

TORNADO

T6MS & T8MS 5 Axis Turning



The Tornado T6MS and T8MS 5 Axis CNC Lathes are true 'Single-hit' turning centers. The addition of a powerful sub spindle, controlled from the state-of-the-art G.E. Fanuc 18i TB control, allows 5 axis programming. 'MS' models have all the machine design features of the 2 & 3 axis models but with the added production flexibility of a sub-spindle and live tooling.

Features

- The addition of the sub spindle allows 'Single-hit' machining. By transferring the workpiece to the sub spindle for additional turning and milling, the part can be completed in a single operation
- Tornado T6MS and T8MS offer milling power for both radial and axial milling, drilling, boring and tapping operations on either spindle
- The sub spindle is driven by a powerful 7.5 hp (5kW) drive motor on the T6MS and 10 hp (7.5kW) drive motor on the T8MS
- High speed turning: up to 6000 rpm on T6MS models and 5000 rpm on T8MS models
- Sub-spindle chuck and collet capacity: 5.1" (130mm) chuck and 1.3" (33mm) collet on T6MS models and 6.7" (170mm) chuck and 1.69" (43mm) collet on T8MS models
- Tornado 'MS' models are fitted with a linear scale on the X axis to maintain high accuracy even during 'off center' operations
- Twelve station high speed bi-directional turret with 12 power stations
- B & C axis positioning increment of 0.001° is fully programmable
- Quick changeover and set-up with VDI 30 tooling on T6MS models and VDI 40 on T8MS models
- Optional CAM system software package, designed to run on virtually any PC, developed for more complex 5 axis programming
- Available in Chucker, Barfeed and Unmanned 'Lights-Out' models
- Ethernet Link allows remote access to the CNC control for part program transfer, supervisory control, data acquisition, diagnostic and maintenance functions.

Models

Model No.	Chuck Type	rpm	Max Bar
T6MSA	6.7" Hyd	6000	2.12" (54mm)
T6MSB	8.26" Hyd	4000	2.12" (54mm)
T6MSAB Bar Feed	Collet	6000	2.12" (54mm)
T6MSBB Bar Feed	Collet	4000	2.12" (54mm)
T6MSAL Lights-Out	Collet	6000	2.12" (54mm)
T6MSBL Lights-Out	Collet	4000	2.12" (54mm)
T8MSA	8.26" Hyd	5000	2.59" (66mm)
T8MSB	10" Hyd	3500	2.59" (66mm)
T8MSAB Bar Feed	Collet	5000	2.59" (66mm)
T8MSBB Bar Feed	Collet	3500	2.59" (66mm)
T8MSAL Lights-Out	Collet	5000	2.59" (66mm)
T8MSBL Lights-Out	Collet	3500	2.59" (66mm)

Specifications

Tornado 3 Axis	T6MS	T8MS
Capacity		
Swing over bed cover	17.32" (440mm)	20.07" (510mm)
Max. turned diameter	8.66" (220mm)	11.81" (300mm)
X axis travel	7.87" (200mm)	9.44" (240mm)
Max. turning length	17.72" (450mm)	21.26" (540mm)
Spindle		
Spindle nose	A2-5	A2-6
Power chuck (type A/B)	6.7"/8.26" (170/210mm)	8.26"/10" (210/254mm)
Front bearing I/D	3.54" (90mm)	4.33" (110mm)
Spindle bore	2.52" (64mm)	3.05" (77.5mm)
Bar capacity	2.12" (54mm)	2.59" (65mm)
Max. spindle speed (A/B) (rpm)	6000/4000	5000/3500
Spindle motor (Cont./30 min.)	15/20 hp (11/15kW)	25/30 hp (19/22kW)
Spindle speed @ full Hp (A/B)	1167/1000 rpm	1250/880 rpm
Axes		
Rapid traverse X/Z-axis	984/1181ipm (25/30mpm)	984/1181 ipm (25/30mpm)
X/Z-axis thrust (continuous)	800/1,000 lbf (3.75/4.44 kN)	1,330/1,610 lbf (5.91/7.15 kN)
X/Z-axis ballscrew	32x8/32x10 mm	32x8/40x10 mm
X/Z-axis encoder feedback	linear/rotary	linear/rotary
Positioning accuracy	±0.0002 (0.005mm)	±0.0002 (0.005mm)
Repeatability	±0.0001 (0.002mm)	±0.0001 (0.002mm)
Construction		
Carriage inclination	60°	60°
Spindle center height	37.40" (950mm)	37.79" (960mm)
Cross slide width	9.45" (240mm)	10.23" (259mm)
Cross slide type	30mm roller guide	35mm roller guide
Width across cross guide ways	8.15" (207mm)	8.9" (226mm)
Z-axis type	30mm roller guide	35mm roller guide
Bed width - linear guide rails	12.91" (328mm)	15.31" (389mm)
Tool Turret		
Turret disc diameter	10.63" (270mm)	12.6" (320mm)
Tooling system	VDI 30	VDI 40

No. of turret tool stations	12 bi-directional	12 bi-directional
Index time	0.33 sec	0.33 sec
Tool shank size	3/4" x 3/4" (20x20mm)	1" x 1" (25.4x25.4mm)
Max. boring bar	1.25" (32mm)	1.57" (40mm)
Travel past center line	.866" (22mm)	1.06" (27mm)
Live Tooling		
C-axes min. increment	.001°	.001°
Power driven stations	12	12
Power station servo motor	5 hp	5 hp
Rotating tool shank size	DIN5480 16x0.8	DIN5482 20x0.8
Maximum tool speed	5000 rpm	4000 rpm
Maximum collet size	0.630 (16mm)	0.75 (20mm)
Coolant, Space & Weight		
Coolant tank capacity	26 gal. (100 litres)	40 gal. (150 litres)
Coolant pump delivery	6.6 gal/min (25 litres/min)	6.6 gal/min (25 litres/min)
Maximum power consumption	26kVA	50kVA
Dimensions: L x W	103"x65" (2616x1651mm)	115"x66" (2616x1651mm)
Approx. net weight	9,920 lbs. (4500kg)	11,023 lbs. (4650kg)
Tornado Sub-Spindle		
	T6MS	T8MS
Sub-Spindle Linear Pos. (A-axis)		
Width across cross guide ways	9.44" (240mm)	9.44" (240mm)
Guide way type	35mm roller guide	35mm roller guide
Min/max jaw to jaw travel	.75"/18.5" (20/470mm)	0"-23.62" (0/600mm)
Travel	17.7" (450mm)	24.61" (625mm)
A-axis ballscrew	32 x 10 mm	32 x 10 mm
A-axis rapid traverse	1,181 in/min (30m/min)	1,181 in/min (25m/min)
Sub-Spindle Rotational (B-axis)		
Spindle	DIN 6353	DIN 6353
Chuck size	5.1" (130mm)	6.7" (170mm)
Collet size	1.30" (33mm)	1.69" (43mm)
Spindle bore	2.165" (55mm)	2.165" (55mm)
Drawtube (diameter x length)	1.57"x14.57" (40x370mm)	1.57"x17.08" (40x370mm)
Spindle speed	6000 rpm	5000 rpm
Spindle motor	7.5 hp (5kW)	10 hp (7.5kW)
Spindle speed @ full Hp	1500 rpm	1500 rpm
B-axis min increment	.001°	.001°