



MCV 5700 Series

MCV 5700/5700L

Largest in class X-axis travel and table with low-center of gravity design

- largest in class X-axis travel of 1,600mm (MCV 5700L)
- largest in class table size of 1,700 x 570mm (MCV 5700L)
- easy user accessibility with a table surface height of 900mm
- with 4 rows of Roller LM-Guides in the Y-axis, overhang is prevented (MCV 5700L)
- high strength and high precision with the highly rigid saddle and arched column design
- maximized space efficiency with the compact design

Category		MCV 5700	MCV 5700L
Travel (X/Y/Z)	mm(inch)	1,050/570/520(41.34/22.45/20.48)	1,600/570/520(63.00/22.45/20.48)
Table size	mm(inch)	1,300x570(51.19x22.45)	1,700x570(66.93x22.45)
Table loading capacity	kgf(lb)	1,000(2,204.63)	1,000(2,204.63)
Table surface	mm(inch)	18H8(0.71H8) T-slotxp125(4.93)x4ea	18H8(0.71H8) T-slotxp125(4.93)x4ea
Max. spindle speed	rpm	12,000	12,000
Tool-to-tool time	sec	1.3	1.3
Rapid traverse (X/Y/Z)	m/min(ipm)	36/36/30(1,417.33/1,417.33/1,181.11)	30/36/30(1,181.11/1,417.33/1,181.11)
Tool storage capacity	EA	30	30

High productivity

The use of roller type LM guide ways with excellent responsiveness minimizes the amount of noise generated during travels and greatly shortens non-cutting times.

High performance, high precision machining

Stable machine design to ensure reliable machining, while low-vibration, low thermal growth direct-drive spindle enables high precision machining

Easy Accessibility

The low center of gravity design and minimized gap between the front cover and table edge allows easy load/unload of materials with minimal operator

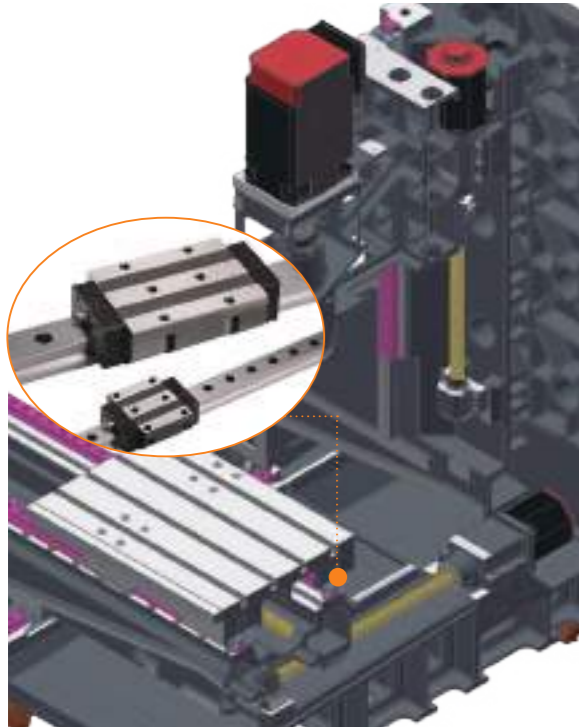
Operator Convenience

The high performance NC option (S4 package), standard operator-centric OP Panel (15" screen) and eco-friendly coolant system maximizes operator convenience

MCV 5700 Series

VERTICAL MACHINING CENTER

High productivity



Roller type LM guide way

The use of roller type LM guide ways with excellent responsiveness minimizes the amount of noise generated during travels and greatly shortens non-cutting times.

- Enhanced speed, rigidity and durability
- Compared to ball type LM guides, it significantly improves wear resistance, thus improving travel precision and durability

Rapid traverse (X/Y/Z)

MCV 5700 : **36/36/30** m/min
(1,417.33/1,417.33/1,181.11 ipm)

MCV 5700L : **30/36/30** m/min
(1,181.11/1,417.33/1,181.11 ipm)

High performance, high precision machining

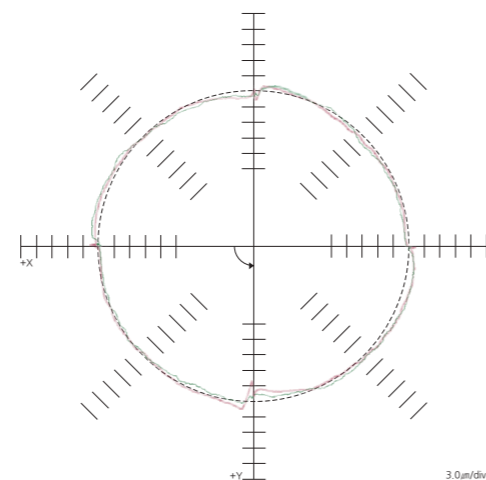
Excellent machine design for high precision machining

- Stable machine design to ensure reliable machining
- High precision machining with the use of low-vibration, low thermal growth direct-drive spindle

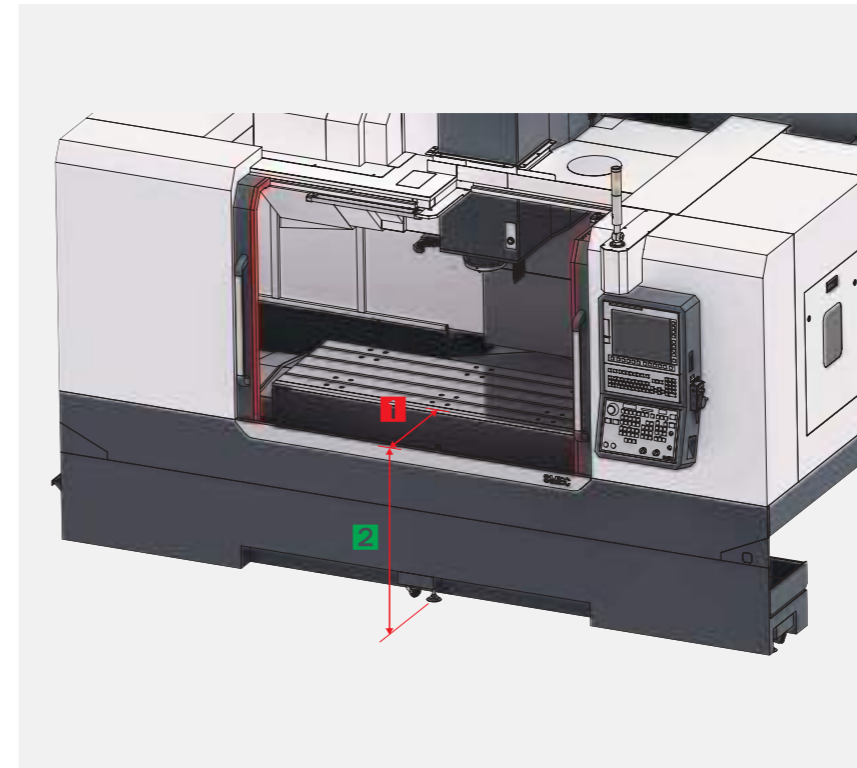


Low center of gravity design provides high-quality accuracy

- high rigidity single-piece bed with low center of gravity design
- overhang prevented with widest-in-class saddle for Roller type LM guide way
- high speed, high precision direct-drive spindle



Superior Accessibility

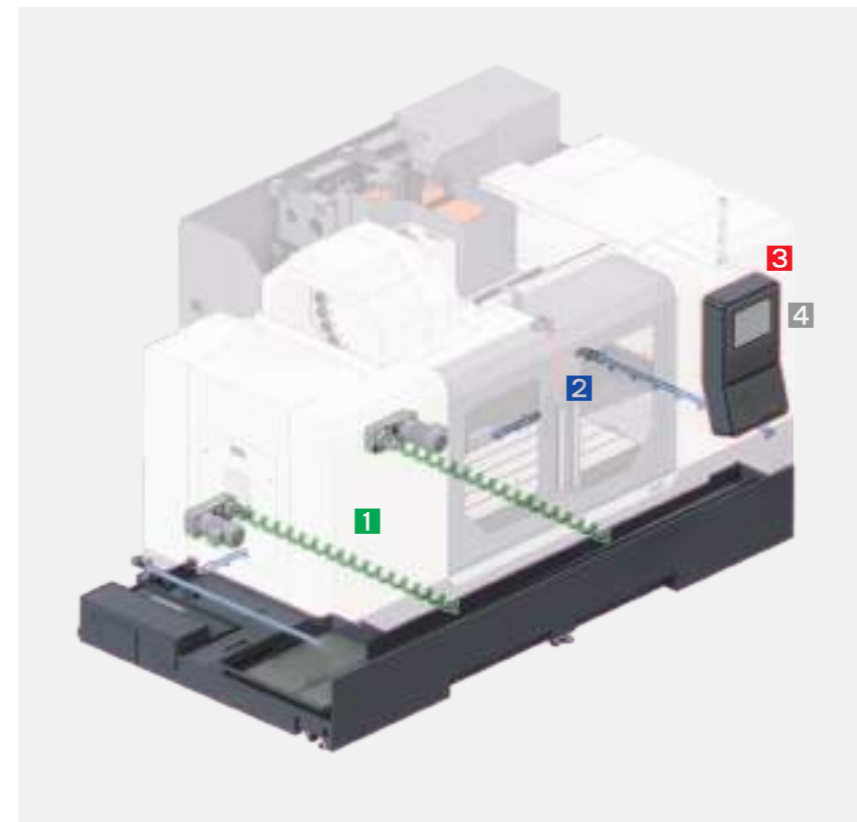


- With the door opened, a hoist can be brought in past the center point of the table, making it very easy to move heavy materials into the machine
- The distance between the cover and the table was minimized for easy loading/unloading of materials and to allow access to the entire table surface

1 Distance between front door and table
220mm (8.67 inch)

2 Distance from floor to table top
900mm (35.44 inch)

Operator Convenience



1 Coil Conveyor

The 2 standard internal coil conveyors efficiently removes the chips that are created during machining

2 Bed Flushing (MCV 5700L : STD, MCV 5700 : OPT)

The standard bed flush system installed along the sides of the machine prevents chip build-up and ensure effective chip removal

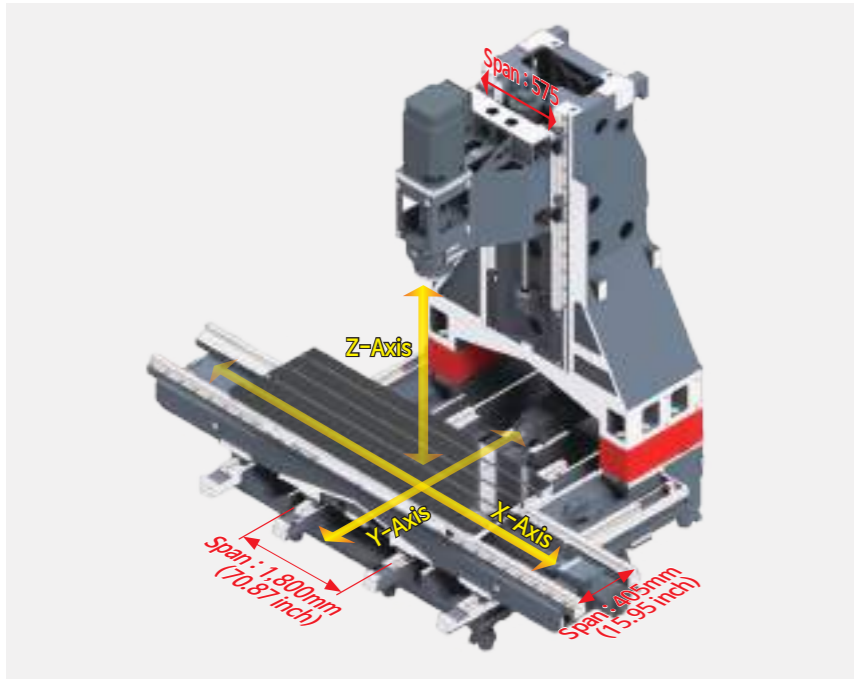
3 Operator-centric 15" Large Screen OP Panel

The swivel-type OP Panel is easy to work with and the QWERTY keyboard and high visibility buttons and efficient arrangement improves operator convenience

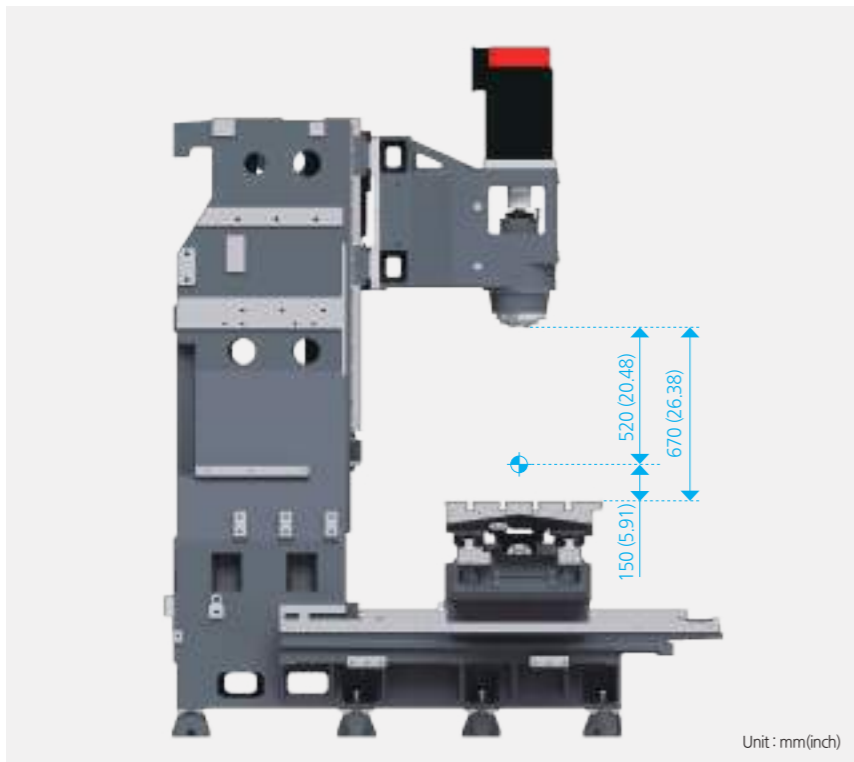
4 Machining Performance Enhancing High Performance NC Options Made Standard

Data server and various NC options are made standard to significantly improve machining performance

Machine Design



Model	Travel [mm (inch)]		
	X-axis	Y-axis	Z-axis
MCV 5700	1,050 (41.34)	570 (22.45)	520 (20.48)
MCV 5700L	1,600 (63.00)	570 (22.45)	520 (20.48)



Unit: mm (inch)

The application of Roller Type LM Guides to X and Y axes minimizes the noise created during travel and the superior accel/decel minimizes the non-cutting time

Highly Rigid Saddle with no X-axis Overhang

Longest-in-class X-axis with 1,550mm (61.03 inch) stroke and high rigidity saddle design makes it ideal for reliable machining of long workpieces

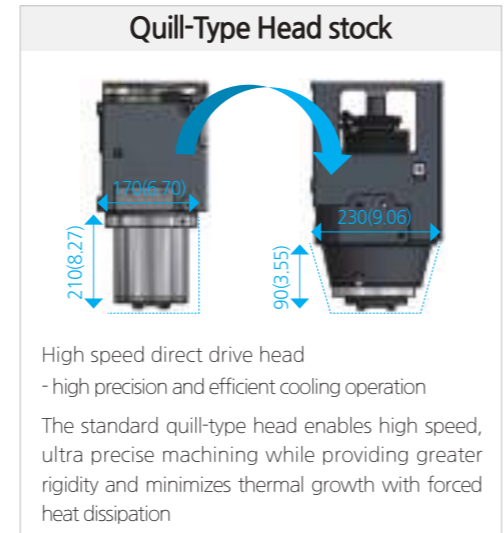
4 Row Y-axis Guide Way Bed (MCV 5700L)

Overhang is minimized with the 4 rows of LM Guides supporting the Y-axis with the widest in class span

Z-axis High Rigidity Arched Column

The arched column ensures high rigidity and high precision machining performance

Unit: mm (inch)



Spindle to table-top distance

150~670mm (5.91~26.38 inch)

Spindle



The ultra precision spindle is supported by 4 rows of P4 class high-speed angular bearings allowing high speed, high precision machining with the direct-coupled head that minimizes thermal growth through forced heat dissipation.

Max spindle speed
12,000 rpm

Power (Cont/Max)
11/22.2 kW
(14.76/29.78 Hp)

Torque (Cont/Max)
70/141.4 N·m
(51.63/104.30 lbs-ft)

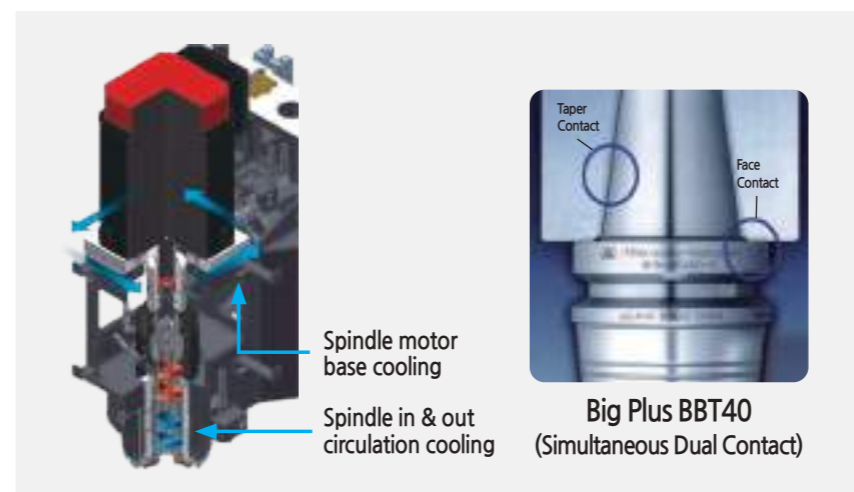
JACKET Circulation Cooling

Semi-permanent grease lubrication applied to the bearings, while thermal growth is minimized using jacket circulation cooling around the bearing housing (a source of heat) via a Fan Cooler, ensuring stable performance and extending the lifetime of the spindle.

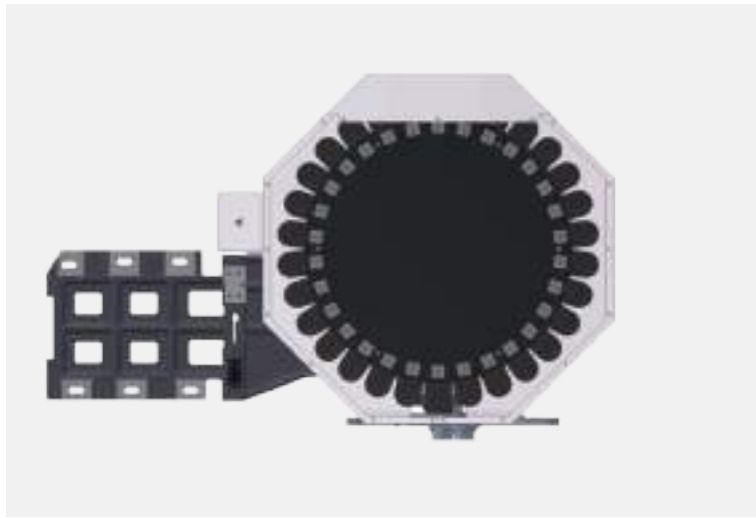
Standardized Dual-Contact Spindle

The dual-contact system that provides taper and flange contact when tool holders are clamped into the spindle

- with both the taper and flange in contact, improved stability with reduced vibration
- improved machining capability and surface finish under extreme conditions
- 100% compatible with current tools. (BT40)



ATC / Magazine



ATC Magazine

Designed with a standard 30 tool magazine with short travel distance to enable quick tool changes

Fast and errorless tool changes are made possible using the memory random technique and double arm type tool changer, minimizing non-cutting time

Tool storage capacity : 30ea

Tool-to-tool time : 1.3sec

Max. tool dia. [adjacent empty] :
80[125]mm (3.15[4.93]inch)

Max. tool length : 300mm (11.82 inch)

Max. tool weight : 8kg (17.64 lb)



Table

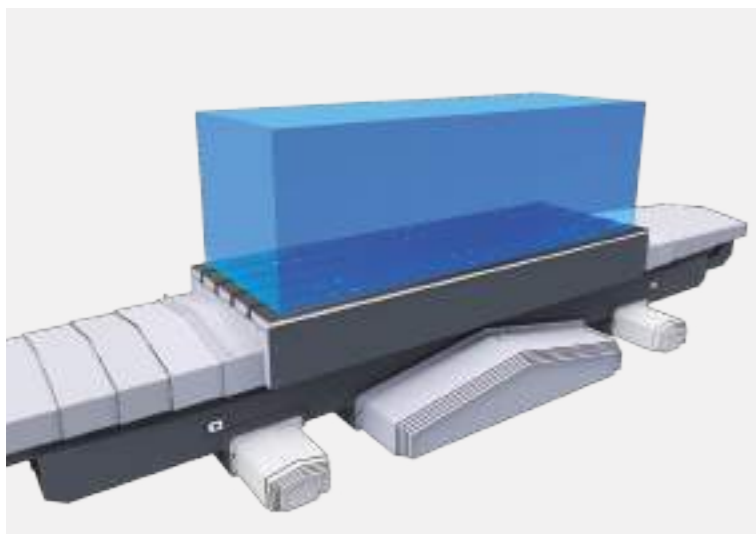


Table size and Table loading capacity were increased to support larger work area

Table size :

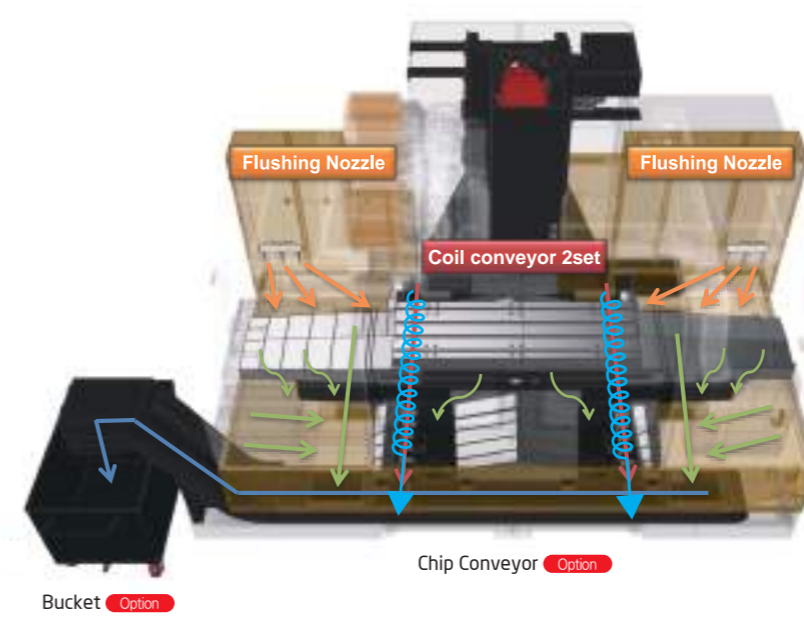
MCV 5700 : 1,300×570mm
(51.15×22.44 inch)

MCV 5700L : 1,700×570mm
(66.93×22.44 inch)

Table surface : 18H8×p125×4ea
(0.71H8×p4.93×4ea)

Table loading capacity :
1000kgf (2,204.63 lbs)

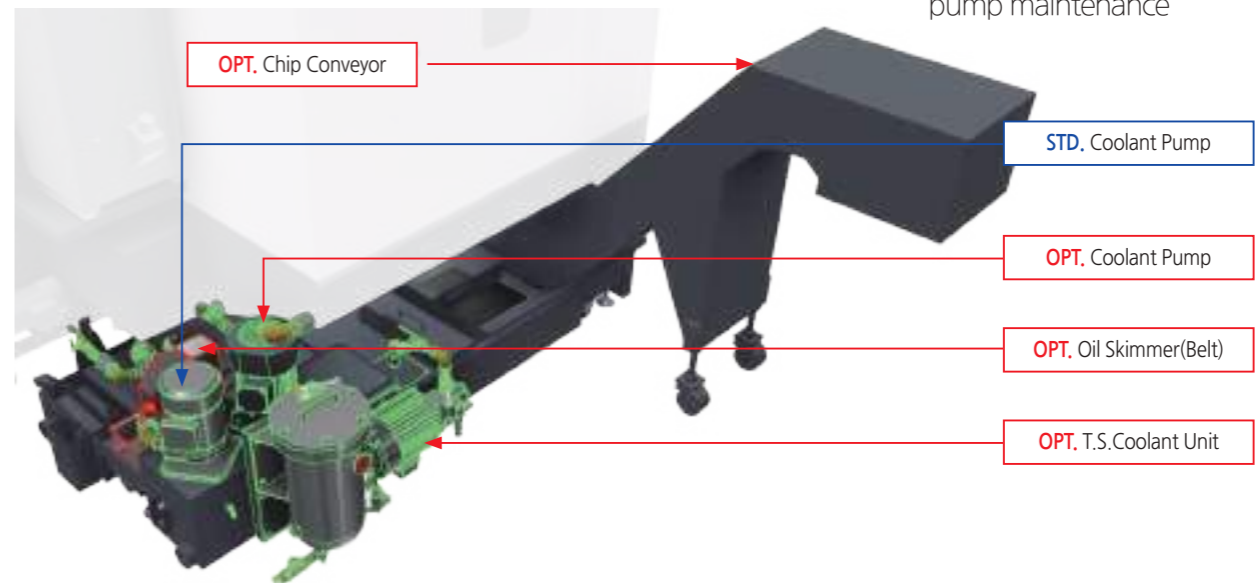
Eco-Friendly Chip Disposal



Complete chip discharge through the series of chip disposal processes by the coolant nozzle, bed flush, coil conveyor and chip conveyor

- the large, rectangular S/GUARD design and rear coolant tank ensures easy chip removal
- using bed flushing, complete chip disposal off the surface of the bed
- the chip conveyor can be installed in either the left or right direction according to the required layout for efficient chip disposal

Automated Coolant Supply



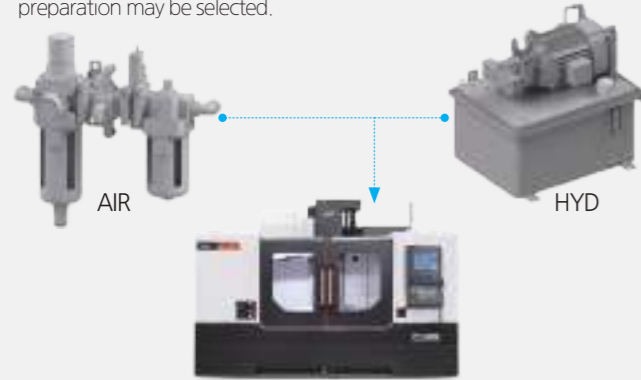
Large capacity coolant tank located behind the machine enables easy coolant exchange, tank cleaning and pump maintenance

Coolant tank capacity : 400ℓ (105.67 gal)

Options

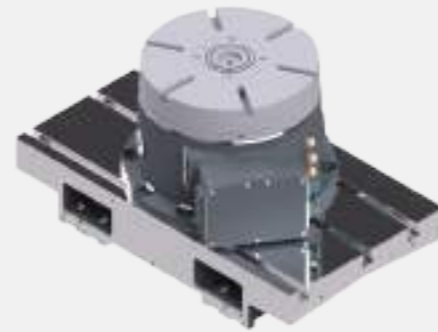
Rotary table and air/hyd fixture preparation

Components necessary for the installation of rotary table and fixtures may be added during assembly wherein hydraulic or pneumatic preparation may be selected.



NC rotary table

When using an NC rotary table, multi-axis machining of diverse shapes is possible.



Tool measurement probe

Various automated tool diameter, length and lifetime measuring devices may be installed.



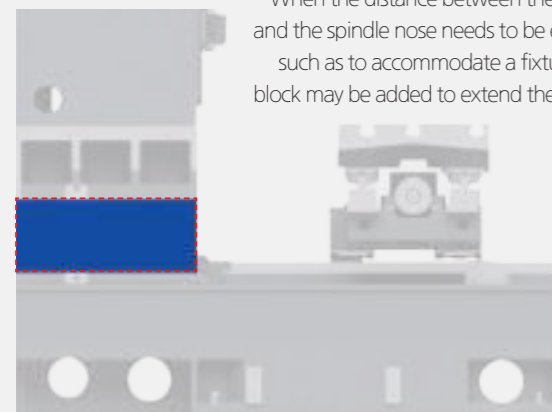
Chip conveyor

Equipment meant to remove chips created during machining



High column

When the distance between the table top and the spindle nose needs to be extended, such as to accommodate a fixture, a riser block may be added to extend the distance.



Through spindle cooling (TSC)

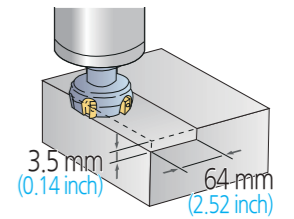
The TSC option may be added to improve machining effectiveness



Cutting performance

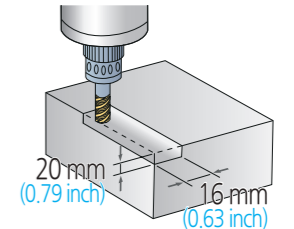
Face mill [Ø80mm (Ø3.15")] / Carbon steel (SM45C)

Chip removal rate [cm ³ /min (inch ³ /min)]	Spindle speed (r/min)	Feedrate [mm/min (ipm)]
605 (36.92)	1,500	2,700 (106.3)



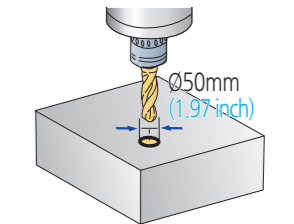
End mill [Ø25mm (Ø1")] / Carbon steel (SM45C)

Chip removal rate [cm ³ /min (inch ³ /min)]	Spindle speed (r/min)	Feedrate [mm/min (ipm)]
68.8 (4.2)	1,528	138 (5.44)



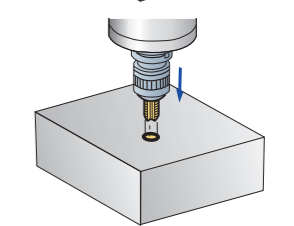
U-Drill [Ø50mm (Ø1.97")] / Carbon steel (SM45C)

Cutting rate [cm ³ /min (inch ³ /min)]	Spindle speed (r/min)	Feedrate [mm/min (ipm)]
353 (21.55)	1,500	210 (8.27)



Tap / Carbon steel (SM45C)

Cutting rate [cm ³ /min (inch ³ /min)]	Spindle speed (r/min)	Tap size (mm)
212 (12.94)	742	M30×3.5



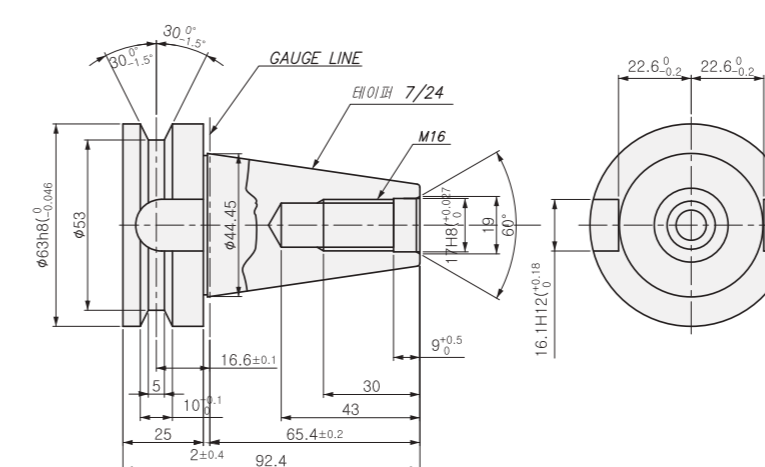
TEST conditions : MCV 5700L - 12,000rpm [BT40]

* The above data is based on internal testing. Values may change depending on cutting conditions.

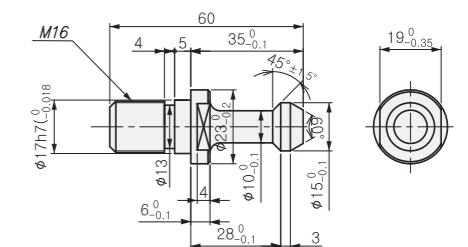
Tool Shank

Unit : mm

BT40



PULL STUD



Spindle Power & Torque Diagram

Max Spindle Speed
12,000 rpm

Power (Cont/Max)
11/22.2 kW
(14.76/29.78 Hp)

Torque (Cont/Max)
70/141.4 N·m
(51.63/104.30 lbs-ft)

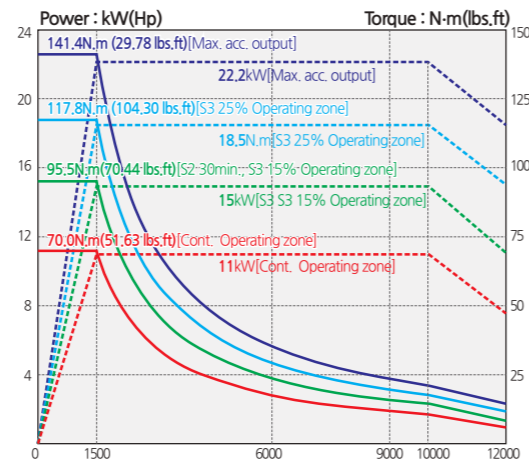
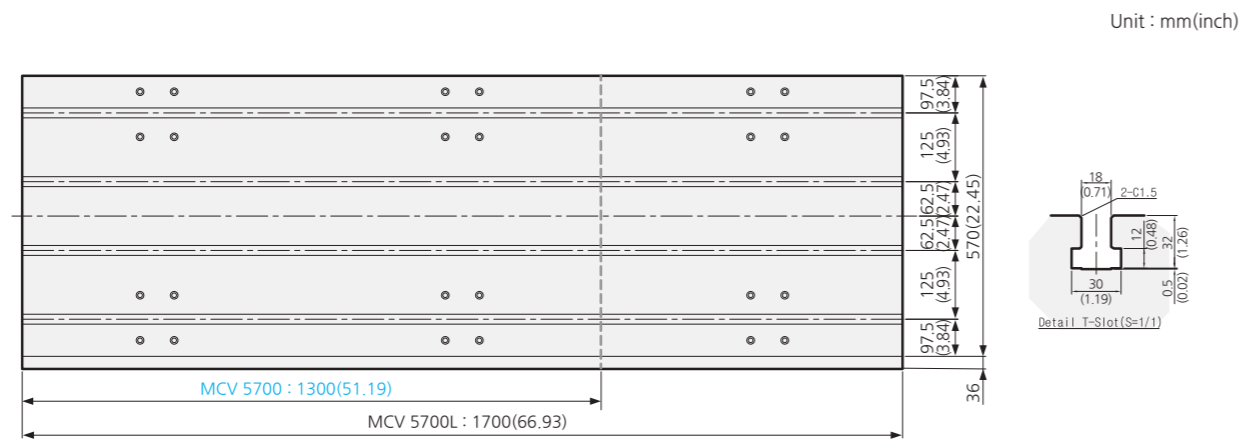
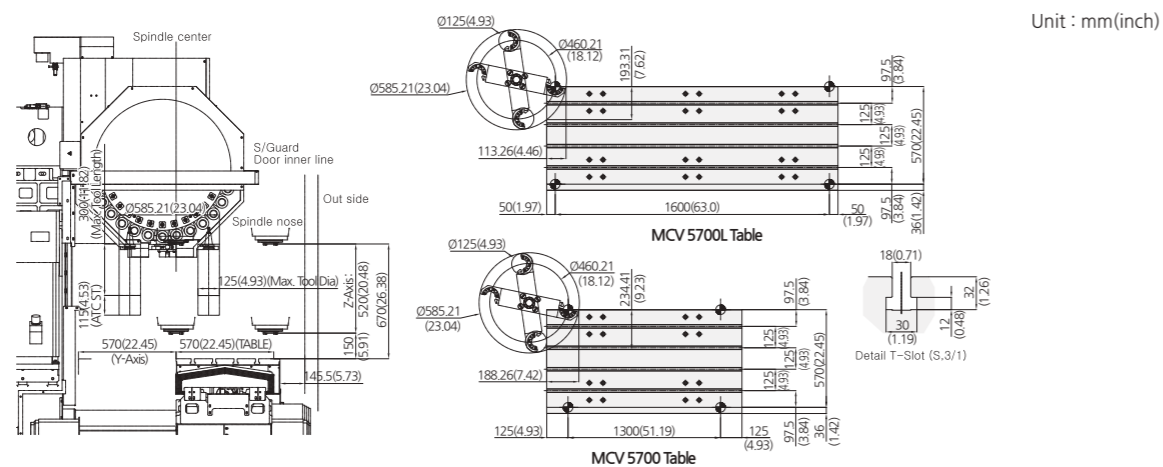


Table & T-Slot

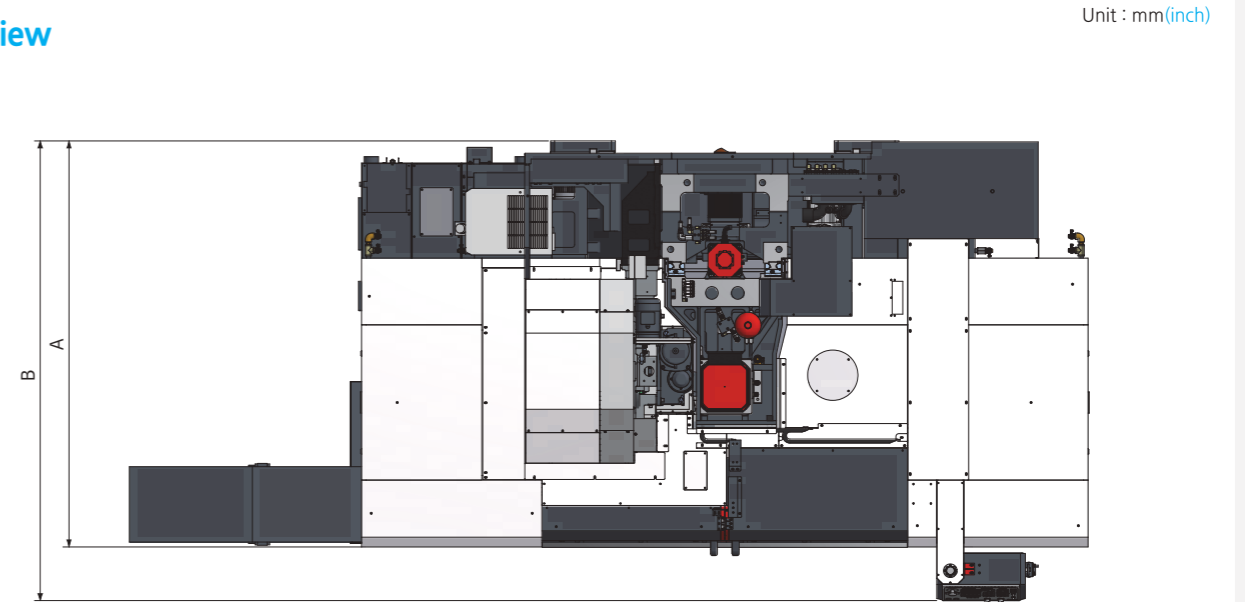


ATC Interference

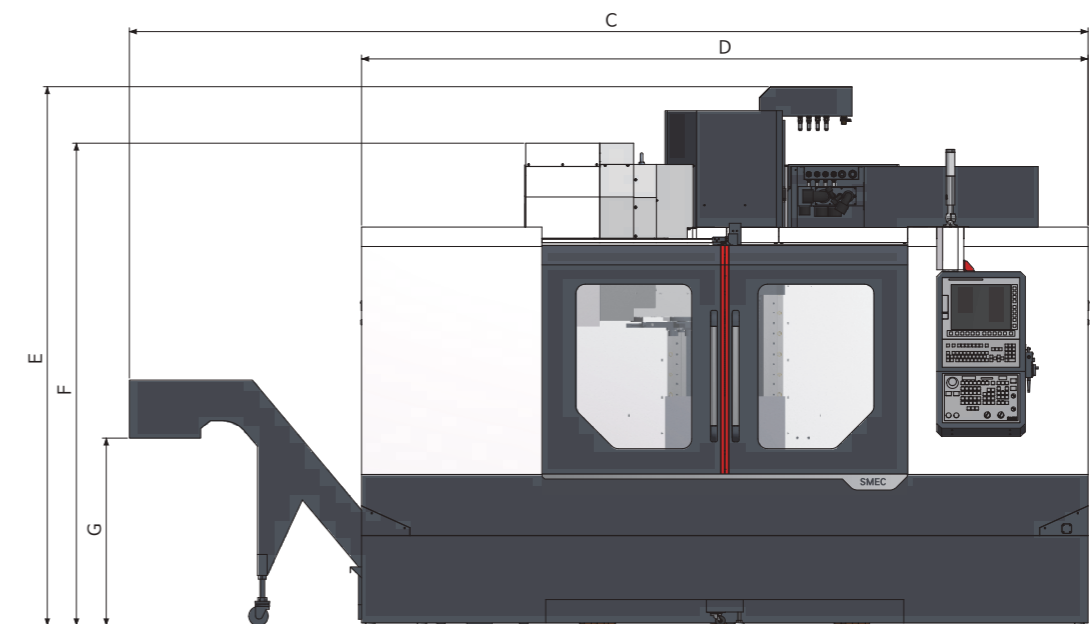


Machine Dimensions

Top view



Front view



Model	A [Length]	B [Length (incl OP Panel)]	C [Width (incl C/C)]	D [Width]	E [Height (max)]	F [Height (magazine)]	G [Height (C/C disposal chute)]
MCV 5700	2,063 (81.23)	2,370 (93.31)	4,181 (164.61)	2,949 (116.11)	2,783 (109.57)	2,373 (93.43)	970 (38.19)
MCV 5700L	2,099 (82.64)	2,377 (93.59)	4,954 (195.04)	3,754 (147.80)	2,786 (109.69)	2,495 (98.23)	970 (38.19)

MCV 5700 Series

VERTICAL MACHINING CENTER

Standard / Optional

● : Standard ○ : Optional X : N/A

Category		MCV 5700	MCV 5700L
Spindle			
RPM	12R	●	●
	15R	○	○
Spindle chiller		●	●
ATC			
Tool type	BBT40	●	●
	CAT40	○	○
	HSK-A63	X	X
Pull Stud	45°	●	●
Table & Column			
T-slot table		●	●
High column	200mm	○	○
	300mm	○	○
	400mm	○	○
Coolant Equipment			
FULL SPLASH GUARD		●	●
Shower coolant		○	○
Coolant gun		○	○
Bed flushing		○	●
Air gun		○	○
Air blow		○	○
Tool measurement air blow (with tool measuring device)		○	○
Internal screw conveyor		●	●
Chip conveyor, HINGE	Left	○	○
	Right	○	○
	Rear	X	X
Chip conveyor, SCRAPER	Left	○	○
	Right	○	○
	Rear	X	X
Chip bucket	STD (380ℓ)	○	○
	Rotating (200ℓ)	○	○
Electrical Equipment			
3 step patrol lamp & buzzer		●	●
Elec. cabinet light		○	○
Remote MPG		○	○
3-axis MPG		●	●
Work counter	GUI	●	●
Total counter	GUI	●	●
Tool counter	GUI	●	●
Multi counter	GUI	●	●
Residual current breaker		○	○
AVR (Auto Voltage Regulator)		○	○

Category		MCV 5700	MCV 5700L
Electrical equipment			
Transformer	50kVA	○	○
Auto Power Off		○	○
Power outage backup module		○	○
Z-axis drop prevention		●	●
Precision machining option			
AICC II (AI Contour Control II)		●	●
Jerk control		●	●
Smooth tolerance plus control		●	●
Machining condition selection function		●	●
Machining quality selection function		●	●
Data server		●	●
Manual guide i		●	●
Measurement			
Workpiece contact check device	TACO	○	○
	SMC	○	○
Auto tool measuring device		○	○
Tool breakage detection		○	○
Linear scale	X-axis	○	○
	Y-axis	○	○
	Z-axis	○	○
Coolant level detection		○	○
Environmental			
Air conditioner		○	○
Oil mist collector		○	○
Oil skimmer		○	○
Fixture & automation			
Auto door	STD	○	○
	High speed	X	X
Auto shutter		X	X
Operation sub-console		○	○
NC rotary table		○	○
NC rotary table interface		○	○
Rotary table control	+1 axis	○	○
	+2 axis	○	○
Add. M-code (4 sets)		○	○
Robot interface		○	○
I/O expansion		○	○
Hydraulic equipment			
Hydraulic unit for fixtures		○	○
Safety device			
Door interlock		●	●
KCs		●	●

* For detailed information, please contact your local SMEC dealer.

Machine Specifications

Category			MCV 5700	MCV 5700L
Travel	X-axis travel	mm(inch)	1,050(41.34)	1,600(63.00)
	Y-axis travel	mm(inch)	570(22.45)	570(22.45)
	Z-axis travel	mm(inch)	520(20.48)	520(20.48)
	Spindle to table surface	mm(inch)	150~670(5.91~26.38)	150~670(5.91~26.38)
Table	Table size	mm(inch)	1,300 × 570(51.19×22.45)	1,700 × 570(66.93×22.45)
	Table loading capacity	kgf(lb)	1,000(2,204.63)	1,000(2,204.63)
	Table surface	mm(inch)	18H8(0.71H8) T-slot × p125(4.93) × 4ea	18H8(0.71H8) T-slot × p125(4.93) × 4ea
Spindle	Spindle speed	rpm	12,000	12,000
	Power (Cont/Max)	kW(HP)	11 / 22.2(14.76/29.78)	11 / 22.2(14.76/29.78)
	Torque (Cont/Max)	N.m(lbs.ft)	70.1 / 141.4(51.63/104.30)	70.1 / 141.4(51.63/104.30)
Feedrate	X-axis rapid traverse rate	m/min(ipm)	36(1,417.33)	30(1,181.11)
	Y-axis rapid traverse rate	m/min(ipm)	36(1,417.33)	36(1,417.33)
	Z-axis rapid traverse rate	m/min(ipm)	30(1,181.11)	30(1,181.11)
	Cutting feed(X/Y/Z)	mm/min(ipm)	1-15,000(0.04-570.56)	1-15,000(0.04-570.56)
ATC	Tool shank	-	BT40(CAT40)	BT40(CAT40)
	Pull stud	-	MAS P40T-1	MAS P40T-1
	Tool storage capacity	ea	30	30
	Max tool diameter [adjacent empty]	mm(inch)	80(3.15)[125(4.93)]	80(3.15)[125(4.93)]
	Max tool length / weight	mm/kgf(inch/lb)	300/8(11.82/17.64)	300/8(11.82/17.64)
	Tool-to-tool time	sec	1.3	1.3
	Tool changing method	-	Double Arm Swing	Double Arm Swing
	Tool select type	-	Memory random	Memory random
	Machine	Size [with SIDE chip conveyor] L×W×H	mm(inch)	2,949[4,181] × 2,063 × 2,782 (116.11[164.61] × 81.23 × 109.53)
Size [with REAR chip conveyor] L×W×H		mm(inch)	-	-
Weight		kg(lb)	6,700 (14,770.98)	7,000 (15,432.36)
Coolant tank capacity		Liter(gal)	400 (105.67)	400 (105.67)
Electric power supply		kVA/V	32/220	32/220
Controller		FANUC Oi-MF Plus		

* Design and specifications are subject to change without notice.