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OSAKA JAPAN

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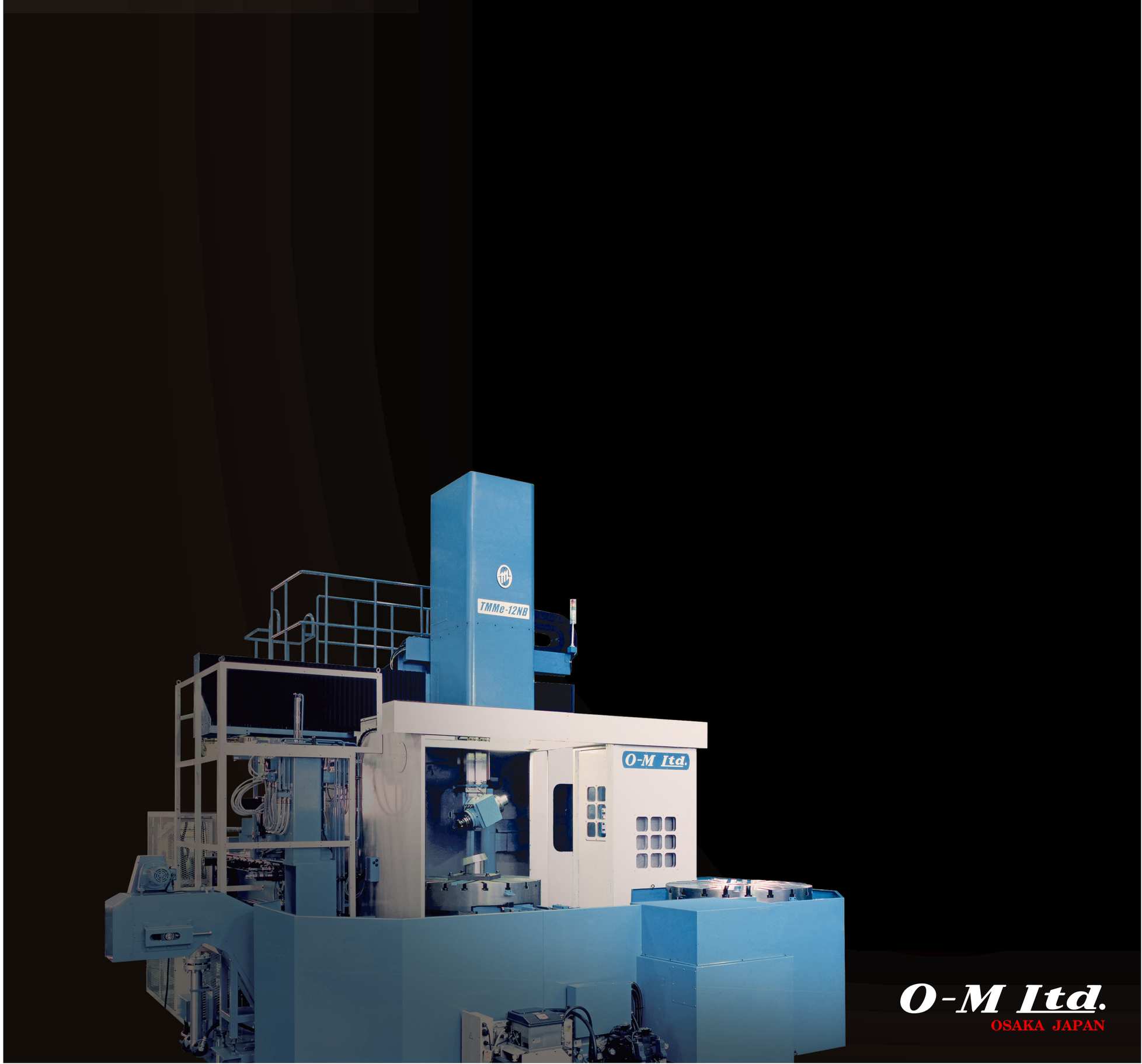


O-M ltd.
OSAKA JAPAN

Done in one ——

Multiplex meets latest technologies to be realizing highly flexibility.

High Speed & High Accuracy

Safety Conscious & Energy Saving

Simple & Space Saving

TMMe-12N (Turning Center)

TMMe Series

CNC Turning Center

- Turning center features 4 axes CNC controlled capability as X, Y, Z and C axis.
- Optional highly rigid, heavy duty angle head enables 5 surface machining.
- Optional tilting head controlled by CNC with B axis can be used as multiple processes done in one machine as vertical lathe, vertical machining center, horizontal machining center with slant face milling capability.
- Common base type bed, one piece column, 240mm (9.45″) square ram and dual contact turning tool are designed for maintaining highly rigidity.

Safety-conscious design

- Incorporates a totally enclosed splashguard design. (on TMMe-10 & 12N)

Energy-saving design

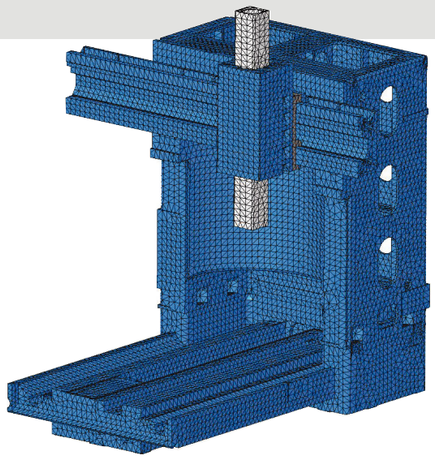
- The TMMe series employs a full range of energy saving features reducing power consumption by 25% compared to previous models.

Angle head

Main Components

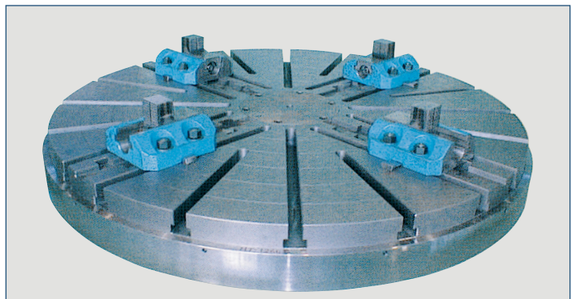
Column

The single box designed column for TMMe series has enough rigidity and maintain to machine with high grade surface without vibrations.



Table

In response to multi purpose use, the independent 4 jaw chuck table is featured as standard with high rigidity design.

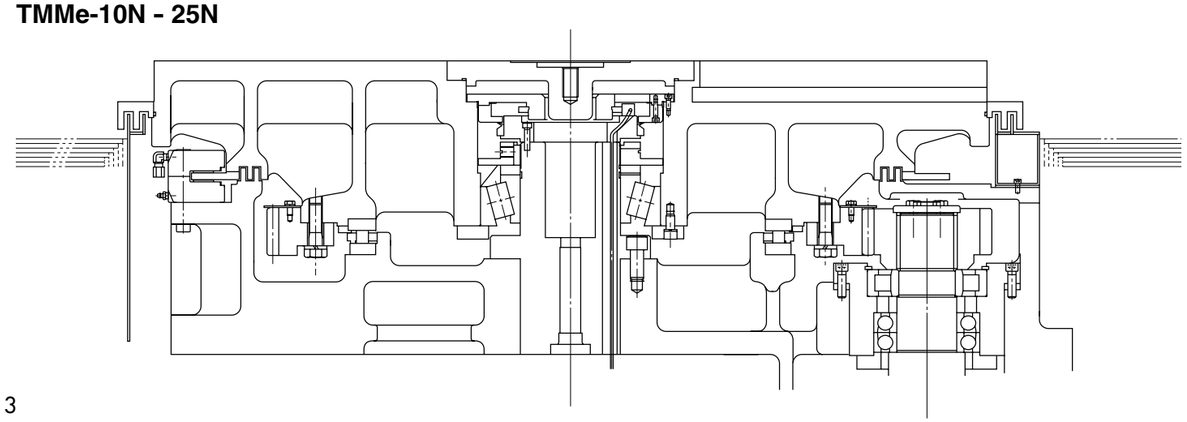


Independent 4 Jaw Chuck Table

Bed and Table Drive

The table bed is designed to realize enough rigid with high grade cast iron. The table bearing mechanism are consisting of well pre-loaded precision bearings to maintain smooth rotating accuracies and abilities for fitting table size. Heat treated/hardened and ground high precision drive gear with 2 ranges of table speed and AC variable spindle motor can be performed power cutting for wide speed range.
The common bed design can be improved machine rigidities. The main motor located behind bed is designing advantage for realizing machining accuracies.
The FANUC Bzi sensor mounted on main shaft and Cs control technology can be guarantied ±25 seconds positioning, ±10 seconds repeatability and ±5 seconds positioning per 90 degrees on table indexing.

TMMe-10N - 25N

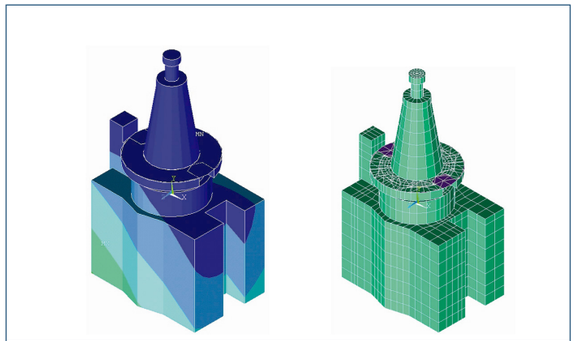


Main Components

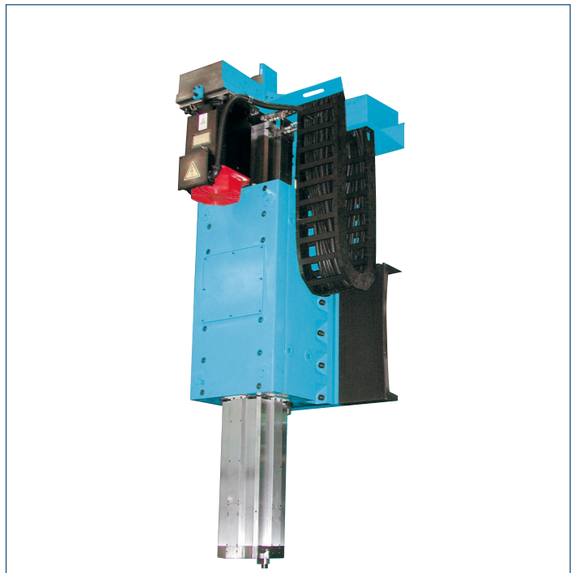
Tool Head

- **Turning Tool**
  The double taper clamping mechanism consisted of corn spring and taper ring can be contacted spindle taper and taper ring to tool at the same time as dual contact. On this mechanism, spindle bearing can be protected from cutting force and maintained machining accuracies for long period. And the maximum cutting force of 25,000N (5,620lbs) can be realized with amplified tensile force by hydraulic booster.

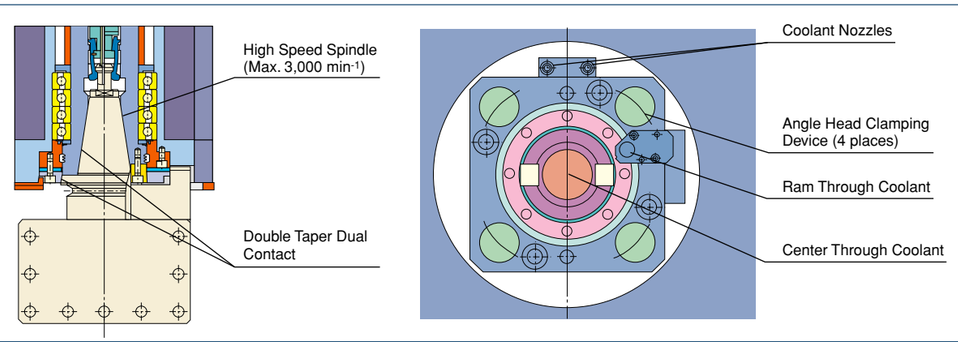
- **Milling Tool**
  As for preventing adhesion of dusts on spindle taper, the driving key has been designed to mount closest place of taper ring, the driving key is able to blow dusts off spindle taper during rotation.
  And ATC changing time has been reduced largely compared with previous dummy plate.
  The BIG+ can be complied with standard.



Analyzed animation for tool holder strength



Ram Slide Type Tool Head

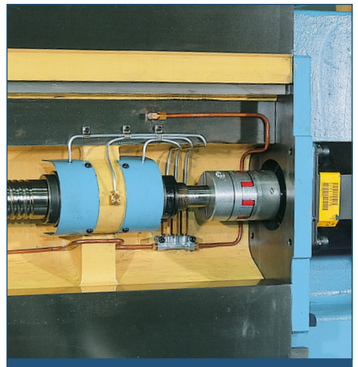


Tool Clamping Mechanism on TMMe Series

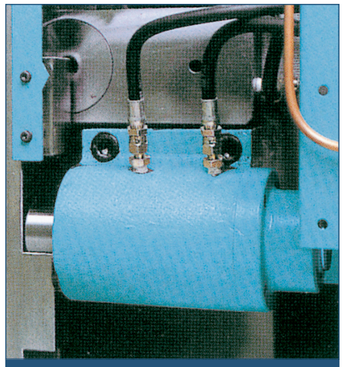
Main Components

Crossrail

The excellent wear-resistance can be performed to realize stable accuracies for long period by hardened and ground wide box type two guide ways.
The positioning mechanism is using 200mm (7.87″) pitch step plates and hydraulic locating pins to secure highly accuracies with high rigid hydraulic clamping mechanism.
(Fixed crossrail for TMMe-10N & 12N)



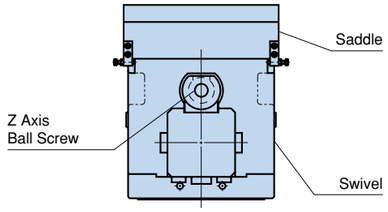
Feed Drive with Two Guide Ways

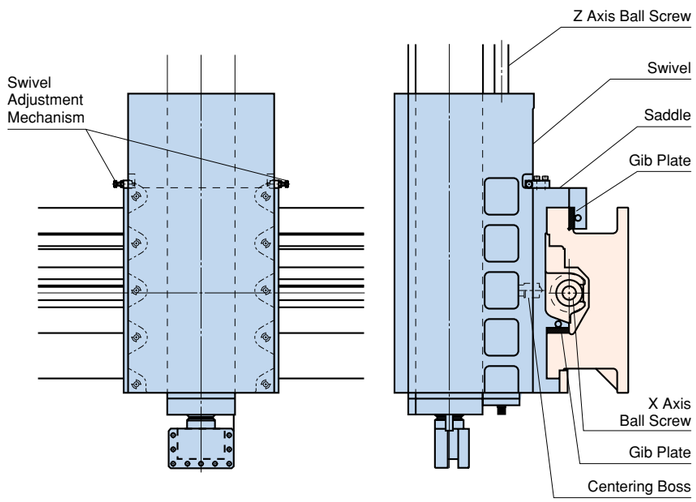


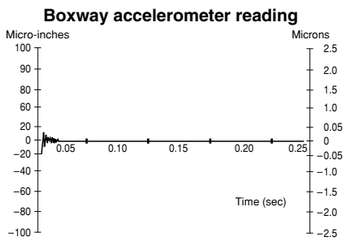
Positioning with Steps and Pins

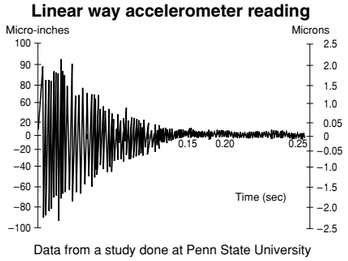
Feed Mechanism

AC servo motors and large diameter ball screws are using for both feeds of vertical (Z axis) and horizontal (X axis).
The box type guide ways treated with hardened and ground can be performed grooving, interruptive cutting, heavy cutting and finish cutting without vibrations under well absorbing effect.
The swivel adjustment mechanism is secured easy maintenance capabilities.









Data from a study done at Penn State University

Optional Accessories and Automatic Functions

Angle Attachment

The new designed angle attachment has been improved rigidity than previous type and available to be stored to ATC.

Angle Attachment

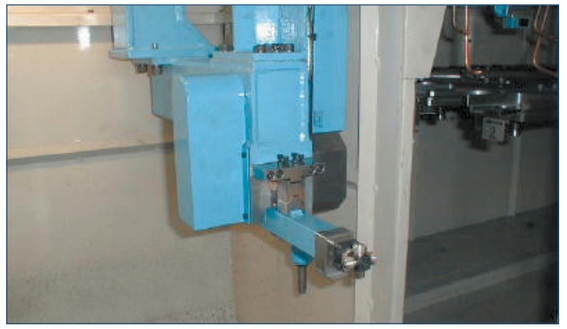
Part Probe System

It is the automatic system to be able to measure diameters and steps of workpiece for compensation.
And it can be contributed for saving operation time and improving uptime without mistake of manual works.

Part Probe System (Diameter and Step)

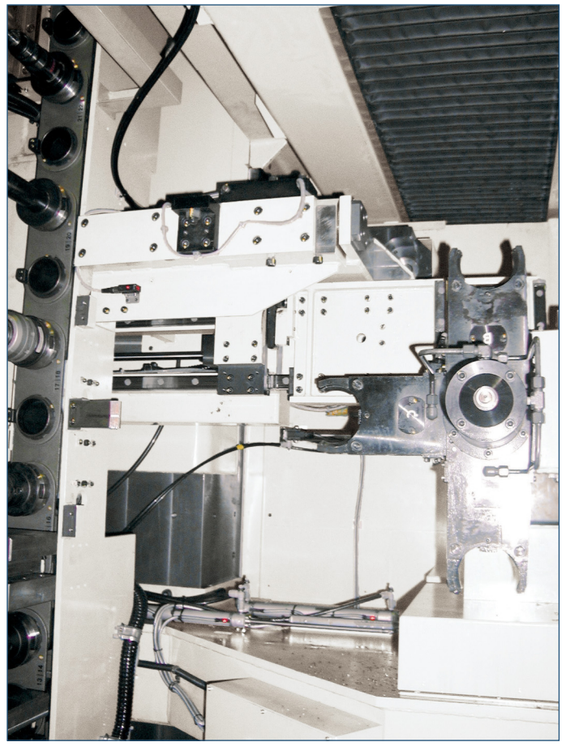
Tool Probe System

The probe head designed swing type can be protected from dusts and chips for realizing highly accurate measuring and compensation of geometry offset automatically.
And it is available for confirming tool wear and chipping.



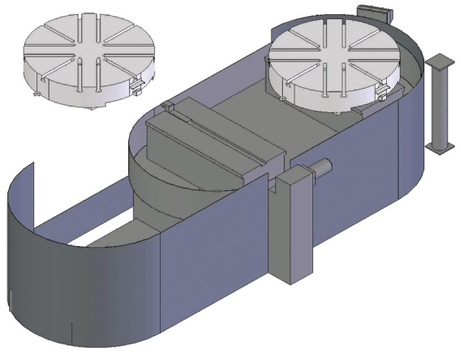
Automatic Tool Changer (ATC)

The ATC designed combination storage for both tools of turning and milling through transaction arm is realized to reduce tool changing time sharply.
The capacity of total tool storage can be increased to 120 tools.



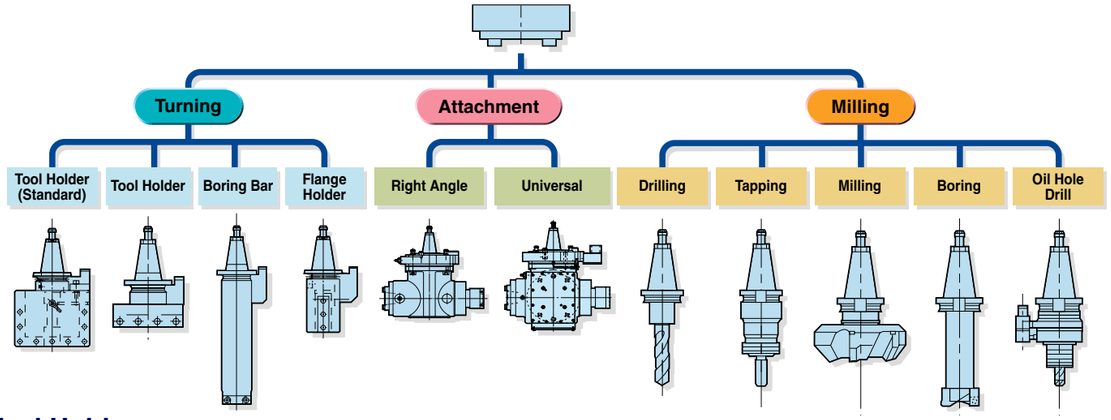
Automatic Pallet Changer (APC)

The APC designed with dual sliding mechanism can be realized highly productivity and reduced changing time to 60 seconds from previous 150 seconds. (in case of maximum 4,000kg (8,820lbs) loaded on pallet)



Tooling System

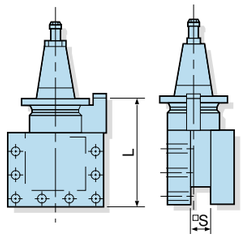
Tooling Examples



Tool Holders

■ **Turning Tool Holders**

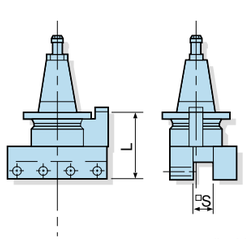
Tool Holder
Type: EMH1



mm (inch)

Type	L	□S
EMH1-200-32	200 (7.8)	32 (1.25)
EMH1-250-32	250 (9.8)	32 (1.25)

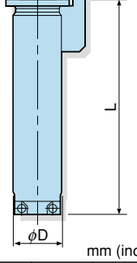
Tool Holder
Type: EMH2



mm (inch)

Type	L	□S
EMH2-170-32	170 (6.7)	32 (1.25)

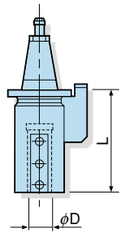
Boring Bar
Type: EMB1



mm (inch)

Type	ϕD	L	□S
EMB1- 90-300-20	90 (3.5)	300 (11.8)	20 (0.78)
EMB1- 90-350-20	90 (3.5)	350 (13.8)	20 (0.78)
EMB1-100-300-25	100 (4)	300 (11.8)	25 (1)
EMB1-100-450-25	100 (4)	450 (17.7)	25 (1)

Flange Holder
Type: EMS2

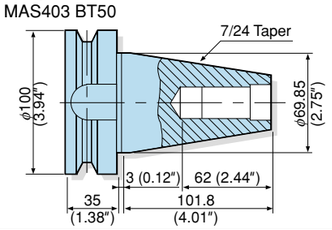


mm (inch)

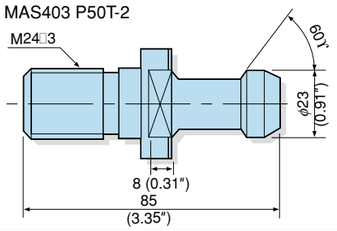
Type	ϕD	L	ϕd
EMS2-32	100 (4)	210 (8.3)	32 (1.25)
EMS2-40	100 (4)	210 (8.3)	40 (1.5)
EMS2-50	100 (4)	210 (8.3)	50 (2)

■ **Taper Shank and Pull Stud for Milling Tools**

MAS403 BT50



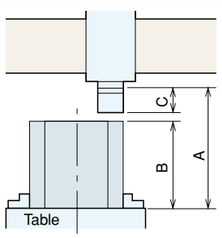
MAS403 P50T-2



Tool holders except above mentioned as following type can be provided as per request.

ex. EMB1-110-25

Machining Height



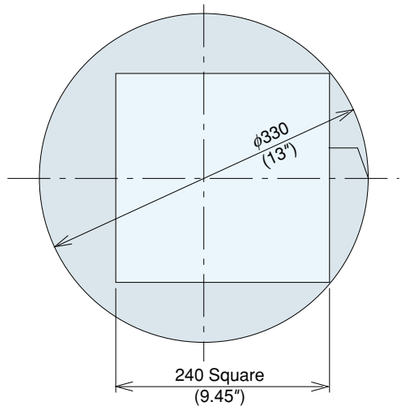
TMMe Series

mm (inch)

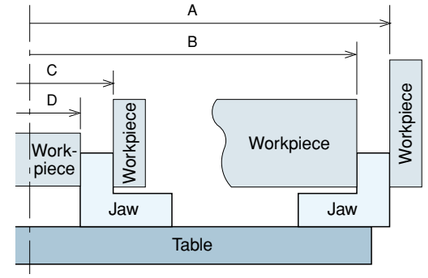
Model	TMMe-10N	TMMe-12N	TMMe-16N	TMMe-20N	TMMe-25N
A	1,032 (40.6)	1,632 (64.3)	1,832 (72.1)	2,382 (93.8)	2,697 (106.2)
B	800 (31.5)	1,400 (55.1)	1,600 (63)	2,100 (82.7)	2,400 (94.5)
C	200 (7.8)	200 (7.8)	200 (7.8)	200 (7.8)	200 (7.8)

Machining Capacities

Ram Size and Min. Bore to be Machined



Work Holding

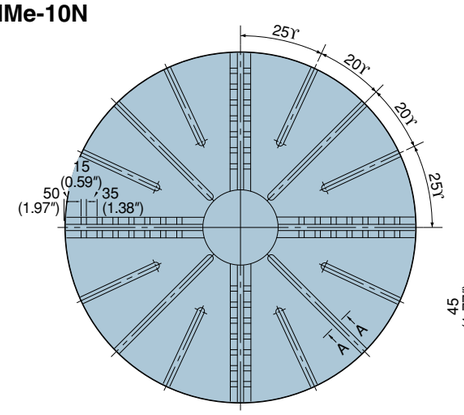


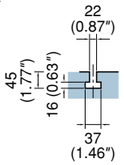
mm (inch)

Model	Table Dia.	A	B	C	D
TMMe-10N	1,100 (43.3)	1,100 (43.3)	1,000 (39.4)	390 (15.4)	270 (10.6)
TMMe-12N	1,250 (49.2)	1,315 (51.8)	1,205 (47.4)	455 (17.9)	345 (13.6)
TMMe-16N	1,600 (63)	1,665 (65.6)	1,555 (61.2)	445 (17.5)	335 (13.2)
TMMe-20N	2,000 (78.7)	2,085 (82.1)	1,975 (77.8)	415 (16.3)	305 (12)
TMMe-25N	2,500 (98.4)	2,585 (102)	2,475 (97.4)	465 (18.3)	355 (14)

Table Design

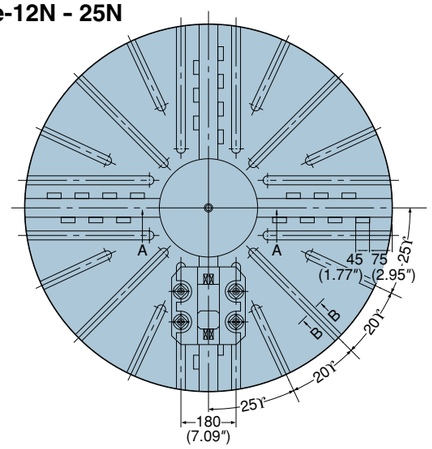
■ **TMMe-10N**

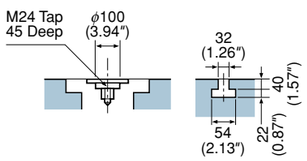




Section A-A

■ **TMMe-12N - 25N**

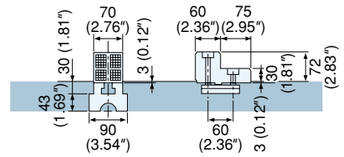




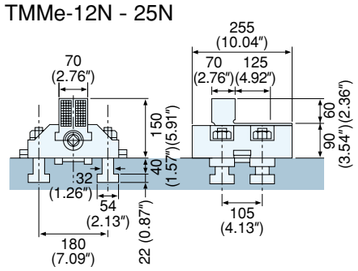
Section A-A Section B-B

■ **Jaw Design**

TMMe-10N

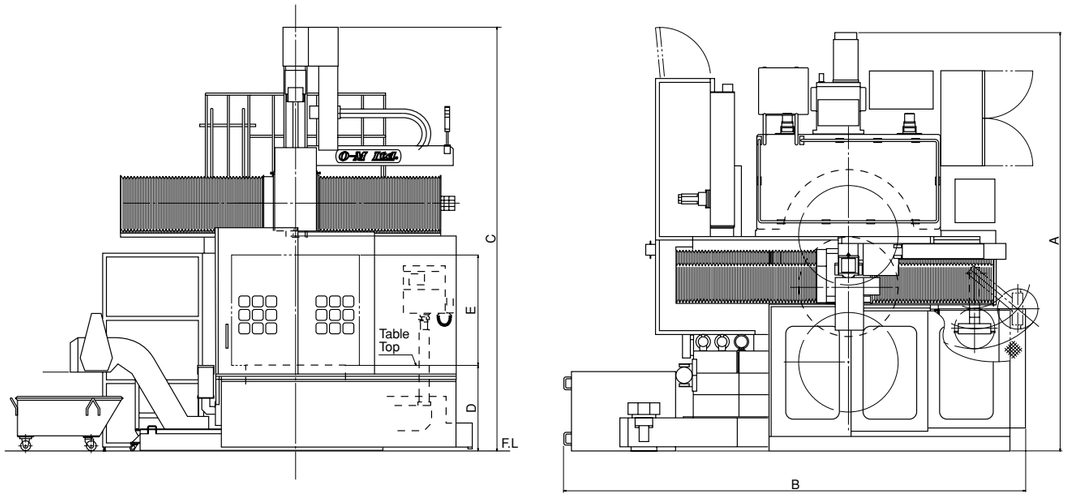


TMMe-12N - 25N



Machine Layout

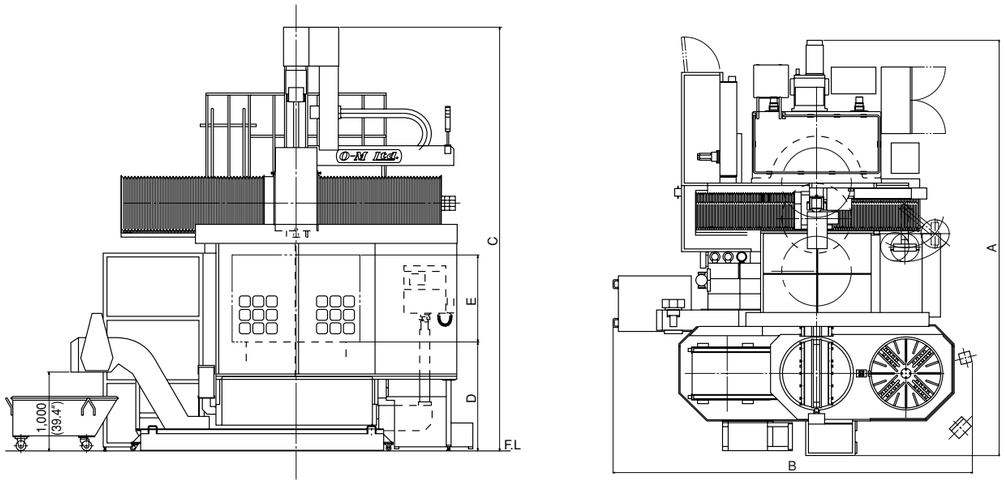
Standard



mm (inch)

	TMMe-10N	TMMe-12N	TMMe-16N	TMMe-20N	TMMe-25N
A	5,035 (198.2)	5,300 (208.7)	5,900 (232.3)	6,900 (271.7)	7,650 (301.2)
B	5,085 (200.2)	5,785 (227.8)	6,000 (236.2)	6,200 (244.1)	6,800 (267.7)
C	4,350 (171.3)	5,360 (211.0)	5,600 (220.5)	6,200 (244.1)	6,827 (268.8)
D	1,090 (42.9)	1,085 (42.7)	1,085 (42.7)	1,135 (44.7)	1,345 (53.0)
E	1,032 (40.6)	1,632 (64.3)	1,832 (72.1)	2,382 (93.8)	2,697 (106.2)

with APC system



mm (inch)

	TMMe-10N	TMMe-12N	TMMe-16N	TMMe-20N	TMMe-25N
A	7,065 (278.1)	7,500 (295.3)	8,475 (333.7)	10,170 (400.4)	11,480 (452.0)
B	5,260 (207.1)	6,430 (253.1)	6,500 (255.9)	10,030 (394.9)	11,470 (451.6)
C	4,350 (171.3)	5,360 (211.0)	5,600 (220.5)	6,200 (244.1)	6,827 (268.8)
D	1,280 (50.4)	1,375 (54.1)	1,375 (54.1)	1,475 (58.1)	1,800 (70.9)
E	842 (33.1)	1,342 (52.8)	1,542 (60.7)	2,042 (80.4)	2,242 (88.3)

Performance

Specifications

Description	Unit	TMMe-10N	TMMe-12N	TMMe-16N	TMMe-20N	TMMe-25N
Table Diameter	mm	1,100	1,250	1,600	2,000	2,500
	inch	43.3	49.2	63.0	78.7	98.4
Max. Turning Diameter	mm	1,450	1,600	2,000	2,400	3,000
	inch	57.1	63.0	78.7	94.5	118.1
Max. Swing	mm	1,450	1,600	2,000	2,400	3,000
	inch	57.1	63.0	78.7	94.5	118.1
Max. Table Load (on Pallet of APC)	kg	2,000 (1,000)	8,000 (4,000)	10,000 (5,000)	15,000 (7,000)	20,000 (9,000)
	lbs	4,410 (2,200)	17,640 (8,820)	22,050 (11,020)	33,070 (15,430)	44,090 (19,840)
Max. Table Torque on Turning Mode	N·m	9,341	13,261	16,878	22,378	28,732
	lbs·ft	6,890	9,781	12,449	16,505	21,192
Z Axis Stroke	mm	600	1,000	1,000	1,000	1,000
	inch	23.6	39.4	39.4	39.4	39.4
X Axis Stroke to Right from Center (ATC stroke included)	mm	1,140	1,510	1,780	1,980	2,280
	inch	44.9	59.4	70.1	78.0	89.8
X Axis Stroke to left from Center (Cutting Stroke)	mm	1,440 (610)	1,510 (710)	1,780 (910)	1,980 (1,110)	2,280 (1,410)
	inch	56.7 (24.0)	59.4 (28.0)	70.1 (35.8)	78.0 (43.7)	89.8 (55.5)
Square Ram Size	mm	240				
	inch	9.45				
Min. Bore for Ram Pass	mm	330				
	inch	13.0				
Max. Measuring Dia. of Optional Part Probe	mm	1,200	1,400	1,800	2,200	2,800
	inch	47.2	55.1	70.9	86.6	110.2
Feed Rate	mm/rev	0.01 to 500				
	IPR	0.0001 to 9.9999				
Manual Feed Speed	mm/min	0 to 3,600				
	IPM	0 to 141.75				
No. of Table Speed	Step	2				
Table Speed Range	min^{-1}	4 to 600	2 to 400	1.6 to 320	1.3 to 200	1 to 160
Table T-Groove Size	mm	22	32			
	inch	0.87	1.26			
Crossrail Stroke	mm	2 Position Fixed	3 Position Fixed	600	1,000	1,200
	inch			23.6	39.4	47.2
Crossrail Position	Step	–	–	4	5	7
Table Main Motor	kW	VAC 37/30				
	HP	VAC 50/40				
Power Supply	V	480, 440, 415, 380, 220, 200				
Operating Voltage	V	AC 100 and DC 24				
Power Requirement	kVA	80	80	80	80	80
Max. Turning Height (on Pallet of APC)	mm	800 (600)	1,400 (1,100)	1,600 (1,300)	2,100 (1,800)	2,400 (2,000)
	inch	31.5 (23.6)	55.1 (43.3)	63.0 (51.2)	82.7 (70.9)	94.5 (78.7)
Max. Cutting Force on Turning Mode	N	25,000				
	lbs	5,620				
Rapid Traverse on X, Y, Z Axis	mm/min	14,000				
	IPM	551.2				
Index Speed on C Axis	min^{-1}	5	4	3	2	1
Feed Speed on C Axis	deg/min	0 to 800				
ATC Capacity (Option)	Tool	40 (60, 90, 120)				
Max. Tool Weight on ATC	kg	30 for Milling Tool and 50 for Turning Tool				
	lbs	66 for Milling Tool and 110 for Turning Tool				
Max. Tool Length on ATC	mm	450				
	inch	17.7				
Tool Shank Taper	–	BT50 (Dual Contact)				
Pull Stud	–	P50T-II				
Mass of Machine	kg	18,000	22,500	25,000	30,000	37,000
	lbs	39,680	49,600	55,120	66,140	81,570

Selectable live spindle motor and specifications

Description	Unit	Standard	Option						
		α12/3000	α12/6000	α15/3000	α15/6000	α18/3000	α18/6000	α22/3000	α22/3000
Power	kW	15/11	15/11	18.5/15	18.5/15	22/18.5	22/18.5	26/22	26/22
	HP	20/15	20/15	25/20	25/20	30/25	30/25	35/30	35/30
Speed	min^{-1}	35 to 3,000	70 to 6,000	35 to 3,000	70 to 6,000	35 to 3,000	70 to 6,000	35 to 3,000	70 to 6,000
Speed Range	Step	1	1	1	1	1	1	1	1
Torque	N·m	191	96	235	118	280	140	331	166
	lbs·ft	141	71	173	87	207	103	244	122
Drill Dia.*1	mm	60	45	68	50	73	53	81	57
	inch	2-3/8	1-3/4	2-11/16	2	2-7/8	2-1/16	3-3/16	2-1/4
Tap Dia.*2	mm	M30×3.5	M24×3	M36×4	M24×3	M36×4	M30×3.5	M42×4.5	M30×3.5
	inch	UNC1-1/4-7	UNC1-8	UNC1-3/8-6	UNC1-8	UNC1-3/8-6	UNC1-1/4-7	UNC1-5/8-5	UNC1-1/4-7

*1 Carbide Drill, JIS S45C workpiece material, 0.2mm/rev (0.008IPR) feed rate, 150mm/min (5.9IPM) cutting speed
*2 High Speed Steel (HSS) Tap, JIS S45C workpiece material

■ Standard Equipments

1	Independent 4 Jaw Chuck Table	1 set
2	40 ATC	1 set
3	Enclosed Type Chip Cover	1 set
4	Standard Turning Tool Holder	1 set
5	Maintenance Tool Kit	1 set
6	Foundation Parts	1 set
7	Electric Spare Parts	1 set
8	Y Axis Telescopic Way Cover and X Axis Bellows Way Cover	1 set
9	Automatic Way Lubrication	1 set
10	FANUC CNC Model 31iA (for Lathe)	1 set
11	Energy Saving Function	1 set

■ Operation Panel

Manual and full automatic operation with FANUC CNC

The operation panel can be performed total operation as manual and CNC.
As for using the compact designed operation panel, it can be operated table rotation, operation mode select, feed rate select, manual pulse handle, feed override select, all axes reference position return, NC start, dry run nose R compensation as all of operations. The LCD (Liquid Cristal Display) can be indicated maximum 480 characters at one time and realized extremely easy editing. And The self diagnostic error monitoring can be displayed in LCD for contributing speedy serviceability.

■ Optional Accessories

- ☐ Custom Macro with 82 Common Variables
  - ☐ Additional Custom Macro Common Variables as Total 600
  - ☐ Interruption Type Custom Macro
- ☐ Coordinate System Rotation
- ☐ Three-Dimensional Coordinate Conversion
- ☐ Rigid Tap
- ☐ Tool Life Management with 256 Pairs
- ☐ Additional Tool Pairs for Tool Life Management as Max. 1,024
- ☐ Play Back
- ☐ Machining Time Stamp Function (Run Time & Parts Number Display Needed)
- ☐ Run Time & Parts Number Display
- ☐ Graphic Display
- ☐ Software Operator's Panel
- ☐ FANUC Handy File
- ☐ Abnormal Load Detection
- ☐ Automatic Corner Override
- ☐ Polar Coordinate Interpolation
- ☐ Circular Interpolation
- ☐ Helical Interpolation
- ☐ Hypothetical Axis Interpolation
- ☐ Compact Flash Card Adaptor (Use FANUC Recommended Card)
- ☐ FANUC Recommended Compact Flash Card
- ☐ Scale Feedback
  - ☐ X Axis ☐ Y Axis ☐ Z Axis

- ☐ Part Program Storage Length Addition (320m as Standard)
  - ☐ Total 640m ☐ Total 1,280m
- ☐ Number of Registered Programs (120 Programs as Standard)
  - ☐ 250 Programs ☐ 500 Programs
  - ☐ 1,000 Programs
- ☐ Number of Tool Offset (64 Pairs as Standard)
  - ☐ 99 Pairs ☐ 200 Pairs
  - ☐ 400 Pairs ☐ 499 Pairs ☐ 999 Pairs
- ☐ Inch/Metric Conversion
- ☐ Stroke Limit Check Before Movement
- ☐ Chuck/Tail Stock Barrier
- ☐ Straightness Compensation
- ☐ Sequence Number Comparison and Stop
- ☐ Program Restart
- ☐ Tool Retract & Recover
- ☐ Manual Intervention and Return
- ☐ Variable Lead Threading
- ☐ Circular Threading
- ☐ High-Speed Skip Function
- ☐ Multi Step Skip Function
- ☐ Additional Optional Block Skip
  Total 9 Kinds Switchable on Screen
- ☐ Direct Drawing Dimensions Program
- ☐ Chamfering and Corner R

■ Optional Accessories

- ☐ Chip Conveyor 1 set
- ☐ Work Light (fluorescent) 1 set
- ☐ Signal Tower Light 1 set
- ☐ Automatic Power Off 1 set
- ☐ Coolant System 1 set
- ☐ Coolant Flow System for Chip Removal 1 set
- ☐ Air Blow System 1 set
- ☐ Hydraulic 3 Jaw Chuck Table with Jaws 1 set
- ☐ Hydraulic 3 Jaw and Independent 4 Jaw Combination Chuck Table with Jaws 1 set
- ☐ 2 APC with Dual Sliding Mechanism 1 set
- ☐ 6 APC with Oval Pallet Pool 1 set
- ☐ Stand for Centering on Set Up Station 1 set
- ☐ Jaw and Jaw Base with Hard Jaw 4 pcs/set
- ☐ Increased ATC Storage (Selectable) 1 set
- ☐ Tool Holder Package 1 set
- ☐ Tool Probe System 1 set
- ☐ Part Probe System 1 set
- ☐ Printer 1 set
- ☐ Air Blow for Tap Drilling 1 set
- ☐ Air Blow Tool 1 set
- ☐ Oil Skimmer 1 set
- ☐ 360ϒIndexing Universal Attachment 1 set

■ CNC System Specifications (Blue letters are O-M standard from FANUC option)

Manufacture and model: FANUC 31iA (for Lathe)		
1. Controlled axis		
1	Controlled path	1 path
2	Controlled axis	4 axes (X, Y, Z, Cs)
3	Simultaneously controlled axis	4 axes (X, Y, Z, Cs)
4	Least input increment (Diameter programming on X axis)	
5	Flexible feed gear	
6	Interlock	
7	Machine lock	
8	Emergency stop	
9	Over travel	
10	Stored stroke check	1, 2, 3
11	Follow up	
12	Backlash compensation	
13	Backlash compensation specified to rapid traverse and cutting feed	
14	Stored pitch error compensation	
15	Chamfering ON/OFF	
16	Simultaneously controlled axis expanded	
17	Smooth backlash compensation	
2. Operation		
1	Automatic operation	(Memory mode)
2	MDI operation	
3	Program number search	
4	Sequence number search	
5	Buffer register	
6	Dry run	
7	Single block	
8	Manual feed	(Jog feed)
9	Manual reference point return	
10	Setting the reference position without dogs	
11	Manual handle feed	1 set
12	DNC operation using memory card	(CF card and exclusive adaptor required)
13	Protective function for malfunction and improper operation	
3. Interpolation functions		
1	Positioning	(G00)
2	Linear interpolation	
3	Circular interpolation	(Available on multiple quadrants)
4	Dwell	
5	Thread cutting simultaneous feed	
6	Multiple-thread cutting	
7	Thread cutting cycle retract	
8	Continuous thread cutting	
9	Skip function	(G31)
10	Reference position return	(G28)
11	Reference position return check	(G27)
12	2nd reference position return	
13	3rd and 4th reference position return	
14	Exact stop mode	
15	Tapping mode	
16	Cutting mode	
17	Exact stop	
4. Feed functions		
1	Rapid traverse	
2	Rapid traverse override	
3	Per minutes feed	
4	Per revolution feed	
5	Tangential speed constant control	
6	Cutting feed rate clamp	
7	Automatic acceleration/deceleration	
8	Feed rate override	X, Y, Z, Cs
9	Jog override	
10	Bell-shaped acceleration/deceleration	
5. Programmable input		
1	Programming code	EIA/ISO automatic recognition
2	Label skip	
3	Parity check	Tape horizontal (TH) and tape vertical (TV)
4	Control-in/control-out	
5	Optional block skip	1 kind
6	Maximum programmable dimension	±9 digits
7	Program number	O 8 digits
8	Sequence number	N 8 digits
9	Absolute and incremental programming	Combination available in same block
10	Decimal point input/pocket calculator type decimal point input	
11	Diameter and radius programming	(X axis)
12	Rotary axis control	
13	Rotation axis roll-over function	
14	Coordinate system setting	
15	Automatic coordinate system setting	
16	Coordinate system shift	
17	Coordinate system shift direct input	
18	Workpiece coordinate system	G54 - G59
19	Workpiece coordinate system preset	
20	Manual absolute on/off	
21	G code system	A/B/C *1
22	Sub program call nesting	10 folds
23	Canned cycle	
24	Multiple repetitive cycle	
25	Multiple repetitive cycle type II	Pocket shape cutting available
26	Specifying arc radius R	
27	FS15 tape format	
28	Macro executer	256k
29	Canned cycle for drilling	
30	Programmable data input	
31	Programmable parameter input	
6. Miscellaneous functions and spindle functions as auxiliary functions		
1	Miscellaneous functions	M 8 digits
2	Auxiliary function lock	
3	High-speed M/S/T interface	
4	Spindle functions	
5	Spindle speed serial output	
6	Constant surface speed control	
7	Spindle speed override	
8	Cs contour control	
9	Spindle orientation	
10	Spindle orientation expansion	
7. Tool functions and Tool compensation functions		
1	Tool functions	T 6+2 digits (T 5+3 digits for over 100 pairs of offset)
2	Number of tool offset	64 pairs
3	Tool offset	
4	Tool nose radius compensation	
5	Tool geometry and tool wear compensation	
6	Count input of tool offset values	
7	Direct input of tool offset measured values	
8. Editing operation		
1	Part program stored length addition	320m (1,050ft) as tape length
2	Number of registered programs	120 programs
3	Program editing	
4	Program protect	
5	Background editing	
6	Extended program editing	
9. Displaying and setting data		
1	Status display	
2	Clock function	
3	Present position display	
4	Program display	32 Characters as for Program File Name
5	Parameter display	
6	Self diagnosis result display	
7	Alarm message display	
8	Alarm history display	
9	Operation history display	
10	Help function	
11	Actual speed display	Feed rate per minute and spindle speed as min^{-1}
12	T code display	
13	Servo adjustment screen and servo waveform display	
14	Hardware and software system configuration display	
15	Displayed language	English
16	Data protection key	
17	Operating monitor display	
18	Parameter setting guidance display	
10. Data input/output		
1	Data/puncher (Ch.1) interface	
2	Data/puncher (Ch.2) interface	
3	External data input	
4	Data input/output using memory card	
5	Direct display of floppy cassette	
6	Embedded ethernet function	
11. Others		
1	Status output signal	
2	Setting and display unit	10.4″ color LCD/MDI
3	PMC system	
4	Handy type manual pulse generator	
5	Axis drive servo motor	AC servo motor α i series
6	Position detector	X axis: pulse coder Y axis: pulse coder Z axis: pulse coder Cs axis: Bzi sensor

*1 It can be changed by parameter setting on CNC.
G code system A is selected for standard feature.
G code system B or C can be selected due to request.