

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



XYseries



XT-8MY

Ultrasonic vibration cutting

Chip breaking machining method

Operating system

T-Support System<sup>®</sup> TAKAMAZ \_\_\_\_\_ F Loader System

Thermony<sup>®</sup> Spimony<sup>®</sup>



# TAKAMAZ LINE UP



PAGE GANG TYPE series 07

### 1 spindle 1 slide

Gang type precision lathe that has honed the essentials.

GSL series 08

### 1 spindle 1 turret

A simple machine best in its class among manual operated machines, focusing the cost performance.

PAGE



### 1 spindle 1 turret

Introducing a Special Machine Specifically Designed for Skiving.

	≆ 9
LOADER SYSTEM	зе О
AUTOMATION SYSTEM	≆ <b>1</b>
	≆ 2
OPERATING SYSTEM	≆ 3

# 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.





**1**-spindle **1**-turret Our total production count is proof of reliability. This is a TAKAMAZ standard that has evolved for single lathes.



CE

# Standard of Single Lathes

Ideal for small part processing





Received the silver award in the product category at the Ishikawa Ecodesign Awards 2024











Equipped with power tools and a Y axis





Xseries Machine Spec	cifications								
Item	Unit	XTS-6	<b>XT-6</b> Standard	<b>XT-6M</b> Power tool type	XT-8 Standard	XT-8M Power tool type	ХТ-8МҮ	8-station Specifications(Standard)	L-8 🥯 12-station Specifications(Option)
Chuck size	inch	Collet,6	Collet	t,6(8)	Collet	,8(10)	Collet,8	Collet	.,8(10)
Spindle bearing I.D.	mm	φ75	φ75(	φ85)	φ100	( <i>ф</i> 120)	φ100	φ100	( <i>ф</i> 120)
Spindle speed	min <sup>-1</sup>	Max.5,000	Max.4,500(6	,000) (3,500)	Max.3,500(5	,000) (3,000)	Max.4,000	Max.4,000 (5	6,000) (3,000)
Tool post type		8-station turret	8-station (12-station) turret	12-station turret	8-station (12-station) turret	12-station turret	12-station turret	8-station turret	12-station turret
Max. stroke	mm	X:120 Z:230	X:120	Z:280	X:190 Z:400	X:190 Z:420	X:175 Z:420 Y:+35、-40	X:190	Z:600
Rapid traverse	m/min	X:18 Z:24	X:18	Z:24	X:18	Z:24	X:18 Z:24 Y:10	X:18	Z:24
Spindle motor	kW	AC7.5/5.5	AC7.5/5.5(	(AC11/7.5)	(AC15/11:¢10	00 3,500min <sup>-1</sup> 00 5,000min <sup>-1</sup> ) 20 3,000min <sup>-1</sup> )	AC15/11	AC1	5/11
Power tool Milling	mm	-	_	<i>φ</i> 10	_	φ20	φ16		_
capability Tap	mm	-	_	M6	-	M16	M16		_
Dimensions (L×W)	mm	1,105 × 1,380	1,360 >	< 1,370	1,600 × 1,535	1,750 × 1,535	1,780 × 1,685	1,840	× 1,930
Controller		TAKAMAZ & FANUC 0i-TF Plus	TAKAMAZ &	FANUC 0i-TF	TAKAMAZ & FA	ANUC 0i-TF Plus	TAKAMAZ & FANUC 0i-TF Plus	TAKAMAZ & F/	ANUC 0i-TF Plus





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



X:16 Z:20

AC5.5/3.7

1,340 × 2,130

TAKAMAZ & MITSUBISHI M830VW

X:21 Z:18

AC 7.5/5.5×2

TAKAMAZ & FANUC 0i-TF

1,595(1,950)×2,005

φ13

M4~M10

1.695(1.950)×2.005

Rapid traverse

Spindle motor

Dimensions (L×W)

Controller

Power tool

capability

Milling

Тар

m/min

kW

mm

mm

mm



XW-130M Power tool type	ХШТ-8 😡	XW-200	XWT-10
Collet,8 × 2	Collet,8	Collet,10 × 2	Collet,10 × 2
<i>ф</i> 100	<i>ф</i> 100	φ120	φ120
Max.4,000	Max.4,000	Max.2,800	Max.2,800(4,000)
10-station turret× 2	8-station turret	8-station turret × 2	10-station turret× 2
X:170 Z:220	X:150 Z:180	X:170 Z:220	X:170 Z:270
X:24 Z:24	X:24 Z:24	X:24 Z:24	X:24 Z:24
AC11/7.5 × 2	AC 11/7.5	AC18.5/15 × 2	AC18.5/15 × 2
<i>ф</i> 16	-	_	-
M4~M10	-	_	-
1,990(2,350 <sup><b>※</b>2</sup> ) × 2,330	1,890 (Overall width:2,250) ×2,187	1,990(2,350 <mark>×2</mark> ) × 2,330	2,030(2,350 <mark>*</mark> 2) × 2,370
TAKAMAZ & FANUC 0i-TD(0i-TF <sup>¥3</sup> )	FANUC OI-TF Plus	TAKAMAZ & FANUC OI-TF	TAKAMAZ & FANUC 0i-TF
		*1.Hydraulic specification *2.Machine width with	loader spec. <b>X3</b> .Optional with power tools. ():Options.

### **TAKAMAZ** Compact Machines Suitable for Compound Machining



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Multi-Turning

Gang Type Precision Lathe That Has Honed the Essentials.



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1-spindle 1-slide



XG-4



### XYseries Machine Specifications

A tseries Machine Sp	ecifications				
		ХҮТ		Г-51	
ltem	Unit	φ51 THRU,BMT	45 specification	φ65 THRU,BMT55	specification (OP)
		Main-spindle	Sub-spindle	Main-spindle	Sub-spindle
Chuck size	inch	Collet,6		Collet,8	
Spindle bearing I.D.	mm	φ100	φ85	φ120	φ100
Spindle speed	min <sup>-1</sup>	Max.	5,000	Max.4	4,000
Tool post type		12-station turret,24ST,BMT45		12-station turret,24ST,BMT55	
Max. stroke	mm	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	X:18 Z:30 Y:12 A:30		X:18 Z:30 Y:12 A:30	
Spindle motor	kW	AC18.5/15/11	AC9/7.5/5.5	AC18.5/15/11	AC9/7.5/5.5
Power tool Milling	mm	φ.	13	φ.	20
capability <sup>Tap</sup>	mm	M	12	M16	
Dimensions (L×W)	mm	2,988 >	< 2,163	3,000 × 2,163	
Controller			TAKAMAZ &	FANUC 32i-B	

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



X:18 Z:18 X:12 Z:24 Y:24 m/min kW AC5.5/3.7 AC7.5/5.5/3.7 AC5.5/3.7 1,506 × 1,250(780 × 1,735\*) 1,600(2.075) × 2,130 × 2,230 mm TAKAMAZ & MITSUBISHI M80 TAKAMAZ & MITSUBISHI M80

When the loader is mounted.

Rapid traverse

Spindle motor

Dimensions (L $\times$ W)

Controller

():Options.



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

Global Startegy Lath





1-spindle 1-turret



# Excellent Cost Performance



# A Machine Specialized for Skiving

Turning + Grinding on This One Machine







Limited exclusively to domestic sales in Japan

GST Selles Machine She	cifications	
ltem	Unit	GSL-15 PLUS
Chuck size	inch	Collet,8
Spindle bearing I.D.	mm	<i>ф</i> 100
Spindle speed	min <sup>-1</sup>	Max.3,500
Tool post type		8-station turret
Max. stroke	mm	X:175 Z:330
Rapid traverse	m/min	X:18 Z:24
Spindle motor	kW	AC7.5/5.5
Dimensions (L×W)	mm	1,875 (With tailstock : 1,990) × 1,680
Controller		TAKAMAZ & FANUC 0i-TF

2	KV-8	Machine	Spe	cifications

Item	Unit	SKV-8
チャックサイズ	inch	Collet,8
主軸軸受内径	mm	<i>ф</i> 100
主軸回転速度	min <sup>-1</sup>	Max.5,000
刃 物 台 形 状		12-station turret
最大移動量	mm	X:150 Z:400 Y:±35
早 送 り 速 度	m/min	X:18 Z:24 Y:12
主軸モータ	kW	AC 15/11
幅 × 奥 行 き	mm	2,270 × 1,690
制御装置		TAKAMAZ & FANUC 0i-TF

Customizable for unique specifications





1-spindle 1-turret

# **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. Parts Supply Device

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

### **Automation Peripheral Devices**



EASY WAYS TO REDUCE WASTE

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





### Quality/Environment Control Unit

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l

anger, etc

Cleaning Unit Without operator intervention, cleaning is performed automatically.





Measuring Devices Feeds dimensional errors back to the 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



Transfer Device (Loader)

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# Alloyed Clamp Holder for Vibration Suppression

Parts Supply Device

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.



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<sup>®</sup> series

### A Highly-Productive Robot System That Solves Your Problems!

This is a workpiece loading/unloading automation system that delivers the "simple operability" and "reduced setup time" required to deal with the issues posed by multiproduct, variable quantity production and the shortage of labor.

With the robot and material supply section developed as packages, the TAKAMAZ **ServoROT** series doesn't just improve productivity but also greatly helps to reduce the burden on the operator.





Use of the FANUC CRX series collaborative robot, which does not require a safety fence, allows configuration of a safe and reliable supply system. In addition, the collet chuck can be changed.

\*Max. weight capacity: 20 kg

\*12-inch operation panel adopted



### ServoROT-01

A multi-layer tray is integrated as a supply device, allowing prolonged unmanned operation.



# ServoROT-00

A flat-type workpiece stocker is used to address flexible needs. The robot base is angled so as not to obstruct the space required for setup at the lathe.

### 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.

### Retrofitting Even to Previous Models

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.

# ADVANCED TECHNOLOGY

# **T-ECO Support**

### **Environmental Considerations as Standard Specifications**

### Spindle Acceleration/Deceleration Time **Fully Adjustable**

The spindle acceleration/ deceleration time can be adjusted as required to switch between operation that prioritizes cutting time and operation that prioritizes energy savings.



Acceleration/Deceleration Time Adjustable as Required Example with spindle acceleration/deceleration set at 80%:

Power consumption



\* According to actual values measured by TAKAMAZ

\* In lines comprising multiple machines in sequence, when there are waiting times for material loading due to differences in process cycle times, operation that prioritizes energy savings can be used effectively to achieve power savings without increasing the line cycle time.

### 20% Reduction in Power Consumption while Machine is Stopped

An "idle stop function" that automatically stops power supply to the hydraulic pump when the machine is stopped is now incorporated. This provides a power conservation effect when the machine is stopped, such as during machine setup work.

When hydraulic Power consumption pump is OFF

### Power Consumption Monitor

Energy usage can be managed at all times, including the power on time, production quantity, energy consumption, average power consumption per workpiece, and energy saving effect.

This helps to reduce the environmental load and manage running costs.



-**20**%

Power consumption history

According to actual values

measured by TAKAMAZ

# T-Support System

### **Constantly Monitors Machines and Automatically Corrects to the Appropriate Status!**

hermonv 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.



# 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.



# OPERATING SYSTEM

# T-Program Guide

# Programming Assistance Tool

The first requirement when mass producing parts using machine tools is setup. A lot of preparation is required, from understanding the shape of the material and creating a cutting program, to selecting and mounting the cutting tool and chuck. Unlike skilled workers, it takes time for inexperienced operators to master the know-how required for creating programs for cutting to the required accuracy in a short period of time, making full use of G-codes and so on. They will also be apprehensive about their ability to accomplisah the cutting using the completed program without any interference. To address this, we are introducing an assistance function that enables even operators with little experience to create programs without errors, called the T-PROGRAM GUIDE.



### Programs can be created simply by entering the necessary information in order on the screen.

### Workpiece settings

Enter the stipulated information, such as the material and dimensions.



### **3**Cutting cycle settings

Cutting cycles appropriate for the tool to be used are displayed, allowing selection without faltering.



### 2 Tool condition settings

The cutting conditions are automatically selected according to the selected tool and workpiece material.

# No. 2010 No. 2010

### **4**Simulation (MGi)

The created program can be checked through a simulated animation.

-Cycles and conditions can be checked for each process,

editing cutting cycles can be done easily using soft keys.

-Adding/deleting/replacing processes, and changing/



Process editing

thereby simplifying editing operations.

### Functions allowing tool management and facilitating process editing are provided.

### Tool management

-Input of condition settings for each program is simplified by pre-registration of tool information (material, shape, T codes, etc.). -Cutting conditions according to tool material and workpiece material are put in a database.



\*T-PROGRAM GUIDE is based on the FANUC manual guide.

Compatible models XTL-8,XTS-6,XT-6,XT-6M,XT-8,XT-8M,XT-8MY

# OPERATING SYSTEM

# F Loader System

### Featuring Functions Unique to TAKAMAZ!

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

Productivity improvement

Traverse axis: MAX.160m/min
Vertical axis: MAX.160m/min

### 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 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 Size Display Function



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

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.

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



### **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.

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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



### F.T. Japan Inc.

F.T. Japan 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.



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