NC Specifications / FANUC 0i-MF

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
	Absolute / Incremental Programming	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	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
	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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SMEC
Smart One, Global One
www.esmec.com

SMEC

SM 400DH

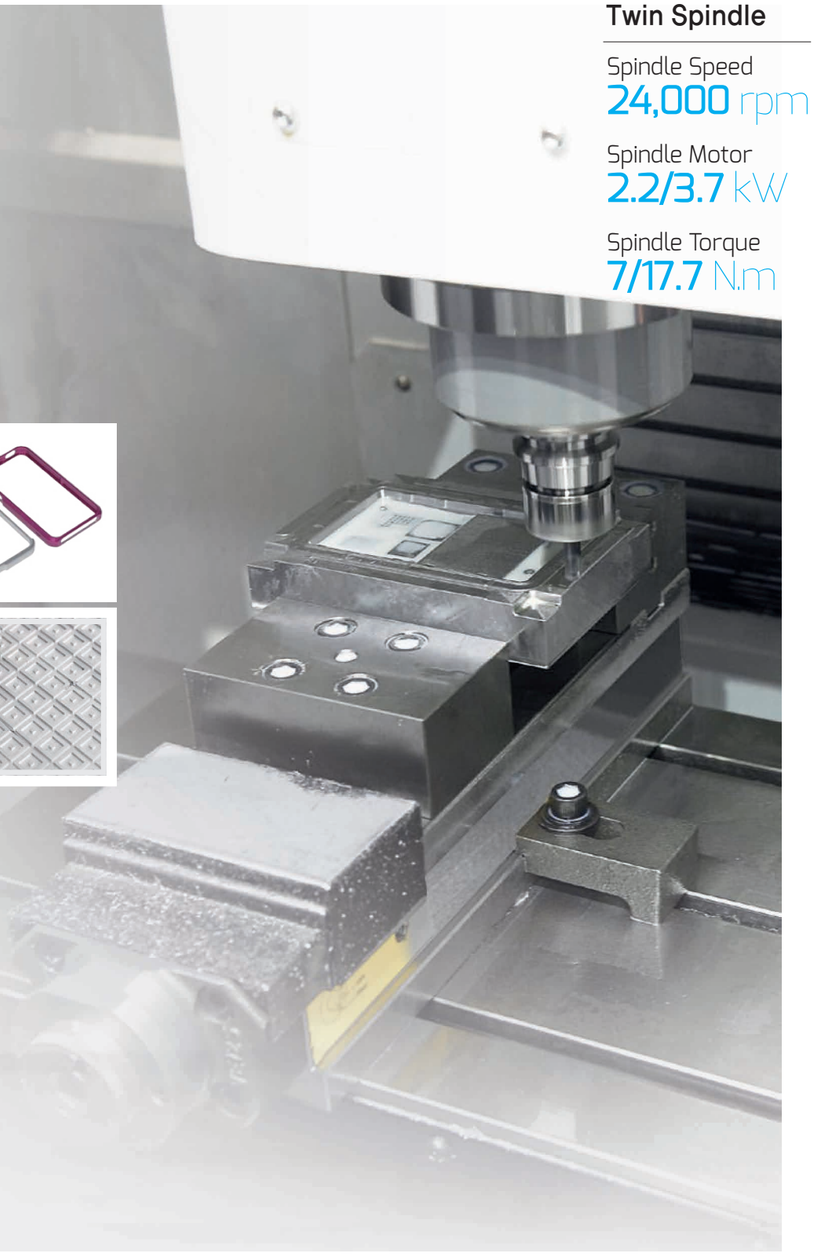
VERTICAL TAPPING CENTER

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
Machine Tools
Engineering
Company



MITSUBISH
Twin Spindle

Spindle Speed
24,000 rpm

Spindle Motor
2.2/3.7 kW

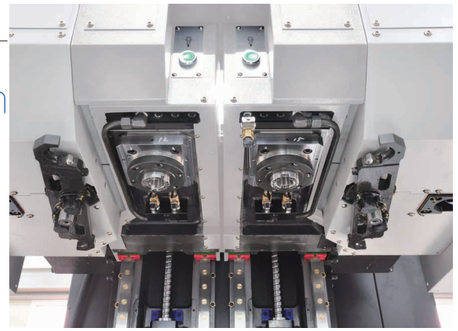
Spindle Torque
7/17.7 N.m

FANUC
Twin Spindle

Spindle Speed
20,000 rpm

Spindle Motor
2.2/3.7 kW

Spindle Torque
7/11.5 N.m



SM 400DH

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.

Rigid Tapping

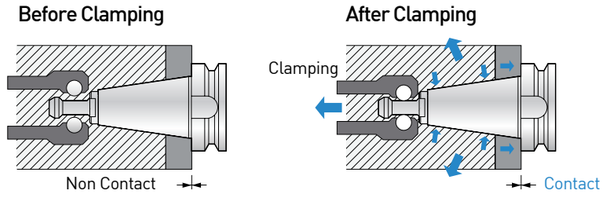
The standard rigid tapping function significantly increases productivity with fast, precise tapping.
Also, with its superb machining accuracy, it extends tapping tool lifetime.
Triple Speed Return during reverse motion significantly reduces machining time.

Spindle Taper

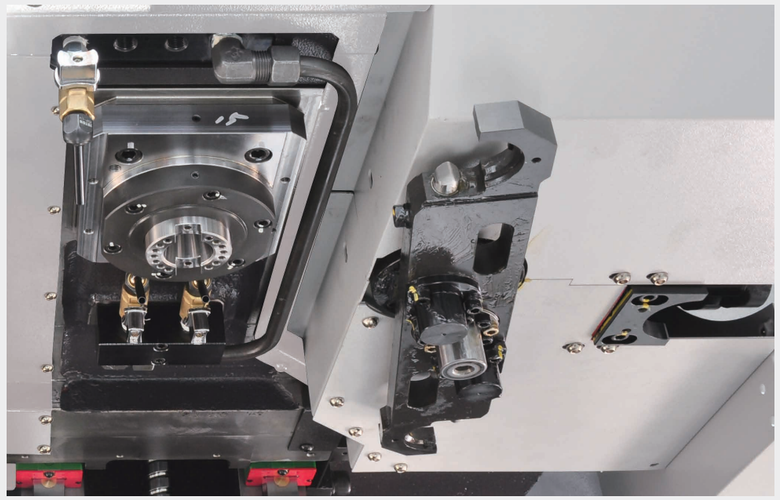
2-face tool locking system offered (STD)

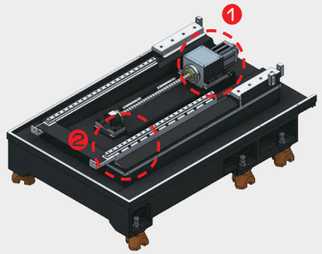
The dual contact against the spindle surface and taper surface reduces vibration while enabling high precision, high speed machining.

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



High-speed tool changer being driven by enhanced technologies

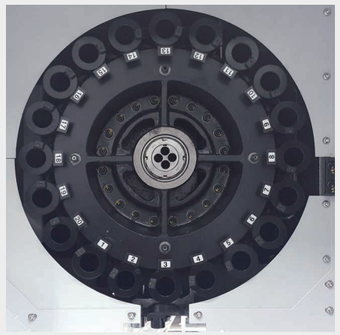




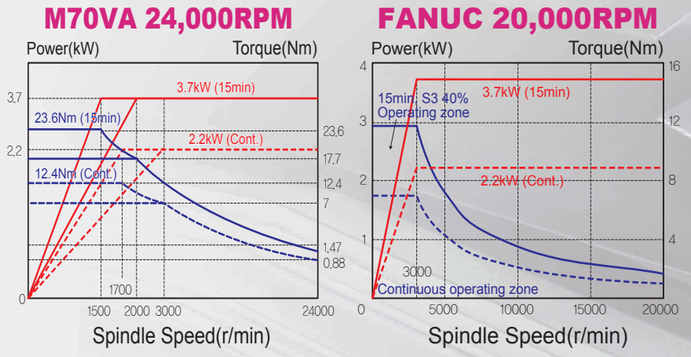
ATC & Magazine

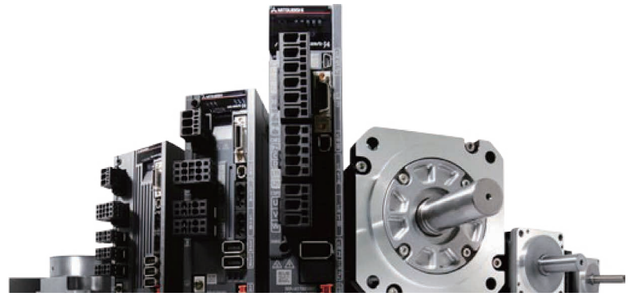
The standard unit has a 20 tool turret-type magazine. While the twin-arm type offers fast tool changes of 0.8 second Tool to Tool and 2.2 second Chip to Chip, minimizing the amount of non-cutting time.

Tool to Tool : 0.8sec
Chip to Chip : 2.2sec



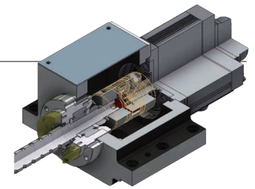
Sub-Spindle Power & Torque Diagram





the most advanced mechanism of high-speed technology

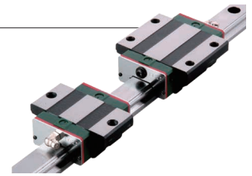
Servo Motor 1



Travel precision was improved by directly connecting the ballscrew with high reliability digital servo motors for each axis.

- There is no intermediate channel to transmit power but using coupling
- Minimize back lash during axis moving

Guide Way 2



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

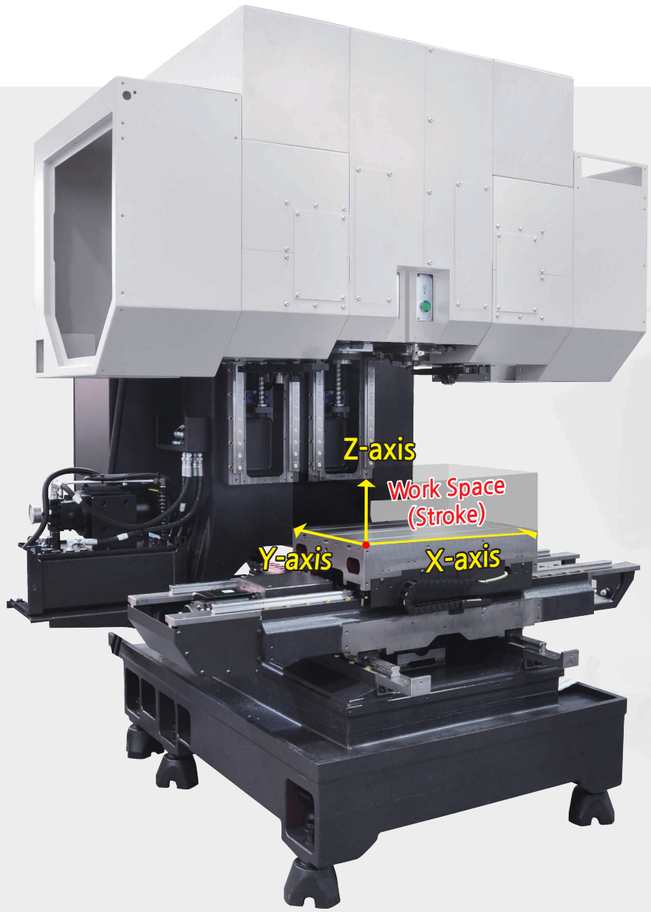
Ball Screw

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 travel.

Optimized high-performance features

Table

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



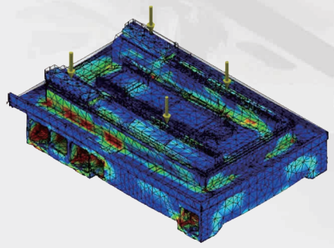
High rigidity & function C type machine structure

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

X-Axis
530 mm

Y-Axis
400 mm

Z-Axis
330 mm



- Optimal design through structural analysis enhance durability.

Centralized Utility Alcove

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

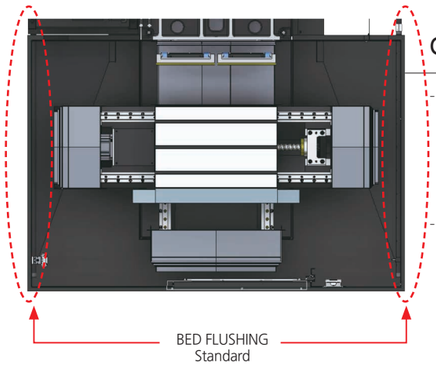
Centralized Operation Panel

8.4inch color LCD

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 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.



Complete Chip Discharge

- Enhanced chip discharge capabilities with standard bed flushing which uses a dedicated pump.
- The base cover with its redundant design ensures no leaking, while the base incline was increased to improve chip discharge.

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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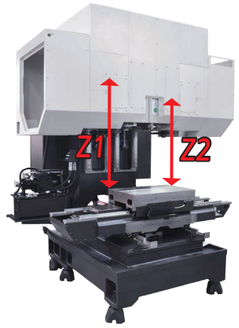
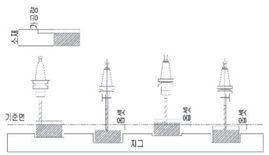
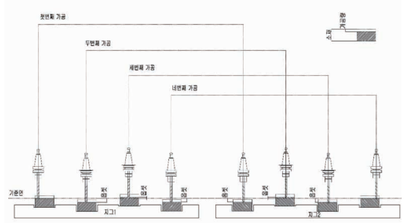
Superior productivity_Dual head



- 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)

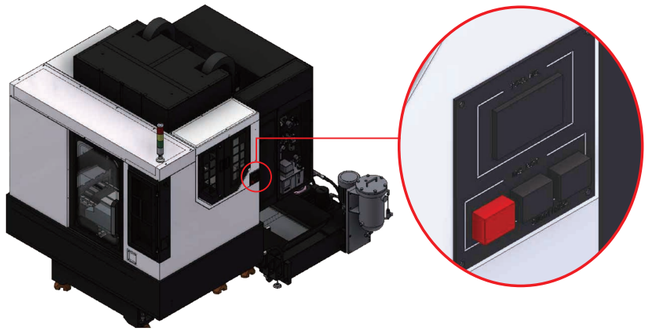


1HEAD Z axis off set



2HEAD Z axis off set

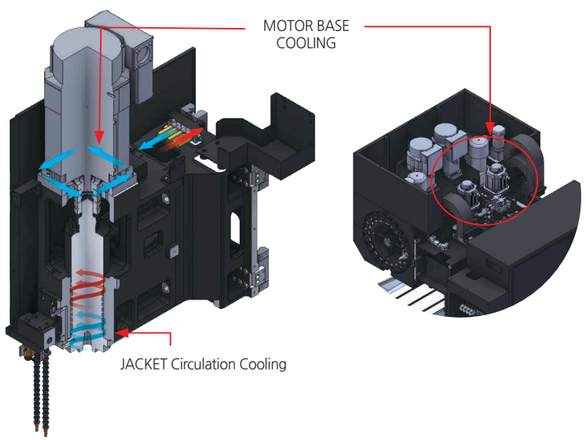
Easy cutting_tool setting



MGI tool calling : Enable to call necessary tool number
Real tool number and MG tool number are only possible in OP BOX but we provide MG tool calling function for user convenience

- Each 1 attached on right and left side
- Enable to check current tool number
- Enable to call necessary tool

Main spindle cooling method



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.

Machine Dimensions

Unit : mm

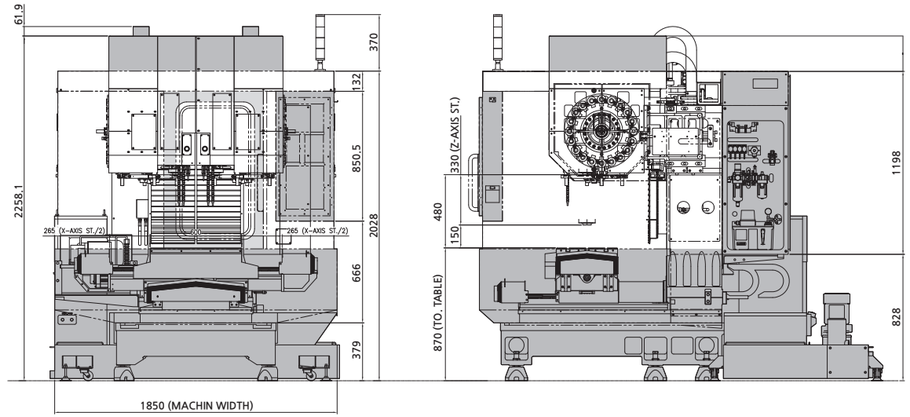
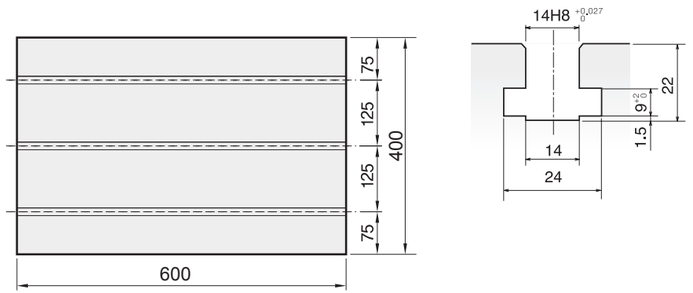


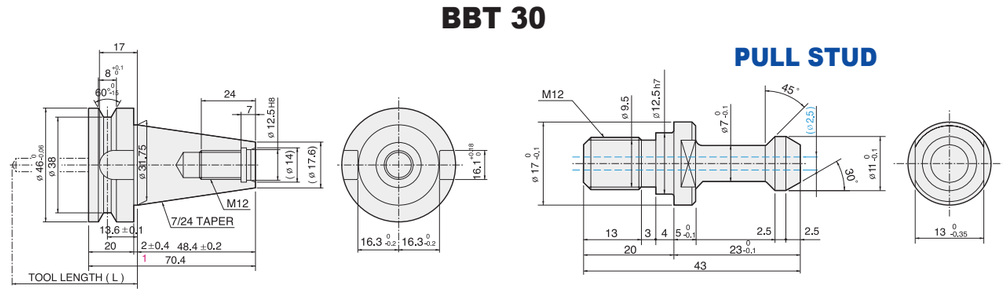
Table & T-Slot

Unit : mm



Tool Shank

Unit : mm



SMEC Smart One, Global One

Machine Specification

Item			SM 400DH (MITSUBISHI)	SM 400DH (FANUC)
Travel	X-axis	mm	530	530
	Y-axis	mm	400	400
	Z-axis	mm	330	330
	Distance from table surface to spindle nose	mm	150~480	150~480
Table	Table Size	mm	600 × 400	600 × 400
	Loading capacity	kg	200	200
	Table & T Slot	mm	14H8 × p125 × 3ea	14H8 × p125 × 3ea
Spindle	Max. Spindle Speed	rpm	24,000	20,000
	Maximum Torque(cont./15min)	N.m	7/17.7	7/11.5
	Bearing inner Dia.	mm	45	45
Feedrate	Rapid Traverse(X/Y/Z)	m/min	60 / 60 / 54	48 / 48 / 48
	Feedrate(X/Y/Z)	mm/min	1~20,000	1~20,000
	Spindle Drive Motor(Cont./15min)	kW	2.2/3.7	2.2/3.7
	Feed motor(X/Y/Z)	kW	3 / 3 / 3	3 / 3 / 3
ATC	Tool Shank		BBT30(BT30)	BBT30(BT30)
	Tooling changing method		Twin arm type	Twin arm type
	Tool Changing Time(T-T)	sec	0.8	0.8
	Magazine Capacity	ea	20	20
	Tool Selection	-	Memory random	Memory random
	Max. Tool dia./adjacent empty	mm	Ø60(Ø120)	Ø60(Ø120)
	Max. Tool Length/Weight	mm/kgf	190 / 3	190 / 3
	Pull stud type	-	MAS 403 P30T-1	MAS 403 P30T-1
Power Supply		kVA	30	30
Floor Space (L×W×H)		mm	1,950 × 2,100 × 2,160	1,950 × 2,100 × 2,160
Machine Weight		kgf	4,200	4,200
CNC System			Mitsubishi M70V	FANUC 0i-MF

• Design and specifications subject to change without notice.

Standard Accessories

- Full splash guard
- Coolant system
- Leveling parts (Level plate, bolt, etc.)
- Standard tools and tool box
- Lubrication system
- Work light (LED)
- 3 step patrol lamp
- Rigid tapping
- Spindle override
- Spindle
- Door inter lock
- Bed flushing
- KCS specification
- MPG handle
- Manual and parts list

Optional Accessories

- Air gun
- Air blow
- Coolant gun
- Rotary table
- Oil skimmer
- Coolant level gauge
- Through spindle coolant (TSC 20Bar)
- Tool length measurement system (Automatic)
- Spindle oil cooler
- HYD unit
- Mist collector (Top cover must be installed)
- Top cover (Recommended when using TSC)
- Lift-up chip conveyor (HINGE TYPE / SCRAPPER TYPE)

NC Specifications / Mitsubishi M70V

Item		Specification
Axis Control	Simultaneous controllable axes	3 axes(X/Y/Z)
	Least input	0.001mm (0.000039")
	Absolute	
	Inch / Metric conversion	G20, G21
Interpolations	Positioning	G00
	Linear	G01
	Circular	G02, G03
Feed Function	Dwel	G04
	Handle travel Override	0.001/0.01/0.1mm (0.000039"/0.000039"/0.000039)
	Travel Override	F0, 25, 50, 100%
	Feed Override	0~200% (10% unit)
	Jog Override	0~6000mm/min (196.9ipm) (20steps)
	acceleration/deceleration	Rapid travel : linear
		Cutting feed : exponential Soft over treavel
Programming Function	Storage Length	M70 : 600m M700 : 1280m
	Registered programs	M70 : 400 M700 : 1000EA
	Program edit	Del, Ins, Alt, Protect
	Program index	Program Name
	Squence index	N4 Digits
	Program data input	G10
	Background edit	
	Rigid Tapping	
Display	LCD/MDI	8.4" Color LCD
	Language	English/Korean/Chinese/EU etc.
Interface	Data in/out	RS-232C
	Tape code	CF CARD
STM Function	Sp. Speed	S5 digit
	Tool	T2 digit
	M,B	M2, B2 digit
Tool Function	Tool length measurement	
	Cutter compensation C	
	Tool offset amount	400
Reference	Reference point return	G28
	Reference point return check	G27
	Auto work reference	
	Reference System	G53(machine), G54~G59
Side Function of Program	Etc.	M
	Fixed drilling cycle	
	mirror image	
	Program restart	