



TSUGAMI
AMERICA

TMU1R

MILL/TURN MULTIFUNCTION MACHINE

- 38mm Multifunction Turning Center
- 60 Station Automatic Tool Carousel and 16 Station Turret
- 10,000 rpm Tool Spindle
- 210 degrees of B-axis positioning
- FANUC 31i-B CNC Control

tsugamiamerica.com

TMU1R

MULTIFUNCTION TURNING CENTER

SPEED

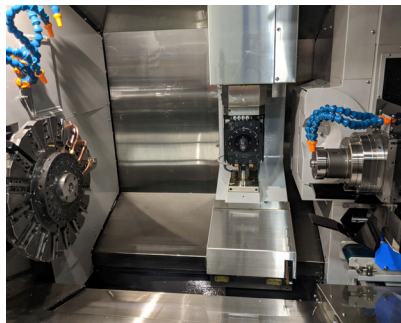
- The standard 60 station tool magazine shortens index time by adopting the three-piece coupling. 0.3 sec / 1 pos.
- The high-speed cam driven tool change unit performs the tool-to-tool change at 0.8 sec.
- The unique 90° indexable tool spindle can reduce the number of tools and reduce tool change time by using a multi turning holder with four turning tools or can turn back and front faces with the same tool.

ACCURACY

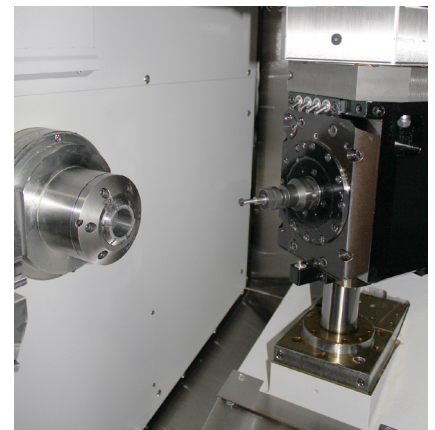
- Tool spindle unit is rigid and supported vertically at both ends. This rigidity coupled with the 5.5kW built-in motor equate to a machining center and reduced cycle times.
- The thermally symmetrical structure also minimizes thermal displacement to ensure high-accuracy machining over a long term.

RIGIDITY

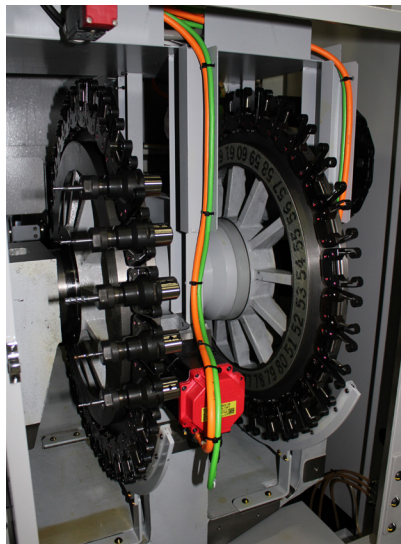
- The TMU1R is built on a heavy duty one piece cast iron base. A more rigid platform allows higher speeds and feeds, and heavier depth of cut.
- For extra peace of mind, the machines, motors, and FANUC controls are covered by an industry leading two-year parts and service warranty.



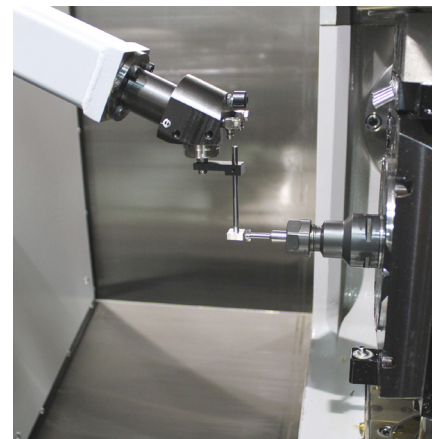
TMU1R Tool Zone



TMU1R Tool Spindle



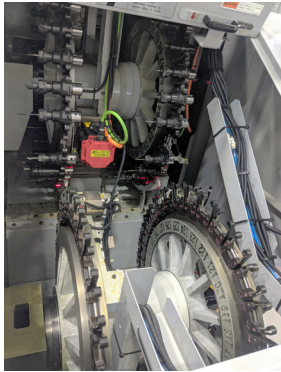
TMU1R Tool Magazine



TMU1R Tool Presetter

ACCESSORIES

Your TMUIR can be accessorized with various tooling options. Some of these options include:



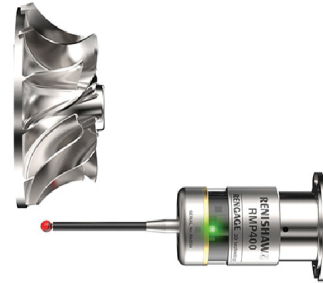
118 Position ATC



Laser Broken Tool Detection System



CAPTO C4 Mini Turret



High- Accuracy Reinshaw Machine Probe

Our team can create anything needed to transform your tool zone to fit your part and process.

NEED SOMETHING CUSTOM?

From the machine Make Ready process, to integrating mechanical and robotic loading and unloading systems, to custom tool creation and spindle repair, IMG is dedicated to supporting all Tsgami users in North America!



Grinding Room

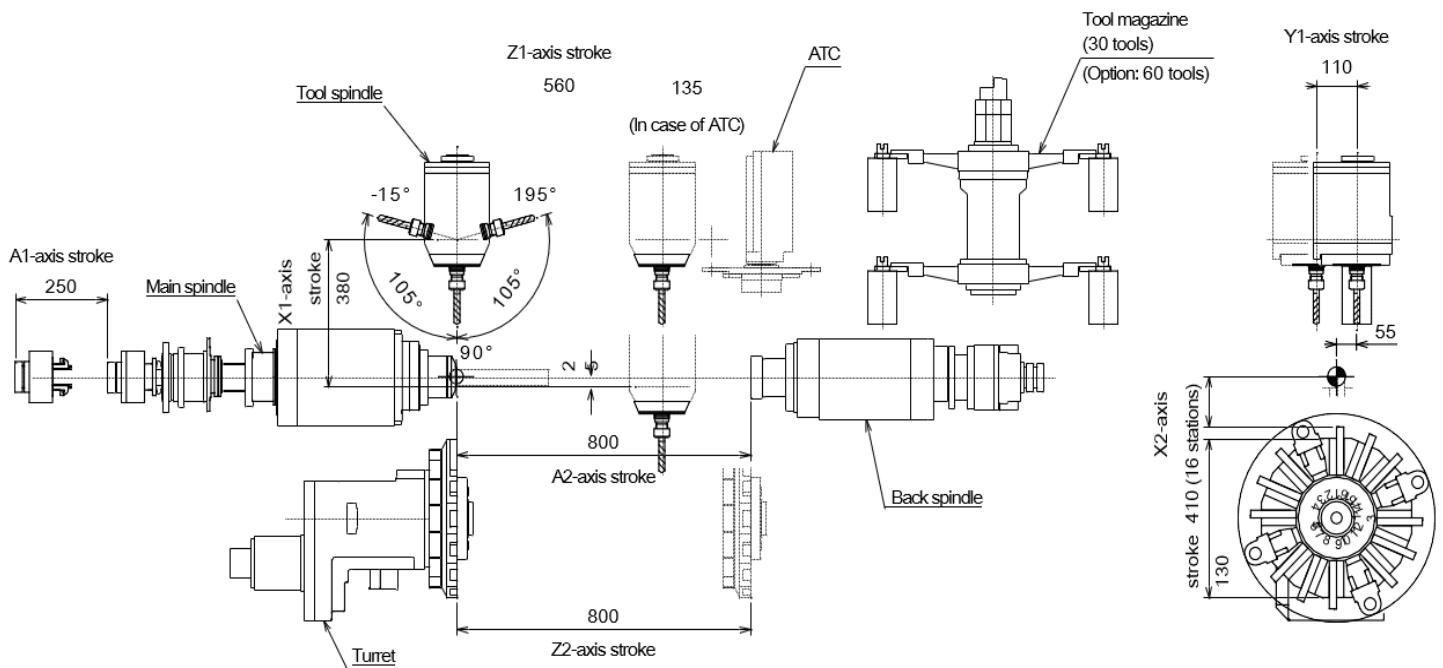


Make Ready Facility



Milling Room

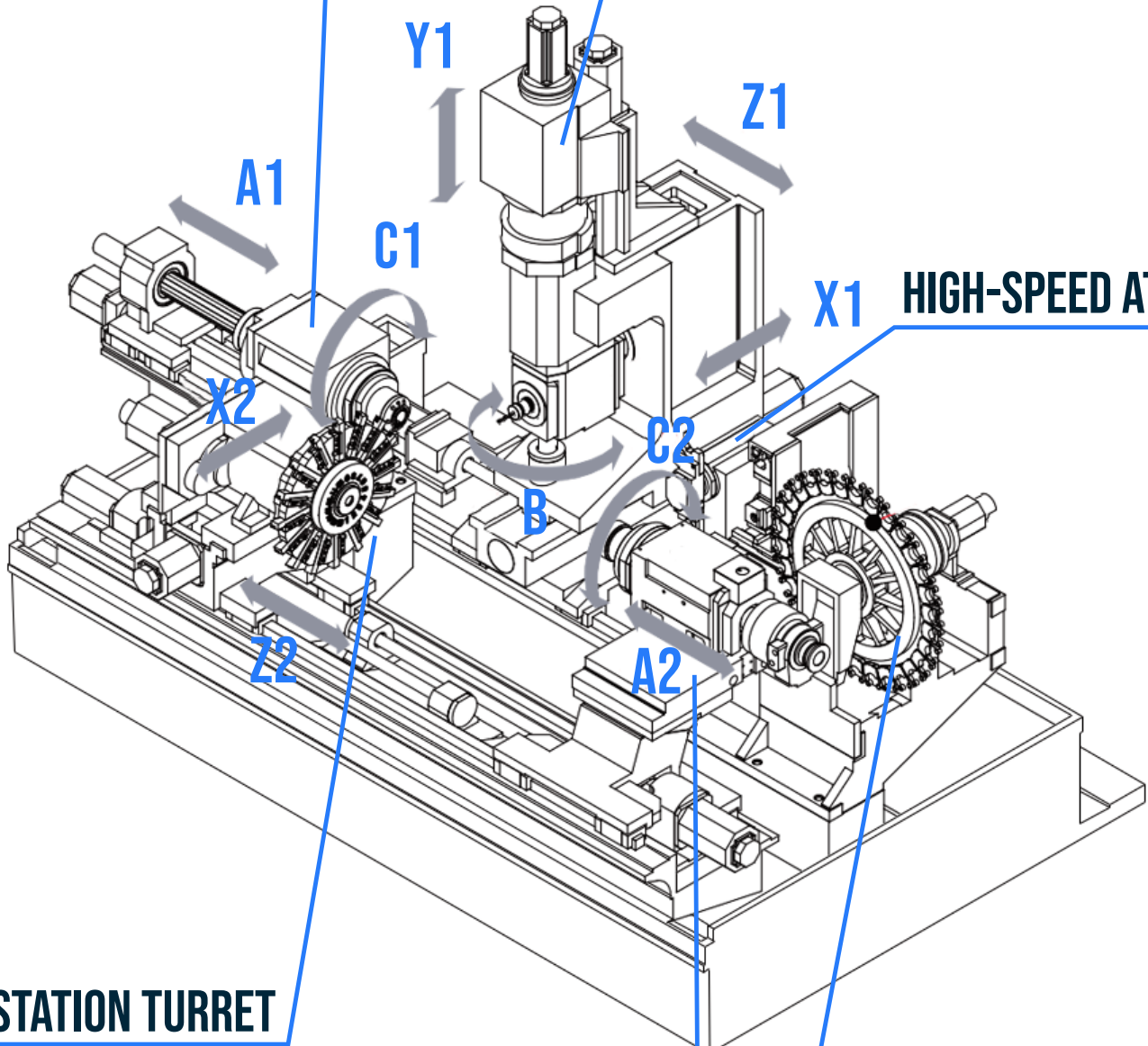
WORK ZONE



TMU1R

MAIN SPINDLE

HIGH RIGIDITY TOOL SPINDLE



HIGH-SPEED ATC

16 STATION TURRET

TOOL MAGAZINE

BACK SPINDLE

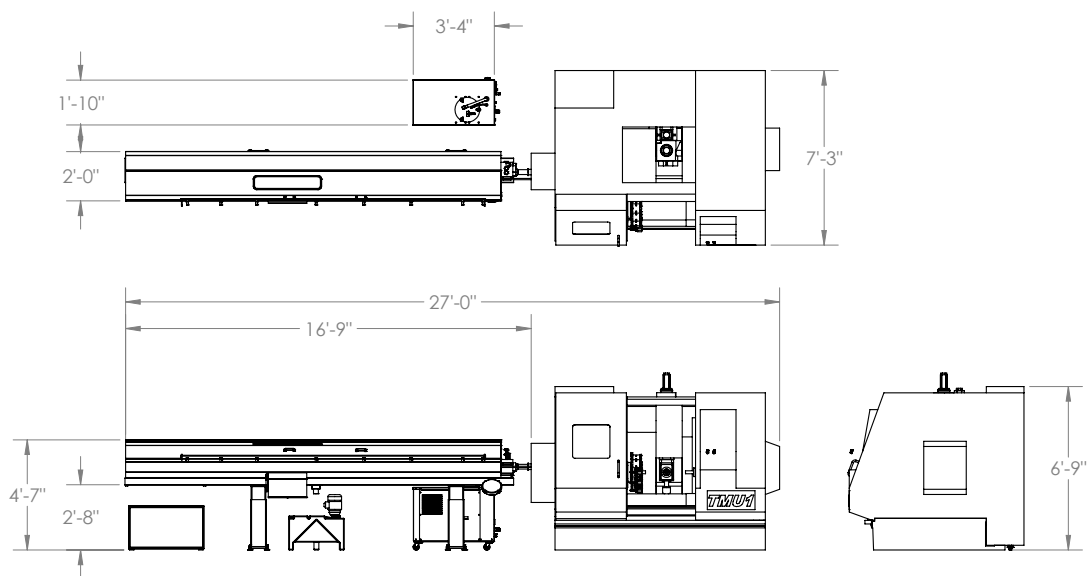
MACHINE STANDARD SPECIFICATIONS

	ITEMS	TMUIR
CAPABILITY	Max. machining diameter	ø38 mm (1.5 in.)
	Max. machining length in 1 chuck	250 mm (9.84 in.)
MAIN SPINDLE	Max. spindle speed	6,000 min-1
	Drive motor output (built-in)	14.75/10 HP (11/7.5 kW)
	Spindle C axis min. indexing angle	0.001°
TOOL SPINDLE	Tool mounting system	Spindle with ATC
	B-axis index angle/ Min. index angle	5° steps (by coupling) / 0.001 steps (by brake)
	Tool spindle index angle / position (tool peripheral)	90° / 4 positions
TURRET	Max. spindle speed	10,000 min-1
	Drive motor output (built-in)	7.4/3 HP (5.5/2.2 kW)
	Number of tool stations	16
	Square tool size	3/4" x 3/4" (125 mm)
BACK SPINDLE	Drill holder sleeve dia.	1.25"
	Index drive	Servo motor
	Max. spindle speed	6,000 min-1
	Drive motor output (built-in)	14.75/10 HP (11/7.5 kW)
STROKE	Spindle C axis min. indexing angle	0.001°
	X1 (tool spindle diametral axis)	380 mm
	Y1 (tool spindle vertical axis)	110 mm (±55 mm)
	Z1 (tool spindle longitudinal axis)	560 mm
	X2 (turret diametral axis)	130 mm
	Z2 (turret longitudinal axis)	800 mm
FEED RATE	A1 (main spindle longitudinal axis)	250 mm
	A2 (back spindle longitudinal axis)	800 mm
	Z1, Z2, A2	40 m/min
ATC	X1, Y1, A1, X2	24 m/min
	Tool shank shape	CAPTO C4
	Max. tool dimension	ø80 mm x 150 mm (4kg)
	Number of tools stored	60 Standard (118 option)
	Tool change time (Tool to Tool)	0.8 sec.
	Power source requirement	40 KVA
OTHER	Compressed air requirement	0.5 MPa
	Air discharge rate	300 dm ³ /min (ANR)
	Width x Depth x Height	143.7 x 86.6 x 98.42 in. (3,650 x 2,200 x 2,500 mm)
	Weight	18,740 lbs. (8,500 kg)

NC SPECIFICATIONS

ITEMS	TMUIR
NC unit	FANUC 31i-B, 10.4" color LCD
Simultaneously controlled axes	1st path: X1, Z1, C1, Y1, A1, B 2nd path: X2, Z2, C2, A2
Least input increment	0.001 (diametrical on X1 X2)
Interpolation function	Linear & Circular interpolation
Tape code	ISO,EIA
Command method	G-code system A
Rapid traverse rate	Z1, Z2, A2 (40 m/min) X1, Y1, A1, X2 (24 m/min)
Feed rate command	Feed per revolution (mm/rev) or feed per minutes (mm/min)
Input method	MDI
Auxiliary function M	5 digits
Spindle speed function S	5 digits
Tool function	4 digits or 5 digits (when 400 or more tool offsets are used)
Feedrate override	0 to 150%
Rapid traverse override	0 to 100%
Spindle speed override	0 to 120%
Feed hold	Standard
Cycle continuity	Standard
Single block	Standard
Optional stop	Standard
Dry run	Standard
Block skip	Standard
Manual handle	Standard
Part program storage length	Each path: 80 m (Option: 160 m, 320 m, 1,280 m)
Number of registered programs	Each path: 63 programs (Option: 200, 400, 1,000 programs)

ITEMS	TMUIR
Back ground editing	Standard
Run time & parts number display	Standard
Number of tool offsets	999 sets Standard
Tool nose radius compensation	Standard
Chamfering and corner R	Standard
Programmable data input	Standard
Workpiece coordinate system	6 pairs
Main/back-spindle synchronization control	Standard (rotation synchronization, phase synchronization control)
Main spindle C axis and back spindle C axis	Standard
Canned cycle for turning	Standard (G90, G92, G94)
Multiple repetitive cycle	Standard (G70 to G76)
Canned cycle for drilling	Standard (G80 to G89)
Rigid tapping	Standard
3-dimensional coordinate conversion	Standard
Custom macro B	Standard (system variable: #100 to #199, #500 to #999)
Memory card and USB	Standard
Extended part program editing	Option
Tool life control	Option
Helical interpolation	Option
Polar coordinate interpolation	Option
Cylindrical interpolation	Standard
Addition of custom macro common variables	Standard
RS232	Standard



Since 1978, Tsugami America (formerly known as Tsugami/Rem Sales) has been the exclusive source for Precision Tsugami CNC machine tools in North America. Headquartered in Windsor, CT, Tsugami America provides machine tools and engineering expertise through an extensive network of authorized distributors and technical centers. Technical support and customer service are available throughout North America. Our distributors' trained service personnel provide technical support throughout the long life-cycle of our Tsugami machine tools, and work hand-in-hand with Tsugami America's engineers to deliver common-sense solutions to everyday problems.

Our application engineers help customers tackle and solve the toughest high-precision manufacturing challenges, on-time and on-budget. We have a 40-year history and reputation of serving the needs of small parts manufacturers in North America with the highest level of expertise and customer care. Our industry-respected, knowledgeable staff is comprised of both long-time employees and fresh faces all who share a commitment to provide you, our customers, with the competitive advantage to "do more with less" every day.

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