CNC 1 Spindle 2 Turret
Precision Lathe

XTT-500/500M

TAKAMAZ

High-spec machine equipped with twin turrets, ideal for shaft work

CNC1Spindle2Turret Precision Lathe

XTT-500/500M

Focusing on “compactness”, “high rigidity/high output” and “ease of maintenance”,
a high-performance NC lathe that capitalizes on a one-spindle,
two-turret configuration is now introduced.
Cycle times can be significantly shortened by synchronous cutting
with the upper and lower twin turrets.

※The photo shows XTT-500.

Realizing versatile cutting with the one-spindle, two-turret configuration in a compact design

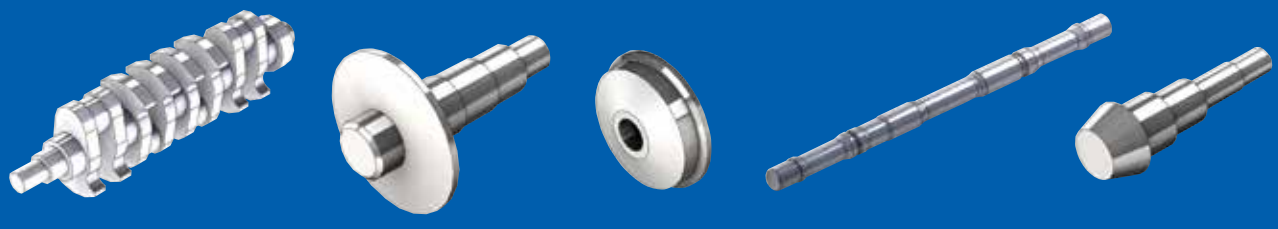
In addition to balance cutting, which is possible only with upper and lower twin turrets and high-efficiency simultaneous individual cutting to substantially shorten cycle times, cutting can be carried out appropriately for a variety of workpiece forms.
While the machine width is compact at 1,695 mm, it has sufficient internal cutting space to accommodate long workpieces, with a Z-axis stroke of 450 mm (X-axis stroke of 105 mm).
The highly rigid 8-station turrets allow leeway with the tooling, expanding the possibilities.

Balance Cutting

Through synchronous cutting, the upper and lower twin turrets play the role of a steady rest, suppressing deflection of the workpiece and achieving high accuracy.

Left and Right Individual Cutting

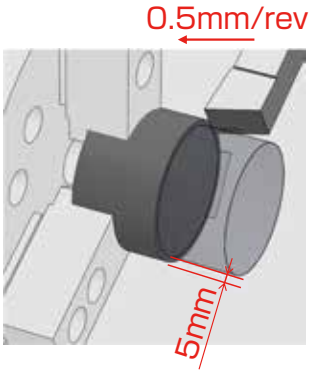
Since each turret carries out its own cutting, cycle times can be shortened significantly.

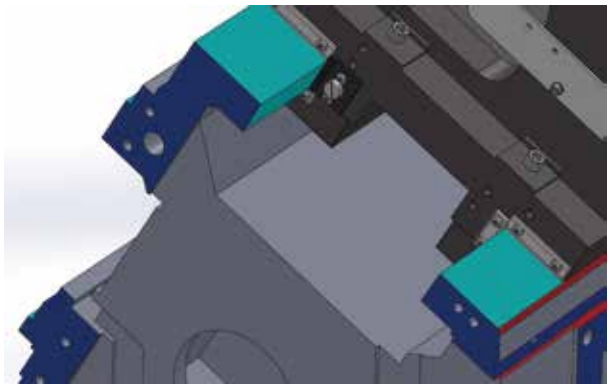


Crankshaft | Primary sheave | Secondary sheave | Intermediate shaft | Drive pinion

Process integration with milling capability (500M)

Eight power tools can be mounted on the upper and lower twin turrets combined.
Powerful milling such as for horizontal drilling and key grooving required when machining on shafts can be accomplished with a power tool of ϕ10 mm in diameter at a maximum spindle speed of 4,000 min^{-1}.
Processes for long workpieces such as CVJ shafts and drive pinions in which the workpiece is cut from the solid and drilled on another machine can now be integrated on a single machine.





Cutting Cross Sectional Area(t*f)

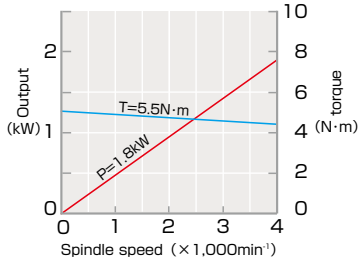
2.50mm²/rev

※15/11kW For short-time rating

Stable cutting with high rigidity/high output

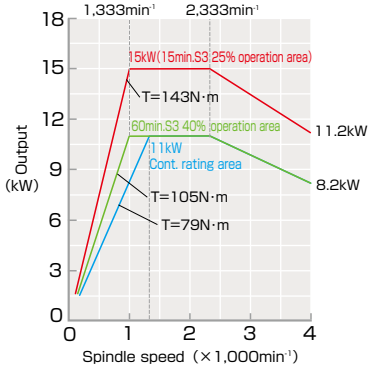
A high-output 15/11 kW spindle motor is adopted for a high-rigidity spindle with an 8-inch chuck and ϕ100 mm bearing. Furthermore, the X and Z axes use square box-way slides, realizing a robust mechanical structure. Heavy-duty cutting capability and high accuracy can be maintained over the long term.

Power tool power characteristic curve

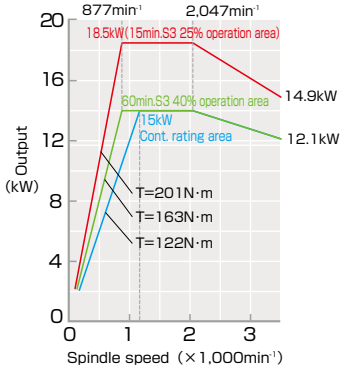


Spindle power characteristic curve

■ Max.4,000min⁻¹(AC 15/11kW) ϕ100



■ Max.3,500min⁻¹(AC 18.5/15kW) ϕ120

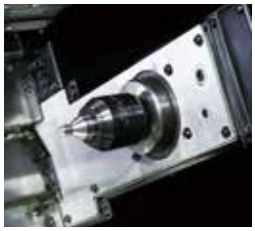


Slide doors for exceptional ease of maintenance

A large sliding door with an opening of 500 mm is provided at the right side of the machine front.

The door opens in a one-touch operation, assuring ample maintenance area. Access to the turrets and tailstock is easy, and helps to reduce the time spent on setup.

With the sub-slide door at the right of the machine open.
Machine components such as the tailstock are grouped together, and a large maintenance area can be secured with a one-touch operation.



High-rigidity tailstock

Steady rest that proves effective with long workpieces (Made by SMW, Model: SLU-X-1)

Variety of options for shaft work

The tailstock is self-propelled using high-rigidity hydraulic cylinder drive, which exerts a strong thrust. The tailstock travel position is detected by a linear encoder and this is linked to the machining program, helping to reduce the man hours spent on setup changes.

Using servomotor drive, the workpiece steady rest allows the workpiece support position to be adjusted easily by simply modifying the program, enabling support for handling multiple workpiece types.

Tailstock specifications

Item	Unit	Spindle φ100-mm specifications	Spindle φ120-mm specifications
Pointed End		MT-4	MT-5
Quill O.D.	mm	φ105	
Tailstock stroke	mm	350(Hydraulic)	
Max. thrust	kN	5.5	

Loader can be installed at a low position thanks to the slant construction

Loader hand for shaft work

Light, compact pendant operation panel

Equipped with dedicated loader "ΣiGT500"

Incorporating the new 3-axis loader "ΣiGT500" with a maximum payload of 8 kg (per side) allows stable mass production of heavy workpieces such as shafts, and helps with productivity improvement and labor savings.

Adopting a 60° slant bed construction keeps the machine height low and allows a design with a low loader position. This gives easy access to the loader hand and facilitates work such as hand changes.

The loader hand is arranged so that it can move in accordance with the inclination of the 60° slant bed for easier handling. This avoids interference inside the machine such as with the steady rest, improves the level of freedom in loading, and results in a further reduction of cycle times. (Patented technology)

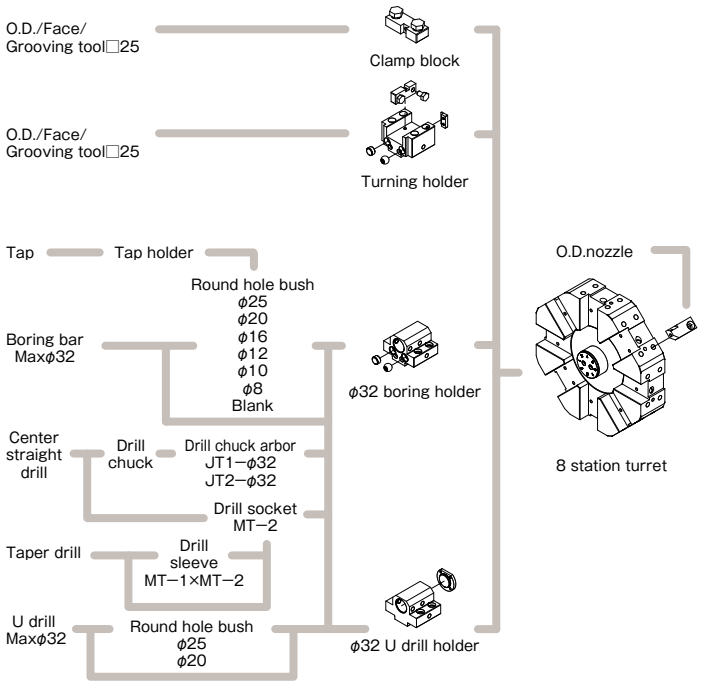
What is more, the pendant operation panel dedicated to the loader makes it simple to work while monitoring the position of the loader.

Loader transfer capacity

Item		Unit	ΣiGT500
Capacity	Optimal workpiece	mm	φ25~φ70 × 400
	Weight capacity	kg	8.0(one side)
Body	axis stroke	mm	X : 235 Y : 690 Z : Depends on specifications
	Rapid traverse rate	m/min	X:35 Z:170 Y:125
Hand	Jaw stroke	mm	20(one side)

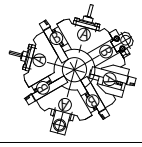
Tooling system

XTT-500

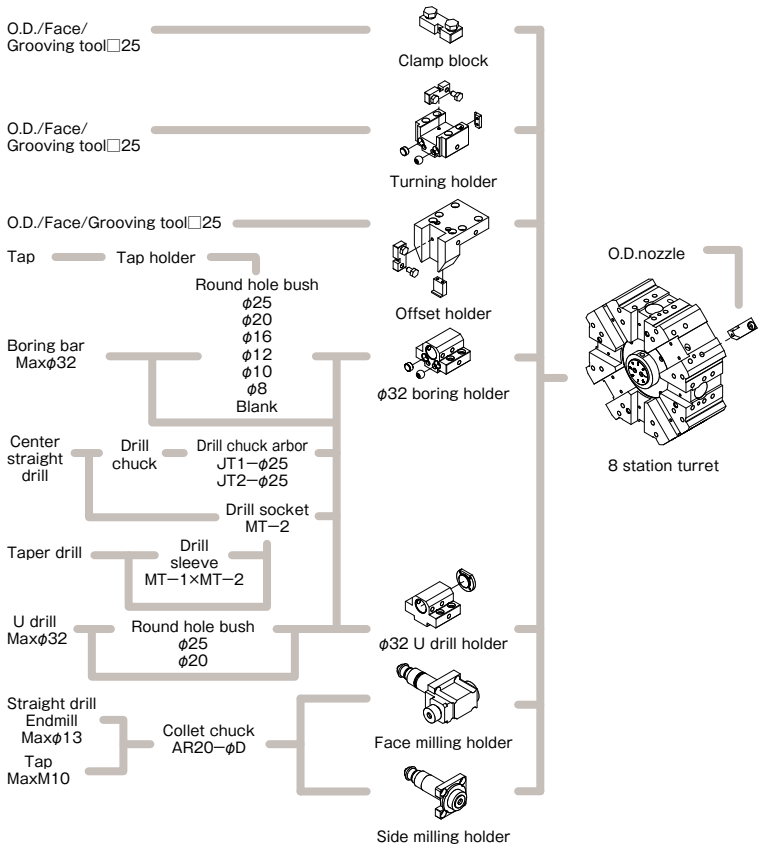


⚠Attention XTT-500M

- A power tool holder or offset holder can be mounted on station A.
- A turning holder, boring holder or U drill holder can be mounted on station B.

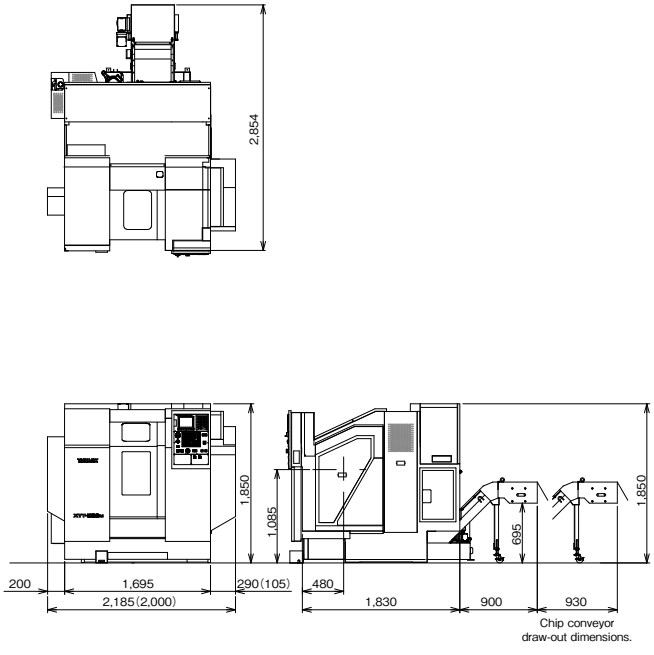


XTT-500M

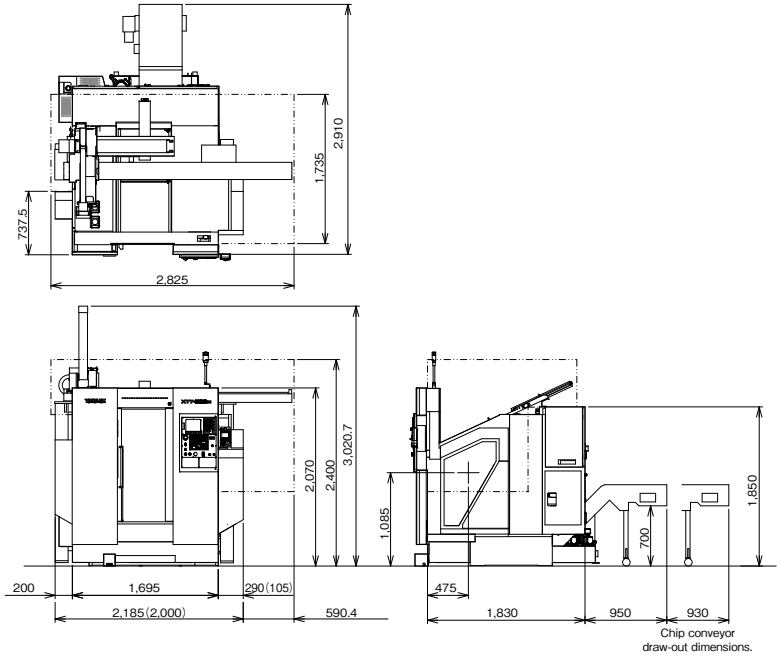


Floor Space Drawing

Standard



Loader Specifications

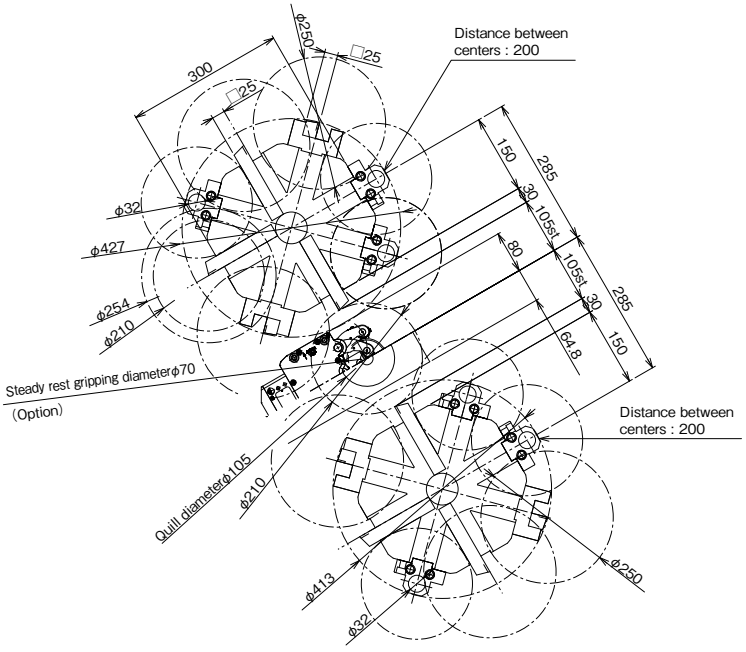


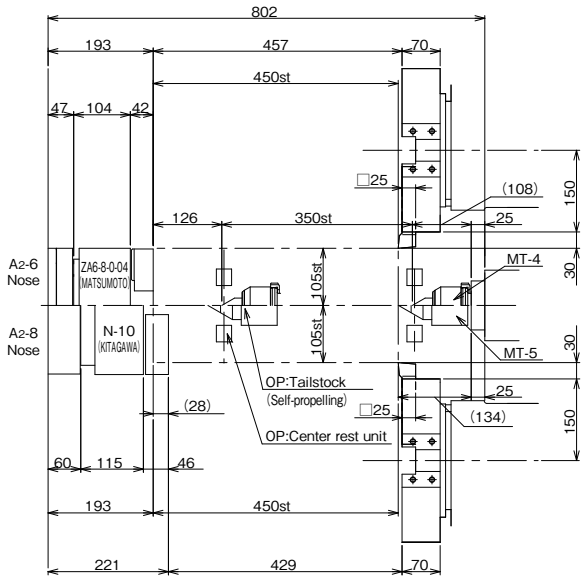
Data in parentheses is for XTT-500. Unit(mm)

Turret Interference

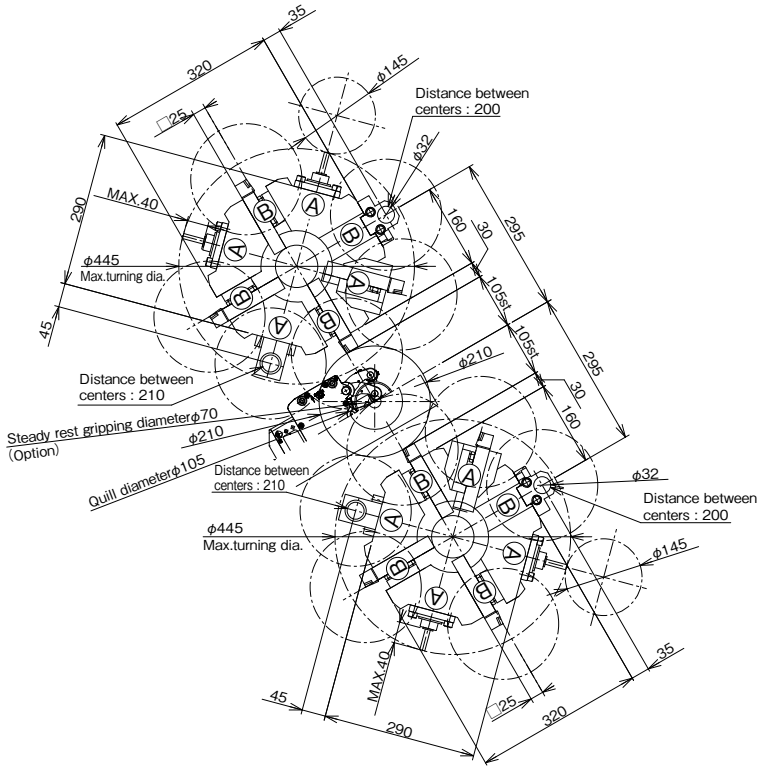
Stroke-Related Drawing

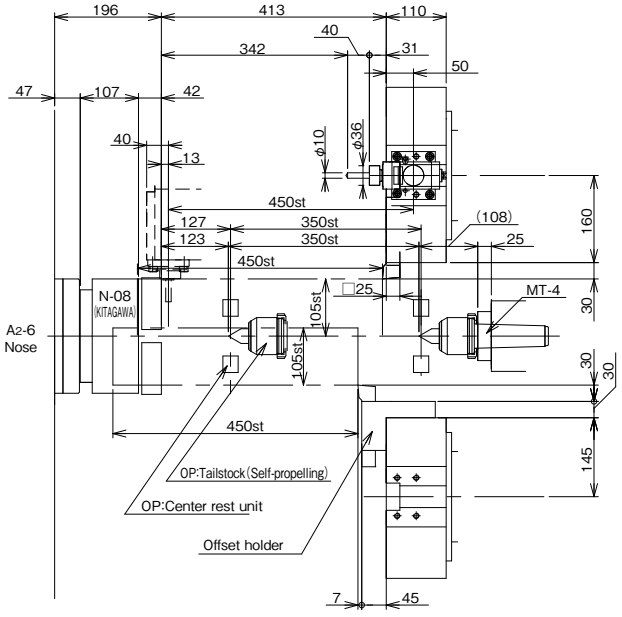
XTT-500





XTT-500M





⚠Attention

- A power tool holder or offset holder can be mounted on station A.
- A turning holder, boring holder or U drill holder can be mounted on station B.
- Set the tooling with due care, even if within the turret's swing diameter. The tools may interfere with covers or the tailstock inside the machine.

Unit (mm)

CNC 1 Spindle 2 Turret Precision Lathe

XTT-500 XTT-500M

Machine Specifications

	Item	Unit	XTT-500	XTT-500M
Capacity	Max. turning diameter	mm	φ210	
	Max. turning length	mm	450	400
	Max. bar diameter	mm	φ42, φ51(φ65)	φ42, φ51
	Chuck size	inch	Collet, 8(10)	Collet, 8
Spindle	Spindle nose	JIS	A2-6(A2-8)	A2-6
	Spindle bearing I.D.	mm	φ100(φ120)	φ100
	Through-hole on spindle	mm	φ61(φ80)	φ61
	Spindle speed	min^{-1}	Max.4,000(3,500)	Max.4,000
Tool post	Type		8-station turret×2	
	Tool shank	mm	□25	
	Boring holder I.D.	mm	φ32	
	Max. stroke	mm	X:105 Z:450	
	Rapid traverse rate	m/min	X:18 Z:24	
Power tools	Tool storage capacity	pcs.	—	4(one side)
	Rotation speed	min^{-1}	—	Max.4,000
	Capacity Drill	mm	—	φ10
	Capacity Endmill	mm	—	φ10
	Capacity Tap	mm	—	M4～M8
C-axis	Rapid traverse rate	deg./min	—	18,000
	C-axis motor	kW	—	AC0.5
Motors	Spindle motor	kW	AC15/11(18.5/15)	AC15/11
	Feed motor	kW	X:AC1.2 Z:AC1.8	
	Coolant motor	kW	AC0.4×2	
	Hydraulic motor	kW	AC1.5	
	Power tools motor	kW	—	AC1.8
Size	L×W×H	mm	1,695×1,830×1,850	
	Machine weight	kg	4,600	4,800
Total electric capacity		KVA	26	28

( ):Option

Standard Accessories

- □Clamp block ····· 16sets
- □Coolant block(For reverse cutting tools)··· 16sets
- □Hydraulic chucks(8 inch·Solid)··· 1set
- □Hydraulic chucking cylinder(Solid)··· 1set
- □Hydraulic unit ····· 1set
- □Chuck clamp detector ····· 1set
- □Spindle indexing device(C-axis/500M)··· 1set
- □Power tools drive unit(500M) ··· 1set
- □Thread cutting unit (Including constant surface speed control)··· 1set
- □Coolant unit(170 lit.)····· 1set
- □Work light ····· 1set
- □Service tool kit ····· 1set
- □TAKAMAZ instruction manual ···· 1set

Optional Accessories

- □Tool holders
- □Collet chucks
- □Hydraulic chucks
- □Alloyed Clamp Holder for vibrations suppression
- □Special spindle speed(3,500min^{-1})
- □Center rest unit
- □Storage-type work rest device
- □TAKAMAZ loader system
- □Spindle indexing device(Electrical／Mechanical)
- □Tailstock
- □Power tools(500M)
- □Rear chip conveyor (Floor type／Spiral type)
- □Front air blower
- □Rear coolant unit
- □Signal light(1-Tier／2-Tiers／3-Tiers)
- □Automatic power shut-off device
- □Automatic door system(Auto door／Shutter)
- □Special color
- □Others※

※For more information on attachments,consult our sales representative.

Controller Specifications

Item	XTT-500	XTT-500M
	TAKAMAZ & FANUC 0i-TF	
Controlled axes	4 axes (X1, X2, Z1, Z2)	5 axes (X1, Z1, C, X2, Z2)
Simultaneously controllable axes	Simultaneous 2 axes (× 2)	Simultaneous 3 axes (× 2)
Least input increment	0.001mm (X in diameter)	
Least command increment	X : 0.0005mm Z : 0.001mm	
Auxiliary function	M-code 3 digit	
Spindle function	S-code 4 digit	
Tool function	T-code 4 digit	
Tape code	EIA(RS232C)／ISO(840)automatic recognition	
Cutting feedrate	1～5,000mm/min	
Command system	Incremental／Absolute	
Linear interpolation	G01	
Circular interpolation	G02, G03	
Cutting feedrate override	0～150%	
Rapid traverse override	F0, 100%	
Program file name	32 characters	
Backlash compensation	0～9,999μm	
Program memory capacity	1Mbyte (2,560m) (Dual systems total)	
Tool offsets	128 sets (Dual systems total)	
Registered programs	800 pcs. (Dual systems total)	
Tool geometry／Wear offset	Standard	
Canned cycle	G90, G92, G94	
Radius designation on arc	Standard	
Tool offset measurement input	Standard	
Background editing	Standard	
Direct drawing dimension programming	Standard	
Custom macro	Standard	
Custom macro common variables	#100～#199, #500～#999	
Pattern data input	Standard	
Nose R compensation	G40, G41, G42	
Inch／Metric conversion	G20／G21	
Programmable data input	G10	
Run hour／Parts count display	Standard	
Extended part program editing	Standard	
Multiple repetitive cycle	G70～G76	
Multiple repetitive cycle Ⅱ	Pocket-shaped	
Canned drilling cycle	Standard	
Constant surface speed control	G96, G97	
Continuous thread cutting	G32	
Variable lead thread cutting	G34	
Thread cutting retract	Standard	
Clock function	Standard	
Help function	Standard	
Alarm history display	50 pcs.	
Self-diagnosis function	Standard	
Sub-program call	Up to 10 loops	
Decimal point input	Standard	
2nd reference point return	G30	
Work coordinate system setting	G50, G54～G59	
Rigid tapping	—	Standard
Polar coordinate interpolation	—	Standard
Cylindrical interpolation	—	Standard
Stored stroke check 1	Standard	
Stored stroke check 2,3	Standard	
Input／Output interface	USB Flash Memory, Memory card, Ethernet	
Alarm message	Standard	
Graphic display	Standard	
Conversational programming with graphic function	Standard	
Abnormal load detection	Standard	
Balance cut	G68, G69	
Manual handle trace	Standard	
Automatic data backup	Max. 3	
Automatic screen deletion function	Standard	
TAKAMAZ management support function	Work／Tool counter, Tool load monitor, Others	
TAKAMAZ maintenance functions	Standard	
FANUC set of manuals	DVD-ROM	

Optional Specifications

Input／Output interface	RS232C
Tool life management	
Multiple M codes in one block	Max. 3
Spindle orientation	1 set／6 sets
Dynamic graphic display	
FANUC instruction manual	Bound

TAKAMAZ

www.takamaz.co.jp

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