

PRECISION TSUGAMI

■ Products Guide



Head office / 12-20, TOMIZAWA-CHO, NIHONBASHI, CHUO-KU, TOKYO 103-0006, JAPAN
Phone: +81-3-3808-1172 Facsimile: +81-3-3808-1175

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Accuracy, Speed and Rigidity
TSUGAMI is recognized worldwide for superior precision machine tools.

TSUGAMI has supplied unique products with High speed, High accuracy, and Superior rigidity since the inauguration of the company in 1937. We trust that our valued customers have long been satisfied with the excellence of our products.

We devote much of our energy to research and development. This is based on our many years of experience, our exposure to ever changing technology, and the needs of our worldwide customer base. We also invest in efforts to make the use of our products "worry free" with continuously expanding after sales services and technical assistance.




We actively pursue technical innovation in consideration of first hand information collected from our customers and the advanced technology needs of new industries. We believe that our products will contribute to your production goals and lead to remarkable benefits for you.




Chairman & CEO
Takao Nishijima



High-Precision
High-Speed
High-Rigidity



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	Chuck work			Bar work & Chuck work		Bar work	
							
	C180	C150	C220	C300-IV C300H	CH154		
Chucking capacity	3,4 inch	3 inch	4 inch	6 inch	φ15		
Page	P16	P17	P17	P17	P16		
X-Z axis stroke	300×150	150×150	220×220	300×300	300/300×150/120		
Least input increment	0.01μm	0.01μm	0.01μm	0.1μm	0.01μm		







CNC lathe	Bar work & Chuck work		
	Turret (fixed head stock)		
	 <p>M06JC</p>	 <p>M06J-II M08J-II</p>	 <p>M06D-II M08D-II</p>
Max. machinable dia.	6 inch	6 inch•8 inch	6 inch•8 inch
Page	P13	P13	P13
Tool post style	8pos.turret	8pos.turret	12pos.turret
Back spindle	×	×	×
Rotary tools	×	×	○






Turning center	Bar work	Chuck work	
			
	TMU1	TMB2	TMA8J TMA8H
Chucking capacity	φ38	φ51	8 inch
Page	P19	P19	P18
Tool storage capacity	Turret+30ATC	Turret+30ATC	30ATC
Back spindle	○	○	○
Tool post style	Turret+Tool spindle with B axis	Turret+Tool spindle with B axis	Tool spindle with standard Y-axis control and B-axis indexing

	Vertical machining center	
Machining center	 <p>VA2</p>	 <p>VA3</p>
Spindle I.D. taper	7/24 taper S20T	7/24 taper No.30
Page	P20	P21
X·Y·Z axis stroke	360×260×250	500×400×350
Table size	500×330	650×400
Max. allowable weight on table	200kg	250kg
Spindle speed	30,000min ⁻¹	20,000min ⁻¹

Horizontal machining center		
	4-face machine	4-face machine 5-face machine
		
	FMA3-III	FMA5-III
Spindle I.D. taper	7/24 taper No.40	7/24 taper No.40
Page	P21	P21
X·Y·Z axis stroke	360×330×400	560×350×500
Table size	300	8P:450 10P:300
Max. allowable weight on table	80kg	8P:250kg 10P:80kg
Spindle speed	10,000min ⁻¹	10,000min ⁻¹

Grinding Machine	CNC Cylindrical Grinding Machine G18 series	
	Basic	Minimized operation
	Straight	Angular
	 G18-II	 G18-IIFB
Distance between centers	250	60
Page	P22	P22
Swing	180	180
Wheel O.D.	355	305
Wheel spindle motor	2.2kW	2.2kW

	CNC Cylindrical Grinding Machine G300 series				CNC Cylindrical Grinding Machine G350 series		Thread grinding	Small Grinding Machine		Carbide tool Grinding Machine
	Basic		Minimized operation	Thread grinding		Basic		Linear Drive	O.D. grinding	I.D. grinding
	Straight	Angular	Swivel, twin wheel	Simultaneous 3-axis control		Straight	Angular			
										
	G300		G300F		G300T		G350	FTG18TL	CGD150-II IGD150-II	
Distance between centers	300・500		500・1000		300・500		300・500・750・1000	100	150・I.D.22	
Page	P23		P24		P24		P23	P23	P24	
Swing	300		300		300		350	180	105	
Wheel O.D.	Straight 405	Angular 510	455		405 355		610	200	125	I.D.φ3~ φ22
Wheel spindle motor	7.5kW		7.5kW		3.7kW		11.0kW	1.5/3.7kW	0.2kW	0.2kW

Thread rolling machine	Precision thread and form rolling machine											
	In-feed		Through-feed		In-feed		In-feed		Through-feed		In-feed	
												
	R7NC		R17NC-II		R6A		R16-II		R30A			
	Max. rolling pressure		7 ton		17 ton		6 ton		16 ton		30 ton	
	Page		P25		P25		P26		P26		P26	
	Max. rolling O.D.		φ45 φ10		φ75 φ40		φ45		φ75 φ40		φ100	
	Max. rolling dies O.D.		φ160		φ200		φ150		φ200		φ210	
	Spindle O.D.		φ54		φ54		φ54		φ54		φ85	
	Spindle motor		2.5kW×2		3kW×2		1.5kW		7.5kW		11kW	

CNC PRECISION AUTOMATIC LATHE Bar Work Machine

Best for mass production of high-precision small components such as parts for office automation (OA) equipment, medical equipment, digital camera, cellular phone, optical communications and automobile.



AUTOMATIC LATHE

CNC PRECISION AUTOMATIC LATHE

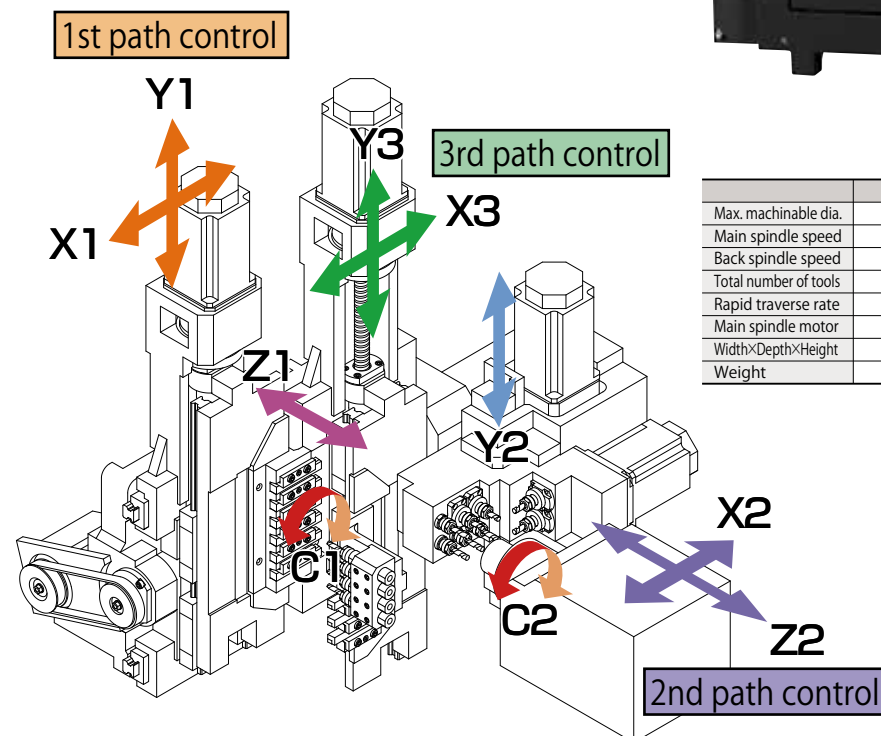
B0128W/B0208W

Infinite pursuit of high productivity
Drastically shortens cycle time.

- By simultaneous 3-path control on independent tool posts, diverse processing is possible.
- High value-added workpiece is also possible by the Y-axis on the back side.
- Zero tool change time by simultaneous 3-path control
- Mounting Y axis on three tool posts.



	B0128W	B0208W
Max. machinable dia.	φ12mm	φ20mm
Main spindle speed	200~12,000min ⁻¹	200~10,000min ⁻¹
Back spindle speed	200~12,000min ⁻¹	
Total number of tools	25	
Rapid traverse rate	32m/min (X1,X3: 12m/min, Y2: 15m/min)	
Main spindle motor	1.5/2.2kW	2.2/3.7kW
Width×Depth×Height	1,655×1,205×1,700mm	
Weight	2,150kg	



CNC PRECISION AUTOMATIC LATHE

SS207/SS207-5AX

B-axis versatility for machining complex parts

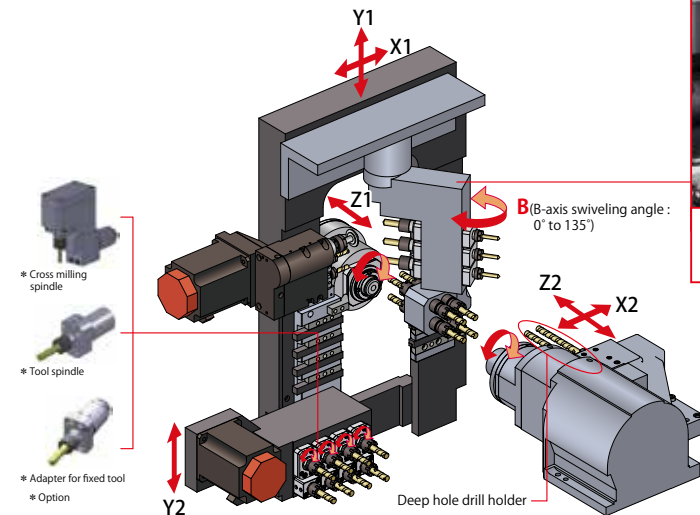
Thanks to the B-axis control, virtually any angle can be indexed and processed by NC programs

- Drilling
- Tapping
- End milling (with Y-axis control)

Simultaneous 4-axis machining with CAD/CAM

Thread whirling or hobbing is possible without a dedicated attachment thanks to the B-axis control.

5-axis simultaneously controlled processing now on the automatic lathe (SS207-5AX)



Continuous B-axis swiveling tools
Frontal rotary tool: 3 (Collet ER/AR16)
Back rotary tool: 3 (Collet ER/AR11)

	SS207	SS207-5AX
Max. machinable dia.	φ20mm	
Main spindle speed	200~10,000min ⁻¹	
Back spindle speed	200~12,000min ⁻¹	
Total number of tools	35	
Rapid traverse rate	Z1,Z2,X2: 32m/min, X1,Y1: 24m/min, Y2: 15m/min	
Main spindle motor	2.2/3.7kW	
Width×Depth×Height	2,110×1,200×1,885mm	
Weight	3,300kg	



CNC PRECISION AUTOMATIC LATHE

SS267/SS327/SS267-5AX/SS327-5AX

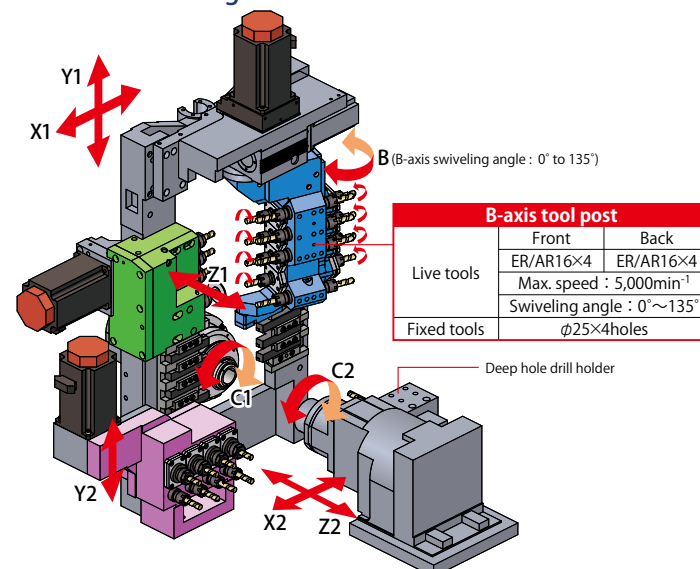
Large diameter Swissturn with B-axis milling operation

Diverse B-axis milling operations with 4 tools on the B-axis swiveling tool spindles

B axis can be indexed in arbitrary angle

- Drilling
- Tapping
- End milling (with Y-axis control)

Thanks to the multiplied tool posts on the back tool post(option), efficient machining is realized on the small-hole drilling.



	SS267	SS267-5AX	SS327	SS327-5AX
Max. machinable dia.	φ26mm		φ32mm	
Main spindle speed	200~10,000min ⁻¹		200~8,000min ⁻¹	
Back spindle speed	200~8,000min ⁻¹		200~8,000min ⁻¹	
Total number of tools	38		38	
Rapid traverse rate	32m/min (X1,Y1: 24m/min)		32m/min (X1,Y1: 24m/min)	
Main spindle motor	3.7/5.5kW		3.7/5.5kW	
Width×Depth×Height	2,150×1,280×2,010mm		2,150×1,280×2,010mm	
Weight	3,600kg		3,600kg	

CNC PRECISION AUTOMATIC LATHE
B0265-II/B0265B-II/B0325-II/B0325B-II

Perfectly corresponds to the contemporary market requirement
Multifunctional swissturn with reliable and accomplished opposed gang tool post

- Modular tooling using cartridge type live tools (option) for optimum allocation of machining capability.
- Beside the back spindle, additional tool post is attached. Deep hole drilling (up to 100 mm) can be realized. In addition, by adopting optional rotary tool beside the back spindle, the ability of front off-center machining is increased.
- Optional direct-drive rotary guide bushing provides high speed and accurate machining.
- Guide-bush type or guide-bushless type is selectable according to workpieces.
- Pursuing operability thanks to enriched standard softwares
- Automatic programming system prepared as standard

	B0265-II/B0265B-II	B0325-II/B0325B-II
Max. machinable dia.	φ26mm	φ32mm
Main spindle speed	200~10,000min ⁻¹	200~8,000min ⁻¹
Back spindle speed	200~10,000min ⁻¹	200~8,000min ⁻¹
Total number of tools	27/39	
Rapid traverse rate	32m/min (X1,Y1: 24m/min)	
Main spindle motor	3.7/5.5kW	
Width×Depth×Height	2,150×1,280×1,930mm	
Weight	3,500kg	

CNC PRECISION AUTOMATIC LATHE
B0266-II/B0326-II

Perfectly corresponds to the contemporary market requirement
Multifunctional swissturn with reliable and accomplished opposed gang tool post

- Machine complex parts using the main and back spindle simultaneously with the Y-axis tool post.
- Modular tooling using cartridge type live tools (option) for optimum allocation of machining capability.
- Beside the back spindle, additional tool post is attached. Deep hole drilling (up to 100 mm) can be realized. In addition, by adopting optional rotary tool beside the back spindle, the ability of front off-center machining is increased.
- Optional direct-drive rotary guide bushing provides high speed and accurate machining.
- Guide-bush type or guide-bushless type is selectable according to workpieces.
- Pursuing operability thanks to enriched standard softwares
- Automatic programming system prepared as standard

	B0266-II	B0326-II
Max. machinable dia.	φ26mm	φ32mm
Main spindle speed	200~10,000min ⁻¹	200~8,000min ⁻¹
Back spindle speed	200~10,000min ⁻¹	200~8,000min ⁻¹
Total number of tools	31/43	
Rapid traverse rate	32m/min (X1,Y1: 24m/min)	
Main spindle motor	3.7/5.5kW	
Width×Depth×Height	2,150×1,280×1,930mm	
Weight	3,500kg	

CNC PRECISION AUTOMATIC LATHE
B0123-III/B0203-III

High-precision machining based on the theoretical design policy.
Basic machines provide maximum profits by the minimal investment.

- Pursuing operability, improving machining accuracy and reducing cycle time thanks to the newly developed software.
- Realizing complex workpiece machining by the cross drill(Max. 8,000min⁻¹) (option) and the main spindle C-axis control (option)
- Guide-bush type or guide-bushless type is selectable according to workpiece.
- Automatic programming system prepared as standard.

	B0123-III	B0203-III
Max. machinable dia.	φ12mm	φ20mm
Main spindle speed	200~12,000min ⁻¹	200~10,000min ⁻¹
Total number of tools	13	
Rapid traverse rate	32m/min (X1:24m/min)	
Main spindle motor	1.5/2.2kW	2.2/3.7kW
Width×Depth×Height	1,590×1,125×1,700mm	
Weight	1,500kg	

CNC PRECISION AUTOMATIC LATHE
B0124-III/B0204-III

With built-in back spindle

- Processing of cut-off side is possible by the built-in back spindle.
- Pursuing operability, improving machining accuracy and reducing cycle time thanks to the newly developed software.
- Realizing complex workpiece machining by the cross drill(Max. 8,000min⁻¹) (option) and the main spindle C-axis control (option)
- Guide-bush type or guide-bushless type is selectable according to workpiece.
- Automatic programming system prepared as standard.

	B0124-III	B0204-III
Max. machinable dia.	φ12mm	φ20mm
Main spindle speed	200~12,000min ⁻¹	200~10,000min ⁻¹
Back spindle speed	200~12,000min ⁻¹	
Total number of tools	17	
Rapid traverse rate	32m/min (X1:24m/min)	
Main spindle motor	1.5/2.2kW	2.2/3.7kW
Width×Depth×Height	1,655×1,135×1,700mm	
Weight	1,950kg	



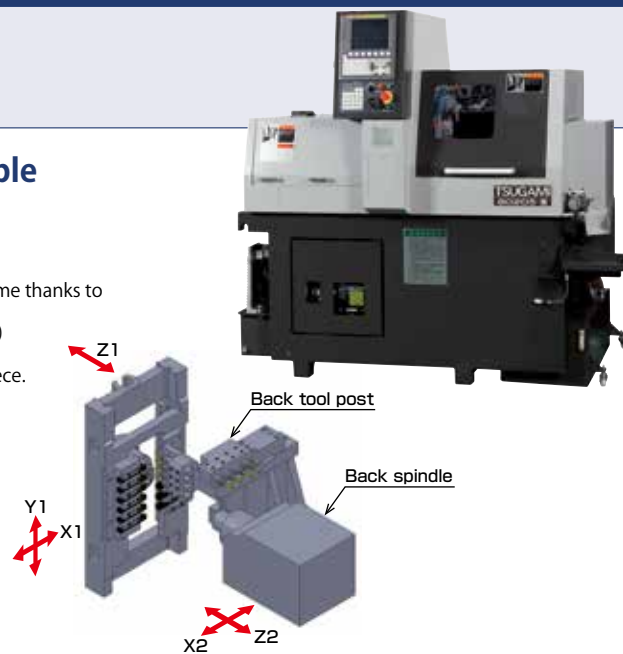
CNC PRECISION AUTOMATIC LATHE

B0125-III/B0205-III

Front and back overlapped machining is possible
Realizing shorter cycle time

- Front and back overlapped machining is possible with the back spindle and the back tool post.
- Pursuing operability, improving machining accuracy and reducing cycle time thanks to the newly developed software.
- Realizing complex workpiece machining by the cross drill(Max. 8,000min⁻¹) (option) and the main spindle C-axis control (option)
- Guide-bush type or guide-bushless type is selectable according to workpiece.
- Automatic programming system prepared as standard.

	B0125-III	B0205-III
Max. machinable dia.	φ12mm	φ20mm
Main spindle speed	200~12,000min ⁻¹	200~10,000min ⁻¹
Back spindle speed	200~12,000min ⁻¹	
Total number of tools	21	
Rapid traverse rate	32m/min (X1: 24m/min)	
Main spindle motor	1.5/2.2kW	2.2/3.7kW
Width×Depth×Height	1,655×1,135×1,700mm	
Weight	2,000kg	



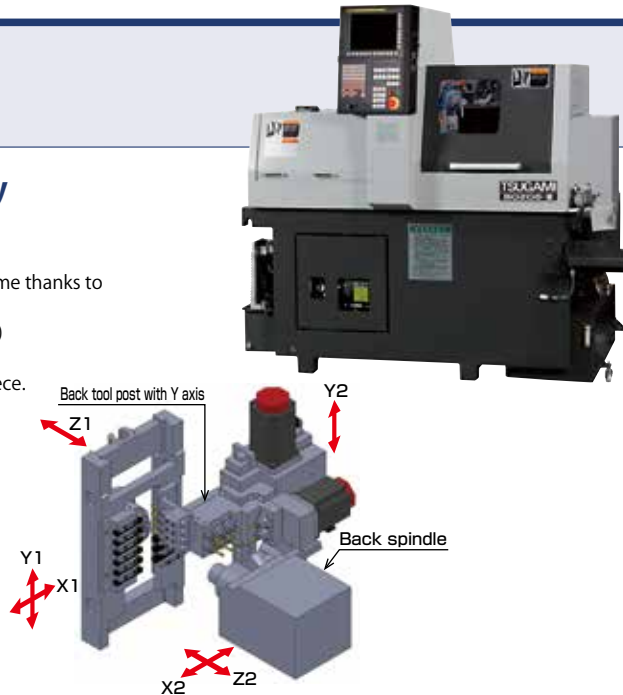
CNC PRECISION AUTOMATIC LATHE

B0126-III/B0206-III

Back tool post with Y axis on the compact body

- Thanks to the Y-axis of the back tool post, even the milling process on back side can be overlapped with front side.
- Pursuing operability, improving machining accuracy and reducing cycle time thanks to the newly developed software.
- Realizing complex workpiece machining by the cross drill(Max. 8,000min⁻¹) (option) and the main spindle C-axis control (option)
- Guide-bush type or guide-bushless type is selectable according to workpiece.
- Automatic programming system prepared as standard.

	B0126-III	B0206-III
Max. machinable dia.	φ12mm	φ20mm
Main spindle speed	200~12,000min ⁻¹	200~10,000min ⁻¹
Back spindle speed	200~12,000min ⁻¹	
Total number of tools	25	
Rapid traverse rate	32m/min (X1: 24m/min, Y2: 15m/min)	
Main spindle motor	1.5/2.2kW	2.2/3.7kW
Width×Depth×Height	1,655×1,135×1,700mm	
Weight	2,050kg	



CNC PRECISION AUTOMATIC LATHE

BM163-III/BM164-III/BM165-III

Front and back overlapped machining is possible
(without BM163-III)
Realizing shorter cycle time
Exclusive guide bushless machine

- A ceramic ball bearing is employed to the front bearing
- The ground bar is unnecessary. Cold-drawn bar can be used.

	BM163-III	BM164-III	BM165-III
Max. machinable dia.	φ16mm		
Main spindle speed	200~12,000min ⁻¹		
Back spindle speed	—	200~12,000min ⁻¹	
Total number of tools	13	17	21
Rapid traverse rate	32m/min (X1: 24m/min)		
Main spindle motor	2.2/3.7kW		
Width×Depth×Height	1,590×1,135×1,700mm	1,655×1,135×1,700mm	



CNC PRECISION AUTOMATIC LATHE

P013/P033

Optimum for mass production of fine precision parts

- High-speed and high-precision machining of parts with 0.05mm diameter or less
- High-speed main spindles: Maximum speed 25,000min⁻¹ (P013)
- The chucking-force adjustable chucks of main spindles can clamp fine precision parts softly.
- Equipping user friendly softwares for machining small-dia. and fine precision parts; Tool height compensation function, Spindle zero offset system.
- Space saving design, floor space 0.8m²
- Provided high-speed dedicated bar feeder
- Applicable machine spindle speed: 25,000min⁻¹

	P013	P033
Max. machinable dia.	φ1mm	φ3mm
Main spindle speed	25,000min ⁻¹	20,000min ⁻¹
Back spindle speed	—	—
Total number of tools	11	
Rapid traverse rate	20m/min	
Main spindle motor	0.75/1.1kW	
Width×Depth×Height	1,350×600×1,600mm	
Weight	950kg	

■ Cross drilling (optional)
Enhanced variation

2-spindle cross drill	1 pos. Brushless motor 1 pos. Servo motor
2-spindle cross drill (1 pos. cartridge)	1 pos. Servo motor 1 pos. cartridge
	Tool spindle Multiplied tool spindle Polygon spindle

CNC PRECISION AUTOMATIC LATHE

P014/P034

Optimum for mass production of fine precision parts

- High-speed and high-precision machining of parts with 0.05mm diameter or less
- High-speed main and back spindles: Maximum speed 25,000min⁻¹ (P014)
- The chucking-force adjustable chucks of main and back spindles can clamp fine precision parts softly.
- Equipping user friendly softwares for machining small-dia. and fine precision parts; Tool height compensation function, Spindle zero offset system.
- Space saving design, floor space 0.8m²
- Provided high-speed dedicated bar feeder
- Applicable machine spindle speed: 25,000min⁻¹

	P014	P034
Max. machinable dia.	φ1mm	φ3mm
Main spindle speed	25,000min ⁻¹	20,000min ⁻¹
Back spindle speed	25,000min ⁻¹	20,000min ⁻¹
Total number of tools	14	
Rapid traverse rate	20m/min	
Main spindle motor	0.75/1.1kW	
Width×Depth×Height	1,350×600×1,600mm	
Weight	1,000kg	

■ Cross drilling (optional)
Enhanced variation

2-spindle cross drill	1 pos. Brushless motor 1 pos. Servo motor
2-spindle cross drill (1 pos. cartridge)	1 pos. Servo motor 1 pos. cartridge
	Tool spindle Multiplied tool spindle Polygon spindle

CNC PRECISION AUTOMATIC LATHE

S205A/S205/S206

Perfectly corresponds to the contemporary
market requirement
Multifunctional swissturn with reliable and
accomplished opposed gang tool post

- Optimum tooling allocation is possible thanks to the cartridge type live tools on rear tool post (Except S205A) and back tool post.
- Besides the back spindle, additional tool post is attached. Deep hole drilling can be realized. (Except S205A)
- Corresponds to the machine without guide bushing that is appropriate for high accuracy processing of short workpieces (option).
- Spindle indexing time is reduced thanks to the direct C-axis function.
- Minimum tool change time is achieved with the optimized tool path created by the automatic programming system (standard).

	S205A	S205	S206
Max. machinable dia.	φ20mm		
Main spindle speed	200~10,000min ⁻¹		
Back spindle speed	200~12,000min ⁻¹		
Total number of tools	22	24	28
Rapid traverse rate	Z1,Z2,X2:32m/min, X1,Y1:24m/min, Y2:15m/min (Only for S206)		
Main spindle motor	2.2/3.7kW		
Width×Depth×Height	2,110×1,200×1,885mm		
Weight	3,200kg		3,300kg



CNC PRECISION AUTOMATIC LATHE

H205E/H206E

(CE marked)

Suitable for variable volume production
with a wide range of capability

- Optimum tooling allocation is possible thanks to the cartridge type live tools on rear tool post and back tool post.
- Besides the back spindle, additional tool post is attached. Deep hole drilling can be realized.
- Corresponds to the machine without guide bushing that is appropriate for high accuracy processing of short workpieces (option).
- Spindle indexing time is reduced thanks to the direct C-axis function.
- Minimum tool change time is achieved with the optimized tool path created by the automatic programming system (standard).

	S205E	S206E
Max. machinable dia.	φ20mm	
Main spindle speed	200~10,000min ⁻¹	
Back spindle speed	200~12,000min ⁻¹	
Total number of tools	24	28
Rapid traverse rate	Z1,Z4,X4:32m/min, X1,Y1:24m/min, Y4:15m/min (Only for H206E)	
Main spindle motor	2.2/3.7kW	
Width×Depth×Height	2,110×1,200×1,885mm	
Weight	3,200kg	3,300kg



CNC PRECISION AUTOMATIC LATHE

B0385

Optimum for heavy duty machining from large diameter barstock

- TSUGAMI unique "Double Spindle" enables heavy duty machining and shortens the remnant length.
- Larger machining capability up to $\phi 38$.
- Rotary tools can be mounted on the rear tool post. (Option)
Applicable for off-center machining with an attachment.
- Wide tooling zone. Easy set up and better chip disposal.
- The automatic programming system prepared as a standard accessory minimizes tool change time and generates the optimized tool path.

	B0385
Max. machinable dia.	$\phi 38\text{mm}$
Main spindle speed	200~6,000min ⁻¹
Back spindle speed	200~7,000min ⁻¹
Total number of tools	20
Main spindle motor	7.5/11kW
Back spindle motor	3.7/5.5kW
Width×Depth×Height	2,520×1,345×1,970mm
Weight	4,600kg



CNC PRECISION AUTOMATIC LATHE

B0385L

Exclusive guide-bushless machine

- Not required large diameter ground barstocks.
- Shortening remnant, and reducing material cost.
- Stable gripping force thanks to the drawback type collet chuck.
- Larger machining capability up to $\phi 38$.
- Rotary tools can be mounted on the rear tool post. (Option)
Applicable for off-center machining with an attachment.
- Wide tooling zone. Easy set up and better chip disposal.
- The automatic programming system prepared as a standard accessory minimizes tool change time and generates the optimized tool path.

	B0385L
Max. machinable dia.	$\phi 38\text{mm}$
Main spindle speed	200~6,000min ⁻¹
Back spindle speed	200~7,000min ⁻¹
Total number of tools	20
Main spindle motor	7.5/11kW
Back spindle motor	3.7/5.5kW
Width×Depth×Height	2,520×1,345×1,970mm
Weight	4,600kg



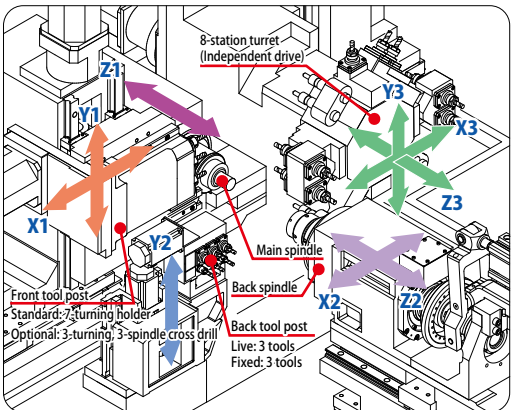
CNC PRECISION AUTOMATIC LATHE

B038T

Improved the milling capability on the complete processing aimed machine.
Y-axis control on all tool posts of turret, front gang tool post and back tool post

- 8-station turret
Mounting plural tools on one station, and achieving the quick tool change with Y-axis without turret indexing
- Back tool post equipping Y axis
Milling with Y-axis can be performed by equipping live tools.
Front milling with the tools on turret and back milling with the tools on back tool post can be simultaneously performed.
- 3-path control
3-path control reduces the cycle time drastically.
- Tsugami's unique, highly rigid "Double Spindle" enables heavy-duty machining.
- Abundant tooling options facilitate the machining of complex-shaped workpieces.
- Using the automatic programming system, 3-path control programs can be created with ease.

	B038T
Max. machinable dia.	$\phi 38\text{mm}$
Main spindle speed	200~5,000min ⁻¹
Back spindle speed	200~7,000min ⁻¹
Tool mounting type	Front tool post: gang tool post, Rear tool post: 8-station turret
Rapid traverse rate	X1,X2,X3,Y1,Y2,Y3,Z1,Z2,Z3:24m/min
Main spindle motor	7.5/11kW
Width×Depth×Height	3,427×1,875×1,840mm
Weight	6,200kg

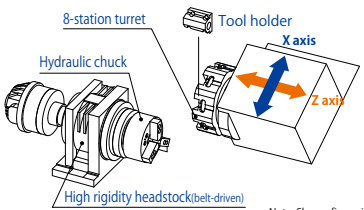


CNC LATHE

M06JC

Space saving basic machine for turning, drilling and boring

- Compact machining width 1,165mm×height1,400mm
- Overwhelming cost performance
- Brilliant cutting capability realizes high productivity.
- On-board conversational programming software, Turnmate i is prepared as an option.
- Abnormal load detection function decrease the damage in case of machine crush.
- Safety setting up by the help of interference prevention function at debug mode.
- Accurate machining is realized by the thermal distortion compensation function.



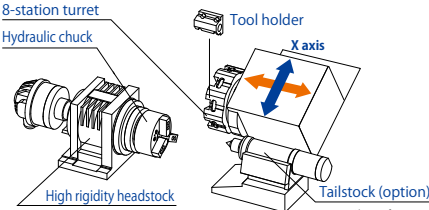
	M06JC
Max. machinable dia.	$\phi 220/\phi 42$ (Bar work)mm
Main spindle speed	200~4,500min ⁻¹
No. of turret stations	8-station turret
Rapid traverse rate	X,Z:24m/min
Main spindle motor	5.5/7.5kW
Width×Depth×Height	1,165×1,460×1,600mm
Weight	2,380kg

CNC LATHE

M06J-II/M08J-II

High rigidity and high productivity turning machine

- Overwhelming cost performance
- Brilliant cutting capability realizes high productivity.
- On-board conversational programming software, Turnmate i is prepared as an option.
- Abnormal load detection function decrease the damage in case of machine crush.
- Safety setting up by the help of interference prevention function at debug mode.
- Accurate machining is realized by the thermal distortion compensation function.



	M06J-II	M08J-II
Max. machinable dia.	$\phi 260/\phi 51$ (Bar work)mm	$\phi 280\text{mm}$
Main spindle speed	200~4,500min ⁻¹	200~4,000min ⁻¹
No. of turret stations	8-station turret	
Rapid traverse rate	X:24m/min Z:27m/min	
Main spindle motor	5.5/7.5kW	9/11kW
Width×Depth×Height	1,690×1,570×1,600mm	
Weight	3,600kg	

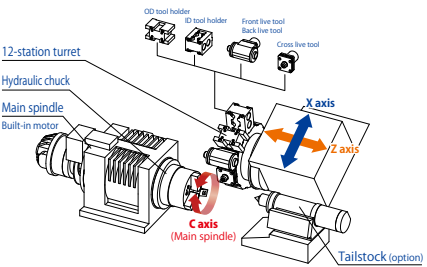
CNC LATHE

M06D-II/M08D-II/M06SD-II/
M08SD-II/M06SY-II/M08SY-II

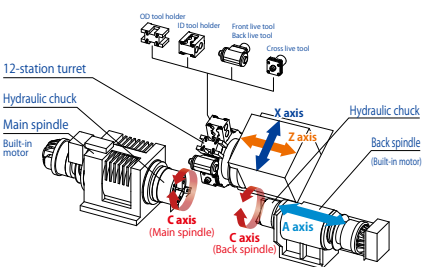
High rigidity and high productivity turning machine
Milling series



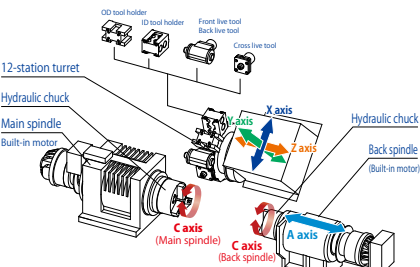
M06D-II/M08D-II
With live tools on turret



M06SD-II/M08SD-II
With live tools on turret
and with back spindle



M06SY-II/M08SY-II
With Y axis and live tools on turret
and with back spindle



- Milling tools can be mounted on all the 12-station turret.
- Process aggregation by the turret with the Y-axis (SY type only)
- The built-in motor is equipped on the main and back spindle. (D type has no back spindle)
- Powerful milling capability
- Overwhelming cost performance

- Preparing the optional interactive programming software on-board "MAUAL GUIDE i"
- Abnormal load detection function decrease the damage in case of machine crush.
- Safety setting up by the help of interference prevention function at debug mode.
- Accurate machining is realized by the thermal distortion compensation function.

	M06D-II	M08D-II	M06SD-II	M08SD-II	M06SY-II	M08SY-II
Max. machinable dia.	$\phi 260/\phi 51$ (Bar work)mm	$\phi 280\text{mm}$	$\phi 260/\phi 51$ (Bar work)mm	$\phi 280\text{mm}$	$\phi 260/\phi 51$ (Bar work)mm	$\phi 280\text{mm}$
Main spindle speed	200~4,500min ⁻¹	200~4,500min ⁻¹	200~4,500min ⁻¹	200~4,500min ⁻¹	200~4,500min ⁻¹	200~4,500min ⁻¹
Back spindle speed	—	200~4,500min ⁻¹	200~4,500min ⁻¹	200~4,500min ⁻¹	200~4,500min ⁻¹	200~4,500min ⁻¹
No. of turret stations	12-station turret		12-station turret		12-station turret	
Rapid traverse rate	X:24m/min Z:27m/min		X:24m/min Z:27m/min A:30m/min		X:24m/min Y:12m/min Z:27m/min A:30m/min	
Main spindle motor	7.5/11kW		7.5/11kW		7.5/11kW	
Width×Depth×Height	2,330×1,865×1,750mm		2,470×1,865×1,750mm		2,470×1,865×1,930mm	
Weight	5,000kg		5,600kg		5,900kg	

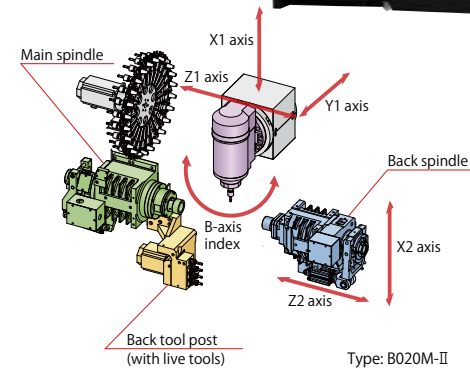
CNC PRECISION AUTOMATIC LATHE

B020M-II/SS20M/SS20M-5AX

Perfect integration of vertical machining center and automatic lathe
Optimum for mass production of complex-shaped parts from bar stock

- Performing higher complex machining with milling than vertical machining center thanks to multidirectional machining
- Front and back overlapped machining is possible.
- Various milling operations are realized thanks to 24-tool magazine and 8-axis tool spindle.
- Diverse machining can shorten the cycle time.
- 5-axis simultaneously controlled processing (SS20M-5AX)

	B020M-II	SS20M	SS20M-5AX
Max. machinable dia.	φ20mm		
Main spindle speed	200~10,000min ⁻¹		
Back spindle speed	200~12,000min ⁻¹		
Tool spindle speed	300~30,000min ⁻¹		
Main spindle indexing	1 degree	C axis	
B-axis index angle	0.001°		
Tool spindle taper	7/24taper 15T		
Tool storage capacity	24		
Width×Depth×Height	1,650×1,180×1,670mm		
Weight	2,000kg		



CNC PRECISION AUTOMATIC LATHE SUPER SWISSTURN

SS26/SS32

SWISS TURN with opposed tools for complicated workpieces
Complete simultaneous machining in front and back with rotary tools

- Various tooling arrangement satisfying user needs
Realized free arrangement of tool holders and rotary tools
- Wide tooling zone
- Long-stroke rotary guide bushing
Stroke 270mm / Max. speed 10,000min⁻¹ (SS26)
Stroke 320mm / Max. speed 8,000min⁻¹ (SS32)

	SS26	SS32
Max. machinable dia.	φ26mm	φ32mm
Main spindle speed	200~10,000min ⁻¹	200~8,000min ⁻¹
Back spindle speed	200~10,000min ⁻¹	200~8,000min ⁻¹
Total number of tools	24	
Rapid traverse rate	Z1,Z2,X2:32m/min, X1,Y1,Y2:24m/min	
Main spindle motor	3.7/5.5kW	
Width×Depth×Height	2,020×1,675×2,020mm	
Weight	3,400kg	



CNC PRECISION AUTOMATIC LATHE SUPER SWISSTURN

SS32L

Exclusive guide bushless machine
SWISS TURN with opposed tools for complicated workpieces
Complete simultaneous machining in front and back with rotary tools

- Various tooling arrangement satisfying user needs
Realized free arrangement of tool holders and rotary tools
- Wide tooling zone
- High efficiency and high precision machining with the guide bushing less spindle

	SS32L
Max. machinable dia.	φ32mm
Main spindle speed	200~8,000min ⁻¹
Back spindle speed	200~8,000min ⁻¹
Total number of tools	24
Rapid traverse rate	Z1,Z2,X2:32m/min, X1,Y1,Y2:24m/min
Main spindle motor	3.7/5.5kW
Width×Depth×Height	2,020×1,675×2,020mm
Weight	3,400kg



CNC PRECISION AUTOMATIC LATHE

BH20Z

Drastically shortened cycle time with process overlapping
Complex-shaped long workpieces can be machined efficiently.

- Drastically shortened cycle time with simultaneous machining of three tool posts; front tool post, rear turret and dedicated back tool post
- Increasing rotary tool abilities by 12-station turret with independent drive mechanism
Minimized thermal displacement
- Complex-shaped workpieces can be completely machined using Max. 35 tools.
- Using the automatic programming system for BH (optional), 3-path control programs can be created with ease.
- Guide-bushing type or guide-bushing-less type (optional) selectable according to a workpiece

	BH20Z
Max. machinable dia.	φ20mm
Main spindle speed	200~10,000min ⁻¹
Back spindle speed	200~12,000min ⁻¹
Tool mounting type	Front tool post: gang tool post, Rear tool post: 12-station turret
Rapid traverse rate	X1,Y3:12m/min, Z3:18m/min, Y3:20m/min, Y1,Z1,X2,Z2:24m/min
Main spindle motor	2.2/3.7kW
Width×Depth×Height	2,480×1,585×1,733mm
Weight	4,500kg



CNC PRECISION AUTOMATIC LATHE

MB25

Fixed headstock machine
8-station×2 turrets performs
powerful cutting of complicated workpieces

- Machining time is shortened 30 to 50% compared with our conventional machine.
- No idle time for tool selection by stand-by function of two turrets to prepare next indexing, simultaneous ID and OD or balanced OD machining possible.
- Idle time (chip to chip) is 1.5sec. (T1 turret) in case same turret index machining.

	MB25
Max. machinable dia.	φ25mm
Main spindle speed	50~6,000min ⁻¹
No. of turret stations	8-station turret×2
Rapid traverse rate	20m/min
Main spindle motor	3.7/5.5kW
Width×Depth×Height	1,550×1,580×1,520mm
Weight	2,800kg (Coolant tank excluded)



FA Support system

Programing system, NC program input/output system



Automatic programing software:

- Programing, debugging time can be reduced
- Applicable on Microsoft Windows
- Cycle time can be calculated for machining estimation.
- Easy interactive input system

	B03-III/4-III/5-III/6-III Abile, B02632-II Abile, B0385 Abile, S Abile, SS Abile, SS-7 Abile, SS327 Abile, BH Abile, B038T Abile
CPU	Intel Celeron 2.0GHz or faster
Memory	1.0GB or more
OS	Microsoft Windows Xp / Vista / 7 / 8
HDD	100MB or more free space required
Display	1677 million color display (Full color) Resolution : 800x600 or higher

※ Windows is registered trademark of Microsoft Corporation

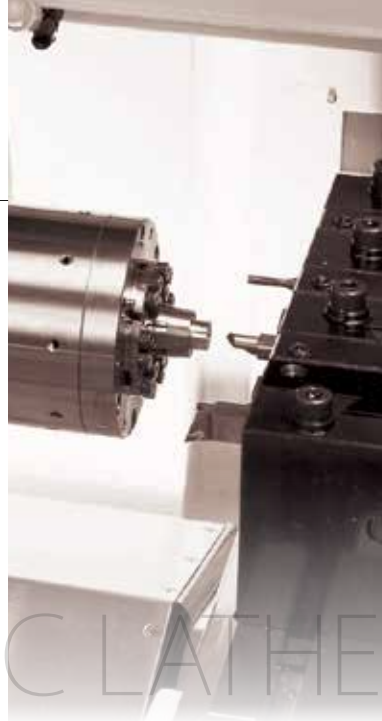
Collet Chuck

TSUGAMI's precision collet chucks are top-grade products of the world, produced by paying close attention to details in its design and manufacturing process, sufficiently heat treatment carefully, selected materials and utilizing superior precision machining technique.



CNC PRECISION AUTOMATIC LATHE Chuck Work Machine

High precision processing machine for chuck work
Optimum machine for IT-related parts with which downsizing and precision progress further.



AUTOMATIC LATHE

CNC HIGH PRECISION AUTOMATIC LATHE

C180

Minimum floor space and the higher productivity are achieved by the total design of the machine and the NC loader.

- High precision simultaneous processing of the front and back sides of a part are possible thanks to the symmetric arranged spindles and slides.
- Realizing high productivity thanks to high-speed machining by adopting the Tsugami's outstanding air-tube integrated spindle.

	C180
Swing over bed	220mm
X-Z axis stroke	300×150mm
Spindle speed	80~15,000min ⁻¹
Chuck size	3.4"
Least input increment	0.01μm
Spindle motor	1.5/2.2kW
Width×Depth×Height	1,560×1,545×1,700mm
Weight	2,200kg (Including loader x 2 pallets)



CNC HIGH PRECISION AUTOMATIC LATHE

CH154

Front/back machining can be performed on sole machine for production of high-precision parts.

- L & R spindle overlapped machining
- High-speed spindle rotation 15,000min⁻¹
- No chuck air tube required: high-speed chuck work with less vibrations

	CH154
XL, XR strokes	300/300mm
ZL stroke	150mm
ZR stroke	135mm
Max. L spindle/R spindle speed	15,000min ⁻¹
L spindle chuck	Collet chuck (up to φ15)
R spindle chuck	3" diaphragm chuck
Least input increment	0.01μm
L spindle motor	1.5/2.2kW
R spindle motor	1.0/1.2kW
Width×Depth×Height	1,350×1,365×1,500mm
Weight	2,200kg



CNC HIGH PRECISION AUTOMATIC LATHE

C300-IV

Flexibly correspond to both bar and chucker according to the workpieces.

- Built-in motor spindle minimizes vibration and improves surface finishes.
- Standard-equipped spindle cooling unit reduces thermal displacement.
- Tooling system selections are available for both bar and chucker to meet a wide variety of workpieces.
- The loader is easy to be installed since height from the spindle center to the top of the cover is 255 mm. It is also possible to mount through-machine type loader.

	C300-IV
Swing over bed	260mm
X-Z axis stroke	300×300mm
Spindle speed	80~6,000min ⁻¹
Chuck size	6"
Least input increment	0.1μm
Spindle motor	5.5/7.5kW
Width×Depth×Height	1,610×1,535×1,600mm
Weight	1,900kg



CNC HIGH PRECISION AUTOMATIC LATHE

C300H

Flexibly correspond to both bar and chucker according to the workpieces.
Machine with linear scale

- Reduces influence of thermal displacement by the linear scale, and improves machining accuracy.
- Built-in motor spindle minimizes vibration and improves surface finishes.
- Standard-equipped spindle cooling unit reduces thermal displacement.
- Tooling system selections are available for both bar and chucker to meet a wide variety of workpieces.
- The loader is easy to be installed since height from the spindle center to the top of the cover is 255 mm. It is also possible to mount through-machine type loader.

	C300H-X	C300H-Z	C300H-XZ
Linear scale	X-axis	Z-axis	X-axis and Z-axis
Swing over bed	260mm		
X-Z axis stroke	300×300mm		
Spindle speed	80~6,000min ⁻¹		
Chuck size	6"		
Least input increment	0.1μm		
Spindle motor	5.5/7.5kW		
Width×Depth×Height	1,610×1,535×1,600mm		
Weight	1,900kg		



CNC HIGH PRECISION AUTOMATIC LATHE

C150

Space saving 1.0m² floor space
New generation high precision gang tool slide lathe

- 1.0m² floor space includes NC loader and 2-pallet stocker Coolant tank with oil temperature controller
- Dimensional accuracy 0.2μm, 6σ=0.5μm
- Less thermal displacement 0.3μm

	C150(X), C150(X-Z)
Swing over bed	220mm
X-Z axis stroke	150×150mm
Spindle speed	80~15,000min ⁻¹
Chuck size	3"
Least input increment	0.01μm
Spindle motor	1.5/2.2kW
Width×Depth×Height	1,000×1,100×1,875mm *
Weight	1,400kg *

* Loader included



CNC HIGH PRECISION AUTOMATIC LATHE

C220

Super precision mass production to sub-micron conditions
Least input increment of 0.01μm

- High precision machining
 - Laboratory class machining for production facilities
 - High dimensional accuracy in roundness and cylindricity
 - Minimum displacement through pauses in production

■ One piece Chuck and spindle

- High speed spindle not influenced by traditional chuck actuation tube

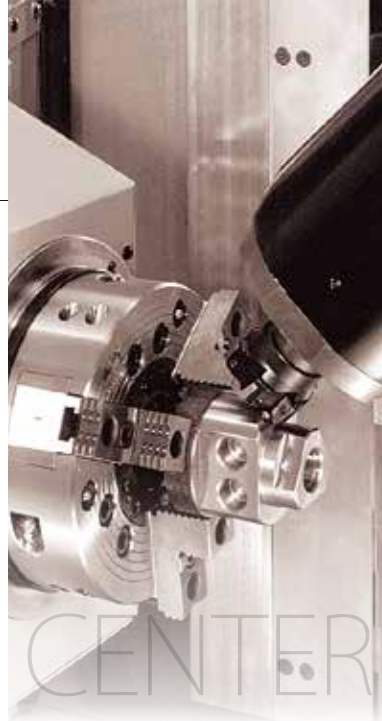
	C220(X), C220(X-Z)
Swing over bed	260mm
X-Z axis stroke	220×220mm
Spindle speed	80~12,000min ⁻¹
Chuck size	4"
Least input increment	0.01μm
Spindle motor	2.2/3.7kW
Width×Depth×Height	1,500×1,370×1,590mm (Loader spec. 2,120mm)
Weight	2,300kg *

* Loader included



PRECISION TURNING CENTER

The multiplex machine which performs turning and machining
Best for processing complicated workpieces



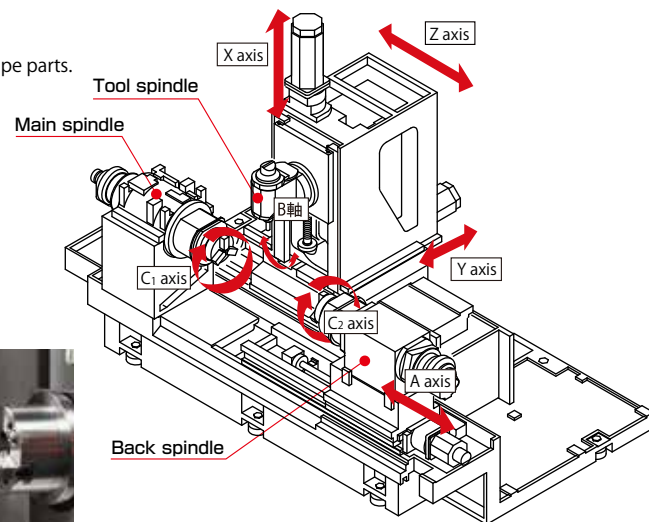
TURNING CENTER

TURNING CENTER

TMA8J TMA8H

Complete machining performed by single machine
Realizes high-performance milling at overwhelming cost performance.
Correspond to high accuracy machining by equipping linear scale (TMA8H)

- Productive type complex machine integrated high speed, high precision turning center and powerful machining center.
- Realizes high-performance milling at overwhelming cost performance.
- Tool spindle with standard Y-axis control and B-axis indexing.
- Crossed at right angle slide construction assures high accuracy complex machining and free-chip-flow tool spindle.
- Back work spindle (standard) achieves 6-face machining.
- Ideal machine for wide variety products in small quantities of complicated shape parts.
- By process integration, reduces the number of operators and machines, and shortens the lead time.
- The linear scale on the X-axis slide is provided as standard, it can satisfy your needs of high accuracy machining. The linear scale on the Y-axis or on the Tool spindle Z-axis is optional. (TMA8H)



	TMA8J	TMA8H	TMA8H-Y	TMA8H-Z	TMA8H-YZ
Linear scale	—	X-axis (standard)	Optional Y-axis scale installed model	Optional Z-axis scale installed model	Optional Y-axis scale and/or Z-axis scale installed model
Chuck size of main work spindle	8"			8"	
Chuck size of back work spindle	6"			6"	
Main work spindle speed	5,000min ⁻¹			5,000min ⁻¹	
Back work spindle speed	5,000min ⁻¹			5,000min ⁻¹	
B-axis index angle	-15°~195°			-15°~195°	
B-axis least index angle	0.001" (positioning)			0.001" (positioning)	
B-axis index angle by coupling	5°			5°	
Tool storage capacity	30			30	
Width×Depth×Height	3,700×2,126×2,250mm			3,700×2,126×2,250mm	
Weight	8,500kg			8,500kg	

※ X-axis linear scale as standard

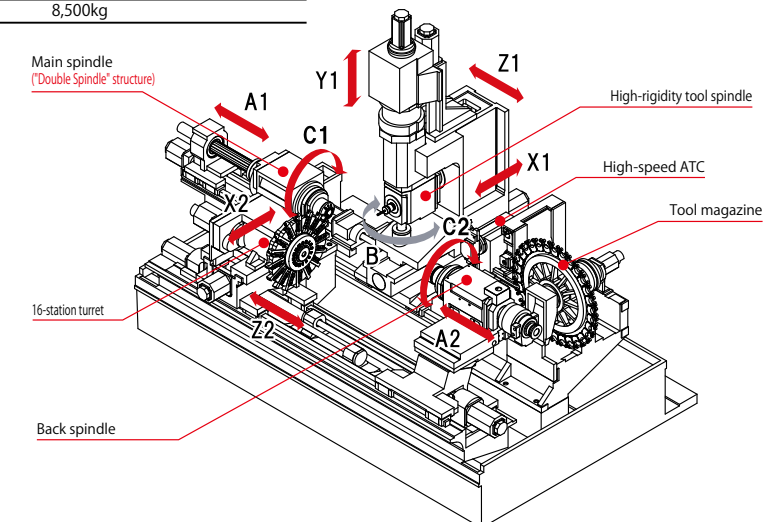
CNC PRECISION TURNING CENTER

TMU1

Complete machining performed by a flexible, multi-function machine

- Main spindle is tsugami's unique "Double spindle"
The guide bushing and main spindle are integrated into a double spindle for high precision and powerful cutting
- High flexibility for various machining
Tool spindle provided with standard Y-axis control and B-axis indexing mechanism
Back work spindle as standard
- Simultaneous cutting turret with tool spindle
- Powerful milling capability

	TMU1
Max. machinable dia.	φ38mm
Max. main spindle speed	120~6,000min ⁻¹
Max. back spindle speed	200~6,000min ⁻¹
Max. tool spindle speed	80~10,000min ⁻¹
Number of turret stations	16 position
B axis indexing angle/Minimum indexing angle	-15°~195°/0.001°
Number of tool storage	30 (Option 60, 118)
Main spindle motor	11/7.5kW
Width×Depth×Height	3,650×2,200×2,500mm
Weight	8,500kg



CNC PRECISION TURNING CENTER

TMB2

Turret + Tool spindle
Fixed-headstock turning center
for realizing high productivity

- Powerful machining by built-in spindles for main and back spindles
- The tool spindle controlled by Y axis and B axis and the back spindle are provided as standard, it enables complete machining of Complex-shaped workpieces from a barstock in one machine.
- Correspond to small production of a large variety workpieces by ATC and Tool magazine.
- Shortened cycle time by simultaneous marching of the turret and the tool spindle
- The diametral axis (X axis) of the turret and the tool spindle is arranged in parallel to the ground, and the influence on machining accuracy by thermal displacement becomes minimal.

	TMB2
Max. machinable dia.	φ51mm
Max. main spindle speed	200~6,000min ⁻¹
Max. back spindle speed	200~6,000min ⁻¹
Max. tool spindle speed	80~10,000min ⁻¹
Number of turret stations	16 position
B axis indexing angle/Minimum indexing angle	-15°~195°/0.001°
Number of tool storage	30 (Option 60, 118)
Main spindle motor	11/7.5kW
Width×Depth×Height	3,650×2,200×2,500mm
Weight	8,500kg



PRECISION MACHINING CENTER

Versatile machine to cover various components processing at customer's request;
from steel parts of automobile and industrial equipment, to aluminum parts of home electric appliance, office automation (OA) equipment and IT-related equipment.
Realized space saving, high-speed and high-precision processing.



MACHINING CENTER

HIGH SPEED VERTICAL MACHINING CENTER

VA2

High speed and high accuracy machining center
Space saving and long stroke

- Optimum for high-speed and high-efficiency machining of small workpiece
- Super compact machine of 1,040mm wide.
Productivity improvement per space.
- High speed tool change by double arm type ATC.
- 40 m/min X, Y and Z axes rapid traverse rate realizes the high speed machining.

	VA2
X/Y/Z-axis stroke	360×260×250mm
Table size	500×330mm
Max. load on table	200kg
Spindle speed	300~30,000min ⁻¹ (Nomal highest spindle speed 28,000min ⁻¹)
Spindle motor	9.0/5.5kW
Tool shank	7/24 taper S20T
Width×Depth×Height	1,040×2,016×2,000mm
Weight	1,800kg



Tooling zone



ATC/Tool magazine



HIGH SPEED VERTICAL MACHINING CENTER

VA3

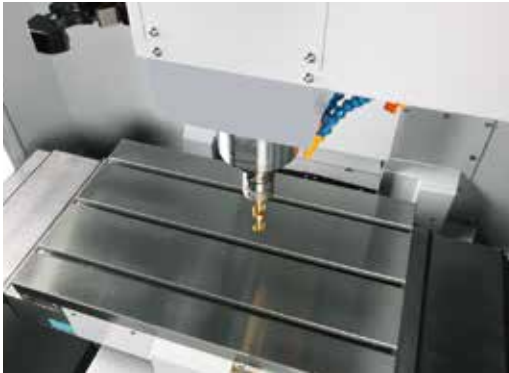
High productivity reduces total cost
High speed machining center with BT30

- 48 m/min X, Y and Z axes rapid traverse rate
- 20,000 min⁻¹ max. spindle speed
- The spindle is separated from the ATC arm and the tool magazine.
- Since the tool magazine is fixed to the column top, the position of magazine will not affect the tooling area. Only the spindle moves up and down so that tooling design becomes easy.
- 20 tools can be stored in the tool magazine as standard.
(Maximum mountable tool number: 21 tools)
- The tool can be inserted directly into the spindle or removed from the spindle manually from the front of the machine.
Storing tool into the tool magazine will be easy.

	VA3
X/Y/Z-axis stroke	400×300×250mm
Table size	840×380mm
Max. load on table	150kg
Spindle speed	200~20,000min ⁻¹
Spindle motor	9.0/3.7kW
Tool shank	JIS B 6339-1998 BT30
Retention knob	MAS403-1982 P30T-1
Width×Depth×Height	1,300×2,270×2,310mm
Weight	3,300kg



Tooling zone



ATC/Tool magazine



HIGH SPEED PRECISION HORIZONTAL MACHINING CENTER

FMA3-III

Space saving and long time unattended operation is possible by original vertical pallet

- Vertical-type pallet system of this machine permits free-chip-flow structure.
High accuracy is achieved even in unattended operation.
- ATC tool-to-tool time : 1.0sec.
X/Y/Z-axis rapid traverse rate : 24m/min
B-axis indexing : 2.2sec./180° Idle time is reduced.
- Wide variety of versions are available to meet user's requirements.

	FMA3-III (10P)	FMA3-III (2P)
X/Y/Z-axis stroke	360×330×400mm	
Pallet size	300×300mm	
Max. allowable weight on pallet	80kg	
Spindle speed	40~10,000min ⁻¹	
Spindle motor	7.5/5.5kW	
Tool shank	JIS B 6339-1998 BT40	
Retention knob	MAS403-1982 P40T-2	
Width×Depth×Height	4,040×2,485×2,740mm	3,640×2,485×2,375mm
Weight	10,500kg	10,000kg



HIGH SPEED PRECISION HORIZONTAL MACHINING CENTER

FMA5-III

Space saving and long time unattended operation is possible by original vertical pallet

- Vertical-type pallet system of this machine permits free-chip-flow structure.
High accuracy is achieved even in unattended operation.
- ATC tool-to-tool time : 1.0sec.
X/Y-axis rapid traverse rate : 20m/min
Z-axis rapid traverse rate : 24m/min
A/B-axis indexing : 3.6sec./180° Idle time is reduced.
- Wide variety of versions are available to meet user's requirements.

	FMA5-III (8P)	FMA5-III (5F10P)
X/Y/Z-axis stroke	560×350×500mm	
Pallet size	450×450mm	300×300mm
Max. allowable weight on pallet	250kg	80kg
Spindle speed	40~10,000min ⁻¹	
Spindle motor	7.5/5.5kW	
Tool shank	JIS B 6339-1998 BT40	
Retention knob	MAS403-1982 P40T-2	
Width×Depth×Height	4,320×3,002×3,027mm	4,150×3,002×2,720mm
Weight	11,000kg	10,500kg



CNC PRECISION CYLINDRICAL GRINDING MACHINE

Corresponds to wide grinding processing from stand-alone machine to full automatic grinding system



GRINDING MACHINE

Linear Drive Variant Thread Grinding Machine

FTG18TL

Pursuing higher efficiency and higher productivity

- Thread grinding machine specialized for small thread rolling tap employing linear on X-axis
- Helix swivel wheel head equipped as standard can adjust manually according to the thread lead angle.
- Automated system can create easily with optional 3-axis NC loader and 2-pallet table.

	FTG18TL
Distance between centers	100mm
Swing (Diameter)	180mm
Max. machinable dia.	M6
Maximum thread length	60mm
Maximum lead	2mm
Maximum lead angle	±10°
Grinding wheel O.D.X I.D	φ200×φ60mm
Surface speed	45m/s
Dimension of center (headstock)	MT No1
Swiveling angle	±10°
Width×Depth	1,610×2,065
Weight	2,200kg



CNC PRECISION CYLINDRICAL GRINDING MACHINE

G18-II

Wide variation to meet various workpieces

- Wheel O.D. 355mm max. width 50mm. High efficient grinding by high rigid dynamic bearing.
- Automation is easy by optional accessories Myrobo, stocker, etc.

Standard type

SB type: O.D. grinding, mas production straight type (NC simultaneous 2-axis)

AB type: Shaft and end face simultaneous grinding mas production angular type (NC simultaneous 2-axis)

	G18-II SB	G18-II AB
Swing(diameter)	180mm	
Distance between centers	250mm	
Grinding wheel OD×Max Width	355×50mm	
Surface speed	2,700m/min	
Rapid traverse rate(X/Z)	8/16m/min	
Wheel spindle motor	2.2kW	
Width×Depth	1,460×2,085	
Weight	2,000kg	



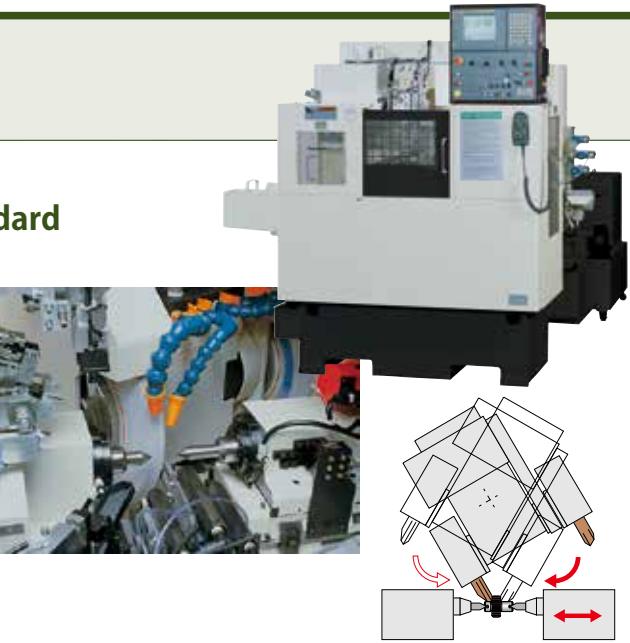
CNC PRECISION GRINDING MACHINE

G18-IIFB

External and end-face grinding in one process Both center driving system is equipped as standard

- Angular wheels are located at right and left side.
End face grinding at both sides are possible by twin head wheel swiveling ±30°
- Rotating headstock and tailstock are employed. Both center driving system to rotate work piece at center holes is equipped as standard. External and end-face of whole work-piece are possible to grind.
- As grinding of work piece is possible by one chucking, accuracy of centricity, angularity, parallel is improved.

	G18-IIFB
Swing(diameter)	180mm
Distance between centers	60mm
Grinding wheel OD×Max Width	305×25mm
Surface speed	2,700m/min
Rapid traverse rate(X/Z)	10/20m/min
Wheel spindle motor	2.2kW
Width×Depth	1,440×2,500
Weight	2,150kg

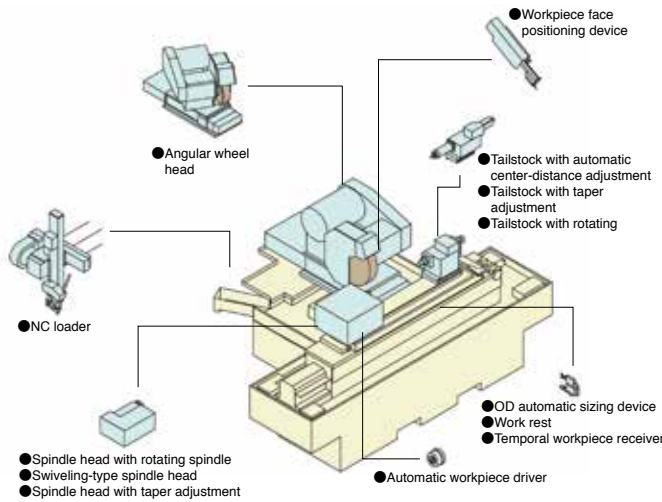
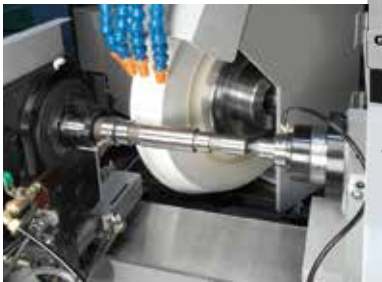


CNC PRECISION CYLINDRICAL GRINDING MACHINE

G300/G350

Pursuing higher efficiency and higher productivity

- Steady grinding accuracy
Tsugami's outstanding high precision & high rigidity hydrodynamic bearing for the wheel spindle
V-Flat guide ways of the slide assure accurate, consistent and smooth movement.
- High efficiency
Optimum not only for precision grinding but also heavy duty grinding
G300: Max. wheel dia φ510, wheel spindle motor: standard 7.5 kW
G350: Max. wheel dia φ610, wheel spindle motor: standard 11 kW
- High performance
Following accessories are provided as standard;
 - Dead/live changeover headstock
 - Manual center adjusting type tailstock
 - Grinding pattern inputting software
- High productivity
Fully covered guard is provided as standard.
Combination of substantial standard specifications and rich options from conventional machines achieves various workpiece grinding.
Automation system is supported with the optional high-speed loader.



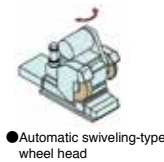
	G300S-300	G300A-300	G300S-500	G300A-500	G350S-300	G350A-300	G350S-500	G350A-500	G350S-750	G350A-750	G350S-1000	G350A-1000
Distance between centers	300mm		500mm		300mm		500mm		750mm		1,000mm	
Swing (Diameter)	300mm				350mm							
Grinding wheel OD×Max.width	S: 405×75, A: 510×100				S,A: 610×150							
Surface speed	2,700m/min											
Rapid traverse rate	X axis 16m/min, Z axis 20m/min											
Headstock standard type	Dead/live changeover type				Dead type							
Dimension of center (headstock)	MT.No4											
Max. travel (tailstock)	200mm (Amount of manual center distance adjusting), 40mm (Hydraulic)				50mm (Hydraulic)							
Dimension of center (tailstock)	MT.No4											
Wheel spindle motor	7.5kW				11kW							
Work spindle motor	1.6kW				3kW							
Width×Depth	2,400×3,740		2,825×3,740		2,400×3,740		2,825×3,740		3,306×3,740		4,056×3,740	
Weight	4,700kg		5,000kg		4,900kg		5,200kg		5,500kg		6,600kg	

CNC PRECISION CYLINDRICAL GRINDING MACHINE

G300F

Completion of external and end face grinding in a single operation by swivel wheel head.

- Four processing patterns can be selected by arranging the grinding wheels.
- Straight, angular and taper grindings can be selected freely in single operation. Internal grinding type is prepared.



	G300F-500SS	G300F-1000SS	G300F-500AA	G300F-1000AA	G300F-500AI	G300F-1000AI	G300F-500A2	G300F-1000A2
Head specification	Straight + Straight grinding		Angular + Angular grinding		Angular + Internal grinding		1-head and 2-wheel specifaicon	
Distance between centers	500mm	1,000mm	500mm	1,000mm	500mm	1,000mm	500mm	1,000mm
Swing (Diameter)	300mm							
Grinding wheel O.D.×Max.width	φ455×75 (2 pieces)				φ455×75 (1piece) Internal grinding spindle (60,000min ⁻¹)		φ455×75 (2 pieces)	
Surface speed	2,700m/min							
Rapid traverse rate	X axis 16m/min, Z axis 20m/min							
Wheel spindle motor	5.5kW (servo)				5.5kW (servo) (9kW: Internal grinding)		7.5kW	
Weight	5,200kg	6,500kg	5,200kg	6,500kg	5,200kg	6,500kg	5,200kg	6,500kg

CNC PRECISION CYLINDRICAL GRINDING MACHINE

G300T

The exclusive thread grinding machine

- The machine has the helix wheel head that is adjustable to the lead angle of a workpiece by tilting the grinding wheel within ±25° (in vertical plane).
- Grinding of right hand thread, left-hand thread, multiple thread, taper thread, can be made by simultaneous 3-axis control.

	G300T-300	G300T-500
Distance between centers	300mm	500mm
Swing(diameter)	300mm	
Max. machinable dia.	80mm	
Maximum thread length	200mm	400mm
Maximum lead	6	
Maximum lead angle	±25°	
Grinding wheel O.D.×Max.width	φ405×35 (φ355×35:option)	
Surface speed	2,700mm/min	
Dimension of center (headstock)	MT.No4	
Swiveling angle	±25°	
Width×Depth	2,550×3,740	2,798×3,740
Weight	5,200kg	6,500kg

PRECISION SMALL CYLINDRICAL GRINDING MACHINE/
PRECISION SMALL INTERNAL GRINDING MACHINE

CGD150-II/IGD150-II

Suitable small cylindrical grinding of small components, gauge, positioning pin, small jig etc.

- Best selling small-size precision grinding machine.
- CGD-type is suitable for cylindrical grinding. IGD-type is for internal grinding.
- These grinders are optimal for small parts (gauges etc.).
- In general machining, grinding finishing accuracies within 0.2μm for roundness and 0.1μm Rmax for surface roughness can be achieved.
- Easy setting and improved operation for spindle speed and table traverse speed by inverter motor

	CGD150-II	IGD150-II
Swing(diameter)	105mm	
Distance between centers	150mm	—
Grinding wheel O.D.×Max.width	φ125×13mm	φ18×14mm or φ10×10mm
Wheel spindle speed	5,000min ⁻¹	32,000min ⁻¹ or 60,000min ⁻¹
Wheel spindle motor	0.2kW	
Width×Depth	970×745	970×745
Weight	480kg	



CARBIDE TOOL GRINDING MACHINE

CTG4

Ideal for use in grinding of tools for automatic lathes

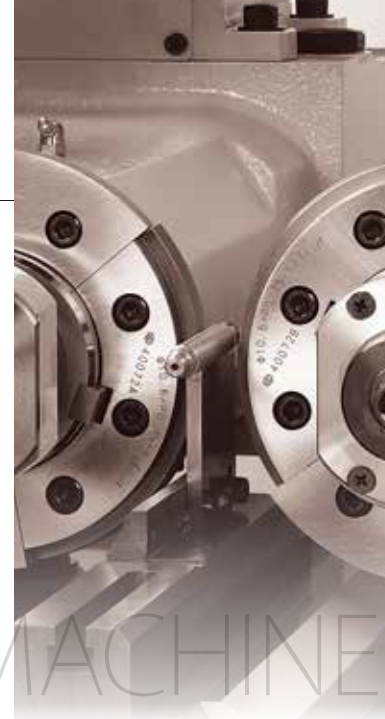
- This machine can perform the grinding operation of tools such as square tools, milling cutters, reamers etc.
- Suitable for the grinding of tools for NC lathes.
- A swarf collecting unit provided as standard equipment creates operator-friendly working environment.

	CTG4
Max. grinding dia.	30mm
Grinding length	30mm
Wheel O.D.	φ75mm
Wheel spindle motor	0.2kW
Width×Depth	980×1,900
Weight	550kg



PRECISION THREAD AND FORM ROLLING MACHINE

Corresponds not only to normal screw or knurl, but also to high-precision lead screws, worms or form rolling.



CNC PRECISION THREAD AND FORM ROLLING MACHINE

R7NC

In-feed thread rolling machine Through-feed thread rolling is also enabled by adding equipments.

- Though-feed or in-feed thread rolling machine for small components
- A fine adjustment of spindle inclination with a digital indicator (option)
- Space saving (floor space: 1.2m²)
- Both right and left spindles are driven by the independent servo motors respectively.
- High precision thread rolling by eliminating pitch error with rotation synchronization control
- Programmable pitch coinciding of rolling dies by inputting numerical values on the screen.
- Data of machining conditions and offset values are stored in the NC as numerical data, and reproducing of conditions is easy.

	R7NC (In-feed)	R7NC (Through-feed)
Max. rolling O.D.	φ45mm	φ10mm
Max. rolling length	60mm	1,500mm
Max. speed	195min ⁻¹	
Max. rolling pressure	7ton	
Spindle motor	2.5kW×2	
Width×Depth×Height	1,245×940×1,770mm	
Weight	1,500kg	



CNC PRECISION THREAD AND FORM ROLLING MACHINE

R17NC-II

NC control avails to reset of pitch adjustment easily

- In addition to standard 3-axis option of 2-axis NC control unit construction realizes high accuracy and complex thread rolling by simple command
- The right headstock realizes stable movement with the high-rigidity linear guides and the large ball screw.
- Pitch adjustment is easy by NC command.
- Oil-less construction is gentle for environment, and achieves stable accuracy with less temperature change

	R17NC-II (In-feed)	R17NC-II (Through-feed)
Max. rolling O.D.	φ75mm	φ40mm
Max. rolling length	150mm	4,000mm
Max. speed	95min ⁻¹	
Max. rolling pressure	17ton	
Spindle motor	3.0kW×2	
Width×Depth×Height	1,986×1,370×1,838mm	
Weight	3,200kg	



PRECISION THREAD AND FORM ROLLING MACHINE

R6A

Specialized for infeed thread rolling with accuracy and speed

- Best selling hydraulic 2-roll thread rolling machine. Compact size, high rigidity, simple operation. Minimum cycle time.
- Specialized in infeed thread rolling operation.

	R6A
Max. rolling O.D.	φ45mm
Max. rolling length	60mm
Max. thread pitch	2.5mm
Max. speed	70min ⁻¹
Max. rolling pressure	6ton
Spindle motor	1.5kW
Width×Depth×Height	1,245×790×1,150mm
Weight	1,000kg



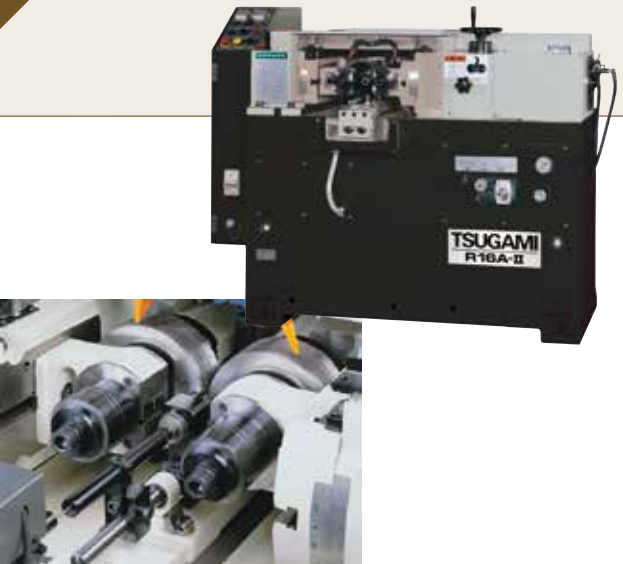
PRECISION THREAD AND FORM ROLLING MACHINE

R16-II

High accuracy thread rolling
3 types available depend on the workpiece

- New model succeeded the best selling machine Model R15. Common components are used for major part, realization of easy operation.
- Features of R16A
Rolling force is 16tons with high rigidity construction. Dies for R15A, work rest and center, etc can be adapted.
- Features of R16B
Through feed rolling suitable for high accuracy work piece, CV joint is installed as standard.

	R16A-II	R16B-II	R16B-II(High-Speed)
Max. rolling O.D.	75mm	75(through40)mm	through 40mm
Max. rolling length	150mm	150(through 4,000)mm	through 4,000mm
Max. thread pitch		5mm	
Max. speed	71min ⁻¹		140min ⁻¹
Max. rolling pressure		16ton	
Spindle motor		7.5kW	
Width×Depth×Height	1,760×1,100×1,300mm	1,882×1,074×1,437mm	
Weight	2,700kg	2,800kg	



PRECISION THREAD AND FORM ROLLING MACHINE

R30A

Cost performance machine
with high rigidity and excellent operation

- High rigidity box-type bed allows powerful thread rolling of 30t.
- The 300mm-width dies perform efficient infeed thread rolling operation even on long workpieces.
- This machine has been designed to specialize in production of rough-pitched threads, worms, serrations.
- Pushing device (option) permits rolling operation on splines.

	R30A
Max. rolling O.D.	φ100mm
Max. rolling length	300mm
Max. rolling thread pitch	12mm
Max. speed	92min ⁻¹
Max. rolling pressure	30ton
Spindle motor	11kW
Width×Depth×Height	2,125×1,405×1,690mm
Weight	4,500kg



Sales Net Work

Overseas Division	12-20, TOMIZAWA-CHO, NIHONBASHI, CHUO-KU, TOKYO 103-0006, JAPAN Phone: +81-3-3808-1172 Facsimile: +81-3-3808-1175
PRECISION TSUGAMI (CHINA) CORPORATION PINGHU SALES HEADQUARTERS	No.2001 Pingcheng Road, Economic Development Zone, Pinghu, Zhejiang, China Phone: +86-573-8526-8718 Facsimile: +86-573-8528-8971
SHANGHAI BRANCH	Room 1807, Xinyin Building, No.888 Yishan Road, Shanghai, China Phone: +86-21-6432-0828 Facsimile: +86-21-6432-0829
DONGGUAN BRANCH	Room 116-117, Gaosheng Science Building, Gaosheng Science Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong, China Phone: +86-769-8238-9472 Facsimile: +86-769-8238-9471
QINGDAO BRANCH	Room A1614, Wanda Guangchang Business Building, No.37 Lianyungang Road, Qingdao City, Shandong, China Phone: +86-532-5566 2525 Facsimile: +86-532-5566 2425
WUHAN BRANCH	Room 1010, International Building 1, Guanggu Headquarters, No. 58, Guanggu Avenue, East Lake Hi-Tech Development Zone, Wuhan City, Hubei, China Phone: +86-27-8731 5786 Facsimile: +86-27-8731 5787
WUXI BRANCH	Room 10-905, Xingzhou Business Park, NO.89 Xingchuan 4 Road, New District,Wuxi City, Jiangsu China Phone: +86-510-6875- 8991 Facsimile: +86-510-6875-8990
SHENYANG BRANCH	Room 1810, Fengtian Yinzuo C Building,No.167 Huigong Street, Shenhe District, Shenyang City,Liaoning,China Phone: +86-24-3129- 1801 Facsimile: +86-24-3129- 1802
CHONGQING BRANCH	Room 2002,Sofitel Forebase B Building, No.137 Second Keyuan Road, Jiulongpo District,Chongqing City,China Phone: +86-23-6868-9358 Facsimile: +86-23-6868-9359
TIANJIN BRANCH	Room 1915,Jinxing Economic and United Building, No.65 Xiqing Road, Hongqiao District,Tianjin,China Phone: +86-22-8727-7268 Facsimile: +86-22-8727-7268
GUANGZHOU OFFICE	Room 2512,Chengjian Building, No.189 Tiyu West Road,Tianhe District,Guangzhou City,Guangdong,China Phone: +86-020-8718-1221 Facsimile: +86-020-8718-1277
NINGBO OFFICE	NO.49,Lane.199, Yongfeng West Road,Haishu District,Ningbo City,Zhejiang,China Phone: +86-188-6787-8928
DALIAN OFFICE	Room 914,Jinfeng Building,NO.130 Jinma Road,Economic and Technological Development Zone,Dalian City,China Phone: +86-411-8756-0350 Facsimile: +86-411-8756-0350
TSUGAMI (THAI) CO., LTD.	23/20-21 Sorachai Bldg., 12 th floor Soi Sukhumvit63, Sukhumvit Road Kwaeng Klongton Nua, Khet Wattana Bangkok 10110 Thailand Phone: +662-714-3022, 3023, Facsimile: +662-714-3024
TSUGAMI EUROPE GmbH	Trakehner Str.5, 60487 Frankfurt am Main, Germany Phone: +49-69-1540-8900 Facsimile: +49-69-1540-8903
TSUGAMI KOREA CO., LTD.	335-24 Doksan1-dong, Geumcheon-Gu, Seoul, KOREA 153-814 Phone: +82-2-553-2056 Facsimile: +82-2-553-2057
TSUGAMI PRECISION ENGINEERING INDIA PRIVATE LIMITED	Plot No. A-8, Sipcot, Industrial Growth Centre, Oragadam, Vallam B Village, Sriperumbudhur Taluk, Kancheepuram, 602 105, India Phone : +91-44-30063070 Facsimile : +91-44-30063074
TSUGAMI Universal Pte. Ltd.	8 Ubi Road 2 #04-13 Zervex Singapore 408538 Phone: +65-6634-1808 Facsimile: +65-6634-3008