

# SMEC

## SM 400DDH

VERTICAL TAPPING CENTER



**SMEC**  
SMEC CO.,LTD.

**SMEC Co., Ltd.**  
157-10, Goldenroot-ro, Juchon-myeon,  
Gimhae-si, Gyeongsangnam-do, Korea  
Tel +82 55 340 4800  
Fax +82 55 340 4740

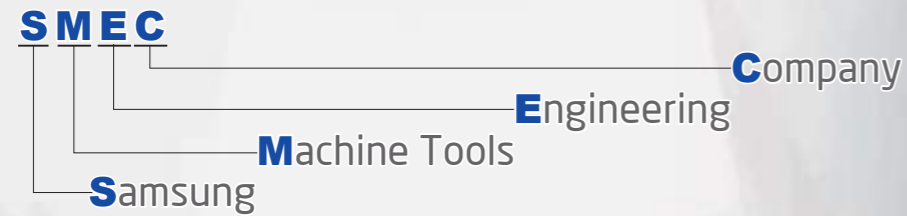


**SMEC**  
Smart One,  
Global One

<https://www.youtube.com/c/smecmachinetools>

**SMEC**  
SMEC CO.,LTD.

- 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



## SM 400DDH

### 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

#### Twin Spindle

Spindle Speed  
**12,000 rpm**

Spindle Motor  
**5.5/7.5 kW**

Spindle Torque  
**35/47.8 N.m**



Capable of supporting a variety of machining operations with its 12,000 rpm Direct Motor and optimized bearing pre-loaded settings that increase rigidity, counter temperature increase during operation and extend bearing life.

#### Rigid Tapping

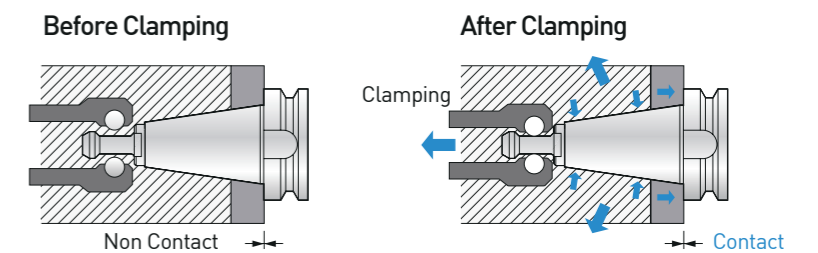
The standard rigid tapping function significantly increases productivity with fast, precise tapping.  
Also, with its superb machining accuracy, it extends tapping tool lifetime.  
Triple Speed Return during reverse motion significantly reduces machining time.

#### Spindle Taper

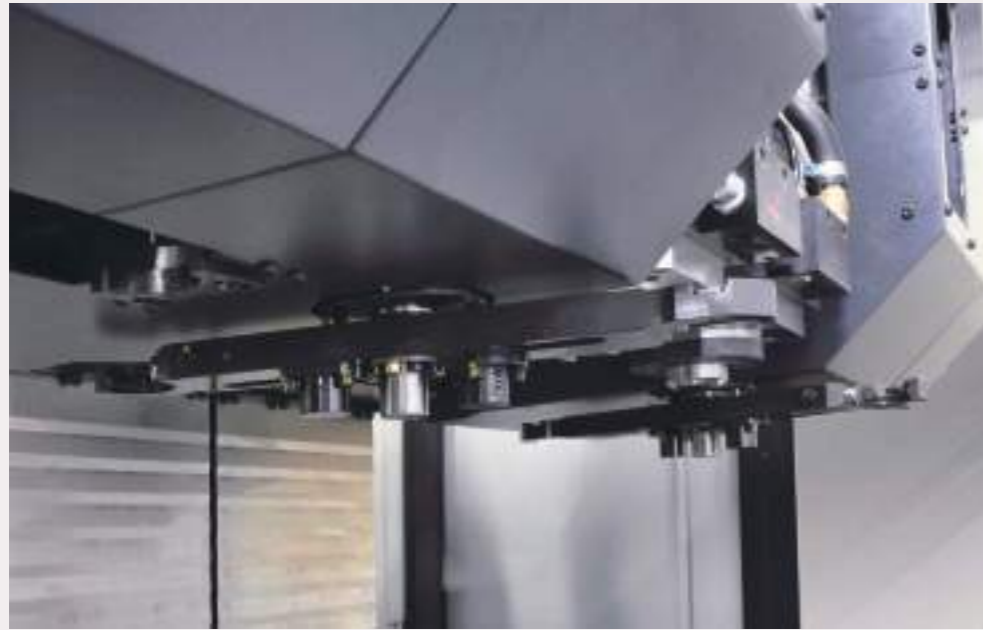
##### 2-face tool locking system offered (STD)

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



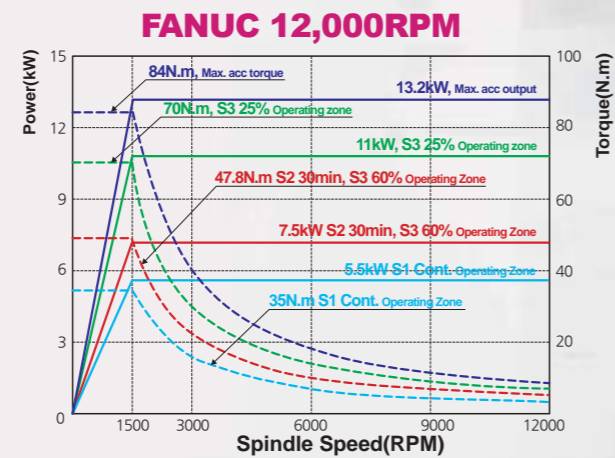
## ATC & Magazine

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

Tool to Tool : 1.4sec(60Hz)



## Spindle Power & Torque Diagram



## the most advanced mechanism of high-speed technology

### Servo Motor

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



### Roller type LM 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 Roller 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

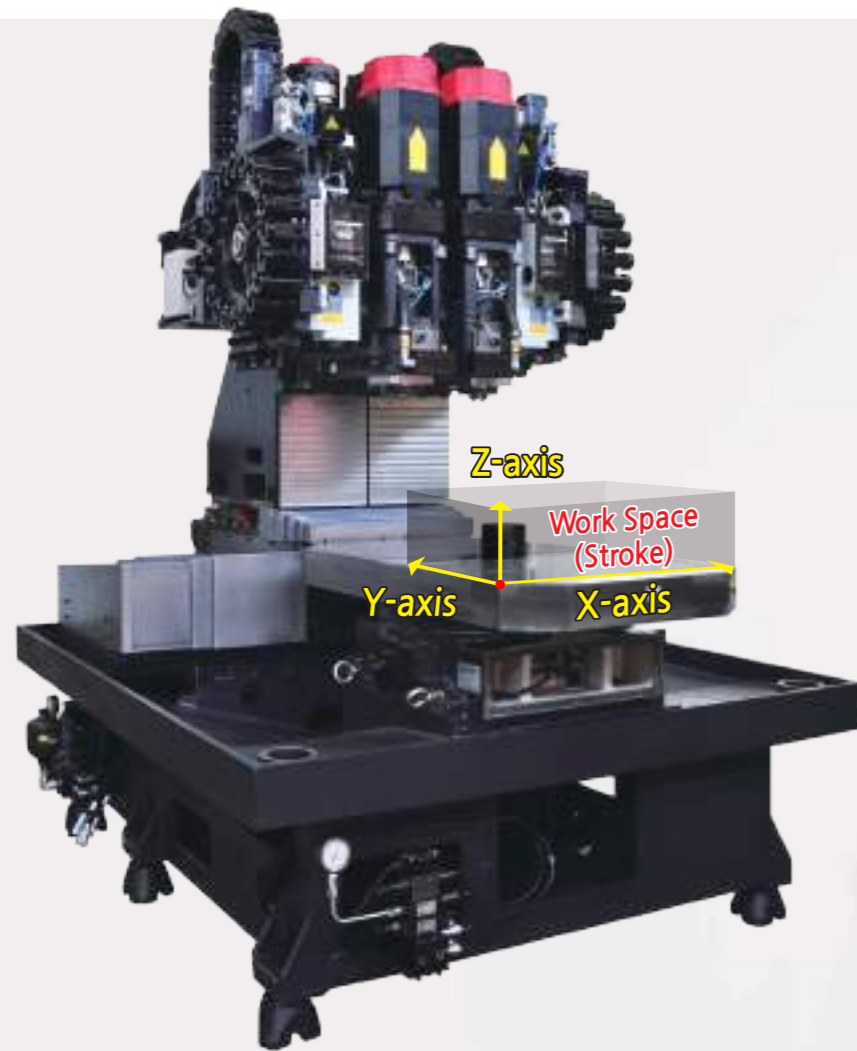
### Table

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



# SM 400DDH

SMEC Machine Tools VERTICAL TAPPING CENTER



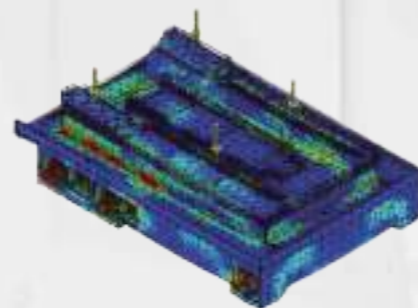
## High rigidity & function C type machine structure

- 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.



## 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

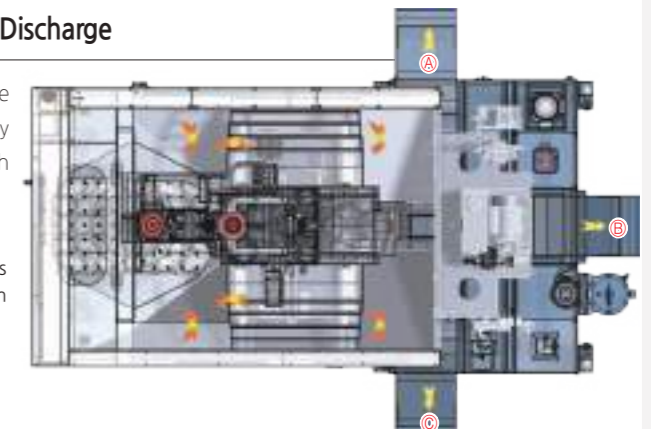
Opt.

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.  
(12K : Option)

## Perfect and Fast Chip Discharge

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

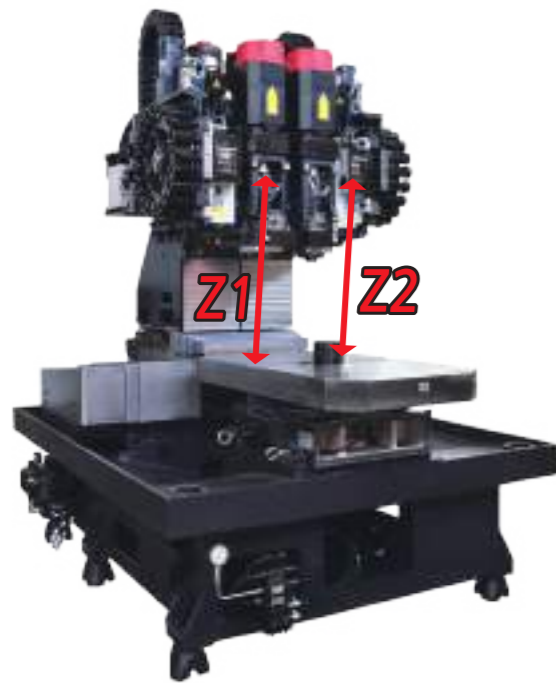
※ Chip conveyor position is selectable among direction ①, ② or ③.



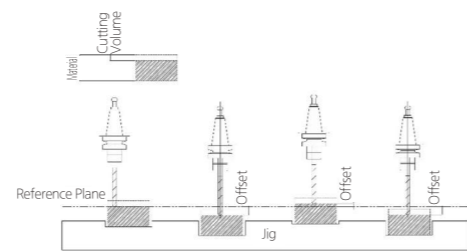
## Automatic Lubrication Dispenser

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.

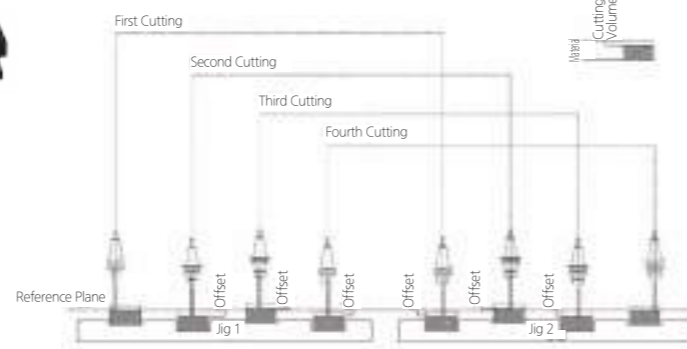
### Superior productivity\_Dual head



- 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)

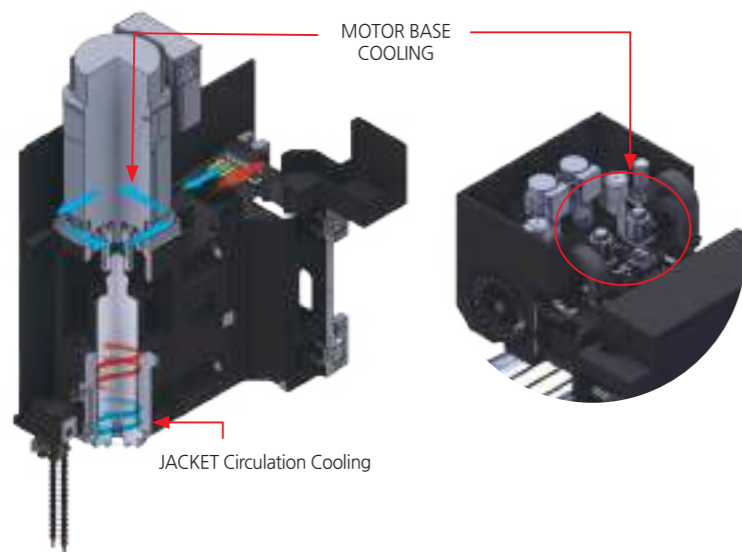


1 HEAD Z axis off set



2 HEAD Z axis off set

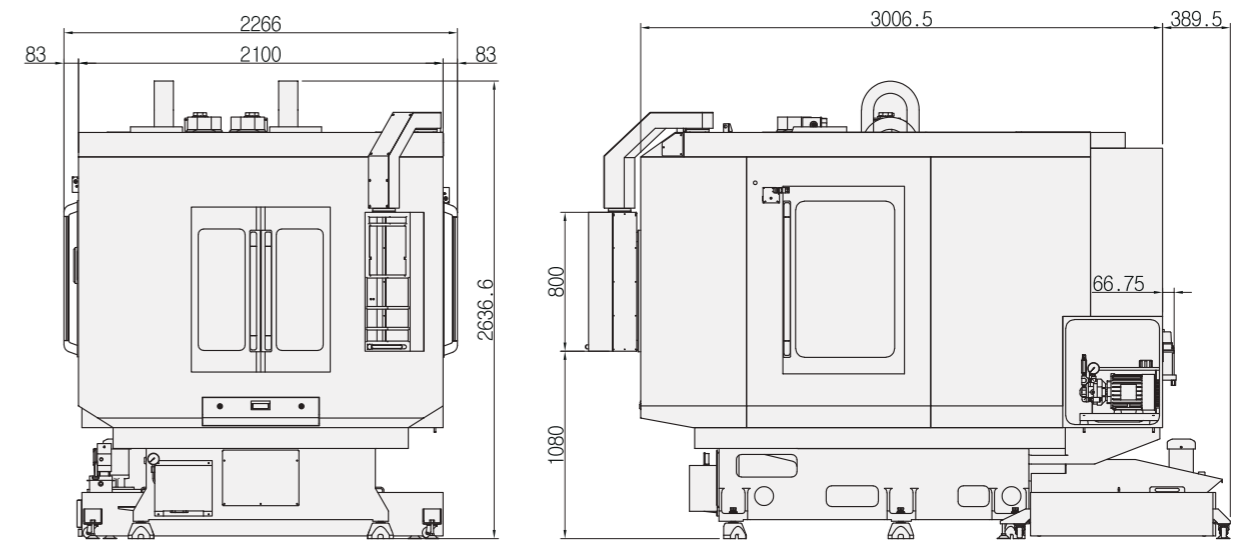
### Main spindle cooling method



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.

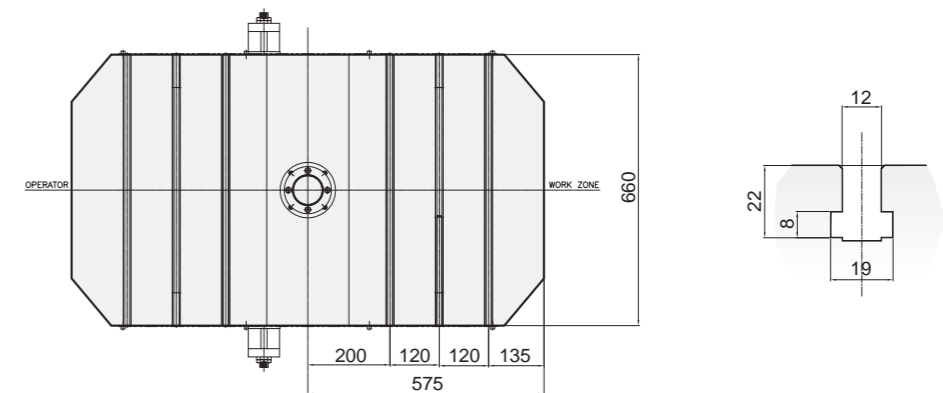
### Machine Dimensions

Unit : mm



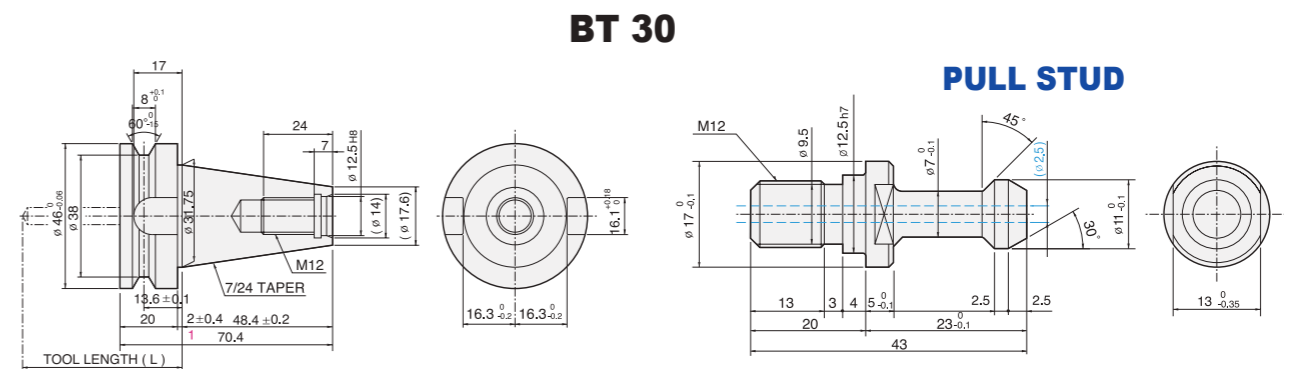
### Table & T-Slot

Unit : mm



### Tool Shank

Unit : mm



**Machine Specification**

Item		SM 400DDH
Travel	X-axis	mm 400
	Y-axis	mm 400
	Z-axis	mm 350
	Distance from table surface to spindle nose	mm 200~550 [300~650]
Table	Table Size	mm 2-660 × 525
	Loading capacity	kg 2-200
	Table & T Slot	mm 2-12H7 × 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
Feedrate	Rapid Traverse(X/Y/Z)	m/min 36 / 36 / 48
	Feedrate(X/Y/Z)	mm/min 1~20,000
	Spindle Drive Motor(Cont./30min)	kW 3.7/5.5 [5.5/7.5]
	Feed motor(X/Y/Z)	kW 4 / 4 / 4
ATC	Tool Shank	BBT30 [BT30]
	Tooling changing method	Double Arm Swing
	Tool Changing Time(T-T)	sec 1.4
	Magazine Capacity	ea 20
	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 30	
Floor Space (L×W×H) with chip conveyor	mm 3,308 × 2,177 × 2,481 [2,581]	
Machine Weight	kgf 7,800	
CNC System	FANUC Series	

※Design and specifications subject to change without notice.

[ ]:Option

**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 Rotation
- Hydraulic unit
- Door Interlock
- Bed Flushing
- MPG Handle
- Manual & Part Lists

**Optional Accessories**

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

**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	50~150%
	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
	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	