### Option Equipment

Auto Front Door

Chip conveyor

Moderate/High pressure Coolant(6/20 bar)

Oil Mist Collector

Oil Skimmer(Belt type)

Oil Skimmer(Disk type)

Line Filter(100 Mesh)

Spindle thru Air/Coolant (when special chuck is included)

Part Catcher

Special Chuck

Upper side chuck Air/Coolant

230ℓ (60.76gal) (Swing)

300ℓ (79.25gal) (Swing)

300ℓ (79.25gal) (Fork lift)

380ℓ (100.38gal) (Fork lift)

440ℓ (116.23gal) (Fork lift)

Point Sensor(2 Point high precision position control)

Multi Counter

Sub control panel

Linear scale(High precision position control)

Counter

Air Limit(Workpiece contact surface check equipment)

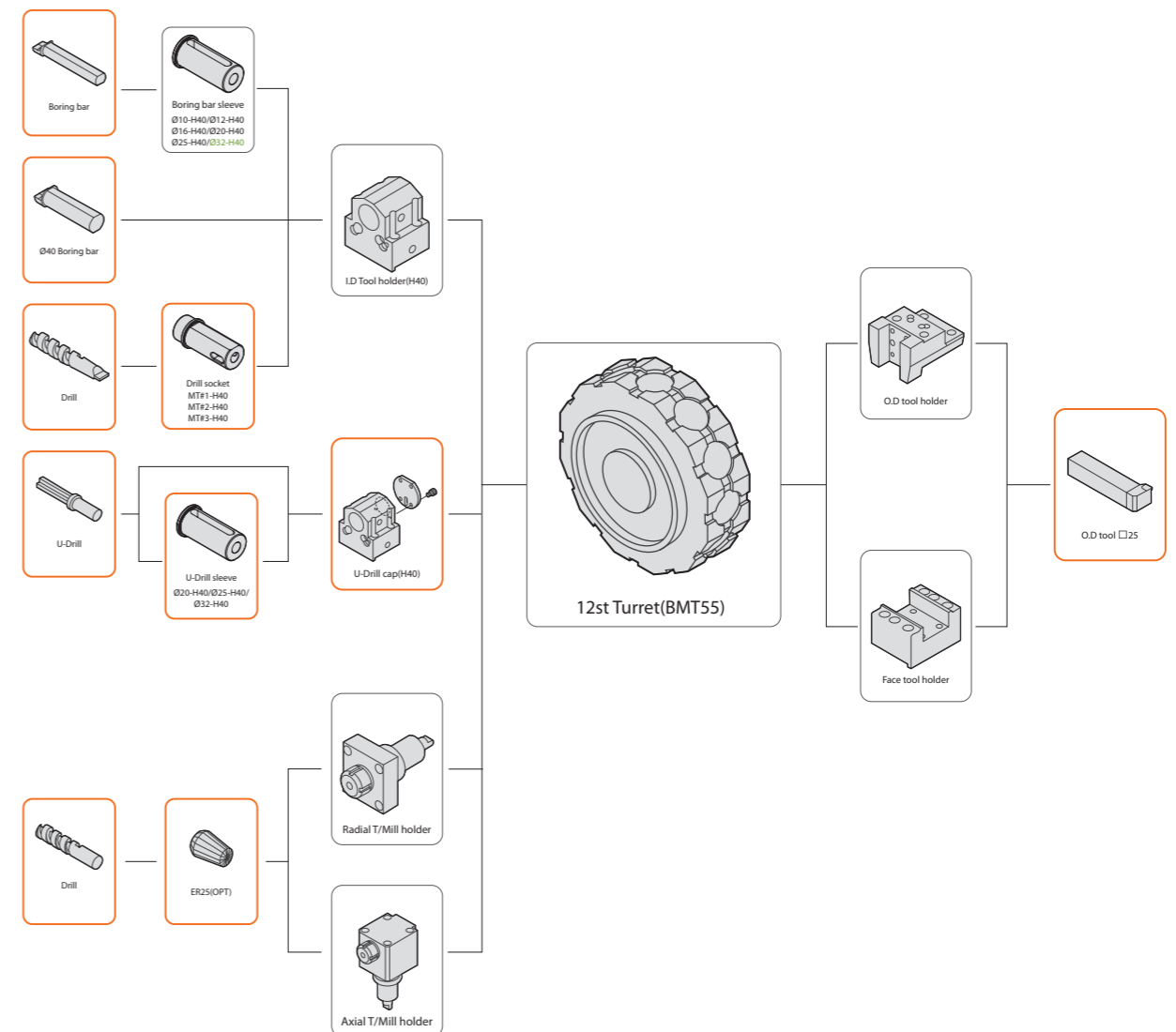
#### Other soft options selection

- I/O extension(16 contacts, 32 contacts)
- Automatic power-off
- M - code

## Tooling system

\* : Developing Model, □ : Option(Not-Supplied)

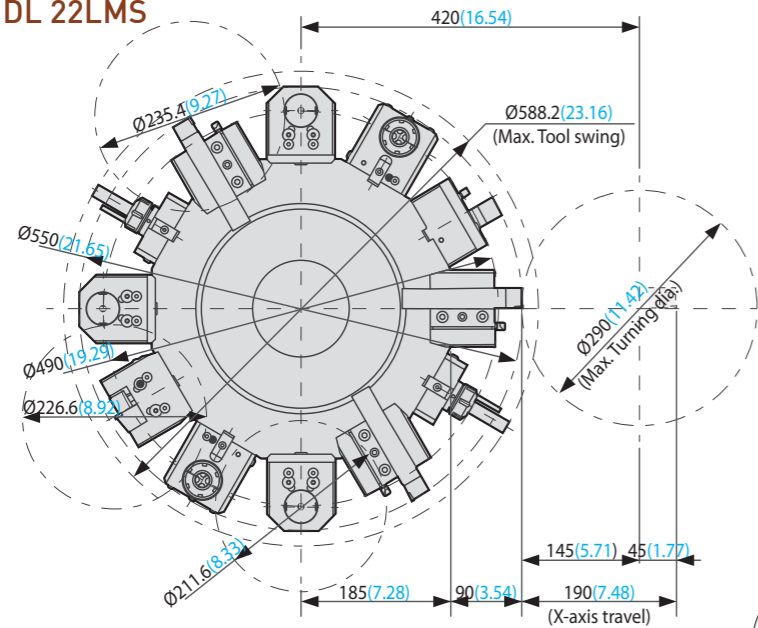
DL 22LMS, \*DL 22LSY, DL 25MS, \*DL 25Y, DL 25SY



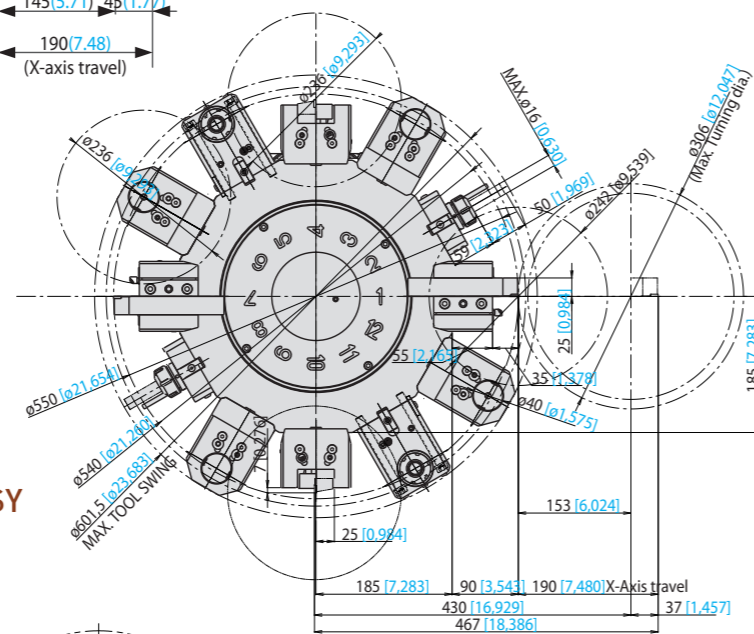
## Tooling interference diagram

\* : Developing Model, Unit : mm(inch)

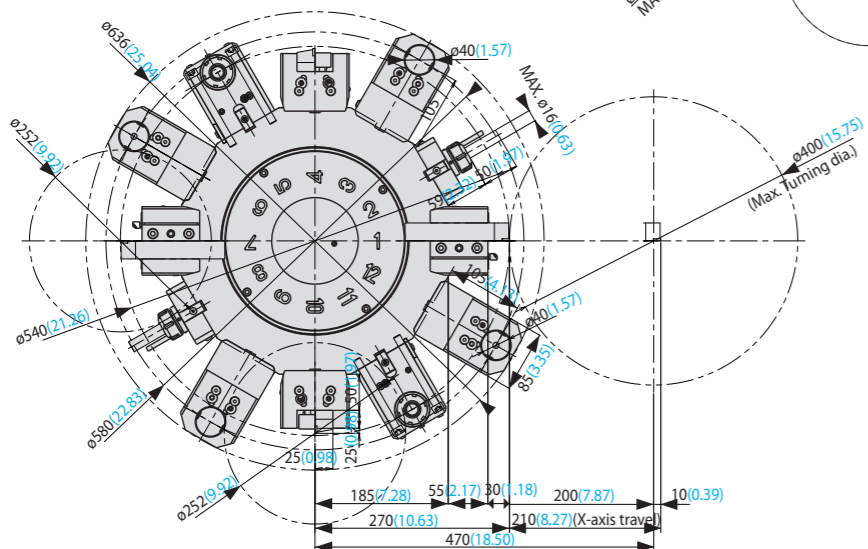
### DL 22LMS



### DL 22LSY



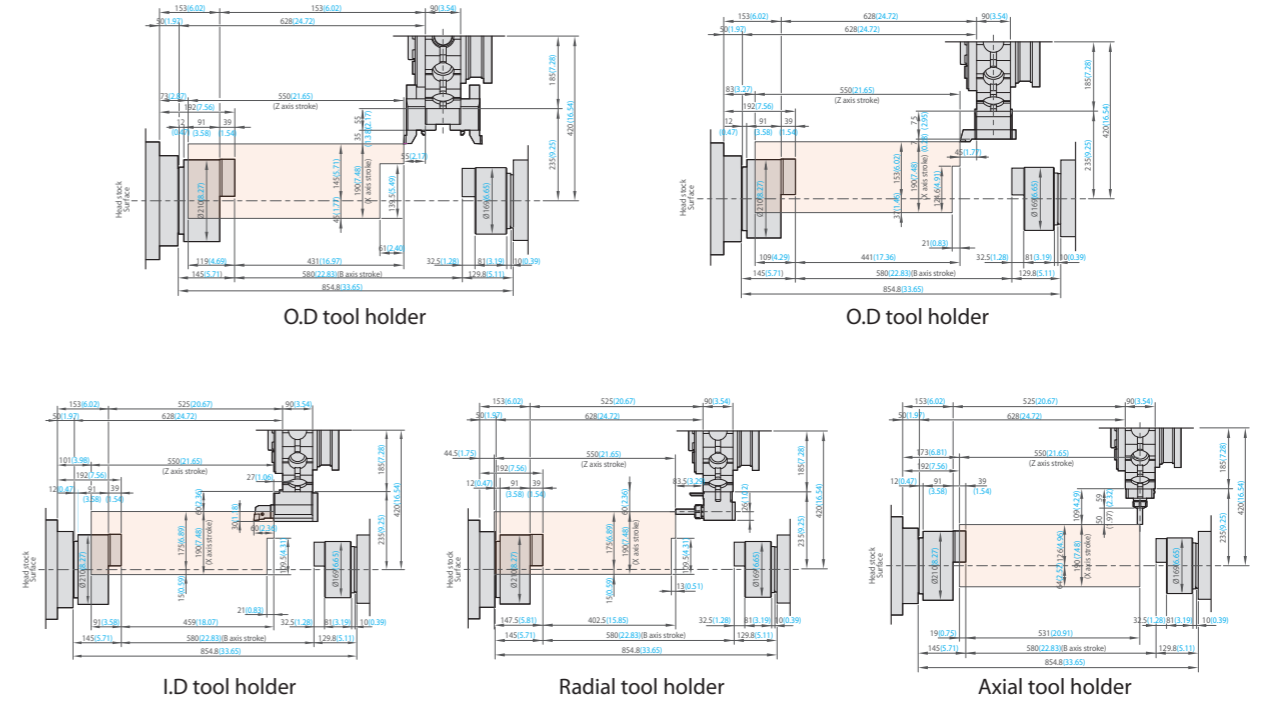
### DL 25MS, \*DL 25Y, DL 25SY, \*DL25LSY



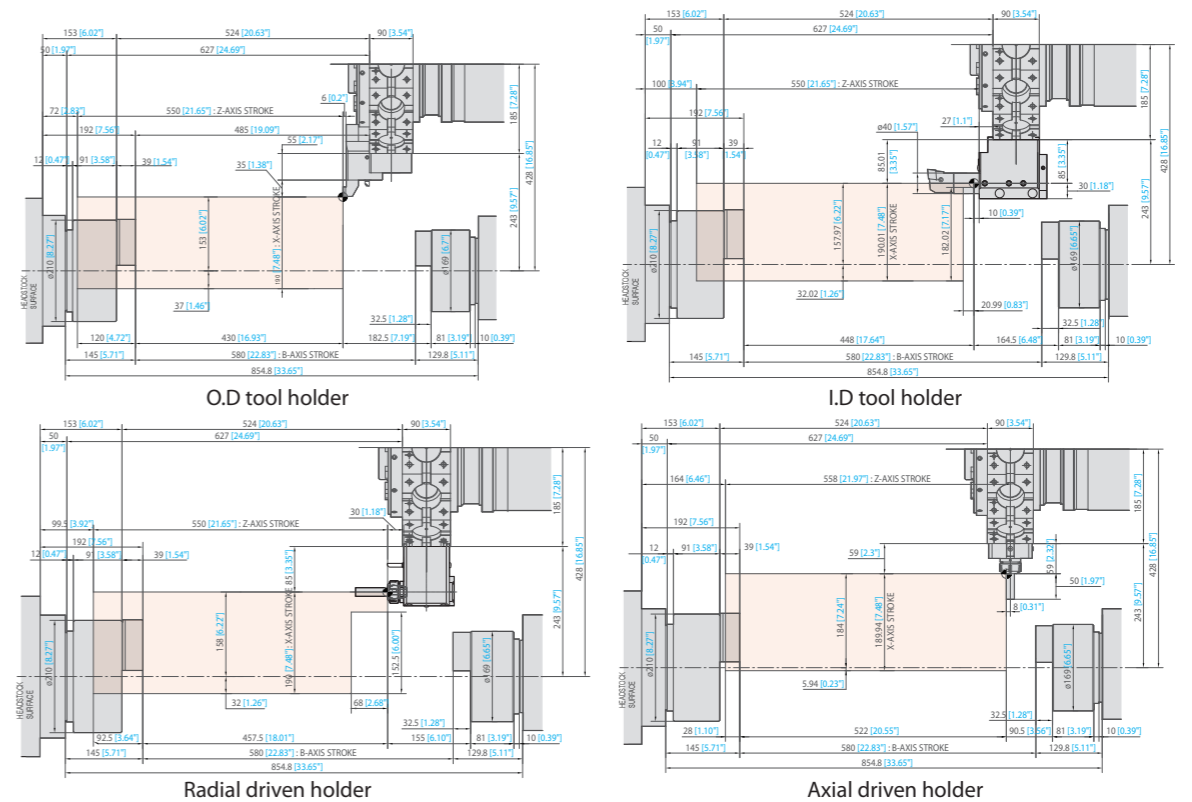
## Working range

\* : Developing Model, Unit : mm(inch)

### DL 22LMS



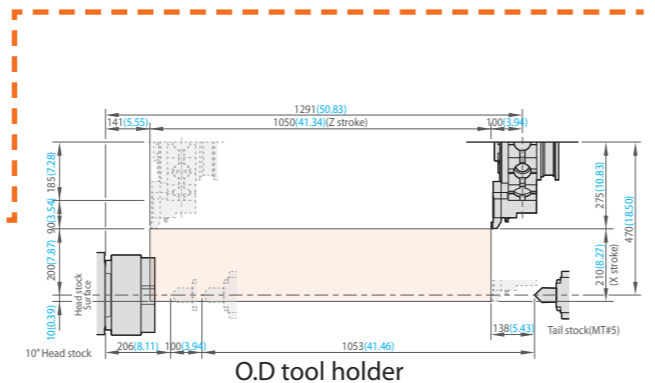
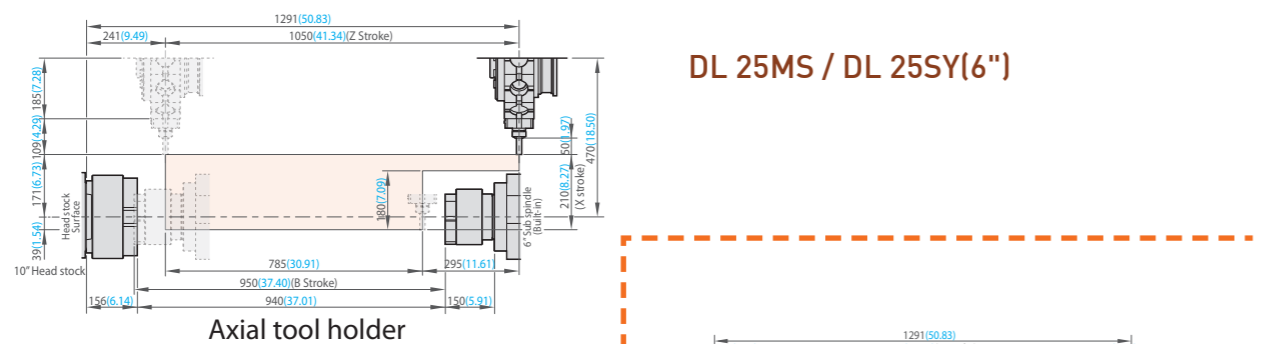
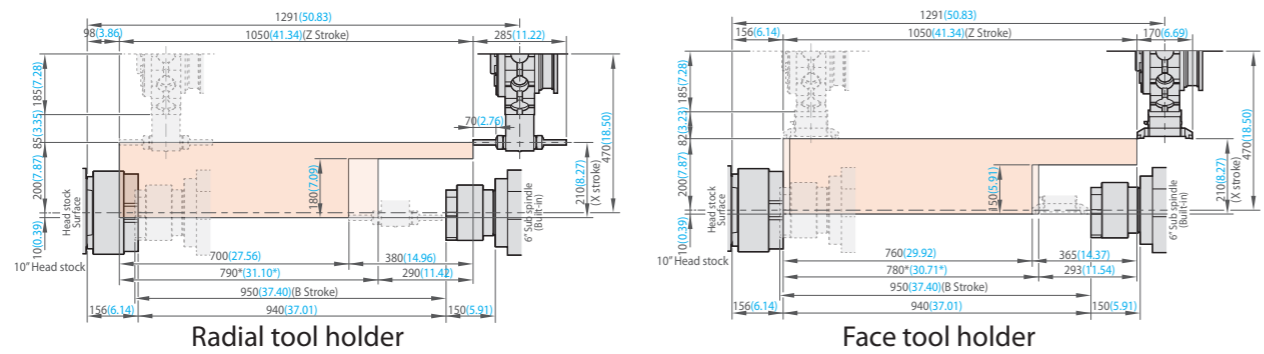
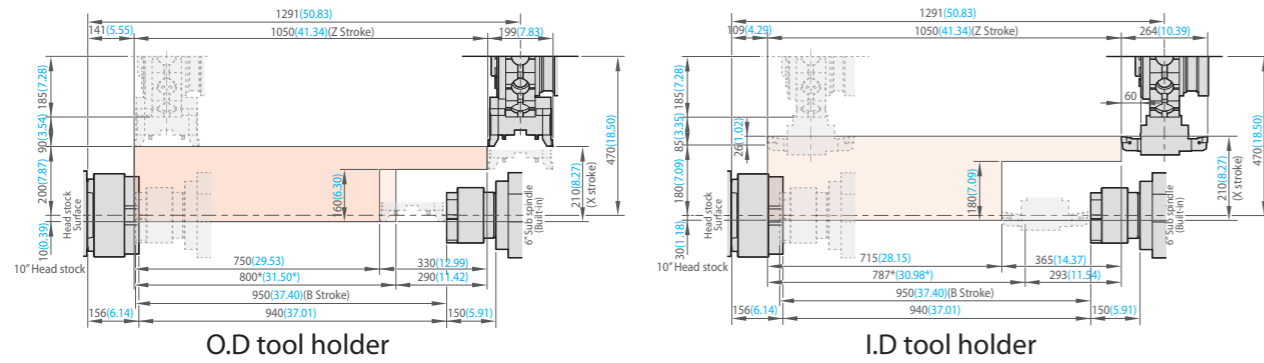
### \*DL 22LSY



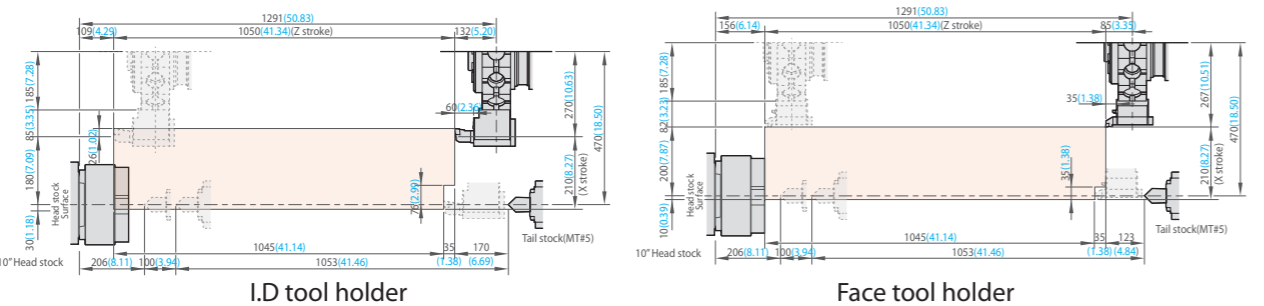


## Working range

\* : Developing Model, Unit : mm(inch)

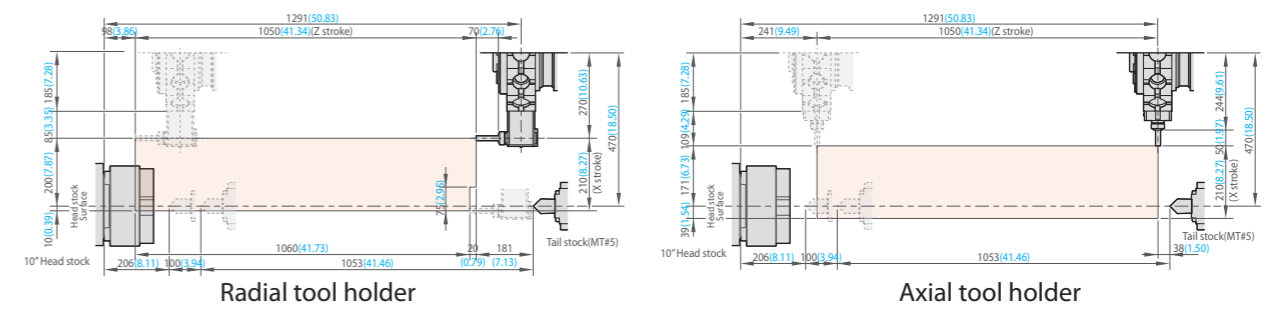


\*DL 25Y

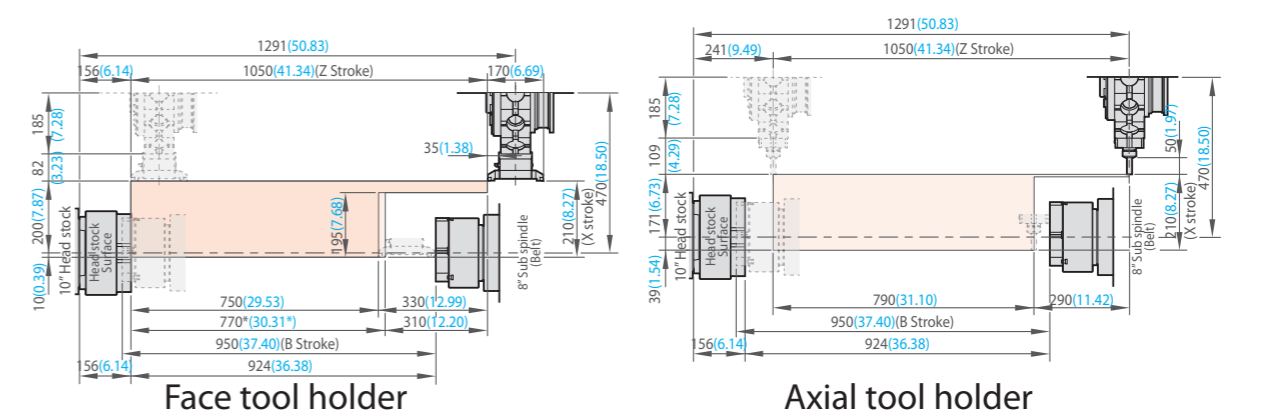
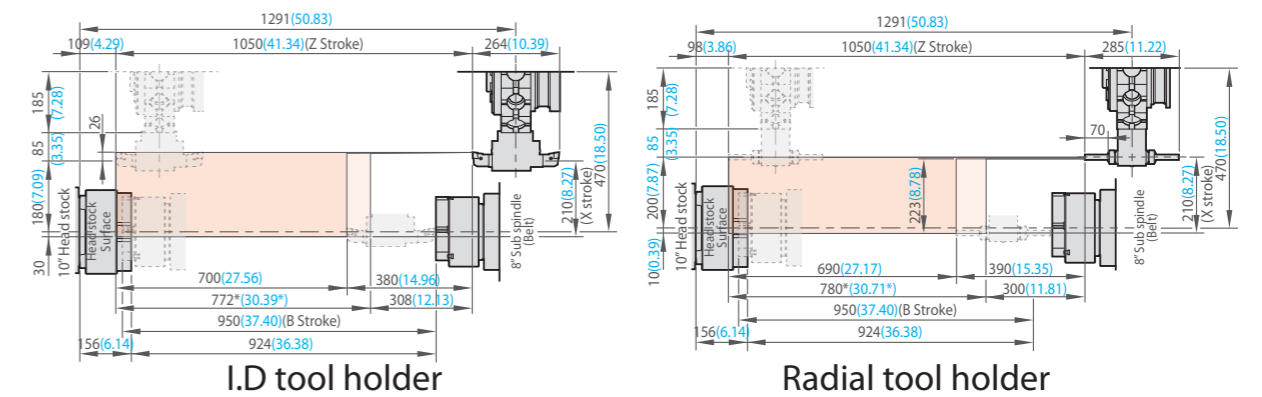


## Working range

\* : Developing Model, Unit : mm(inch)



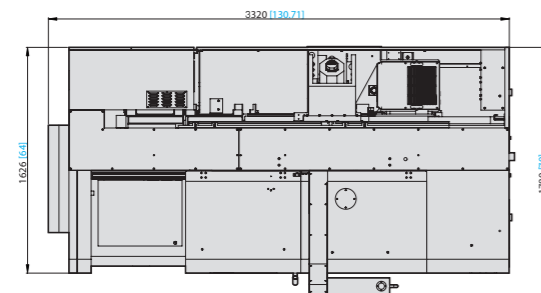
DL 25MS / DL 25SY(8'')



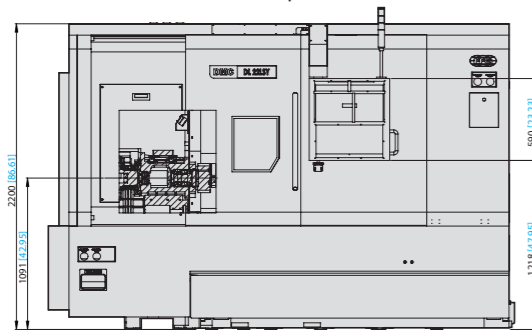
### Machine lay-out

Unit : mm(inch)

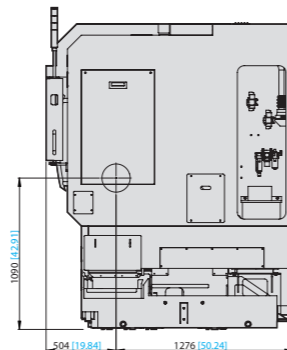
#### DL 22LSY



Top

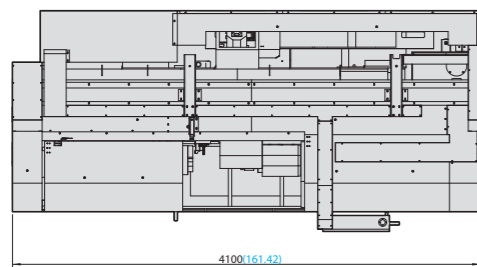


Front

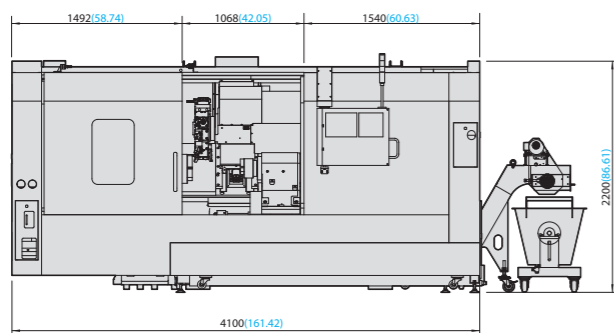


Side

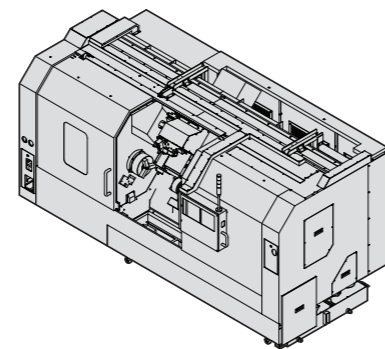
#### DL 25SY



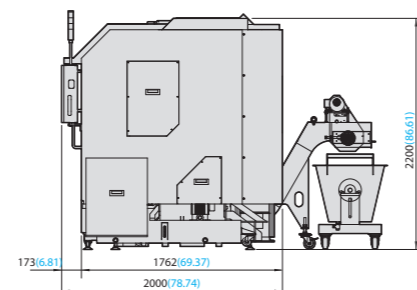
Top



Front



Perspective



Side

### Machine Specifications

Specifications			DL 22LMS	*DL 22LSY	
Capacity	Swing over Bed (Max.swing dia.)	mm(inch)	550(21.65)	550(21.65)	
	Swing over Cross slide	mm(inch)	360(14.17)	410(16.14)	
	Max. Turning Dia.	mm(inch)	280(11.02)	280(11.02)	
	Max.Turning Length	mm(inch)	500(19.69)	500(19.69)	
Bar Capacity	Main	mm(inch)	64(2.52)	64(2.52)	
	Sub		26(1)	26(1)	
Spindle	Max.Spindle Speed	rpm	4,000	4,000	
	Spindle Nose	-	A2-6	A2-6	
	Spindle Bore diameter	mm(inch)	76(2.99)	76(2.99)	
	Max. Spindle Torque	kgf·m(lbs·ft)	45(326)	18.4(133)	
	Spindle Driven Method	-	Belt	Belt	
	Chuck Size	inch	8	8	
	Sub Spindle Speed	rpm	6,000	6,000	
	Sub Spindle Nose	-	A2-5 Mill	A2-5 Mill	
	Sub Spindle Bore diameter	mm(inch)	40(1.57)	40(1.57)	
	Max. Sub Spindle Torque	kgf·m(lbs·ft)	6(43)	6(40)	
Sub Spindle Driven Method	-	Built-in	Built-in		
	Chuck Size(Sub)	inch	6	6	
Motor	Main Spindle Motor (Cont./30min)	Main Sub kw(hp)	11/15(15/20) 5.5/7.5(7.5/10)	15/18.5(20/25) 5.5/7.5(7.5/10)	
	X/Z/B/Y axis Servo Motor	kw(hp)	3/3/3/-(4.02/4.02/4.02/-)	4/4/3/1.6(5.36/5.36/4.02/2.14)	
	Mill Spindle Motor(Cont./30min)	kw(hp)	2.2/3.7(3/5)	1.1/3.7(1.5/5)	
Travel	X axis travel	mm(inch)	190(7.48)	190(7.48)	
	Z axis travel	mm(inch)	550(21.65)	550(21.65)	
	B axis travel	mm(inch)	580(22.83)	580(22.83)	
	Y axis travel	mm(inch)	-	±55	
	Guideway Type	X/Z	-	Box way	Box way
B/Y		-	Box way/-	Box way/Box way	
X/Z/B/Y axis rapid traverse rate	m/min(ipm)	24/24/24/-(945/945/945/-)	24/24/24/10(945/945/945/394)		
Turret	Turret Index Type	-	Servo	Servo	
	Max. No. of Tools	ea	12/BMT55	12/BMT55	
	Turning tool shank size	mm(inch)	□25(□0.98)	□25(□0.98)	
	Boring bar diameter	mm(inch)	∅40(∅1.57)	∅40(∅1.57)	
	Turret Indexing Time(1st swivel)	sec	0.15	0.15	
	Rotating Tool Speed	rpm	5,000	4,500	
Tank Capacity	Coolant Tank Capacity	ℓ(gal.)	250(66.04)	250(66.04)	
	Hydraulic Tank Capacity	ℓ(gal.)	14(3.70)	14(3.70)	
General	Machine Weight	kgf(lbs)	4,500(9,921)	4,660(10,273)	
	Machine height	mm(inch)	2,050(80.71)	2,200(86.61)	
	Floor space	Length	mm(inch)	3,320(130.71)	3,320(130.71)
		Width	mm(inch)	1,600(62.99)	1,780(70)
	Power capacity	kVA	42	54	
Controller	-	F0i-TF	F0i-TF		

**Machine Specifications**

Specifications			DL 25MS	
Capacity	Swing over Bed (Max.swing dia.)		710(27.95)	
	Swing over Cross slide		580(22.83)	
	Max. Turning Dia.		400(15.75)	
	Max. Turning Length		1,000(39.37)	
Bar Capacity	Main	mm(inch)	76(2.99)	
	Sub		65(27)	
Spindle	Max.Spindle Speed		3,500	
	Spindle Nose		A2-8	
	Spindle Bore diameter		86(3.39)	
	Max. Spindle Torque		35.7(258)	
	Spindle Driven Method		Belt	
	Chuck Size		10	
	Sub Spindle Speed		Max. 4,000[8"](6,000[6"])	
	Sub Spindle Nose		A2-6[8"](A2-5[6"])	
	Sub Spindle Bore diameter		76[8"](40[6"])(2.99[8"](1.57[6"]))	
	Max. Sub Spindle Torque		15[8"](6[6"])(108[8"](44[6"]))	
	Sub Spindle Driven Method		Belt[8"](Bult-in[6"])	
Chuck Size(Sub)		8(6)		
Motor	Main Spindle Motor (Cont./30min)	Main	18.5/22(25/30)	
		Sub	11/15[8"](5.5/7.5[6"])(15/20[8"](7/10[6"])	
	X/Z/B/Y axis Servo Motor		3/3/3-(4.02/4.02/4.02/-)	
	Mill Spindle Motor(Cont./30min)		3.7/5.5(5/7.4)	
Travel	X axis travel		220(8.66)	
	Z axis travel		1,050(41.34)	
	B axis travel		940(37)	
	Y axis travel		-	
	Guideway Type	X/Z	-	Box way
		B/Y	-	Box way/-
	X/Z/B/Y axis rapid traverse rate		m/min(ipm)	20/24/16/- (787.40/944.88/629.92/-)
Turret	Turret Index Type		Servo	
	Max. No. of Tools		12/BMT55	
	Turning tool shank size		□25(□0.98)	
	Boring bar diameter		∅40(∅1.57)	
	Turret Indexing Time(1st swivel)		0.15	
	Rotating Tool Speed		5,000	
Tank Capacity	Coolant Tank Capacity		260(68.68)	
	Hydraulic Tank Capacity		28(7.40)	
General	Machine Weight		7,500(16,534)	
	Machine height		2,200(86.61)	
	Floor space	Length	mm(inch)	4,100(161.42)
		Width	mm(inch)	2,000(78.74)
	Power capacity		kVA	43
	Controller		-	FOI-TF

**Machine Specifications**

Specifications			*DL 25Y	DL 25SY	
Capacity	Swing over Bed (Max.swing dia.)		710(27.95)	710(27.95)	
	Swing over Cross slide		580(22.83)	580(22.83)	
	Max. Turning Dia.		400(15.75)	400(15.75)	
	Max. Turning Length		1,000(39.37)	1,000(39.37)	
Bar Capacity	Main	mm(inch)	76(2.99)	76(2.99)	
	Sub		-	65[8"](28[6"])(2.56[8"](1.10[6"])	
Spindle	Max.Spindle Speed		3,500	3,500	
	Spindle Nose		A2-8	A2-8	
	Spindle Bore diameter		86(3.39)	86(3.39)	
	Max. Spindle Torque		35.7(258)	35.7(258)	
	Spindle Driven Method		Belt	Belt	
	Chuck Size		10	10	
	Sub Spindle Speed		rpm	-	Max. 4,000[8"](6,000[6"])
	Sub Spindle Nose		-	-	A2-6[8"](A2-5[6"])
	Sub Spindle Bore diameter		mm(inch)	-	76[8"](40[6"])(2.99[8"](1.57[6"])
	Max. Sub Spindle Torque		kgf-m(lbs-ft)	-	15[8"](6[6"])(108[8"](44[6"])
	Sub Spindle Driven Method		-	-	Belt[8"](Bult-in[6"])
Chuck Size(Sub)		inch	-	8(6)	
Motor	Main Spindle Motor (Cont./30min)	Main	18.5/22(25/30)	18.5/22(25/30)	
		Sub	-	11/15[8"](5.5/7.5[6"])(15/20[8"](7/10[6"])	
	X/Z/B/Y axis Servo Motor		kw(hp)	3/3/-/2.5(4.02/4.02/-/3.35)	3/3/3/2.5(4.02/4.02/4.02/3.35)
	Mill Spindle Motor(Cont./30min)		kw(hp)	3.7/5.5(5/7.4)	3.7/5.5(5/7.4)
Travel	X axis travel		220(8.66)	220(8.66)	
	Z axis travel		1,050(41.34)	1,050(41.34)	
	B axis travel		-	940(37)	
	Y axis travel		±55(±2.17)	±55(±2.17)	
	Guideway Type	X/Z	-	Box way	Box way
		B/Y	-	-/Box way	Box way/Box way
	X/Z/B/Y axis rapid traverse rate		m/min(ipm)	20/24/-/10(787.40/944.88/-/393.70)	20/24/16/10(787.40/944.88/629.92/393.70)
Turret	Turret Index Type		-	Servo	
	Max. No. of Tools		ea	12/BMT55	
	Turning tool shank size		mm(inch)	□25(□0.98)	□25(□0.98)
	Boring bar diameter		mm(inch)	∅40(∅1.57)	∅40(∅1.57)
	Turret Indexing Time(1st swivel)		sec	0.15	0.15
	Rotating Tool Speed		rpm	5,000	5,000
Tank Capacity	Coolant Tank Capacity		260(68.68)	260(68.68)	
	Hydraulic Tank Capacity		28(7.40)	28(7.40)	
General	Machine Weight		7,800(17,196)	7,800(17,196)	
	Machine height		2,200(86.61)	2,200(86.61)	
	Floor space	Length	mm(inch)	4,100(161.42)	4,100(161.42)
		Width	mm(inch)	2,000(78.74)	2,000(78.74)
	Power capacity		kVA	40	52
	Controller		-	FOI-TF	FOI-TF

## NC Specifications (FANUC FOi-TF)

○ : Standard, OPT. : Option, (!) : M type, (!!) : 2SO type

	Item	Specification	0iTF
Controls	Controlled axes	Std. 2axes	MS:Std. 4axes(X,Z,C,B)/Y:Std. 4axes(X,Z,C,Y) /SY:Std. 6axes(X,Z,C,Y,B,A)
	Simultaneously control axes expansion(Total)	0.001mm/0.0001"	4 axes
Axis Functions	Least input increment		○
	Cs contouring control		○ (!)
	HRV2 Control		○
	Inch/metric conversion	G20/G21	○
	Increment system 1/10	0.0001mm/0.00001"	○
	Stored stroke 1	Overtravel control	○
	Stored stroke 2 and 3		○
	Mirror image		○
	Chamfering on/off		○
	Backlash compensation	Max. 255 pulses	○
	Stored pitch error compensation		○
	Automatic operation(memory)		○
	Operation	MDI operation	
Buffer register			○
Program restart			○
Search function		Sequence NO./Program NO./Address	○
DNC operation			○
Reference position shift			-
Manual handle feed rate		X1, X10, X100	○
Manual pulse generator		1unit	○
Manual handle interruption			○
Interpolation		Linear interpolation	G01
	Circular interpolation	G02, G03	○
	Dwell	G04	○
	Polar coordination interpolation	G12.1, G13.1	○ (!)
	Cylindrical interpolation		○ (!)
	Thread cutting/Synchronous cutting		○
	Multiple threading		○
	Thread cutting retract		○
	1st, 2nd reference position return & check	G27, G28, G30	○
	Variable lead thread cutting		○
	Continuous thread cutting		○
	Circular thread cutting		OPT.
	3rd and 4th reference point return		○
polygon turning		OPT.	
Helical interpolation		OPT.	
Feed functions	Rapid traverse override	F0/25/50/100%	○
	Feedrate Override	0-200% (10% unit)	○
	Jog feed override	0-2000 mm/min	○
	Feed per minute	G98	○
	Feed per revolution	G99	○
	Cutting feedrate clamp		○
	External deceleration		○
	Feed stop		-
	AI Comtour contr II ol I/ II		OPT.
	Auxiliary & Spindle functions	Spindle speed override	0-150%
Constant surface speed control		G96, G97	○
1st Spindle orientation			○
Rigid tapping			○
Multi-spindle control			○ (!)
Programming functions	Auxiliary function	M8 digit	○
	Program/code	EIA/ISO	○
	Optional block skip	1 Piece	○
	Additional block skip	Total 9 (Only NC function)	○

	Item	Specification	0iTF
Programming functions	Maximum command dimension	± 99999.999mm/(± 9999.9999 inch)	○
	Program file name	32 characters	○
	Sequence number	N8 digit	○
	Absolute / Incremental programming		○
	Decimal point input		○
	Work coordinate system selection	G52 ~ G59	○
	Direct drawing dimension programming		○
	G code system A/B/C		○
	G code system B/C(selectable)		○
	Chamfering / corner R		○
	Programmable data input	G10	○
	Sub program call	Nested holds	10
	Custom macro		○
	Simple canned cycles	G90, G92, G94	○
	Circular interpolation by R programming		○
	Multi repetitive canned cycle	G70 ~ G76	○
	Multi repetitive canned cycle2		○
	Drilling canned cycle(G80 series)		○
	Program format for FANUC series 10/11		○
	Manual guide oi		OPT.
Tool functions	Tool number command(t-code function)	T4-digit	○
	Number of tool offsets		128 Pairs
	Tool offset	G43, G44, G49	○
	Tool nose radius compensation	G40 ~ G42	○
	Tool geometry / wear offset	Geometry & wear data	○
	Tool life management		○
	Tool offset value counter input		○
	Auto tool offset		○
	Direct input of tool offset value measured B		○
	Editing op. functions	Part program storage size	
No. of Registered programs			400 ea
Part program editing			○
Program protect			○
Background editing			○
Setting & display	Expanded part program editing	Copy, Move, Change of NC program	○
	Status display		○
	Program name display	31 characters	○
	Self diagnostic function		○
	Help function	Alarm & Operation display	○
	Running time / Parts number display	Auto running time & Parts No. display	○
	Load meter display	Spindle & Servo load display	○
	External message display		○
	Display of spindle speed and T-code at all screen		○
	Tool path graphic display		○
Data input & output	Servo setting screen		○
	Spindle setting screen		○
	Multi language display		○
	I/O interface	RS-232C/LAN Port	○
	Memory card input and output		○
	External key input		○
	External program input		○
	External work number search		○
	USB Memory	Input/Output	○
	Fast Data Server	Only 1 path, Need OPT board	OPT
Other functions	MDI / DISPLAY unit		10.4"
	PMC system		○
	Ethernet function	Embedded ethernet function	○