TAKAMAZ
GENERAL CATALOG
ENGLISH

De Sign

TAKAMAZ

Aiming for Carbon-neutral Production

The new TAKAMAZ plant (Asahi plant) is contributing to global environmental conservation by introducing energy-saving equipment including air conditioning systems that utilize solar power generation※ and well water. ※Scheduled to be installed sequentially from 2023

Environmental Technology Supporting Customers' Push Toward Carbon Neutrality

- **Increased energy conservation**
  (adoption of regenerative energy, high-efficiency motors)
- **More compact, increased space savings**
  Successful integration of loading units, oil mist collectors, chip conveyors, coolant temperature regulators, etc.
- **Defectives reduced by stable precision machining**
- **Cycle times shortened by speed increases**
- **Improved operability and maintainability**
- **Reduced number of structural components**

Lineup Realizing Process Integration and Productivity Improvements

Turning + grinding

SKV-8
Skiving machining

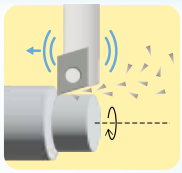
Compound machining

XYseries
Compound machining

Turning + hobbing

XT-8MY
Compound machining

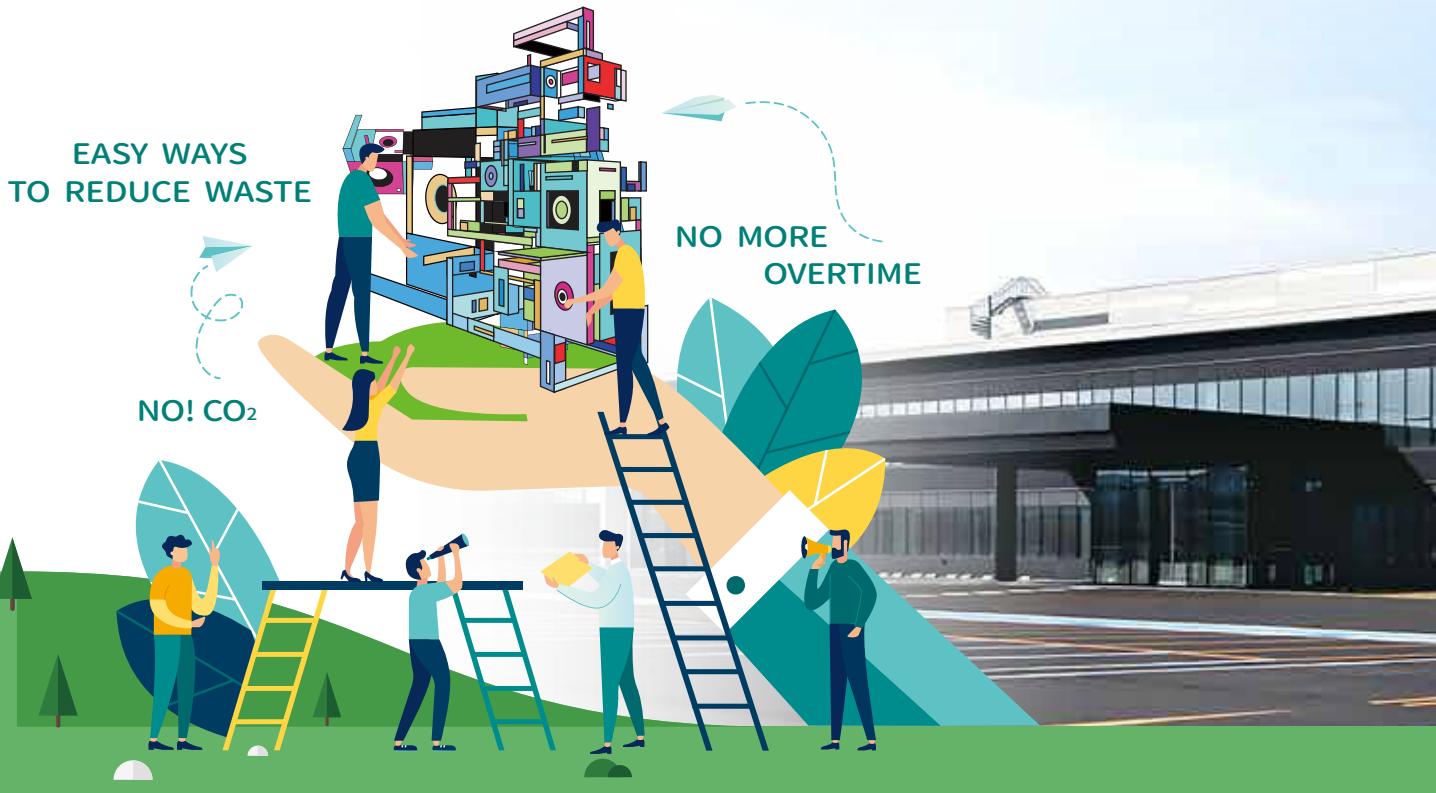
Ultrasonic vibration cutting



Chip breaking machining method

Operating system

T-Support System®
TAKAMAZ OS
F Loader System
Thermony® Spimony®



TAKAMAZ LINE UP

A New System at a New Plant

We will make products tailored to individual customers' needs based on a lineup that, in addition to productivity, considers everything from production efficiency and production space to the environment, durability and future-proofing.

"Starting Point of TAKAMAZ"
Integration of the Power of Technology.

X series

Standard of Single Lathes

Ideal for small part processing

XTS-6

6inch Chuck

NEW

1-spindle **1**-turret

Our total production count is proof of reliability.
This is a TAKAMAZ standard that has evolved for single lathes.

XC-150

8inch Chuck

XT-6 XT-6M

6(8) inch Chuck

XT-8 XT-8M

8(10) inch Chuck

Xseries Machine Specifications

Item	Unit	XTS-6 NEW	XC-150	XT-6 Standard	XT-6M Power tool type	XT-8 Standard	XT-8M Power tool type	XT-8MY
Chuck size	inch	6	8	6(8)		8(10)		8
Spindle bearing I.D.	mm	ϕ75	ϕ100	ϕ75(ϕ85)		ϕ100(ϕ120)		ϕ100
Spindle speed	min^{-1}	Max.5,000	Max.3,500	Max.4,500(6,000)(3,500)		Max.3,500(5,000)(3,000)		Max.4,000
Tool post type		8-station turret	8-station turret	8-station(12-station)turret	12-station turret	8-station(12-station)turret	12-station turret	12-station turret
Max. stroke	mm	X:120 Z:230	X:175 Z:250	X:120 Z:280		X:190 Z:400	X:190 Z:420	X:175 Z:420 Y:+35、-40
Rapid traverse	m/min	X:18 Z:24	X:18 Z:24	X:18 Z:24		X:18 Z:24		X:18 Z:24 Y:10
Spindle motor	kW	AC7.5/5.5	AC11/7.5	AC7.5/5.5(AC11/7.5)		AC11/7.5:ϕ100 3,500min^{-1} (AC15/11:ϕ100 5,000min^{-1}) (AC15/11:ϕ120 3,000min^{-1})		AC15/11
Power tool capability Milling	mm	–	–	–	ϕ10	–	ϕ20	ϕ16
Power tool capability Tap	mm	–	–	–	M6	–	M16	M16
Dimensions (L×W)	mm	1,105 × 1,380	1,250 × 1,480	1,360 × 1,370		1,600 × 1,535	1,750 × 1,535	1,780 × 1,685
Controller		TAKAMAZ & FANUC 0i-TF Plus	TAKAMAZ & FANUC 0i-TD	TAKAMAZ & FANUC 0i-TF		TAKAMAZ & FANUC 0i-TF Plus		TAKAMAZ & FANUC 0i-TF Plus

※When sub spindle mounted

Suited for Compound Machining and Complete Part Machining Ideal for Compound Machine and Machining Products to Completion

Suited for Powerful Heavy Cutting

XT-8MY

8(10) inch Chuck

Long Shaft Workpiece

XL-200

8(10) inch Chuck

Suited for Various Shaft Processing

High Rigidity/High Output/Space Saving

X-S700

8(10) inch Chuck

XTT-500 XTT-500M

8(10) inch Chuck

XL-200 Standard	XL-200 Power tool type	X-S700	XTT-500 Standard	XTT-500M Power tool type
8(10)		8(10)	8(10)	8
ϕ100(ϕ120)		ϕ100(ϕ120)	ϕ100(ϕ120)	ϕ100
Max.3,500(5,000･4,000)		Max.3, 500(3,000)	Max.4,000(3,500)	Max.4,000
12-station turret		10-station turret × 2	8-station turret × 2	
X:225 Z:800		X:115 Z:650	X:105 Z:450	
X:18 Z:24		X:16 Z:30	X:18 Z:24	
AC11/7.5(18.5/15)		AC15/11(18.5/15)	AC15/11(18.5/15)	AC15/11
—	ϕ20	—	—	ϕ10
—	M4 ~ M16	—	—	M4 ~ M8
2,900(3,100※) × 1,845		1,960 × 1,720	1,695 × 1,830	
TAKAMAZ & FANUC 0i-TD		TAKAMAZ & FANUC 0i-TD	TAKAMAZ & FANUC 0i-TF	

( ) :Options.

Number of turret stations

Gang type

Y-axis control

Power tool

Built-in spindle motor

Spindle C-axis indexing

Spindle Cs-axis indexing

Spindle indexing (electrical/mechanical)

Sub-spindle

Tailstock

CE type

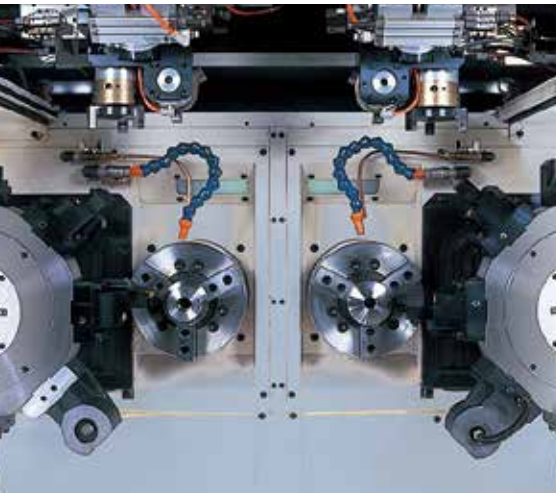
Environmentally friendly design

From High Volume Machining to Heavy Cutting.
Revolutionary Machine with 2-Spindle and 2-Slide

XW series

2-spindle **2**-slide

Simultaneous machining of both or the same sides of
the parts for total complete process machining.
The functions of two units within the space of a single unit.



NEW

Ideal for Small Part Processing
XWG-3

3inch/4inch Chuck

Integrating Various Process
XW-60 XW-60M

6inch Chuck

Fastest Loading Cycle in its Class
XW-130 XW-130M

8inch Chuck

Large Flange-Like Workpiece
XW-200

10inch Chuck

Large Flange-Like Workpiece, Fastest Loading Cycle
XWT-10

10inch Chuck

XWseries Machine Specifications

Item	Unit	XWG-3 NEW	XW-60 Standard	XW-60M Power tool type	XW-130 Standard	XW-130M Power tool type	XW-200	XWT-10
Chuck size	inch	Collet,3,4	Collet,6(5)×2		Collet,8 × 2		10 × 2	10 × 2
Spindle bearing I.D.	mm	ϕ60	ϕ75(ϕ65)		ϕ100		ϕ120	ϕ120
Spindle speed	min⁻¹	Max.8,000(6,000※1)	Max.4,500(6,000)		Max.4,000		Max.2,800	Max.2,800(4,000)
Tool post type		Gang type (Max.4 pcs.)	8-station turret×2	10-station turret×2	8-station turret × 2	10-station turret × 2	8-station turret × 2	10-station turret× 2
Max. stroke	mm	X:160 Z:230	X:125 Z:140		X:150 Z:160	X:170 Z:220	X:170 Z:220	X:170 Z:270
Rapid traverse	m/min	X:16 Z:20	X:21 Z:18		X:24 Z:24		X:24 Z:24	X:24 Z:24
Spindle motor	kW	AC5.5/3.7	AC 7.5/5.5×2		AC11/7.5 × 2		AC18.5/15 × 2	AC18.5/15 × 2
Power tool Milling	mm	—	—	ϕ13	—	ϕ16	—	—
capability Tap	mm	—	—	M4~M10	—	M4~M10	—	—
Dimensions (L×W)	mm	1,340 × 2,130	1,595(1,950)×2,005	1,695(1,950)×2,005	1,890(2,250※2) × 2,140	1,990(2,350※2) × 2,330	1,990(2,350※2) × 2,330	2,030(2,350※2) × 2,370
Controller		TAKAMAZ & MITSUBISHI M830VW	TAKAMAZ & FANUC 0i-TF		TAKAMAZ & FANUC 0i-TD(0i-TF※3)		TAKAMAZ & FANUC 0i-TF	TAKAMAZ & FANUC 0i-TF

※1.Hydraulic specification ※2.Machine width with loader spec. ※3.Optional with power tools. ( ) :Options.

TAKAMAZ Compact Machines
Suitable for Compound Machining

XY series

Multi-Turning

With 2 spindle and 2 turret, there are lots of possible cutting methods. Complex parts can be processed at shorter amount of time.

Sub-Spindle + Power Tools
XY-120 PLUS

6inch Chuck

Sub-Spindle + Power Tools
XYT-51

6inch Chuck

2-Spindle and 1-Slide TAKAMAZ
Specialized Structure.

XD series

2-spindle 1-slide

One spindle performs loading while the other is machining. Production rates doubled within the same space!

Flexible Usability Depending on Production Needs
XD-8 PLUS XD-8T PLUS

5inch Chuck

XD-8 PLUS

XD-8T PLUS

Power Tools Option
XD-10i

6inch Chuck

XYseries Machine Specifications

Item	Unit	XY-120 PLUS		XYT-51			
				ϕ51 THRU,BMT45 specification		ϕ65 THRU,BMT55 specification(OP)	
		Main-spindle	Sub-spindle	Main-spindle	Sub-spindle	Main-spindle	Sub-spindle
Chuck size	inch	Collet,6	Collet,5	Collet,6		8	
Spindle bearing I.D.	mm	ϕ85(ϕ100)	ϕ65	ϕ100	ϕ85	ϕ120	ϕ100
Spindle speed	min⁻¹	Max.5,000(4,000)	Max.5,000	Max.5,000		Max.4,000	
Tool post type		12-station turret,24ST		12-station turret,24ST,BMT45		12-station turret,24ST,BMT55	
Max. stroke	mm	X1:150 Z1:330 Y:±35 X2:150 Z2:440		X1:162.5 Z1:500 Y:±35 X2:170 Z2:500 A:550		X1:162.5 Z1:500 Y:+40−35 X2:170 Z2:500 A:550	
Rapid traverse	m/min	X1:18 Z1:24 Y:±12 X2:18 Z2:18		X:18 Z:30 Y:12 A:30		X:18 Z:30 Y:12 A:30	
Spindle motor	kW	AC7.5/5.5(AC11/7.5)	AC5.5/3.7	AC18.5/15/11	AC9/7.5/5.5	AC18.5/15/11	AC9/7.5/5.5
Power tool capability Milling	mm	ϕ13		ϕ13		ϕ20	
Power tool capability Tap	mm	M8		M12		M16	
Dimensions (L×W)	mm	2,630 × 1,950		2,988 × 2,163		3,000 × 2,163	
Controller		TAKAMAZ & FANUC 0i-TD		TAKAMAZ & FANUC 0i-TD			

( ) :Options.

XDseries Machine Specifications

Item	Unit	XD-8 PLUS	XD-8T PLUS	XD-10 i
Chuck size	inch	Collet,(5) × 2		Collet,6 × 2
Spindle bearing I.D.	mm	ϕ65		ϕ75
Spindle speed	min⁻¹	Max.4, 500(8,000)		Max.4, 500(6,000)
Tool post type		Gang type	6-station turret	10-station turret
Max. stroke	mm	X:200 Z:380 (±190)	X:140 Z:380 (±190)	X:120 Z:520
Rapid traverse	m/min	X:18 Z:24		X:18 Z:24
Spindle motor	kW	AC3.7/2.2(5.5/3.7※4) × 2		AC5.5/3.7(7.5/5.5) × 2
Dimensions (L×W)	mm	1,580 × 1,550		2,310 × 1,695
Controller		TAKAMAZ & FANUC 0i-TD		TAKAMAZ & FANUC 0i-TD

※4.XD-8PLUS : 5.5/3.7kW is exclusive to the specifications for spindle rotations speed of 8,000min⁻¹

( ) :Options.

Customizable for unique specifications

Gang Type Precision Lathe
That Has Honed the Essentials.

GANG TYPE series

1-spindle **1**-slide

USL-480

XG-4

TOP-TURN Ⅱ

XV-3

Super Compact Machine Body

USL-480

3inch Chuck

High-Accuracy Turning with Built-In Motors

XG-4

4inch Chuck

Fastest Loading Cycle in its Class

J-WAVE PLUS

4inch Chuck

Suited for Powerful Heavy Cutting

TOP-TURN Ⅱ

6(8) inch Chuck

Integration of Diverse Processes

XV-3

3inch /4inch Chuck

GANG TYPE series Machine Specifications

Item	Unit	USL-480	XG-4	J-WAVE PLUS	TOP-TURN Ⅱ type A	TOP-TURN Ⅱ type B	XV-3
Chuck size	inch	Collet,3	Collet,4		6	8	Collet,3,4
Spindle bearing I.D.	mm	ϕ50	ϕ65		ϕ75	ϕ85	ϕ60
Spindle speed	min⁻¹	Max.10,000	Max.8,000	Max.4,500	Max.6,000	Max.4,500	Max.10,000
Tool post type		Gang type	Gang type		Gang type		Gang type
Max. stroke	mm	X:160 Z:200	X:200 Z:250		X:300 Z:300		X:160 Z:200 Y:265
Rapid traverse	m/min	X:12 Z:15	X:18 Z:18		X:12 Z:18		X:12 Z:24 Y:24
Spindle motor	kW	AC5.5/3.7	AC7.5/5.5/3.7	AC5.5/3.7	AC7.5/5.5		AC5.5/3.7
Dimensions (L×W)	mm	480 × 1,941	1,506 × 1,250(780 × 1,735※)		1,820 × 1,510		1,600(2.075) × 2,130 × 2,230
Controller		TAKAMAZ & FANUC 0i-TD / TAKAMAZ & MITSUBISHI M64	TAKAMAZ & MITSUBISHI M80		TAKAMAZ & FANUC 0i-TD		TAKAMAZ & MITSUBISHI M80

※When the loader is mounted.

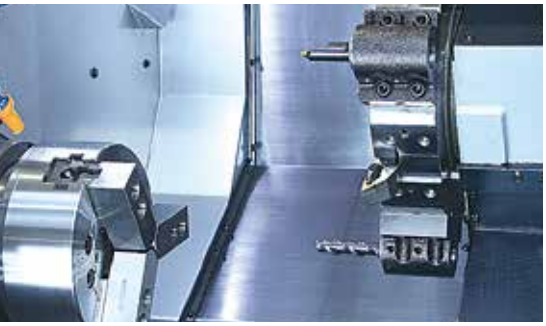
( ) :Options.

A Simple Machine Best in Its Class among Manual Operated Machines, Focusing the Cost Performance.

Global Startegy Lathe

GSL series

1-spindle **1**-turret



Excellent Cost Performance

GSL-10H

6inch Chuck

GSL-15 PLUS

8inch Chuck

SKIVING MACHINE

1-spindle **1**-turret

A Machine Specialized for Skiving

Turning + Grinding on This One Machine

SKV-8

8inch Chuck

Limited exclusively to domestic sales in Japan

GSLseries Machine Specifications

Item	Unit	GSL-10 H	GSL-15 PLUS
Chuck size	inch	Collet,6	Collet,8
Spindle bearing I.D.	mm	ϕ75	ϕ100
Spindle speed	min^{-1}	Max.4,500	Max.3,500
Tool post type		8-station turret	8-station turret
Max. stroke	mm	X:120 Z:230	X:175 Z:330
Rapid traverse	m/min	X:12 Z:18	X:18 Z:24
Spindle motor	kW	AC5.5/3.7	AC7.5/5.5
Dimensions (L×W)	mm	1,610 × 1,390	1,875 (With tailstock : 1,990) × 1,680
Controller		TAKAMAZ & FANUC 0i Mate-TD	TAKAMAZ & FANUC 0i-TF

SKV-8 Machine Specifications

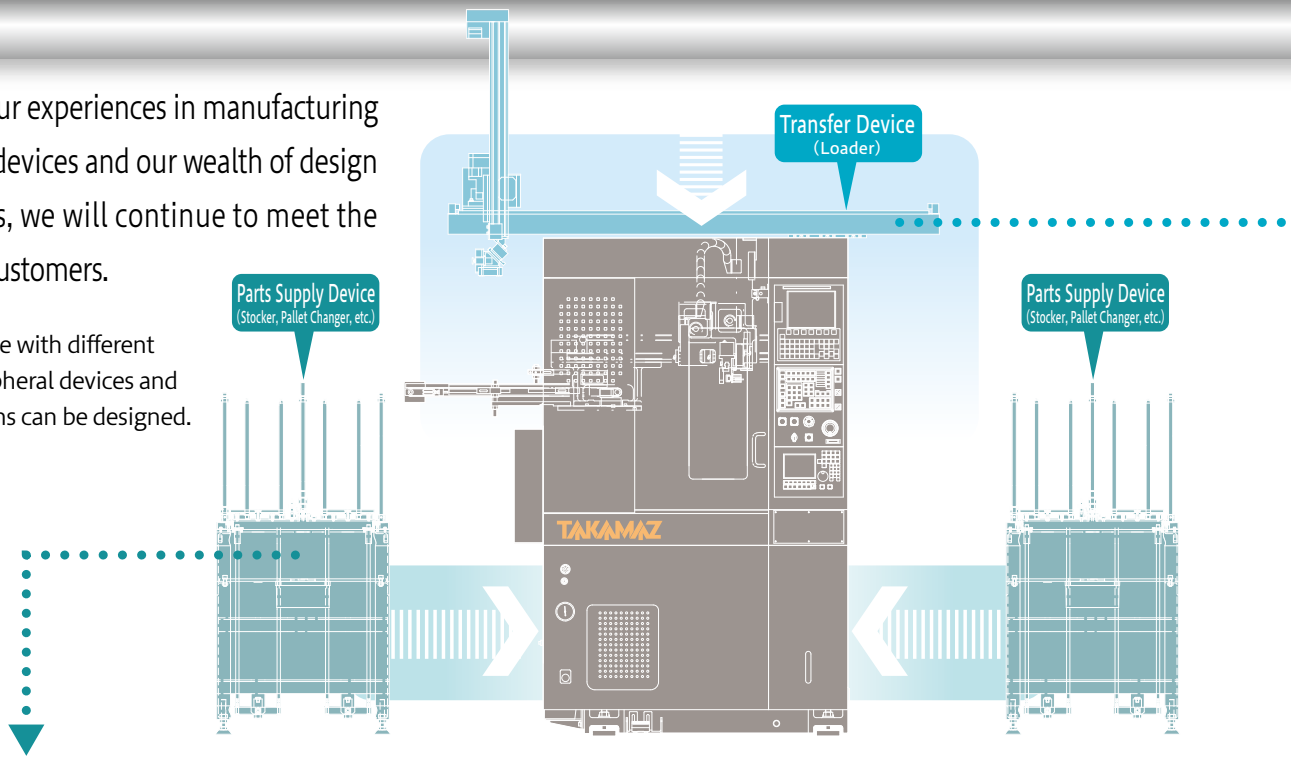
Item	Unit	SKV-8
Chuck size	inch	8
Spindle bearing I.D.	mm	ϕ100
Spindle speed	min^{-1}	Max.5,000
Tool post type		12-station turret
Max. stroke	mm	X:150 Y:±35 Z:400
Rapid traverse	m/min	X:18 Y:12 Z:24
Spindle motor	kW	AC 15/11
Dimensions (L×W)	mm	2,270 × 1,690
Controller		TAKAMAZ & FANUC 0i-TF

Customizable for unique specifications

OPTION SYSTEM

By applying our experiences in manufacturing of peripheral devices and our wealth of design achievements, we will continue to meet the needs of our customers.

A production line with different varieties of peripheral devices and loading variations can be designed.



EASY WAYS TO REDUCE WASTE

Automation Peripheral Devices

■Station Stocker
Flexible Multi-layer stocker to accommodate different part diameter sizes.

■Flat Stocker

■Stocker for Shaft Type Parts

■Parts Feeder
Workpieces can be stored together with the tray.

■Tray Changer
Workpieces can be stored in individual trays.

Quality/Environment Control Unit

■Cleaning Unit
Without operator intervention, cleaning is performed automatically.

■Measuring Devices
Feeds dimensional errors back to the machine to maintain high-quality dimensional accuracy.

■Oil Mist Collector
Oil mist collection facilitates a clean production environment.

■Automatic Fire Extinguisher
If fire breaks out in the machine during automatic operations, fire extinguishing agent is automatically discharged.

Cutting Efficiency/Chip Disposal

■Alloyed Clamp Holder for Vibration Suppression
Inhibiting the progression of wear boundary is expected to extend cutting tool life in high speed machining.

■Chip Conveyor

(Spiral Type)
Mounted on the rear side
Chip disposal is done semi-automatically in minimal space.

(Floor Type)
Mounted on the rear side
Chips are reliably discharged outside the machine.

■High-Pressure Coolant
Constantly cooled coolant is discharged at high pressure so that the tool life is significantly prolonged.

■Semi-Dry Machining
Ultratrace, highly-lubricating organic coolant is applied to the correct point on the cutting edge, realizing semi-dry machining.

LOADER SYSTEM

Encouraged from sales of more than 65 years, with "Integral loader" design philosophy in mind, TAKAMAZ will lead the consistent support service follow up and support system built on trust, leading to increased productivity.

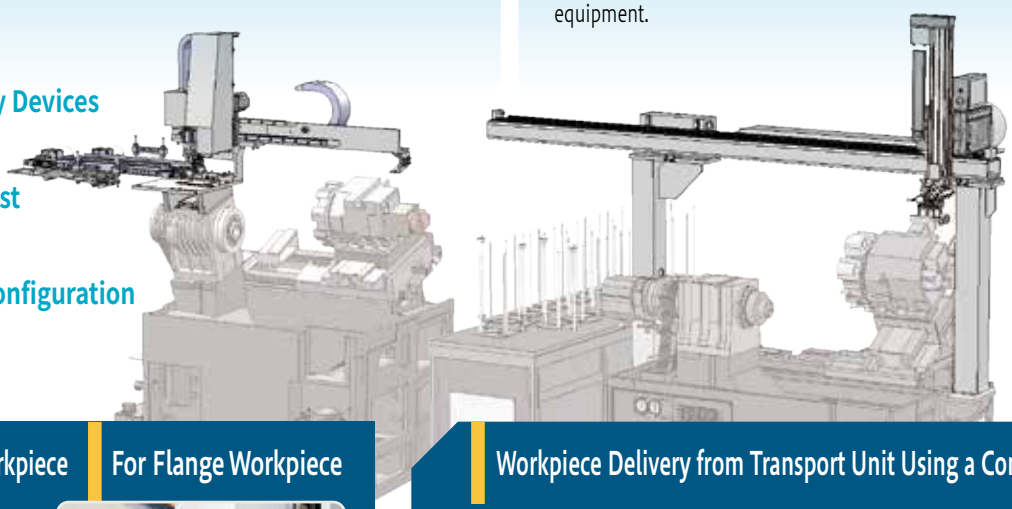
Compact Loader

- Hi Speed Loader mounted on the machine to save space.
- A dedicated servo controller allows speedy setup.

Gantry Loader

- Gantry-type servo loader with high rigidity.
- The traverse distance can be extended, ensuring extremely flexible line configuration and systemization of peripheral equipment.

Space Saving Accessory Devices
Improving Durability
Pursuing of the Low Cost
Short Loading Time
Flexible System Line Configuration
Improving Operability



For Small and Short Workpiece

Parallel Hand

For Flange Workpiece

L Hand

For Front and Back Cutting Workpiece

Σi GTH Hand

For Shaft Workpiece

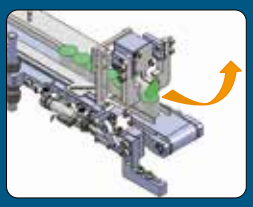
Pendulum Hand

Workpiece Delivery from Transport Unit Using a Conveyor

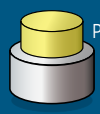
Vertically-Oriented Workpiece (For Machining the Bottom Face)

Processing Region

E Turn Device

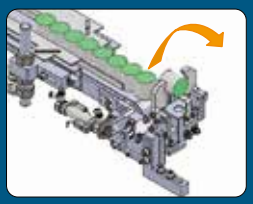


Standing Workpiece (For Cutting the Top Surface)

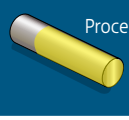


Processing Region

Y Turn Device

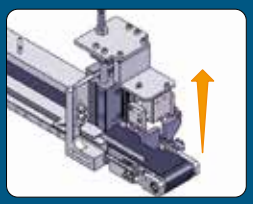


Horizontally Placed Small Diameter Workpiece



Processing Region

Pickup Device



TAKAMAZ Collet Chuck

The collet chuck developed and marketed under the TAKAMAZ brand is manufactured in the factory where an integrated system is used to streamline every part of the production, from machining to heat treatment.
Collet run-off accuracy conforms to TAKAMAZ standard, which is even higher than Japanese Industrial Standards (JIS), allowing us to provide our customers with exceptionally dependable products.

AUTOMATION SYSTEM

ServoROT®

A Highly-Productive Robot System That Solves Your Problems!

Reduces Personnel Costs

This system loads/unloads workpieces with a robot that is integrated with a tray changer. It realizes unmanned operation day and night, and improves production efficiency by maintaining machining quality, ensuring stable loading, and allowing multi-machine control.

Wide Range of Variations

Based on this robot + tray changer system, we can meet various needs including washing units and gauging systems.

Simple Setup

With the integrated robot + tray changer construction, setup can be completed just by teaching on site. The system can be retrofitted to an existing machine provided there is a space of 1.8 x 0.9 meters in front of it. Consultations are welcome.

Retrofitting Even to Previous Models

When setting up the lathe, the robot can be slid together with its base.

ADVANCED TECHNOLOGY

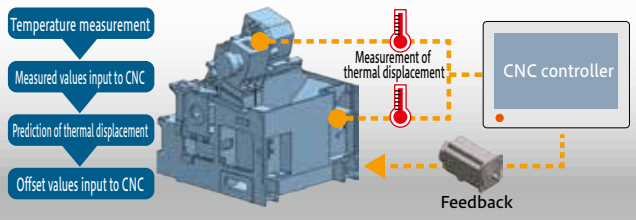
T-Support System®

Constantly Monitors Machines and Automatically Corrects to the Appropriate Status!

Thermony® Patented

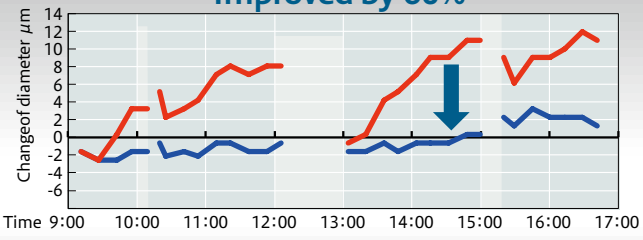
Thermal Displacement Compensation System

The machined dimension values change as the machine temperature changes due to the customer's conditions of use (machining conditions) and the environmental conditions (factory temperature, etc.). This system predicts the amount of thermal displacement based on the temperature changes at each part of the machine and provides compensation values to the CNC controller In order to minimize these changes in the machining dimension values.



Thermony applied - Amount of change = 6 μm

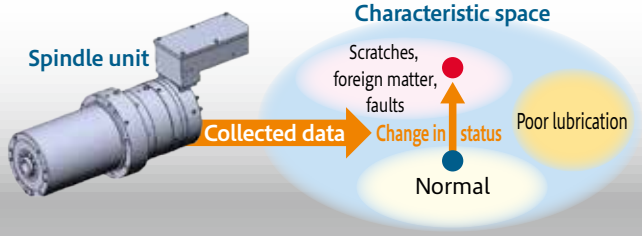
Improved by 60%

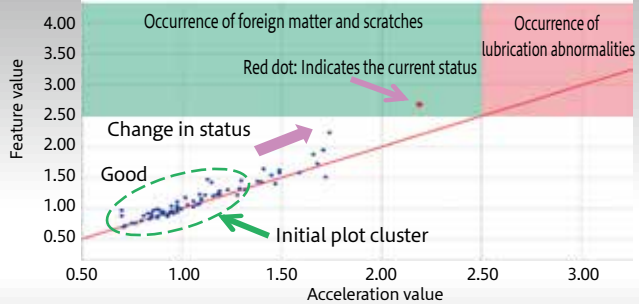


Spimony® Patented

Spindle Condition Monitoring System

The application of machine fault diagnosis methods is difficult in many cases where existing threshold values are provided, because the threshold values differ for each machine. We have addressed this issue by providing a new method of diagnosis with a spindle status monitoring system based on the "characteristic space common among machines", which is determined using characteristic quantities.





F Loader System

Featuring Functions Unique to TAKAMAZ!

Realizes High Productivity through Increased Loader Speed and Shorter Machine Stoppage Times

Productivity improvement

- Traverse axis: **120m/min**
  (43% up compared with existing systems)
- Vertical axis: **120 m/min**
  (69% up compared with existing systems)

Shorter Setup Times by Functions Unique to TAKAMAZ

Ease-of-setup improvement

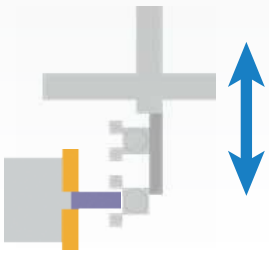
- Loader system operation can be checked safely using handle operation.
- Two types of teaching methods are available to suit various situations.

Loader Size Display Function

When setting up after changing the workpiece, teaching can be completed by simply setting the workpiece size.

Teaching time for a workpiece size change
80% shorter

Y-Axis Automatic Adjustment Function



When teaching the loader, the Y-axis position can be automatically adjusted just by repeatedly opening and closing the fingers.

Loading position fine-adjustment time
53% shorter

Loader Speed Optimization Function for Energy Savings and Longer Service Life

Energy saving functions

- By automatically optimizing the speed of the loader, loader energy savings and a longer loader service life are achieved.

Loader power consumption **Reduced 17%**

In Addition to a Touch Panel Giving Exceptional Loader Operability, a Servo System Made by FANUC Is Adopted.

TAKAMAZ OS

TAKAMAZ Technology Aids Productivity

- Functions for Better Working Efficiency in Addition to Conventional NC Screens
- Work Simplified by Automation of Operations and Network Function

Better Working Efficiency

Operator working efficiency improved, reducing production stoppage time

Keeping Track of Production Progress
Production count and tool usage count can be determined at a glance.

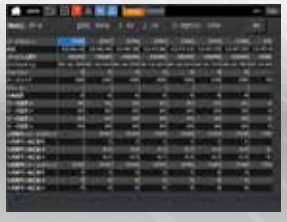
Display of Start Conditions
Operations to prepare for starting can be performed quickly.

Machine Stoppage Warning
Advance warning of the next machine stoppage is displayed based on the workpiece count, etc.

Camera Image Display (Option)
Makes it possible to check areas that are difficult to see, like the rear section of the machine.

Quality Control

Storing of traceability information per workpiece to assist quality control



The status of the machine during machining and can be checked and the information can be used for quality control and preventive maintenance.

Examples of Traceability Data
Times, motor temperatures, cycle times, program numbers, tool wear offsets, etc.

IT & IoT

Programs can easily be input and output between machines via the network.

Simple On-Screen Input/Output

No need to move between machines
No need for USB flash drives
No need for an external computer

PRODUCTS OF PARTNERS

TAKAMAZ-EMAG

TAKAMAZ-EMAG Co., Ltd., is a joint venture between Takamatsu Machinery Co., Ltd., (Japan) and EMAG GmbH & Co. KG (Germany). A whole range of high-quality EMAG products from hard turning machines to grinding machines, laser processing, and gear hobbing machines are available.
Its mission is to offer customized equipment tailored to customers' needs at low prices with short delivery times, and as turnkey projects.

■ VT2-4 Vertical Lathe with One Spindle and Two Turrets

Ultimate Shaft Work Machine
High speed loading time with a 2-turret simultaneous 4-axis control capability. "VT series" machines are characterized by a construction that gives good access to the machining area and high-power spindles.

F.T. Japan

F.T. Japan Inc. imports machines manufactured by FEELER, ECOCA, and LEADWELL from our affiliate FFG Group (Taiwan), the world's third-largest general machine tool manufacturer, and sells them.

■ General-Purpose Lathe SJ460 × 1000G

This is a general-purpose lathe manufactured by ECOCA. It has excellent cost performance and is available in a wide range of sizes. The apron handle position can be selected from either the left or right sides. Slides are hardened/polished. Equipped with an auto-feed stopper ring, machining that meets your needs can be accomplished.

Equipment sold by the TAKAMAZ Group will be fully supported by the TAKAMAZ service network.

TAKAMAZ

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