

MU-V Series

***MU-4000V / MU-5000V
MU-6300V / MU-8000V***

5-Axis Vertical Machining Centers



MU-V Series

MU-4000V / MU-5000V / MU-6300V / MU-8000V

5-Axis Vertical Machining Centers



High-accuracy, high-rigidity, and high-functionality machines that realize process integration and ease of use
5-axis machining centers that meet all your needs

Manufacturing sites face challenges such as labor shortages, a decline in skilled workers, shifting mindsets toward work styles, and initiatives for decarbonization.

To enhance productivity while addressing these challenges, it is essential to realize shorter lead times and long runs of continuous operation through process integration with machines that anyone can use easily and safely.

The MU-V series is equipped with solutions that anyone can easily and safely employ, without any special skills, to reduce the workload of workers in critical processes that affect productivity, such as setup changes at production sites, maintenance of accuracy in continuous machining, quality control, and maintenance.

Although they are 5-axis machining centers, which have difficulty suppressing dimensional change over time due to their complicated structures with many drive shafts, their unique structural designs and thermal deformation control realize unrivaled, outstanding accuracy stability, enabling long-run continuous operation of high-accuracy machining.

Moreover, the machines continue to evolve as autonomous systems that self-monitor their operational statuses, allowing even novice operators to maintain high precision and productivity with ease while supporting decarbonization and saving energy.

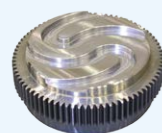
It is well-equipped to meet the growing demand for decarbonization and contributes to achieving sustainable productivity improvements.

MU-4000V



MU-6300V is pictured.

MU-5000V
MU-6300V
MU-8000V



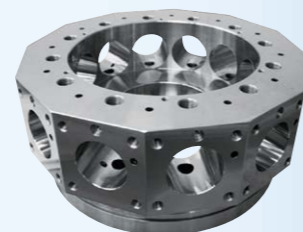
Power connection parts
Gears



Satellite parts
Fittings



Cutters for drilling
Rock bits



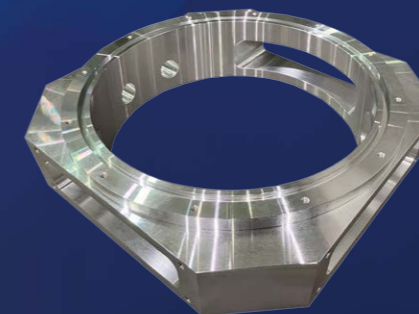
Machine tool parts
Turret disks



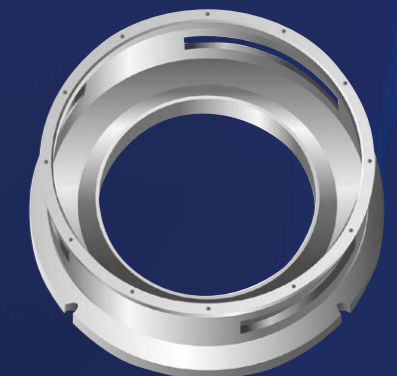
Energy-related parts
Inducers



Aircraft parts
Blisks




Semiconductor parts
Polygonal chambers



Semiconductor parts
Shields

Photographs and images used in this brochure may include optional equipment.

Please watch the video. 



Efficient, high-accuracy machining that reduces the trouble of setup with one chucking

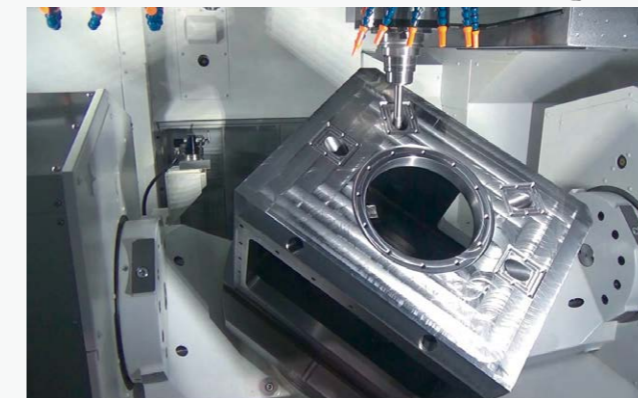
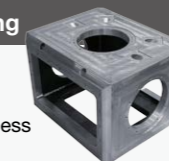
With a 3-axis machining center, workpieces with complicated shapes need to be turned around and clamped many times, and sometimes jigs need to be made for each process. A 5-axis machining center makes process integration possible with one chucking. The tool angles can also be optimally controlled to minimize the protrusion of holders and tools, making efficient, high-accuracy machining possible.

This realizes high-accuracy machining in a short time while reducing the trouble of setup and cost of jigs.

Indexed 5-axis machining

Ideal for multi-sided machining of block-shaped parts

Deep holes and undercuts completed in one process



Simultaneous 5-axis machining

Ideal for machining of free-form surfaces

High-accuracy machining of smooth curves and complicated shapes like those of blades



Flexible process integration that improves the productivity of high-mix, low-volume production

Processes from turning to gear cutting and measurement previously performed by multiple machines are integrated into one machine. This reduces the travel and setup work of operators and in-process inventory, improving the productivity of high-mix, low-volume production.

Turning



P10

Option

Gear Machining



P12

Option

Measuring



P19

Option

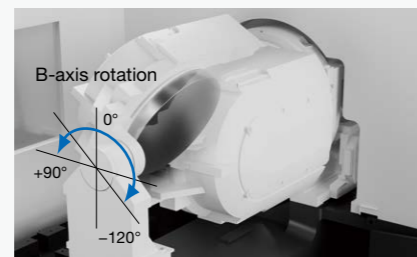
Realizes high-accuracy 5-axis machining in wide workspaces without the worry of interference



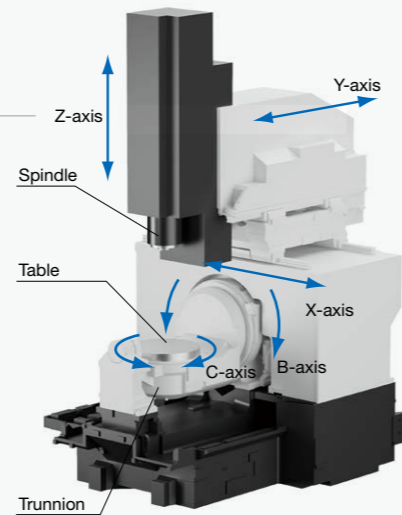
Highly rigid trunnion table supports high-accuracy 5-axis machining

High-speed, high-accuracy machining is made possible through the adoption of trunnion table swivel axes (B-axis, A-axis) with high-rigidity roller gear cams suitable for high-speed driving and a table rotary axis (C-axis) with a direct drive motor that generates high torque even at low rotation.

Indexing accuracy (actual data)	B-axis	C-axis
Indexing accuracy	±1.8 sec	±2.3 sec
Repeatability	±0.5 sec	±0.1 sec



Trunnion table

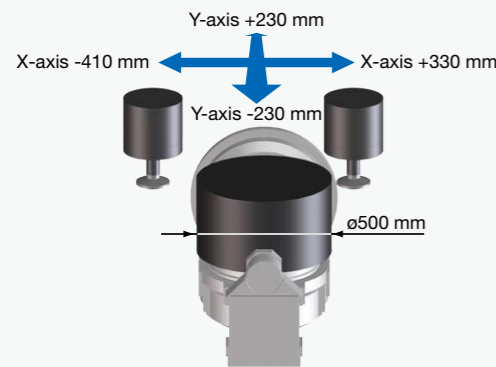


* The data mentioned in this brochure are "actual data" and do not represent guaranteed accuracies.

Travel of each axis is sufficient for the maximum workpiece dimensions

The tool reaches the end of the workpiece even with the table at various inclination angles, enabling wide-range 5-axis machining. Tool change regardless of trunnion table posture, leading to reduced cycle times and higher machining accuracies.

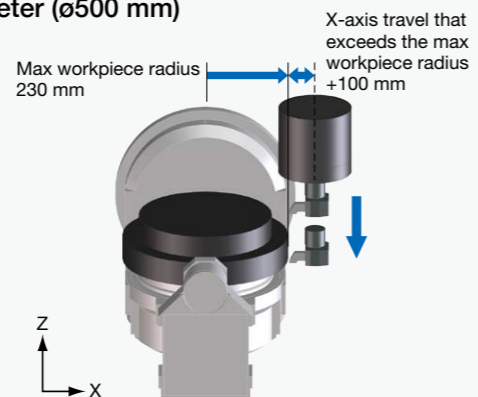
Even the largest workpieces are machined with capacity to spare



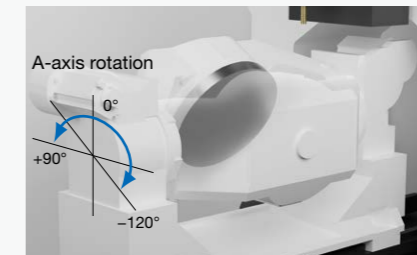
	MU-4000V
Max workpiece dimensions	ø500 × H400 mm
Max load capacity	300 kg

Note: The max workpiece dimensions and max load capacity are different for APC specs.

The long X-axis travel makes peripheral machining possible with the max workpiece diameter (ø500 mm)

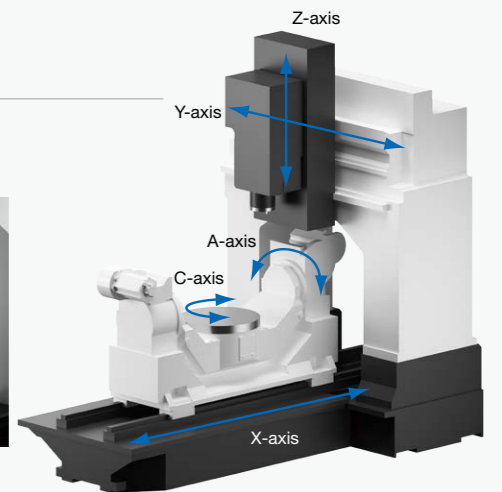


Indexing accuracy (actual data)	A-axis	C-axis
Indexing accuracy	±0.7 sec	±0.8 sec
Repeatability	±0.4 sec	±0.1 sec

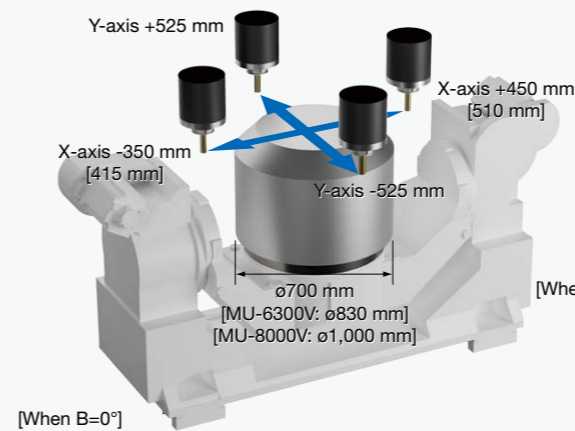


Trunnion table

* The data mentioned in this brochure are "actual data" and do not represent guaranteed accuracies.



Long travel enables handling of large workpieces

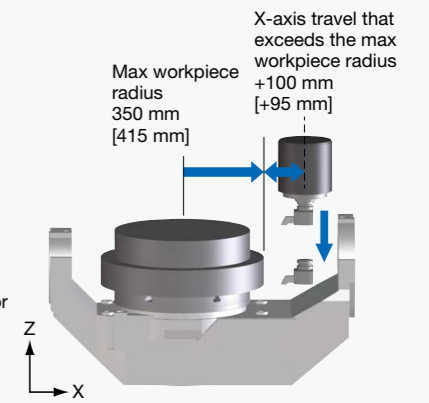


Note: The illustration shows the relative positions of the spindle and table, and the actual movement along the X-axis is reversed.

	MU-5000V	MU-6300V	MU-8000V
Max workpiece dimensions	ø700 × H500 mm	ø830 × H550 mm	ø1,000 × H550 mm
Max load capacity	500 kg	600 kg	700 kg

Note: The max workpiece dimensions and max load capacity are different for APC specs.

Peripheral machining possible with the max workpiece diameter



The images are of MU-5000V []: MU-6300V specs

High accuracy

Secured accuracy enables to reduce workload in controlling dimensions and realize stable machining over long hours

Accuracy changes are minimized to always maintain high accuracy at all times

Dimensional compensation work is minimized even in long runs of continuous operation



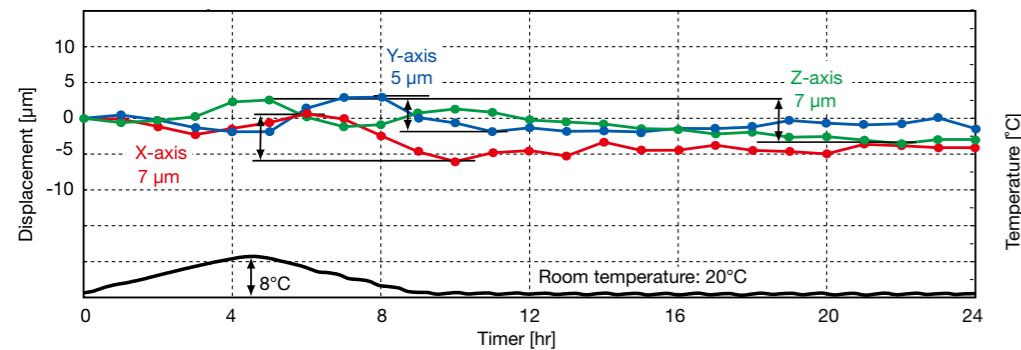
Thermo-Friendly Concept

The Okuma Intelligent Technology that enables machines to autonomously maintain high accuracy stability

The Thermo-Friendly Concept is an Okuma Intelligent Technology intended to achieve amazing machining accuracy with unique structural design and thermal deformation control technology. It eliminates the need for cumbersome dimensional compensation and warm-up and demonstrates outstanding dimensional stability, even when operation continues over many hours or when the ambient temperature in the factory changes.

MU-5000V thermal deformation over time (actual data): Less than 7 μm

Ambient temperature change: 8°C

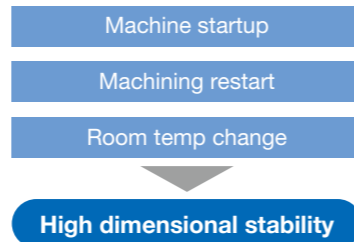
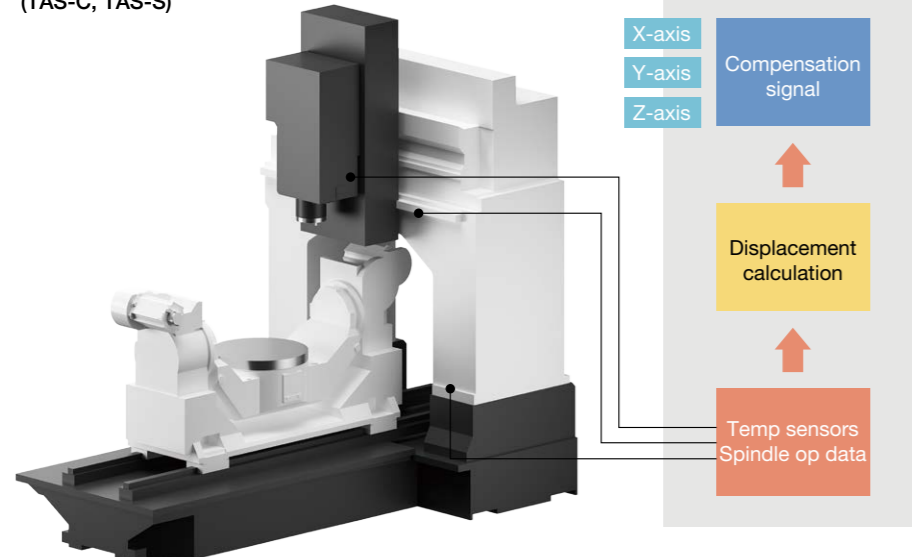


Note: The data mentioned in this brochure are "actual data" and do not represent guaranteed accuracies.

Eliminate waste with the Thermo-Friendly Concept

Okuma's Thermo-Friendly Concept achieves high dimensional stability not only when the room temperature changes, but also at machine startups or when machining is resumed. The warm-up operation time to stabilize thermal deformation is shortened, and the burden of dimensional correction when resuming machining is reduced.

Outline of thermal deformation control (TAS-C, TAS-S)



TAS-C

(Thermo Active Stabilizer - Construction)

TAS-C estimates and accurately controls the volumetric thermal deformation of the machine's construction due to ambient temperature changes; based on data from properly placed sensors, feed axis positions, and actual machine thermal deformation characteristics.

TAS-S

(Thermo Active Stabilizer - Spindle)

The TAS-S spindle thermal deformation control takes into account various conditional changes such as the spindle's temperature data, modification of the spindle rotation and speed, as well as spindle stoppage. The spindle's thermal deformation will be accurately controlled, even when the rotating speed changes frequently.

High 5-axis machining accuracy is maintained effortlessly

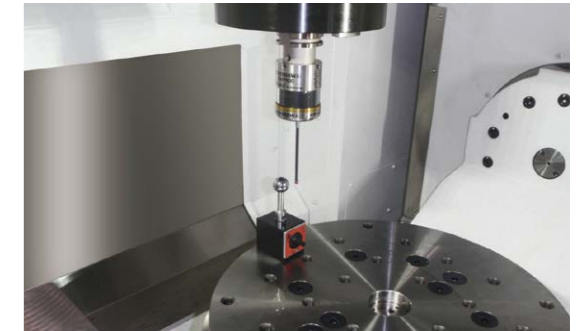


5-Axis Auto Tuning System II

Gauging and compensation of geometric error

option

On 5-axis machining centers, there are 13 types of geometric error, such as spindle misalignment, that have huge effects on machining accuracy. Geometric errors are measured with a touch probe and a datum sphere, and 5-axis machining centers are automatically tuned for better operating accuracy through compensation control. The Accuracy Stability Diagnosis Function enables the machines to self-diagnose changes in accuracy and notify the results to the operator to maintain their high accuracy with the minimum number of tunings.

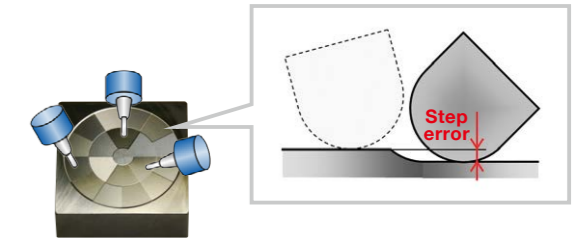


Geometric error measuring and auto tuning performed with a touch probe and a datum sphere

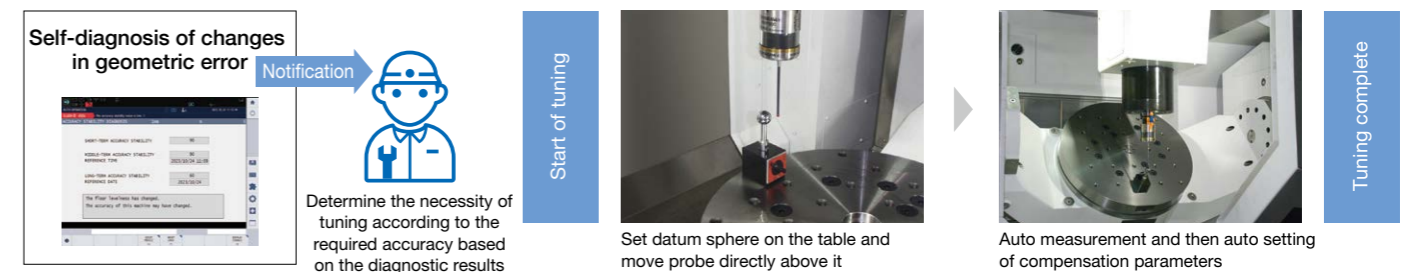
Accuracy comparison with multi-sided machining samples

Manual adjustment without 5-Axis Auto Tuning System	After using 5-Axis Auto Tuning System
Machining surface error Max 12 μm	Max 3 μm (actual data with MU-6300V)

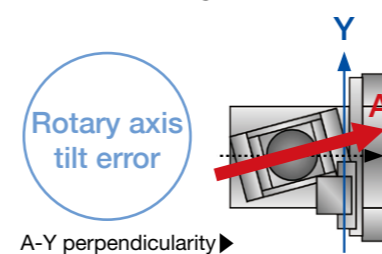
The tools (table) were tilted to various angles with their cutting edges positioned such that they were on the same plane, and the machined surface step error for each machined surface in multi-sided machining was greatly reduced by implementing the 5-Axis Auto Tuning System.



Flow of tuning



Examples of geometric error



Effects of decreasing the number of tunings and shortening the adjustment time

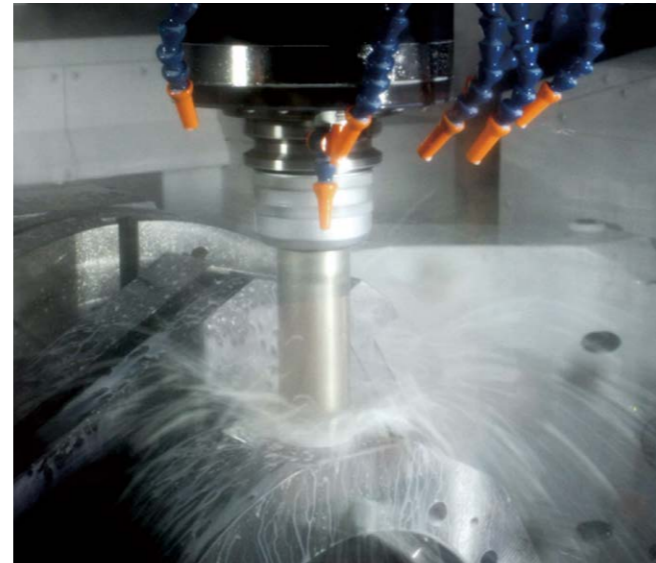
Previous recommended number of tunings	12 times/year	Manual work	1 hour
5-Axis Auto Tuning System II	5 times/year	5-Axis Auto Tuning System II	15 minutes
	Decreased number of tunings		Adjustment time shortened by 75%

Note: Results will vary depending on the customer's plant environment (temperature, foundation).

High productivity

Increase in productivity by shortening machining time with highly efficient machining

Machining time shortening with unparalleled machining capacity



Machining capacity

Milling (workpiece material: S45C)

Face milling

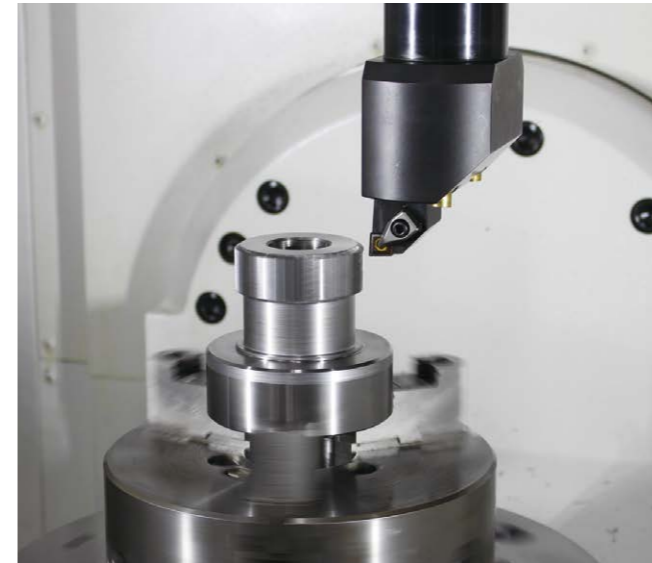
End milling

	MU-4000V	MU-5000V/6300V/8000V
<Actual data> Chip volume	487 cm³/min	504 cm³/min
Tool	ø80 face mill 8-blade (coating)	
Spindle speed	1,193 min ⁻¹	895 min ⁻¹
Cutting speed	300 m/min	225 m/min
Feed rate	2,900 mm/min	2,250 mm/min
Depth × width	3 × 56 mm	4 × 56 mm

	MU-4000V	MU-5000V/6300V/8000V
<Actual data> Chip volume	504 cm³/min	672 cm³/min
Tool	ø20 roughing end mill 7-blade (carbide)	
Spindle speed	4,000 min ⁻¹	4,000 min ⁻¹
Cutting speed	251 m/min	251 m/min
Feed rate	3,600 mm/min	4,800 [2,800] mm/min
Depth × width	7 × 20 mm	7 × 20 [20 × 12] mm

Note: The contents in brackets are machining conditions for the MU-6300V.

Highly efficient process integration with turning capacity almost equivalent to a lathe (turning specifications)



Turning (workpiece material: S45C)

MU-4000V-L

MU-5000V-L/6300V-L/8000V-L

<Actual data>

Cutting area **3.0 mm²**

Cutting speed	150 m/min	130 m/min
Depth	5 mm	
Feed rate	0.6 mm/rev	

Note: The "actual data" referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting conditions, and others.

Standard spindle

MU-4000V
No. 40 spindle

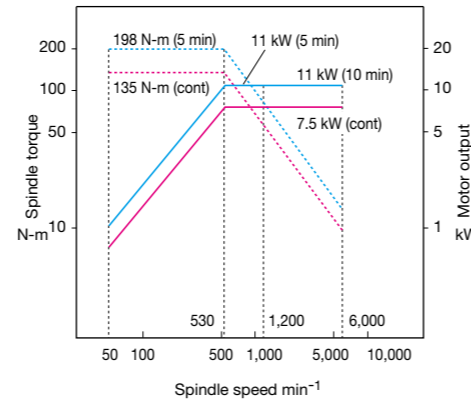
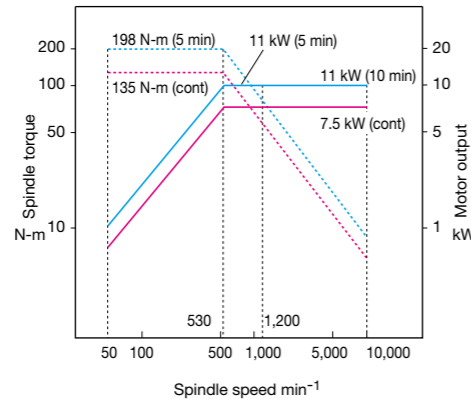
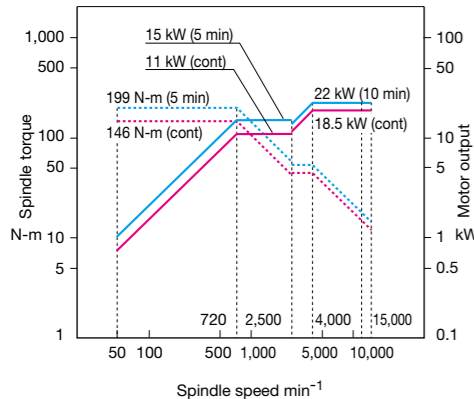
MU-5000V/MU-6300V/MU-8000V
No. 40 spindle

MU-5000V/MU-6300V/MU-8000V
No. 50 spindle

- Spindle speed 15,000 min⁻¹
- Max output 22/18.5 kW (10 min/cont)
- Max torque 199/146 N-m (5 min/cont)

- Spindle speed 10,000 min⁻¹
- Max output 11/7.5 kW (10 min/cont)
- Max torque 198/135 N-m (5 min/cont)

- Spindle speed 6,000 min⁻¹
- Max output 11/7.5 kW (10 min/cont)
- Max torque 198/135 N-m (5 min/cont)



Turning spindle

MU-4000V-L

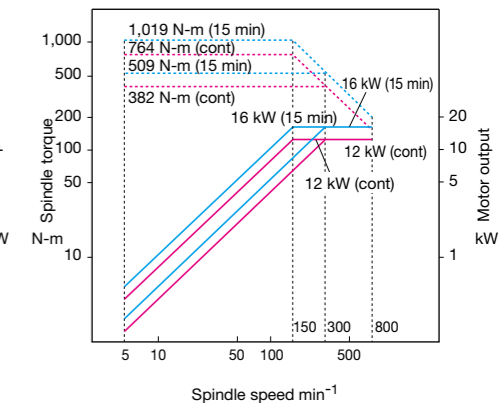
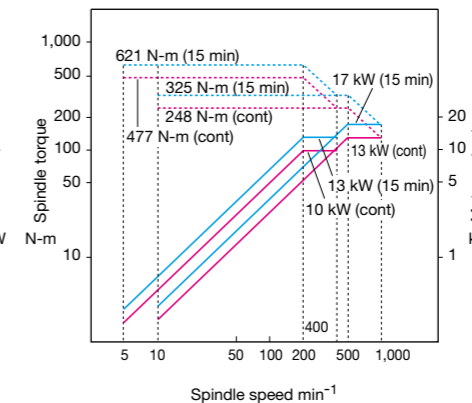
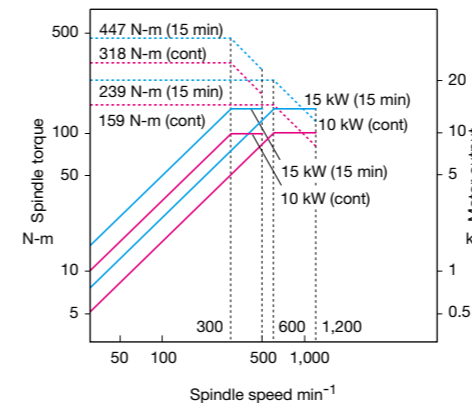
MU-5000V-L

MU-6300V-L/MU-8000V-L

- Table rotation speed 1,200 min⁻¹
- Max output 15/10 kW (15 min/cont)
- Max torque 447/318 N-m (15 min/cont)

- Table rotation speed 1,000 min⁻¹
- Max output 17/13 kW (15 min/cont)
- Max torque 621/477 N-m (15 min/cont)

- Table rotation speed 800 min⁻¹
- Max output 16/12 kW (15 min/cont)
- Max torque 1,019/764 N-m (15 min/cont)



High productivity Extensive machining solutions that make all kinds of machining easy and convenient

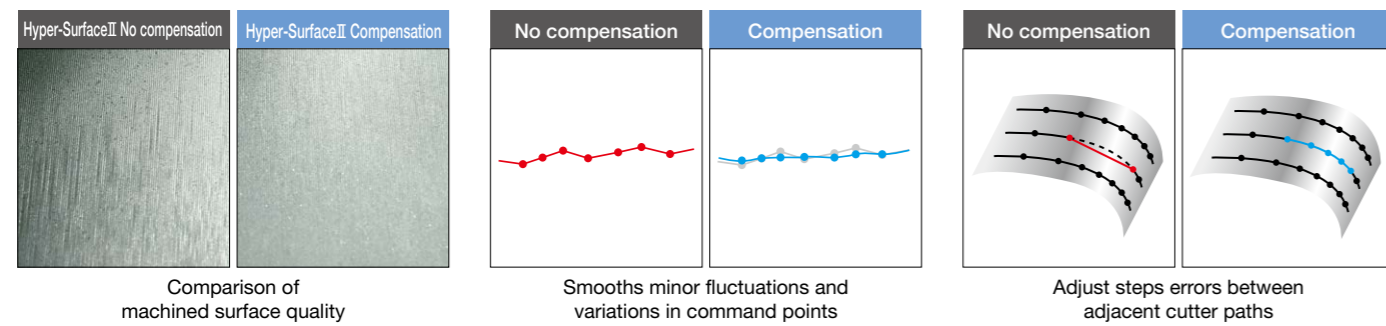
Okuma's advanced technologies deliver real results on the production sites

Improves the machined surface quality of dies and free-form surfaces.

Hyper-SurfaceII option

No need to modify NC data. Ridgelines and uneven surface edges are reduced, the machined surface quality is improved, and hand-polishing time is eliminated. Hyper-Surface automatically compensates for fluctuations in the CAM NC data, and for positional misalignment between edges and adjacent cutter paths. In addition, SMART for finishing suppresses vibration without reducing the speed at the corners, reduces the cycle time and improves the surface quality.

Notes: The effect varies depending on the machining shape.

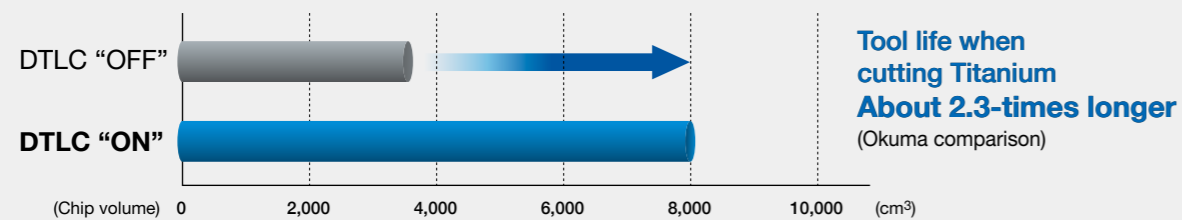


Prevents chipping, extends tool life

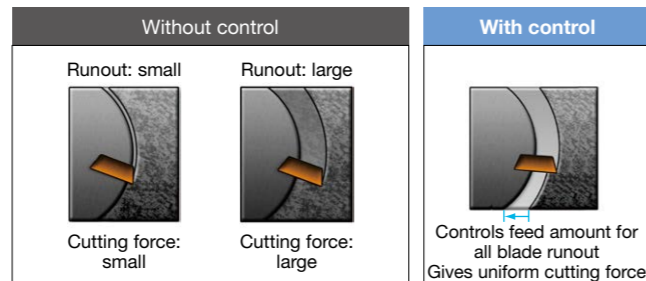
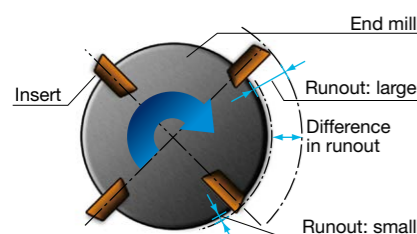
Dynamic Tool Load Control option

When machining of difficult-to-cut material, chipping from blade runout often occurs with insert-type end mills. To stabilize such machining, solid end mills with high tool costs have generally been used. Dynamic Tool Load Control gives uniform cutting force with advanced synchronization of spindle phase and feed rate to control insert-type end mill chipping. This improves tool life and stabilizes machining. Switching from expensive solid tools also leads to reduced tool costs.

[Actual data] Chip volume per tool under the same cutting conditions (tool life)



<Runout of insert-tipped end mill>

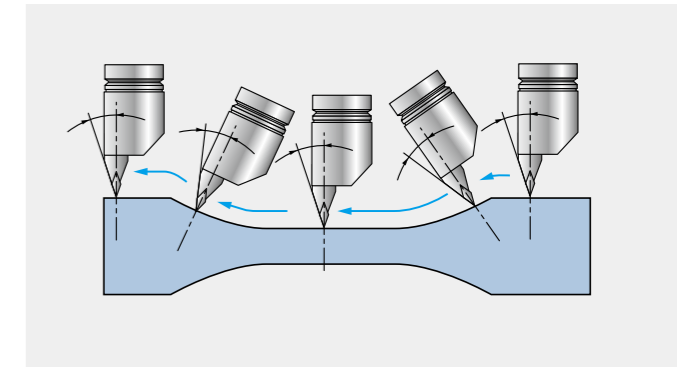
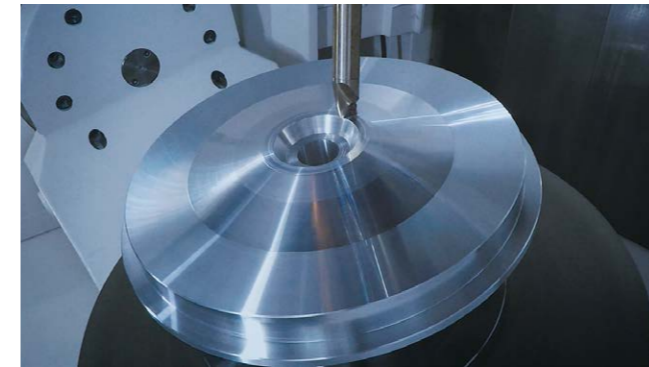


Note: The "actual data" referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting conditions, and others.

Turning of curves with a single tool to eliminate boundary errors

Dynamic tilt turning option

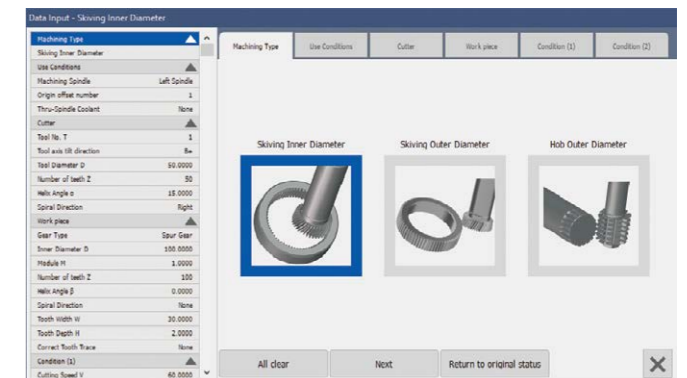
The trunnion table swivel axes and feed shaft of 5-axis machining centers are controlled simultaneously to achieve turning of curves, without boundary errors, with a single tool. With dynamic tilt turning, the angles of axes can be controlled with a simple program according to the curve. This ensures that the orientation of the cutting edge is constantly optimized, enabling the machining of curves without tool changes. When cutting a curve, machining can always be done at the best tool angle, to eliminate ridges and get uniform quality.



High-accuracy gear cutting without a dedicated machine

Gear Machining Package option

High-accuracy gear cutting can be performed using a 5-axis machining center. The Gear Machining Package makes it possible to create a program easily by just entering the tool type, gear specifications, and machining conditions. None of the advanced programming skills required for conventional gear cutting are required. As a result, the program creation time can be reduced to about one-tenth the time required for manual entry. Process-intensive machining is achieved, including the gear cutting that used to be done on expensive special-purpose machines.



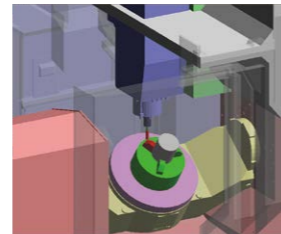
Programs can be created by just entering the tool type, gear specifications, and machining conditions.

Okuma's advanced technologies deliver real results on the production sites

You can focus on machining with peace of mind—without worrying about collisions—and shorten the machining preparation time

Collision Avoidance System Collision prevention option

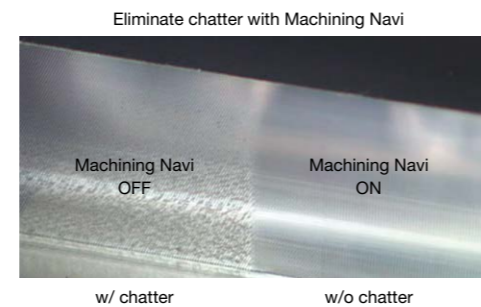
The NC controller (OSP), which has 3D model data of the machine components, performs real-time simulations just ahead of actual machine movements. CAS checks for interference or collisions and prevents collisions in automatic or manual mode by stopping machine movements immediately before collisions occur. It protects the machine from the risk of collisions and provides operators with a great sense of security.



Suppress costs and eliminate chatter

Machining Navi Cutting condition search option

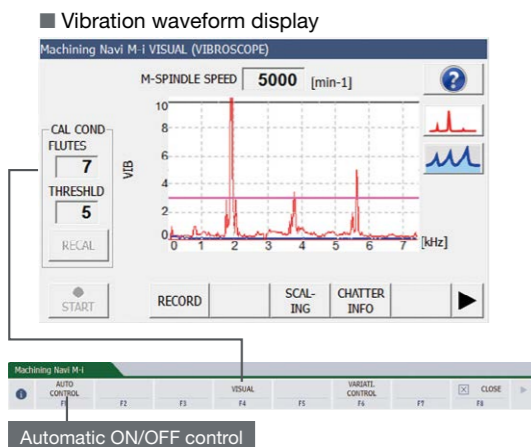
When chatter occurs, general methods to resolve the problem have been to either lower cutting conditions at the expense of productivity, or to use special chatter-resistant tools at some cost. Machining Navi instantly searches for the optimum cutting conditions and “visualizes” the machining status to help maximize machine and tooling capabilities, and provide improvements in productivity.



Machining Navi M-i (Intelligently optimized spindle speed control)

Automatically changes to optimum spindle speed

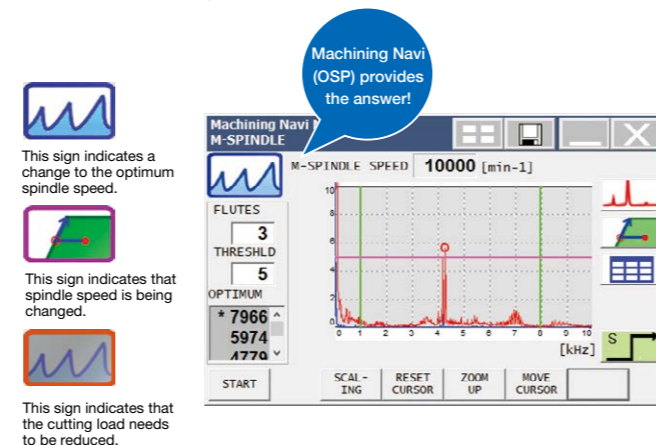
Chatter vibration is measured by built-in sensors, and Machining Navi automatically changes spindle speed to the optimum speed.



Machining Navi M-gII+ (Optimum spindle speed/harmonic spindle speed control)

Adjust cutting conditions while monitoring the data

Based on the chatter noise captured by the microphone, Machining Navi displays a number of optimal spindle speed possibilities on the screen. The operator can change to the indicated spindle speed with a single touch and immediately confirm the result.



Achieves long term accuracy and surface quality

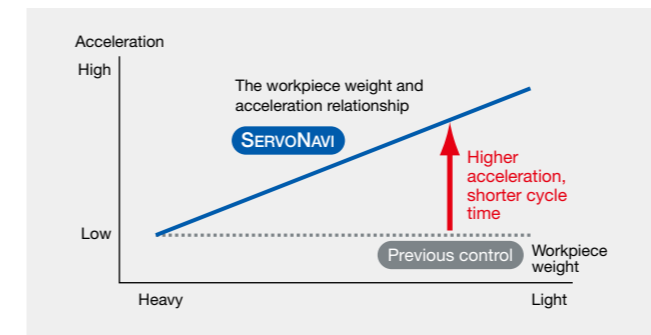
SERVO NAVI Optimized Servo Control

SERVO NAVI AP (Automatic Parameter setting)

Work Weight Auto Setting

Cycle time shortened with faster acceleration

On table travel type machining centers, the table feed acceleration with the previous system was the same regardless of weight, such as workpieces and fixtures loaded on the table. Work Weight Auto Setting estimates the weight of the workpiece and fixture on the table and automatically sets the linear axis servo parameters, including acceleration, to the optimum values. Cycle times are shortened with no changes to machining accuracy.



Rotary Axis Inertia Auto Setting

Maintains high accuracy and stable movements

Depending on the workpiece or fixtures, inertia will vary, and with each variation the rotary axis positioning error in some cases became much larger.

Rotary Axis Inertia Auto Setting is able to estimate inertia from workpiece/fixture acceleration and deceleration, and automatically set the optimum the rotary axis servo parameters to maintain highly accurate and stable machine movements.

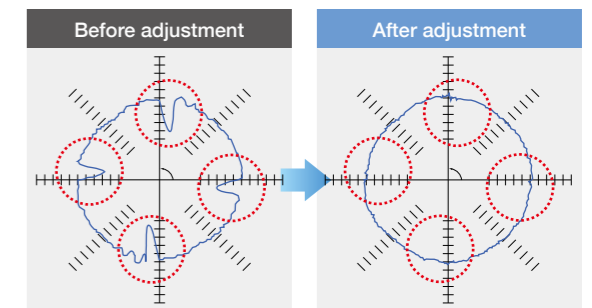
SERVO NAVI SF (Surface Fine-tuning)

Reversal Spike Auto Adjustment

Maintains machining accuracy and surface quality

Slide resistance changes with length of time machine tools are utilized, and discrepancies occur with the servo parameters that were the best when the machine was first installed. This may produce crease marks at motion reversals and affect machining accuracy (part surface quality). SERVO NAVI's Reversal Spike Auto Adjustment maintains machining accuracy by switching servo parameters to the optimum values matched to changes in slide resistance.

Comparison of DBB measurements



Vibration Auto Adjustment

Contributes to longer machine life

When aging changes machine performance, noise, vibration, crease marks, or fish scales may appear. Vibration Auto Adjustment can quickly eliminate noise and vibration even from machines with years of operation.

Realize adherence to production plans and reduction of maintenance costs

AI Machine Diagnosis Function option

AI installed in the control system detects abnormalities in the spindle and feed axes before they lead to issues, preventing prolonged machine downtime and enabling stable, long-term production.

The operators themselves can easily diagnose the machine by following simple screen guidelines on the Okuma control.

Notes: AI diagnostic models are already installed, and diagnoses can be performed by the machine itself. AI diagnostic models can be updated through Okuma's Connect Plan. Feed axis diagnosis is for linear axes. With AbsoScale detection specs, ball screw wear detection is possible.

Reduced tool change time by shortening residual coolant discharge time

Suction of excess coolant in spindle option

Removes residual coolant from the tool and inside the spindle in a short amount of time.

With in-spindle coolant suction, there's no need for air blow (which typically takes at least 15 seconds) to remove residual coolant from the tool and spindle—significantly reducing tool change time.

The generation of mist by air blowers and the removal of residual coolant from the machining area are eliminated to prevent deterioration of the working environment. The number of cleanings can also be reduced to lessen operator workload.

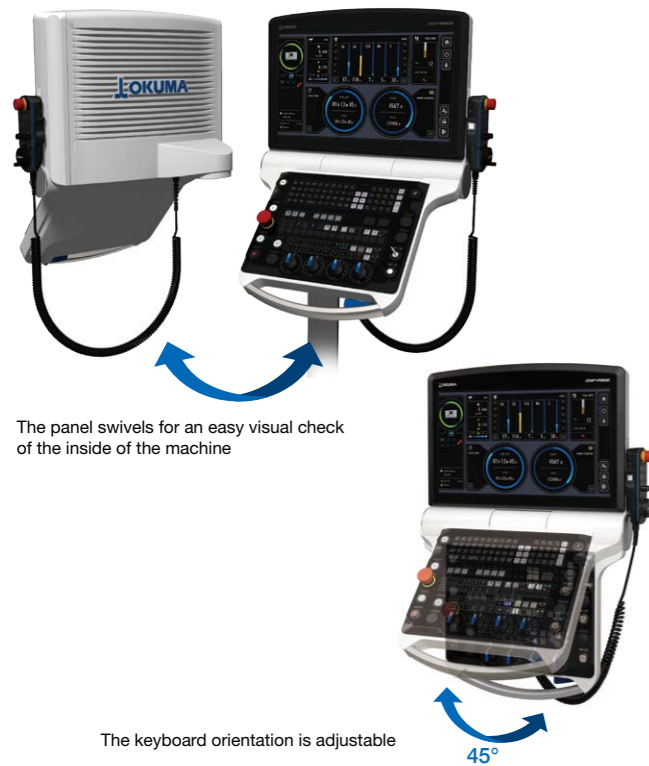
Ease of use in consideration of harmony between people and machines

MU-4000V



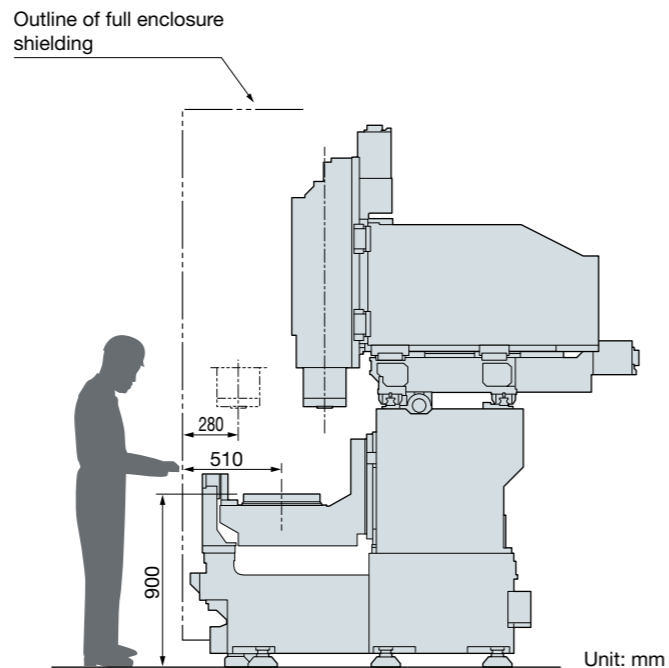
1 User-friendly operation panel that pursues visibility and ease of use

A swivel 21.5-inch operation panel that can be tilted is adopted as a standard to allow it to be operated smoothly according to the body height of the operator.

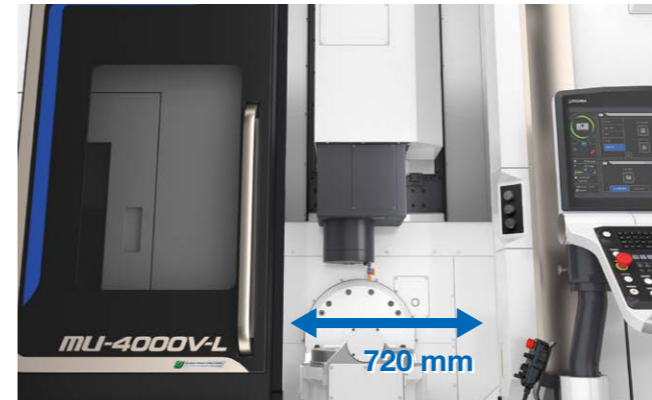


2 Good access reduces operator burden

Good access of 510 mm to the center of the table is achieved by approaching from the trunnion axial direction. Access to the spindle is also good, reducing operator burden during machining preparation and increasing work efficiency.



3 Easy setup work with a spacious, wide opening



4 Large window for good visibility in machining chamber



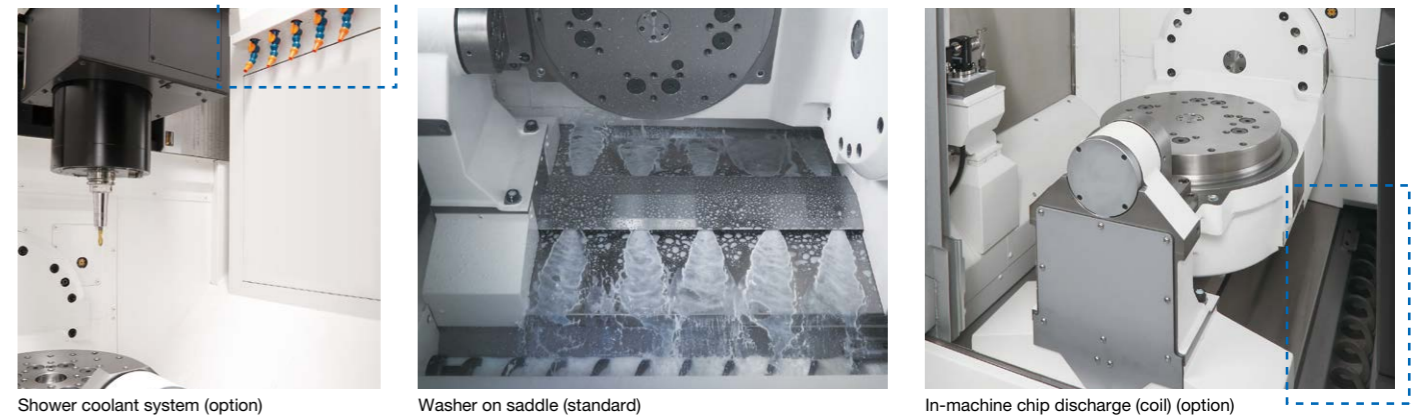
5 Good visibility regardless of the table angle

B/C-axis table structure that ensures the visibility of workpieces on the table tilted to the maximum.



Reduction of the chip discharge operation with smooth washing

Shower coolant and washing on saddle smoothly discharge chips from workpieces and the workspace area to reduce the cleaning work by operators.



Ease of use in consideration of harmony between people and machines

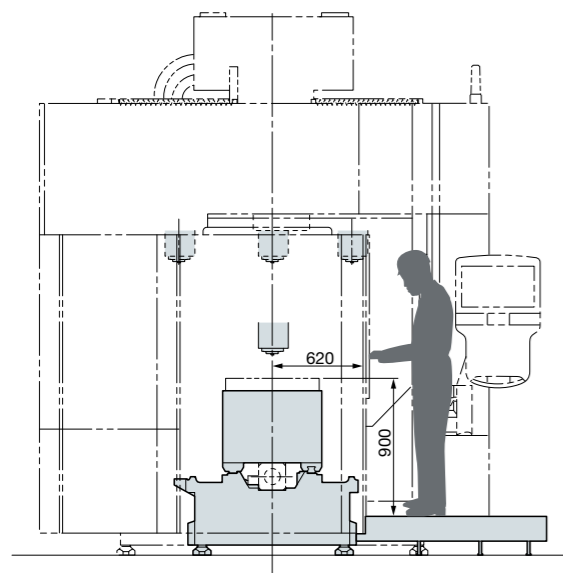
MU-5000V
MU-6300V
MU-8000V



1 User-friendly operation panel that pursues visibility and ease of use

A swivel 21.5-inch operation panel that can be tilted is adopted as a standard to allow it to be operated smoothly according to the body height of the operator.

2 Easy access to the spindle, workpiece, and operation panel with a layout that takes ease of use into account



Unit: mm

3 Large step platform for easy working

Operating stress reduced with a large platform at least 1,000 mm deep and wide so operators do not have to worry about their footing.



4 Loading and unloading large parts is easy with a spacious, wide opening



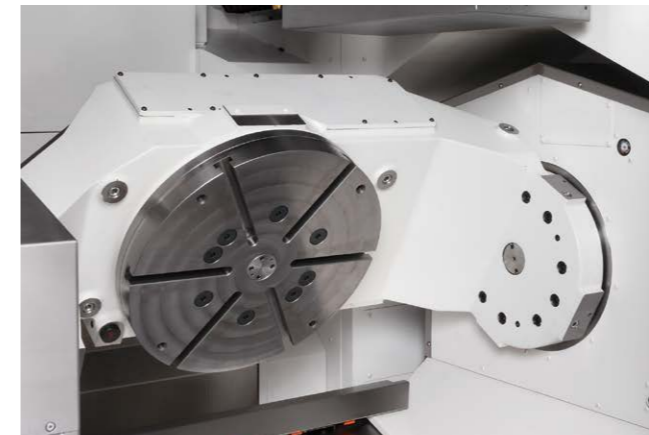
Door front opening width	
MU-5000V	868 mm
MU-6300V	1,000 mm
MU-8000V	1,207 mm

5 Large window for good visibility in machining chamber



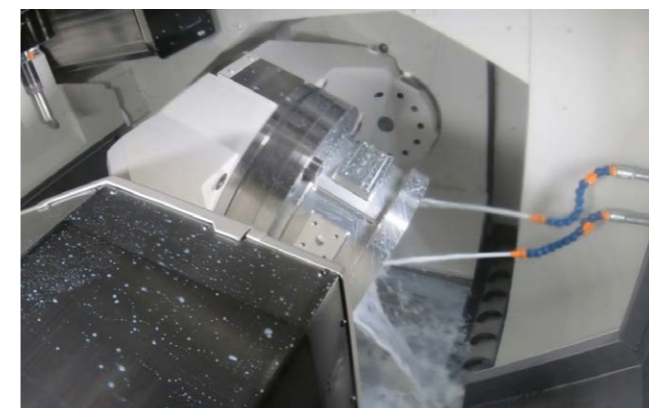
6 Good visibility regardless of the table angle

A/C-axis table structure that allows confirmation of the workpiece status at an angle of 120°.



Reduction of the chip discharge operation with smooth washing

The table is swung to wash away chips inside workpieces.



In-machine workpiece wash nozzle (option)

Quick and smooth chip discharge with saddle-mounted washer and in-machine coil chip conveyor.



Washer on saddle (standard)

Reduce intervention by operators during machining to reduce their workloads

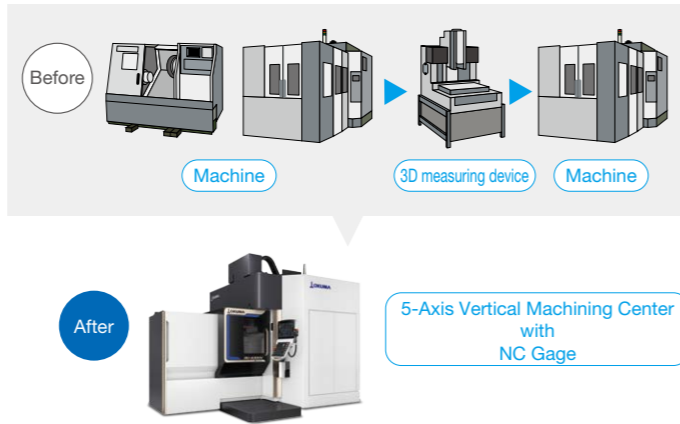
Three-dimensional measurement is completed with the 5-axis machining center to significantly reduce lead times

NC Gage option

Dimensions such as hole position and flatness, as well as geometric accuracy, can be measured directly on the machine. This eliminates the need for workpiece transport, loading/unloading, and setup changeovers for each measurement point—significantly reducing lead time. Over 20 types of geometric tolerance and positional dimension measurements are supported, with intuitive teaching enabling automatic generation of measurement programs. Measurement results can be utilized for quality control, and reports can be saved.



MU-5000V is pictured.



Realizes space-saving storage of enough tools for long-run operation

Matrix magazine option

With a diverse lineup from chain magazines to matrix magazines, operators can prepare the necessary numbers of tools and spare tools. Even if a tool malfunction occurs, a spare tool can be used, enabling long-run operation without operator intervention.

- Standard specifications Chain magazine: 32 tools
- Optional specifications 48 or 64 tools: chain magazine system Over 64 tools: matrix magazine system Short frame: 64, 98, 132, or 166 tools Long frame: 200, 234, or 268 tools



Matrix magazine * Photographed without front covers

MU-4000V Matrix magazine specifications (short frame)

MU-6300V Matrix magazine specifications (short frame)

Workpieces of various shapes are automatically loaded and unloaded, with extra ports for complex hydraulic/pneumatic fixture arrangements

Hydraulic and pneumatic fixture preps (Max ports: 8 ports*) option

The machining chamber is equipped with ports for supplying hydraulic and pneumatic pressure to up to 8 fixtures. This has made it possible to flexibly use fixtures and automatically load and unload workpieces of various shapes.

Note: The number of ports for turning or APC applications differ.

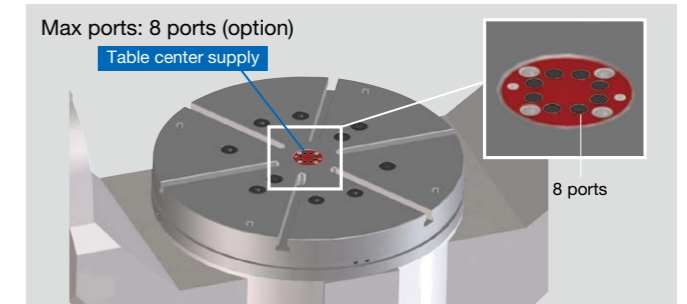
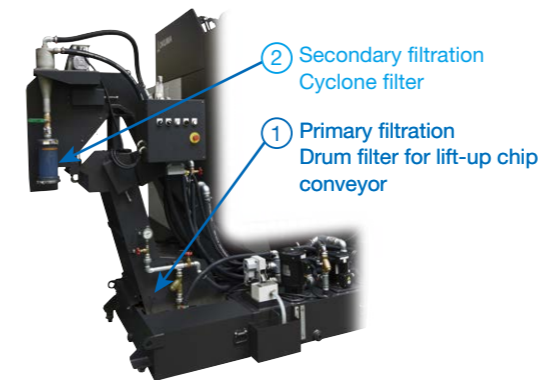


Illustration shows MU-6300V

Coolant maintenance work is significantly reduced The environmental impact of coolant disposal is also minimized

Sludgeless Tank option

The Sludgeless Tank continuously circulates cutting fluid within the tank, efficiently collecting sludge to prevent accumulation and significantly reducing issues and maintenance work. This significantly reduces the frequency of tank cleaning, enabling stable operation over long periods and improving productivity. It also extends the cutting fluid's lifespan, helps prevent spoilage and odors, and creates a better working environment. Furthermore, reducing the frequency of cutting fluid changes decreases industrial waste and lessens the environmental impact.



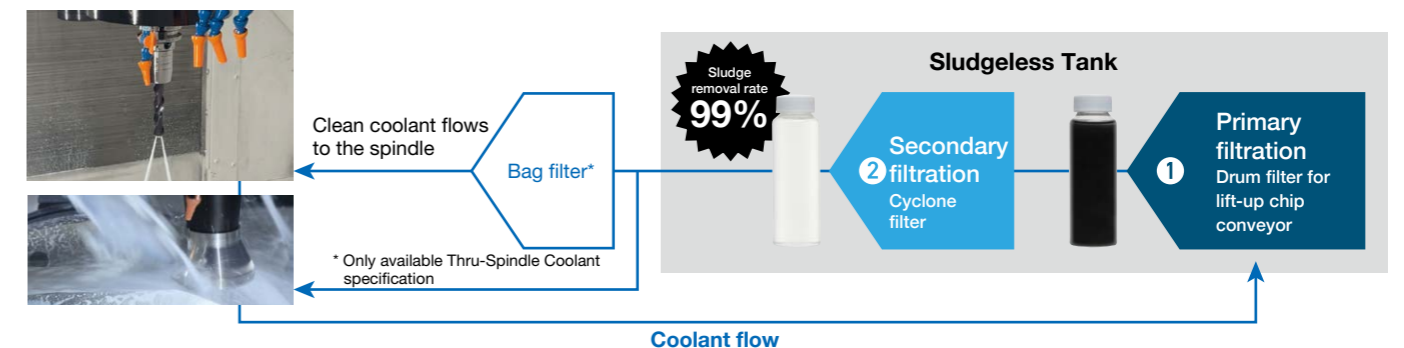
Tank structures vary by model or specification.

Sludge removal rate
99% (when the material is casting and aluminum)
Notes: After secondary filtration (cyclone filter) permeation Okuma evaluated removal rate

No tank cleaning for 3 years
(Okuma equipment actual data)

No coolant replacement for 3 years
(Okuma equipment actual data)

Note: If the Sludgeless Tank is chosen, it is necessary to select a hinge + scraper chip conveyor with a drum filter.



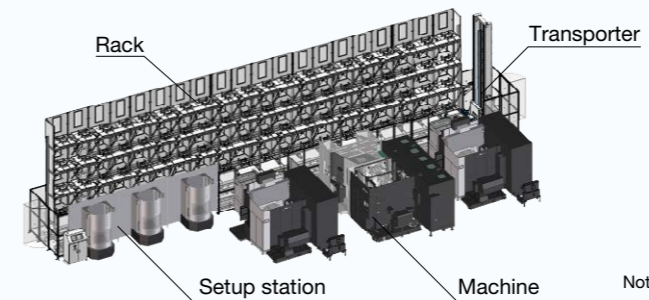
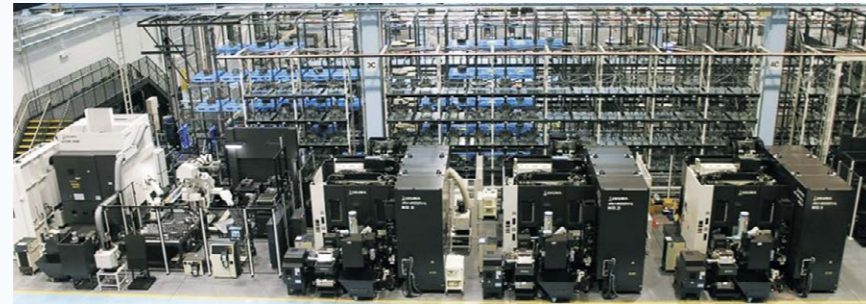
Automation for a wide variety of pallet transport

Flexibly handles high-mix, low-volume production. Improves the machine operating rate to realize long-run unattended continuous operation

Long-run operation



FMS

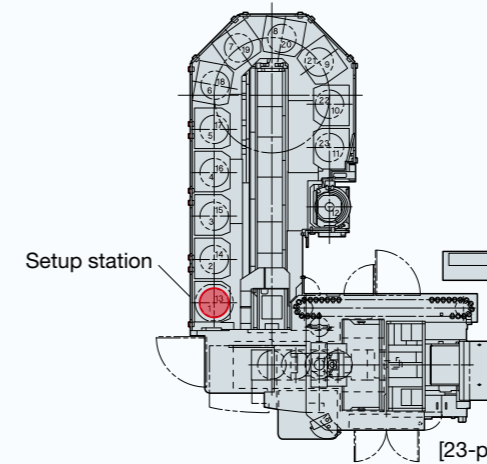


Note: Please contact us for the number of pallets stocked and layout.

Multi-pallet APC

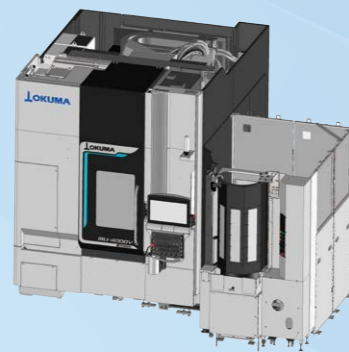


MU-6300V + Elevating 2-level APC

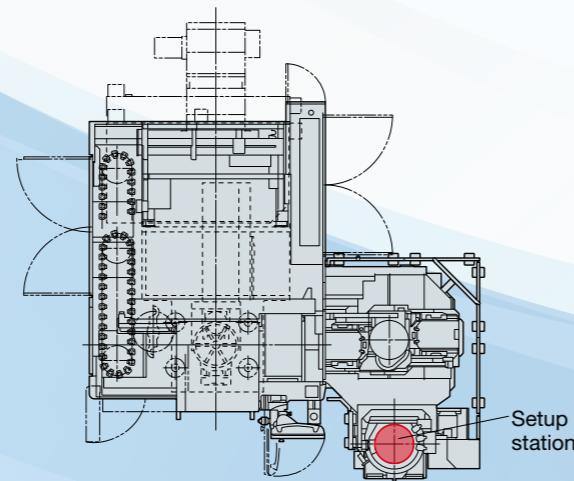


Note: The illustration is for the MU-6300V. The number of pallets handled and floor space vary depending on the model, specifications, and workpiece size.

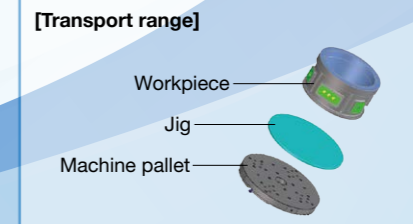
2-pallet APC



MU-4000V+2-pallet APC



Installation of an auto pallet changer (APC) reduces the non-operating time and maximizes efficiency. This is effective for increasing the flexibility of production. While machining is underway on one pallet, the next workpiece can be set on another pallet so that the next workpiece can be started on as soon as the previous machining is completed. This reduces the machine downtime and enables unattended continuous operation even at night. As operators can perform other work while machining is underway, high productivity can be maintained with a small number of personnel. High-mix, low-volume production can be handled by setting different workpieces and jigs on multiple pallets. We offer a variety of automatic systems with different numbers of pallets according to your production system.



An automated system with stable dimensional accuracy enhances productivity



Thermo-Friendly Concept

The Okuma Intelligent Technology that enables machines to autonomously maintain high accuracy stability

The MU-V series, equipped with the Thermo-Friendly Concept, provides exceptional accuracy stability, enabling consistent dimensional precision even during extended continuous machining. Even in automated systems composed of multiple machines, dimensional variation between units is minimal, reducing the workload for dimensional control and contributing to increased productivity.

Machining operation rate improved by performing workpiece setup work on another pallet during machining

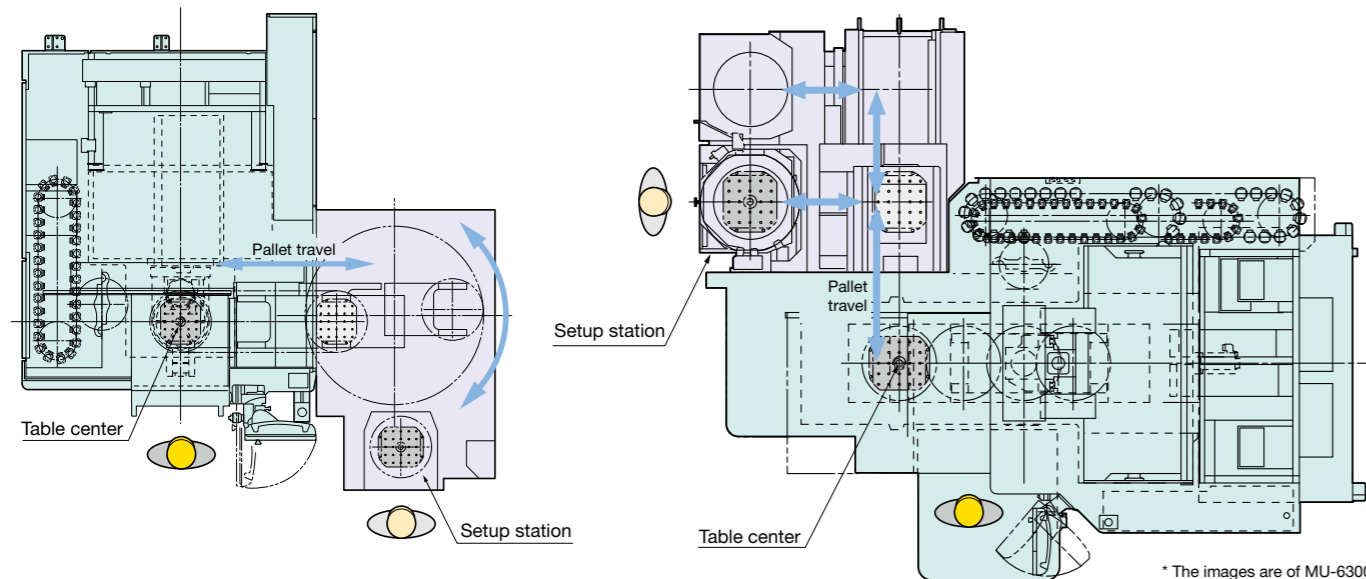
Auto pallet changer option

The MU-4000V has a pallet changer at its front right side, and the MU-5000V/6300V/8000V has a pallet changer at its rear left side. These are systems that automatically change the pallets.

Working space is secured at the front of the machine, enabling machine operation via an easy-to-use layout. Workpiece setup work can be performed while machining is underway, which reduces machine downtime and increases the operation rate. It is selectable also with turning specifications.

MU-4000V 2-pallet APC specs

MU-5000V/6300V/8000V 2-pallet APC specs



APC specs Max workpiece dimensions and max load capacity of machine (for all APC specs)

Table size	Model	Workpiece size (mm)	Max load capacity (kg)
ø400 mm	MU-4000V	ø500 × H330	200
ø500 mm	MU-5000V	ø700 × W500 × H390	400
ø630 mm	MU-6300V	ø830 × W794 × H390	450
ø800 mm	MU-8000V	ø1,000 × W794 × H450	550

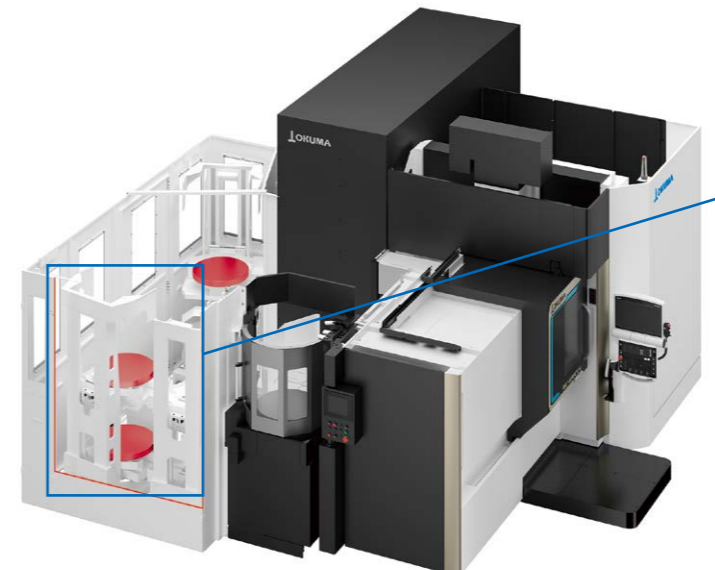
A large number of space-saving pallets can be installed

Elevating 2-level APC option

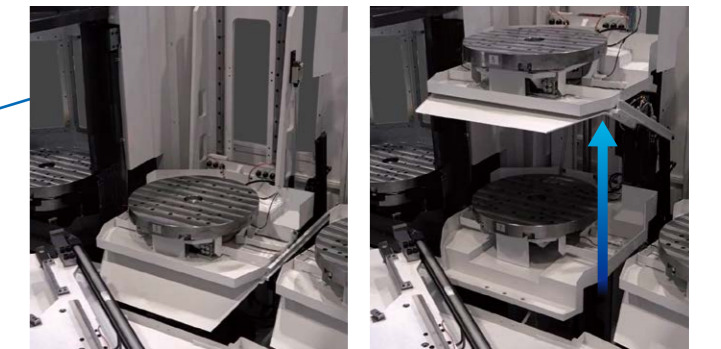
The stationary pallet station moves up and down to change pallets. The number stocked can be increased within the same installation space as for the flat-placing type. The 2-level APC can handle 3- to 23-pallet* stockers.

* The number of pallets it can handle varies depending on models.

- 7-pallet specs
- Space saving with elevating 2-level pallets



Elevating stationary pallet station (upper and lower stage) tower APC that saves space compared with a flat-placing type.



When lowered

When raised

Note: The cover is partially omitted.

Number of pallets handled by elevating 2-level APCs

Model	Number of pallets handled
MU-4000V	4/6/7/10/18/22 pallets
MU-5000V	3/5/7/11/19 pallets
MU-6300V	3/5/6/7/11/19/23 pallets
MU-8000V	3/5/6/7/11/19*/21* pallets

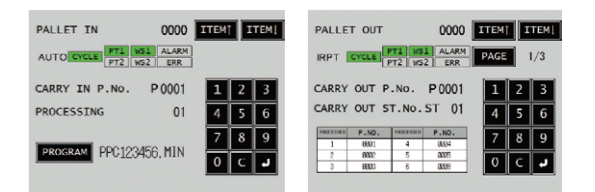
* When selecting an APC for a max workpiece diameter of ø1,000 mm (option)
When selecting an APC for a max workpiece diameter of ø1,000 mm, a matrix magazine is required.

Pallet Pool Control (PPC)

With multi-pallet APC specs, pallets are stored in the pallet magazine, and pallet transport with the machine is performed via the PPC operation panel included with the automatic pallet changer.

The order of machining is determined by the order in which the workpieces are set on the pallets by the operator, and the machine selects the pallets one after another for cutting without stopping.

The order of machining can be changed to handle urgent workpieces.



Note: The PPC operation panel is not included with the 2-pallet APC.

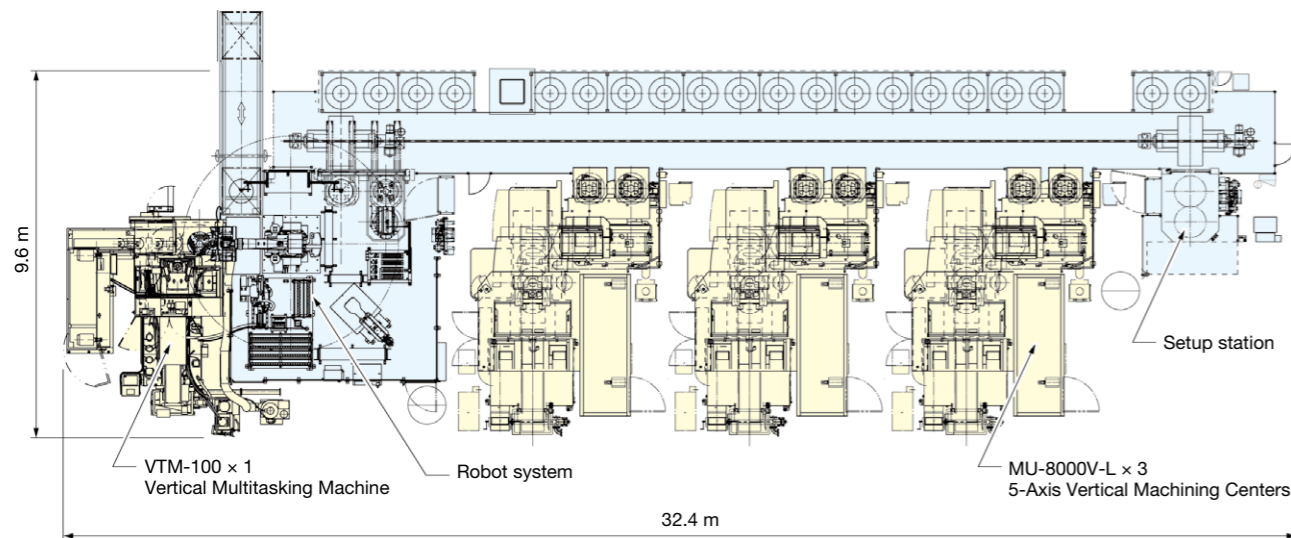
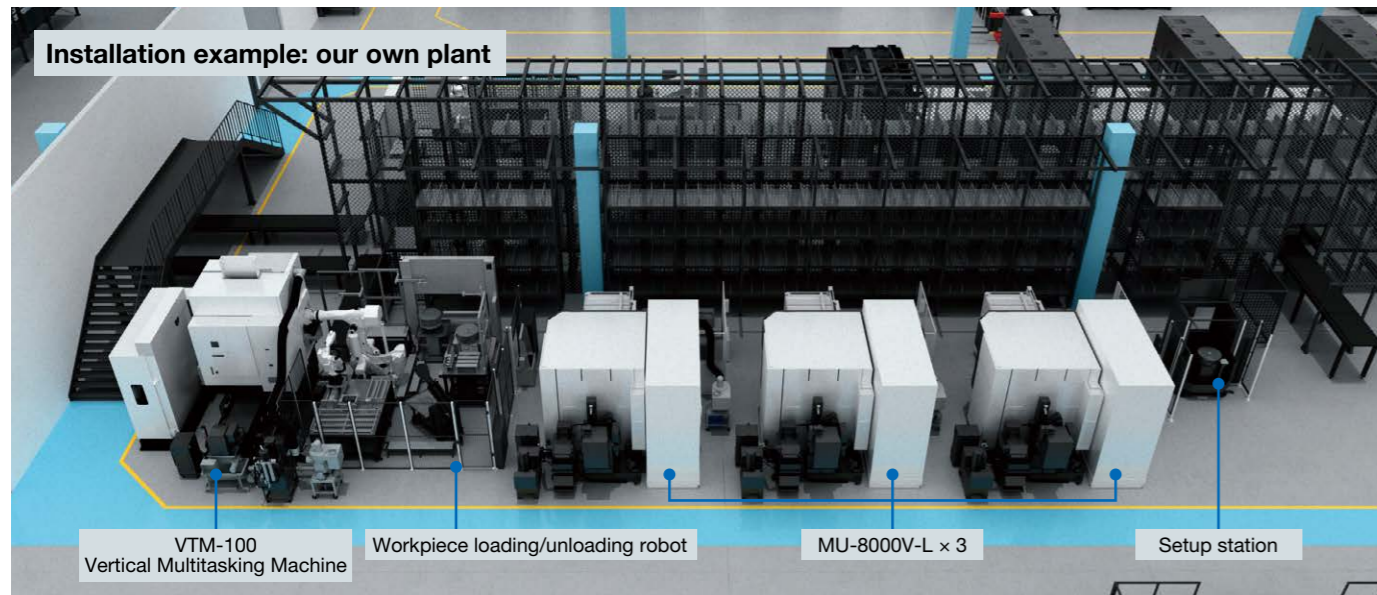
Automation Flexible automation that matches the customer's production form

Automation system that meets a wide range of needs, from mass production to high-mix, low-volume production

One production line handles high-mix production with the combination of a large-scale rack and mixed models

FMS

It combines a transporter with back-and-forth travel and up-and-down elevating functions and a large-scale pallet rack. One production line can handle high-mix production. This realizes increased long-run automatic operation.

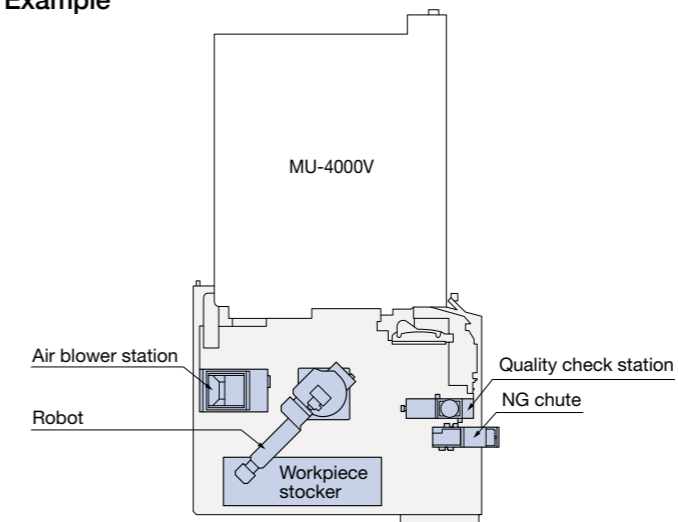


Highly versatile and applicable to high-mix workpieces

Robot system option

The system is highly versatile and widely applicable to high-mix workpieces and can meet the needs of customers who want to automate even high-mix, low-volume production or want to automate measurement, cleaning, and other tasks in addition to workpiece loading and unloading. The layout of peripheral devices can be set freely, and it is possible to transfer workpiece between different types of machines such as a lathe and a machining center. An automated cell with a high degree of freedom can be configured according to the customer's production operation.

MU-4000V Example



Peripheral device

NG chute

This device discharges materials and unmachined workpieces judged to be NG by seating detection. Each NG item is carried off on the inclined chute and its own weight causes it to be ejected.



Quality check station

This device discharges machined products for quality check.



Air blower station

This device performs air-blowing cleaning of machined products. It cleans workpieces inside the device while gripping them with air-blowing to remove coolant and chips adhering to machined items.



Note: Peripheral devices are for illustrative purposes only.

A next-generation CNC that makes customer manufacturing DX (digital transformation) a reality

OSP-P500

Improved productivity and stable production

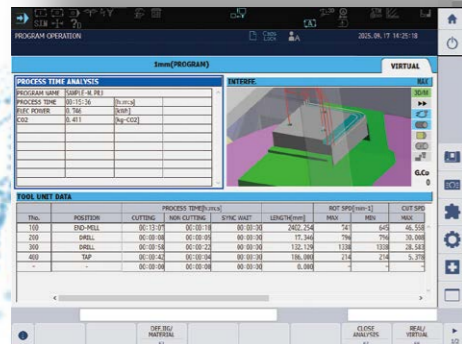
As Your Single Source for M-E-I-K (Mechanics - Electronics - IT - Knowledge) merging technologies, Okuma offers this CNC to build an advanced “digital twin” that faithfully reproduces machine control and machining operations and creates new value.

Featuring ease of use that allows anyone to easily start machining and create a program with high productivity, the product helps improve productivity and realize stable production. Additional features are: control technology that achieves high-speed and high-accuracy machining and robust security functions to protect against the increasing threat of cyber attacks.

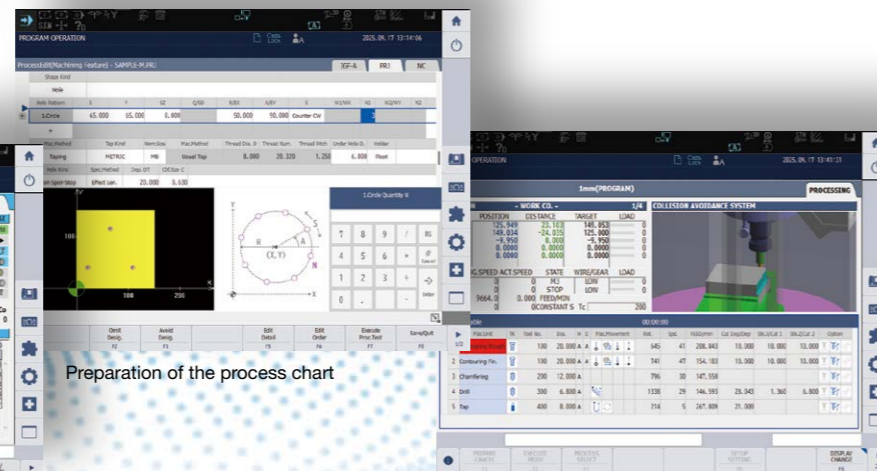
21.5-inch operation panel



Home screen



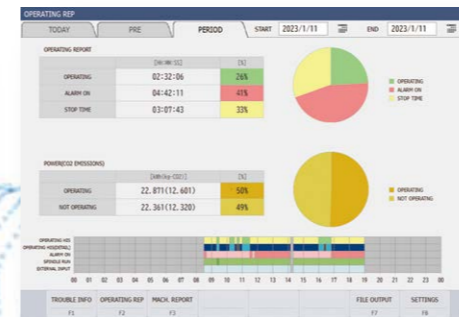
Virtual machining



Preparation of the process chart

Operation with the process chart

- 1 Faithful digital reproduction of machines and processes
 - | Ground-breaking concept of a digital twin
- 2 Easy creation of high-productivity programs without programming knowledge
 - | Innovative operability
- 3 Realizing high-speed and high-accuracy machining
 - | Revolutionary control technology
- 4 Increasing cyber resilience
 - | Robust security



MacMan plus

CNC Significant increase in productivity are achieved through advance machining simulations (front loading) in order to reduce machinery downtime

OSP-P500 A next-generation CNC that makes customer manufacturing DX (digital transformation) a reality

1 Faithful digital reproduction of machines and processes

Digital twin option

Ground-breaking concept of a digital twin

Okuma's digital twin faithfully simulates a virtual machine, offering control equivalent to that in a real environment, by using the latest machine operation data and 3D models. Through super high-speed and high-accuracy simulation based on the features of Okuma, which is a machine tool manufacturer that produces NC control in-house, the digital twin calculates cycle time, machining shape, and electricity consumption. It supports accurate estimates of cycle time, development of the machining schedule, and quick and accurate estimates of delivery time and costs when an order is received.

Two digital twin systems are made possible by using an office PC and OSP-P500

Simulation using the latest machine information can be achieved with an office PC and OSP-P500 installed on the physical machine. This enables preparation for machining in advance in the office environment (front loading). Preparing machining for the next part while continuing machining can reduce the preparation time for the physical machine. When a problem occurs on the shop floor, it can be solved quickly on site without going back to the office.

Using the latest machine information to support the production plan with high-speed, high-accuracy machining time estimation

Time is estimated accurately to support customer production plans and also solve machining problems quickly in the digital sphere.

Virtual machining

Time is estimated accurately by considering not only axis movements but also peripheral units such as auto tool changers, and collecting real drive data on physical machine movements to give feedback to the virtual machine. In addition, power consumption and carbon dioxide emissions are displayed.

The screenshot displays a software interface for 'PROGRAM OPERATION' with a 'VIRTUAL' mode. It features a 'PROCESS TIME ANALYSIS' table, a 'TOOL UNIT DATA' table, and a 3D model of a workpiece being machined. Labels on the left point to 'Total machining time', 'Total power consumption', and 'Carbon dioxide emissions'. A label on the right points to the '3D model'. A label at the bottom right points to the 'Time for each process' table.

PROGRAM NAME	SAMPLE-M_PRJ	INTERFE.	MAX
PROCESS TIME	00:15:36	[h:m:s]	
REC POWER	0.746	[kWh]	
CO2	0.411	[kg-CO2]	

THD.	POSITION	PROCESS TIME[h:m:s]			LENGTH[mm]	ROT SPD[min-1]		CUT SPD
		CUTTING	NON CUTTING	SYNC WAIT		MAX	MIN	
100	END MILL	00:13:07	00:00:10	00:00:00	2402.254	741	645	46.558
200	DRILL	00:00:08	00:00:05	00:00:00	17.346	796	796	30.008
300	DRILL	00:00:58	00:00:22	00:00:00	132.129	1338	1338	28.583
400	IAP	00:00:42	00:00:04	00:00:00	186.000	214	214	5.378
-	-	00:00:00	00:00:00	00:00:00	0.000	-	-	-

“Okuma's two digital twin systems”

1 Digital Twin On PC*

Simulate shop machines in the office

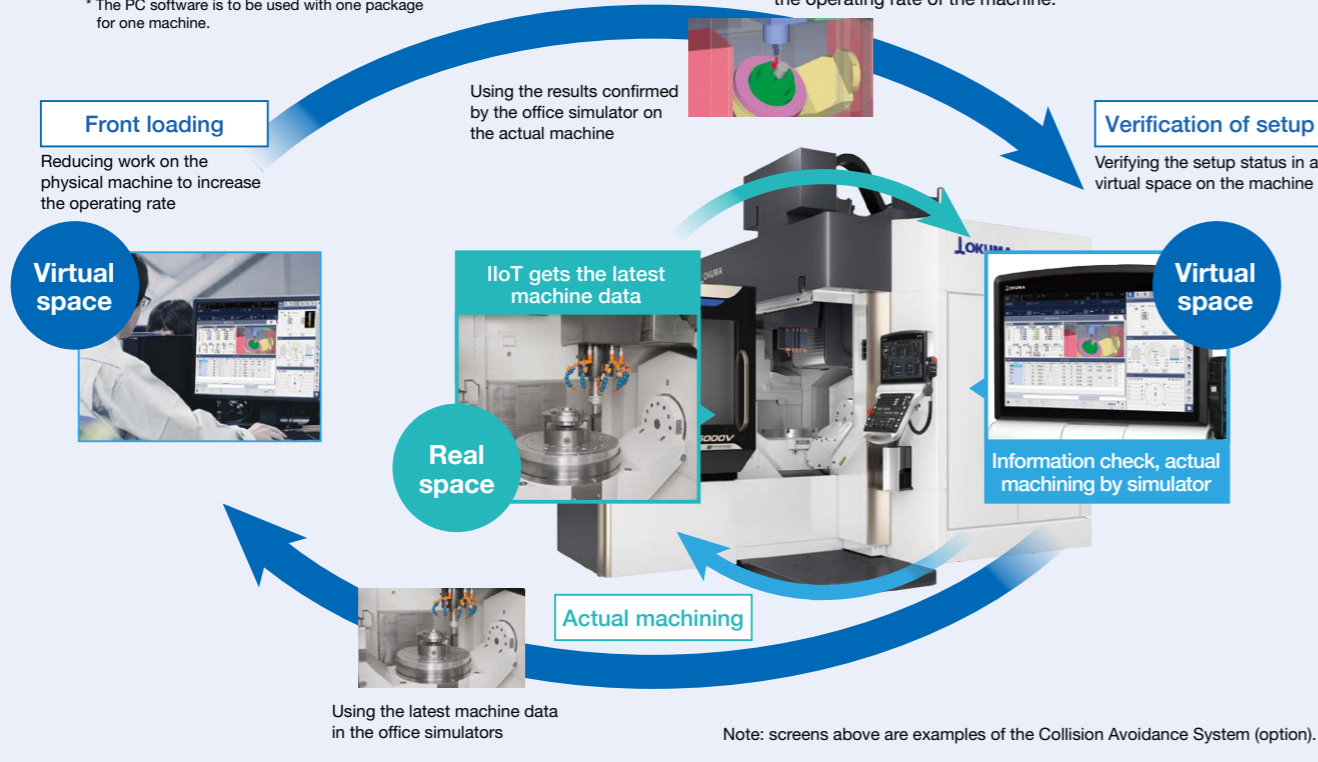
Front loading is performed with the actual status matched with the data on the office PC to further improve productivity. Highly accurate pre-verification minimizes trial and error in first part machining, and reduces machine downtime to the minimum.

* The PC software is to be used with one package for one machine.

2 Digital Twin On Machine

Simulating the CNC of a real machine

Super-fast and super-accurate machining simulations are performed with the CNC of a real machine on-site to minimize machining preparation work. Actual machining can be started immediately, greatly improving the operating rate of the machine.



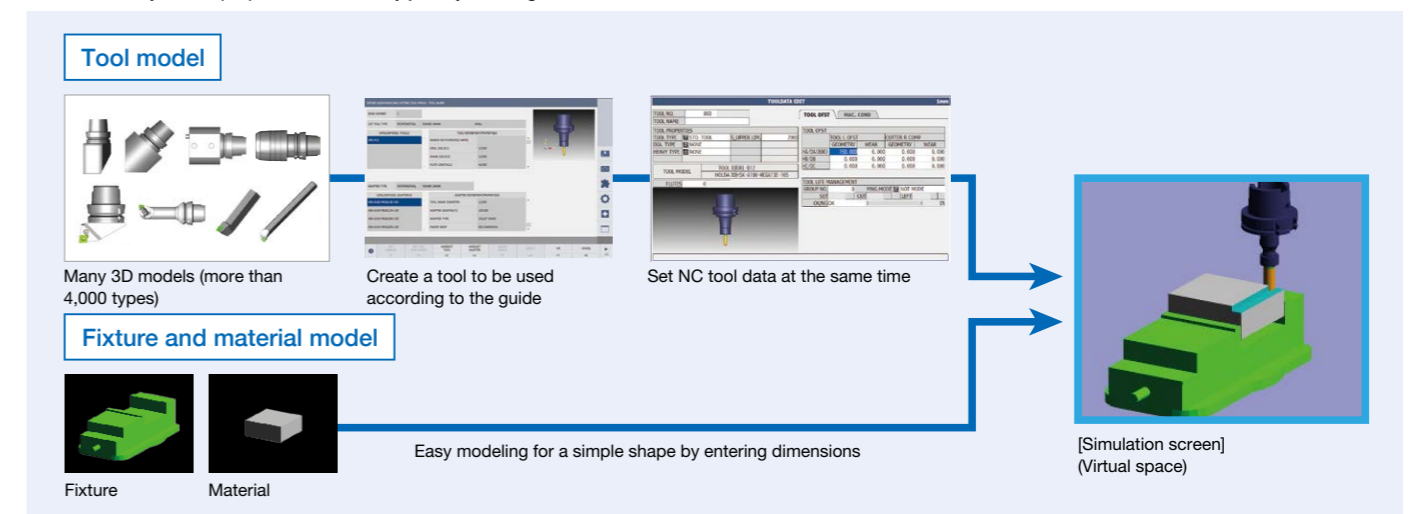
Reducing the burden of the operator with variously 3D models and easy modeling of fixtures and materials

A virtual space for simulation is easily set up.

Quick modeling

Modeling of tools for simulation can be easily prepared. Since 3D models of more than 4,000 types are provided, 3D models prepared in easy modeling before can be prepared easily.

Create a tool to be used by selecting from the variously 3D models according to the guide and set the NC tool data at the same time. For shapes with simple fixtures and materials, you can prepare models easily just by entering the dimensions.



CNC Significant increase in productivity are achieved through advance machining simulations (front loading) in order to reduce machinery downtime

OSP-P500 A next-generation CNC that makes customer manufacturing DX (digital transformation) a reality

2 Easy creation of high-productivity programs without programming knowledge

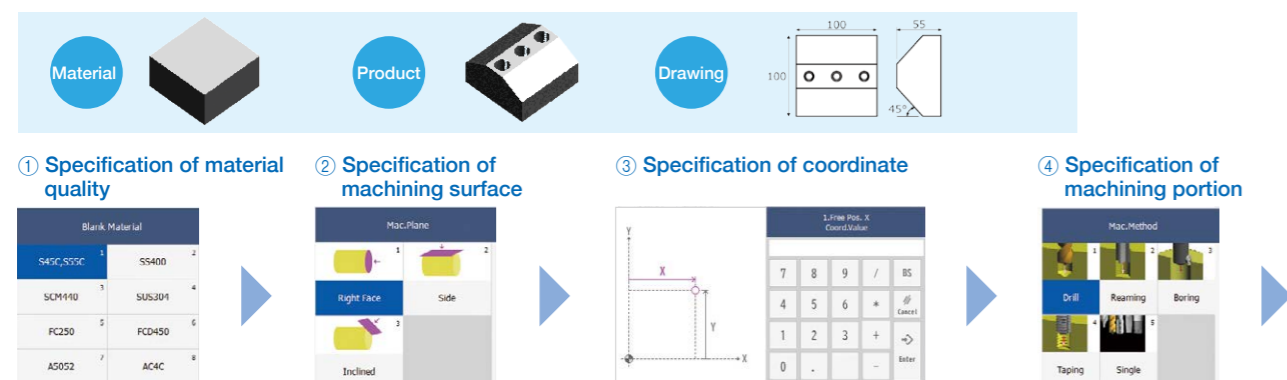
Smart OSP Operation option

Innovative operability

Conventionally, machining operations are programmed with G-/M-code based on drawings. With OSP-P500, however, you only have to follow the guidance to enter drawing information. So you can prepare for machining quickly, even if you have no familiarity at all with the NC program language.

Possible to create programs with an intuitive dialog, without using GM codes

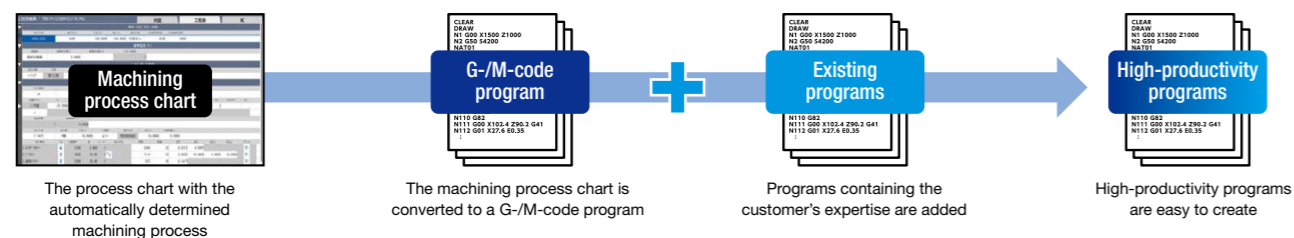
The machining process is created automatically by just following the guide to enter the drawing information. In the case of tapping for example, three machining processes are generated all at once: center hole, drilling, and tapping.



The machining unit is deployed automatically, and the machining conditions are automatically output

Mac.Unit	TK	Tool No.	Dia.	E P	Mac.Movement	Rot.	Spd.	Feed(mm/rev)	Dep.	Dep. 1	Dep. 2	Option
A 5.Center DrillY<		4	4.000	1		2573	32	0.039	5.000			
A 6.DrillY<		5	10.500	1		1061	35	0.089	30.155	2.100	10.500	
A 7.TapY<		6	12.000	1		151	6	1.750	25.250			

High-productivity programs that utilize customer know-how are easy to create



3 Realizing high-speed and high-accuracy machining

Revolutionary control technology

CNC operation performance has been doubled compared to the conventional model (OSP-P300A). The processing capacity and the response speed between control modules have been improved to shorten the machining time. The time for machining general parts can be shortened if the machining program and machining conditions are the same as before.

4 Protecting the operation of machines and precious assets such as part programs from cyber attacks

Robust security that increases cyber resilience

As digital networks develop and servers are increasingly connected to factory machines, the threat of cyber attacks increases, making it ever more important to protect against them. OSP-P500 is equipped with robust security functions for defense against and protection from cyber attacks, along with data restoration, to protect the operation of machines and precious assets such as part programs in the event of a cyber attack.

Defense	Prevent unauthorized access and connection	Identification of operators and communications, authentication function, etc.
Protection	Control damage	Anti-virus measures based on the allowlist, functions to prevent falsification and detect abnormalities, etc.
Data restoration	Preparation for emergencies	Control software and data backup function, etc.



OSP-VPSII (Virus Protection System II)

OSP-VPSII (Virus Protection System II) incorporates allowlisting*1 antivirus functions into the Okuma CNC (OSP) to prevent infection by viruses via networks and USB devices.

OSP-VPSII-STD

OSP-VPSII-STD [Standard] includes antivirus functions developed exclusively for Okuma's numerically controlled machines. Machines can be used safely, as only software tested by Okuma can be run.

Note: Because the allowlist is locked, only Okuma software can be run.

OSP-VPSII-EX (option)

OSP-VPSII-EX [Expert] includes antivirus functions made by TXOne Networks*2. The allowlist can be edited by the customer, so any software can be installed*3.

Note: Incorrectly editing the allowlist may prevent OSP from operating normally, so specialized knowledge of allowlisting antivirus functions is required.

*1. Allowlisting is a method in which safe software is listed and software not included in the list is prevented from running.

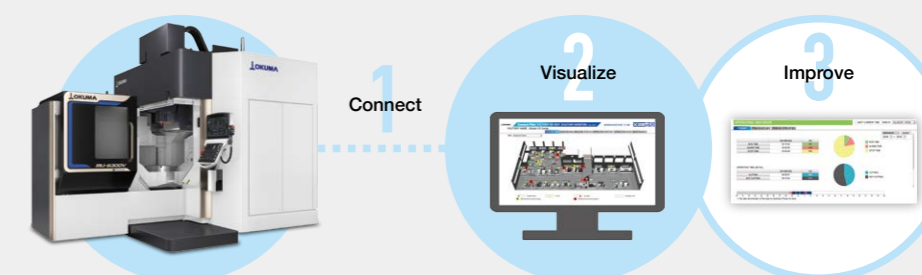
*2. TXOne Networks is a registered trademark of TXOne Networks Inc.

*3. This does not guarantee the operation of any software on OSP. Note that installed software may prevent OSP from operating properly.

Connect Plan Get Connected, Get Started, and Get Innovative with Okuma "Monozukuri" option

Connect, Visualize, Improve

Okuma's Connect Plan is a system that provides analytics for improved utilization by connecting machine tools and visual control of factory operation results and machining records. Simply connect the OSP and a PC and install Connect Plan on the PC to see the machine operation status from the shop floor, from an office, from anywhere. The Connect Plan is an ideal solution for customers trying to raise their machine utilization.



Energy-saving technology

Energy-saving solutions that reduce environmental impact

ECO suite plus A system for an energy-saving society

The "ECO suite plus" retains the concept of achieving both high machining accuracy stability and energy savings (less carbon dioxide emissions) achieved by the Thermo-Friendly Concept and the "ECO suite" that was put into practical use in 2014. It is an energy-saving system with enhanced high-accuracy/-productive functionality and advanced eco-friendly support.

Ensure accuracy and actively turn off unnecessary peripherals

ECO Idling Stop

All auxiliary equipment when not needed (most of factory power consumption), can be turned off. The ECO Idling Stop button enables diligent idle stop operations even during machining and maintenance work. With ECO suite plus, the machine automatically detects the operating status, eliminating the need to push buttons while reducing carbon dioxide emission as much as possible without operator awareness.

Peripheral equipment runs only when needed

ECO Operation

By using only the required peripherals (chip conveyor, mist collector), energy-saving operations that also maintain high productivity are possible.

ECO suite plus enables more detailed tuning of operations to thoroughly support carbon dioxide emission reduction activities that do not reduce productivity.

ECO PARAMETER	ECO IDLE STOP (1/4)	ECO OPERATION
ECO IDLE STOP ELAPSED TIME	0000:00:00	REMAINING TIME UNTIL ECO IDLE STOP READY 12:48
Chip conveyor interval control	OFF	PARAMETER UNIT
Chip conveyor interval:active time	100	[min]
Chip conveyor interval:suspended time	200	[min]

Confirming energy savings and analyzing reductions

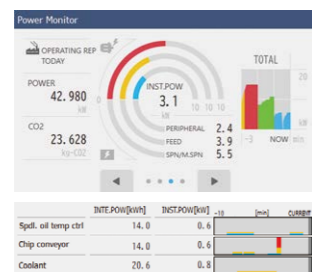
ECO Power Monitor

Making it possible for the OSP control to analyze the operating status of each device.

The decarbonization cycle on the shop floor is supported through the three phases, 1. View, 2. Record, and 3. Analyze.

1 Check carbon dioxide emissions on the spot

With ECO suite plus, you can also check the power consumption of each device.



2 Simultaneously records operating status and carbon dioxide emissions

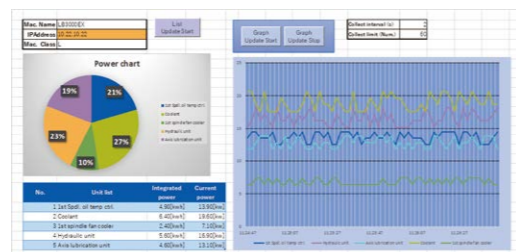
With ECO suite plus, recording carbon dioxide emissions for each device, and data output is possible.



3 Analyze carbon dioxide emissions and improve machine tool operation

With ECO suite plus, not only the display on the machine but data analysis for each device is also possible on a PC, to see a more detailed carbon dioxide emission analysis.

Example of utilizing One-Touch Spreadsheet (option) to create visual feedback of machine's power consumption and carbon dioxide emissions.



Environmental effects

The product has excellent environmental performance to reduce power consumption and help mitigate climate change (decarbonization)

Achieving high accuracy and high productivity while achieving decarbonization and energy saving

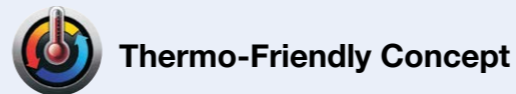


Okuma has worked to reduce energy consumption in order to achieve carbon neutrality at the three factories in Japan which are our main production bases. We have realized high productivity through automation and process-intensive machining, in addition to high-accuracy machining, and we then introduced the use of green energy to transform the three domestic factories into carbon-neutral factories.

"Green-Smart Machines" is our definition of Okuma's intelligent machine tools, which autonomously achieve stable dimensional accuracy and reduced energy consumption, to support environmentally friendly production. Our policy is to deploy "Green-Smart Machines" fully, to help achieve a carbon-free society.

Starting with products manufactured at those carbon-neutral factories and distributing them globally, we will partner with our customers to address the social challenges faced by the manufacturing industry.

High accuracy and high productivity



Thermo-Friendly Concept

The Okuma Intelligent Technology that enables machines to autonomously maintain high accuracy stability

With minimal dimensional adjustments, anyone can easily achieve high-accuracy machining in a short time

MU-5000V

Thermal deformation over time (actual data)
Less than **7 μm/**
ambient temperature
change: **8°C**

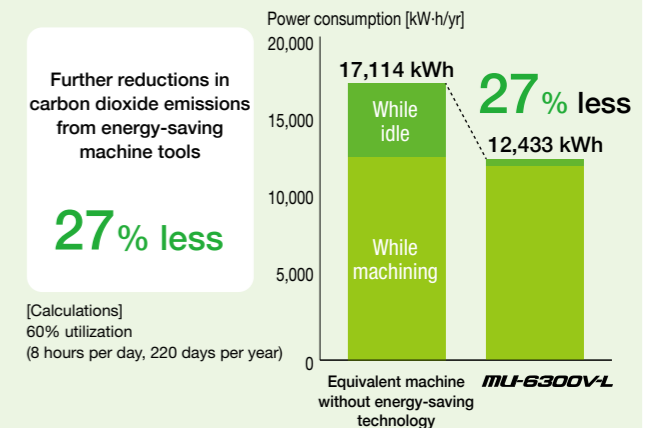


Decarbonization and energy saving

ECO suite plus

A system for an energy-saving society

Annual Power Consumption Reduction Effect

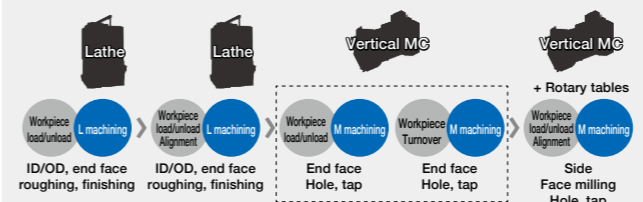


Significant Reduction in Power Consumption Through Process Integration with a 5-Axis Machining Center with Turning Function

Example of process integration for a bearing housing

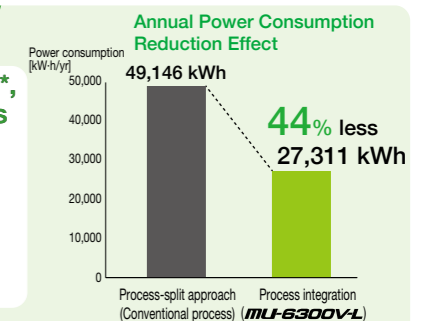
Conventional process (process-split approach)

Total: 5 processes, 5hour and 22minutes
[Internal setup time (including workpiece load/unload): 2 hours 20 minutes]



Process integration

Total: 2 processes*, 3 hours 13 minutes
[Internal setup time: 1 hours 10 minutes]
MU-6300V-L



Key points for reduction

- Reducing the number of machines (from 4 to 2) and improving the tact balance significantly reduce standby power consumption
- Effectiveness of Okuma's proprietary energy-saving technology "ECO suite plus"
- Process integration reduces the number of setups and power consumption during setup

Notes: Calculated values based on an example of bearing housing machining
Estimated for 5 units/day, 220 operating days/year
Conversion factor: 0.435 kg-CO₂/kWh

Machine Specifications

		MU-4000V	MU-4000V-L Turning Specs	
Travels	X-axis (spindle ram L/R)	mm (in)	740 (29.13) (+20 (0.79) ATC movements)	
	Y-axis (spindle ram front/back)	mm (in)	460 (18.11)	
	Z-axis (spindle ram up/down)	mm (in)	460 (18.11)	
	B-axis (trunnion table rotation)	deg	+90 to -120	
	C-axis (table rotation)	deg	360 (infinite)	
	Table surface to spindle nose	mm (in)	120 to 580 (4.72 to 22.83) (50 to 510 (1.97 to 20.08))	
Table	Table size	mm (in)	ø400 (15.75)	
	Max work size	mm (in)	ø500 × H400 (ø19.69 × H15.75) (ø500 × H330 (ø19.69 × H12.99))	
	Floor to table top	mm (in)	900 (35.43)	
	Max load capacity	kg (lb)	300 (660) (200 (440))	
	Turning spindle speed	min ⁻¹	–	1,200
	Spindle	Speed	min ⁻¹	15,000 [20,000, 25,000]
No. of spindle ranges			Infinitely variable	
Tapered bore			7/24 taper No. 40 [HSK-A63]	HSK-A63
Bearing dia		mm (in)	ø70 (2.76)	
Feed	Rapid traverse	m/min (ipm)	X, Y, Z: 50 (1,969)	
	Rapid traverse	deg/min	B: 18,000 (50 min ⁻¹) C: 43,200 (120 min ⁻¹)	
	Cutting feed rate	mm/min	X, Y, Z: 1 to 50,000	
Motors	Spindle (10 min/cont)	kW (hp)	22/18.5 [30/22, 15/11] (30/25 [40/30, 20/15])	22/18.5 (30/25)
	Feed axes	kW (hp)	X, Y, Z: 3.5, B: 4.6 (X, Y, Z: 4.67, B: 6.13)	
	Feed axes (C-axis: milling)	kW (hp)	6.7 (8.93)	
	Turning (15 min/cont)	kW (hp)	–	15/10 (20/13)
Auto tool changer (ATC)	Tool shank		MAS BT40 [HSK-A63]	HSK-A63
	Pull stud		MAS 2 [-]	–
	Tool capacity (magazine)		32-tool (chain) [48-tool, 64-tool: chain, over 64-tool: matrix]	
	Max tool dia (w/adjacent / w/o adjacent)	mm (in)	ø90/ø125 (ø3.54/ø4.92)	
	Max tool length	mm (in)	300 (11.81)	
	Max tool mass	kg (lb)	8 (18)	
Max tool mass moment	N-m	7.8		
Tool selection		Memory random (matrix magazine is fixed address system)		
Machine size	Height	mm (in)	2,950 (116.14)	
	Floor space W x D	mm (in)	2,399 × 3,444 (94.45 × 135.59)	
	Mass	kg (lb)	9,700 (21,340)	
CNC		OSP-P500M-H	OSP-P500S-H	

{ } : APC, [] : Option

MU-4000V

Standard specifications / accessories

Standard spindle	50 to 15,000 min ⁻¹	22/18.5 kW [10 min/cont], No. 40
Multitasking spindle	50 to 12,000 min ⁻¹	22/18.5 kW [10 min/cont], HSK-A63
Rapid feed rate		X, Y, Z: 50 m/min
Spindle/Spindlehead cooling system		Oil temperature controller
Air cleaner (filter)		Including regulator
Operation panel with color LCD		21.5-inch touch panel
Pulse handle		
Tapered bore cleaning bar		
B-/C-axis rotary table		0.0001 deg
C-axis table*1		ø400 mm, 6 18H7 T-slots
Hand tools		
Tool box		
TAS-S		Thermo Active Stabilizer—Spindle
TAS-C		Thermo Active Stabilizer—Construction
Washing device on saddle		
Coolant supply system*2		Tank: 315 L (Effective: 170 L), pump: 250 W
ATC air blower (blast)		
Chip air blower (blast)		Nozzle type
Work lamp		LED (installed on right sides)
In-machine chip discharge*3		Chip flusher system table L/R
Chip pan		Effective capacity 60 L
Foundation washers (with jack bolts)		7 pcs
3-lamp status indicator		Type C (LED signal tower) Red (alarm), Yellow (end) Green (running)
32-tool ATC		
ATC magazine shutter		
Full enclosure shielding		With ceiling (full enclosure)
Chemical anchors		

*1. Turning specs have ø400 mm, M12 tapped holes in 28 locations
*2. Do not use oil-based coolants. In cases when use of such coolants is unavoidable, the pump capacity must be increased to 800 W.
*3. When oil-based coolants are used, select an in-machine chip conveyor (coil).
Note: Oil-based coolants are highly flammable, so fire prevention measures must always be taken when using these coolants. Do not operate unattended.

Optional specifications / accessories

High-speed spindle	50 to 20,000 min ⁻¹ △	30/22 kW [10 min/cont]*1
High-speed spindle	50 to 25,000 min ⁻¹ △	15/11 kW [10 min/cont]*1
Multitasking spindle	50 to 12,000 min ⁻¹ △	22/18.5 kW [10 min/cont]*2
Dual contact spindle*3	△	HSK*4, BIG-PLUS®
Ball-screw nut cooling		X-Y-Z axes
AbsoScale		X-Y-Z axes
Auto pallet changers (APC)*5		Flat-placing type, elevating 2-level type, FMS
ATC tool capacities	△	Chain: 48, 64 tools Matrix: 64, 98, 132, 166, 200, 234, 268 tools
Pull stud specs	△	MAS1, JIS, CAT, DIN
Table surface	△	Tapped table top
Thru-spindle coolant*6		Specify 1.5 MPa or 7.0 MPa 25,000 min ⁻¹ specs available for HSK-A63 only.
Oil mist coolant		
Shower coolant		5 nozzles on the right side in the machine
Workpiece wash gun		
Sludgeless Tank		
In-machine chip conveyor (coil)		
Off-machine chip discharge	△	Lift-up chip conveyors: hige type, scraper type
Chip bucket for above	△	
Hyper-Surface II		
Tool breakage detection/ auto tool length compensation		Touch sensor (Renishaw), Laser sensor
Auto zero offset/auto gauging		Touch probe (Renishaw)
5-Axis Auto Tuning System II		By touch probe, datum sphere (Renishaw)
Tool life management (time counter, etc)		
Overload monitor (w/ feed adaptive control)		
Automatic door		

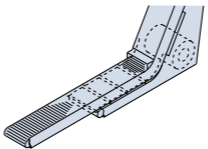
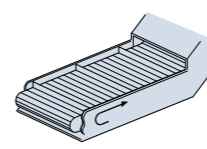
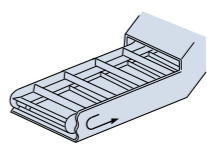
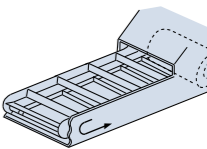
△: Corresponding standard specification deleted.
*1. Spindle accepts 7/24 No. 40 (BIG-PLUS®), or HSK-A63 tapers.
*2. Tapered bore of the spindle for turning is HSK-A63.
*3. Be sure to select this specification when BIG-PLUS® holder is used.
*4. HSK holders with coolant supply pipes are required.
*5. Pallet top comes with 28 M12 tapped holes.
*6. Okuma pull stud required (End-face grinding, O-ring, and through-hole diameter differ from those of commercial pull studs.)

Recommended chip conveyors (Please contact an Okuma sales representative for details.)

Workpiece material		Steel	Cast iron	Aluminum / Nonferrous	Mixed (general use)
In-machine	Chip flusher (standard)	–	○ (Wet)	○	–
	Coil (option)	○	○ (Dry-Wet)	–	○
Off-machine (option)	Hinge + scraper with drum filter	△*1	△ (Wet)*2	○	○
	Hinge (floor)	○	–	–	△*3
	Scraper	–	○ (Dry)	–	–
	Scraper with drum filter	–	○ (Wet) with magnet	△*4	–

*1. When there are many fine chips *2. When chips are longer than 100 mm *3. When there are few fine chips *4. When chips are shorter than 100 mm

Off-machine lift-up chip conveyors

Hinge + scraper with drum filter	Hinge (floor)	Scraper	Scraper with drum filter
			

Note: It is necessary to select a chip conveyor with hinges + scraper (with drum filter) if the Sludgeless Tank is chosen.

Machine Specifications

			MU-5000V	MU-5000V-L Turning Specs	
Travels	X-axis (table L/R)	mm (in)	800 (31.50)		
	Y-axis (spindle saddle front/back)	mm (in)	1,050 (41.34)		
	Z-axis (spindle ram up/down)	mm (in)	600 (23.62)		
	A-axis (trunnion table rotation)	deg	+90 to -120		
	C-axis (table rotation)	deg	360 (infinite)		
	Table surface to spindle nose	mm (in)	80 to 680 (3.15 to 26.77)		
Table	Table size	mm (in)	ø500 (19.69)		
	Max work size	mm (in)	ø700 × H500 (ø27.56 × H19.69) {ø700 × W500 × H390 (ø27.56 × W19.69 × H15.35)}		
	Floor to table top	mm (in)	1,140 (44.88)		
	Max load capacity	kg (lb)	500 (1,100) {400 (880)}		
	Turning spindle speed	min ⁻¹	– 1,000		
Spindle	Speed	No. 40 spindle	min ⁻¹	10,000 [15,000, 20,000, 25,000]	8,000 [12,000, 20,000]
		No. 50 spindle	min ⁻¹	6,000 [12,000]	10,000
	Tapered bore	No. 40 spindle		7/24 taper No. 40	HSK-A63
		No. 50 spindle		7/24 taper No. 50	HSK-A100
	No. of spindle ranges		Infinitely variable		
	Bearing dia	No. 40 spindle	mm (in)	ø70 (2.76)	
No. 50 spindle		mm (in)	ø90 (3.54)		
Feed	Rapid traverse	m/min (ipm)	X, Y, Z: 50 (1,969)		
	Rapid traverse	deg/min	A: 18,000 (50 min ⁻¹), C: 18,000 (50 min ⁻¹)	A: 18,000 (50 min ⁻¹), C: 36,000 (100 min ⁻¹)	
	Cutting feed rate	mm/min	X, Y, Z: 1 to 50,000		
Motors	Spindle (10 min/cont)	No. 40 spindle	kW (hp)	11/7.5 [22/18.5, 30/22, 15/11] (15/10 [30/25 40/30, 20/15])	11/7.5 [22/18.5, 30/22] (15/10 [30/25, 40/30])
		No. 50 spindle	kW (hp)	11/7.5 [26/18.5] (15/10 [35/25])	26/18.5 (35/25)
	Feed axes		kW (hp)	X: 5.2 (6.9), Y, Z: 3.5 (4.7), A: 3.5 × 2 (4.7 × 2)	
	Feed axes (C-axis: milling)		kW (hp)	3.0 (4)	5.0 (6.7)
	Turning (15 min/cont)		kW (hp)	–	17/13 (23/17)
Auto tool changer (ATC)	Tool shank	No. 40 spindle		MAS BT40	HSK-A63
		No. 50 spindle		MAS BT50	HSK-A100
	Pull stud			MAS2	–
	Tool capacity (magazine)		32-tool [48-tool, 64-tool: chain, Over 64-tool: matrix*2]		
	Max tool dia (w/adjacent / w/o adjacent)	No. 40 spindle	mm (in)	ø90/ø125 (ø3.54/ø4.92)	
		No. 50 spindle	mm (in)	ø100/ø152 (ø3.94/5.98)	
	Max tool length		mm (in)	400 (15.75)	
Max tool mass	No. 40 spindle	kg (lb)	8 (17.6)		
	No. 50 spindle	kg (lb)	12 (26.4) [15 (33)]		
Tool selection		Memory random (matrix magazine is fixed address system)			
Machine size	Height	mm (in)	3,435 (135.24)		
	Floor space W x D (w/o operator platform)	No. 40 spindle	mm (in)	3,995 × 2,750 (157.28 × 108.27)	
		No. 50 spindle	mm (in)	3,995 × 2,840 (157.28 × 111.81)	
	Mass	No. 40 spindle	kg (lb)	15,400 (33,880)	
No. 50 spindle		kg (lb)	15,650 (34,430)		
CNC			OSP-P500M-H	OSP-P500S-H	

		MU-6300V	MU-6300V-L Turning Specs	MU-8000V	MU-8000V-L Turning Specs
		925 (36.42)*1		925 (36.42)*1	
		1,050 (41.34) (+100 ATC movements)			
		600 (23.62)			
		+90 to -120			
		360 (infinite)			
		160 to 760 (6.30 to 29.92)		200 to 800 (7.87 to 31.50)	
		ø630 (24.80)		ø800 (31.50) × 630 (24.80) width	
		ø830 × H550 (ø32.68 × H21.65) {ø830 × W794 × H450 (ø32.68 × W31.26 × H17.72)}		ø1,000 × H550 (ø39.37 × H21.65) {ø1,000 × W794 × H450 (ø39.37 × W31.26 × H17.72)}	
		1,150 (45.28)		1,210 (47.64)	
		600 (1,320) {450 (990)}		700 (1,540) {550 (1,210)}	
		– 800		– 800	
		10,000 [15,000, 20,000, 25,000]		10,000 [15,000, 20,000, 25,000]	
		6,000 [12,000]		6,000 [12,000]	
		7/24 taper No. 40		7/24 taper No. 40	
		7/24 taper No. 50		7/24 taper No. 50	
		Infinitely variable			
		ø70 (2.76)			
		ø90 (3.54)			
		X, Y, Z: 50 (1,969)			
		A: 10,800 (30 min ⁻¹) C: 32,400 (90 min ⁻¹)			
		X, Y, Z: 1 to 50,000			
		11/7.5 [22/18.5, 30/22, 15/11] (15/10 [30/25 40/30, 20/15])	11/7.5 [22/18.5, 30/22] (15/10 [30/25, 40/30])	11/7.5 [22/18.5, 30/22, 15/11] (15/10 [30/25 40/30, 20/15])	11/7.5 [22/18.5, 30/22] (15/10 [30/25, 40/30])
		11/7.5 [26/18.5] (15/10 [35/25])	26/18.5 (35/25)	11/7.5 [26/18.5] (15/10 [35/25])	26/18.5 (35/25)
		X: 5.2 (6.9), Y, Z: 3.5 (4.7), A: 4.6 × 2 (6.1 × 2)			
		7.2 (9.6)	16 (21)	7.2 (9.6)	
		–	16/12 (21/16)	–	16/12 (21/16)
		MAS BT40	HSK-A63	MAS BT40	HSK-A63
		MAS BT50	HSK-A100	MAS BT50	HSK-A100
		MAS2	–	MAS2	–
		32-tool [48-tool, 64-tool: chain, Over 64-tool: matrix*2]			
		ø90/ø125 (ø3.54/ø4.92)			
		ø100/ø152 (ø3.94/5.98)			
		400 (15.75)			
		8 (17.6)			
		12 (26.4) [15 (33)]			
		Memory random (matrix magazine is fixed address system)			
		3,525 (138.78)		3,625 (142.72)	
		4,850 × 2,990 (190.94 × 117.72)		5,280 × 2,990 (207.87 × 117.72)	
		17,500 (38,500)		18,400 (40,480)	
		17,700 (38,940)		18,600 (40,920)	
		OSP-P500M-H	OSP-P500S-H	OSP-P500M-H	OSP-P500S-H

*1. With APC specifications, +525 mm (for APC operation)

*2. Matrix magazines of 64, 98, 132 and 166 tools have short frames, while those of 200, 234 and 268 tools have long frames.

{ } : APC, [] : Option

Standard specifications / accessories

No. 40 Spindle speed 50 to 10,000 min ⁻¹	11/7.5 kW (15/10 hp) [10 min/cont]
No. 50 Spindle speed 50 to 6,000 min ⁻¹	11/7.5 kW (15/10 hp) [10 min/cont]
Rapid feed rate	X-Y-Z: 50 m/min
Spindle/Spindlehead cooling system	Oil temperature controller
Ball screw cooling	X-Y-Z-axis
Air cleaner (filter)	Including regulator
Operation panel with color LCD	21.5-inch touch panel
Pulse handle	
Tapered bore cleaning bar	
A-/C-axis rotary table	0.0001 deg, Including encoder
C-axis table*1	MU-5000V ø500 mm, 6 18H7 T-slots MU-6300V ø630 mm, 6 18H7 T-slots MU-8000V ø800 × 630 mm width, 5 18H7 T-slots
Hand tools	
Tool release lever	
TAS-S	Thermo Active Stabilizer—Spindle
TAS-C	Thermo Active Stabilizer—Construction
Washing device on saddle	
Coolant supply system*2	MU-5000V Tank: 440 L (Effective: 289 L) Pump: 390 W MU-6300V Tank: 770 L (Effective: 350 L) MU-8000V Pump: 390 W
ATC air blower	
Chip air blower	Nozzle type
Operator platform	
Work lamp	LED (installed on right and left sides)
In-machine chip discharge	Coil type
Chip pan	MU-5000V: (Effective capacity: 77 L) MU-6300V, MU-8000V: (Effective capacity: 92 L)
Foundation washer (with jack bolts)	MU-5000V: 11 pcs MU-6300V, MU-8000V: 12 pcs
3-lamp status indicator	Type C (LED signal tower) Red (alarm), Yellow (end) Green (running)
ATC magazine	Tool capacity (magazine) 32-tool
ATC magazine shutter	
Full enclosure shielding	With ceiling (full enclosure)

*1. Turning specs have tapped holes (M16 x 24).
*2. Do not use oil-based coolants. In cases when use of such coolants is unavoidable, the pump capacity must be increased to 800 W. Oil-based coolants are highly flammable, so fire prevention measures must always be taken when using these coolants. Do not operate unattended.

Optional specifications / accessories

Wide-range sp 50 to 15,000 min ⁻¹ △	No. 40 22/18.5 kW (30/25 hp) (10 min/cont)
Wide-range sp 50 to 12,000 min ⁻¹ △	No. 50 26/18.5 kW (35/25 hp) (10 min/cont)
High-speed sp 50 to 20,000 min ⁻¹ △	No. 40 30/22 kW (40/30 hp) (10 min/cont)
High-speed sp 50 to 25,000 min ⁻¹ △	No. 40 15/11 kW (20/15 hp) (10 min/cont)
50 to 8,000 min ⁻¹ *3 △	11/7.5 kW (15/10 hp) (10 min/cont)
Multitasking sp 50 to 12,000 min ⁻¹ *3 △	22/18.5 kW (30/25 hp) (10 min/cont)
(turning specs) 50 to 20,000 min ⁻¹ *3 △	30/22 kW (40/30 hp) (10 min/cont)
50 to 10,000 min ⁻¹ *4 △	26/18.5 kW (35/25 hp) (10 min/cont)
Dual contact spindle*5 △	HSK*6, BIG-PLUS®, CAPTO
AbsoScale	X-Y-Z axes
Auto pallet changers*7	Flat-placing type, elevating 2-level type, tower, FMS
ATC tool capacities	△ 48-tool, 64-tool (chain type) 64-tool or more (matrix type)
Pull stud specs	△ MAS1, JIS, CAT, DIN
Table surface*8	△ Tapped table top MU-8000V: ø800 round table
Thru-spindle coolant*9	Specify 1.5 MPa or 7.0 MPa. 25,000 min ⁻¹ specs available for HSK-A63 only.
Oil mist coolant	
Shower coolant	Ceiling mounted, 5 nozzles
Workpiece wash gun	
Sludgeless Tank	
Off-machine chip discharge △	Lift-up chip conveyors: hinge type, scraper type
Chip bucket for above △	
Hyper-Surface II	
Tool breakage detection/auto tool length compensation	Touch sensor (Renishaw) Laser sensor
Auto zero offset/auto gauging	Touch probe (Renishaw)
5-Axis Auto Tuning System II	By touch probe, datum sphere (Renishaw)
Tool life management (time counter, etc)	
Overload monitor (w/ feed adaptive control)	
Automatic door	
Chemical anchors	

△: Corresponding standard specification deleted.
*1. Spindle accepts 7/24 No. 40 (BT40, BIG-PLUS®, CAT40, DIN40), or HSK-A63 tapers.
*2. For spindle tapered bore, 7/24 taper No. 50 (BT50, BIG-PLUS®, CAT50, DIN50), HSK-A100 or CAPTO-C6 is available.
*3. Tapered bore on multitasking spindle is HSK-A63.
*4. Tapered bore on multitasking spindle is HSK-A100, CAPTO-C6.
*5. Be sure to select this specification when the BIG-PLUS® holder is used.
*6. HSK holders with coolant supply pipes are required.
*7. Restrictions apply, such as compatible models, maximum workpiece dimensions, etc.
*8. With turning specifications, tapped holes only (no T-slots).
*9. Okuma pull stud required (End-face grinding, O-ring, and through-hole diameter differ from those of commercial pull studs.)

Recommended chip conveyors (Please contact an Okuma sales representative for details.) ○: Recommended △: Conditionally recommended

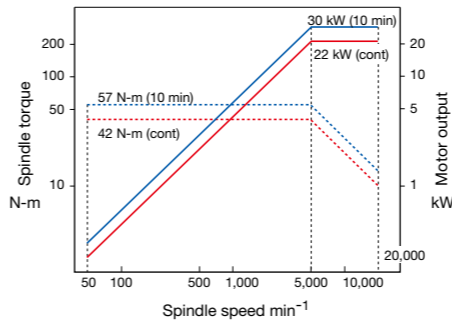
Workpiece material	Steel	Cast iron	Aluminum / Nonferrous	Mixed (general use)
Chip shape				
In-machine	Coil (Standard) ○	○ (Dry-Wet)	—	○
Off-machine (option)	Hinge + scraper with drum filter ○	○	○	○
	Hinge (floor) ○	—	—	△*1
	Scraper —	○ (Dry)	—	—
	Scraper with drum filter —	○ (Wet) with magnet	△*2	—

*1. When there are few fine chips *2. When chips are shorter than 100 mm
* Oil-based coolants are highly flammable, so fire prevention measures must. * For the typical type of off-machine chip discharge (lift-up chip conveyor), please refer to page 36.
* It is necessary to select a chip conveyor with hinges + scraper (with drum filter) if the Sludgeless Tank is chosen.

The spindle lineup (option)

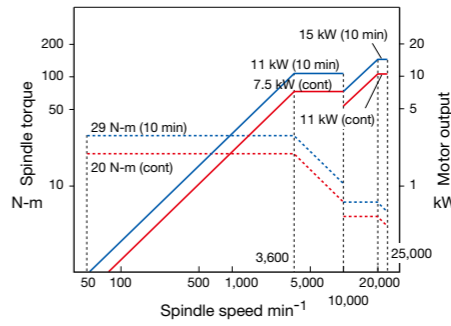
MU-4000V/MU-5000V
MU-6300V/MU-8000V
High-speed spindle 50 to 20,000 min⁻¹

- Spindle taper No. 40
- Max output 30/22 kW (10 min/cont)
- Max torque 57/42 N-m (10 min/cont)



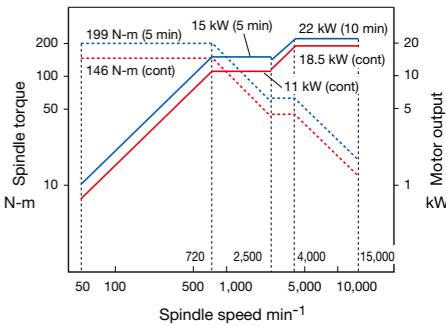
MU-4000V/MU-5000V
MU-6300V/MU-8000V
High-speed spindle 50 to 25,000 min⁻¹

- Spindle taper No. 40
- Max output 15/11 kW (10 min/cont)
- Max torque 29/20 N-m (10 min/cont)



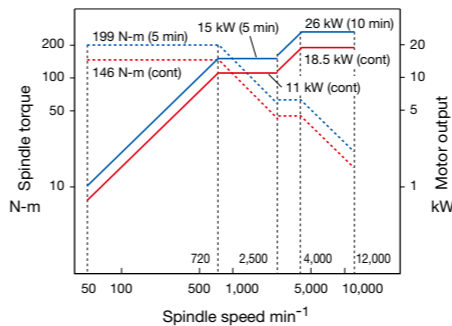
MU-5000V
MU-6300V/MU-8000V
Wide-range spindle 50 to 15,000 min⁻¹

- Spindle taper No. 40
- Max output 22/18.5 kW (10 min/cont)
- Max torque 199/146 N-m (5 min/cont)



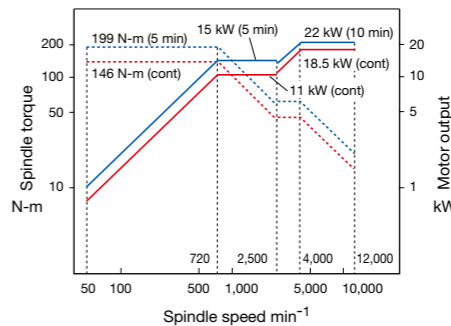
MU-5000V
MU-6300V/MU-8000V
Wide-range spindle 50 to 12,000 min⁻¹

- Spindle taper No. 50
- Max output 26/18.5 kW (10 min/cont)
- Max torque 199/146 N-m (5 min/cont)



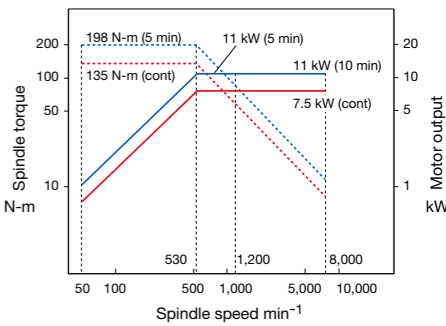
MU-4000V-L/MU-5000V-L
MU-6300V-L/MU-8000V-L
Multitasking spindle 50 to 12,000 min⁻¹

- Spindle taper HSK-A63
- Max output 22/18.5 kW (10 min/cont)
- Max torque 199/146 N-m (5 min/cont)



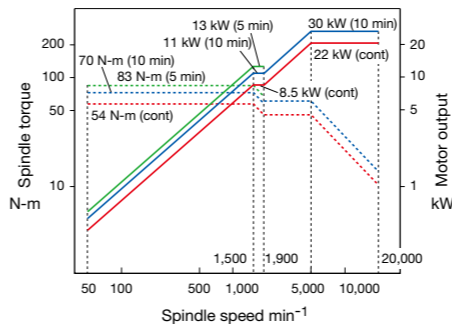
MU-5000V-L
MU-6300V-L/MU-8000V-L
Multitasking spindle 50 to 8,000 min⁻¹

- Spindle taper HSK-A63
- Max output 11/7.5 kW (10 min/cont)
- Max torque 198/135 N-m (5 min/cont)



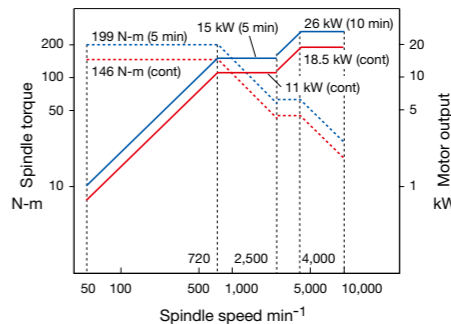
MU-5000V-L
MU-6300V-L/MU-8000V-L
Multitasking spindle 50 to 20,000 min⁻¹

- Spindle taper HSK-A63
- Max output 30/22 kW (10 min/cont)
- Max torque 83/70/54 N-m (5 min/10 min/cont)



MU-5000V-L
MU-6300V-L/MU-8000V-L
Multitasking spindle 50 to 10,000 min⁻¹

- Spindle taper HSK-A100
- Max output 26/18.5 kW (10 min/cont)
- Max torque 199/146 N-m (5 min/cont)



Standard specifications

Basic specs	Control	X, Y, Z, A (B with MU-4000V), C, simultaneous 5-axis, spindle control (1 axis)
	Position feedback	OSP full range absolute position feedback (zero-point return not required)
	Coordinate functions	Machine coordinate system (1 set), work coordinate system (20 sets)
	Min/max command	±99999.999 mm, ±9999.9999° 8-digit decimal, command units: 0.001 mm, 0.01 mm, 1 mm, 0.0001°, 0.001°, 1°
	Feed	Cutting feed override: 0 to 200%
	Spindle control	Direct spindle speed commands, override 30 to 300%, multi-point indexing
	Tool compensation	No. of registered tools: Max 999 sets, tool length/radius compensation: 3 sets per tool
	Display	21.5-inch color LCD + multi-touch panel operations
	Security	Operator authentication, Lock screen, OSP-VPSII-STD (Virus Protection System)
	Programming	Program capacity
Program operations		Scheduled program, fixed cycle, G-/M-code macros, arithmetic, logic statements, math functions, variables, branch commands, Coordinate calculate, area machining, coordinate convert, programming help, user task, keyway cycle, fixture offset II
Operations	OSP suite	"suite apps" to graphically visualize and digitize information needed on the shop floor, "suite operation" enable one-touch access to "suite apps".
	Easy Operation	"Single-mode operation" to complete a series of operations. Advanced operation panel/graphics facilitate smooth machine control
	MacMan plus	Machining management: aggregation and display of machining records, operating records and problem information, Visualization of power consumption, file output
Machine operations	Machine operations	Operation help, load meter, alarm help, sequence return, manual interrupt/auto return, pulse handle overlap, parameter I/O, PLC monitor, easy parameter setting
	Communications / Networking	USB (2 ports), Ethernet, DNC-T1, Smart I/F
High speed/accuracy specs		Thermo Active Stabilizer—Spindle (TAS-S), Thermo Active Stabilizer—Construction (TAS-C), Hi-Cut Pro, Pitch error compensation, Hi-G control, SERVONAVI, cycle time reduction (operation time reduction, machining time shortening, easy parameter setting)
Energy-saving function	ECO suite plus	ECO Idling Stop, ECO Operation, oil temperature controller auto control, ECO Power Monitor
	Power Regeneration System	Regenerative power is used when the spindle and feed axes decelerate to reduce energy waste.

Kit specs/optional specs

	NML	AOT	DT	DT AOT
	E	D	E	D
Digital Twin				
Virtual Machining			●	●
Quick Modeling			●	●
OPC UA for Machine Tools			●	●
OSP API KIT			●	●
Interactive functions				
Advanced One-Touch IGF-M (w/ Real 3-D simulation)			●	●
Interactive MAP (I-MAP)			●	●
Smart OSP Operation			●	●
Programming				
Operation buffer 10 MB	●	●	●	●
Program notes (MSG)	●	●	●	●
Auto scheduled program update	●	●	●	●
Block skip; 9 sets				
Program branch; 9 sets				
Coordinate system select (Std: 20 sets)	●	●	●	●
200 sets				
400 sets				
Helical cutting	●	●	●	●
3-D circular interpolation				
Synchronized Tapping II	●	●	●	●
Arbitrary angle chamfering	●	●	●	●
Cylindrical side facing				
Tool max rotational speed setting				
F1-digit feed External switch type, parameter type				
Programmable travel limits (G22, G23)	●	●	●	●
Slope machining Type I, Type II				
Dynamic fixture offset				
Gear Machining Package				
Hobbing and skiving				
Dynamic Tool Load Control				
3-D tool compensation				
Drawing conversion Programmable mirror image (G62)	●	●	●	●
Enlarge/reduce (G50, G51)	●	●	●	●
User task Common variables 1,000, 2,000 pcs				
G-code macros: 80 sets added				
I/O variables (16 each)				
Sequence stop	●	●	●	●
Sequence return Mid-block sequence return	●	●	●	●
Tool wear compensation Includes input restriction	●	●	●	●
Tool life management Includes warning	●	●	●	●
External I/O communication				
RS-232C connector				
DNC connection DNC-T3, DNC-B, DNC-DT				
DNC-C/Ethernet				
Gauging				
Auto tool length offset/breakage detection				
In-magazine tool breakage detection				
Auto Workpiece Gauging/Auto zero offset	●	●	●	●
Manual gauging (w/o sensor)	●	●	●	●
Interactive gauging (touch sensor, touch probe required)				
NC Gage				

NML	AOT	DT	DT AOT
E	D	E	D

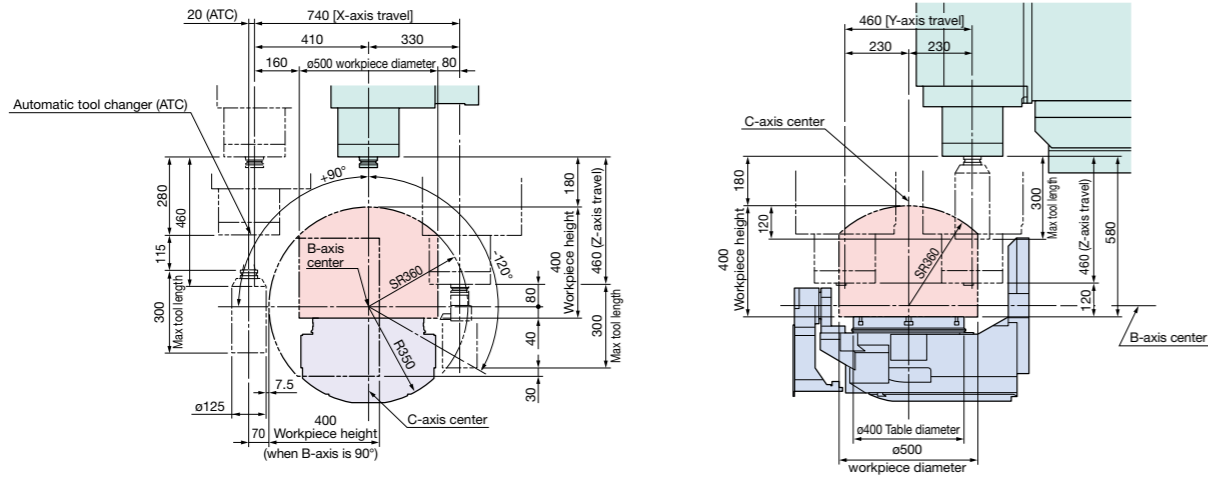
Monitoring									
One-Touch Spreadsheet									
Collision Avoidance System									
Real 3-D Simulation			●	●	●	●	●	●	●
Simple load monitor Spindle overload monitor	●	●	●	●	●	●	●	●	●
NC operation monitor Hour meter, workpiece counter	●	●	●	●	●	●	●	●	●
Status indicator									
Tool breakage no-load detection	●	●	●	●	●	●	●	●	●
MOP-TOOL Adaptive control, overload monitor									
AI machine diagnostics * Spindle/feed axes, or feed axes only									
Machine Status Logger									
Cutting Status Monitor									
Machining Navi M-i, M-gII+(cutting condition search)									
Feed axis retraction									
Tool retract cycle									
Automation/Unattended operation									
Warm-up (calendar timer)									
External program Button, rotary switch									
Digital switch, BCD (2-digit, 4-digit)									
Connection with Robot, loader I/F									
Stacker crane I/F									
FMS link I/F									
High-speed, high-precision									
AbsoScale detection X-Y-Z axes									
5-Axis Auto Tuning SystemII									
Dynamic displacement compensation	●	●	●	●	●	●	●	●	●
0.1 μm control (linear axis commands)									
Hyper-SurfaceII 3 linear axes, 3 linear axes + 2 rotary axes									
5-axis machining									
Tool center point control II (w/ tool tilt comp)									
Tool tilt command									
Cutting point command									
Tool side machining									
Leading edge offset									
Tool side offset									
Tool-axial tool length comp									
Manual feed Manual tool feed (tool-axial), manual tool feed (right angle)									
Table origin coordinate system manual feed									
Tool center point manual feed									
ECO suite plus									
ECO Power Monitor On-machine wattmeter									
Spindle Power Peak Limiter									
External output interface of consumed electricity									
Other									
Simultaneous 5-axis kit									
5-Axis Auto Tuning SystemII kit									
NC Gage kit									
Circuit breaker									
OSP-VPSII-EX (Virus Protection System)									
External M codes [4 sets, 8 sets]									

Note. NML: Normal kit, AOT: Advanced One-Touch IGF-M kit, DT: Digital Twin kit, DT AOT: Digital Twin Advanced One-Touch IGF-M, E: Economy, D: Deluxe VE and VD kits are also equipped with the Digital Twin on PC function, allowing running from a PC.

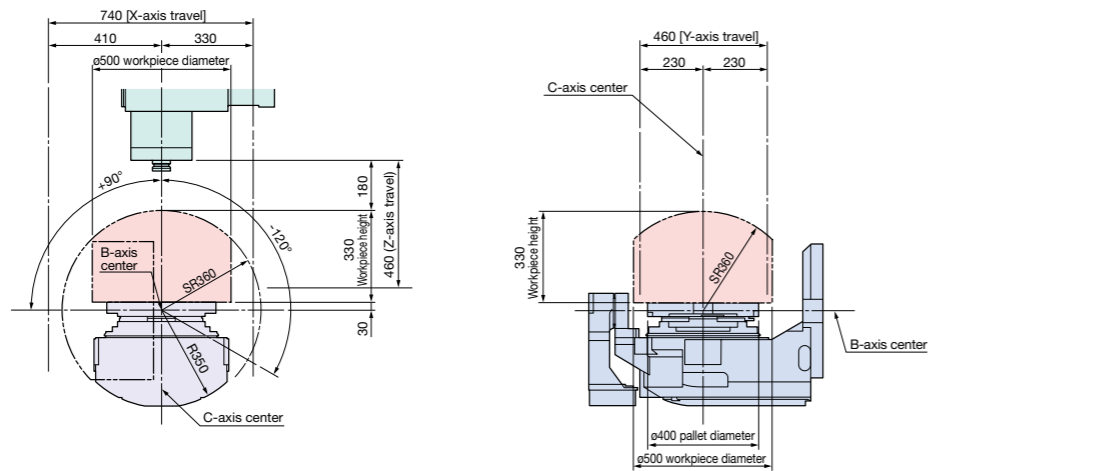
* With AbsoScale detection specs, ball screw wear detection is possible. Specifications, etc. are subject to change without notice.

Working ranges and max workpiece dimensions

Max table load capacity: 300 kg



<APC specs>

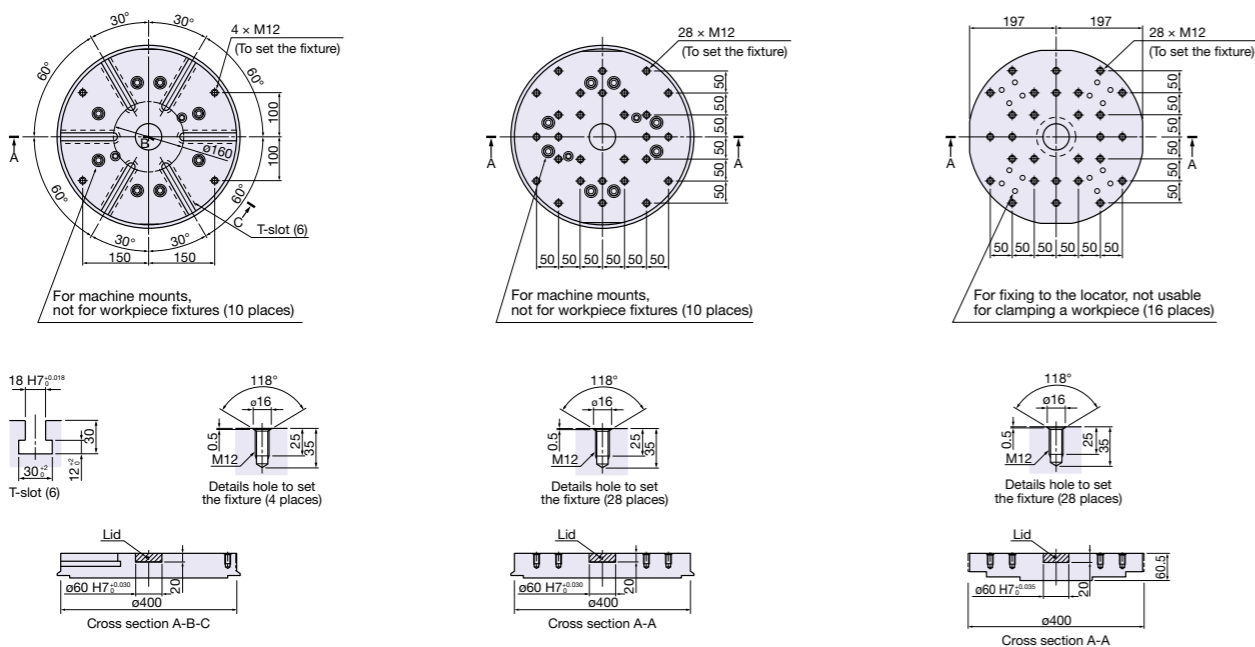


Max pallet load capacity: 200 kg

Table dimensions

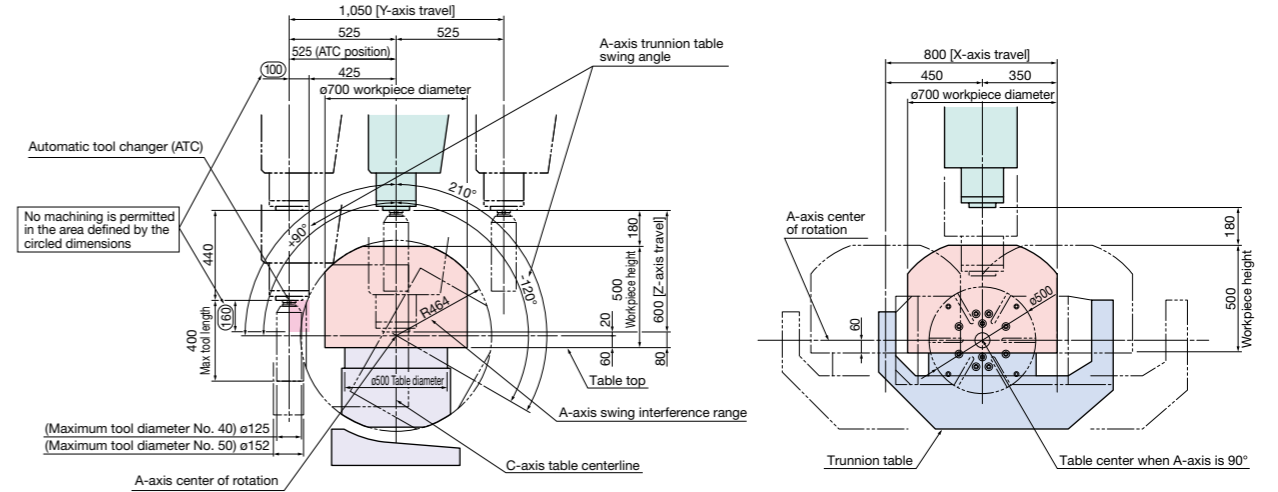
<Turning specs>

<APC specs>

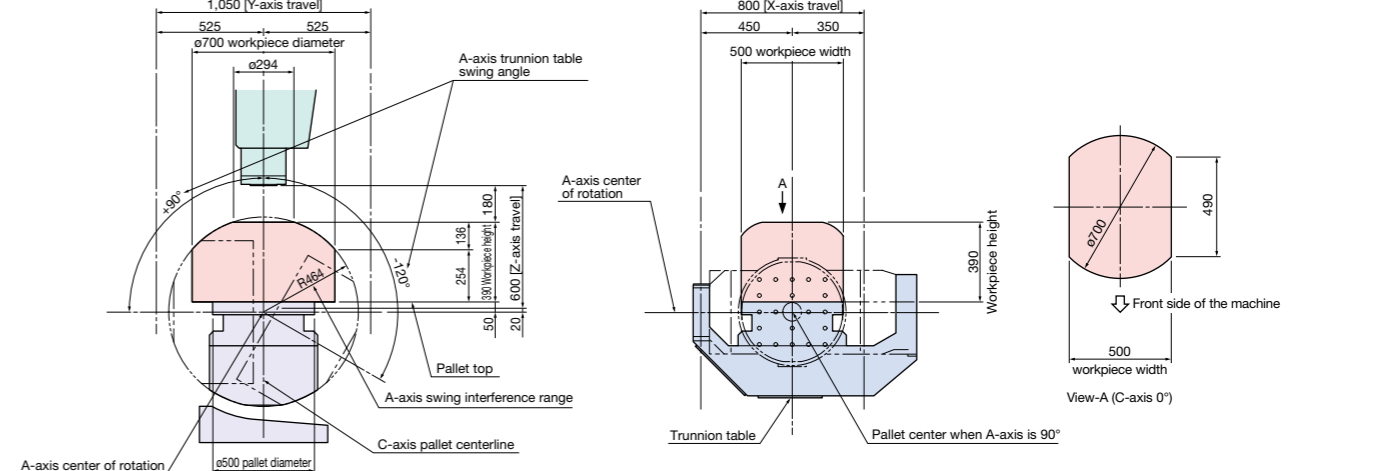


Working ranges and max workpiece dimensions

Max table load capacity: 500 kg



<APC specs>

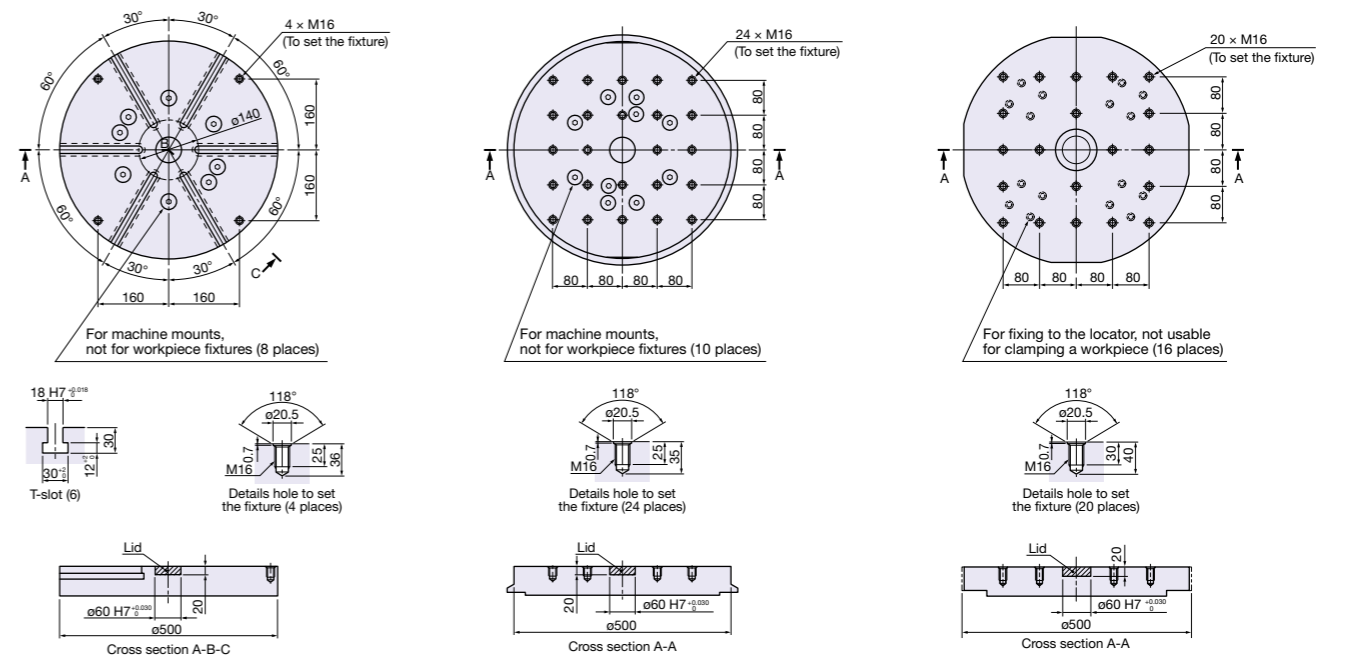


Max pallet load capacity: 400 kg

Table dimensions

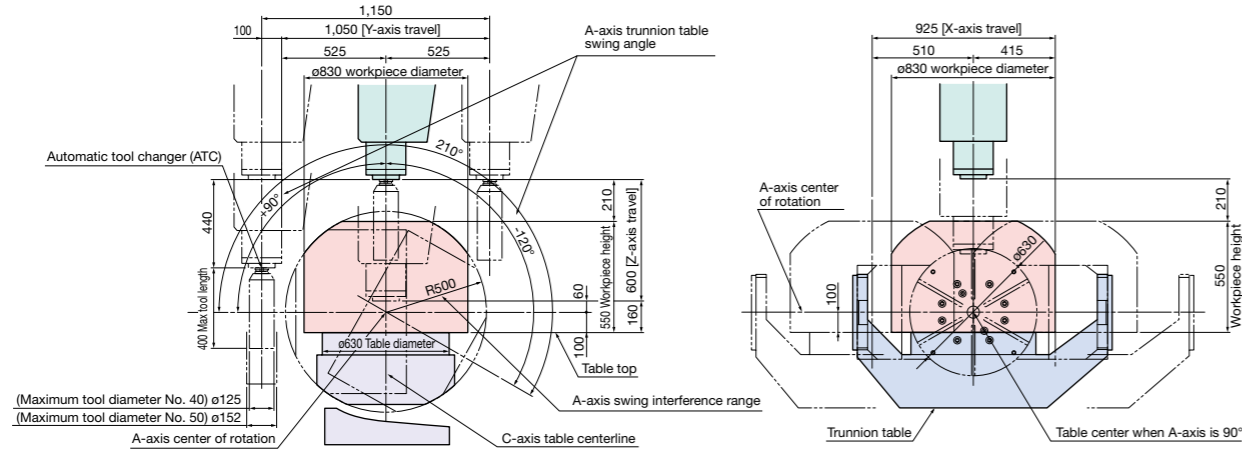
<Turning specs>

<APC specs>



Working ranges and max workpiece dimensions

Max table load capacity: 600 kg



<APC specs>

Max pallet load capacity: 450 kg

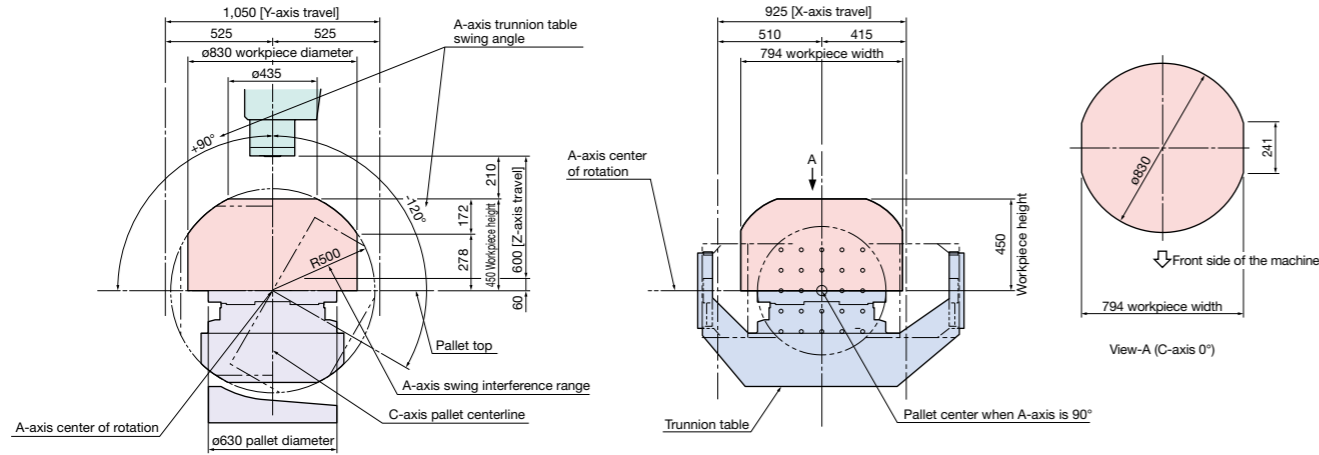
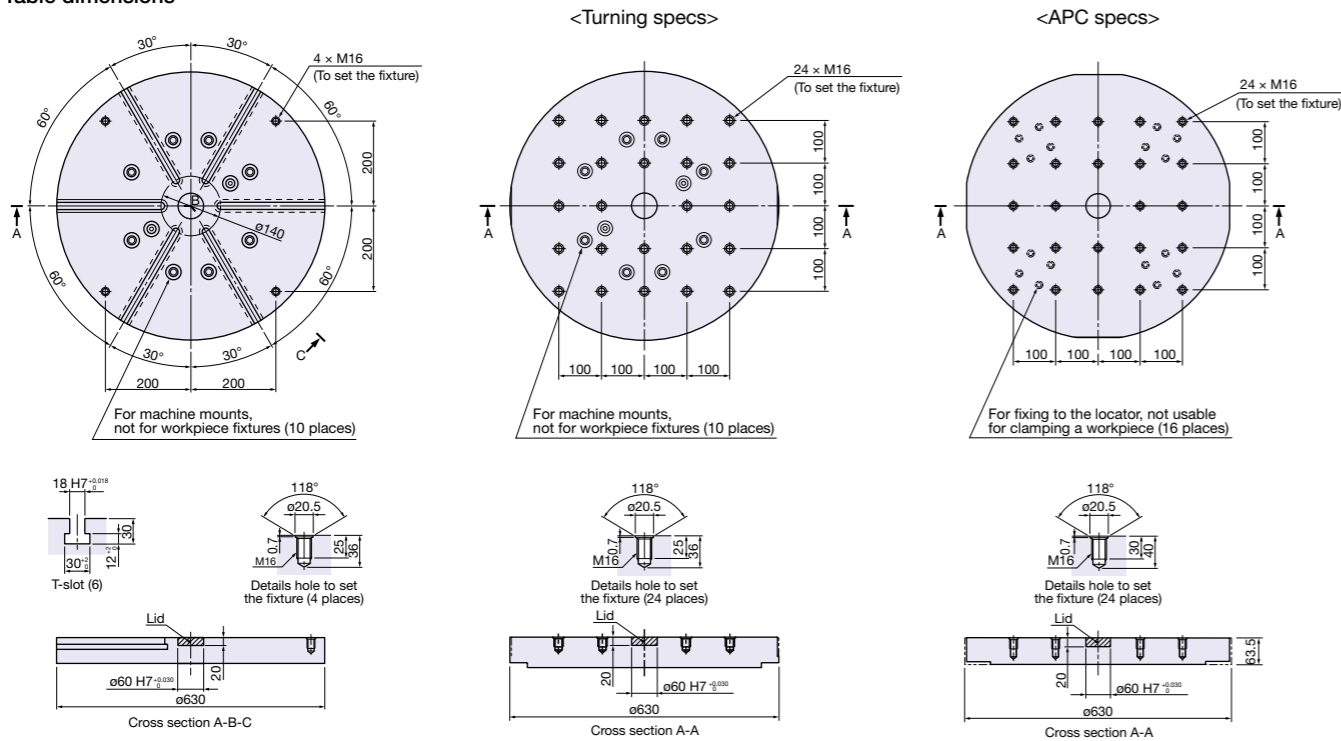
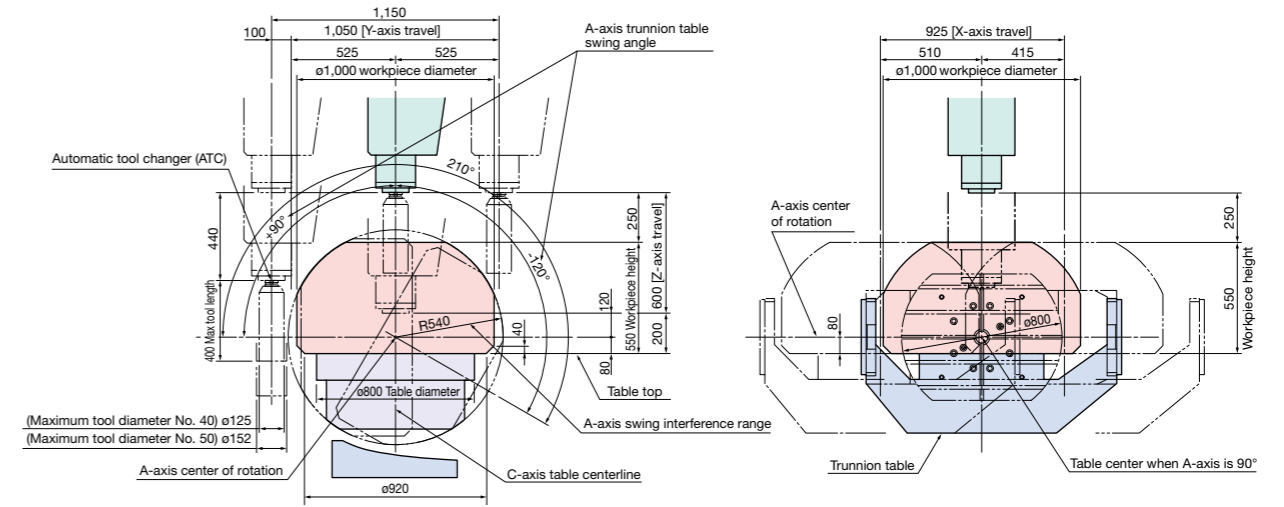


Table dimensions



Working ranges and max workpiece dimensions

Max table load capacity: 700 kg



<APC specs>

Max pallet load capacity: 550 kg

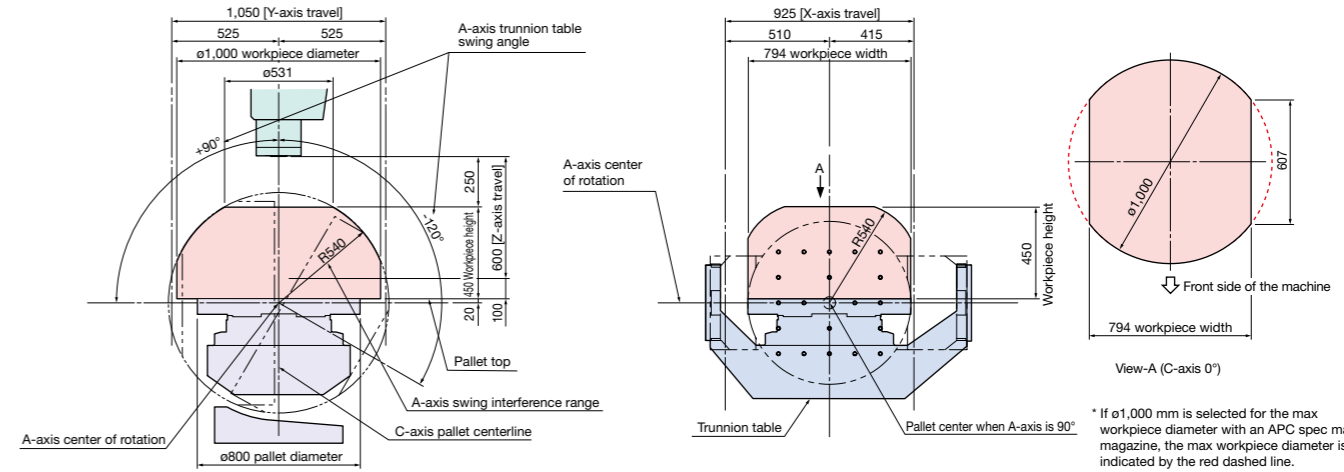
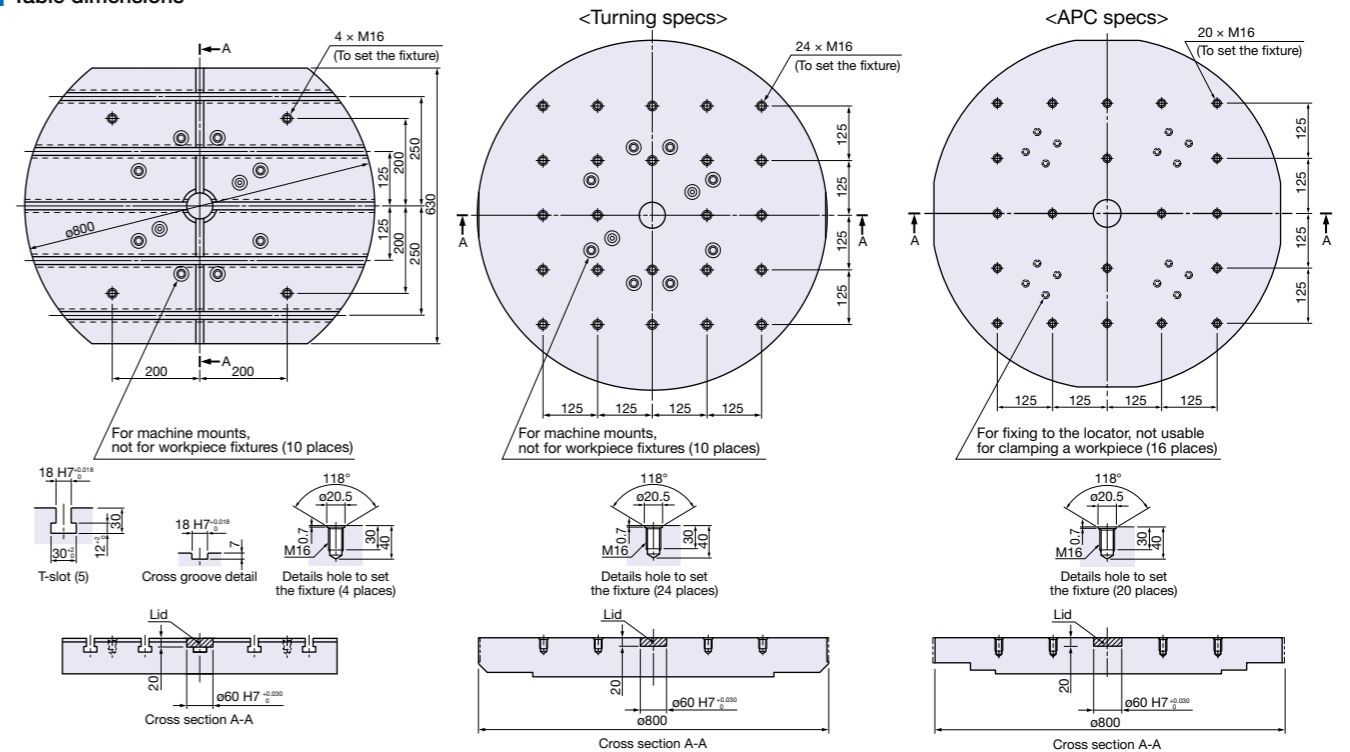


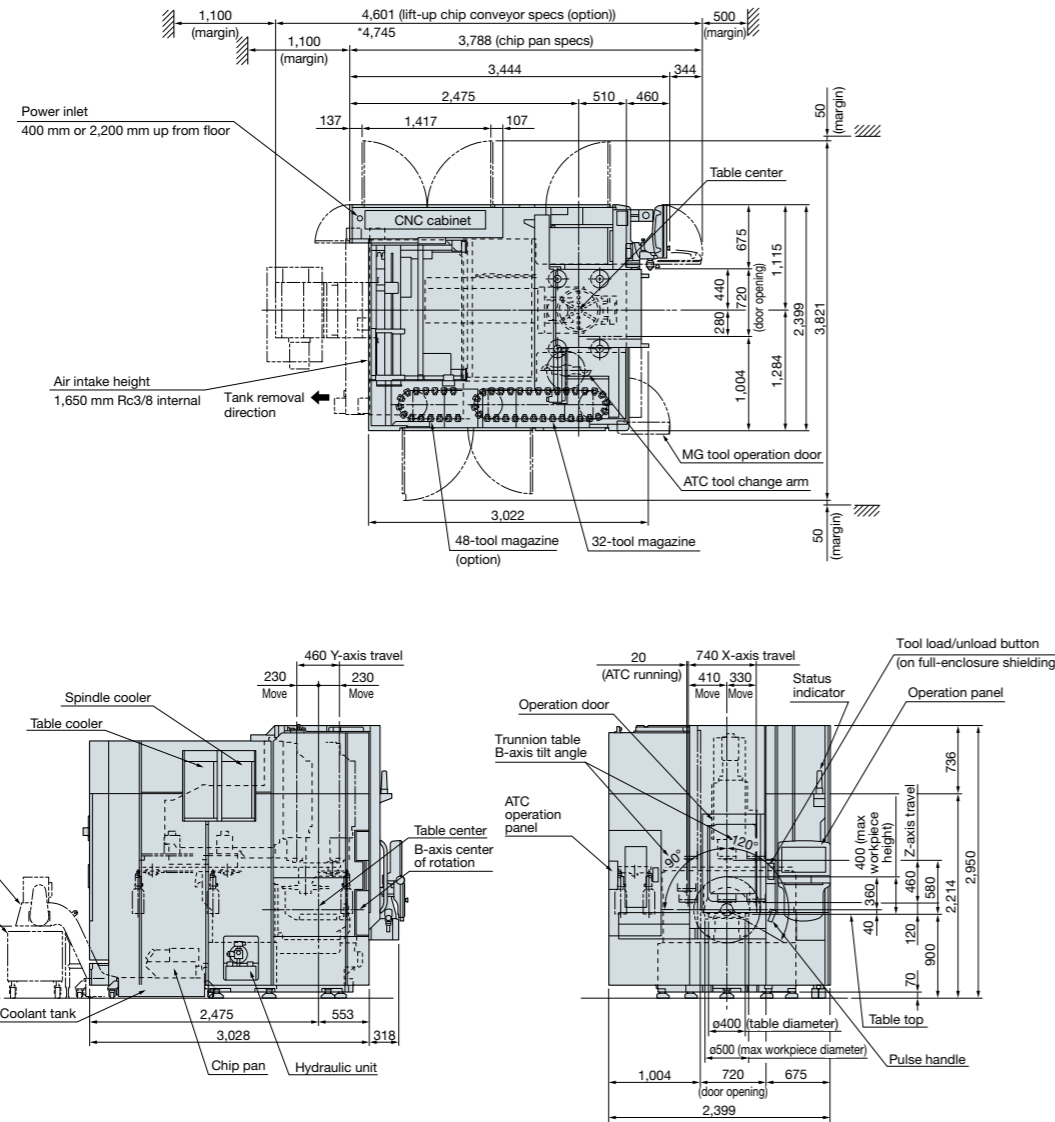
Table dimensions



* If ø1,000 mm is selected for the max workpiece diameter with an APC spec matrix magazine, the max workpiece diameter is that indicated by the red dashed line.

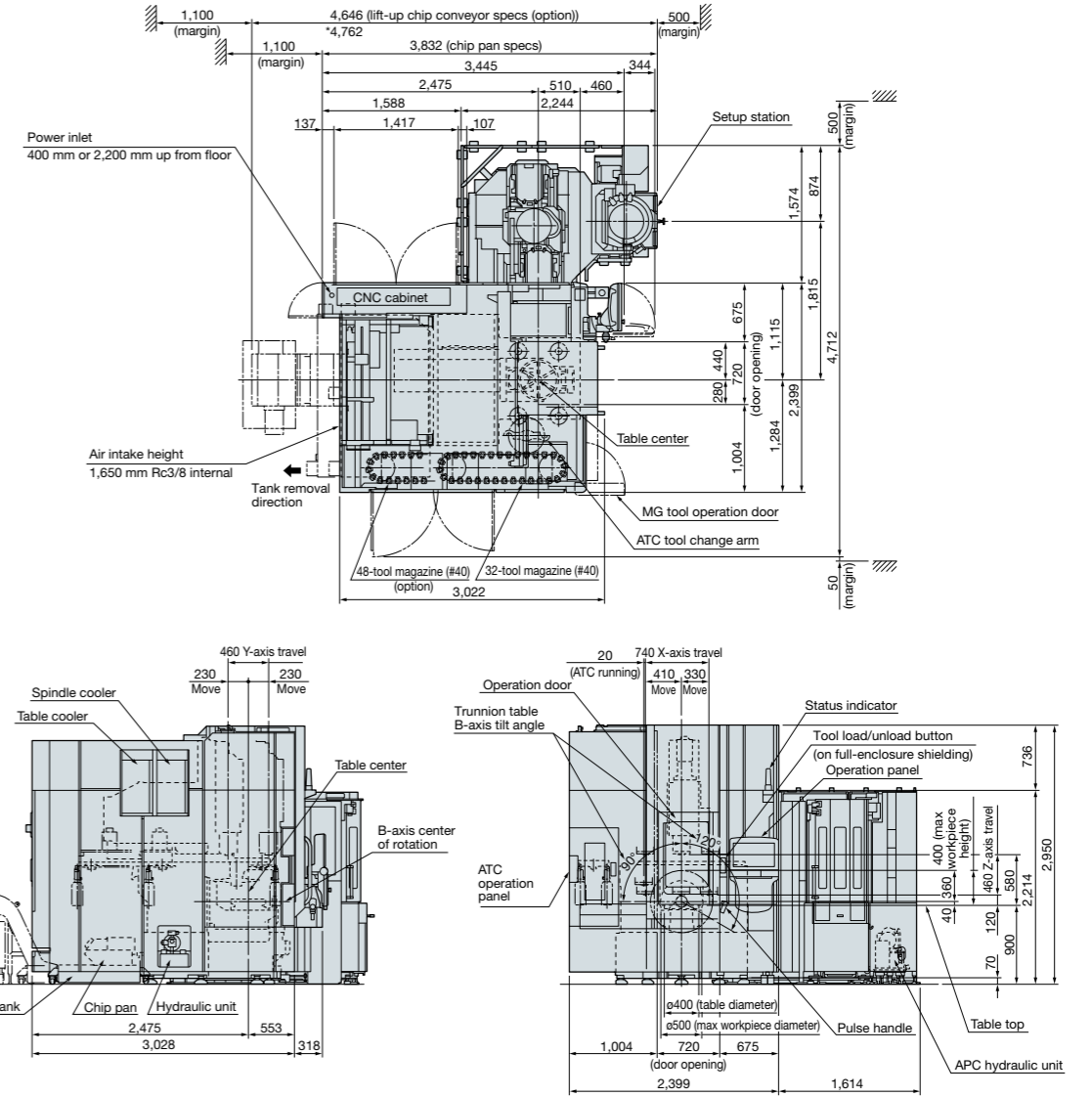
MU-4000V

Hinge lift-up chip conveyor
Height: 750 mm (option)



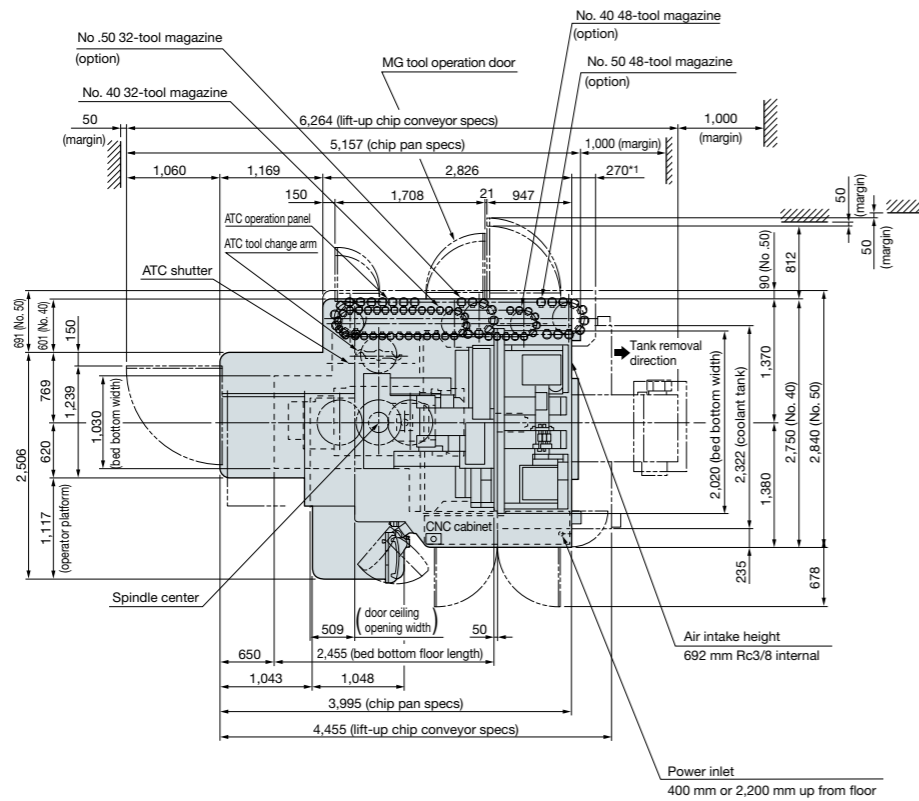
MU-4000V 2-pallet APC

Hinge lift-up chip conveyor
Height: 750 mm (option)



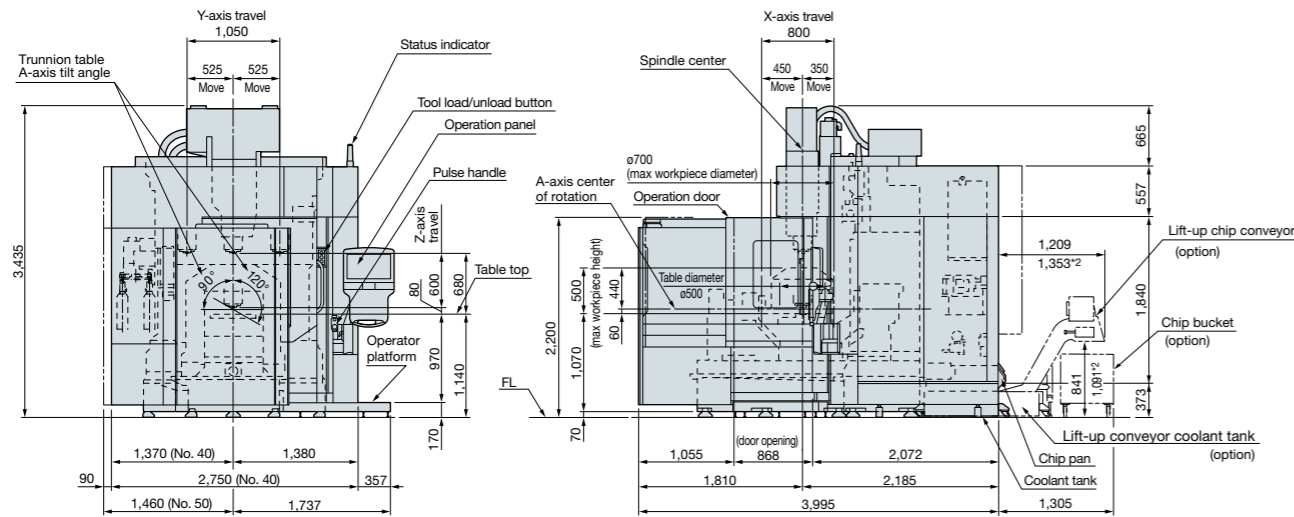
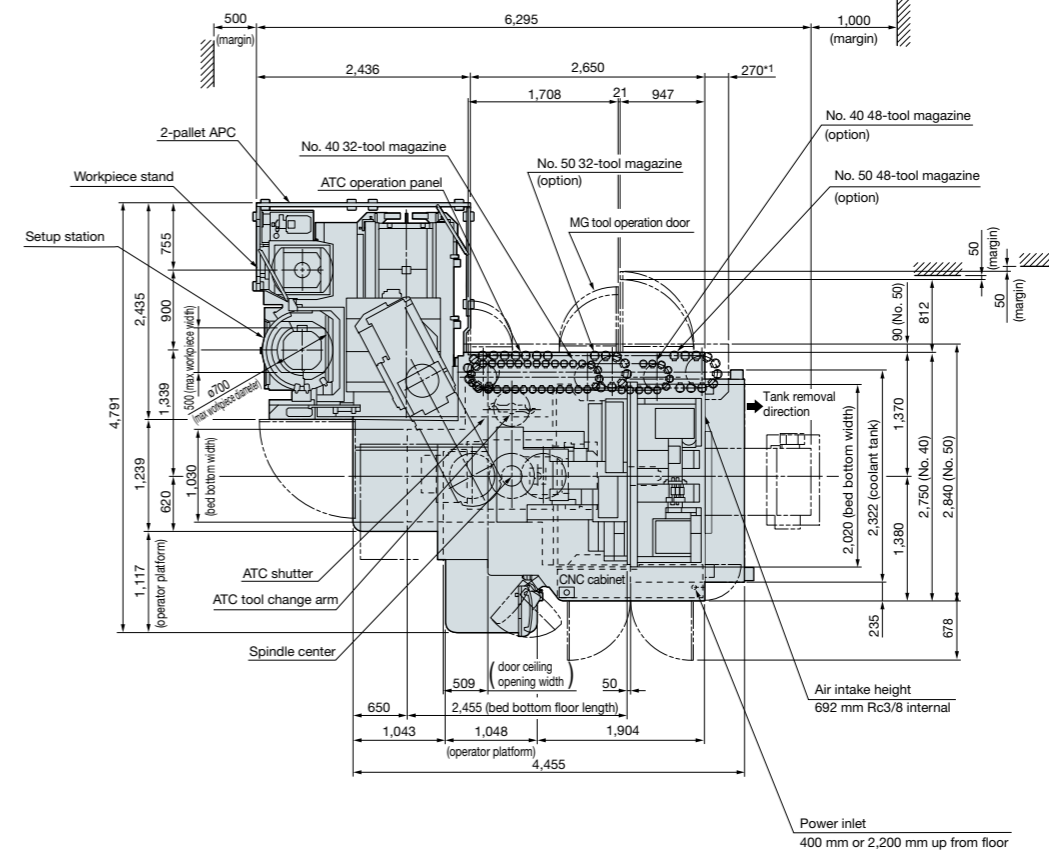
MU-5000V

Hinge lift-up chip conveyor
Height: 750 mm (option)

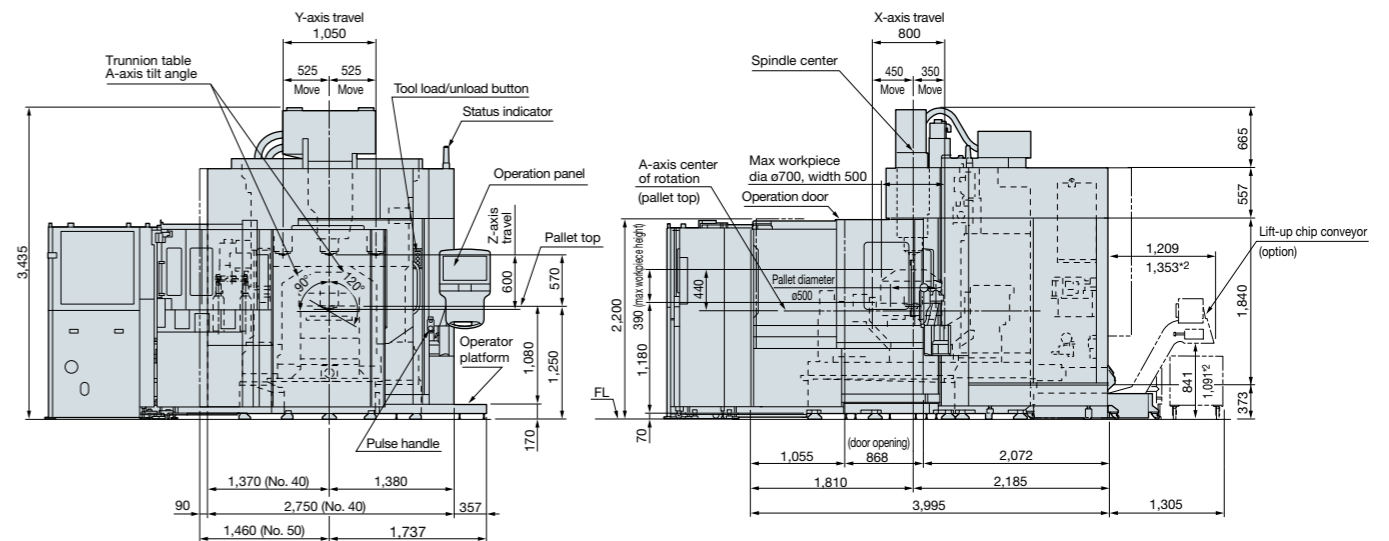


MU-5000V 2-pallet APC

Hinge lift-up chip conveyor
Height: 750 mm (option)



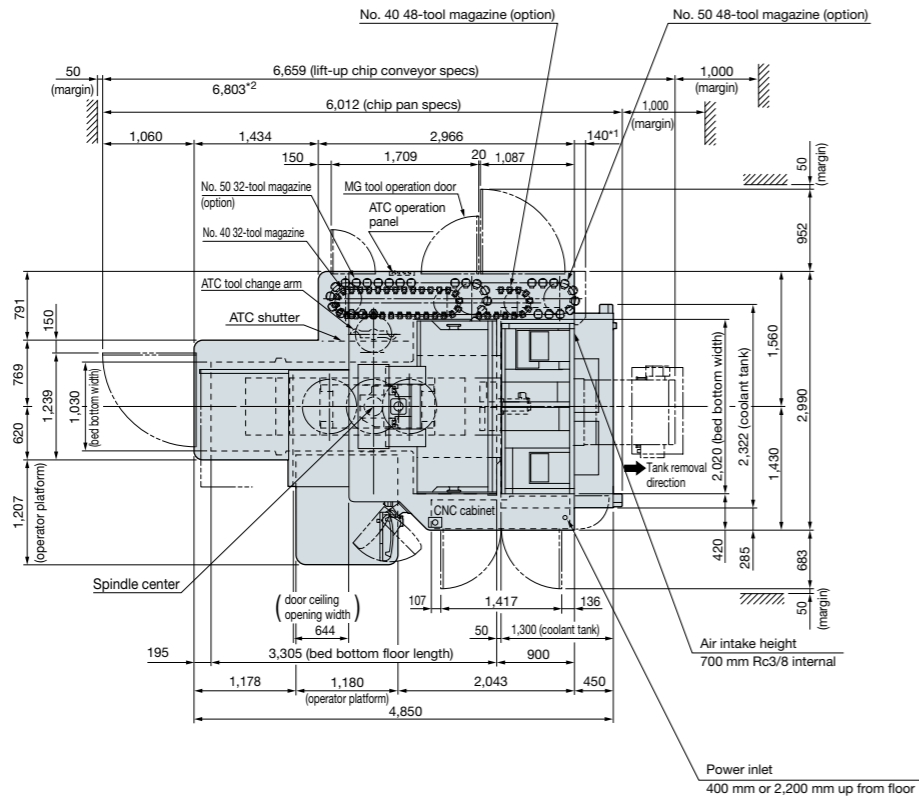
*1. No. 50 48-tool magazine
*2. Hinge lift-up chip conveyor
Height: 1,000 mm (option)



*1. No. 50 48-tool magazine
*2. Hinge lift-up chip conveyor
Height: 1,000 mm (option)

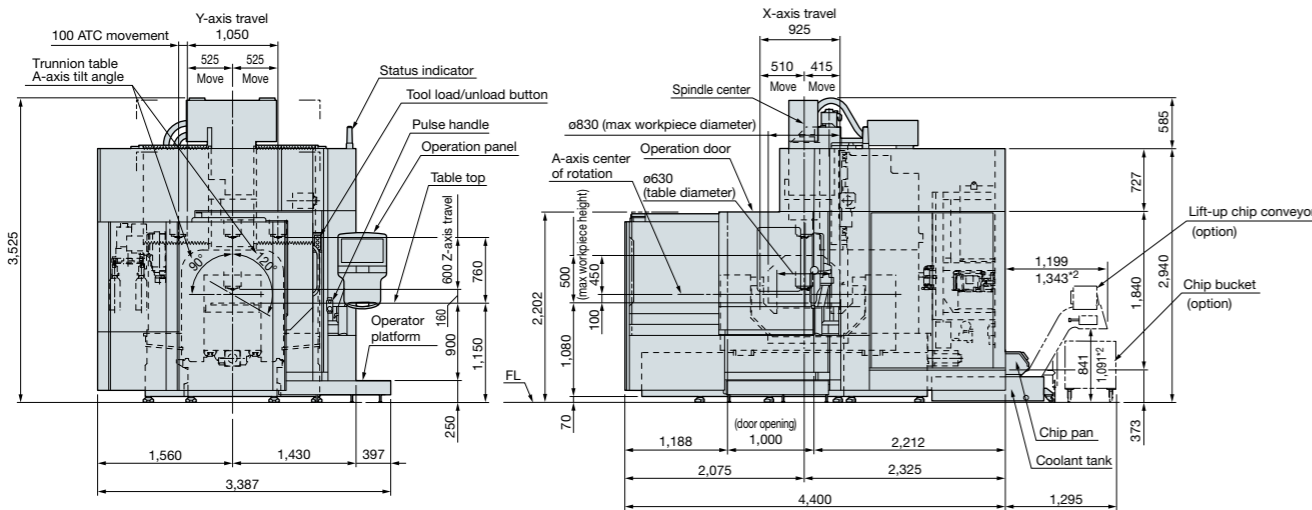
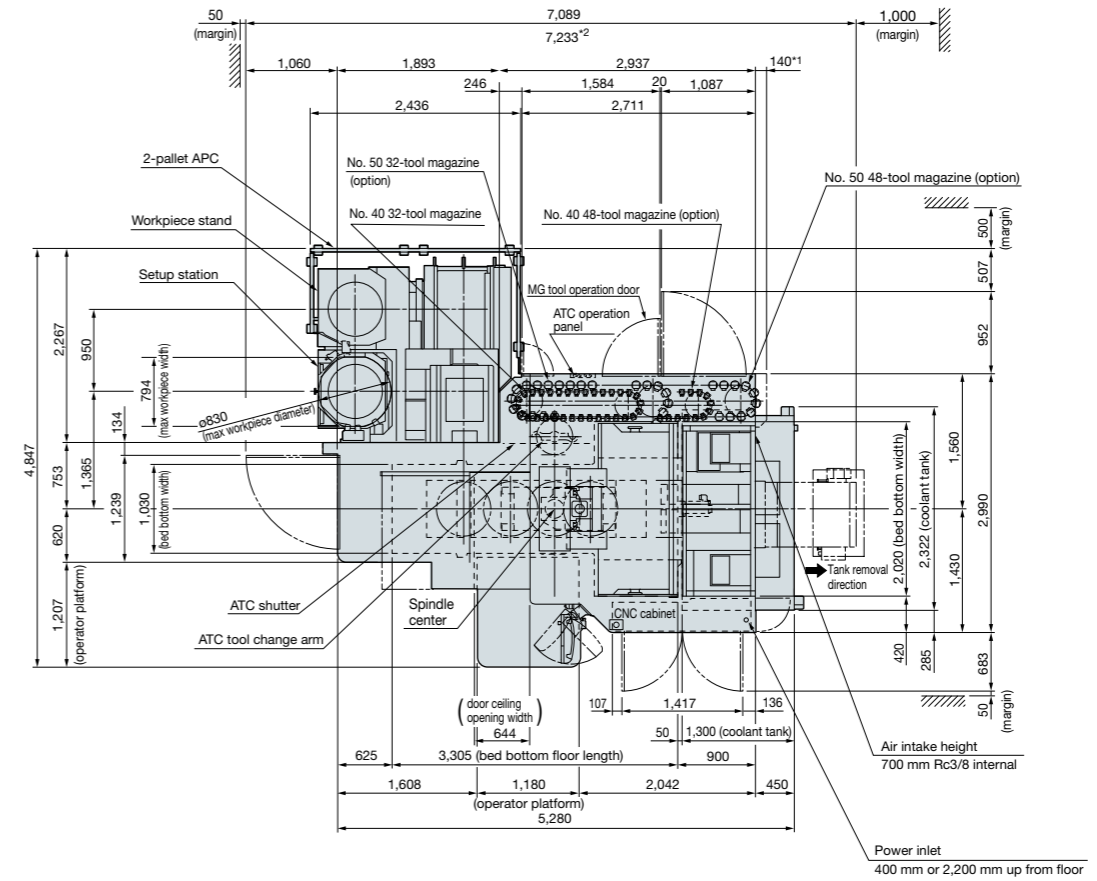
■ MU-6300V

Hinge lift-up chip conveyor
Height: 750 mm (option)

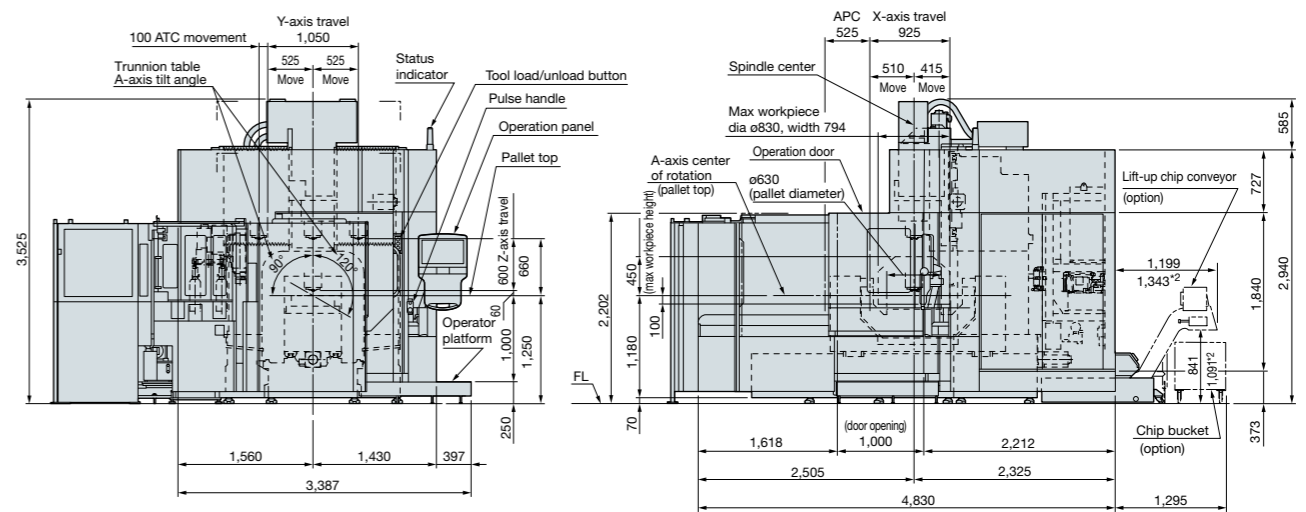


■ MU-6300V 2-pallet APC

Hinge lift-up chip conveyor
Height: 750 mm (option)



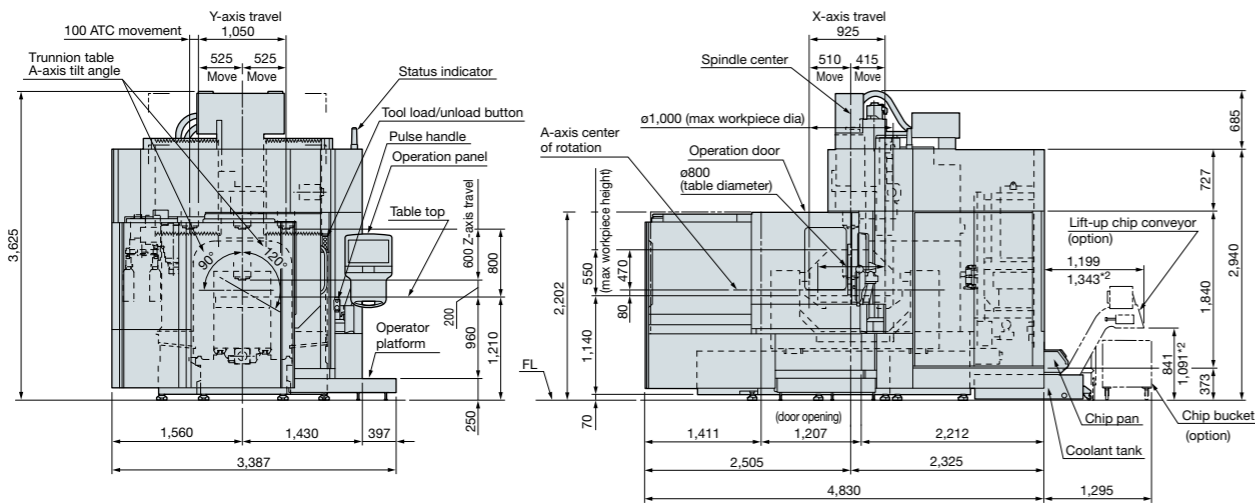
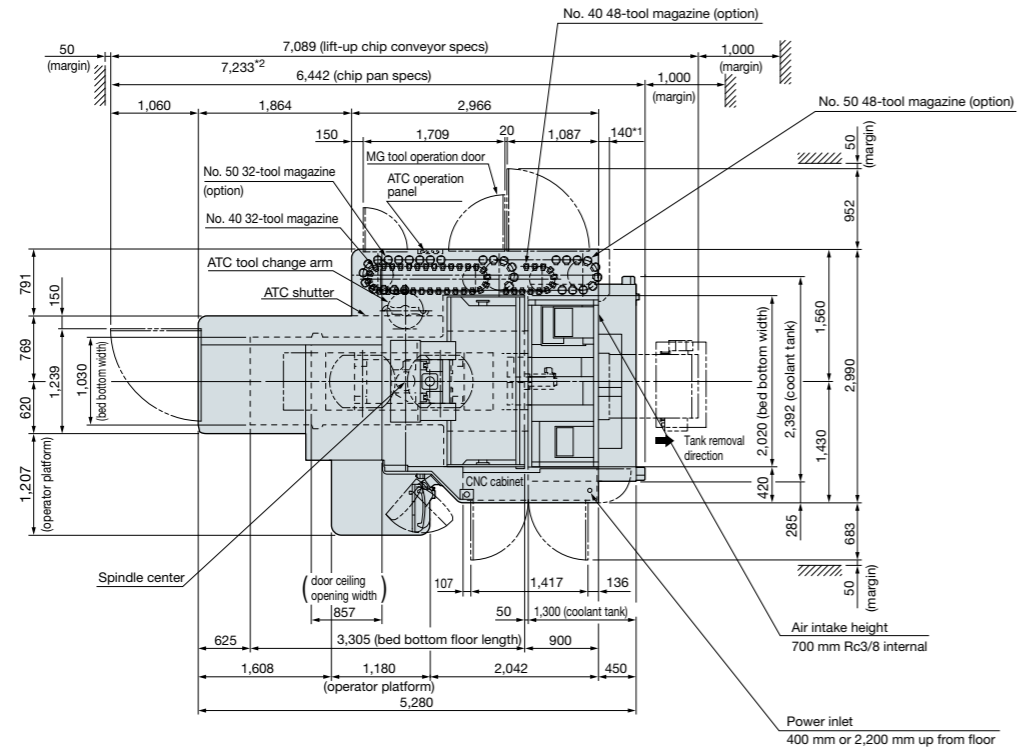
*1. No. 50 48-tool magazine
*2. Hinge lift-up chip conveyor
Height: 1,000 mm (option)



*1. No. 50 48-tool magazine
*2. Hinge lift-up chip conveyor
Height: 1,000 mm (option)

MU-8000V

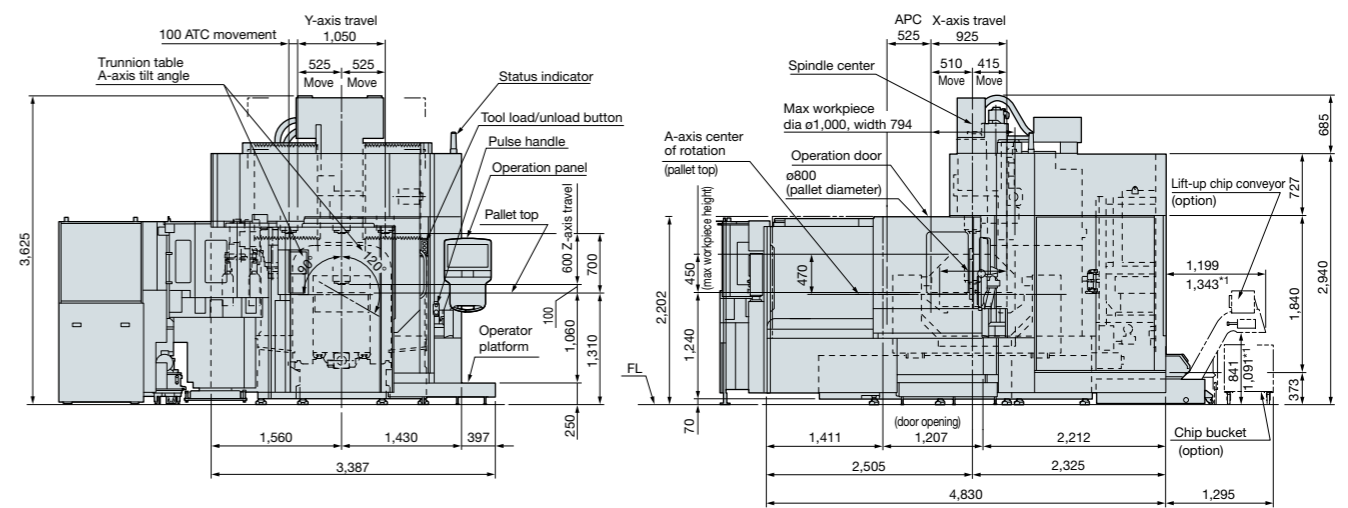
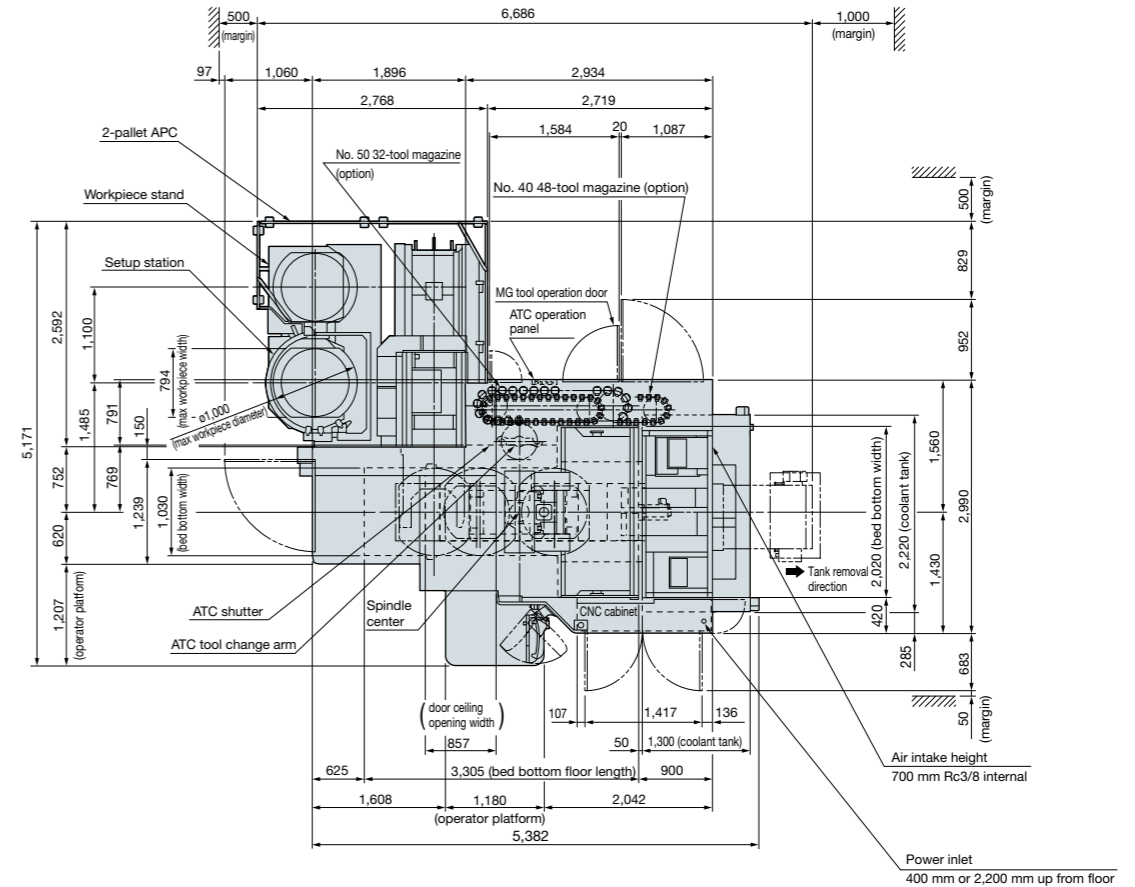
Hinge lift-up chip conveyor
Height: 750 mm (option)



*1. No. 50 48-tool magazine
*2. Hinge lift-up chip conveyor
Height: 1,000 mm (option)

MU-8000V 2-pallet APC

Hinge lift-up chip conveyor
Height: 750 mm (option)



*1. Hinge lift-up chip conveyor
Height: 1,000 mm (option)

When using Okuma products, always read the safety precautions mentioned in the instruction manual and attached to the product.

● The specifications, illustrations, and descriptions in this brochure vary in different markets and are subject to change without notice.
Pub. No. MU-V series-E-(14b)-100 (Oct 2025)

This product is subject to the Japanese government Foreign Exchange and Foreign Trade Control Act with regard to security controlled items; whereby Okuma Corporation should be notified prior to its shipment to another country.



OKUMA Corporation

Oguchi-cho, Niwa-gun,
Aichi 480-0193, Japan
TEL: +81-587-95-7825 FAX: +81-587-95-6074