

VARIAxis C-600

[5-axis vertical machining center]

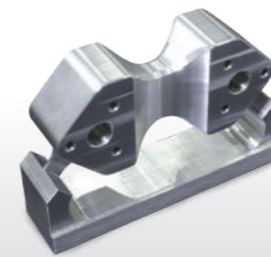


VARIAXIS C-600

- Wide variety of automation equipment available
 - such as 2-pallet changer
- Next generation MAZATROL SmoothAi CNC system



Shown with optional equipment



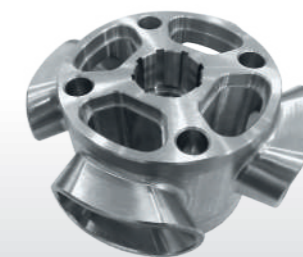
Aerospace component

Workpiece:
Fastener



Transportation industry component

Workpiece:
Bracket



General industry component

Workpiece:
Blower



Automotive component

Workpiece:
Control arm

Spindle specifications to meet a wide variety of machining requirements

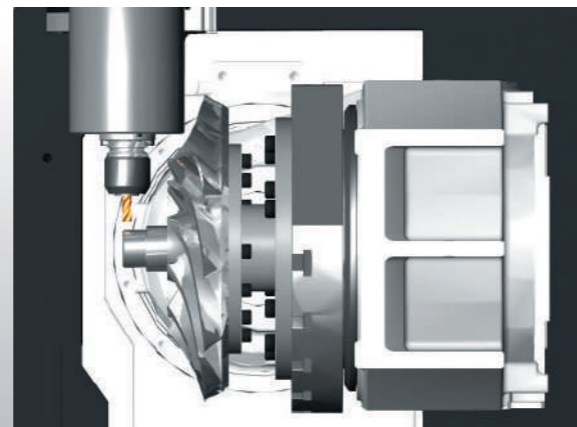
The high rigidity spindle can perform heavy duty machining of steel as well as high speed machining of non-ferrous materials such as aluminum. High speed and high torque specifications are available.



Speed	Standard	High-torque < option >	High-speed < option >	
	12000 rpm	15000 rpm	18000 rpm	20000 rpm
Output(40%ED)	11 kW (15 HP)	46 kW (62 HP)	30 kW (40 HP)	42 kW (56 HP)
Max. torque(40%ED)	70 N.m	200 N.m	105 N.m	161 N.m
Tool shank	BT-40 / BBT-40 / HSK-A63	BT-40 / BBT-40 / HSK-A63	BT-40 / BBT-40 / HSK-A63	BT-40 / BBT-40 / HSK-A63

Compact spindle cartridge minimises workpiece interference

Large machining area and compact spindle cartridge allows short tools to be used for high-accuracy machining.



High rigidity table

High rigidity tilting rotary table for high speed and high accuracy machining.



High-speed automatic tool changer

Cam-driven double arm automatic tool changer is designed to drastically reduce chip-to-chip time. Chip-to-chip is 4.5 seconds.



Tool magazine

The standard tool magazine has a storage capacity of 30 tools - 60, 90, 120 tools are optionally available

- Max. tool length (from tool tip to gauge line) 300 mm
- Tool diameter 80 mm (with adjacent pockets empty 130 mm)
- Max. tool weight 8 kg (120 kg total weight of tools for 30 tool magazine)



2-pallet changer option

The next workpiece can be setup during the machining of the current workpiece for higher productivity.



Robot interface option

Robot interface is optionally available. Parts can be automatically loaded / unloaded over extended periods of operation.

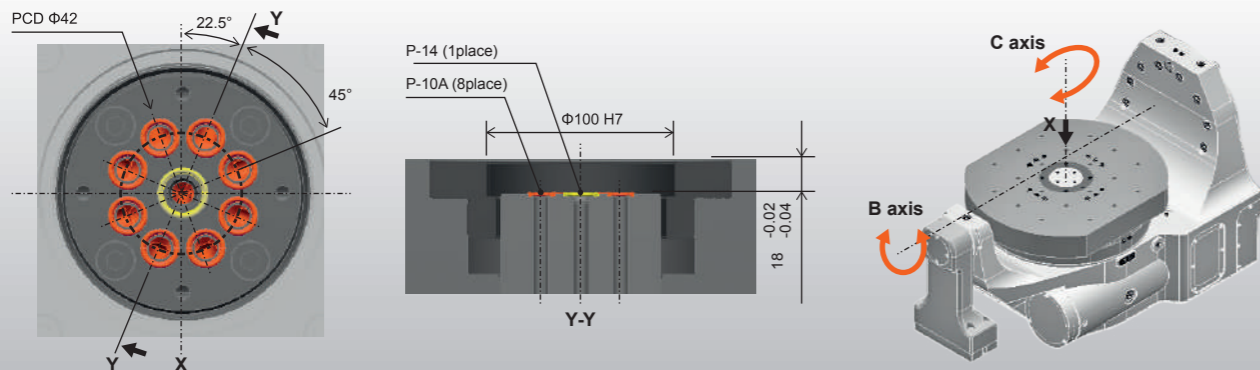


Smooth RCC is management software for the robot cell, which can perform high-mix, low-volume production. This provides a convenient display of operation status and production scheduling to the operator on the optional CNC second monitor.



Preparation for hydraulic and pneumatic fixtures option

Hydraulic power is supplied through the pallet for hydraulic fixtures. Maximum port number is 9 ports.



Auto-power off

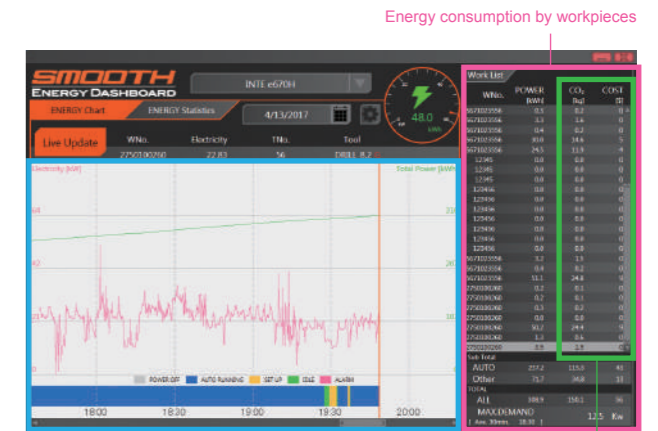
When the machine is not operated for a pre-registered period of time, the machine worklights and the CNC backlight are turned off automatically. They are automatically turned on when the motion sensor detects the return of the operator.

Energy Dashboard option

The Energy Dashboard provides a convenient visual monitoring of energy consumption and analysis. (Optional electrical power monitor required)



- Process screen display
- Total energy consumption (of workpiece in operation)
 - Current energy consumption



Energy consumption displayed on graph

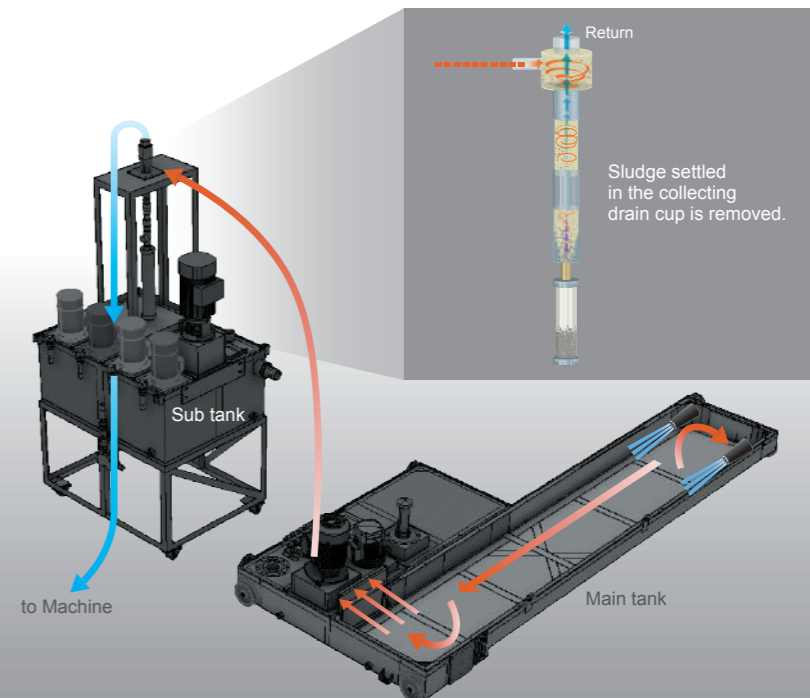
Display approximate CO₂ emission from electrical power generation and electrical power cost

Clean coolant system option

Nozzles inside the main tank circulate coolant to prevent the accumulation of chips and sludge.

More than 95% of particles larger than 20 μm are removed by separation by the cyclone filter.

Thanks to these features, the coolant tank stays clean and the service life of the coolant is extended.



Next generation MAZATROL Smooth CNC system

MAZATROL *SMOOTH*Ai



The newest MAZATROL CNC system designed to meet your production requirements in today's constantly changing manufacturing environment

Shown with optional second monitor

Convenient Parameter Setting and Fine Tuning Function **SMOOTH MACHINING CONFIGURATION PLUS** option

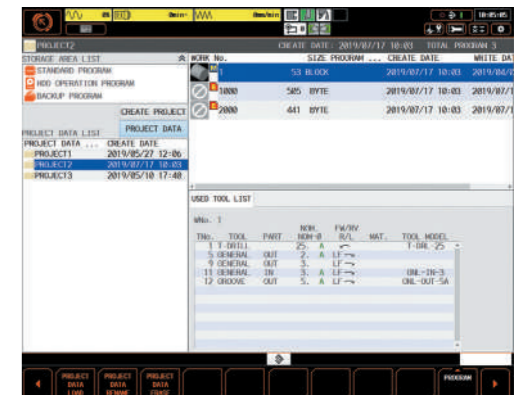
Machining features including cycle time, finished surface and machining shape can be adjusted by slider switches on the display according to material requirements and machining methods. This is especially effective for complex workpiece contours defined in small program increments. Once the desired results are obtained, the settings can be stored in memory so that they can be easily used again in the future.



Smooth Project Management

Convenient management of data required to execute machining programs

- Tool data
- Fixtures
- Coordinate
- Parameters
- Workpiece 3D model



Cutting Adviser

Provides assistance to operator to obtain most productive cutting conditions.



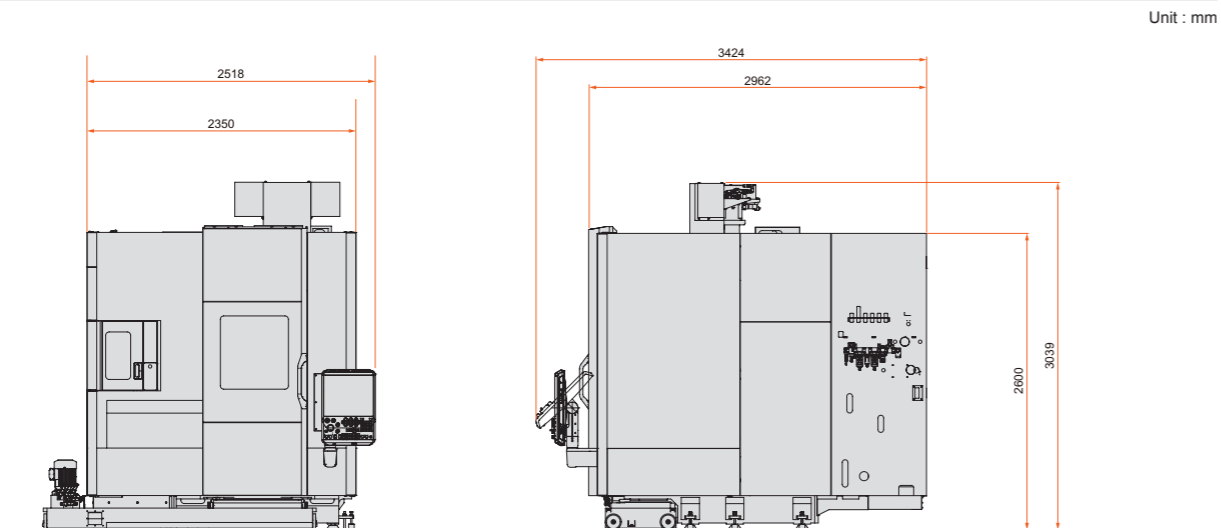
Ai Thermal Shield

New algorithms automatically determine the amount of compensation to be automatically applied according to changes in the temperature to ensure even higher machining accuracy.

■ Standard Machine Specifications

		VARIAXIS C-600
Stroke	Stroke X-axis travel (spindle head left / right)	650 mm
	Y-axis travel (spindle head back / forth)	550 mm
	Z-axis travel (spindle head up / down)	530 mm
	B-axis travel (table tilt)	-30° ~ +120°
	C-axis travel (table rotation)	±360°
Table	Table size	Φ600 mm × Width 500 mm
	Max. workpiece size	Φ730 mm × 450 mm
	Table load capacity (evenly distributed)	500 kg
	Table surface configuration	M16 × P2 tap 20
Milling Spindle	Max. spindle speed	12000 rpm
	Spindle taper	No. 40
	Spindle bearing I.D.	Φ70 mm
Feedrate	Rapid traverse rate (X-, Y-axis / Z-axis)	42 m/min
	Rapid traverse rate (B-, C-axis)	30 rpm
	Simultaneously controlled axes	5-axis
	Min. indexing increment (B-, C-axis)	0.0001°
Automatic tool changer	Tool shank configuration	MAS BT-40
	Tool storage capacity	30 tools
	Max. tool diameter / length (from gauge line) / weight	Φ80 mm / 300 mm / 8 kg
	Max. tool diameter with adjacent tool pockets empty	Φ130 mm
	Tool selection method	MAZATROL random memory (random pocket assignment)
	Tool change time (chip-to-chip)	4.5 sec.
Motors	Spindle motor (40% ED / cont. rating)	11 kW (15 HP) / 11 kW (15 HP)
	Electrical power requirement (40% ED / cont. rating)	29.03 kVA / 29.03 kVA
Coolant	Coolant tank capacity	220 L
Machine size	Height	2720 mm
	Width	2350 mm
	Length	2962 mm
	Machine weight	10000 kg
Sound	Equivalent continuous sound pressure level at operator position (dependant on equipment options)	Less than 80 dB (A)

■ Machine Dimensions



■ Standard and Optional Equipment

● : Standard ○ : Option

		VARIAXIS C-600
Table	Φ600 mm × 500 mm tapped table	●
	Φ600 mm × 500 mm T-slot table	○
Machine	Work light	●
	Ai THERMAL SHIELD	●
	12000 rpm	●
	15000 rpm high torque spindle	○
	18000 rpm	○
	20000 rpm	○
Factory Automation	Automatic tool length measurement (RENISHAW PRIMOS LTS)	○
	Laser tool measurement system	○
	30 tool magazine	●
	60 tool magazine	○
	90 tool magazine	○
	120 tool magazine	○
	Work measurement printout (printer not included)	○
	Absolute positioning system	●
	Remote manual pulse generator	○
	Front door automatic open / close	○
	Right side door open / close	○
	Automatic power ON / OFF + warm-up operation	●
	Operation end buzzer	○
	Status light (3 colors)	○
	2-pallet changer	○
	Wireless touch probe RMP600	○
	Preparation for hydraulic fixtures	○
	Safety Equipment	Operator door interlock
High Accuracy	MAZA-CHECK (software, reference sphere) ¹⁾	●
	Ball screw core cooling (X-, Y-, Z-axis)	●
	Scale feedback (X-, Y-, Z-axis)	○
	Scale feedback (B-, C-axis)	○
	Coolant / Chip Disposal	Coolant system
	Work air blast	○
	Oil skimmer	○
	Mist collector	○
	Coolant temperature control	○
	Hand held coolant nozzle	○
	Coolant through spindle system (5 kgf/cm ²)	○
	Work washing coolant	○
	High pressure coolant through spindle (15 kgf/cm ²)	○
	SUPERFLOW coolant system	○
	Flood coolant (4.5 kgf/cm ² 30 L/min)	●
	Coolant through spindle pressure switch	○
	Coolant tank with secondary filter	○
	Chip conveyor (Hinge) side discharge	○
	Chip conveyor (drum type) side discharge	○
	Chip conveyor (Hinge) rear discharge	○
	Chip conveyor (drum type) rear discharge	○
	Chip bucket (swing type)	○
	Chip bucket (fixed type)	○
Tooling	Pull stud bolt	○
Others	Manual (CD)	●
	Additional manuals	○
	MAZATROL SmoothAi second monitor	○

¹⁾ MAZA-CHECK requires RMP600 wireless touch probe.

Mazak

YAMAZAKI MAZAK U.K.LTD.

Badgeworth Drive, Worcester WR4 9NF U.K.

T: +44 (0)1905 755755 F: +44 (0)1905 755542

www.mazakeu.com

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