SMEC SM 400DDH





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VERTICAL TAPPING CENTER





Great Productivity, **Vertical Tapping Center**

Ideal for mass production of automotive parts, IT parts and mold machining. Newest champion in vertical tapping centers Futuristic vertical machining center with advanced technology in a compact design





Capable of supporting a variety of machining operations with its 20,000 rpm Direct Motor and optimized bearing pre-loaded settings that increase rigidity, counter temperature increase during operation and extend bearing life.

The standard rigid tapping function significantly increases productivity with fast, precise

Also, with its superb machining accuracy, it extends tapping tool lifetime. Triple Speed Return during reverse motion significantly reduces machining time.

2-face tool locking system offered (STD)

The dual contact against the spindle surface and taper surface reduces vibration while enabling high precision, high speed machining.

The increased diameter enhanced the rigidity and ATC repeatability while improving tool life by preventing Z-axis displacement during high speed machining.

Before Clamping

After Clamping



High-speed tool changer being driven by enhanced technologies



ATC & Magazine

The standard unit has a 20 tool turret-type magazine. While the twin-arm type offers fast tool changes of 1.4 second Tool to Tool and 2.2 second Chip to Chip, minimizing the amount of non-cutting time.

Tool to Tool: 1.4sec(60Hz)











Servo Motor ()

for each axis.

- There is no intermediate channel to transmit power but using coupling

Roller type LM guide way 🙆

The use of LM Guides with superb responsiveness increased rapid traverse speeds and reduced noncutting 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

Ball Screw

travel.



Table



the most advanced mechanism of high-speed technology

Travel precision was improved by directly connecting the ballscrew with high reliability digital servo motors

- Minimize back lash during axis moving

The ballscrews were anchored on both ends using 4 rows of Angular Thrust Bearings with pre-tension to prevent thermal expansion due to the increased temperature of the ballscrew during operation and backlash.

In addition, the ballscrews are directly coupled to the servo motor to enable precise axis



The wide table work surface and completely enclosed slide way structure keeps chips and coolant out of the guideways.









High rigidity & function C type machine structure

- Using High rigidity Roller LM Guide for all axis - Enable to fast and stable moving

X-Axis **400** mm Y-Axis 400 mm

Z-Axis 350 mm



- Optimal design through structural analysis enhance durability.



Centralized Utility Alcove

Operation status of lubrication, air supply, etc. can easily be checked.



(A), (B) or (C).





Centralized Operation Panel

Swivel operation panel with 90 degree for convenient operation and work access Wide alarm message of all kinds of errors to support user's convenience

High efficiency Spindle Head Cooling System

For long-term continuous highspeed 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. (12K : Option)



Perfect and Fast Chip Discharge

Chips discharged onto the top of table are smoothly moved into chip pan by high

* Chip conveyor position is selectable among direction



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.

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Superior productivity_Dual head



- Enable to simultaneous machining by dual head

- Working by Z and W axis which is different from other brand (Possible for off set machining)
- After OP10 finishing with one axis it can move OP20(Possible for 2 step machining in one machine)



1HEAD Z axis off set



2HEAD Z axis off set

Main spindle cooling method



Machine Dimensions





Tool Shank







Unit : mm



Machine Specification

Item			SM 400DDH	
Travel	X-axis	mm	400	
	Y-axis	mm	400	
	Z-axis	mm	350	
	Distance from table surface to spindle nos	se mm	200~550 [300~650]	
Table	Table Size	mm	2-660 × 1,150	
	Loading capacity	kg	2-250	
	Table & T Slot	mm	2-12H8 × P120 × 3ea	
Spindle	Head Pitch (Z,W Axis)	mm	250±0.2	
	Spindle Speed	rpm	12,000	
	Maximum Torque(cont./15min)	N.m	23.6/35 [35/47.8]	
	Bearing I.D	mm	50	
	Rapid Traverse(X/Y/Z)	m/min	36 / 36 / 48	
Foodrate	Feedrate(X/Y/Z)	mm/min	1~10,000	
Feedrate	Spindle Drive Motor(Cont./30min)	kW	3.7 / 5.5 [5.5 / 7.5]	
	Feed motor(X/Y/Z)	kW	4/4/4	
	Tool Shank		BBT30 [BT30]	
	Tooling changing method		Double Arm Swing	
	Tool Changing Time(T-T)	sec	1.4	
ATC	Magazine Capacity	ea	20	
AIC	Tool Selection	-	Memory random	
	Max. Tool dia.(adjacent empty)	mm	Ø60(Ø80)	
	Max. Tool Length / Weight	mm/kgf	200/3	
	Pull stud type	-	MAS 403 P30T-1	
Power Supply kVA		kVA	30	
Floor Space (L×W×H) mm		mm	3,063 × 2,177 × 2,506	
Machine Weight kgf		kgf	7,800	
CNC System			FANUC Series	
• De:	sign and specifications subject to change	without not	ice. []:Option	

- MPG Handle

Standard Accessories

- Full Splash Guard - 3 Step Patrol Lamp - Bed Flushing - Coolant System - Rigid Tapping - Leveling Parts(Level Plate, Bolt etc) - Spindle Override - Manual & Part Lists - Standard Tools and Tool Box - Spindle Rotation - Lubrication System - Hydraulic unit - Work Light(LED) - Door Interlock

Optional Accessories

- Air Gun	- T.S.C-20BAR)
- Air Blower	- Tool Length Measurement System(Auto)
- Coolant Gun	- Oil Cooler
- Rotary Table	- Hydraulic Unit
- Oil Skimmer	- Mist Collector(Top Cover must be installed)
- Coolant Level Gauge	- Top Cover : T.S.C (Recommended when using TSC)
	- Lift-Up Conveyor(Hinge Type/Scrapper Type

NC Specifications / FANUC Series

	Item	Description
	Controlled axes	X, Y, Z, (A)
Controlled axes	Max. simultaneously controlled axes	Positioning (G00) / Linear Interpolation (G01) Circular Interpolation (G02, G03)
	Least input increment	0.001 mm / 0.0001"
	Spindle speed control	S5 (5 Digit)
Spindle function	Spindle speed override	50~120%
	Spindle orientation	M19
	Feedrate override (10% increase)	0~200%
	Dwell	G04
Food function	Reference position return	G27 / G28 / G29 / G30
reed function	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 number command	T2(2 Digit)
	Tool nose radius compensation	G43 / G44
Tool function	Tool radius compensation	G41 / G42
	Tool offset pairs	400 EA
	Absolute / Incremental Programming	G90 / G91
	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
function	SUB program	4 phase
	Work coordindate system	G54 ~ G59
	Local / machine coordinate	G52 / G53
	Max program dimension	±99999.999mm
	M function	M3 (3 digit)
	Input code	ISO/EIA auto recognition
Tape Functions	I/O interface	RS232C
	Program storage space	512 Kbyte
	Number of stored programs	400ea
	Display unit / MDI	8.4" color LCD / Soft input type MDI
	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
Other features	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



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