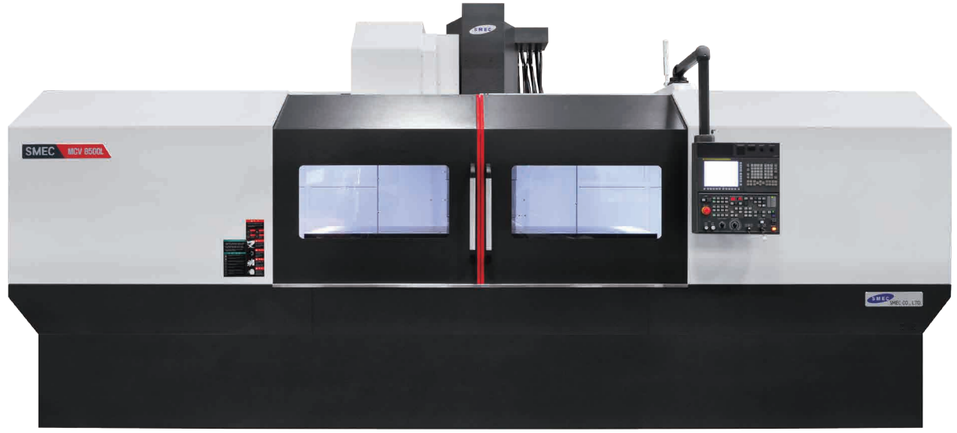
SMEC

MCV 8500L

VERTICAL MACHINING CENTER



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SMEC
Smart One, Global One

Ⓔ SMEC 2019.11-NO.1

SMEC SMEC CO.,LTD.

SMEC *Smart One, Global One*

- 1988 - Started as Samsung Heavy Industries Machine Tools Business
- 1989 - Horizontal and vertical machining center technology partnership with OKK Japan
- 1991 - Turning center and vertical machining center technology partnership with Mori Seiki
- 1996 - 5-sided processing center technology partnership with Toshiba
- 1999 - Spun out from Samsung Aerospace Industries and established SMEC Co., Ltd

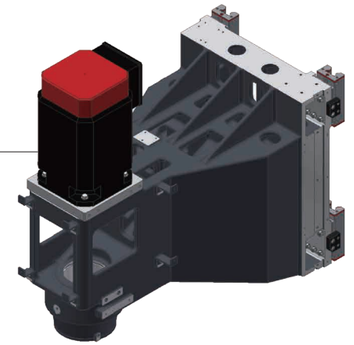
Samsung **M**achine Tools **E**ngineering **C**ompany

MCV 8500L

High speed and precision vertical machining center! High rigidity arch structure!

- Low centered one piece Bed with triangle Rib design
- Biggest X axis stroke(MCV 8500L:2,540mm) and table in its class
- Realize high rigidity and precision with high rigidity Saddle and arch Column structure
- 6 raws Y axis LM guide way prevent overhang
- High speed and precision direct spindle

Direct head



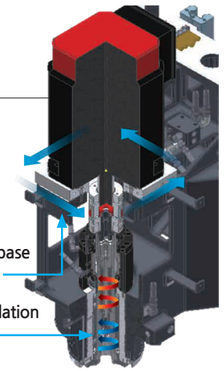
Spindle Speed
12,000 rpm

Spindle Motor
11/15/18.5 kW

Spindle is sustained by 4 raws P4 speedy angular ball bearing reducing temperature increasing to realize high speed and precision machining.
By adopting Direct Drive type spindle minimize vibration to excellent machining for nonmetal surface finishing.
Motor direct type is connected by coupling without extra power transmission.

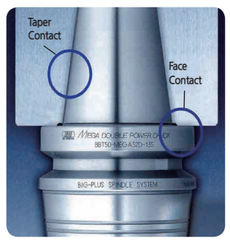
JACKET circulation cooling system

Adopting semipermanent Grease lubrication system on bearing, minimize thermal displacement by Jacket circulation cooling through Fan Cooler on bearing housing, showing stable performance to take longer spindle life time.
Minimize thermal displacement by standard spindle motor base cooling system.



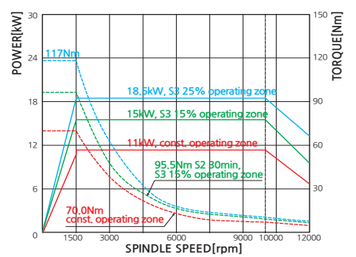
Dual Contact Spindle (BBT40)

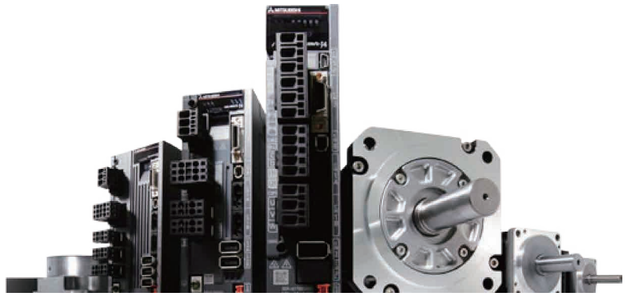
Dual contact system to contact both main spindle surface and taper surface dually by measuring elastic deformation of spindle surface that occurs when main spindle is clamped.
- Simultaneous contact to both main spindle surface and taper increases rigidity and reduces vibration.
- Increases machining capacity and surface roughness even under harsh condition.
- 100% compatible with existing tools.(BT40)



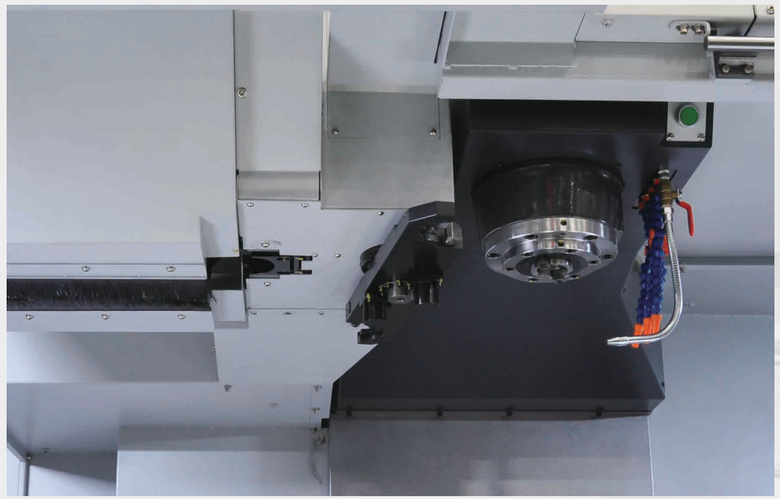
Big Plus BBT40
(Simultaneous Dual Contact)

Spindle Power & Torque Diagram





High-speed tool changer being driven by enhanced technologies



Twin arm type auto tool changer

It is Double swing arm swing type by memory random method and has no error during tool changing and minimize idle time.

Tool to Tool : **1.3(60Hz), 1.6(50Hz)**

Tool Magazine

By adopting 30ea tools as a standard having maximum tool storage capacity in its class. Also, shortest moving system design can set up next tool within short time.

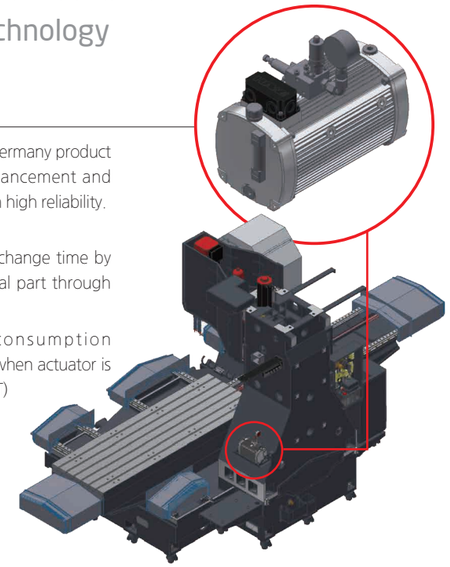
Maximum tool capacity : **30ea**

the most advanced mechanism of high-speed technology

HYD. UNIT

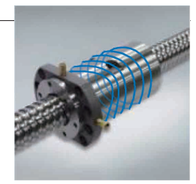
By using Hydraulic Unit from Germany product we realize that life time enhancement and lower power consumption with high reliability.

- Adopting accumulator
  Enhance durability and tool change time by friction down of each internal part through reducing pumping time
- Epoch-making power consumption down(90%) by using pump when actuator is working(In case of HYD. UNIT)



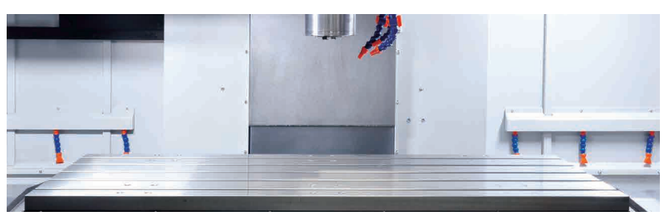
Ballscrew support with anchored ends / Opt. Nut cooling system(X, Y-Axis only)

Reduced changes to load on support bearing due to thermal displacement, while extending support bearing lifetime



Largest-in-class internal area(MCV 8500L Spec.)

- Wide and stable stroke 〈2,540×850×650mm〉, 〈TABLE : 2,600×850mm〉
- Can fit up to Ø320 rotary table
- Easy wiring/piping for automation



High rigidity Z axis arch column structure

By adopting arch column structure with optimal structural analysis realizing high rigidity and precision machining.
High precision machining is suitable depending on the Z axis linear scale options.

High rigidity Saddle without overhang on X axis

By maximum X axis stroke 2,540mm in its class and high rigidity saddle it is fit for various and stable as well as long work piece machining.

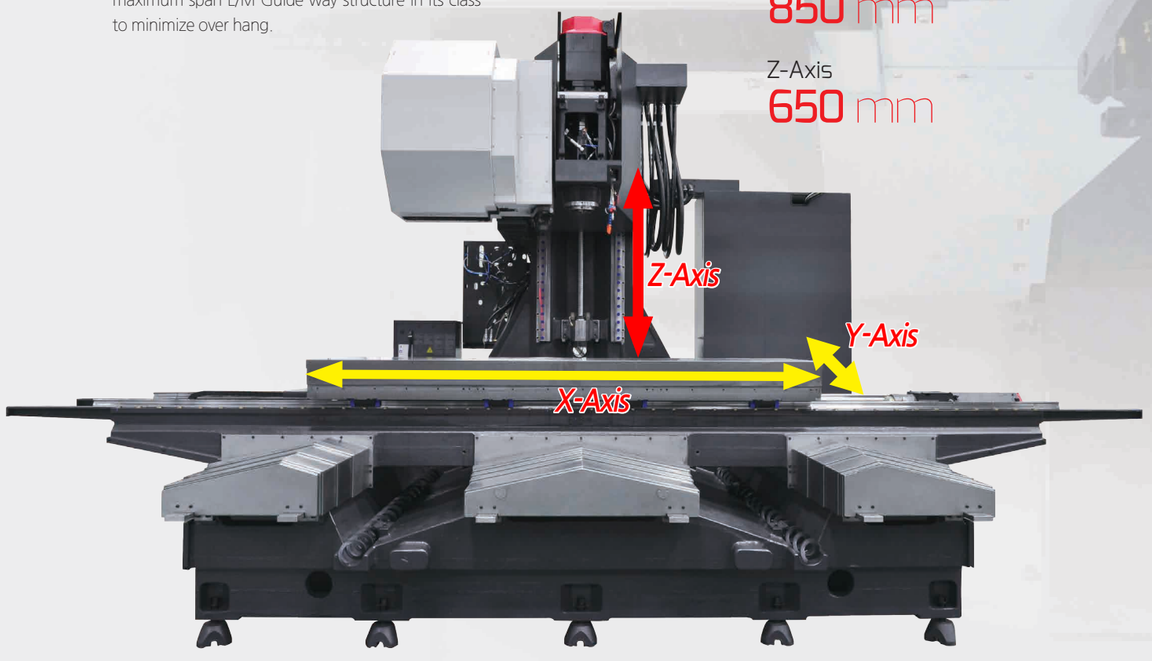
6 raws Guide way bed on Y axis

Bed has 6 raws sustaining method on Y axis and maximum span L/M Guide way structure in its class to minimize over hang.

X-Axis
2,540 mm

Y-Axis
850 mm

Z-Axis
650 mm



Pendant arm / Operation panel

Pendant/panel design by considering user space and convenience improve working environment

High efficiency Spindle Head Cooling System

Std.

For long-term continuous high-speed operation, a coolant system may be installed to maintain room temperature. The coolant system circulates coolant oil around the spindle bearings to prevent thermal expansion due to the spindle temperature, ensuring high precision machining.

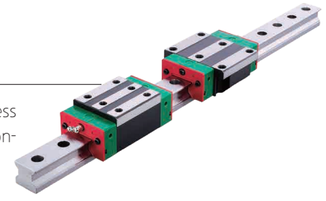
Centralized Pneumatic Utility

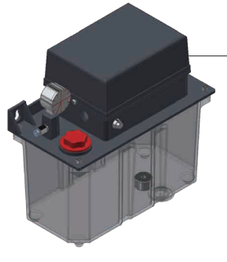
Easily check the operation status of items such as lubrication, bearing fluid and air supply.

Roller Guide Way

The use of LM Guides with superb responsiveness increased rapid traverse speeds and reduced non-cutting time while minimizing noise during travel.

- Strengthen speed, rigidity, durability
- Much better durability comparing with Ball LM Guide to realize precision moving and longer life time

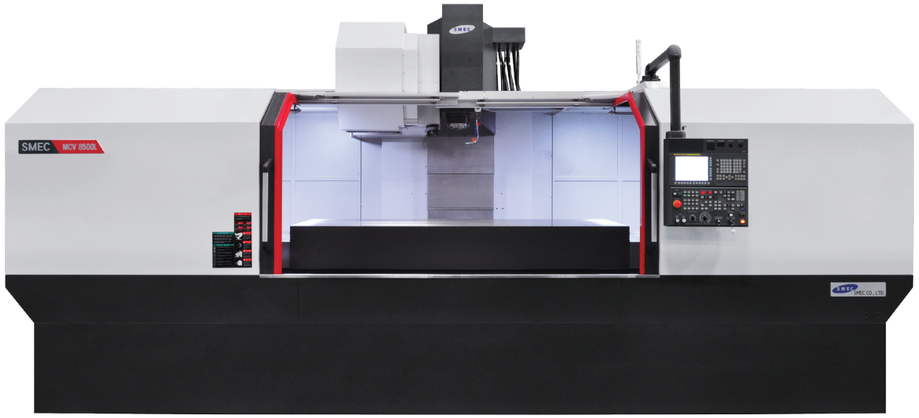




Automatic Lubrication Dispenser

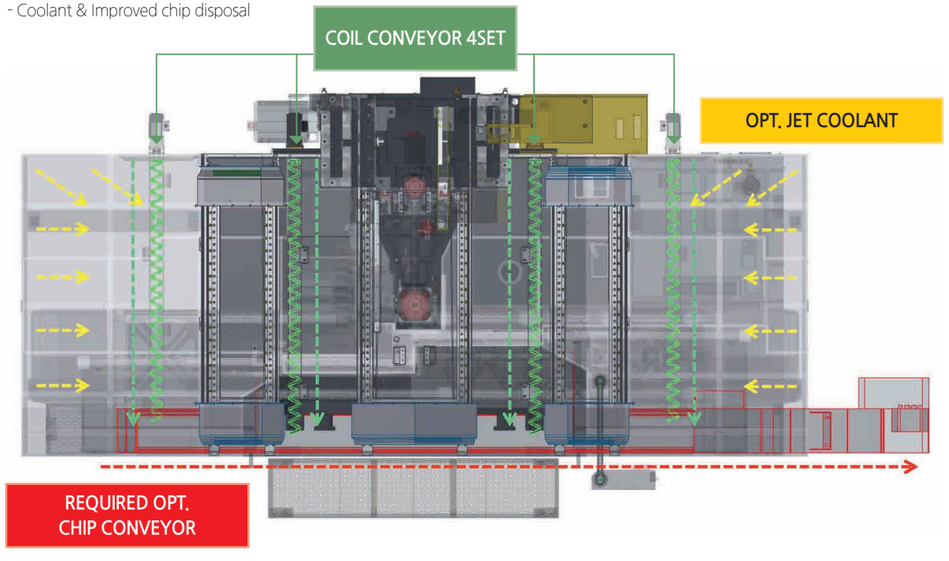
Automatic lubrication dispenser that reliably dispenses the required amount of lubrication to the required travel axes.
Lubrication is only dispensed when the travel axes is in operation, reducing the amount of lubrication that is consumed.
When there is problem on lubrication line it shows warning message on a screen and stop the machine for users safety operation.

Fully enclosed Splash Guard!



Enhanced chip disposal

- Forward discharge of 4set coil conveyor
- Coolant & Improved chip disposal



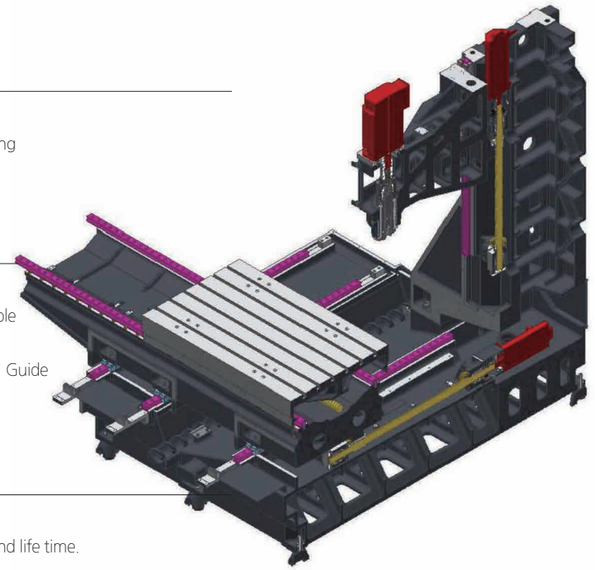
High rigidity & performance travel system

Travel type

Directly connecting with servo motor(Y/Z)
There is no intermediate channel to transmit power but using coupling and minimize back lash during axis moving

Roller type LM guide axis moving system

Best-in-class high performance guideways (for all axes)
Speed → Reducing unnecessary time to move faster and stable
Rigidity → Strengthen axis moving during heavy cutting
Durability → Much better durability comparing with Ball LM Guide to realize precision moving and longer life time

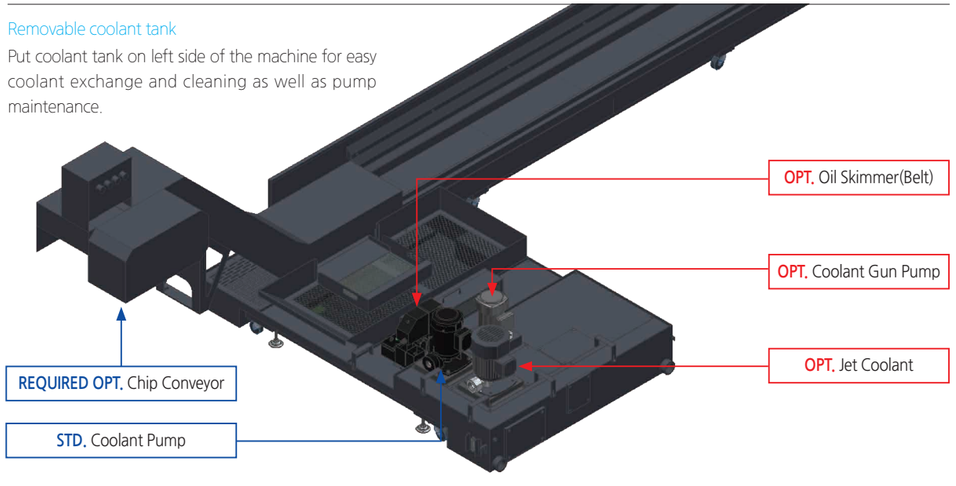


Applied 4 raws bearing for all axis(X-Y-Z)

High rigidity with 4 times the lifetime
By sustaining 8 bearings on each axis realizing high rigidity and life time.

Chip Conveyor & Coolant Tank

Removable coolant tank
Put coolant tank on left side of the machine for easy coolant exchange and cleaning as well as pump maintenance.



SMEC Smart One, Global One

고객 중심의 중앙집중식 조작반

❶ CRT : 10.4 inch color LCD

❷ Bigger BEZEL switch size :
50% larger than the conventional switch size

❸ Addition of MG stand-by tool No

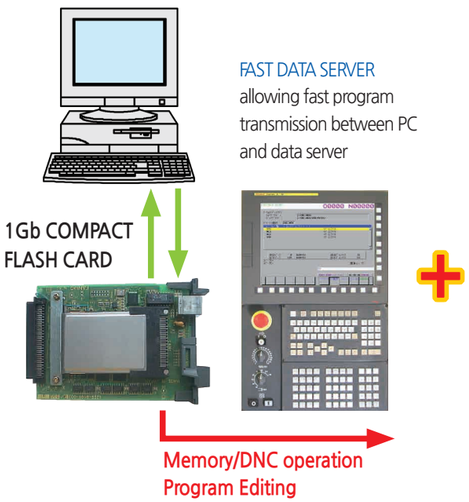
❹ Addition of MG change button

❺ Addition of 4th and 5th axis switch

❻ Spindle Overide
50~120%(15 step)
→ 50~150% (20 step change)
Feed Overide
0~1260 (16 step)
→ 0~5000 (21 step change)

❼ Addition of spare buttons for fixtures

Std. SMEC Package 2 (FAST DATA SERVER + AICC II)



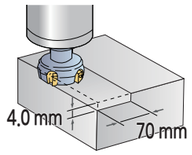
High Precision, High Speed AICC II

CNC MODEL	FO*i*-MF	31*i*
Block Look Ahead	200	200
Nano Interpolation	○	○
Decel Before Interpolation	Linear	Linear, Bell-Shaped
Acceleration Setting for Each Axis	○	○
Automatic Corner Deceleration	○	○
Radial Speed Clamp	○	○
Deceleration Speed Clamp	○	○

Cutting Capacity (BT40 11/18.5KW)

Face mill Carbon Steel (SM45C)

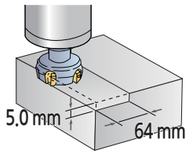
Ø100mm Face mill (5Z)



Cutting amount 182 ㎤/min
Spindle speed 600 r/min
Feedrate 650 mm/min

Face mill Alumium (AL6061)

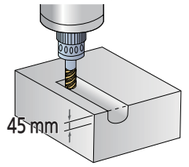
Ø80mm Face mill (5Z)



Cutting amount 403 ㎤/min
Spindle speed 1,500 r/min
Feedrate 1,260 mm/min

End mill Carbon Steel (SM45C)

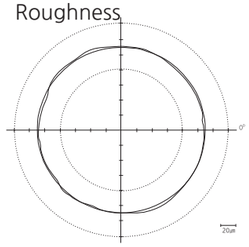
Ø30mm End mill (6Z)



Cutting amount 65 ㎤/min
Spindle speed 230 r/min
Feedrate 48 mm/min

High Precision

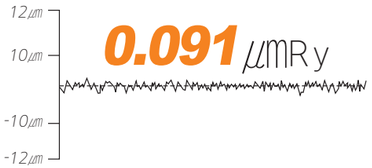
Roughness



5.80㎛
Roundness

Machine	*MCV 8500L*
Material	*A 1050P*
Tool	*Ø25×4T*
Spindle Speed	*1,500RPM*

Surface Roughness <O.D. cutting>

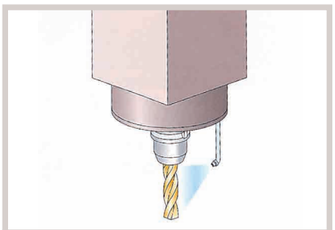


Optional Accessories


Auto Tool Length Measurement System


Gun Coolant


Linear Scale Feed Back System


Oil Mist System

CNC Rotary Table


Chip Conveyor

SMEC Smart One, Global One

Machine Dimensions

Unit : mm

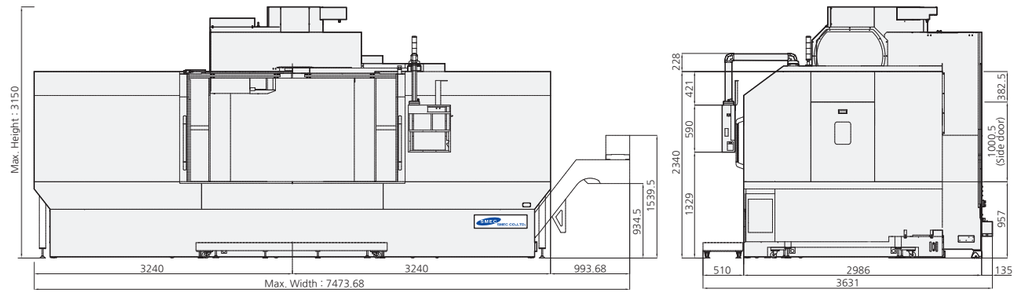
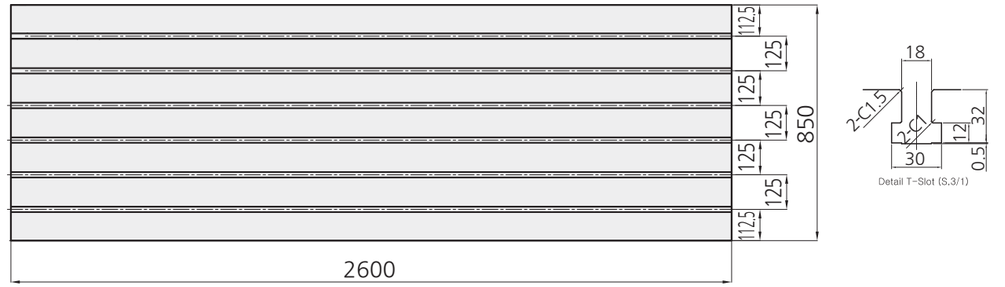


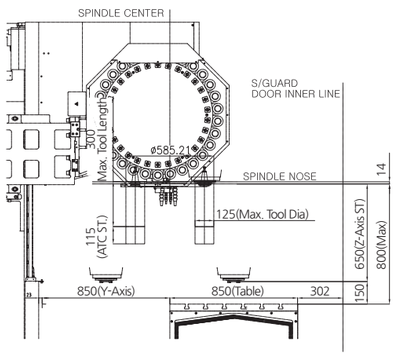
Table & T-Slot

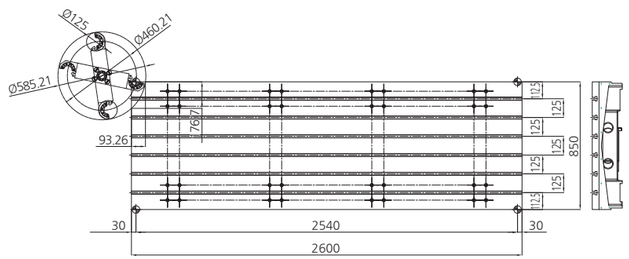
Unit : mm



ATC Interference

Unit : mm

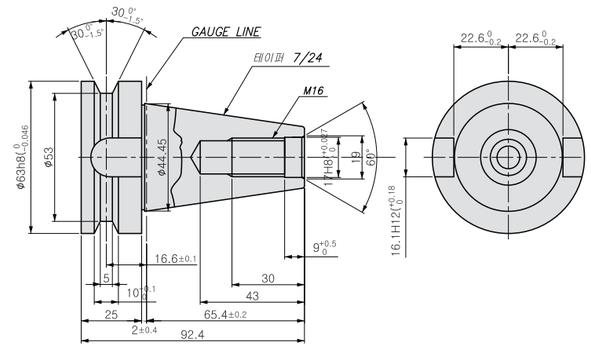




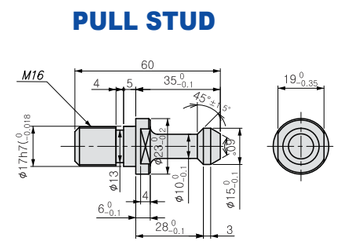
Tool Shank

Unit : mm

BT40



PULL STUD



Machine Specification

DESCRIPTION			MCV 8500L
Travel	X-axis travel	mm	2,540
	Y-axis travel	mm	850
	Z-axis travel	mm	650
	Spindle to table surface	mm	150 ~ 800
Table	Table size	mm	2,600 x 850
	Max. Workpiece weight	kgf	2,000
	Table surface	mm	18H8 T-slot × p125 × 6ea
Spindle	Spindle speed	rpm	12,000
	Motor (Cont./Max)	kW	11/18.5
	Torque (Cont./Max)	N.m	70.1/117
Feedrate	X-axis Rapid traverse rate	m/min	30
	Y-axis Rapid traverse rate	m/min	30
	Z-axis Rapid traverse rate	m/min	24
ATC	Tool shank	-	BBT40
	Pull stud	-	MAS P40T-1
	Tool storage capacity	ea	30
	Max. Tool diameter (adjacent empty)	mm	80(125)
	Max. Tool length / weight	mm	300/8
	Tool-to-tool time	mm	1.3
	Tooling changing method	mm	Double Arm Swing
	Tool select type	mm	Memory random
Machine	Size (with Side Chip conveyor) L×W×H	mm	6,480(7,272) × 3,791 × 2,965
	Size (with Rear Chip conveyor) L×W×H	mm	-
	weight	kg	16,000
	Coolant tank capacity	Liter	715
Electric power supply		kVA/V	32/220
Controller			FANUC

※Design and specifications subject to change without notice. ※( ):Option

Standard Accessories

- Coil conveyor (inside)
- Coolant system
- Door interlock
- Full splash guard with coolant tank
- Head nozzle
- Leveling parts (level plate, bolt, etc.)
- Lubrication system
- Manual/Part list (1set)
- Oil cooler
- Patrol lamp (3 colors)
- Portable MPG handle
- Rigid tapping
- Safety precaution name plate
- Spindle orientation
- Spindle override
- Standard tools and tool box
- Work light (LED lamp)

Optional Accessories

- Air blower
- Air gun
- Air conditioners
- Auto door
- Auto power off
- Chip bucket
- Chip conveyor (REQUIRED OPT.)
- Coolant blower
- Coolant chiller
- Coolant gun
- Coolant level switch
- Coolant pressure switch
- Counter (total, multi, tool, work)
- High column
- High pressure coolant
- Jet coolant
- Linear scale (X/Y/Z)
- M-code addition
- Oil mist collector
- Oil skimmer
- Robot interface
- Rotary table
- Through spindle coolant unit
- Tool measuring system
- Tool measuring tool
- Transformer
- Work light (addition)

NC Specifications / Fanuc Series

Item		Description
Controlled axes	Controlled axes	X, Y, Z, (A)
	Max. simultaneously controlled axes	Positioning (G00)/ Linear Interpolation (G01) Circular Interpolation (G02, G03)
	Least input increment	0.001 mm / 0.0001"
Spindle function	Spindle speed control	S5 (5 Digit)
	Spindle speed override	50~120%
	Spindle orientation	M19
Feed function	Feedrate override (10% increase)	0~200%
	Dwell	G04
	Reference position return	G27 / G28 / G29 / G30
	Manual pulse generator	0.001/0.01/0.1mm
	Cutting feed override	0 ~ 5,000 mm/min
	Rapid traverse override	F0(Fine Feed), 25/50/100%
Tool function	Tool number command	T2(2 Digit)
	Tool nose radius compensation	G43 / G44
	Tool radius compensation	G41 / G42
	Tool offset pairs	400 EA
	Tool geometry / wear offset	G90 / G91
Programming function	Canned cycle	G70 ~ G72 / G74 ~ G76 / G80 / G83 ~ G88
	Decimal point input	Able to input up to decimal point
	R command circular interpolation	R radial programming without using I, J, K values
	SUB program	4 phase
	Work coordindate system	G54 ~ G59
	Local / machine coordinate	G52 / G53
	Max program dimension	±99999.999mm
Tape Functions	M function	M3 (3 digit)
	Input code	ISO/EIA auto recognition
	I/O interface	RS232C
	Program storage space	512 Kbyte
	Number of stored programs	400ea
Other features	Display unit / MDI	10.4" color LCD / Soft input type MDI
	Synchronized tapping	Rigid tapping function
	Background editing	Program saving / editing during automatic operation
	Backlash compensation	Pitch error offset compensation for each axis
	Search function	Sequence / program number search
	Safety function	Emergency stop / overtravel
	Program test function	Machine Lock / Single Block
	Control function	Memory / MDI / Manual
	Mirror image	M75 / M76
	Custom macro	#100 ~ #199, #500 ~ #999