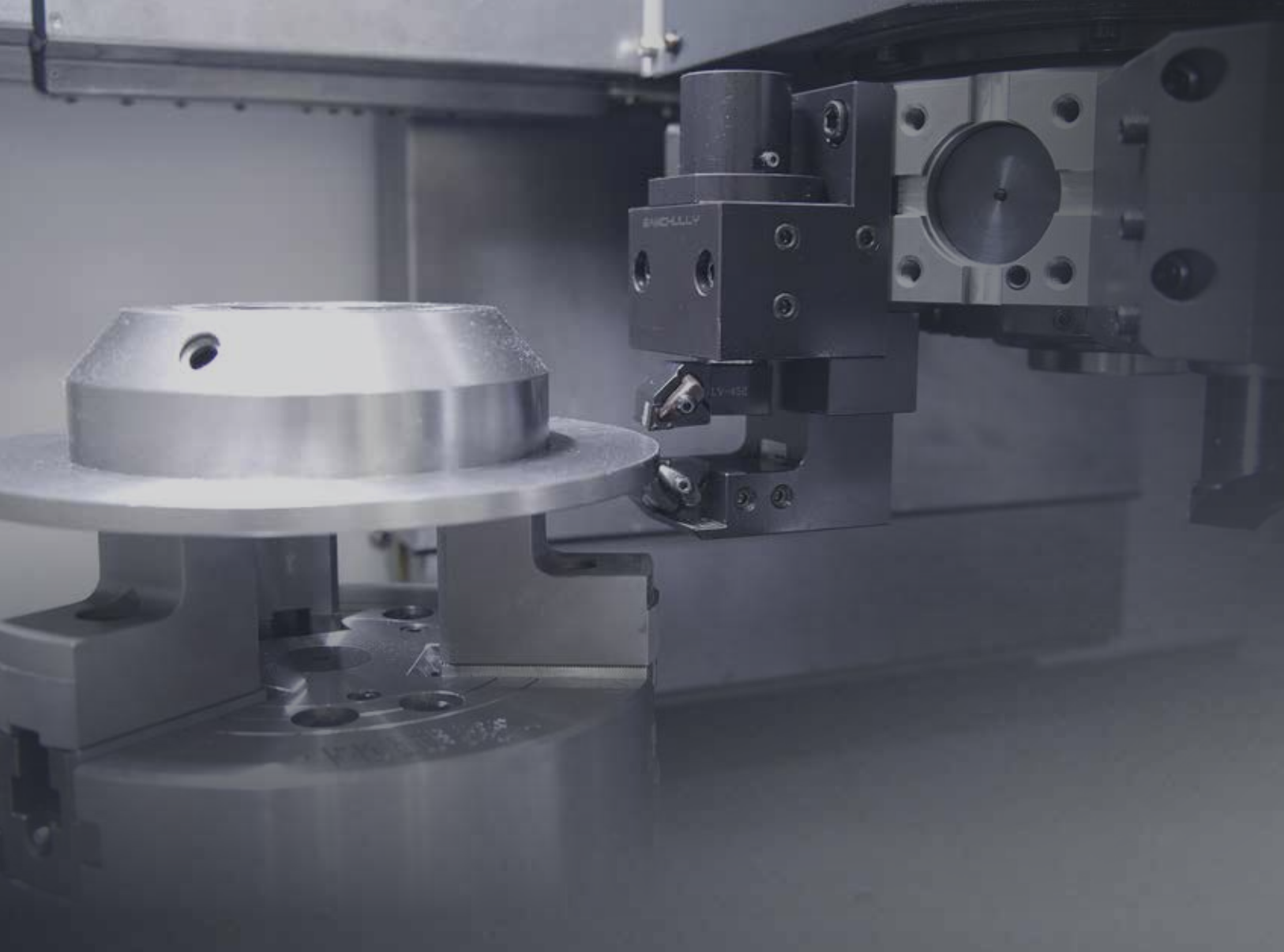
LV 500/1100 Series

Flexible, Productive Automation System Vertical Turning Center

WIA Machine Tools Vertical Turning Center

WIA MACHINE TOOLS



Technical Leader

Flexible, Productive Automation System Vertical Turning Center

The CNC Turning Center LV500/1100 Series, designed by WIA machine tools with years of expertise and the latest technology, is designed to maximize productivity by high speed and accurate performance.

		LV500 Series	LV1100 Series
Max. Turning Dia.	mm(in)	Ø550 (21.7″)	Ø1,160 (45.7″)
Max. Turning Length	mm(in)	600 (23.6″)	1,000 (39.4″)
Chuck Size	inch	15″ [18″]	32″ [40″]
Spindle Speed	r/min	2,000	800 [630] [800]
Spindle Motor (10min./30min./Cont.)	kW(HP)	26/18.5 (35/25) [30/22 (40/30)] [30/22 (40/30)]	65/55/45 (87/74/60) [68/58/39 (91/78/52)]
Travel (X/Z)	mm(in)	325/625 (12.8″/24.6″)	620/1,000 (24.4″/39.4″)
No. of Tools	EA	8 [12], BMT : 12	12

[ ] : Option ■ : SIEMENS

LV 500/1100 Series

Automation System Vertical Turning Center

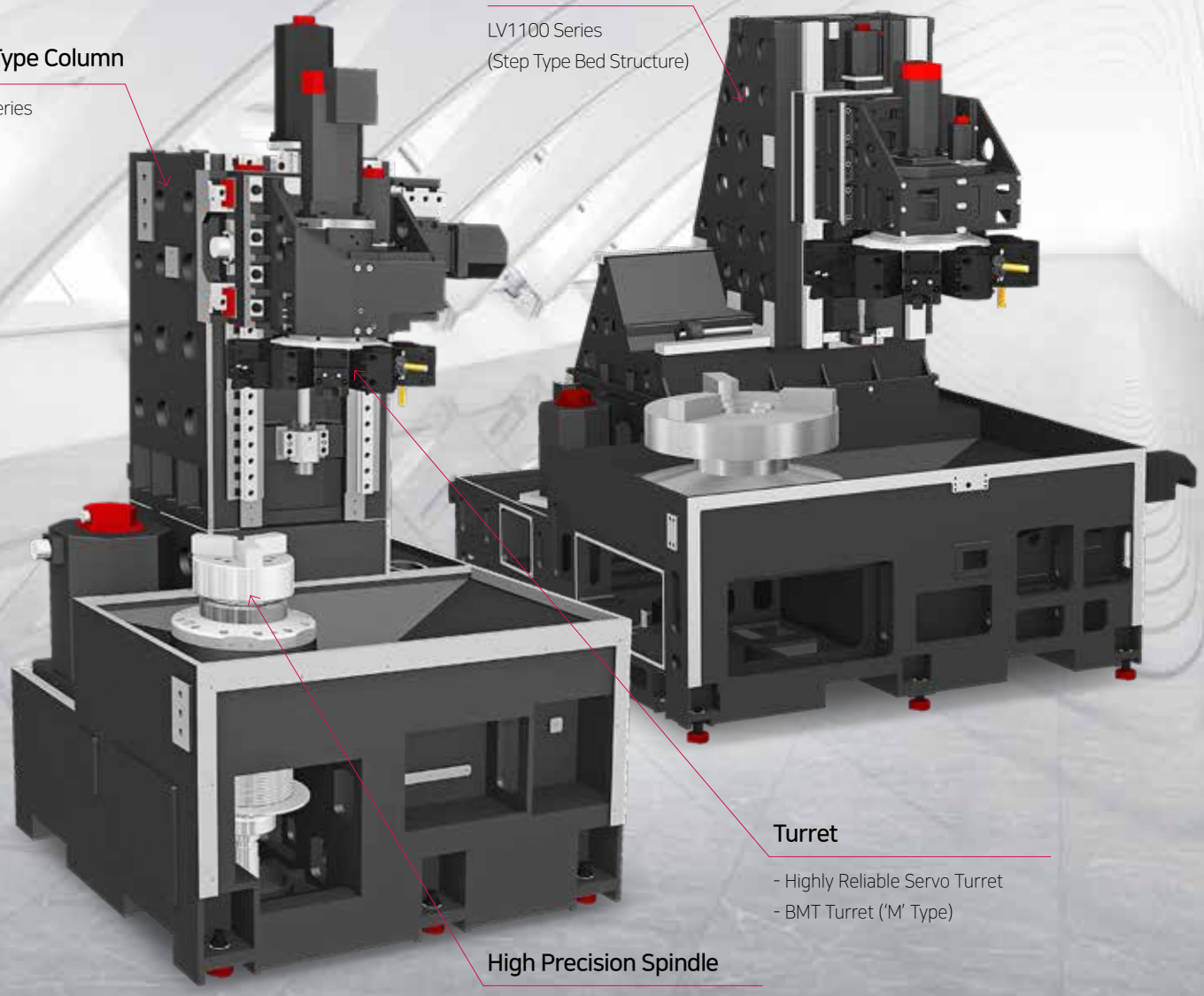
- Stable spindle structure with excellent heavy duty cutting ability
- 2 step chuck pressure mechanism adopted to minimize workpiece deformation
- Various peripheral equipment can be used for optimized machining
- Designed for optimal chip disposal
- "Right" and "Left" structure for practical automation construction (LV500 Series)





01 BASIC **STRUCTURE**

High Productivity, State-of-the-art Vertical CNC Turning Center



Moving Column

LV1100 Series
(Step Type Bed Structure)

Fixed Type Column

LV500 Series

Turret

- Highly Reliable Servo Turret
- BMT Turret ('M' Type)

High Precision Spindle

- 2 Step Pressure Chucking Device
- Various Spindle Configurations by Model
- C-Axis Control : 0.001° ('M' Type)

STRUCTURE FOR HEAVY CUTTING & HIGH PRECISION

HIGH-PRECISION STRUCTURE

Right and Left Machine Structure

The LV500 Series consists of Left and Right machine configuration, allowing for more efficient automation options. (Except LV1100)

Front Operation Structure

The power supply, hydraulic device and lubrication device are all designed to be controlled on the front side of the machine , leading to enhanced user convenience.



COLUMN

Fixed Type Column (LV500 Series)

The LV500 Series is designed with a fixed column to minimize vibration during axial movements.

Moving Colum (LV1100 Series)

The LV1100 Series Features a traveling column to maintain superior accuracy when turning larger work pieces.

Step Type Bed Structure

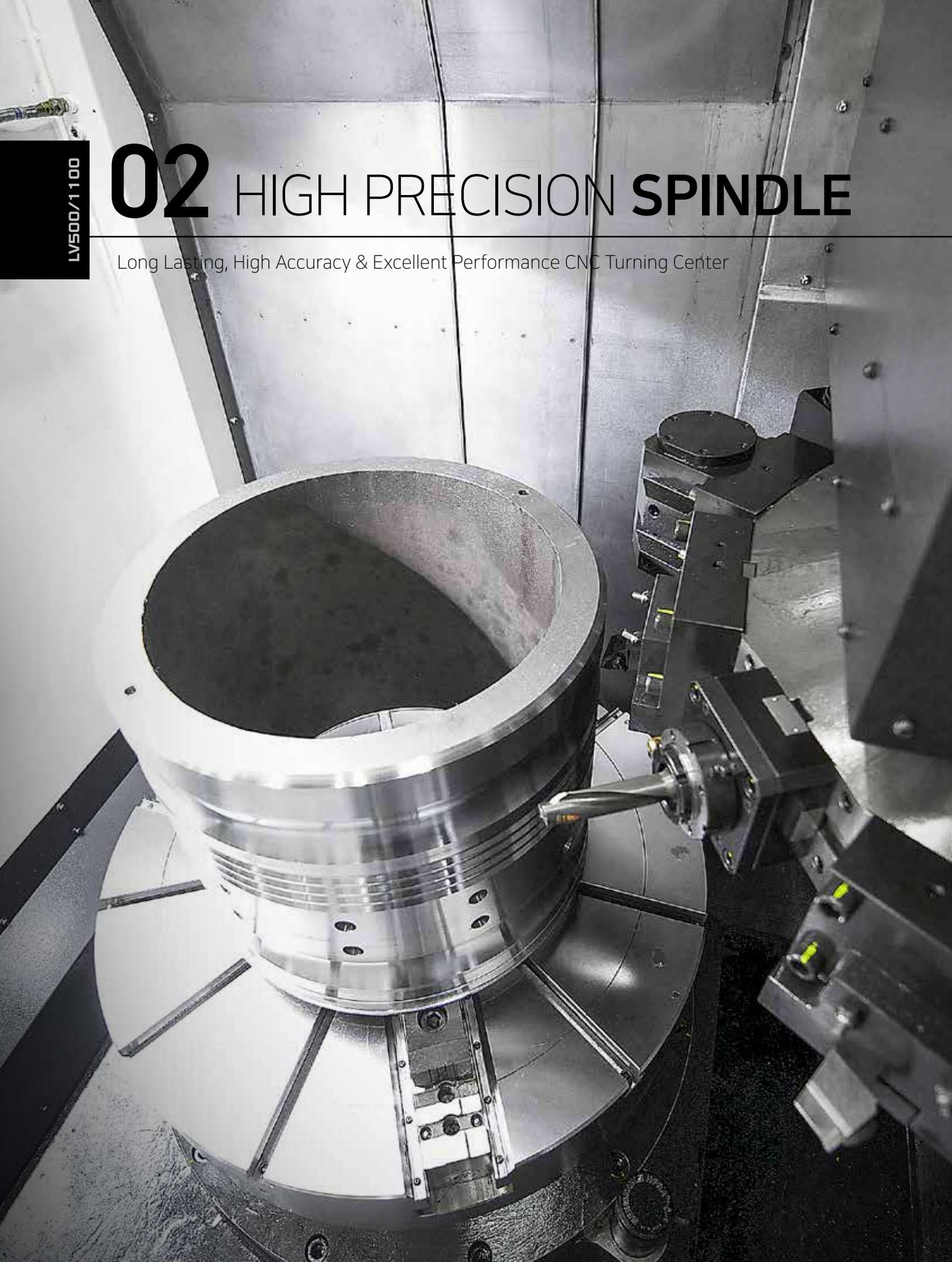
For the LV1100 Series, the column feed unit of the bed is designed to form steps, so that the load generated in the front during machining operations may be minimized. Also, by optimizing the weight of the column, feed stability is enhanced.

Guideway

ITEM	LV500 Series	LV1100 Series
Slide Type	LM Guide	Box Guide
Travel (X/Z)	325/625 mm (12.8"/24.6")	620/1,000 mm (24.4"/39.4")
Rapid Traverse Rate (X/Z)	20/18 m/min	24/24 m/min

02 HIGH PRECISION **SPINDLE**

Long Lasting, High Accuracy & Excellent Performance CNC Turning Center



HEAVY DUTY CUTTING & HIGH ACCURACY

SPINDLE



Spindle for Heavy Cutting

The use of both cylindrical roller bearings and angular contact bearings provide high speed and rigidity. This enables machining of heavy workpieces.
Also, LV1100 Series is with a gear box spindle, which provides high torque at low rpm and stability at high rpm.

C-Axis Control ('M' Type)

The C-axis is capable of 0.001° control when milling turret is applied. Machining capability is strengthened with turning and milling operations.

2 Step Pressure Chucking Device	The 2 step pressure chucking system enables high pressure chucking during rough cutting and low pressure chucking during precision cutting.

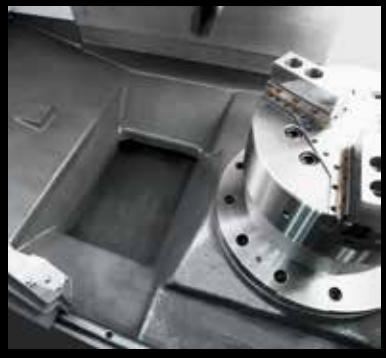
Spindle Specifications

[ ] : Option ■ : SIEMENS

Model	Spindle Speed	Motor (Max./Cont.)	Torque (Max./Cont.)	Type
LV500 Series	**2,000** r/min	**26/18.5** kW (35/25 HP)	**975/693** N·m (719.1/511.1 lbft·ft)]	Belt
	[**2,000** r/min]	[**30/22** kW (40/30 HP)]	[**1,124/824** N·m (829/607.8 lbft·ft)]]	
	[**2,000** r/min]	[**30/22** kW (40/30 HP)]	[**1,619/1,188** N·m (1,194.1/876.2 lbft·ft)]]	
LV1100 Series	**800 [630]** r/min	**65/45** kW (87/60 HP)	**7,671/5,310** N·m (5,657.8/3,916.5 lbft·ft)]	Gear Box
	[S : **800** r/min]	[**68/39** kW (91/52 HP)]	[**9,228/5,293** N·m (6,806.2/3,916.5 lbft·ft)]]	

CHIP INFLUX PROTECTION

The LV Series is incorporated with a protection device to keep chips and other foreign materials from entering the main spindle, ensuring long term high precision performance.



Chute Structure

The sloped bed design improves chip flow and disposal of cutting fluids minimizing thermal displacement.

03 SERVO TURRET

High speed, High Accuracy, Highly Reliable Servo Turret



Servo Turret

[ ] : Option ■ : SIEMENS

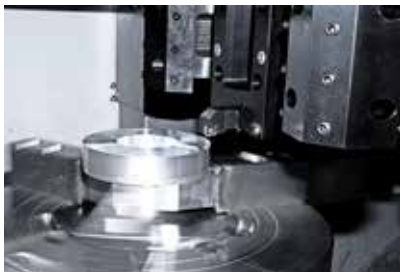
Model	No. of Tools	Tool Size (O.D/i.D)	Indexing Time
LV500R/L	8 [12] EA	□32/Ø50 mm (□1.3″/Ø2″)	0.2 sec
LV500RM/LM	12 EA		
LV1100 Series	12 EA	□32/Ø80 mm (□1.3″/Ø3.1″)	0.6 sec

Mill Turret

Model	Speed	Motor (Max./Cont)	Torque (Max./Cont)	Type
LV500 Series	3,000 r/min	3.7/2.2 kW (5/3 HP)	58.9/35 N·m (43.4/25.8 lbft·ft)	BMT75
LV1100 Series	3,000 r/min	11/7.5 kW (15/10 HP)	140/95.4 N·m (103.3/70.4 lbft·ft)	BMT85
	[S : 3,000 r/min]	[10.5/7 kW (14.1/9.4 HP)]	[100/67 N·m (73.8/49.4 lbft·ft)]	

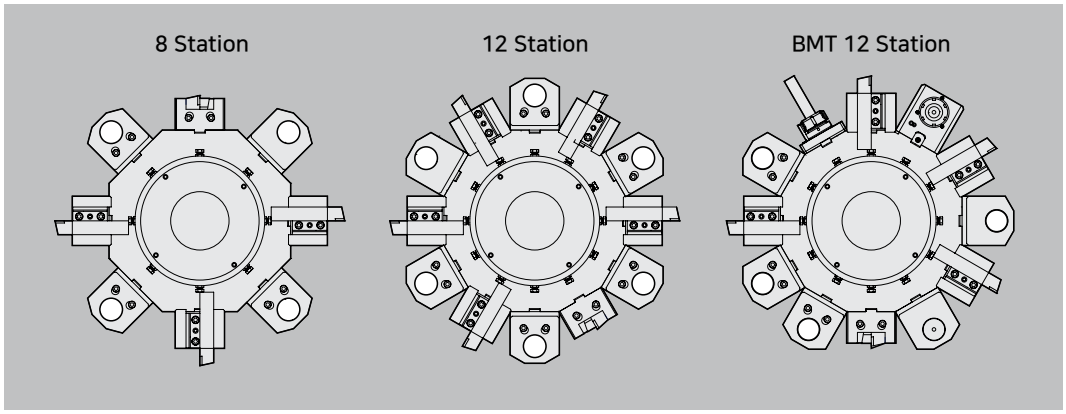
VARIOUS DRIVEN PRECISION BMT TOOL HOLDERS

SERVO TURRET



Servo Turret

The LV500/1100 Series' machining reliability is enhanced by incorporating a high performance AC servo motor to the turret drive mechanism. Also, the turrets are installed with 3 piece couplings to improve indexing accuracy. Powerful hydraulic tool clamping exhibits great heavy duty machining performance by minimizing tool tip deviation due to work load.



MILL TURRET



BMT Turret ('M' Type)

The BMT turret secures the tool with four bolts and key on the tool mounting surface of the turret, making it possible to powerfully fix the tool, ensuring high reliability in rigidity and precision.

STRAIGHT MILLING HEAD	ANGULAR MILLING HEAD
	

Mill Tool Holder

Machining capability has increased with the addition of straight milling head tool holder, which can machine workpieces from the side, and angular milling head tool holder, which can perform I.D. operations.

04 FANUC - SMART PLUS

The Compatible All-round Control



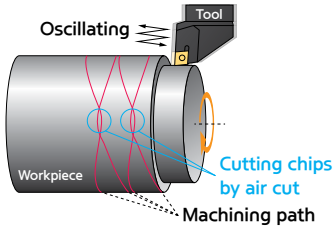
15″ Touch-type Monitor as a standard

Smart Machine Control	Fast Cycle Time Technology
	Fine Surface Technology
	Smart Servo Control Technology
Conversational Program	SmartGuide-i
i-HMI	Machining-aid Function
Part Program Storage	5120M (2MB)
No. of Registerable Programs	1000 EA



Servo Learning Oscilliation Function for Chip Breaking OPTION

- Machining Method : he tool cuts the workpiece moving in a zigzag pattern. (Oscillating) → Air cut section occurs → Long chips break
- Advantage : Increase tool life, Enhance surface finishing, Improve chip disposal
- Machine : All turning centers with FANUC controller (Option)





(Developed special screen page for servo learning oscilliation function / Even when this function is applied, the cycle time remains same.)

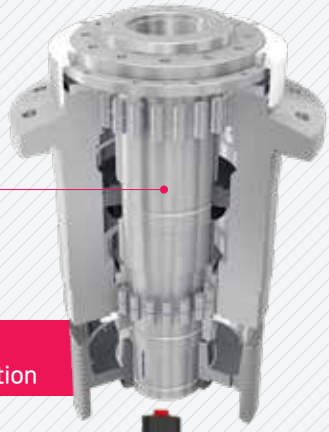
8Ch. Thermal displacement compensation OPTION



Control Software

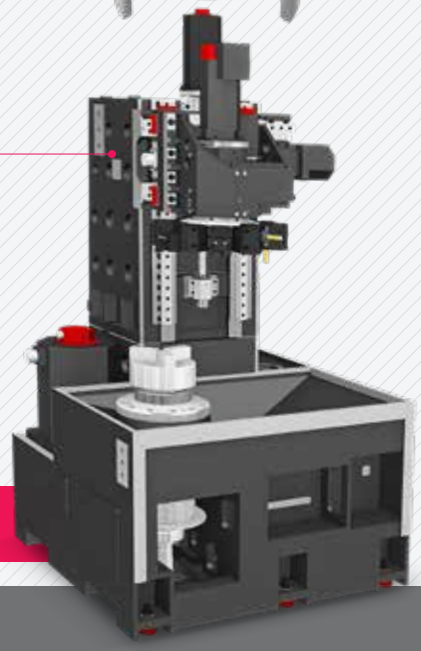
Thermal Sensor

Spindle thermal displacement error correction



Thermal Sensor

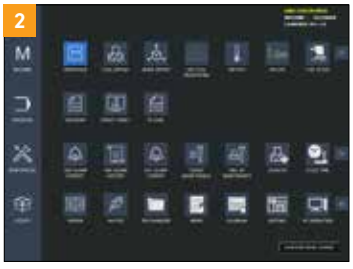
Structure thermal displacement error correction



Machine tools generate thermal displacement due to heat during machining.
WIA machine tools detect thermal changes through thermal sensors installed on the main thermal sources of the machine.
In addition, a thermal displacement compensation device that predicts the amount of thermal displacement according to the amount of thermal change and provides a command to the motor with a compensated value to maintain consistent precision is provided as an option.

SMART CNC (FANUC Smart Plus)





1. Dialogue Program (Smart Guide-i)
This software offers the maximum user convenience through dialogue manipulation from setup to processing. This includes writing processing programs and simulation checks.

2. LAUNCHER
This software offers shortcuts for quick access to specialized features and frequently used features.

SPECIFICATIONS

Standard & Optional

● : Standard ○ : Option ☆ : Prior Consultation - : Non Applicable

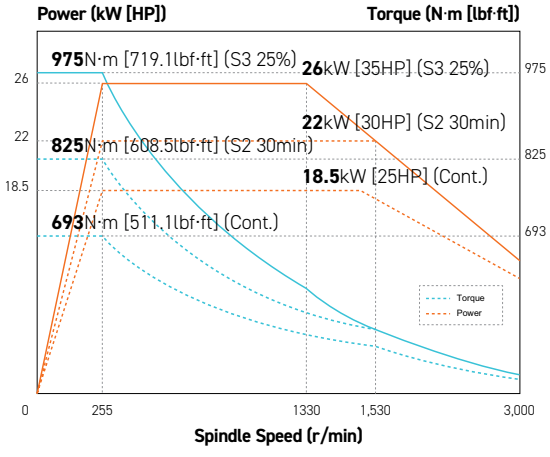
Spindle		LV500 Series	LV1100 Series
Main Spindle Hollow Chuck 3 Jaw		-	-
Main Spindl Solid Chuck 3 Jaw	12″	-	-
	15″	●	-
	18″	○	-
	32″	-	●
	40″	-	○
Standard Soft Jaw (1set)		●	●
Chuck Clamp Foot Switch		●	●
2 Steps Hyd, Pressure Device		●	●
Spindle Inside Stopper		-	-
5" Index		☆	☆
Cs-Axis (0.001°)		- (M : ●)	- (M : ●)
2 Steps Chuck Foot Switch		○	○
Chuck Open/Close Confirmation Device		○(CE : ●)	○(CE : ●)
High Power Main Spindle	30/22kW (40.2/29.5 HP)	○	-
Turret			
Tool Holder		●	●
8 station Turret		●	-
12 station Turret		○	●
Mill Turret	BMT	- (M : ●)	- (M : ●)
Straight Milling Head	Collet Type,1ea	- (M : ●)	- (M : ●)
Angular Milling Head	Collet Type,1ea	- (M : ●)	- (M : ●)
Straight Milling Head	Adapter Type	- (M : ○)	- (M : ○)
Angular Milling Head	Adapter Type	- (M : ○)	- (M : ○)
Boring Sleeve		●	●
Drill Socket		●	●
Angle Head		- (M : ☆)	- (M : ☆)
Coolant & Air Blow			
Standard Coolant (Nozzle)		●	●
Bed Flushing Coolant		○	●
Jet Coolant System		○	○
Chuck Coolant (Upper Chuck)		○	○
Gun Coolant		○	○
Though Spindle Coolant (Only for Special Chuck)		-	-
Thru Coolant for Live Tool		- (M : ☆)	- (M : ☆)
Chuck Air Blow (Upper Chuck)		○	○
Turret Air Blow		☆	☆
Air Gun		○	○
Though Spindle Air Blow (Only for Special Chuck)		☆	☆
High Pressure Coolant	0.5Bar	●	-
	6Bar	○	●
	20Bar	○	☆
	30Bar	☆	☆
	70Bar	○	☆
Power Coolant System (For Automation)		☆	☆
Coolant Chiller		☆	☆
Chip Disposal			
Coolant Tank	300 ℓ (79.3 gal)	●	-
	340 ℓ (89.8 gal)	-	-
	420 ℓ (111 gal)	-	●
Chip Conveyor (Hinge/Scraper)	Front (Side)	○	○
	Rear (Rear)	○	○
Special Chip Conveyor (Drum Filter)		☆	☆
Chip Wagon	Standard (180 ℓ [47.5 gal])	○	○
	Swing (200 ℓ [52.8 gal])	○	○
	Large Swing (290 ℓ [76.6 gal])	○	○
	Large Size (330 ℓ [87.2 gal])	○	○
	Customized	☆	☆
Safety Device			
Total Splash Guard		●	●
Chuck hydraulic pressure maintenance interlock		○(CE : ●)	○(CE : ●)

Electric Device		LV500 Series	LV1100 Series
Call Light	1Color : ■	●	●
Call Light & Buzzer	3Color : ■■■B	○	○
Electric Cabinet Light		○	○
Remote MPG		○	○
Work Counter	Digital	○	○
Total Counter	Digital	○	○
Tool Counter	Digital	○	○
Multi Tool Counter	Digital	○	○
Electric Circuit Breaker	Fanuc	○	○
	Siemens	-	-
AVR (Auto Voltage Regulator)		☆	☆
Transformer	30kVA	-	-
	35kVA	○	-
	60kVA	-	○
Auto Power Off		○	○
Measurement			
Q-Setter	Removable Type	○	○
Automatic Q-Setter		-	-
Work Close Confirmation Device	TACO	☆	☆
	SMC	☆	☆
Work Setter		☆	☆
Linear Scale	X Axis	○	○
	Z Axis	☆	○
Coolant Level Sensor (Only for Chip Conveyor)		☆	☆
Environment			
Air Conditioner		○	○
Oil Mist Collector		☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○
MQL (Minimal Quantity Lubrication)		☆	☆
Fixture & Automation			
Auto Door	Standard	○	○
	High Speed	☆	☆
Auto Shutter (Only for Automatic System)		-	-
Sub Operation Pannel		☆	☆
Extra M-Code 4ea		○	○
Automation Interface		☆	☆
I/O Extension (IN & OUT)	16 Contact	○	○
	32 Contact	○	○
Turret Work Pusher (For Automation)		☆	☆
Hyd. Device			
Standard Hyd. Cylinder	Solid	●	●
Standard Hyd. Unit	35bar/14 ℓ (3.7 gal)	-	-
	60bar/20 ℓ (5.3 gal)	-	●
	70bar/50 ℓ (13.2 gal)	●	-
S/W			
Dialogue Program (HW-DPRO)		○	○
DNC software (HW-eDNC)		○	○
Smart Guide-i : FANUC		●	●
Smart S/W		☆	☆
ETC			
Tool Box		●	●
Customized Color	Need Munsel No.	☆	☆
CAD & CAM		☆	☆
Special Level Seat	Only with Air Zero	☆	☆
Thermal displacement compensation		○	○

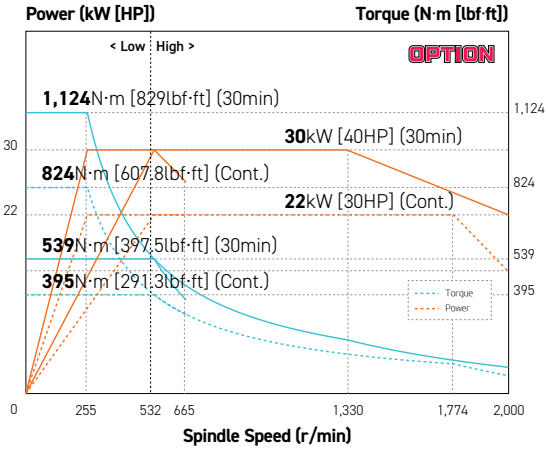
※ Thermal Displacement Compensation device is recommended, when more than 6 bar of high pressure coolant is applied, for the high quality machining.
Specifications are subject to change without notice for improvement.

Spindle Output/Torque Diagram (LV500 Series)

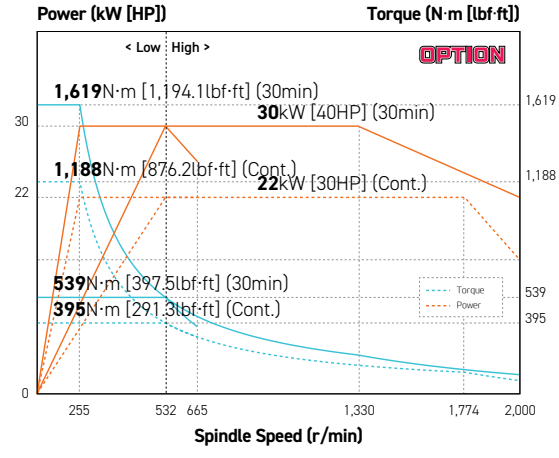
Belt 2,000rpm



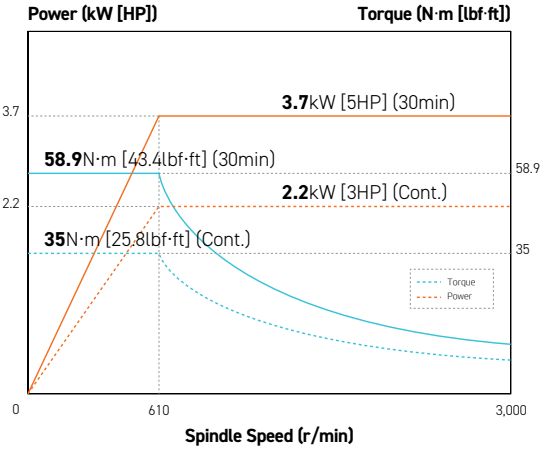
Belt 2,000rpm



Belt 2,000rpm



Mill Turret 3,000rpm

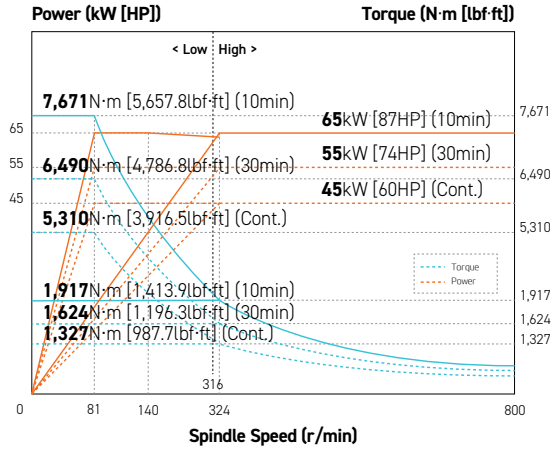


SPECIFICATIONS

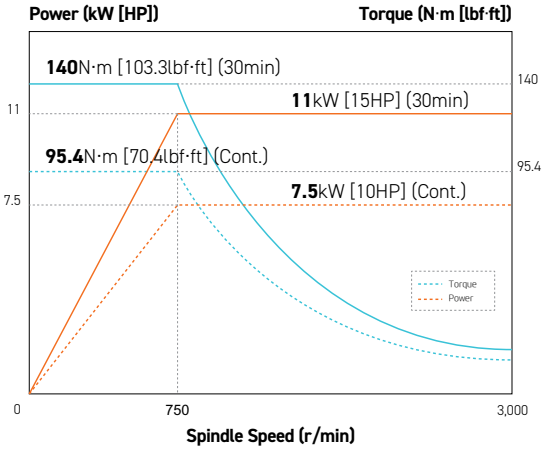
Spindle Output/Torque Diagram (LV1100 Series)

LV1100 Series

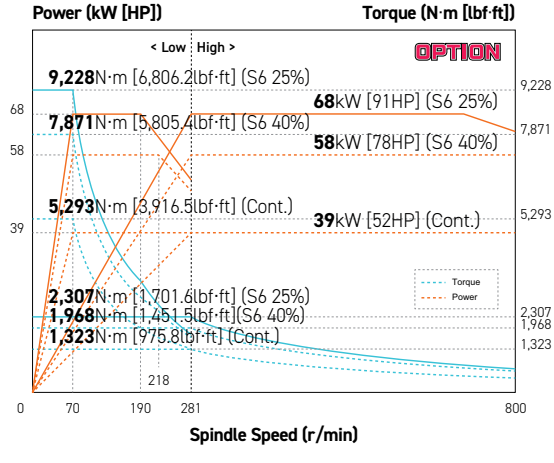
Gear 800rpm (Fanuc)



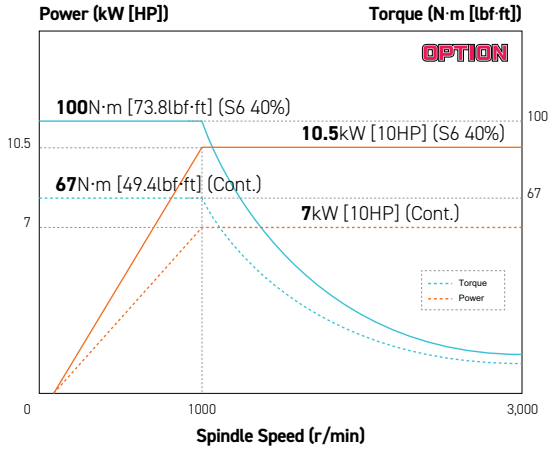
Mill Turret 3,000rpm (Fanuc)



Gear 800rpm (Siemens)



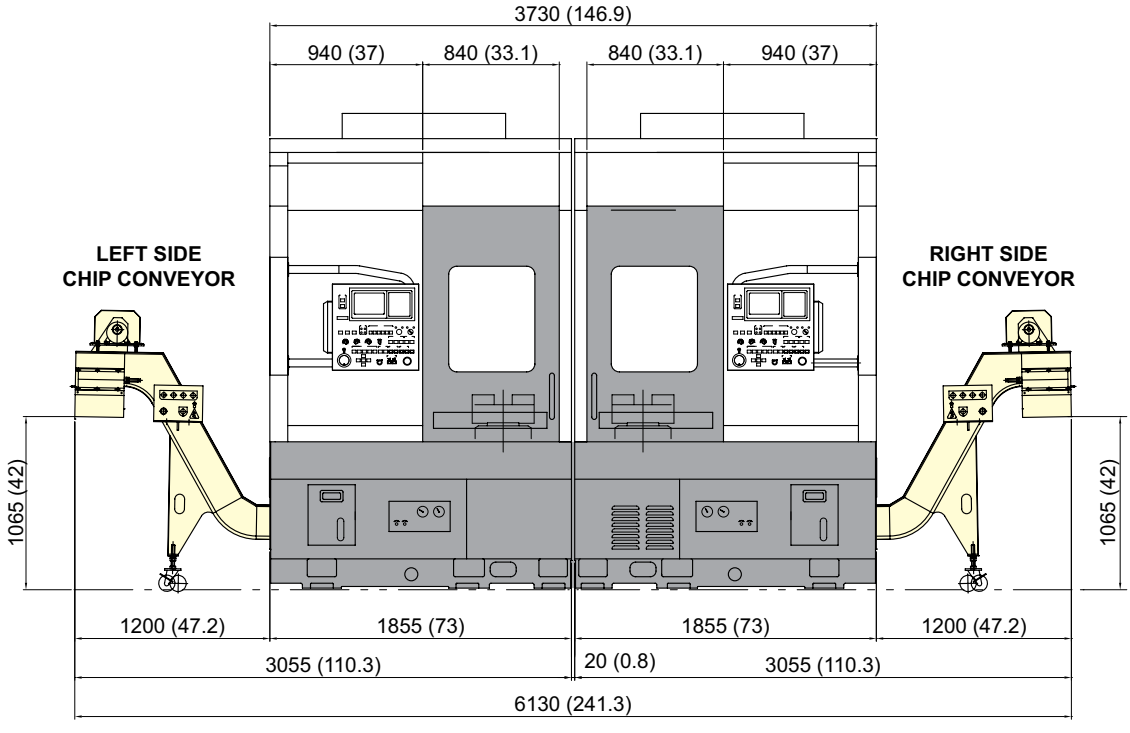
Mill Turret 3,000rpm (Siemens)

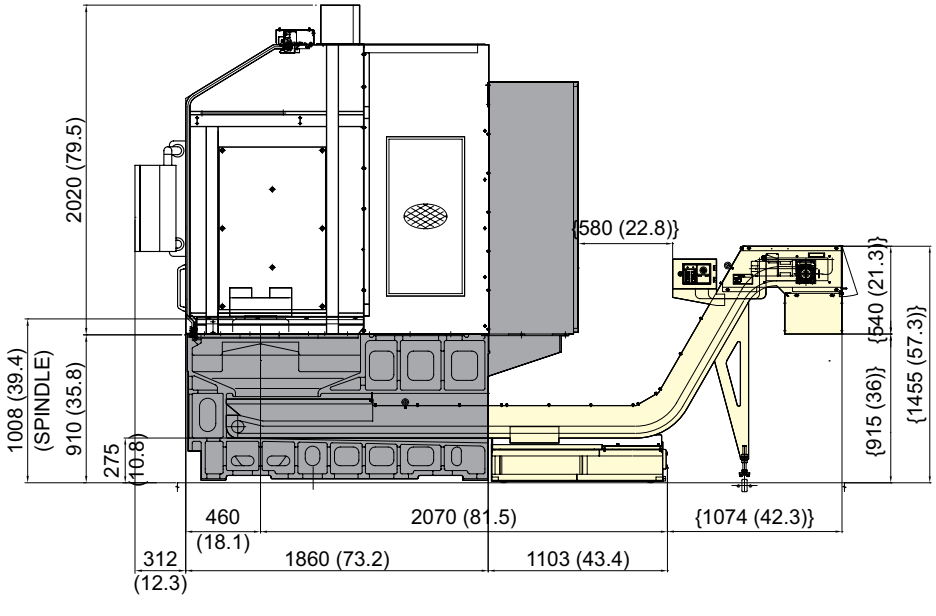


External Dimensions (LV500 Series)

unit : mm(in)

LV500 Series



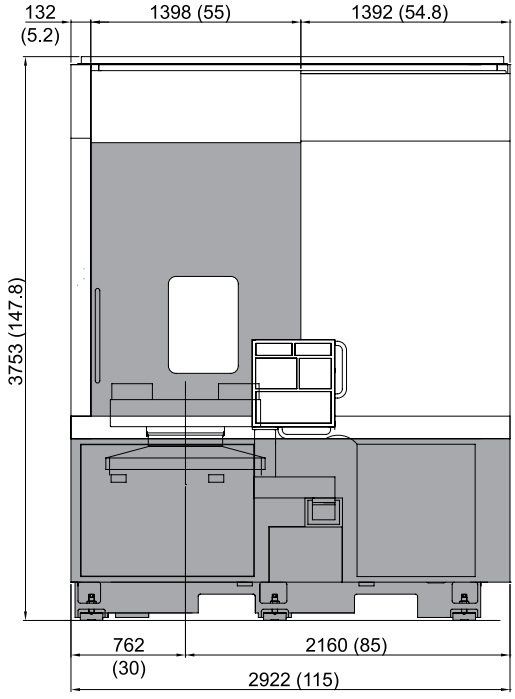


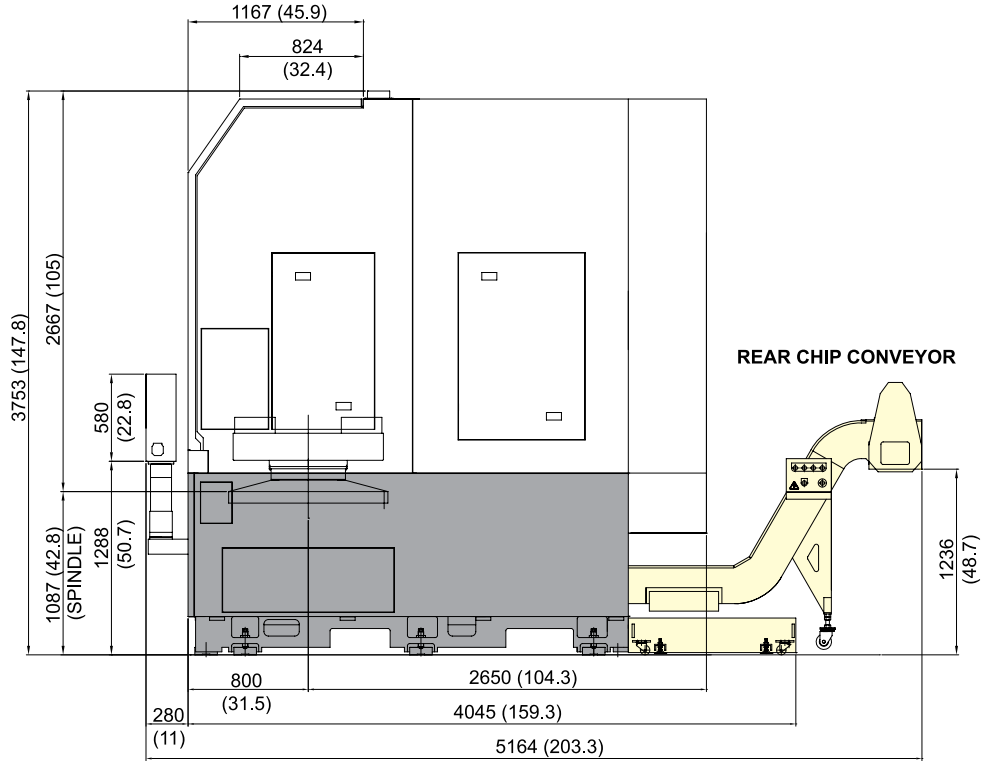
{ } : This may vary according to options.

SPECIFICATIONS

External Dimensions (LV1100 Series)

unit : mm(in)

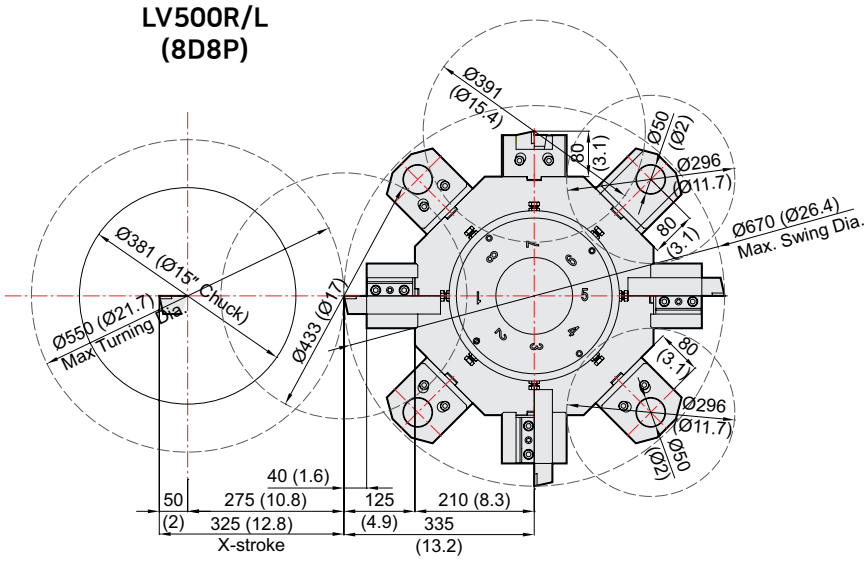




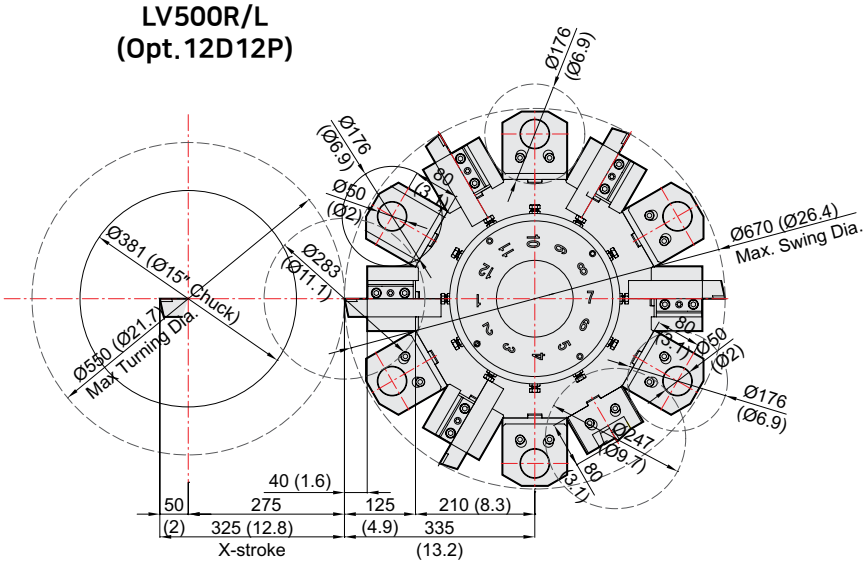
Interference

unit : mm(in)

LV500R/L (8D8P)



LV500R/L (Opt. 12D12P)

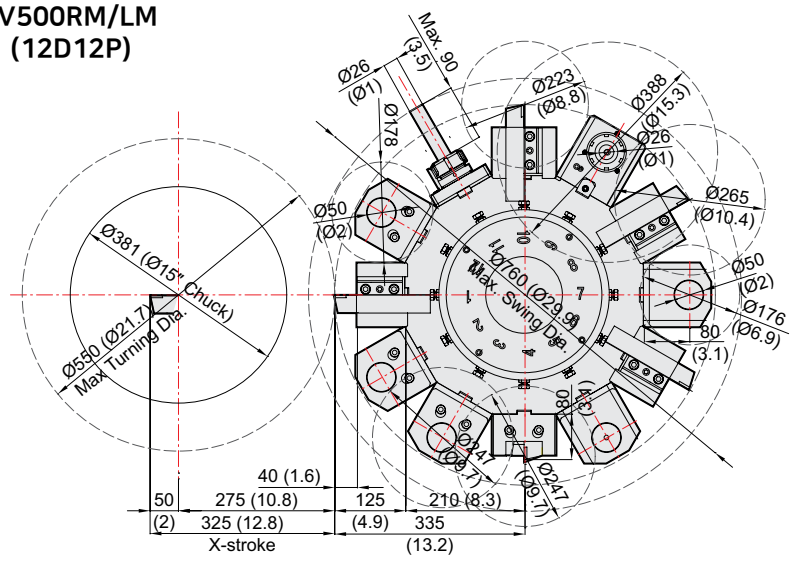


SPECIFICATIONS

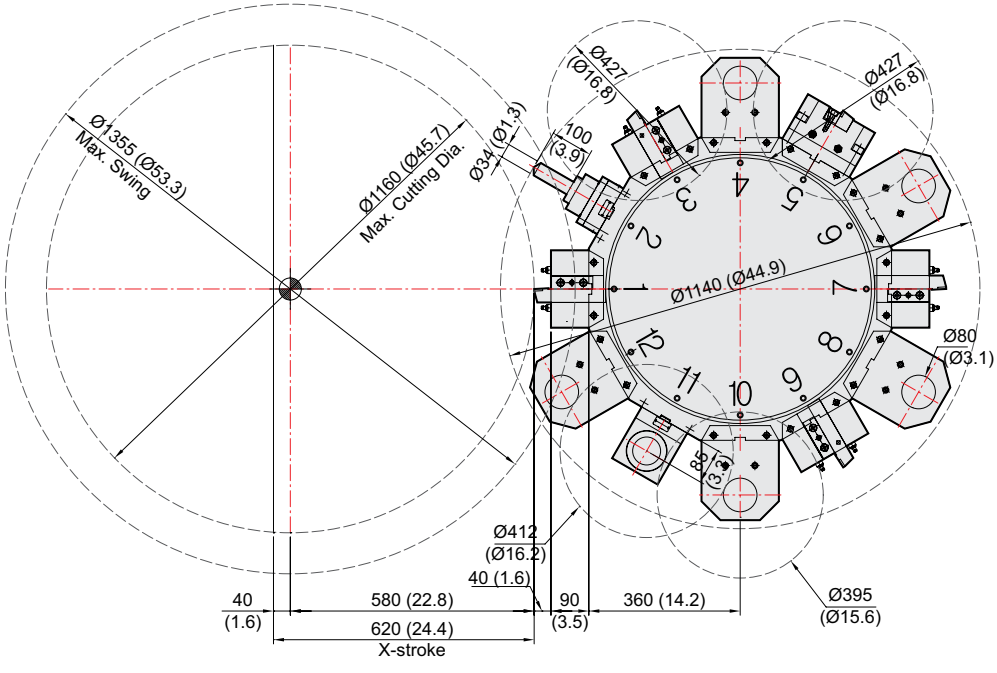
Interference

unit : mm(in)

LV500RM/LM (12D12P)

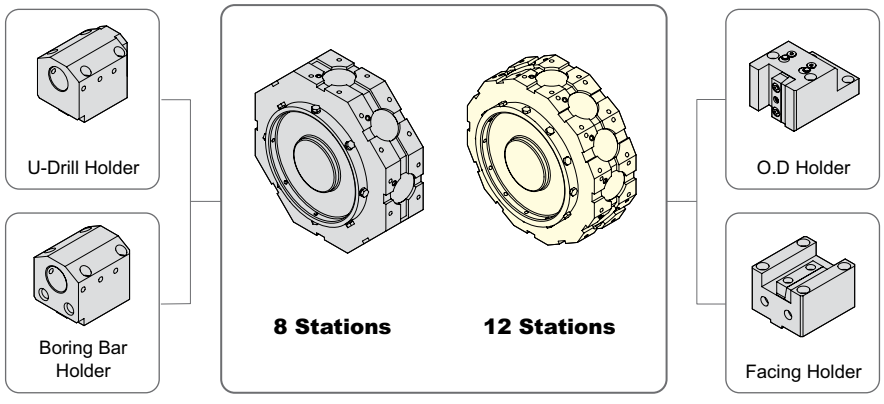


LV1100RM (12D12P)



Tooling System (LV500R/L)

unit : mm(in)



Tooling Parts Detail

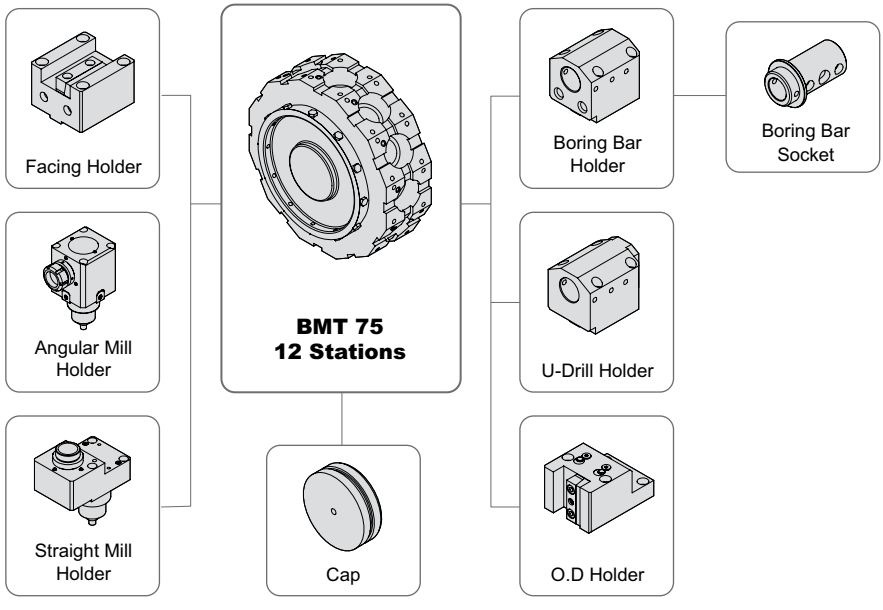
ITEM			LV500R/L (8 Station)		LV500R/L (12 Station)	
			mm Unit	inch Unit	mm Unit	inch Unit
Turning Holder	O.D Holder	Right/Left	3	3	5	5
	Facing Holder		1	1	1	1
Boring Holder	I.D Holder	Single	3	3	5	5
	U-Drill Holder	Tool Holder	1	1	1	1
Driven Holder	Straight Mill Holder	Standard	-	-	-	-
	Angular Mill Holder	Standard	-	-	-	-
Socket	Boring	Ø16 (Ø5/8″)	1	1	1	1
		Ø20 (Ø3/4″)	1	1	1	1
		Ø25 (Ø1″)	1	1	1	1
		Ø32 (Ø1 1/4″)	1	1	1	1
		Ø40 (Ø1 1/2″)	1	1	1	1
	Drill	MT 2	1	1	1	1
		MT 3	1	1	1	1
		MT 4	1	1	1	1
	ER Collet		-	-	-	-

Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Tooling System (LV500RM/LM)

unit : mm(in)



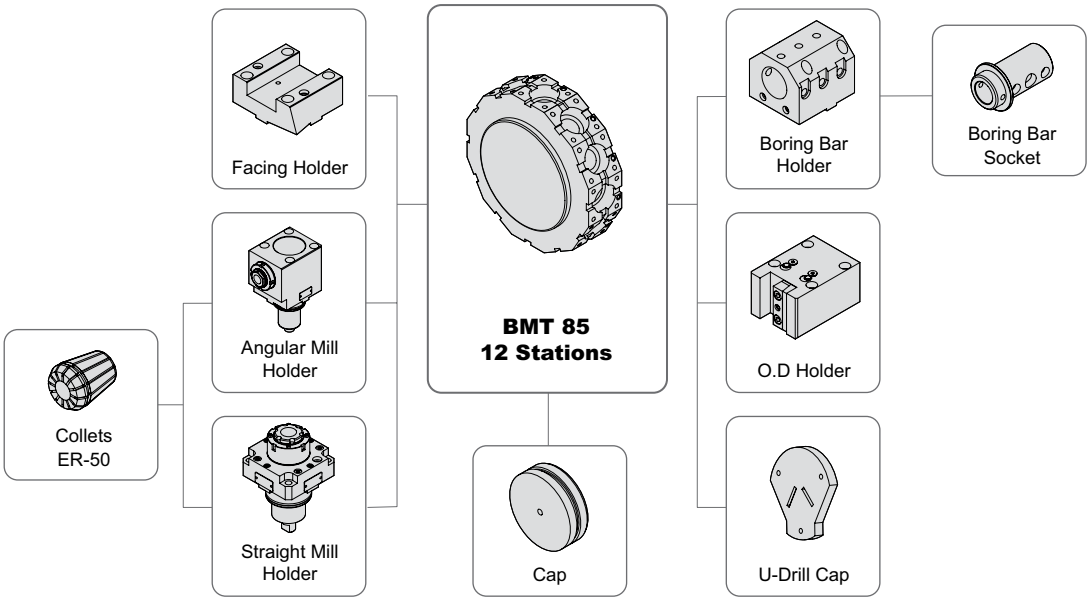
Tooling Parts Detail

ITEM			LV500RM/LM	
			mm Unit	inch Unit
Turning Holder	O.D Holder	Right/Left	4	4
	Facing Holder		1	1
Boring Holder	I.D Holder	Single	4	4
	U-Drill Holder	Tool Holder	1	1
Driven Holder	Straight Mill Holder	Standard	1	1
	Angular Mill Holder	Standard	1	1
Socket	Boring	Ø16 (Ø5/8″)	1	1
		Ø20 (Ø3/4″)	1	1
		Ø25 (Ø1″)	1	1
		Ø32 (Ø1 1/4″)	1	1
		Ø40 (Ø1 1/2″)	1	1
	Drill	MT 2	1	1
		MT 3	1	1
		MT 4	1	1
	ER Collet		-	-

Specifications are subject to change without notice for improvement.

Tooling System (LV1100 Series)

unit : mm(in)



Tooling Parts Detail

ITEM			LV1100R/L		LV1100RM/LM	
			mm Unit	inch Unit	mm Unit	inch Unit
Turning Holder	O.D Holder	Right/Left	5	5	4	4
	Facing Holder		1	1	1	1
Boring Holder	I.D Holder	Single	6	6	5	5
	U-Drill Holder	Cap	1	1	1	1
Driven Holder	Straight Mill Holder	Standard	-	-	1	1
	Angular Mill Holder	Standard	-	-	1	1
Socket	Boring	Ø20 (Ø3/4″)	1	1	1	1
		Ø25 (Ø1″)	1	1	1	1
		Ø32 (Ø1 1/4″)	1	1	1	1
		Ø40 (Ø1 1/2″)	1	1	1	1
		Ø50 (Ø2″)	1	1	1	1
		Ø60 (Ø2 1/4″)	1	1	1	1
	Drill	MT 3	1	1	1	1
		MT 4	1	1	1	1
		MT 5	1	1	1	1
	Adapter Set		-	-	1 Set	1 Set
	ER Collet		-	-	1 Set	1 Set

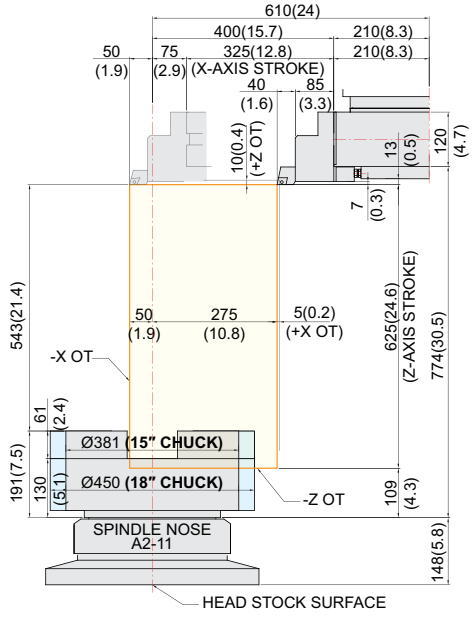
Specifications are subject to change without notice for improvement.

SPECIFICATIONS

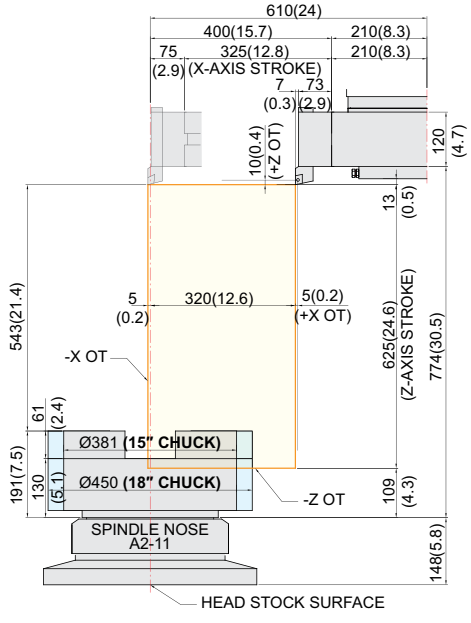
Tooling Travel Range (LV500R/L)

unit : mm(in)

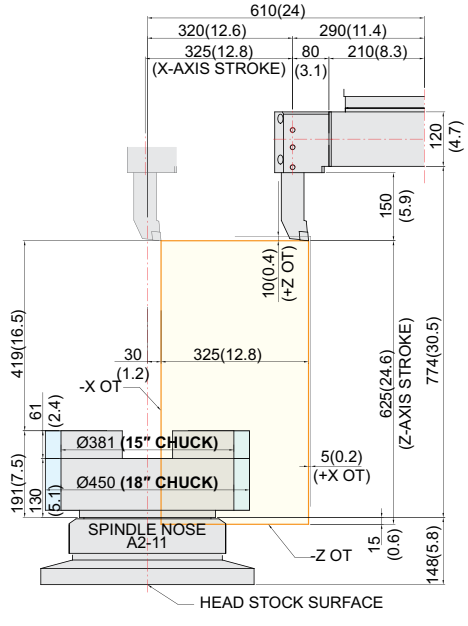
(O.D TURNING HOLDER)



(FACING HOLDER)



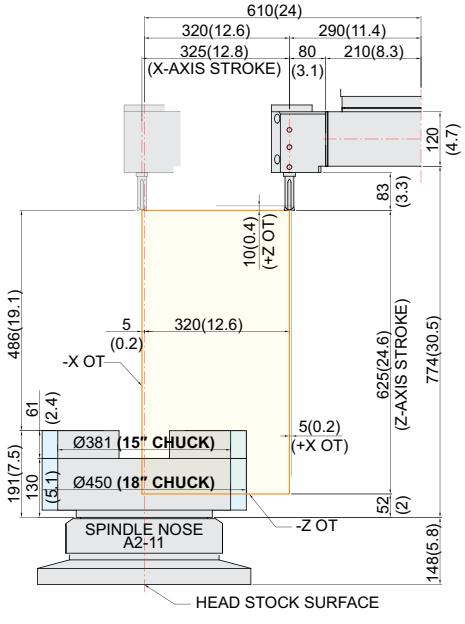
(BORING BAR HOLDER)



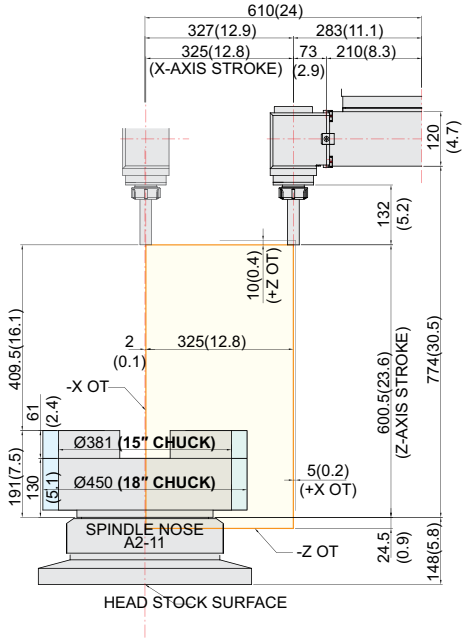
Tooling Travel Range (LV500RM/LM)

unit : mm(in)

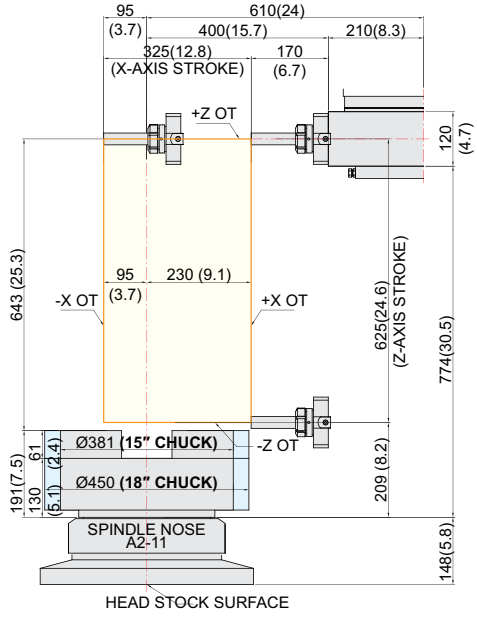
(U-DRILL HOLDER)



(ANGULAR MILLING HEAD)



(STRAIGHT MILLING HEAD)

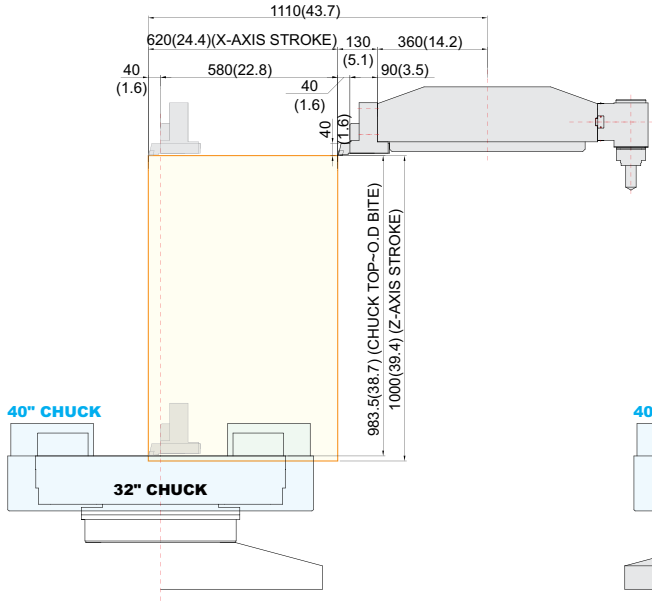


SPECIFICATIONS

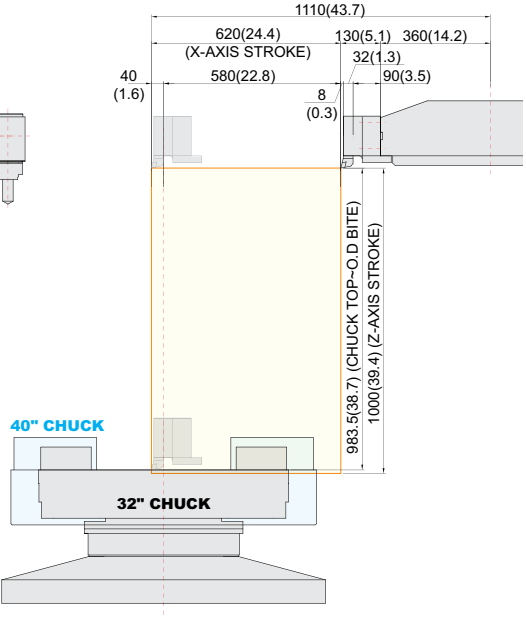
Tooling Travel Range (LV1100 Series)

unit : mm(in)

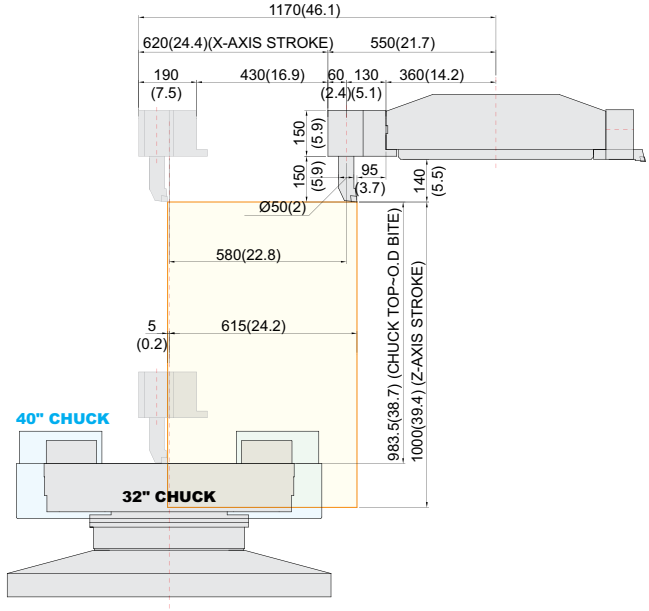
(O.D. HOLDER)



(FACING HOLDER)



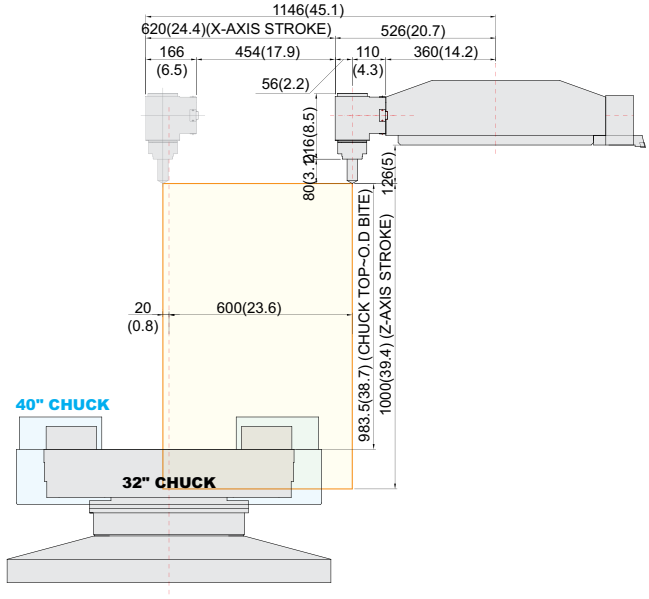
(I.D. HOLDER)



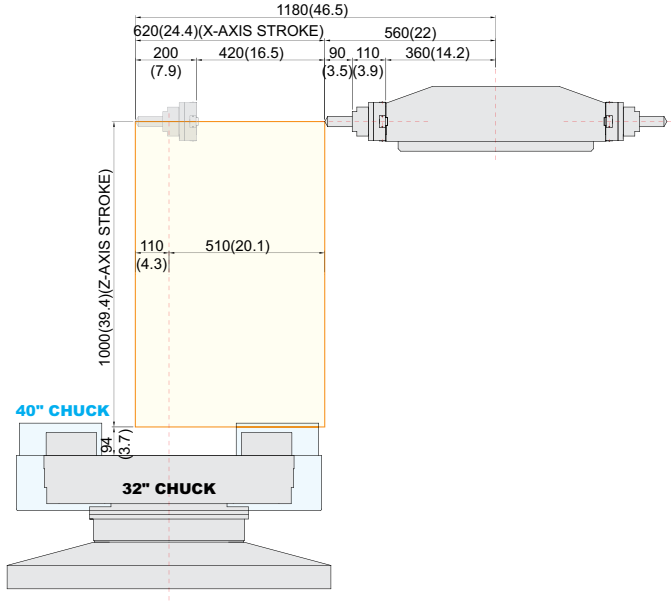
Tooling Travel Range (LV1100RM)

unit : mm(in)

(ANGULAR MILLING HEAD)



(STRAIGHT MILLING HEAD)



SPECIFICATIONS

Specifications

[ ] : Option

ITEM				LV500R/L	LV500RM/LM
CAPACITY	Swing Over the Bed		mm(in)	Ø760 (29.9″)	
	Swing Over the Carriage		mm(in)	Ø560 (22″)	
	Max. Turning Dia.		mm(in)	Ø550 (21.7″)	
	Max. Turning Length		mm(in)	600 (23.6″)	
SPINDLE	Chuck Size		inch	15″ [18″]	
	Spindle Bore		mm(in)	Ø100 (3.9″)	
	Spindle Speed (rpm)		r/min	2,000	
	Motor (Max/Cont.)		kW(HP)	26/18.5 (35/25) [30/22 (40/30)] [30/22 (40/30)]	
	Torque (Max/Cont.)		N·m(lbf·ft)	975/693 (719.1/511.1) [1,124/824 (829/607.8)] [1,619/1,188 (1,194.1/876.2)]	
	Spindle Type		-	Belt	
	Spindle Nose		-	A2-11	
	C-axis Indexing		deg	-	0.001 °
FEED	Travel (X/Z)		mm(in)	325/625 (12.8″/24.6″)	
	Rapid Traverse Rate (X/Z)		m/min(ipm)	20/18 (787/709)	
	Slide Type		-	LM GUIDE	
TURRET	No. of Tools		EA	8 [12]	12
	Tool Size	OD	mm(in)	□32 (1.3″)	
		ID	mm(in)	Ø50 (2″)	
	Indexing Time		sec/step	0.2	
LIVE TOOL	Motor (Max/Cont.)		kW(HP)	-	3.7/2.2 (5/3)
	Milling Tool Speed (rpm)		r/min	-	3,000
	Torque (Max/Cont.)		N·m(lbf·ft)	-	58.9/35 (43.4/25.8)
	Collet Size		mm(in)	-	Ø26 (1″) (ER40)
	Type		-	-	BMT75
TANK CAPACITY	Coolant Tank		ℓ (gal)	300 (79.3)	
	Lubricating Tank		ℓ (gal)	2 (0.5)	
POWER SUPPLY	Electric Power Supply		kVA	29	32
	Thickness of Power Cable		mm^2	Over 25	
	Voltage		V/Hz	220/60 (200/50*)	
MACHINE	Floor Space (L×W)		mm(in)	1,855×2,842 (73″×111.9″) <Excluding Chip Conveyor>	
	Height		mm(in)	2,930 (115.4″)	
	Weight		kg(lb)	10,000 (22,046)	
NC	Controller		-	FANUC i Series - Smart Plus	

*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)
Prior consultation is required when applying spindle contouring control for gear driven spindle.
Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Specifications

[ ] : Option

ITEM				LV1100R	LV1100RM
CAPACITY	Swing Over the Bed		mm(in)	Ø1,355 (53.3″)	
	Swing Over the Carriage		mm(in)	Ø1,250 (49.2″)	
	Max. Turning Dia.		mm(in)	Ø1,160 (45.7″)	
	Max. Turning Length		mm(in)	1,000 (39.4″)	
SPINDLE	Chuck Size		inch	32″ [40″]	
	Spindle Bore		mm(in)	Ø110 (4.3″)	
	Spindle Speed (rpm)		r/min	800 [630] [800]	
	Motor (10min./30min./Cont.)		kW(HP)	65/55/45 (87/74/60) [68/58/39 (91/78/52)]	
	Torque (10min./30min./Cont.)		N·m(lbf·ft)	7,671/6,490/5,310 (5,657.8/4,786.8/3,916.5) [9,228/7,871/5,293 (6,806.2/5,805.4/3,916.5)]	
	Spindle Type		-	Gear Box	
	Spindle Nose		-	Ø380 (15″) Flat	
	C-axis Indexing		deg	-	0.001 °
FEED	Travel (X/Z)		mm(in)	620/1,000 (24.4″/39.4″)	
	Rapid Traverse Rate (X/Z)		m/min(ipm)	24/24 (945/945)	
	Slide Type		-	Box Guide	
TURRET	No. of Tools		EA	12	
	Tool Size	OD	mm(in)	□32 (1.3″)	
		ID	mm(in)	Ø80 (3.1″)	
	Indexing Time		sec/step	0.6	
LIVE TOOL	Motor (Max/Cont.)		kW(HP)	-	11/7.5 (15/10) [10.5/7 (14.1/9.4)]
	Milling Tool Speed (rpm)		r/min	-	3,000 [3,000]
	Torque (Max/Cont.)		N·m(lbf·ft)	-	140/95.4 (103.3/70.4) [100/67 (73.8/49.4)]
	Collet Size		mm(in)	-	Ø34 (1.3″) (ER50)
	Type		-	-	BMT85
TANK CAPACITY	Coolant Tank		ℓ (gal)	420 (111)	
	Lubricating Tank		ℓ (gal)	4 (1.1)	
POWER SUPPLY	Electric Power Supply		kVA	61	70
	Thickness of Power Cable		mm^2	Over 50	
	Voltage		V/Hz	220/60 (200/50*)	
MACHINE	Floor Space (L×W)		mm(in)	2,922×4,325 (115″×170.3″) <Excluding Chip Conveyor>	
	Height		mm(in)	3,776 (148.7″)	
	Weight		kg(lb)	22,000 (48,502)	
NC	Controller		-	FANUC i Series - Smart Plus [SIEMENS 828D]	

*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)
※ Prior consultation is required when applying spindle contouring control for gear driven spindle.
Specifications are subject to change without notice for improvement.

CONTROLLER

FANUC i Series - Smart Plus

[ ] : Option

Controlled axis / Display / Accuracy Compensation	
Control axis	2 axis (X, Z) / 3 axis (X, Z, C) / 4 axis (X,Z,Y,C)
	5 axis (X, Z, B, C, A) / 6 axis (X, Z, Y, B, C, A)
	7 axis (X1/Z1, X2/Z2, B2, C1/C2)
Simultaneously controlled axis	2 axis [Max. 4 axis]
Designation of spindle axis	3 axis [Max. 4 axis]
Least setting Unit	X, Z, Y, B axis : 0.001 mm (0.0001 inch)
	C, A axis : 0.001 deg
Least input increment	X, Z, Y, B axis : 0.001 mm (0.0001 inch)
	C, A axis : 0.001 deg
Inch / Metric conversion	G20 / G21
High response vector control	
Interlock	All axis / Each axis
Machine lock	All axis
Backlash compensation	± 0~9999 pulses (exc.Rapid traverse / Cutting feed)
Position switch	
LCD / MDI	15 inch LCD unit (with Touch Panel)
Feedback	Absolute motor feedback
Stored stroke check 1	Over travel
Stored stroke check 2, 3	
PMC axis control	
Operation	
Automatic operation (Memory)	
MDI operation	
DNC operation	Needed DNC software / CF card
Program restart	
Wrong operation prevention	
Program check function	Dry run
Single block	
Search function	Program Number / Sequence Number
Interpolation functions	
Nano interpolation	
Positioning	G00
Linear interpolation	G01
Circular interpolation	G02, G03
Exact stop mode	Single : G09, Continuous : G61
Dwell	G04, 0 ~ 9999.9999 sec
Skip	G31
Reference position return	1st reference : G28, 2nd reference : G30
	Ref. position check : G27
Thread synchronous cutting	G33
Thread cutting retract	
Variable lead thread cutting	
Multi / Continuous threading	
Feed function / Acc. & Dec. control	
Manual feed	Rapid traverse
	Jog : 0~2,000 mm/min (79 ipm)
	Manual handle : x1, x10, x100 pulses
	Reference position return
Cutting Feed command	Direct input F code
Feedrate override	0 ~ 200% (10% Unit)
Rapid traverse override	1%, F25%, 50%, 100%
Override cancel	
Feed per minute	G98
Feed per revolution	G99
Look-ahead block	1 block
Program input	
Tape Code	EIA / ISO
Optional block skip	9 ea
Program stop / end	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm (± 99,999.9999 inch)
Plane selection	X-Y : G17 / Z-X : G18 / Y-Z : G19
Workpiece coordinate system	G52, G53, 6 pairs (G54 ~ G59)
Manual absolute	Fixed ON
Programmable data input	G10
Sub program call	10 folds nested
Custom macro	#100 ~ #199, #500 ~ #999
G code system	A, B/C
Programmable mirror image	G51.1, G50.1
G code preventing buffering	G4.1
Direct drawing dimension program	Including Chamfering / Corner R
Conversational Program	SmartGuide-i

Program input	
Multiple repetitive cycles Ⅰ, Ⅱ	
Canned cycle for turning	
Auxiliary function / Spindle speed function	
Auxiliary function	M & 4 digit
Level-up M Code	High speed / Multi / Bypass M code
Spindle speed function	S & 5 digit , Binary output
Spindle override	0% ~ 150% (10% Unit)
Multi position spindle orientation	M19 (S##)
Rigid tapping	
Constant surface speed control	G96, G97
Tool function / Tool compensation	
Tool function	T & 2 digit + Offset 2 digit
Tool life management	
Tool offset pairs	128 pairs
Tool nose radius compensation	G40, G41, G42
Geometry / Wear compensation	
Direct input of offset measured B	
Editing function	
Part program storage size	5,120m (2MB)
No. of registerable programs	1,000 ea
Program protect	
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
Data input / output & Interface	
I/O interface	CF card, USB memory
	Embedded Ethernet interface
Screen hard copy	
External message	
External key input	
External workpiece number search	
Automatic data backup	
Setting, display and diagnosis	
Self-diagnosis function	
History display & Operation	Alarm & Operator message & Operation
Run hour / Parts count display	
Maintenance information	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Power consumption monitoring	Spindle & Servo
Spindle / Servo setting screen	
Multi language display	Support 24 languages
Display language switching	Selection of 5 optional Languages
LCD Screen Saver	Screen saver
Unexpected disturbance torque	BST (Back spin torque limit)
Function for machine type	
Cs contour control (C & A axis)	Mill, MS, Y, SY, LF-Mill, TTMS, TTSY
Polar coordinate interpolation	Mill, MS, Y, SY, LF-Mill, TTMS, TTSY
Cylindrical interpolation	Mill, MS, Y, SY, LF-Mill, TTMS, TTSY
Polygon turning (2 Spindles)	Mill, MS, Y, SY, LF-Mill, TTMS, TTSY
Canned cycle for drilling	Mill, MS, Y, SY, LF-Mill, TTMS, TTSY
Spindle orientation expansion	MS, SY TTS, TTMS, TTSY
Spindle synchronous control	MS, SY TTS, TTMS, TTSY
Torque control	MS, SY TTS, TTMS, TTSY
Y axis offset	Y, SY, TTSY
Arbitrary angular control	Y, SY, TTSY
Composite / Superimposed control	MS, SY, TTS, TTMS, TTSY
Balance cutting	TTS, TTMS, TTSY

Option	
Fast ethernet	Needed option board
Data server	Needed option board
Protection of data at 8 levels	
Tool offset pairs	200 pairs
Helical interpolation	
Look-ahead Block	40 ea, 200 ea (AICC Ⅱ)

Figures in inch are converted from metric values.
The FANUC controller specifications are subject to change based on the policy of company CNC supplying.

SIEMENS 828D

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axis	2 axis (X, Z) - Std.
	3 axis (X, Z, C) - Mill
	4 axis (X, Z, Y, C) - Y
	5 axis (X, Z, B, C, A) - MS
	6 axis (X, Z, Y, B, C, A) - SY
Simultaneously controlled axis	Max. 4 axis
Least setting Unit	X, Z, Y, B axis : 0.001 mm (0.0001 inch)
	C, A axis : 1 deg [0.001] deg
Least input increment	X, Z, Y, B axis : 0.001 mm (0.0001 inch)
	C, A axis : 1 deg [0.001] deg
Inch / Metric changeover	G70 (inch) / G71 (metric)
Interlock	All axis / Each axis
Backlash compensation	
Pitch error compensation	Leadscrew pitch errror compensation
LCD / MDI	15 inch color LCD (With Touch panel)
Keyboard	QWERTY full keyboard
Stored stroke check	Over travel
Operation	
Automatic operation	
MDI operation	
Program restart	
Program check function	Dry run / Program check / Machine lock
Single block	
Block search	Block search
Reposition	
Working area limit	Working area limitations
Interpolation functions	
Positioning	G00
Linear interpolation	G01
Circular interpolation	Circular interpolation CW (G02)
	Circular interpolation CCW (G03)
Exact position stop	Single block exact stop (G09)
	Exact stop G60 (G601, G602, G603)
Dwell	Dwell (G04)
Reference position return	Return to reference point
	Return to 2nd reference point
Helical interpolation	
Thread synchronous cutting	
Thread cutting retract	
Spline interpolation	Non-uniform rational B splines
Feed function / Acc. & Dec. control	
Manual feed	Rapid traverse
	Jog
	Manual handle
	Reference position return
Cutting feed command	Direct input F code
Feedrate override	0 ~ 200% (10% Unit)
Rapid traverse override	1%, 25%, 50%, 100%
Feed per minute	G94
Feed per revolution	G95
Look-ahead block	1 block
Program input	
ISO support	G291(ISO)/G290 (SIEMENS)
	(ISO G Code system-A)
Optional block skip	2
Program stop / end	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm, ± 99,999.9999 inch
Plane selection	X-Y : G17, X-Z : G18, Y-Z : G19
Workpiece coordinate system	G54 ~ G57, G505~G549
	G500 (Basic frame - setable zero offset)
	G53 (Work offset non modal)
	G153 (basic frame non modal)
Sub program call	11 folds nested
G code preventing buffering	STOPRE
Turning cycle	Turning programing (Clycle 93 ,94, 95, 97)
User cycle	
3D simulation	
Real time simulation	
Shop Turn	Machining step programming for turning

Auxiliary function / Spindle speed function	
Auxiliary function	M Code 4 digit
Spindle speed function	S Code 5 digit
Spindle override	0% ~ 150% (10% Unit)
Spindle orientation	SPOS
Rigid tapping	
Autometic mode interchange	Spindle / Axis mode
Constant surface speed control	G96, G97
Spindle speed limitation	LIMS
Tool function / Tool compensation	
Tool function	Tool number & Tool name
	Tool : T + Offset : D
Tool life management	
Tools in tool list	128 ea : Std.
	256 ea : Mill
	768 ea : Y, MS, SY
Cutting Edges in tool list	256 ea : Std.
	512 ea : Mill
	1,536 ea : Y, MS, SY
Tool nose radius compensation	ISO (G40, G41, G42)
Geometry / Wear compensation	
Measurement of tool length	
Tool management function	
Editing function	
Part program storage size	3MB - Std.
	5MB - Mill
	10MB - Y, MS, SY
No. of registerable programs	750 ea
External Strorage devices	Local network, Server, USB, Flash drive
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
Data input / output & Interface	
I/O interface	CF card interface (ONLY 10.4")
	USB memory interface
	Embedded Ethernet memory interface
Screenshot	
Setting, display and diagnosis	
Self-diagnosis function	
History display & Operation	Alarm & Operator message & Operation
Run hour / Parts count display	
Maintenance information	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Multi language display	Support 9 languages Chinese (Simplified/Traditional), English, French, German, Italian, Korean, Portuguese, Spanish
	[☆ Support 22 languages : Inquiry need]
LCD Screen Saver	Screen saver & Motion sensing
Function for machine type	
Cs contour control (C & A axis)	Mill, MS, Y, SY model
Polar coordinate interpolation	Mill, MS, Y, SY model
Cylindrical interpolation	Mill, MS, Y, SY model
Canned cycle for drilling	Mill, MS, Y, SY model
[Polygon turning (CP-Basic)]	Mill, MS, Y, SY model
[Hobbing / Skybing (CP-Comfort)]	Mill, MS, Y, SY model
Spindle synchronous control	MS, SY model
Servo tailstock function	MS, SY model

Option	
Additional optional block skip	10
Contour handwheel	

Figures in inch are converted from metric values.
Specifications are subject to change without notice for improvement.

LV1100RM
Movie

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Headquarter / R&D Center 106, Yongji-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea **TEL** : +82 55 225 9999

Overseas Sales Team 13, Iljik-ro 12beon-gil, Gwangmyeong-si, Gyeonggi-do, Republic of Korea **TEL** : +82 055 225 9645

OVERSEAS OFFICES

America corp. 450 Commerce Blvd, Carlstadt, NJ 07072, USA **TEL** : +1-201-987-7298

Europe GmbH Alexander-Fleming-Ring 57, 65428 Russelsheim Germany **TEL** : +49-0-6142-9256-0

China Company No.16 Fenghuang Road, Fenghuang Town, Zhangjiagang City, Jiangsu Province, China **TEL** : +86-21-6427-9885

CIS Branch Office 050051, Kazakhstan, Almaty, Elebekova street 10, B.3 Office no. 103 **TEL** : +7-727-355-7133

India Branch Office #4/169, 1st Floor, LOTTE BLDG, Rajiv Gandhi Salai, (OMR), Kandanchavadi, Chennai - 600096, Tamilnadu, India **TEL** : +91-76-0490-3348

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