

**TOSHIBA MACHINE MACHINERY'S TURNING CENTER
MODEL; TMD-13 with FANUC SERIES 31ia CNC CONTROLLER**

MACHINE MAIN SPECIFICATIONS

MAIN CAPACITY

Table diameter	49.2"	1,250mm
Maximum swing	62.9"	1,600mm
Maximum height from table top to ram bottom		
* without Automatic Pallet Changer	51.1"	1,300mm
* with Automatic Pallet Changer	43.3"	1,100mm
Maximum cutting height		
* without Automatic Pallet Changer	43.3"	1,100mm
* with Automatic Pallet Changer	35.4"	900mm
Maximum cutting force of ram	5,500lbf	24,500N
Maximum load on table		
* without Automatic Pallet Changer	17,000lbs	8,000kg
* with Automatic Pallet Changer	8,800lbs	4,000kg

TRAVEL

Horizontal travel of rail head (X-axis)	-24.8 ~ 36.2	-630 ~ 920mm
Vertical travel of ram (Z-axis)	31.4"	800mm
Vertical travel of crossrail (Not NC-axis)	19.6"	500mm

TABLE

Table speed	2 ~ 450min-1
Number of table speed ranges	2 ranges (Hydraulic gear shift)
Maximum table torque	12,000lbf.ft 16,000N.m

LIVE SPINDLE

Spindle speed	25 ~ 3,000min-1
Maximum spindle torque	310lbf.ft 420N.m

FEED RATE

Rapid traverse X-axis (Rail head)	472ipm	12,000mm/min
Z-axis (Ram)	393ipm	10,000mm/min
Feedrate X & Z-axes	0.04 ~ 78.7i	1 ~ 2,000mm/min
Rapid traverse C-axis (Table)	1,440degree/min	
Feedrate C-axis	1 ~ 360degree/min	
Vertical travel speed of crossrail	11.8ipm	300mm/min

RAM

Type of ram	Ram type (4 guideways closed type)
Section of ram	8.6x8.6" 220x220mm

MOTORS

Table drive motor (30min/cont.)	60/50HP	VAC 45/37kW
Live spindle drive motor (30min/cont.)	29.5/20HP	AVC 22/15kW

ACCURACY

Positioning accuracy of linear axis (X&Z-axes)	$\pm 0.0003 \pi \pm 0.007$ per 500mm
Repeatability of linear axis (X&Z-axes)	$\pm 0.00012 \pi \pm 0.003$ mm
Positioning accuracy of rotary axis (C-axis)	$\pm 10''$ per 360degree
Repeatability of rotary axis (C-axis)	$\pm 5''$
1) Accuracy under no-load and stable ambient condition	
2) Other accuracy as per the our standard test chart (testing method & tolerances)	

MACHINE SIZE

Machine height	206.1"	5,235mm
Floor space		
* without Automatic Pallet Changer	177.1x225.5	4,500x5,740mm
* with Automatic Pallet Changer	256.6x260.6	6,520x6,620mm
Machine weight		
* without Automatic Pallet Changer	44,000lbs	20,000kg
* with Automatic Pallet Changer	61,000lbs	28,000kg

POWER SOURCES

Electric power supply	AC 208V, 60Hz
Power capacity	100kVA
Compressed air supply	
* Pressure	72.5 ~ 116p 0.5 ~ 0.8MPa
* Flow rate	
without Automatic Pallet Changer	300L/min
with Automatic Pallet Changer	720L/min

1) No oily, moist or dusty air shall be prepared by customer

Air dryer is recommended to prevent moisture contamination from air supply.

2) Customer needs to prepare either direct AC208V 60Hz or a transformer to meet the applicable power source requirement for the machine

STANDARD ACCESSORIES

- 1) Installation parts
- 2) Special service tools
- 3) Chip guard
- 4) Automatic slideway lubricating unit
- 5) Crossrail step positioning unit
- 6) Individually operated chuck jaws
 * 4pcs/1set
- 7) Crossrail slides cover
- 8) Automatic main power OFF device
- 9) Table lubricant oil cooling unit

Power capacity	80 kVA
Compressed air supply	
* Pressure	72.5 ~ 116 0.5 ~ 0.8MPa
* Flow rate	300L/min

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