

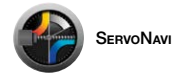
MILLAC 44V II

Vertical Machining Center



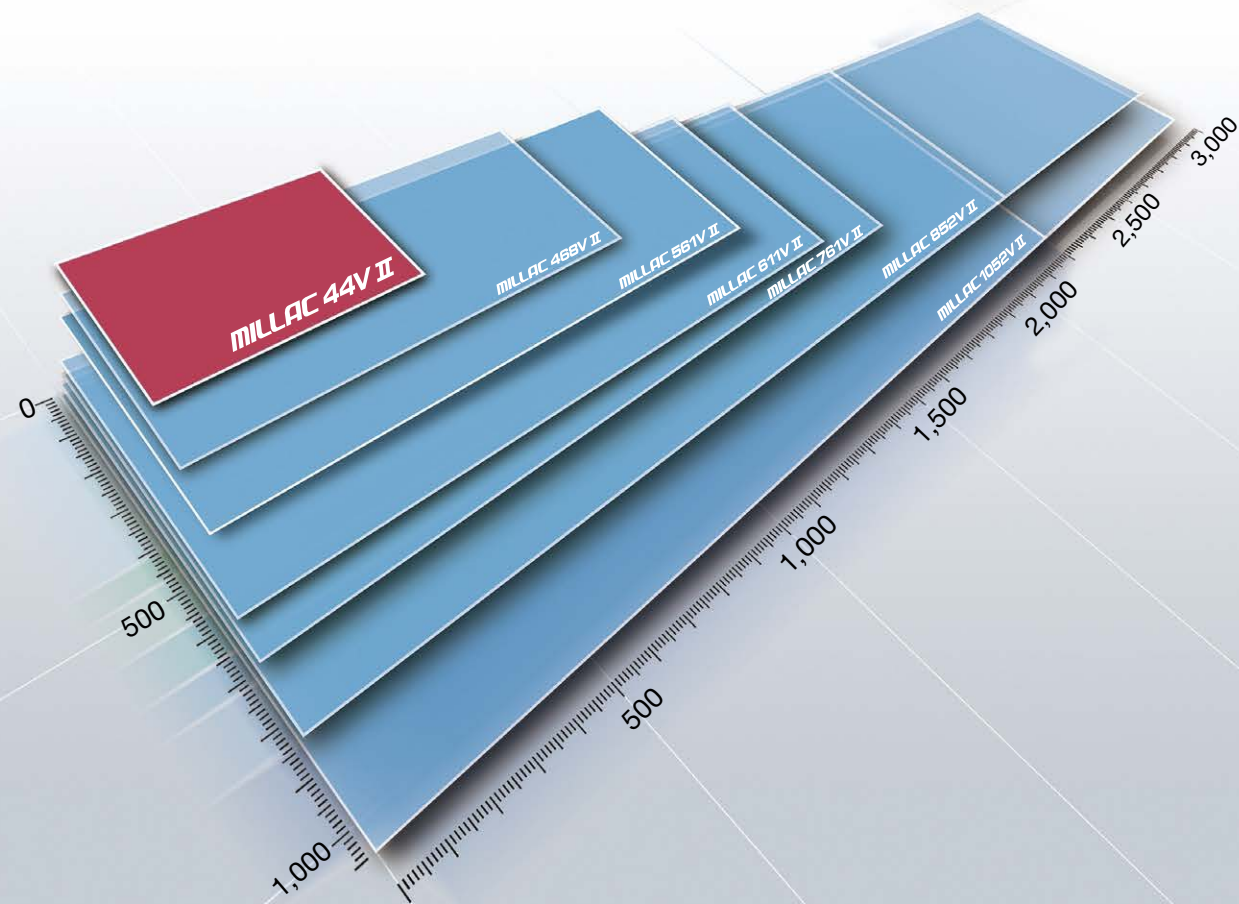
MILLAC 44V II

Vertical Machining Center



Ideal for automated production lines
Highly efficient machining of
small mass-produced parts

- Highly rigid box way
- Rapid traverse 50 m/min
- High speed, high-rigidity spindle
- Maximum spindle speed 12,000 min⁻¹
- Power 15/11 kW



MILLAC 44V II

Photographs used in this brochure may show optional equipment.

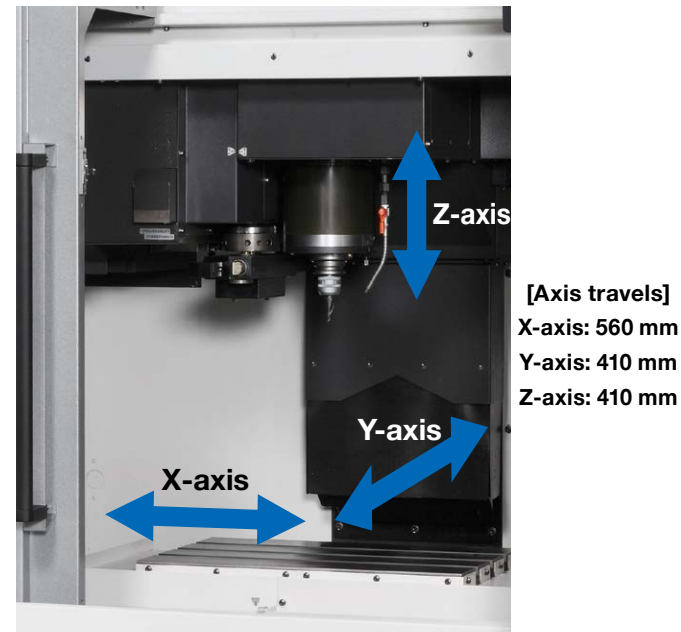
The best machine for automated production lines

Space-saving with large work envelope

Space-saving machine



Large work envelope



Improving productivity with highly efficient and high quality cutting

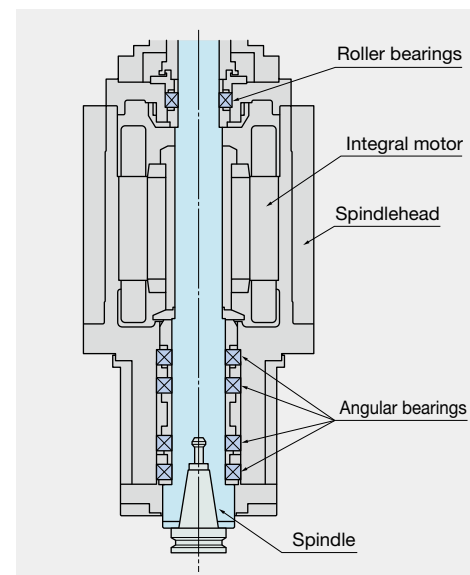
X-, Y-, Z-axis slideways

The slideway on each axis is a highly rigid box way, enabling high vibration absorbance, high quality machining. Maintainability is superb, for longer service life.

VAC integral motor/spindle

Spindle is supported by ceramic angular bearing and roller bearing, for low heat generation and low vibration even with long and high-speed operation. An integrated motor used for the drive also gives quiet, smooth turning increments from low to high speeds.

Achieves high cutting stability with use of dual contact spindle



Highly productive with shorter cutting and non-cutting times

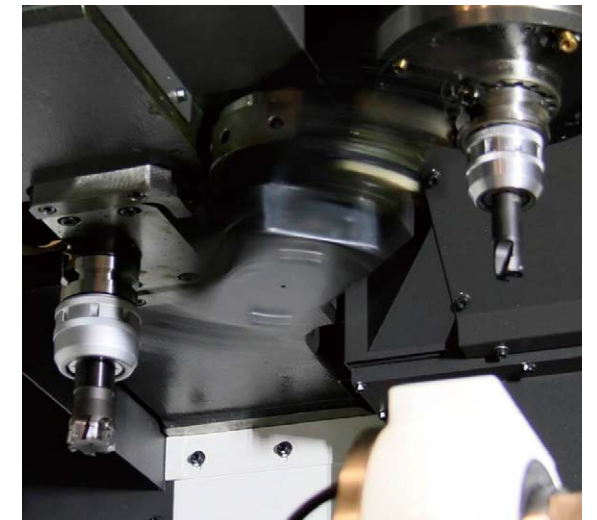
Shorter cutting times

- Spindle speed 12,000 min⁻¹
- Spindle output 15 kW (25%ED)
- Max torque 73.4 N-m (15%ED)
- Cutting feedrate X-, Y-, Z-axis max 20,000 mm/min



Reduced non-cutting times

- Rapid traverse X-, Y-, Z-axis 50 m/min
- Rapid traverse acceleration ... 1.0 G
- Spindle startup 1.0 sec/10,000 min⁻¹
- ATC time T-T/C-C 0.9 sec/3.1 sec
- ATC magazine indexing 1.2 sec (16-tool magazine/half cycle)



Reduced down time

- Power failure spindle drop prevention

Prevention of Z-axis drop during emergency stops or power failures, including during servo alarms.

- System with less wiring

Various devices (limit switches, etc) are designed as connectors, with water-/dustproof, multi-port joints for easy snap on/off and better reliability.

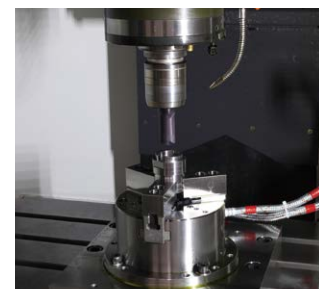
Machining capacity

- Material:S45C

Cutting tool	Spindle speed min ⁻¹	Cutting speed m/min	Feedrate mm/min	Cutting width mm	Cutting depth mm	Chip volume cm ³ /min
ø75 face mill 4-blade	1,000	240	500	70	4	140
ø100 face mill 5-blade	800	255	800	70	2	112

- Material:A7075

Cutting tool	Spindle speed min ⁻¹	Cutting speed m/min	Feedrate mm/min	Cutting width mm	Cutting depth mm	Chip volume cm ³ /min
ø40 end mill 4-flute	12,000	1,500	8,000	40	4	1,280



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

Machine Specifications

	Model	Unit	MILLAC 44V II		MILLAC 44V II (2P-APC)	
			General Applications	Die/Mold Applications	General Applications	Die/Mold Applications
Travels	X-axis (table L/R)	mm (in)	560 (22.05)			
	Y-axis (table F/B)	mm (in)	410 (16.14)			
	Z-axis (spindlehead vertical)	mm (in)	410 (16.14)			
	Table top to spindle nose	mm (in)	150 to 560 (5.91 to 22.05)	200 to 610 (7.87 to 24.02)		
Table	Column to spindle center	mm (in)	450 (17.72)			
	Work surface	mm (in)	630 × 400 (24.80 × 15.75)	(Pallet) 400 × 400 (15.75 × 15.75)		
	Floor to table top	mm (in)	850 (33.46)	(Pallet top) 1,000 (39.37)		
	Max load capacity	kg (lb)	250 (550)	200 (440)		
Spindle	Spindle speed	min ⁻¹	120 to 12,000 [20,000] *1			
	Speed ranges		Stepless			
	Taper bore		7/24 taper No. 40			
	Bearing dia	mm (in)	ø60 (2.36)			
Feedrates	Rapid traverse (X-, Y-, Z-axis)	m/min (fpm)	50 (164.05)	30 (98.43)	50 (164.05)	30 (98.43)
	Cutting feedrate (X-, Y-, Z-axis)	mm/min (ipm)	20,000 (787)			
Motors	Spindle	kW (hp)	15/11 (20/15) (25% ED/cont) [OSP: 30/22 (40/30) (10 min/cont), FANUC: 18.5/11 (25/15) (15% ED/cont)] *1			
	Feed axes	kW (hp)	OSP: X: 2.2 (3) Y: 3.0 (4) Z: 5.5 (7.5), FANUC: X: 2.5 (3.3) Y: 2.7 (3.6) Z: 4.5 (6)			
ATC	Tool shank		MAS BT40			
	Pull stud		MAS 2			
	Tool capacity	tools	16 [24]			
	Max tool dia (w/adjacent / w/o adjacent)	mm (in)	ø90/ø115 (ø3.54/ø4.53)			
	Max tool length	mm (in)	250 (9.84)			
	Max tool mass / moment	kg/N-m	5/4.9 (11 lb/3.6 ft-lbf)			
	Tool selection		Memory random			
APC	No. of pallets		—	2		
	APC time	sec	—	5		
	Servomotor for APC rotation	kW (hp)	—	OSP: 1.7 (2.3), FANUC: 1.2 (1.6)		
Machine size	Height	mm (in)	2,630 (103.54)			
	Floor space width × depth	mm (in)	OSP: 1,600 × 3,380 (62.99 × 133.07) FANUC: 1,600 × 3,320 (62.99 × 130.71)	1,600 × 3,545 (62.99 × 139.57)		
	Mass	kg (lb)	4,500 (9,900)	5,000 (11,000)		
Control			OSP-P300MA	OSP-P300MA	OSP-P300MA	OSP-P300MA
			FANUC 0i-MF	FANUC 31i-B	FANUC 0i-MF	FANUC 31i-B

[]: Optional *1: 20,000 min⁻¹ spindle

Standard Accessories

Control	OSP-P300MA FANUC 0i-MF (standard)	Full enclosure shielding Door interlock	With ceiling
Spindle speed	120 to 12,000 min ⁻¹ No. 40 Spindle motor 15/11 kW	Slideway lube supplier Work lamp	LED
Spindle/spindlehead cooler	Oil temperature controller	ATC magazine	16 tools
Dual contact spindle	BIG-PLUS®	Electronic buzzer	At completion of cycle, alarm
Coolant system*1	Tank: 250 L, pump motor: 340 W	Pulse handle	Portable 1-axis switching unit
Coolant nozzles	4 universal nozzles	Foundation washers and jack bolts	
Chip pan		Tools, tool box	Hand tools
ATC air blower (blast)		*1 Use water-soluble coolant. In cases when an oil-based coolant must be used, fire protection measures are essential as this could cause fire.	

Standard Spindle

OSP

No. 40

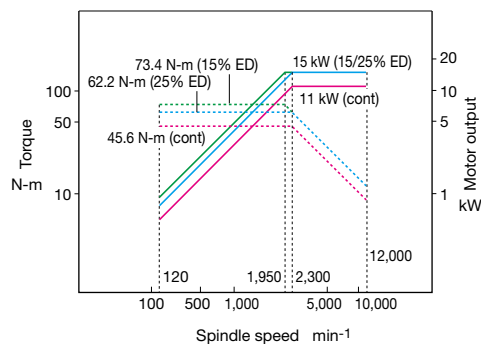
12,000 min⁻¹

Max output

15/11 kW
(25% ED/cont)

Max torque

73.4/45.6 N-m
(15% ED/cont)



FANUC

No. 40

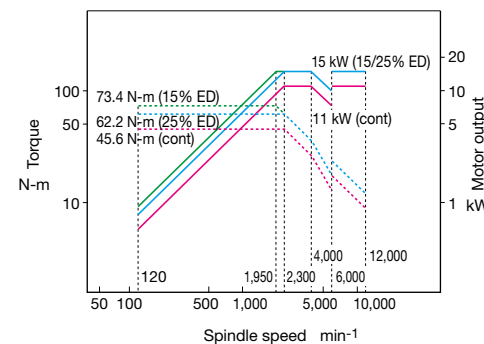
12,000 min⁻¹

Max output

15/11 kW
(25% ED/cont)

Max torque

73.4/45.6 N-m
(15% ED/cont)



Optional Specifications

Optional spindle speeds	20,000 min ⁻¹ *1 No. 40 Integral motor/spindle OSP: 30/22 kW (40/30 hp) FANUC: 18.5/11 kW (25/15 hp)
ATC magazine tool storage	24 tools
Chip air blower (blast)	
Coolant pump	600 W
Oil hole supply	1.0 MPa, 1.5 MPa
Thru-spindle coolant*2	1.5 MPa, 7.0 MPa
In-machine chip discharge system	Oil pan: Chip flusher Gutter: Coil type, 1 each right/left, chip flusher
Off-machine chip discharge system	Lift-up conveyor (See p. 6 for recommended chip conveyors.)
Chip bucket	With/without tilt
Shower coolant systems	Ceiling shower (additional 600 W pump)
Workpiece washing gun	250 W
Coolant nozzles	Three additional flexible nozzles
Mist collector	
Oil skimmer	Belt system
Air gun	
Coolant temperature regulator	
Auto gauging, zero offset	Touch probe
Auto tool length compensation	Touch sensor, laser sensor
Raised column	+200 mm
Auto front cover open close	
TAS-S (Thermo Active Stabilizer—Spindle)	OSP
TAS-C (Thermo Active Stabilizer—Construction)	OSP
Spindle thermal growth compensation	FANUC
Construction thermal growth compensation	FANUC
Sub-table	
Machine status indicator	
Rotary tables	Consultations required for details
Hydraulic fixtures	Consultations required for details
Foundation bolts	Clamp anchors
2-pallet APC	Rotary shuttle, front installed Raised column, auto cover open/close (open: 550 mm)
Die/mold applications	FANUC: FANUC 31i-B. Rapid traverse: X-, Y-, Z-axis: 30 m/min

*1. Oil temperature controller provided separately. *2 Okuma pull stud required.

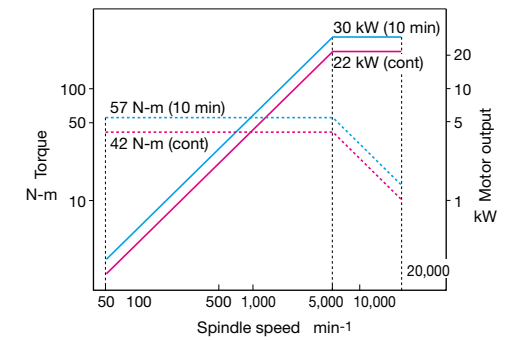
Hight-speed spindle (opt)

OSP

No. 40 20,000 min⁻¹

Max output 30/22 kW (10 min/cont)

Max torque 57/42 N-m (10 min/cont)

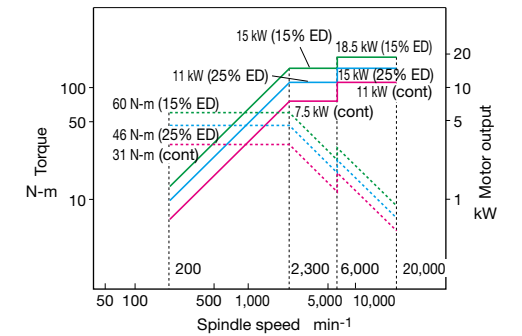


FANUC

No. 40 20,000 min⁻¹

Max output 18.5/11 kW (15% ED/cont)

Max torque 60/31 N-m (15% ED/cont)



Recommended Chip Conveyors

Please contact an Okuma sales representative for details.

○: Recommended
△: Recommended with conditions

Workpiece material		Steel	FC	Aluminum / Nonferrous	Mixed (general use)
Chip shape					
In-machine	Coil (optional)	○	○	○	○
Off-machine (Optional)	Hinge	○	—	—	△ (*4)
	Scraper	—	○ (Dry)	—	—
	Scraper (with drum filter)	—	○ (Wet) with magnet	△ (*3)	—
	Hinge + scraper (with drum filter)	△ (*1)	△ (Wet) (*2)	○	○

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

Off-machine lift-up chip conveyors

Type	Hinge	Scraper	Scraper (with drum filter)	Hinge + scraper (with drum filter)
Shape				

Note: Platform raised machine may be required with some applications.

Okuma Intelligent Technology for competitive machine shops



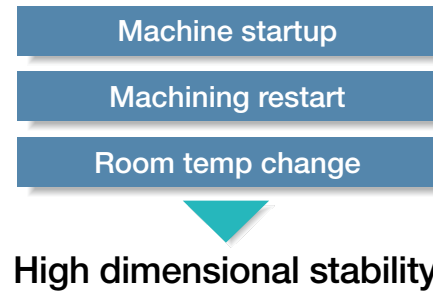
Thermo-Friendly Concept

The innovation that accepts temperature changes

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.

To stabilize thermal deformation, warming-up time is shortened and the burden of dimensional correction during machining restart is reduced.



Thermo-Friendly structure gives outstanding dimensional stability

TAS-C: Thermo Active Stabilizer—Construction (Optional)

"Proactively" keeps the machine [construction] in optimum, stable condition during shop environment temperature change—resulting in superb (stable) machining accuracies.

TAS-S: Thermo Active Stabilizer—Spindle (Optional)

Spindle deformation will be accurately controlled even during operations with frequent speed changes.

ECO suite (OSP-P300MA only)

Next-Generation Energy-Saving System

A suite of energy saving applications for machine tools

ECO Idling Stop Accuracy ensured, cooler off Intelligent energy-saving function with the Thermo-Friendly Concept. The machine itself determines whether or not cooling is needed and cooler idling is stopped with no loss to accuracy.

Electricity consumption during non-machining time greatly reduced with "ECO Idling Stop", which shuts down each piece of auxiliary equipment not in use. (Standard application on machines with Thermo-Active Stabilizer—Spindle)

ECO Power Monitor On-the-spot check of energy savings Power is shown individually for spindle, feed axes, and auxiliaries on the OSP operation screen. The energy-saving benefits from auxiliary equipment stopped with ECO Idling Stop can be confirmed on the spot.

ECO Operation (Optional)

Intermittent/continuous operation of chip conveyor and mist collector during operation

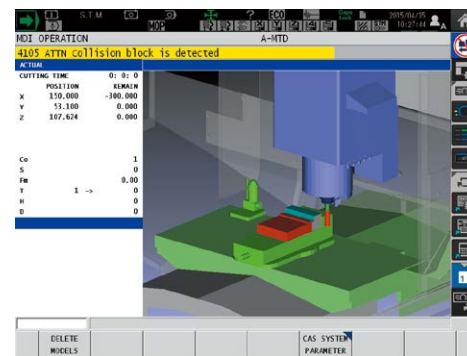


Collision Avoidance System

Collision prevention (Optional: OSP-P300MA only)

World's first "Collision-Free Machine"

CAS prevents collisions in automatic or manual mode, providing risk-free protection for the machine and great confidence for the operator.

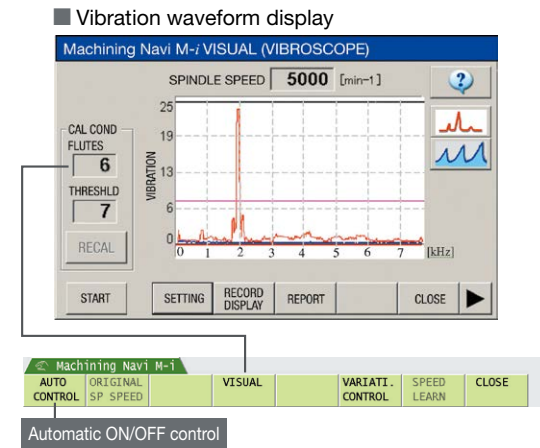


Machining Navi M-i, M-g II+ (Optional: OSP-P300MA only)

Cutting condition search for milling

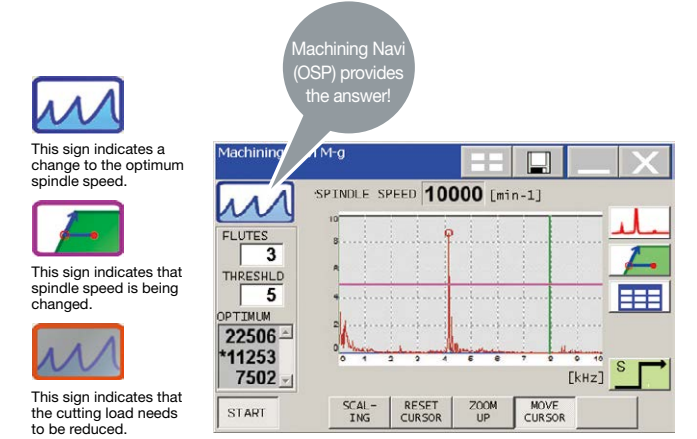
Automatically changes to optimum spindle speed (M-i)

Sensors built in to the machine detect and analyze machining chatter. Machining Navi then navigates to the effective measures in a wide range of spindle speeds, from low to high.



Adjust cutting conditions while monitoring the data (M-g II+)

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.



SERVO NAVI (OSP-P300MA only)

Optimized Servo Control

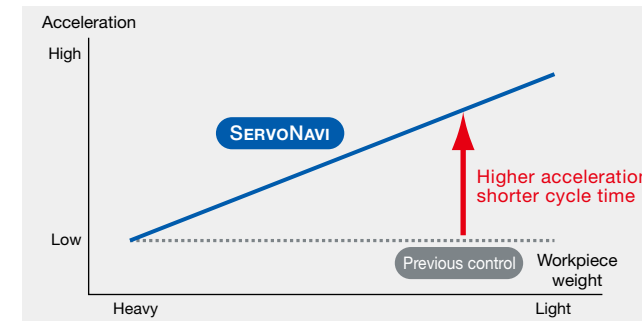
Achieves long term accuracy and surface quality

SERVO NAVI AI (Automatic Identification)

Cycle time shortened with faster acceleration Work Weight Auto Setting

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.

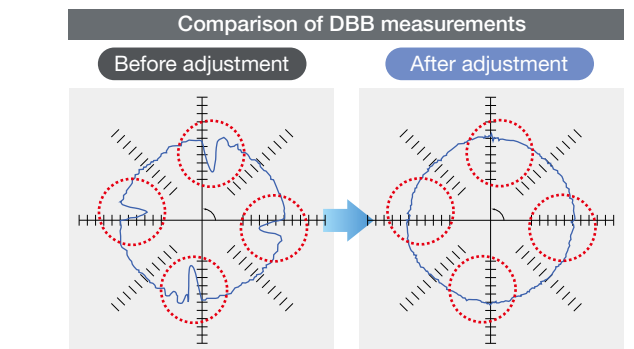


SERVO NAVI SF (Surface Fine-tuning)

Maintains machining accuracy and surface quality Reversal Spike Auto Adjustment

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.



Vibration Auto Adjustment

Contributes to longer machine life

When aging changes machine performance, noise, vibration, crease marks, or fish scales may appear.

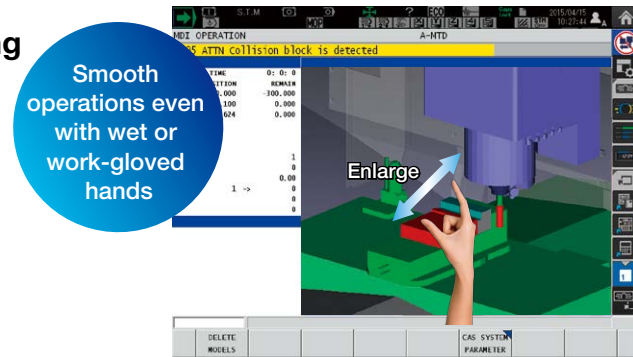
Vibration Auto Adjustment can quickly eliminate noise and vibration even from machines with years of operation.

**With revamped operation and responsiveness—
ease of use for machine shops first!**

Smart factories implement advanced digitization and networking (IoT) in manufacturing to achieve enhanced productivity and added value. The OSP has evolved tremendously as a CNC suited to advanced intelligent technology. Okuma's new control uses the latest CPUs for a tremendous boost in operability, rendering performance, and processing speed. The OSP suite also features a full range of useful apps that could only come from a machine tool manufacturer, making smart manufacturing a reality.

**Smooth, comfortable operation with the feeling
of using a smart phone**

Improved rendering performance and use of a multi-touch panel achieve intuitive graphical operation. Moving, enlarging, reducing, and rotating 3D models, as well as list views of tool data, programs, and other information can be accomplished through smooth, speedy operations with the same feel as using a smart phone. The screen display layout on the operation screen can also be changed to suit operator preferences and customized for the novice and/or veteran machinists.



Note: Collision Avoidance System (Optional) shown above.

“Just what we wanted.”— Refreshed OSP suite apps

This became possible through the addition of Okuma's machining expertise based on requests we heard from real, machine-shop customers. The brain power packed into the CNC, built by a machine tool manufacturer, will “empower shop floor” management.

Maintenance Monitor
Routine inspection support

The Maintenance Monitor displays items for inspections before starting daily operation and regular inspections and the rough estimate of inspection timing. Touching the [INFO] button displays the PDF instruction manual file of relevant maintenance items.

Spindle Output Monitor
Increased productivity through visualization of motor power reserve

E-mail Notification
Monitoring operating status even when away from the machine

Common Variable Monitor
Comment display for greater ease of use and faster work

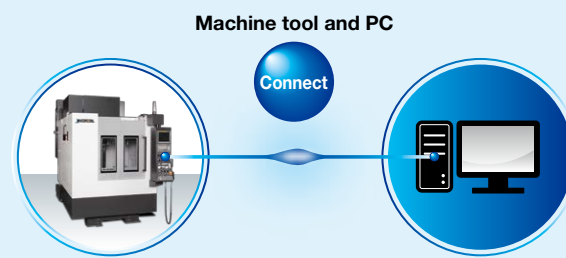
Screen Capture
Automatic saving of recorded alarms

Scheduled Program Editor
Easy programming without keying in code

Connect Plan Get Connected, Get Started, and Get Innovative with Okuma “Monozukuri”

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.



Standard Specifications

Basic specs	Control	X, Y, Z simultaneous 3-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 unit: 0.001 mm, 0.01 mm, 1 mm, 0.0001°, 0.001°, 1°
	Feed	Cutting feed override 0 to 200%, rapid traverse override 0 to 100%
	Spindle control	Direct spindle speed command, 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	15-inch color LCD + multi-touch panel operations
	Self-diagnostics	Automatic diagnostics and display of program, operation, machine, and NC system faults
	Programming	Program capacity
Program operations		Program management, editing, scheduled program, fixed cycle, G-/M-code macros, arithmetic, logic statements, math functions, variables, branch commands, coordinate calculate, area machining, coordinate convert, programming help
Operations	“suite apps”	Applications to graphically visualize and digitize information needed on the shop floor
	“suite operation”	Highly reliable touch panel suited to shop floors. 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
	Machine operations	MDI, manual (rapid traverse, manual cutting feed, pulse handle), load meter, operation help, alarm help, sequence return, manual interrupt/auto return, pulse handle overlap, parameter I/O, PLC monitor, easy setting of cycle time reduction
	MacMan	Machining management: machining results, machine utilization, fault data compile & report, external output
Communications / Networking	USB (2 ports), Ethernet, DNC-T1	
High speed/accuracy specs	Hi-G control, Hi-cut Pro, pitch error compensaion, SERVO NAVI, Machining Time Shortening Function	
Energy-saving	ECO suite	

*1. Spindle cooler Idling Stop is used on TAS-S equipped machines.

*2. The power display shows estimated values. When precise electrical values are needed, select the wattmeter option.

Optional Specifications

Items	Kit specs	NML		3D		AOT	
		E	D	E	D	E	D
Interactive functions							
Advanced One-Touch IGF-M (w/Real 3D Simulation)						●	●
Interactive MAP (I-MAP)				●	●		
I-MAP-B							
I-MAP-C							
Programming							
Auto scheduled program update		●	●	●	●	●	●
Common variables	1,000 pcs						
(Std: 200 pcs)	2,000 pcs						
Program branch; 2 sets							
Program notes (MSG)							
Coordinate system selection (Std: 20 sets)	100 sets	●	●	●	●	●	●
	200 sets						
	400 sets						
Helical cutting (within 360°)		●	●	●	●	●	●
3D circular interpolation							
Synchronized Tapping II		●	●	●	●	●	●
Arbitrary angle chamfering		●	●	●	●	●	●
Cylindrical side facing							
Slope machining							
Tool maximum rotational speed setting							
F1-digit feed	4 sets, 8 sets, parameter						
Programmable travel limits (G22, G23)		●	●	●	●	●	●
Skip (G31)							
Additional G/M code macros							
3D tool compensation							
Tool wear compensation							
Drawing conversion	Programmable mirror image (G62)	●	●	●	●	●	●
	Enlarge / reduce (G50, G51)	●	●	●	●	●	●
User Task 2	I/O variables (16 each)						
Fixture offset							
Inverse time feed							
Monitoring							
Real 3D Simulation				●	●	●	●
Simple load monitor	Spindle overload monitor	●	●	●	●	●	●
NC operation monitor	Hour meter, work counter	●	●	●	●	●	●
Hour meters	Power, spindle, NC, cutting						
Work counter	With M02 and M30 commands						
Cutting Status Monitor							
Machine Status Logger							
AI machine diagnostics	spindle, feed axis						
MOP-TOOL	Adaptive control, overload monitor						
Tool life management	Hour meter, No. of workpieces	●	●	●	●	●	●
Items							
Gauging							
Auto gauging	By touch probe (w/ G31) Including auto gauging						Included in machine specs
Tool breakage detection	By touch sensor (w/ G31) With tool compensation						Included in machine specs
Gauging data printout	File output						
Manual gauging (w/o sensor)		●	●	●	●	●	●
Interactive gauging (touch sensor, touch probe required)							
External I/O, communications							
RS-232C connector							
DNC-B (RS-232C-Ethernet transducer used on OSP side)							
DNC-DT							
Additional USB (additional 2 ports; standard 2 ports)							
Automation, untended operations							
Auto power shut-off	M02 and END alarms Workpiece preps done → OFF	●	●	●	●	●	●
Warm-up (calendar timer)							
External program selection	Button, rotary switch, digital switches, BCD (2-digit, 4-digit)						
Cycle time reduction (Ignores certain commands)		●	●	●	●	●	●
High-speed, High-precision							
AbsoScale detection	X-Y-Z axes						
Super-NURBS*							
TAS-S (spindle)							
TAS-C (construction)							
ECO suite							
ECO Operation							
ECO Power Monitor	On machine wattmeter						
Other							
Control cabinet lamp (inside)							
Circuit breaker							
Sequence operation	Sequence stop	●	●	●	●	●	●
Upgraded sequence restart	Mid-block return	●	●	●	●	●	●
Additional pulse handle							
Manual angle/arc							
Jog feed							
External M code	4-point, 8-point						
Collision Avoidance System*							
Machining Navi M-i, M-gII+ (cutting condition search)							
One-Touch Spreadsheet							
Block skip; 3 sets							
Additional axes	A-, B-, C-axis [preps/additional axes]						
OSP-VPS (Virus Protection System)							

Note: NML: Normal, 3D: 3D simulation, AOT: Advanced One-Touch IGF
E: Economy, D: Deluxe

*There are limitations when Super-NURBS and Collision Avoidance System are used simultaneously.

FANUC 0i-MF

Standard Specifications

Basic Specs	Control	Simultaneous X, Y, Z control, positioning, linear/circular interpolation
	Input increment	±999999.999 mm to 0.001 mm, 0.001°
	Coordinate functions	Workpiece coordinates G54 to G59 6 sets, Addition of workpiece coordinate system sets G54.1P1 to G54.1P48 48 sets
	Feed	Direct F4 digit command, feed rate override 0 to 200%, Rapid traverse override 0 to 100%
	Spindle control	Direct S5 command, spindle override 50 to 150%
	Tool compensation	Tool offset pairs 400 sets, Tool offset memory C
	Display	10.4-inch LCD, graphic display, display in many languages (24 languages including Japanese and English)
Programming	Program capacity	Program capacity 512 KB (1,280 m)
	Programming operations	400 registered programs, extension program editing, simultaneous editing of multiple programs (including background editing) programmable data input Programmable mirror image, automatic corner deceleration, FS10/11 tape format, Inch/metric conversion, tool length measurement Fixed cycles for drilling, coordinate rotation, scaling, helical interpolation, circular interpolation any-angle chamfering corner R, custom macro, addition of custom macro common variables (#100-#199, #500-#999), rigid tapping Tool life management, extended tool life management, run-time/number of parts display, optional block skip
Operations		MDI, manual (rapid traverse, manual cutting feed, pulse handle)
		Self-diagnostics, alarm buzzer
		Tool offset, Fast skip (4-point input signal)
Communications / Networking		USB (1 port), memory card interface, built-in Ethernet (FOCAS2/Ethernet)
High speed / accuracy specs		AI Contour Control, bell-shaped acceleration/deceleration
Energy-saving function		Idling Stop

Optional Specifications

Programming		Measuring	
Program memory capacity	2 MB (5,120 m)	Auto gauging	
No. of registered programs extension 1	Maximum 1,000	Tool breakage detection	
AI Contour Control II		Communication Functions	
Fast Ethernet (OP board)		RS-232C interface	
Data server capacity	1 GB 4 GB	Communication Functions	FL-net, CC-Link, EtherNet/IP, PROFIBUS, PROFINET I/O
External M code		High-speed / High accuracy	
F1-digit feed (parameter)		Scale feedback	X-Y-Z axes
Nano smoothing		Spindle Thermal Growth Compensation	
Operations		Construction Thermal Growth Compensation	
Manual interactive function (manual linear/circular interpolation)		Other	
Machining time stamp		Lamp in control box	
Program restart		Circuit breaker	
Manual handle interrupt		Program protection key switch	
Tool maximum rotational speed setting		LCD CF card adapter	
Monitoring			
Power shutoff			
Hour meters	Power ON, Spindle run-time, NC ON time, Machining		

FANUC 31i-B

Standard Specifications

Basic Specs	Control	Simultaneous X, Y, Z control, positioning, linear/circular interpolation
	Input increment	±999999.999 mm to 0.001 mm, 0.001°
	Coordinate functions	Workpiece coordinates G54 to G59 6 sets
	Feed	Direct F4 digit command, feed rate override 0 to 200%
	Spindle control	Direct S5 command, spindle override 50 to 150%
	Tool compensation	T4 digit command, tool compensation: 64 sets
	Display	10.4-inch LCD, English language display, graphic display
Programming	Program capacity	Program capacity 64 KB (160 m)
	Programming operations	63 registered programs, programmable data input Fixed cycle, tool length measurement Extended program editing, coordinate rotation, manual interaction Optional block skip (1)
Operations		Pulse handle, input/output interface Self-diagnostics, alarm buzzer
Communications / Networking		USB (1 port), memory card interface, embedded Ethernet (FOCAS2/Ethernet)
High speed / accuracy specs		AI contour control, bell-shaped acceleration/deceleration
Energy-saving function		Idling stop

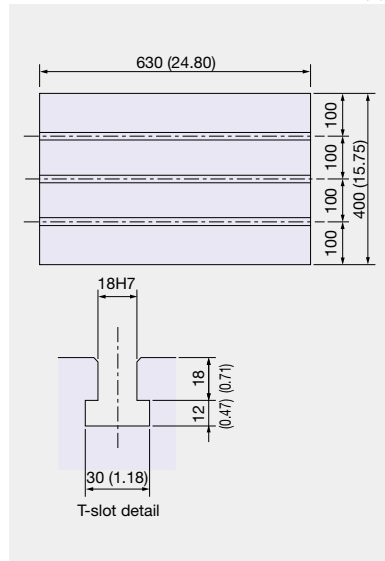
Optional Specifications

Items	Kit specs	Soft-K	AI Contouring Control II kit
Helical interpolation		●	●
Rigid tapping		●	●
Simultaneous editing of multiple programs (background)		●	●
Custom macros		●	●
Program memory capacity 512 KB (1,280 m)		●	●
Operating time/part No. display		●	●
Tool life management		●	●
Selection of five optional language		●	●
Inch/metric conversion		●	●
No. of tool compensations: 99 sets		●	●
Machining condition selecting function		●	●
Machining quality level adjustment			●
Tool compensation memory C			●
Jerk control			●
AI contour control II			●
Data server capacity (1 GB)			●
High speed processing			●
Nano smoothing			●
Smooth TCP			●
Data server explorer connection			●

Programming	
Program memory capacities	128 KB (320 m), 256 KB (640 m), 512 KB (1,280 m), 1 MB (2,560 m), 2 MB (5,120 m), 4 MB (10,240 m), 8 MB (20,480 m)
Registered programs	Extension 1 (125, 250, 500, 1,000) Extension 2 (2,000, 4,000)
Helical interpolation	
Simultaneous editing of multiple programs (background)	
Custom macros	
Addition of custom macro common variables	Total 600
Display of machine utilization time / No. of parts	
Tool life management	
Rigid tapping	
No. of read-ahead blocks extension 600→1000	AI contour control II kit
Data server capacity	1 GB, 4 GB
External M code	
F1-digit feed	9 sets (parameter)
Arbitrary angle chamfering corner R	
Programmable mirror image	
Addition of workpiece coordinate system	48 sets, 300 sets
Automatic corner override	
Scaling	
FS15 program format	
Nanosmoothing	
Cylindrical interpolation	
Polar coordinate interpolation	
Operations	
Program restart	
Fast skip	
Manual handle interrupt	
Tool compensations	99 sets, 200 sets, 400 sets, 499 sets, 999 sets
Tool max rotational speed setting function	
Tool offset	
Tool compensation memory	C
Warming up function	
Monitoring	
Power shutoff	
Hour meters	Power ON, Spindle run-time, NC ON time, Machining
Communication function	
Communication function	FL-net, CC-Link, EtherNet/IP, PROFIBUS, PROFINET I/O
RS-232C interface	
High-speed / High accuracy	
Scale feedback	X-Y-Z axes
Spindle Thermal Growth Compensation	
Construction Thermal Growth Compensation	
Other	
Lamp in control box	
Circuit breaker	
LCD CF card adapter	
Program protection key switch	

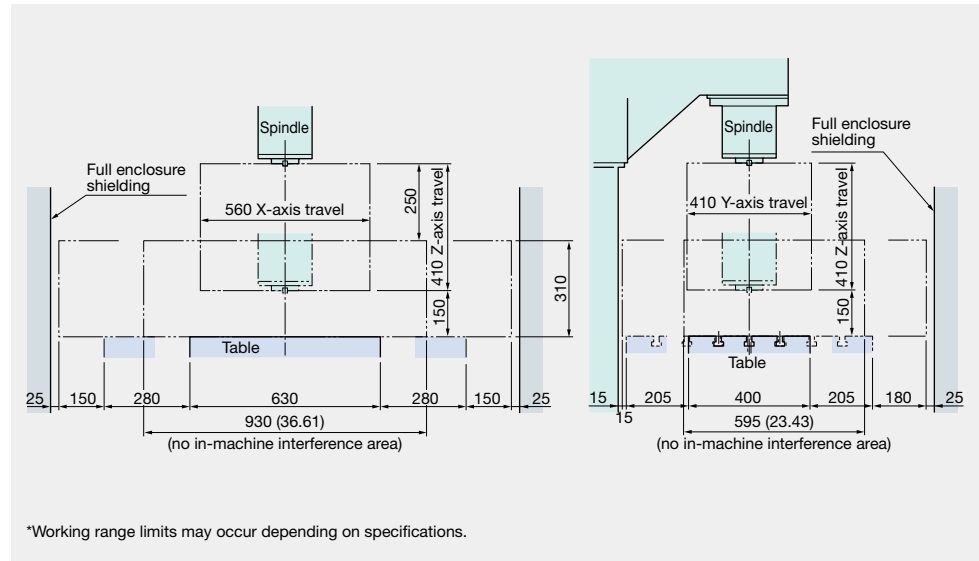
Table Dimensions

Unit: mm (in)



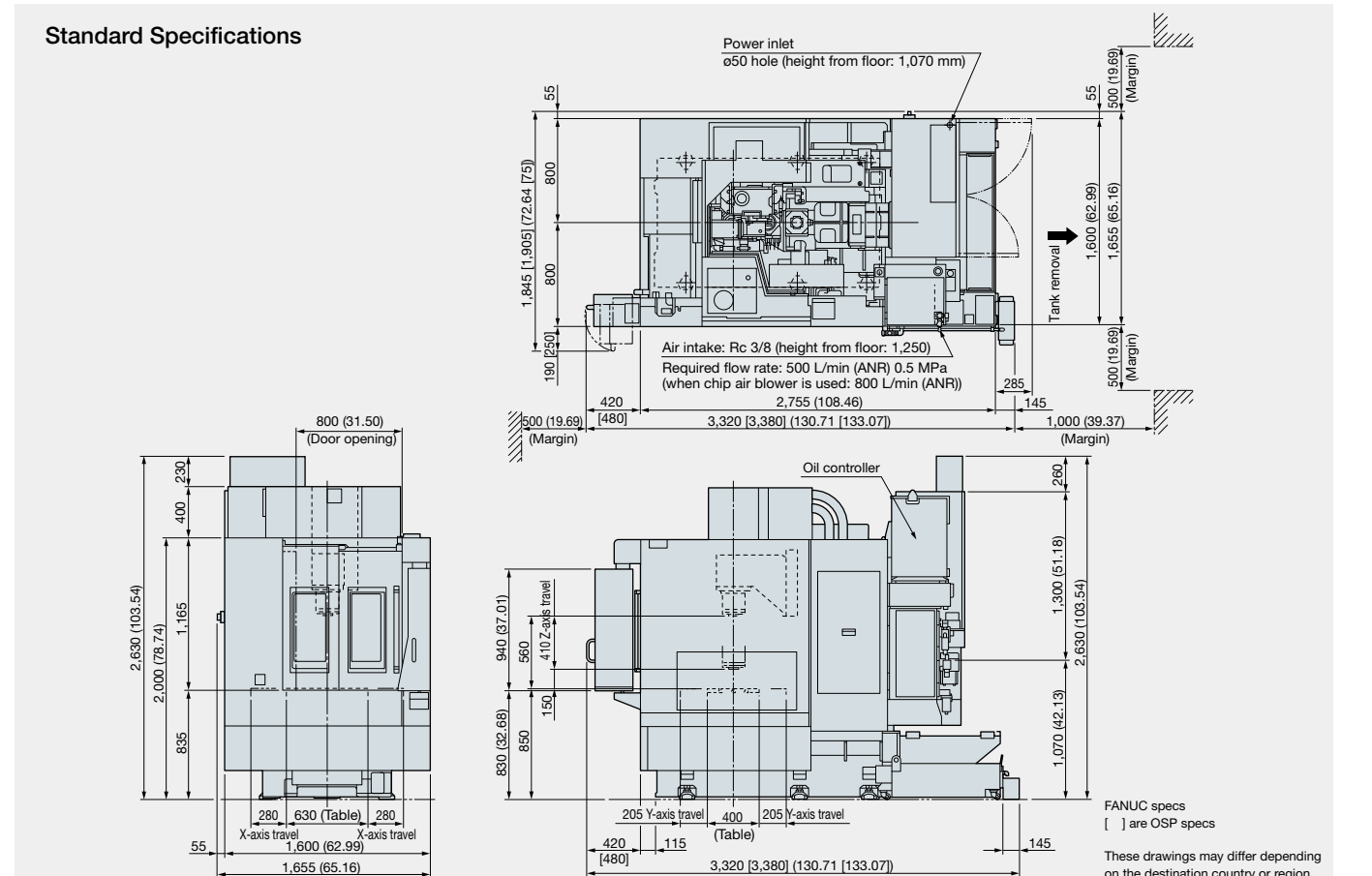
Working Ranges (Standard)

Unit: mm (in)



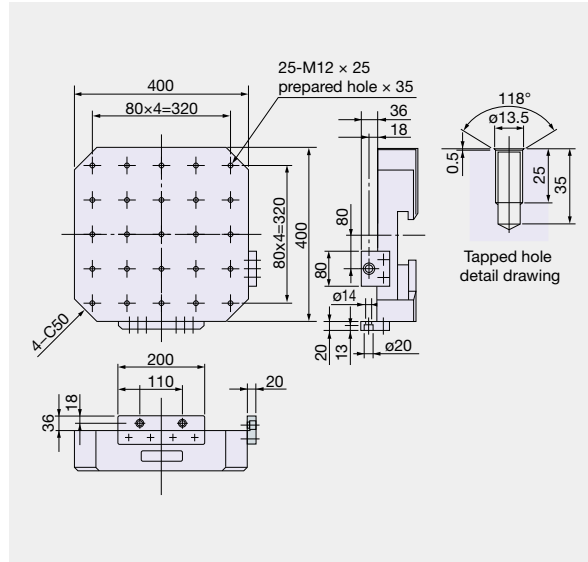
Dimensional/Installation drawing

Unit: mm (in)



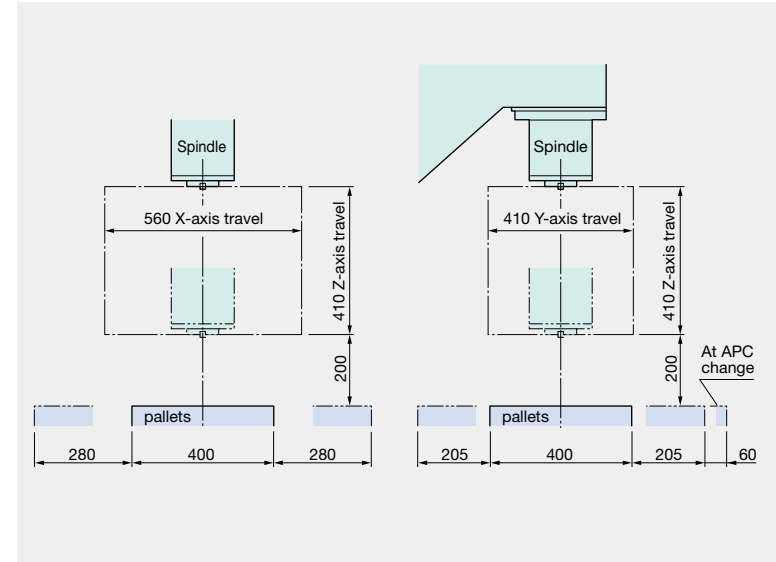
Pallet Dimensions (2P-APC)

Unit: mm



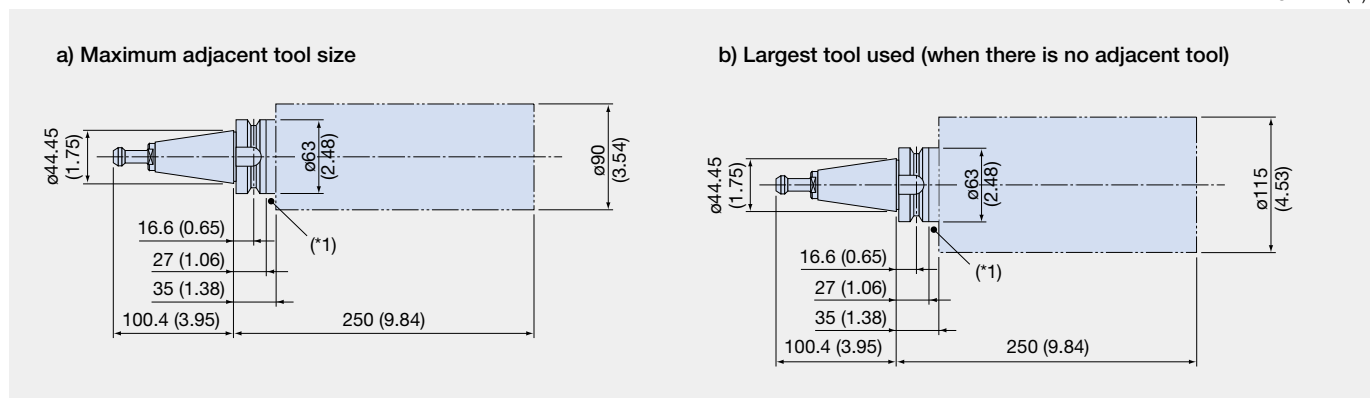
Working Ranges (2P-APC)

Unit: mm



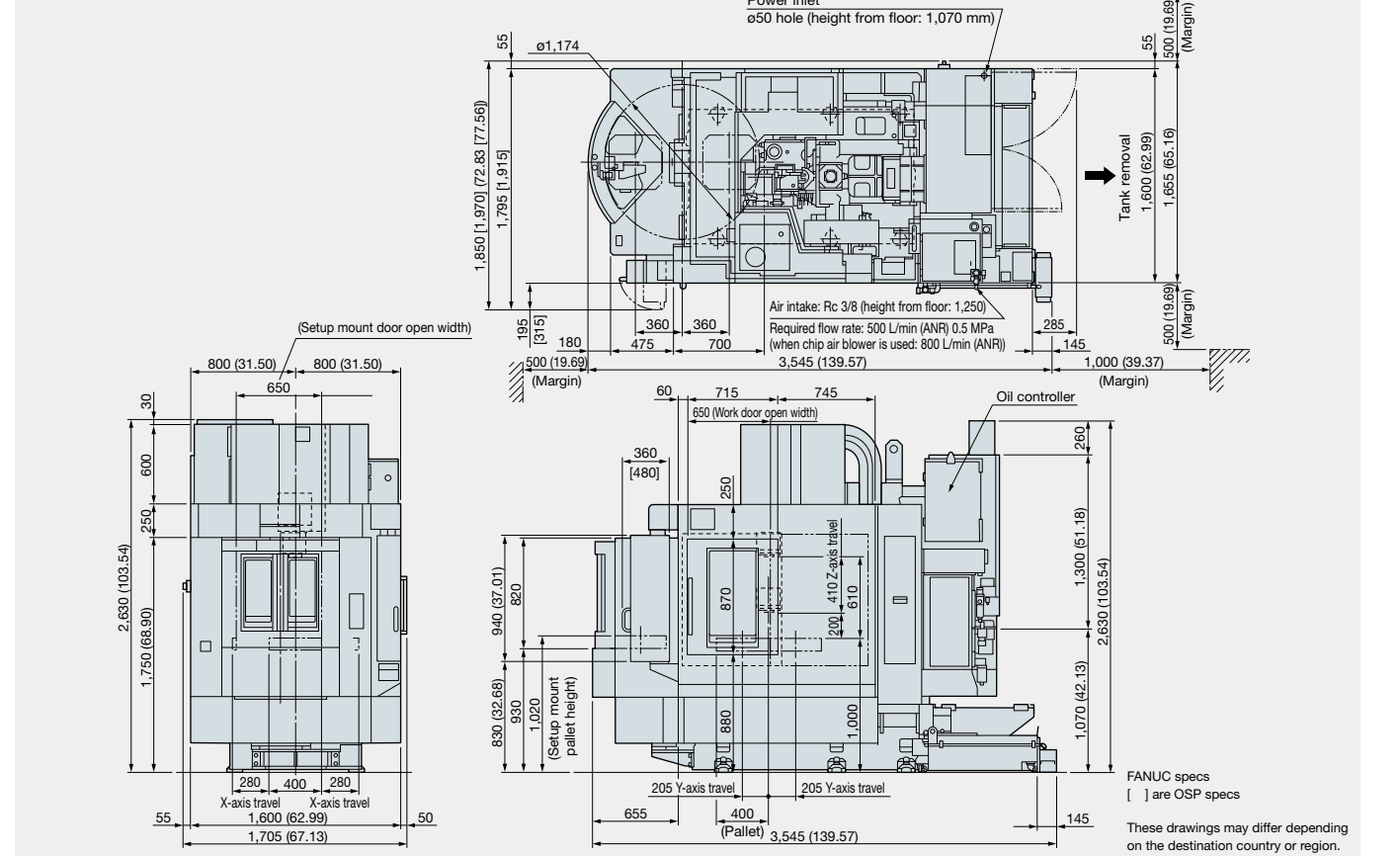
ATC Tool Dimensions

Unit: mm (in)



*1 With commercially available milling chucks there interference may occur between ATC tool change arm and the outer part of the tooling. Before using, always be sure to check dimensions in the manufacturer's catalog or other literature.

2P-APC Specifications



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.
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