

SINCE 1944

DL V series (En)

Vertical CNC Turning Center

DL 40V / 40VTT / 60V[L] / 60V[L]M /
80V[L] / 80V[L]M / 100V / 100VM

www.ffg-dmc.com



FFG DMC CO.,LTD.
631-821,86,Sandan 2-gil, Jinbuk-myeon, Masanhappo-gu,
Changwon-si, Gyeongsangnam-do, Korea
Phone : +82-(0)55-340-8200
Fax : +82-(0)55-340-8394
E-mail : sales@dmcmt.com
www.ffg-dmc.com



©FFG DMC 2019.01.09



* Specifications in this catalog are subject to change without prior notice.
* Please contact us or visit our site for more product information.

DL V series

DL 40V / 40VTT

DL 60V[L] / 60V[L]M

DL 80V[L] / 80V[L]M

DL 100V / 100VM

The Box guideway, Line up from 8" to 32"
High Efficiency, High Productivity Vertical CNC Turning Center

Vs Competitors

Heavy Cutting
High Spindle speed

4000rpm
[DL 40V/40VTT]

High Torque

45kw(60.32hp)
347kgf·m(2,510lbs·ft)
[DL 100V]

Max. rapid traverse

X/Z axis
20m/min
(787.40ipm)

Max. Column Span

1.5×
730mm(28.74inch)
[DL 80V]



PISTON



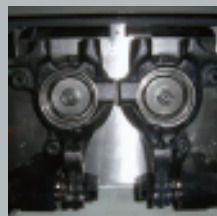
DIFF.CASE



DISC



DRUM



KNUCLE



ALUMINIUM WHEEL

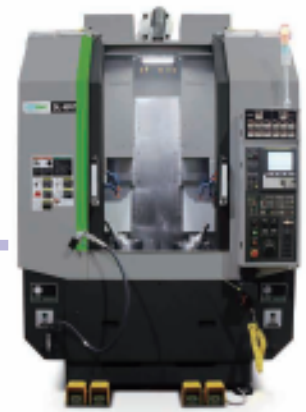
DL 40V

Travel (X/Z) (mm)(inch)	200 × 350	7.87 × 13.78
Guideway Type	BOX Way	
Spindle speed (rpm)	4,000	
Number of tools (pcs)	8	



DL 40VTT

Travel (X/Z) (mm)(inch)	200 × 350	7.87 × 13.78
Guideway Type	BOX Way	
Spindle speed (rpm)	4,000	
Number of tools (pcs)	8	



DL 60V[L]/60V[L]M

Travel (X/Z) (mm)(inch)	260 × 480	10.24 × 18.90
Guideway Type	BOX Way	
Spindle speed (rpm)	3,000	
Number of tools (pcs)	12 / M:BMT65	



DL 80V[L]/80V[L]M

Travel (X/Z) (mm)(inch)	390 × 780	15.35 × 30.71
Guideway Type	BOX Way	
Spindle speed (rpm)	2,000	
Number of tools (pcs)	12 / M:BMT75	

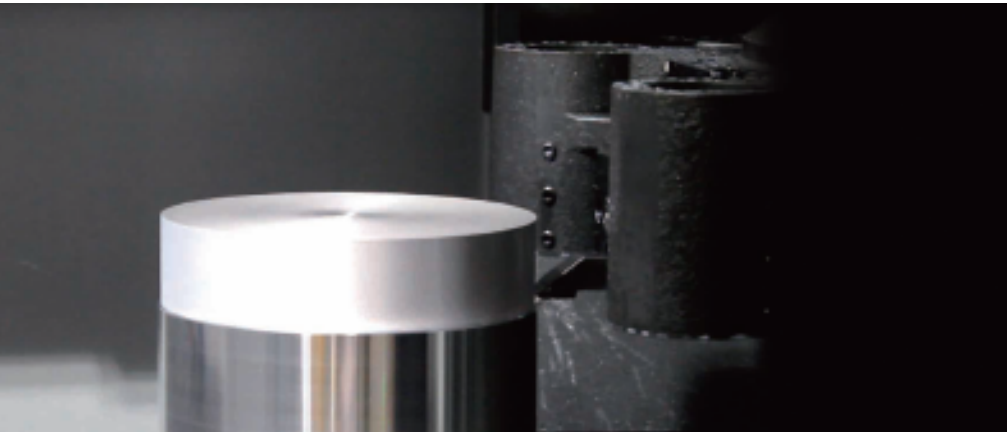


DL 100V/100VM

Travel (X/Z) (mm)(inch)	480 × 860	18.90 × 33.86
Guideway Type	BOX Way	
Spindle speed (rpm)	1,800	
Number of tools (pcs)	12 / M:BMT 85	



High Productivity



Spindle

Main Spindle Structure for High Speed & Heavy Cutting Applications

- High torque main spindle motor is supported by strong double cylindrical roller bearings and angular thrust bearing which allow heavy duty cutting, Also minimize vibration and heat distortion.
- Clamping system operated by two steps. One is high pressure in rough cutting, the other low pressure in finish cutting. This system offer optimized cutting to prevent workpiece distortion. (2step Chucking Pressure System : OPT)



[] : model

DL V series	DL 40V	DL 40VTT	DL 60V(L)/60V(L)M	DL 80V(L)/80V(L)M	DL 100V/100VM
Spindle speed(rpm)	4,000	4,000	3,000	2,000	1,800
Spindle Nose	A2-6	A2-6	A2-8	A2-11	A2-15
Spindle Motor [Kw(hp)]	15(20)	15(20)	22(30)	30(40.2)	45(60)
Max. Turning dia. [mm(inch)]	320(12.6)	320(12.6)	450(17.72)	730(28.74)	920(36.22)
Max. Turning length [mm(inch)]	200(7.87)	200(7.87)	450(17.72)	750(29.53)	850(33.46)

ZF Gear Box

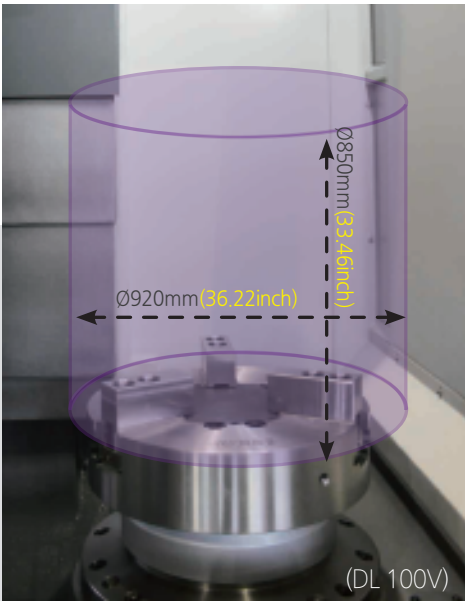
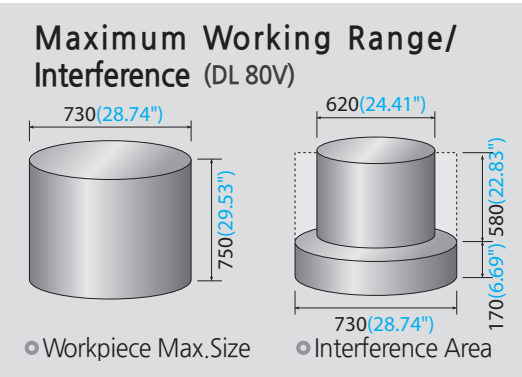


DL 60V / 80V : OPT
DL 100V : STD

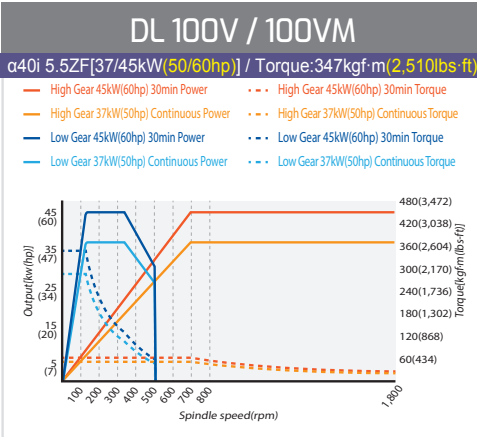
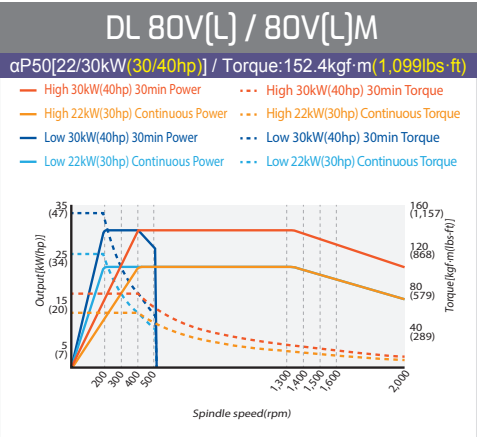
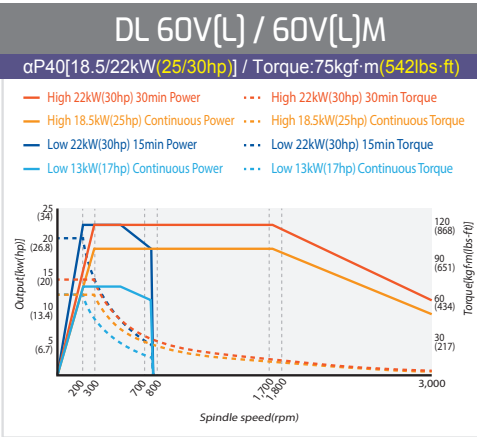
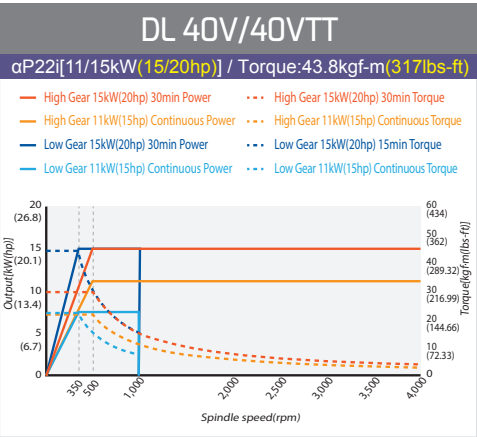


Maximum Workpiece Size: Ø920mm x 850mm(36.22" x 33.46")

The integrated box guideway and meehanite cast bed provide the foundation for superior heavy duty cutting. The exclusive rib design bed enables ideal stability for top-notch accuracy and great surface finishes as well.



Super High Torque



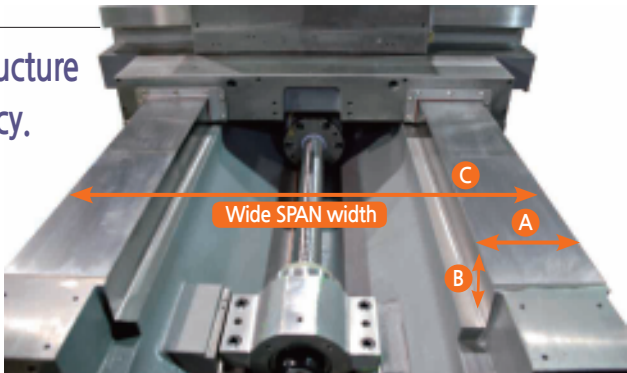
High Productivity

Bed & Column

The Wide Box Guideway Structure Provides Rigidity and Accuracy.

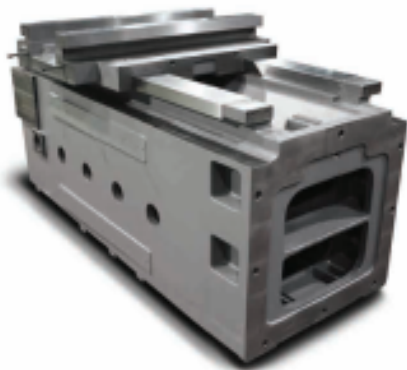
X, Z-axis

Very wide & thick guideway and Six faced slide way provided by high frequency heat treatment and fine grinding. This available for long time cutting and heavy duty cutting.

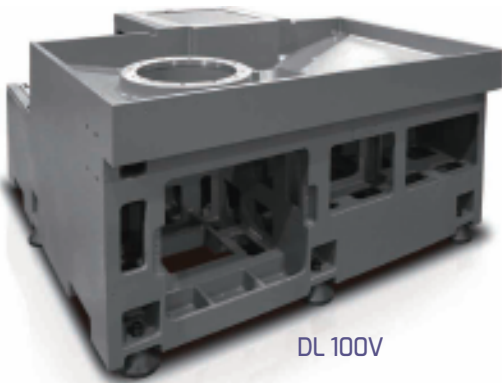


Unit:mm(inch)

DL V series	Z axis Slide			X axis Slide		
	A	B	C	A	B	C
40	80(3.15)	65(2.56)	340(13.39)	65(2.56)	35(1.38)	260(10.24)
60	90(3.54)	50(1.97)	470(18.50)	75(2.95)	45(1.77)	335(13.19)
80	120(4.72)	65(2.56)	730(28.74)	90(3.54)	65(2.56)	530(20.87)
100	140(5.51)	60(2.36)	740(29.13)	105(4.13)	75(2.95)	510(20.08)



High Rigidity Column, Saddle



DL 100V



DL 80V

BED

- Bed structure: Heavy meehanite cast-iron
- Easy chip disposal
- Same center between spindle and motor → Prevent distortion by belt tension. (No impact for machining)

Turret

12 Stations Turret for Heavy Duty Cutting



High Torque Servo Turret(DL 80V)

Turret Index time (one face) : **0.2sec**

Max No. of Tools : **12ea**

- FANUC Servo Motor Index :
Turret Index time (one face) 0.2sec (DL 80V(L)), 0.3sec (DL 100V)
- Accurate and Stable during moving vertically in servo turret indexing
- Turret Index Position : 12Positions Flexible
- Tool Size : DL 40V/MTT : □25(0.98"), Ø32(1.26")
DL 60V(L) : □25(0.98"), Ø50(1.97")
DL 80V(L) : □32(1.26"), Ø50(1.97")
DL 100V : □32(1.26"), Ø80(3.15")



High Torque BMT Servo Turret(DL 80VM)

Turret Index time (one face) : **0.2sec**

Max No. of Tools : **12ea**

Milling Spindle Speed : **Max. 3,000rpm**

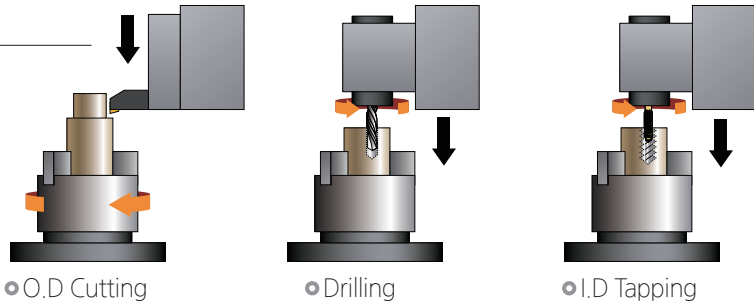
Tool Holder : BMT65 (DL 60V(L)M)
BMT75 (DL 80V(L)M)
BMT85 (DL 100VM)

Mill Turret

DL V series	DL 60V(L)M	DL 80V(L)M	DL 100VM
Turret Index Type	SERVO	SERVO	SERVO
Max No. of Tools(ea)	12/BMT65	12/BMT75	12/BMT85
O.D. tool size[mm(inch)]	25 (0.98)	32 (1.26)	32 (1.26)
Boring bar dia.[mm(inch)]	Ø50(1.97)	Ø50(1.97)	Ø80(3.15)
Index time(one face)(sec)	0.2	0.2	0.25

Machining

Machining Variation



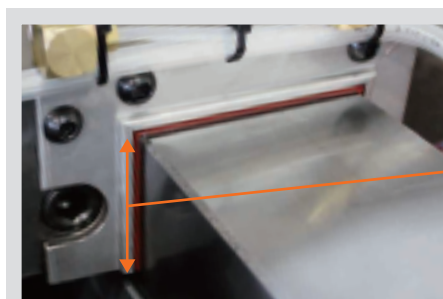
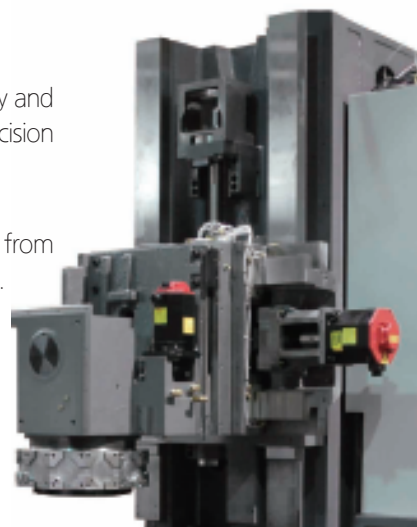
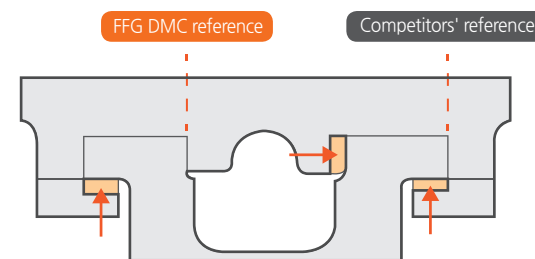
Accuracy

- FFG DMC way : Narrow guide type

Top/bottom guide way supports saddle for superb rigidity and guide way is close to spindle center line best in class precision machining.

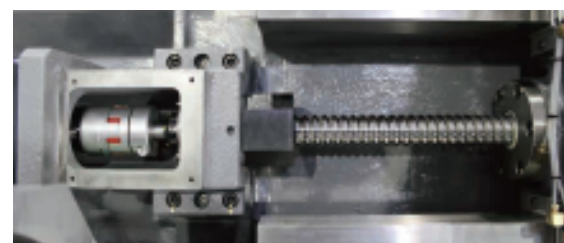
- Other companies : Guide on side

Only top guide way supports saddle, and guide way is far from center line, resulting in bad consistency in precision quality.



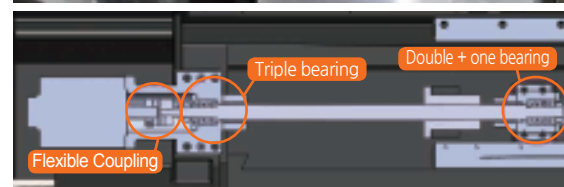
Box way

Guide way width :
Best in same class(1.5x)
(DL 80V)



- Supported with double anchoring ball screw
- Optimal arrangement of triple angular ball bearing and double angular ball bearing(DL80V)

- Optimal arrangement of triple angular ball bearing, ball bearing, and radial bearing (DL80V/DL100V)



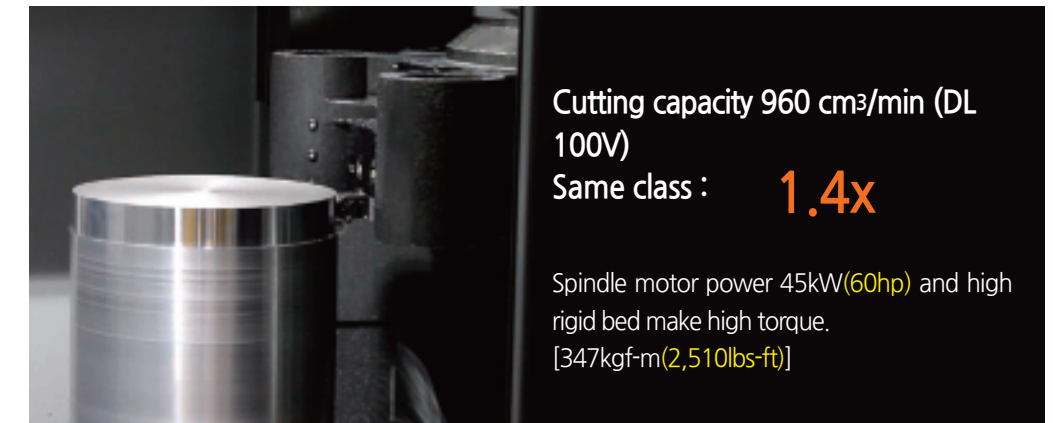
- Pretension-applied double anchored ball screw ensures highest quality of precision positioning.

- Flexible coupling connects ball screw and servo motor for intact power supply without lost motion and vibration damping ability.

Travel & Rapid Traverse

[] : model

DL V series	DL 40V	DL 40VTT	DL 60V(L)/60V(L)M	DL 80V(L)/80V(L)M	DL 100V/100VM
Travel(X/Z) [mm(inch)]	200/350(7.87/13.78)	200/350(7.87/13.78)	260/480(10.24/18.90)	390/780(15.35/30.71)	480/860(18.90/33.86)
Rapid traverse(X/Z) [m/min(ipm)]	20/16(787/630)	20/16(787/630)	20/20(787/787)	20/20(787/787)	20/20(787/787)
Ball screw dia.(X/Z) [mm(inch)]	Ø32(1.26)/Ø32(1.26)	Ø32(1.26)/Ø32(1.26)	Ø32(1.26)/Ø40(1.57)	Ø40(1.57)/Ø50(1.97)	Ø40(1.57)/Ø50(1.97)

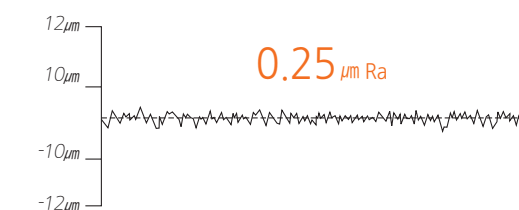


Cutting capacity 960 cm³/min (DL 100V)

Same class : **1.4x**

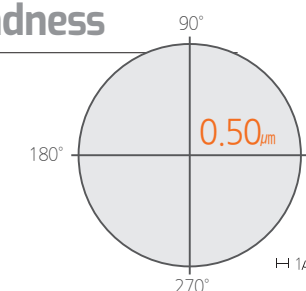
Spindle motor power 45kW(60hp) and high rigid bed make high torque.
[347kgf-m(2,510lbs-ft)]

Surface Roughness

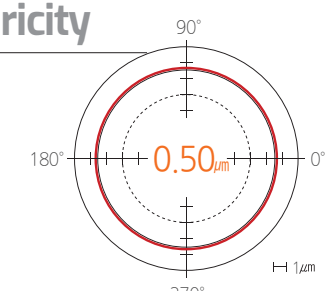


Machine type	DL 80V
Tool	Diamond tool (nose radius 0.508(0.02"))
Material	AL150(Aluminum)
Cutting speed	200m/min(7,874ipm)
Feedrate	0.1mm/rev(0.004ipr)
Depth of cut	0.15mm(0.01")
Outer diameter	200mm(7.87")

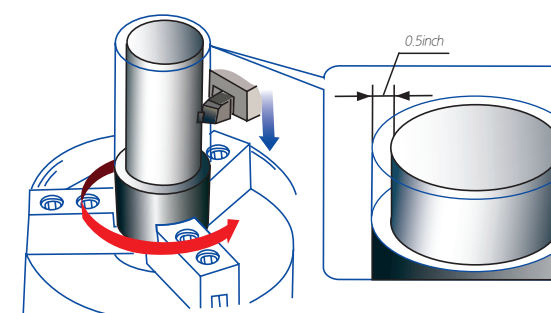
Roundness



Cylindricity



Example Of Machining



Model : DL 80V(Work Material : SM45C)

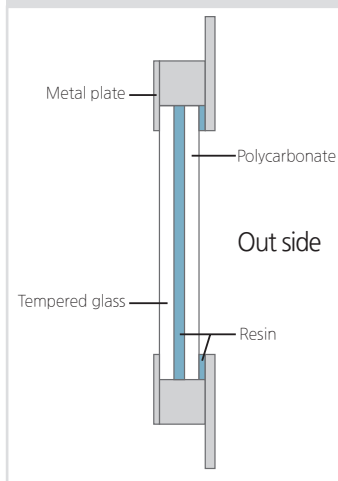
Heavy Cutting (O.D. tool size 2(1.26"))

- Spindle speed : **357 rpm**
- Cutting speed : **142 mm/min(6 ipm)**
- Depth of cut : **12.7 mm(0.50")** <Spindle Load 65%>
- Feedrate : **0.4 mm/rev(0.016 ipr)**

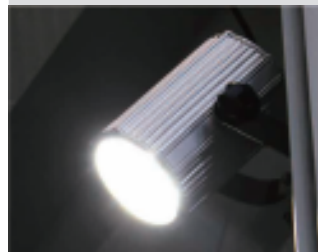
● This is actual cutting result. It might be not available under certain circumstances.

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

2-Panel Safety Glass



LED Working Light

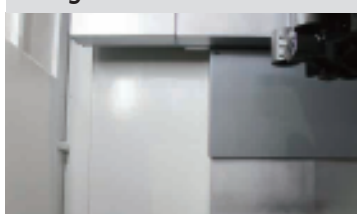


+ Long-life LED lighting creates well lighted work environments.

Door Safety Steel Cover

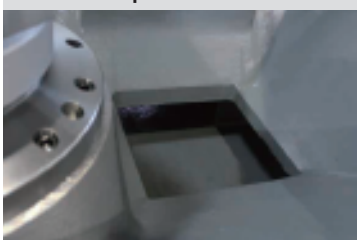
+ Paste 2 step steel pin on the front of Door chuck center, prevent the safety accident from workpiece splash

Long-life Slide Cover

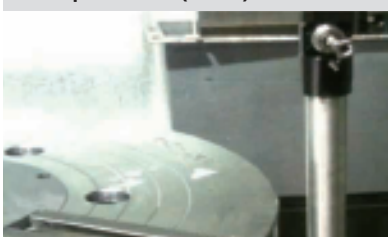


+ Minimized slide steps and simplified cover structure

Good Chip Removal



Tool presetter(OPT.)



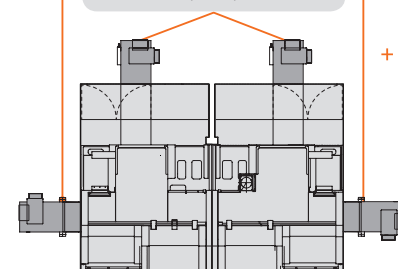
+ DMC use the portable tool setter, because accumulated chip can cause the wrong operation for vertical lathe.

Chip & Coolant Splash guard Cover

Left side chip conveyor (OPT)

Right side chip conveyor (OPT)

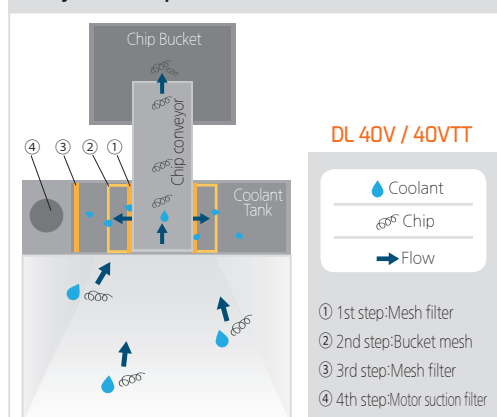
Rear side chip conveyor (OPT)



+ Easy Installation of Chip Conveyor

+ Chip conveyor is installed near chuck side, easy disposal and clean always

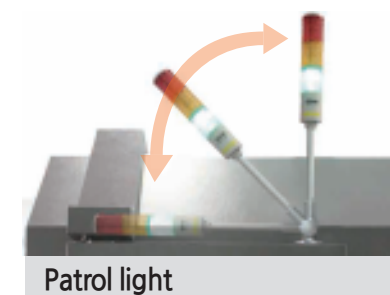
3 steps filter coolant tank Easy Clean-up & Prevent Coolant over flow



Spindle Load Meter Gauge

2step Chucking pressuresystem(OPT.)

+ 2 step High-low Chucking System



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

RS232C (Input/output interface)



+ USB port

Movable CNC panel (Opt.)



+ Convenient swiveling CNC panel (OPT)

Easy Clean-up Removable Coolant

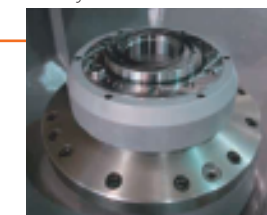


+ Big size tank
+ Drawer-type oil tank with wheels is detachable from the coolant tank for easy daily maintenance.

Coolant Tank Capacity	390ℓ (103.03gal) : DL 40V
	550ℓ (145.29gal) : DL 40VTT
	270ℓ (71.33gal) : DL 60V(L)/60V(L)M
	370ℓ (97.74gal) : DL 80V(L)/80V(L)M/100V/100VM
Hydraulic Tank Capacity	14ℓ (3.7gal) : DL 40V/DL 60V(L)/60V(L)M/100V/100VM
	60ℓ (15.85gal) : DL 40VTT
	66ℓ (17.44gal) : DL 80V(L)/80V(L)M

Spindle BRG Protect

+ Labyrinth



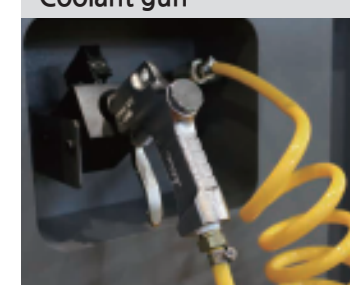
Protection cover

Option

Air gun



Coolant gun



Lubrication unit



+ DL 40/DL 60V/DL 80V : 3ℓ (0.79gal)
DL 100V : 4ℓ (1.06gal)

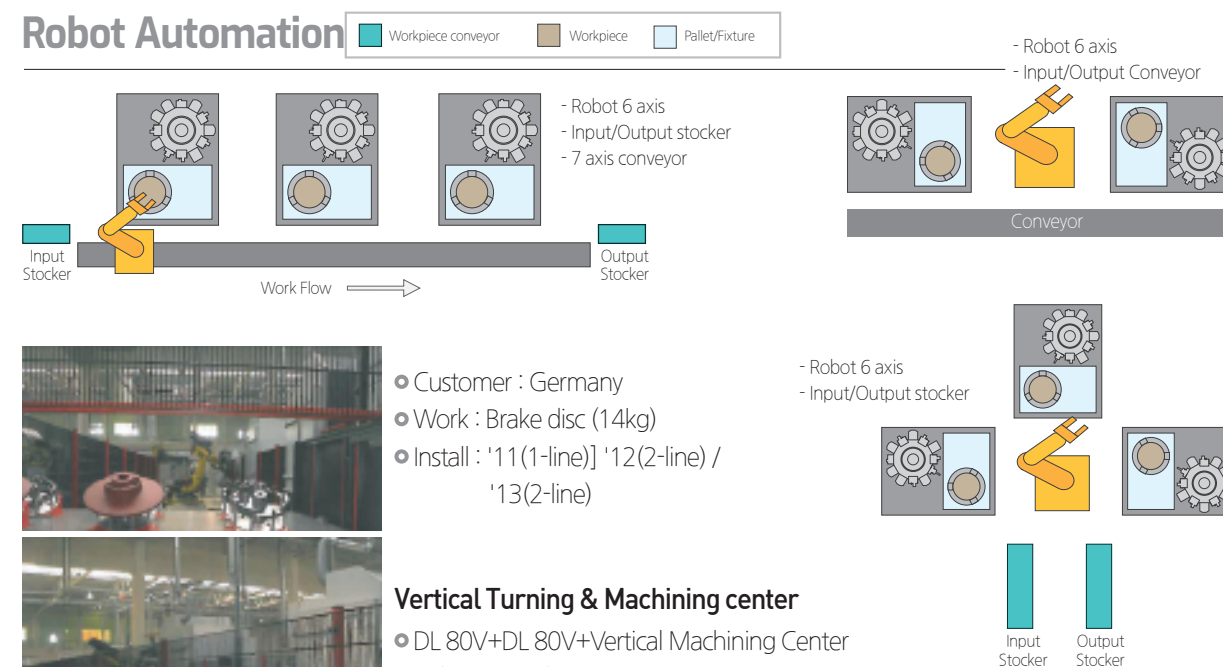
Automation & Option Examples

Front work loading system Automation

- Loader 3axis Servo, 1axis Hyd(Up/Down)
- Weight : 20kg
- in/out stocker
- Auto front door(Hyd.Up/Down)



Robot Automation



- Customer : Germany
- Work : Brake disc (14kg)
- Install : '11(1-line) '12(2-line) / '13(2-line)

Vertical Turning & Machining center

- DL 80V+DL 80V+Vertical Machining Center
- Robot & Double gripper
- Turn over & Stocker(IN-Out)

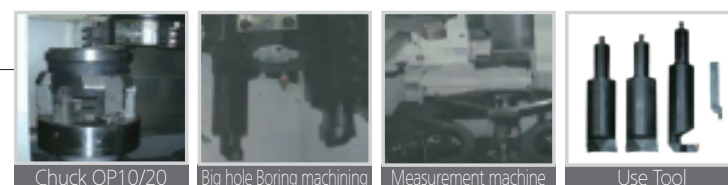
Aluminium Wheel Cutting



Disk Cutting



Drum Cutting(Model : DL 80V)



Option

A Variety of Easy Standard and Optional Parts

Standard Parts

Hydraulic Chuck with one set of Soft Jaw, soft jaw (1 SET, additional), Tool box with necessary operating tools, hydraulic Unit, Door interlocks, Work light, Leveling bolts & plates, Foot switch, Lubrication System, 3-color alarm lamp, Chuck open / close confirmation, RS232C+USB Port

Options



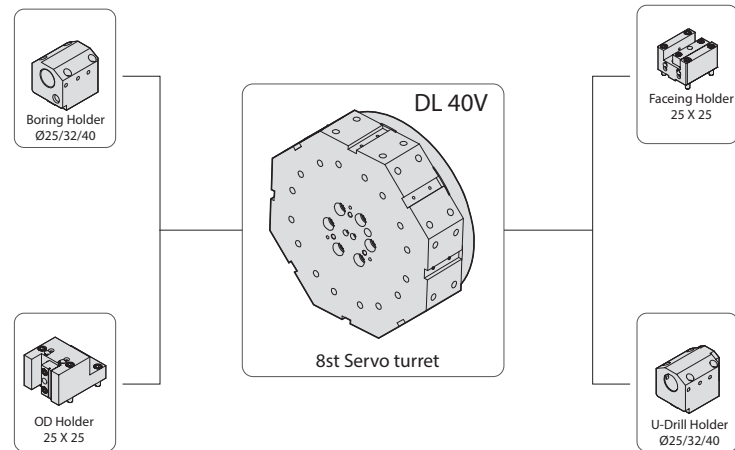
Various Soft Options

- I/O Expansion (16-contact, 32-contact)
- Power disconnection device
- M - code

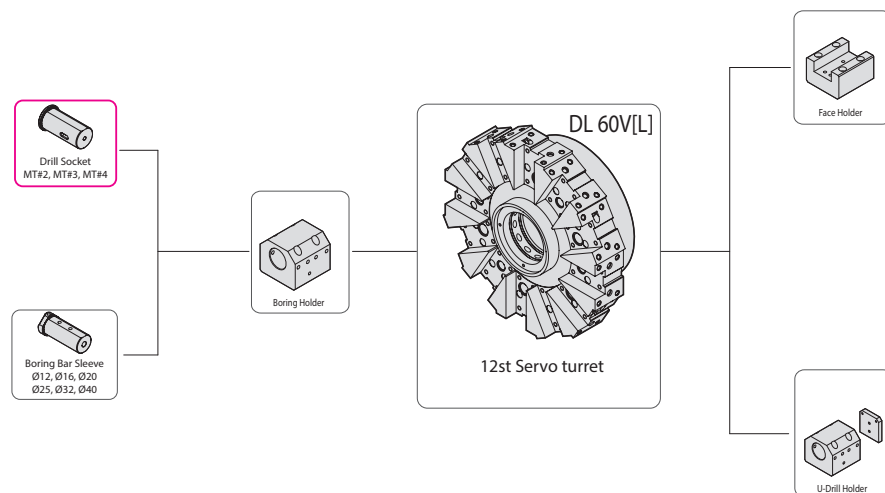
Tooling Diagram

□ : Option(Not-Supplied)

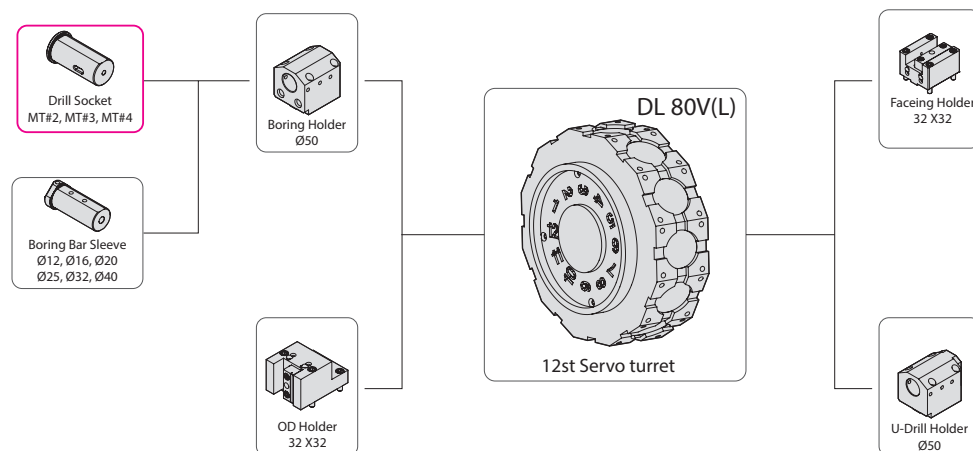
DL 40V/40VTT



DL 60V(L)



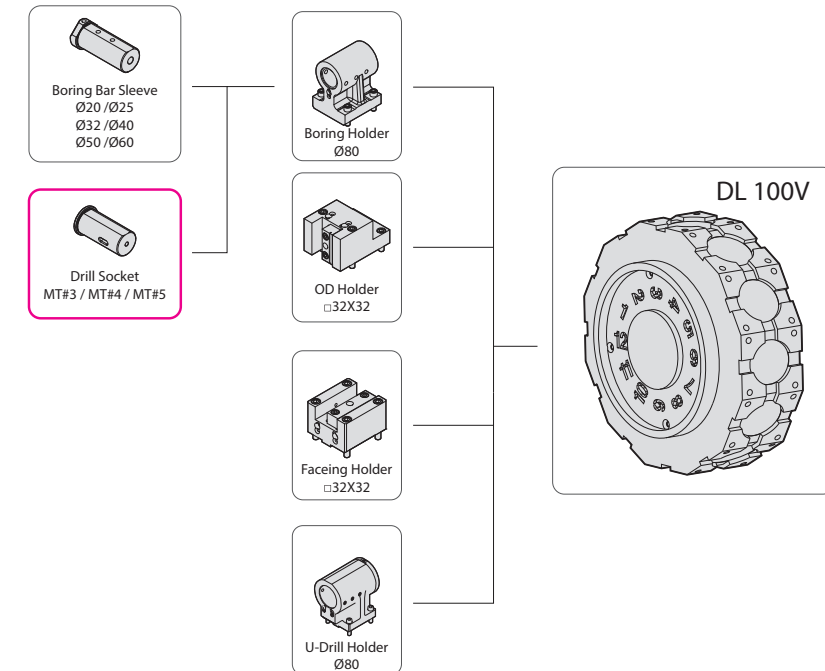
DL 80V(L)



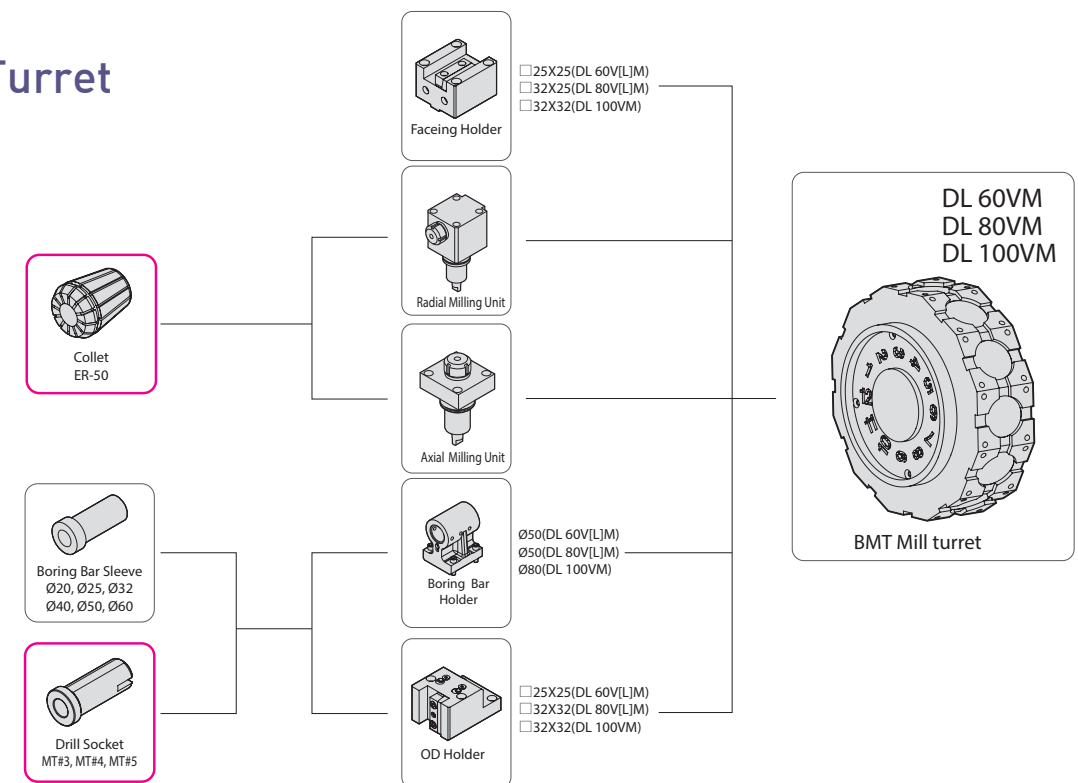
Tooling Diagram

□ : Option(Not-Supplied)

DL 100V

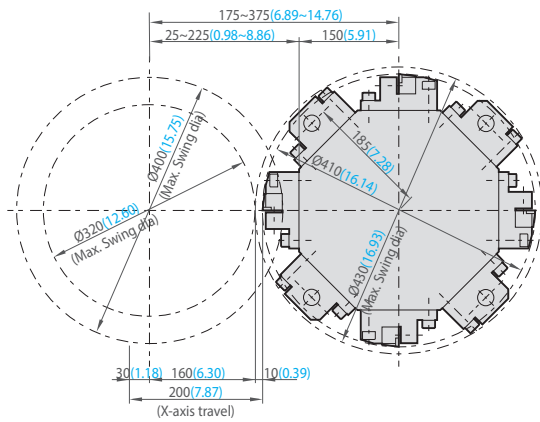


Mill Turret



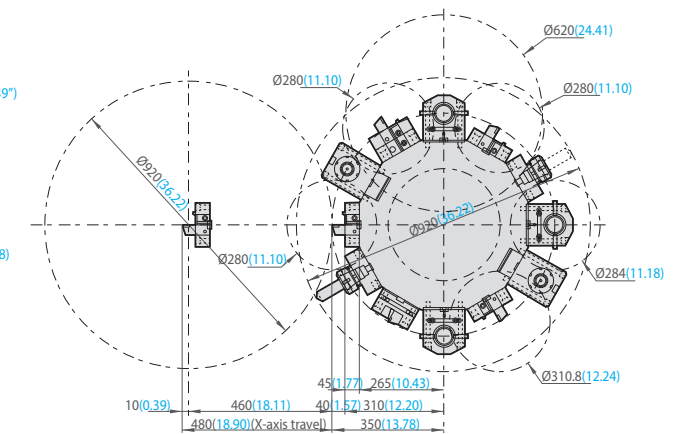
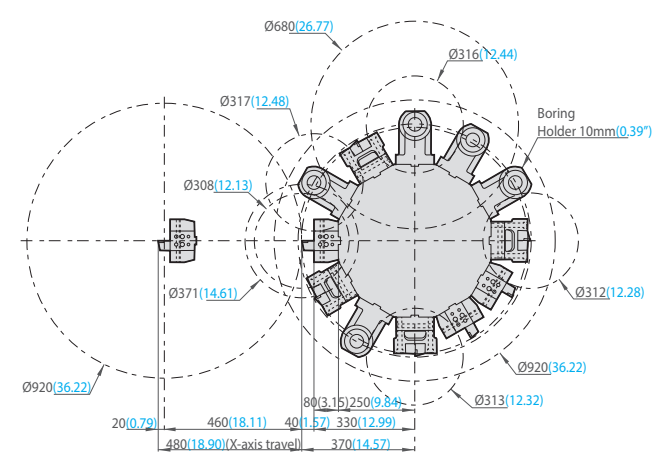
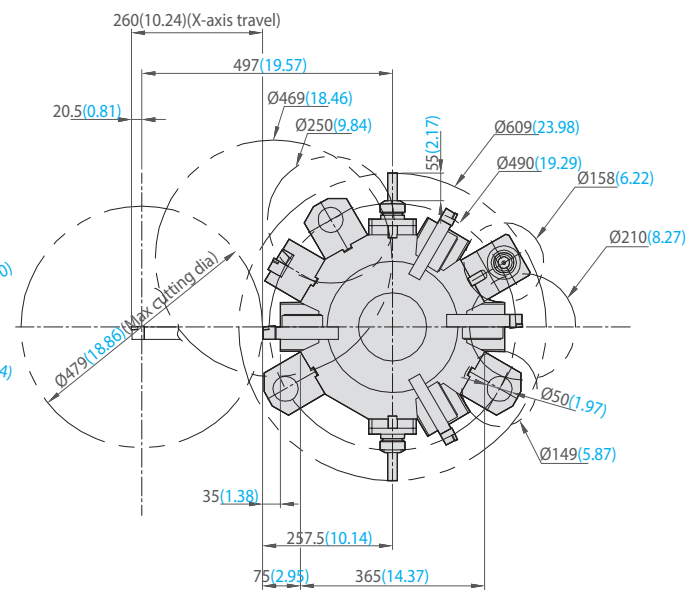
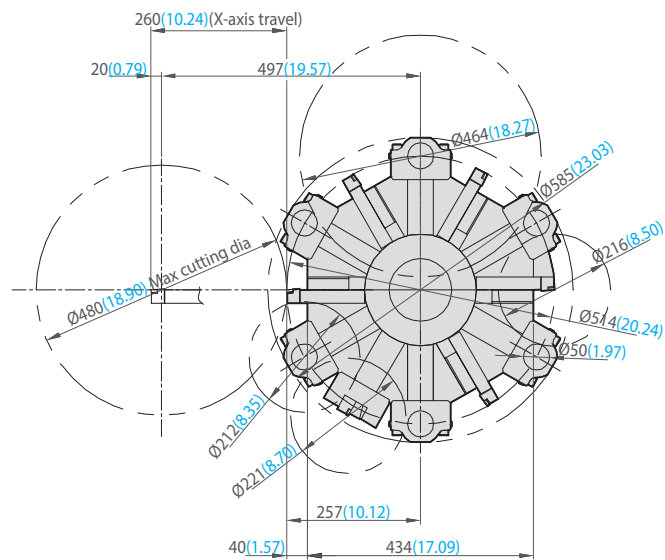
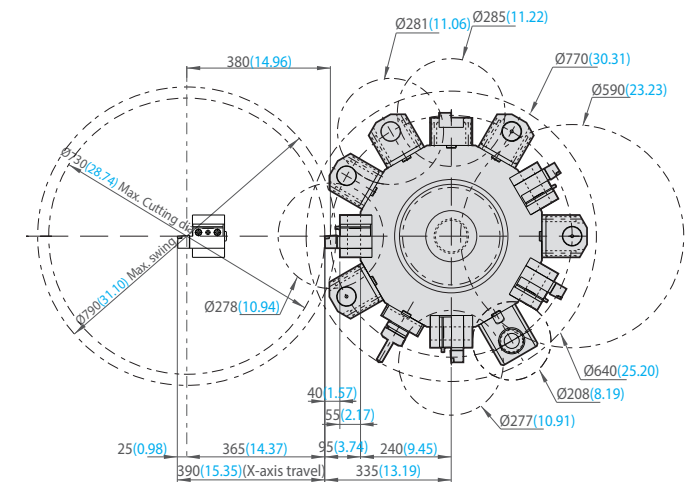
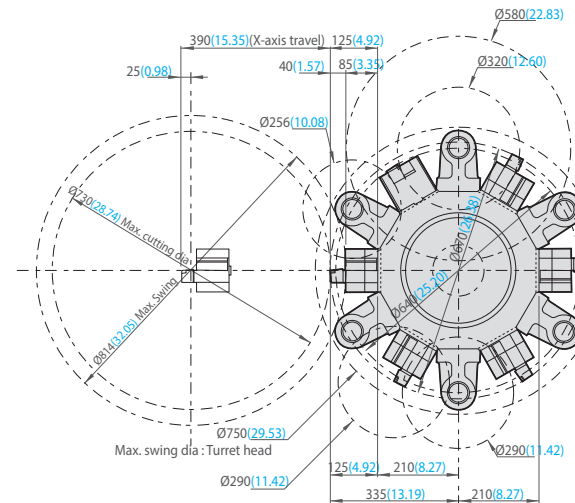
Tooling interference diagram

Unit : mm(inch)



Tooling interference diagram

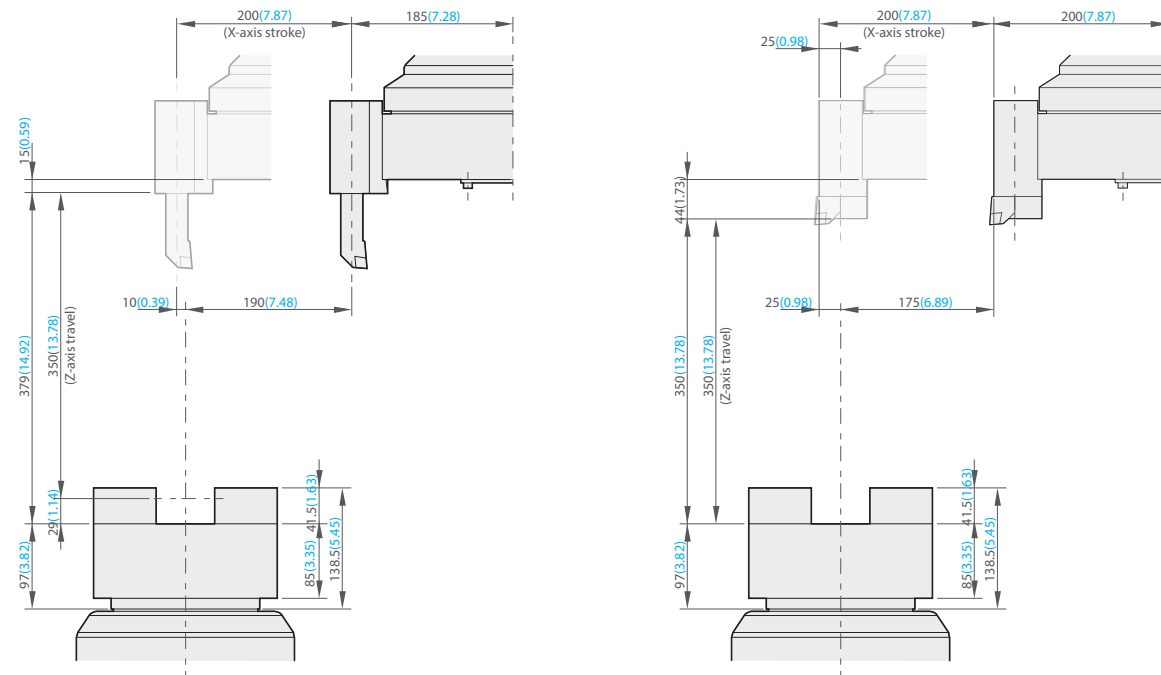
Unit : mm(inch)



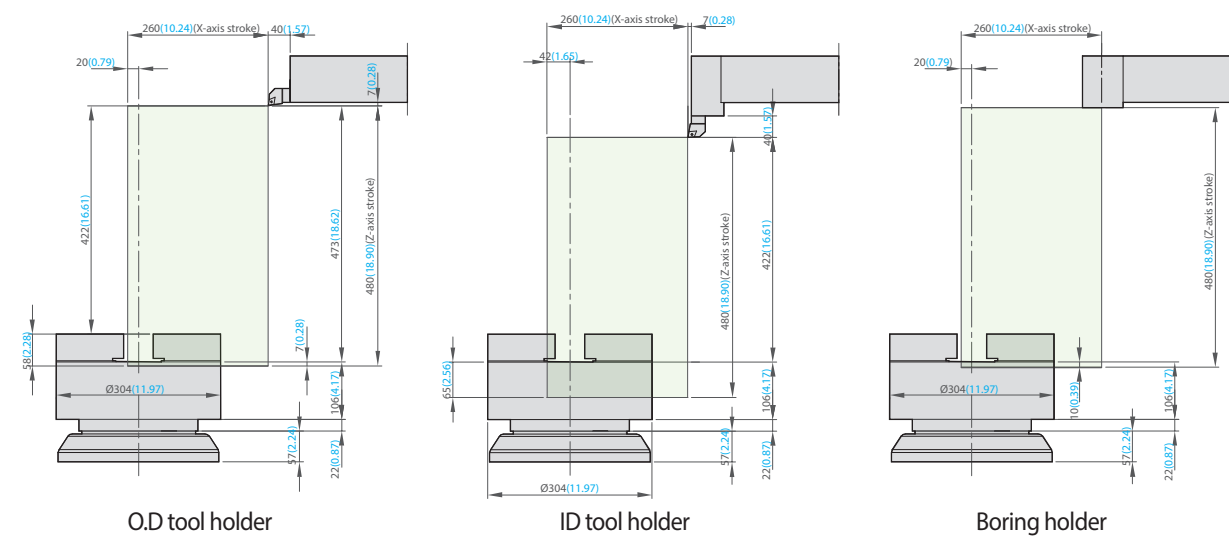
Working range

Unit : mm(inch)

DL 40V/40VTT



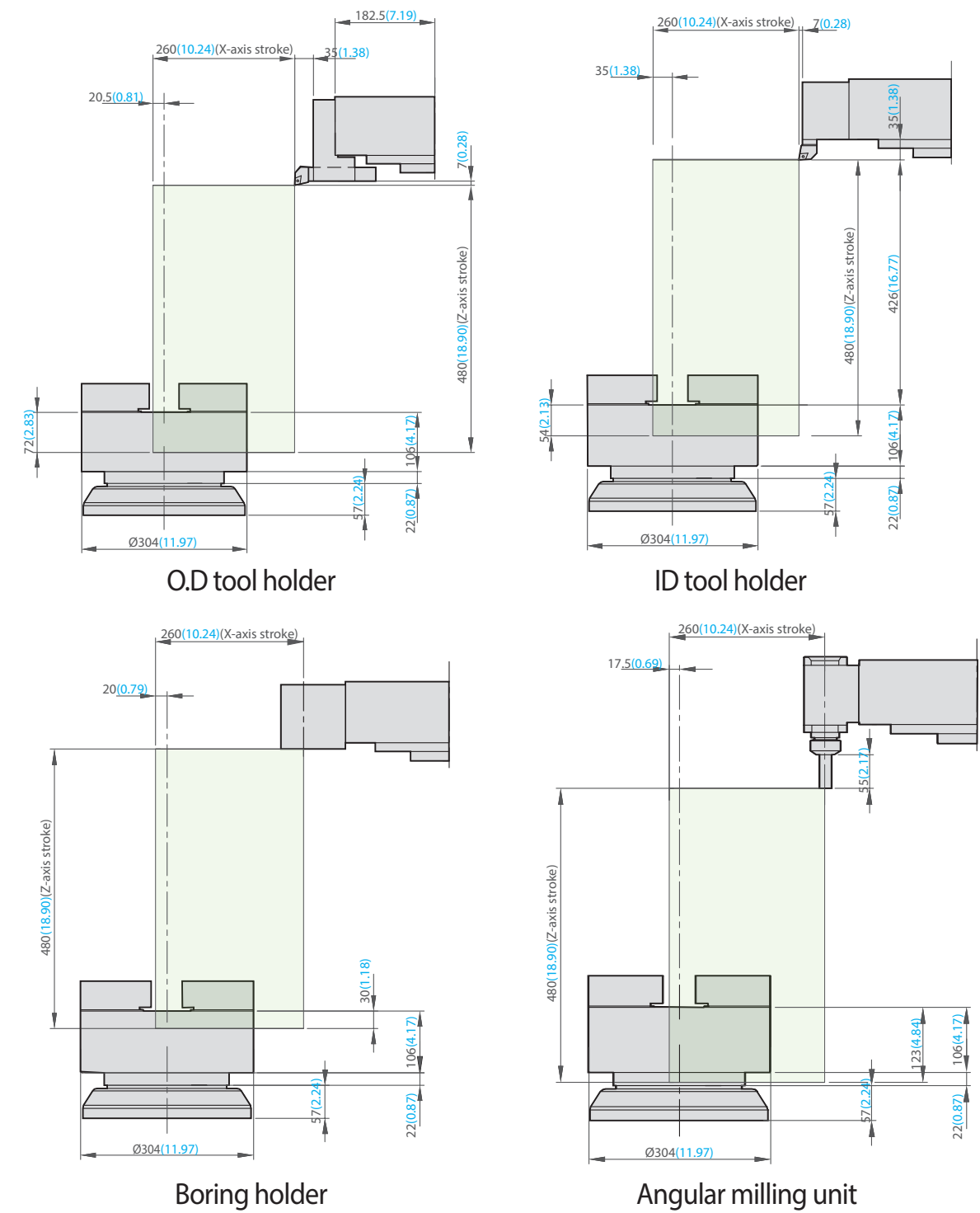
DL 60V[L]



Working range

Unit : mm(inch)

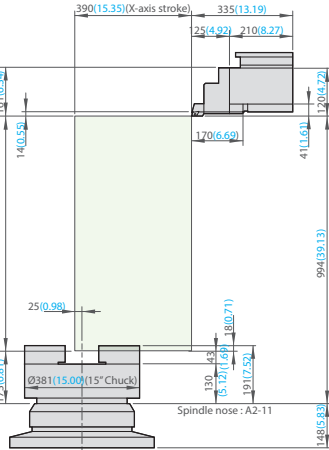
DL 60V[L]M



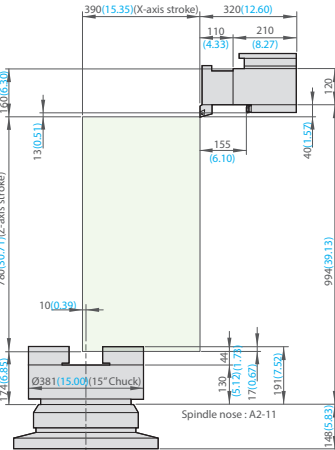
Working range

Unit : mm(inch)

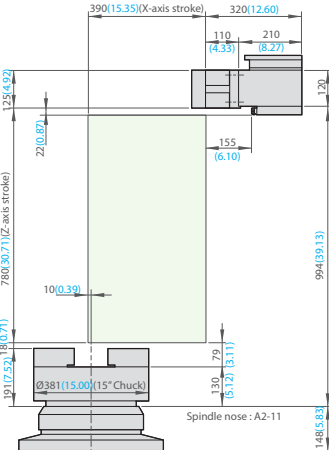
DL 80V[L]



O.D tool holder

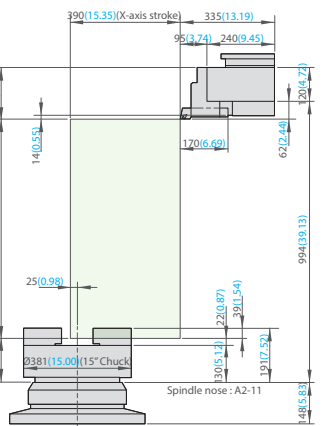


ID tool holde

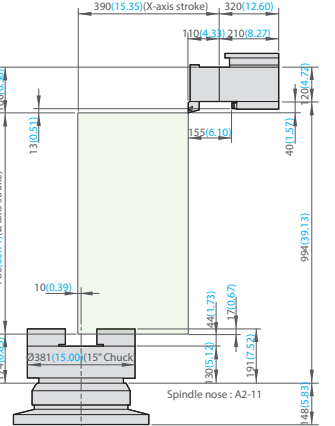


Boring holde

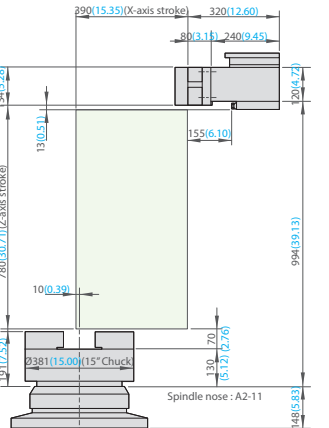
DL 80V[L]M



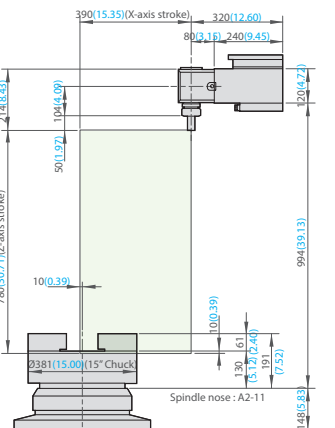
O.D tool holder



ID tool holde



Boring holder

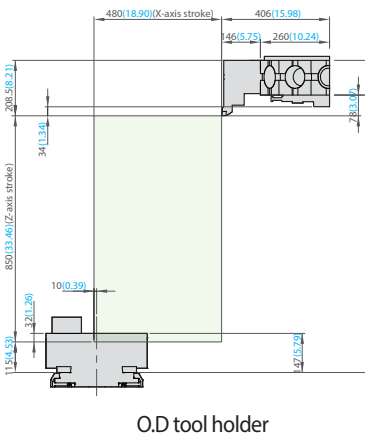


Angular driven holder

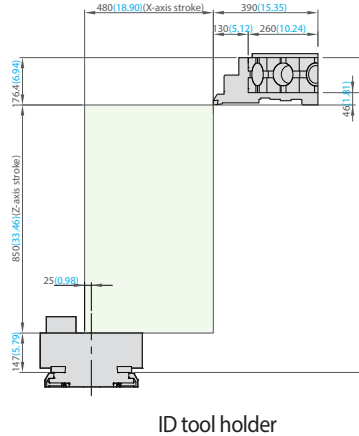
Working range

Unit : mm(inch)

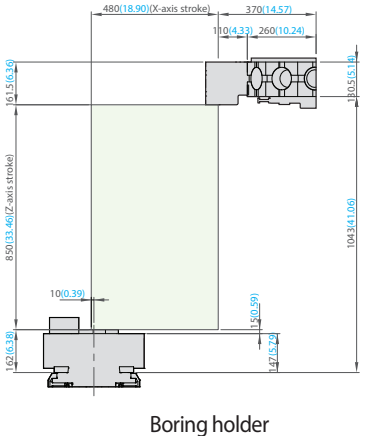
DL 100V



O.D tool hold

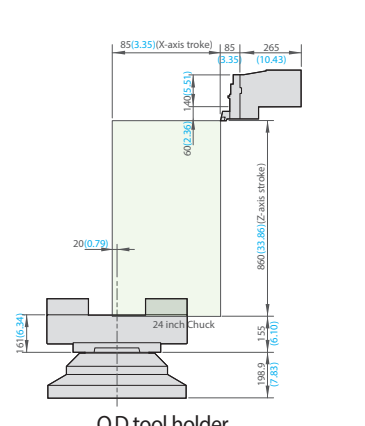


ID tool holde

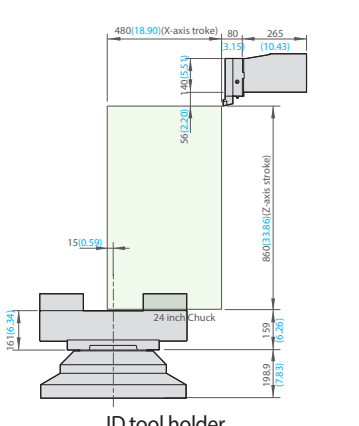


Boring holder

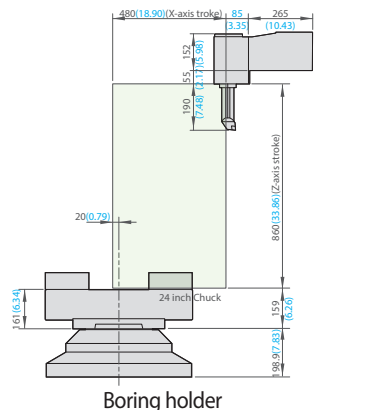
DL 100VM



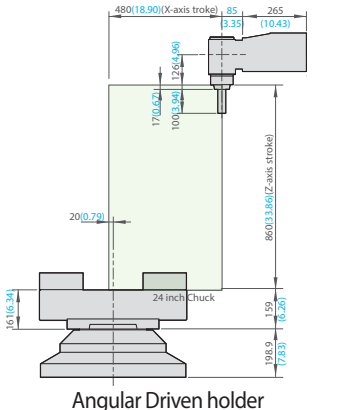
O.D tool holder



ID tool holder



Boring holde

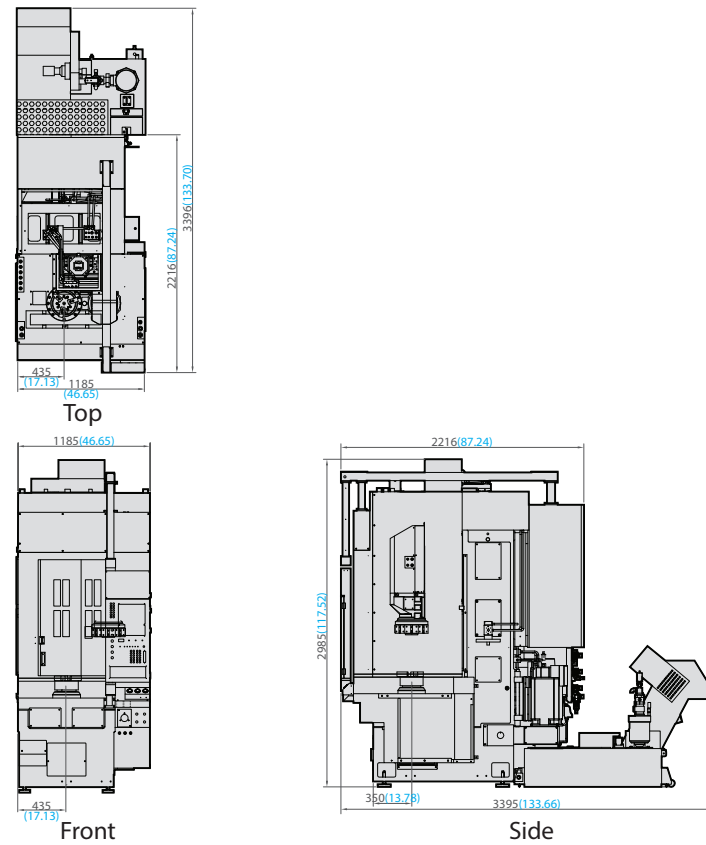


Angular Driven holder

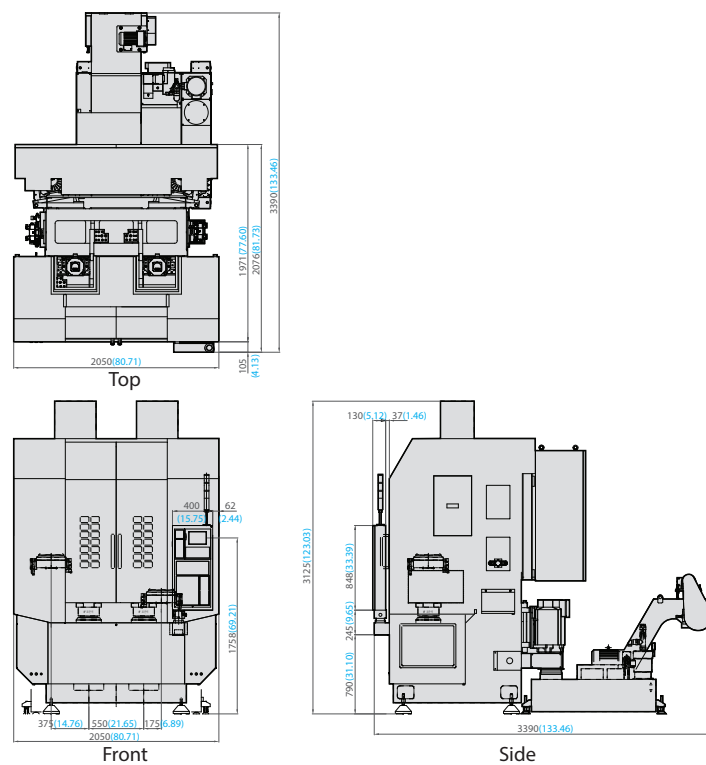
Machine Lay-Out

Unit : mm(inch)

DL 40V



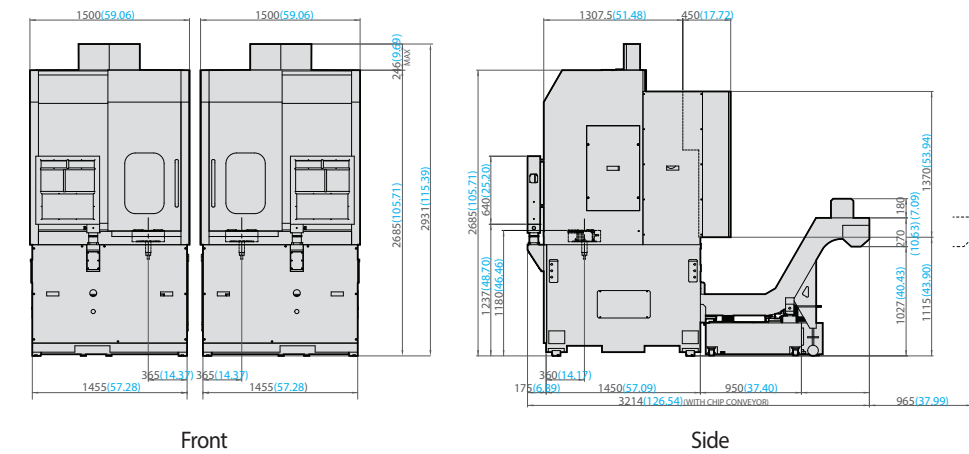
DL 40VTT



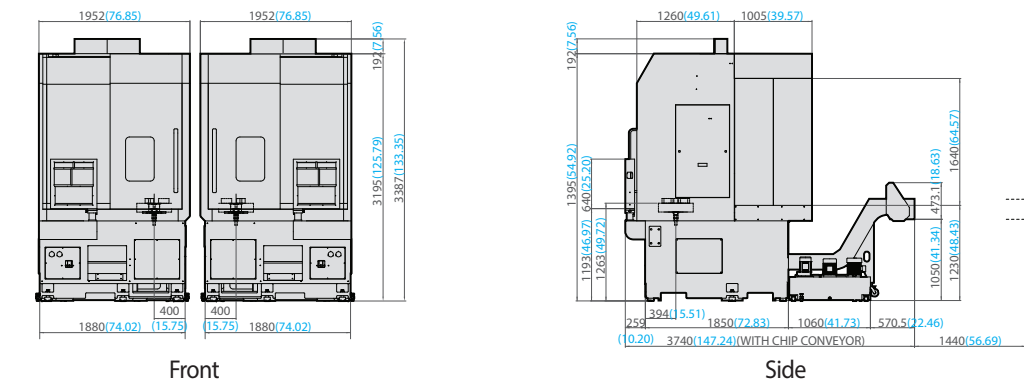
Machine Lay-Out

Unit : mm(inch)

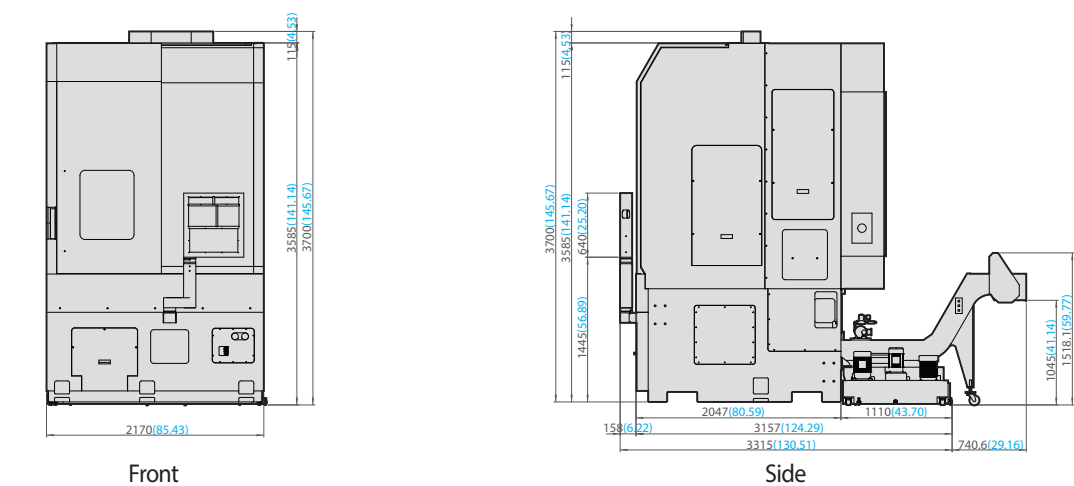
DL 60V(L)/60V(L)M



DL 80V(L)/80V(L)M



DL 100V/100VM



Machine Specifications

[] : Model, < > :Option

Specifications			DL 40V	DL 40VTT	DL 60V[L]	DL 60V[L]M
Capacity	Swing over Bed(Max. swing dia.)	mm(inch)	400(15.75)	400(15.75)	610(24.02)	610(24.02)
	Max. Turning Dia.	mm(inch)	320(12.60)	320(12.60)	450(17.72)	450(17.72)
	Max. Turning Length	mm(inch)	200(7.87)	200(7.87)	450(17.72)	450(17.72)
Spindle	Max. Spindle Speed	rpm	4,000	4,000	3,000	3,000
	Spindle Nose	-	A2-6	A2-6	A2-8	A2-8
	Spindle Bore diameter	mm(inch)	70(2.76)	70(2.76)	90(3.54)	90(3.54)
	Max. Spindle Torque	kgf·m(lbs·ft)	44(317)	44(317)	75(542)	75(542)
	Spindle Driven Method	-	Belt	Belt	Belt	Belt
	Chuck Size	inch	8<10>	8<10>	12<15,18>	12<15,18>
Motor	Main Spindle Motor(Cont./30min)	kw(hp)	11/15(15/20)	11/15(15/20)	18.5/22(25/30)	18.5/22(25/30)
	X axis Servo Motor	kw(hp)	3(4)	3(4)	3(4)	3(4)
	Z axis Servo Motor	kw(hp)	4(5)	4(5)	4(5)	4(5)
	Mill Spindle Motor(Cont./30min)	kw(hp)	-	-	-	2.2/3.7(3/5)
Travel	X axis travel	mm(inch)	200(7.87)	200(7.87)	260(10.24)	260(10.24)
	Z axis travel	mm(inch)	350(13.78)	350(13.78)	480(18.90)	480(18.90)
	Guideway Type(X/Z)	-	BOX Way	BOX Way	BOX Way	BOX Way
	X axis rapid traverse rate	m/min(ipm)	20(787)	20(787)	20(787)	20(787)
	Z axis rapid traverse rate	m/min(ipm)	16(630)	16(630)	20(787)	20(787)
Turret	Turret Index Type	-	Servo	Servo	Servo	Servo
	Max. No. of Tools	ea	8	8	12	12 / BMT 65
	Turning tool shank size	mm(inch)	25 (0.98)	25 (0.98)	25 (0.98)	25 (0.98)
	Boring bar diameter	mm(inch)	Ø32(1.26)	Ø32(1.26)	Ø50(1.97)	Ø50(1.97)
	Turret Indexing Time (1st swivel)	sec	0.2	0.2	0.2	0.2
Tank Capacity	Coolant Tank Capacity	ℓ(gal)	390(103.03)	550(145.29)	270(71.33)	270(71.33)
	Hydraulic Tank Capacity	ℓ(gal)	14(3.70)	60(15.85)	14(3.70)	14(3.70)
General	Machine Weight	kgf(lbs)	5,500(12,125)	8,500(18,739)	6,200(13,668)	6,350(13,999)
	Height	mm(inch)	3,125(123.03)	3,125(123.03)	2,700(106.30)	2,700(106.30)
	Floor Space	Length	mm(inch)	2,050(80.71)	1,500(59.06)	1,500(59.06)
		Width	mm(inch)	3,430(135.04)	2,780(109.45)	2,780(109.45)
	Power Capacity	kVA	32	57	57	41
	Controller	-	F0i-TF	F0i-TF	F0i-TF	F0i-TF

Machine Specifications

[] : Model, < > :Option

Specifications			DL 80V[L]	DL 80V[L]M	DL 100V	DL 100VM
Capacity	Swing over Bed(Max. swing dia.)	mm(inch)	800(31.50)	800(31.50)	1,000(39.37)	1,000(39.37)
	Max. Turning Dia.	mm(inch)	730(28.74)	730(28.74)	920(36.22)	920(36.22)
	Max. Turning Length	mm(inch)	750(29.53)	750(29.53)	850(33.46)	850(33.46)
Spindle	Max. Spindle Speed	rpm	2,000	2,000	1,800	1,800
	Spindle Nose	-	A2-11	A2-11	A2-15	A2-15
	Spindle Bore diameter	mm(inch)	104(4.09)	104(4.09)	108(4.25)	108(4.25)
	Max. Spindle Torque	kgf·m(lbs·ft)	152(1,099)	152(1,099)	347(2,510)	347(2,510)
	Spindle Driven Method	-	Belt	Belt	Belt	Belt
	Chuck Size	inch	15<18,21,24>	15<18,21,24>	21<24>	21<24>
Motor	Main Spindle Motor(Cont./30min)	kw(hp)	22/30(30/40)	22/30(30/40)	37/45(50/60)	37/45(50/60)
	X axis Servo Motor	kw(hp)	3(4)	3(4)	4(5)	4(5)
	Z axis Servo Motor	kw(hp)	4(5)	4(5)	7(9)	7(9)
	Mill Spindle Motor(Cont./30min)	kw(hp)	-	2.2/3.7(3/5)	-	7.5/11(10/15)
Travel	X axis travel	mm(inch)	390(15.35)	390(15.35)	480(18.90)	480(18.90)
	Z axis travel	mm(inch)	780(30.71)	780(30.71)	860(33.86)	860(33.86)
	Guideway Type(X/Z)	-	BOX Way	BOX Way	BOX Way	BOX Way
	X axis rapid traverse rate	m/min(ipm)	20(787)	20(787)	20(787)	20(787)
	Z axis rapid traverse rate	m/min(ipm)	20(787)	20(787)	20(787)	20(787)
Turret	Turret Index Type	-	Servo	Servo	Servo	Servo
	Max. No. of Tools	ea	12	12 / BMT 75	12	12 / BMT 85
	Turning tool shank size	mm(inch)	32 (1.26)	32 (1.26)	32 (1.26)	32 (1.26)
	Boring bar diameter	mm(inch)	Ø50(1.97)	Ø50(1.97)	Ø80(3.15)	Ø80(3.15)
	Turret Indexing Time (1st swivel)	sec	0.2	0.2	0.3	0.3
Tank Capacity	Coolant Tank Capacity	ℓ(gal)	370(97.74)	370(97.74)	370(97.74)	370(97.74)
	Hydraulic Tank Capacity	ℓ(gal)	66(17.44)	66(17.44)	14(3.70)	14(3.70)
General	Machine Weight	kgf(lbs)	9,800(21,605)	9,950(21,936)	15,000(33,069)	15,000(33,069)
	Height	mm(inch)	3,390(133.46)	3,390(133.46)	3,740(147.24)	3,740(147.24)
	Floor Space	Length	mm(inch)	1,950(76.77)	2,170(85.43)	2,170(85.43)
		Width	mm(inch)	3,170(124.80)	3,275(128.94)	3,275(128.94)
	Power Capacity	kVA	47	50	69	79
	Controller	-	F0i-TF	F0i-TF	F0i-TF	F0i-TF

NC Specifications (FANUC FOi-TF)

	Item	Specification	Optional
Controls	Controlled axes	Std. 2axes	X, Z, C (!)
	Simultaneously control axes expansion(Total)	0.001mm/0.0001"	3 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		
Operation	Automatic operation(memory)		
	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 contour control 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)	

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

	Item	Specification	Optional
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		
	Chamfering / corner R		
	Programmable data input	G10	
	Sub program call	Nested holds	10
	Custom macro Del.		
	Simple canned cycle	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		512 kb
	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		
	Servo setting screen		
	Spindle setting screen		
	Multi language display		
Data input & output	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 option board	OPT
Other functions	MDI / DISPLAY unit		10.4" (DL40V : 8.4")
	PMC system		
	Ethernet function	Embedded ethernet function	