SMOOTH
TECHNOLOGY

MAZATROL SMOOTHX

MAZATROL SMOOTHG

MAZATROL SMOOTHC

Mazak

The core of Smooth Technology

The New MAZATROL Smooth CNC series

Designed to Increase your Productivity

- **Fastest CNC in the world – Latest hardware and software for unprecedented speed and precision**
- **Designed for unsurpassed ease of operation with advanced Intelligent Functions**
- **Smooth Process Support Software can integrate your machines and processes for higher productivity**

MAZATROL SMOOTHC

4-axes simultaneous CNC

- Compact operation panel with keypad
- Essential functions for increased ease of programming

MAZATROL SMOOTHG

4 axes simultaneous CNC

MAZATROL SMOOTHX

5 axes simultaneous CNC

- PC with Windows®8 embedded OS
- Touch screen operation — Operate similar to your smart phone / tablet
- MAZATROL Smooth graphical user interface for unsurpassed ease of operation
- High precision machining of complex contours at high speed feedrates

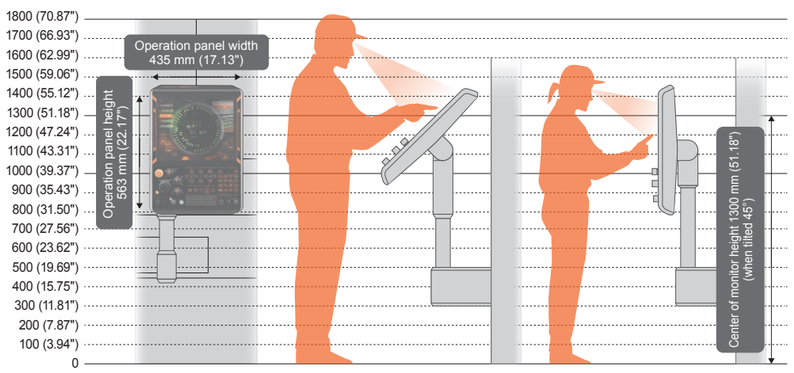
Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Intuitive operation by touch panel

Scaling / rotation (3D) on the screen can be easily done by fingertip pinching or swiping

Touch panel adjustable to be comfortable for all operators

The tilting operation panel tilting allows optimum positioning of the touch panel for any height operator to ensure ease of operation.

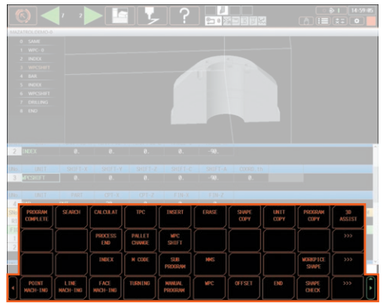


Pop-up windows

Pop-up windows are used for additional displays, selection of other items or input of values.

Screen keyboard

List menu



Side menu

Five different process displays

Each process has a home screen, and each home screen displays the appropriate data in an easy-to-understand manner.

Current process display

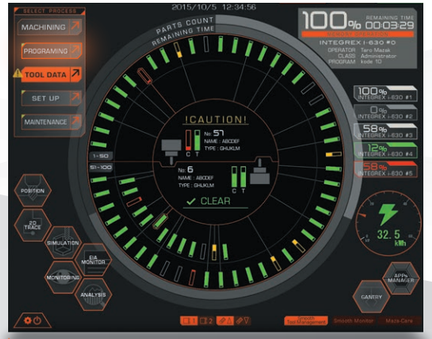
By touching menu icons, the screen is quickly changed to another process display

Setup

Chuck jaws and material shape are displayed by a 3D model along with program data.

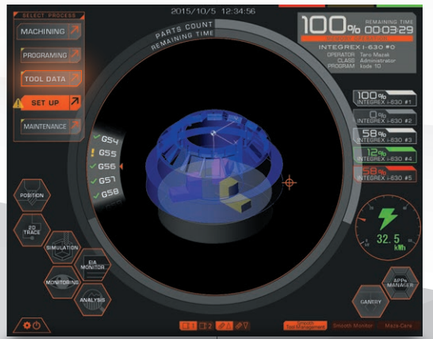
Programming

Workpiece shape and simulation time of selected program are displayed.



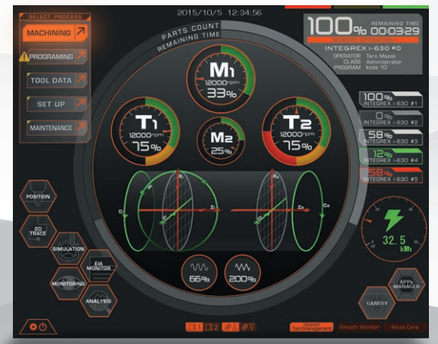
Tool data

Tool data and tool life are displayed.



Machining

Axis travel, spindle load, etc, are displayed.



Maintenance

Fast view of the status of items requiring maintenance.

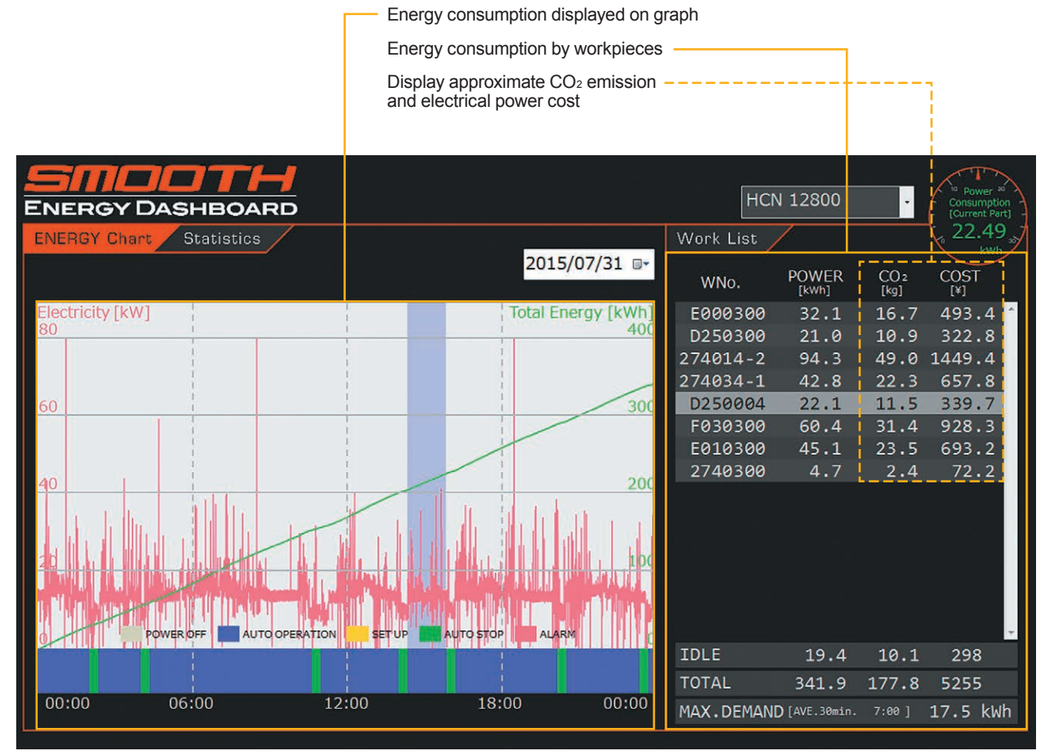
APPS MANAGER

Convenient management of applications and shortcuts

ENERGY DASHBOARD

eco-friendly

The Energy Dashboard provides a convenient visual monitoring of energy consumption and analysis.

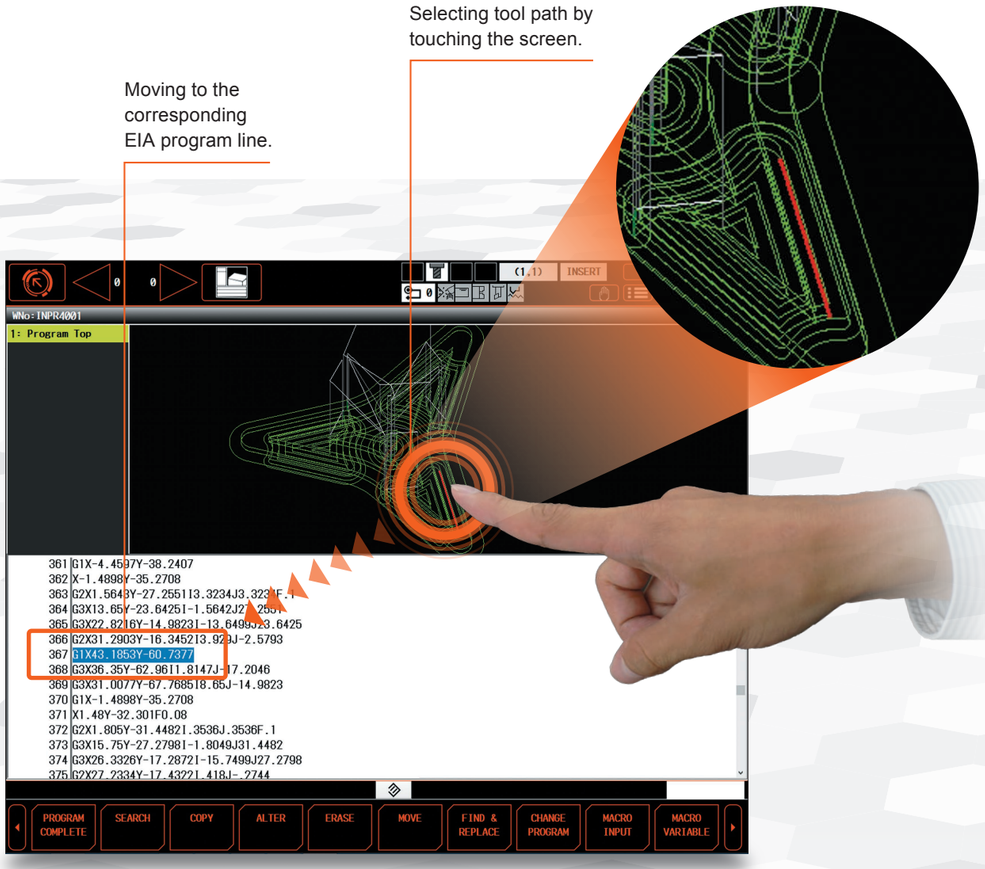


Process screen display

- Total energy consumption (of workpiece in operation)
- Current energy consumption

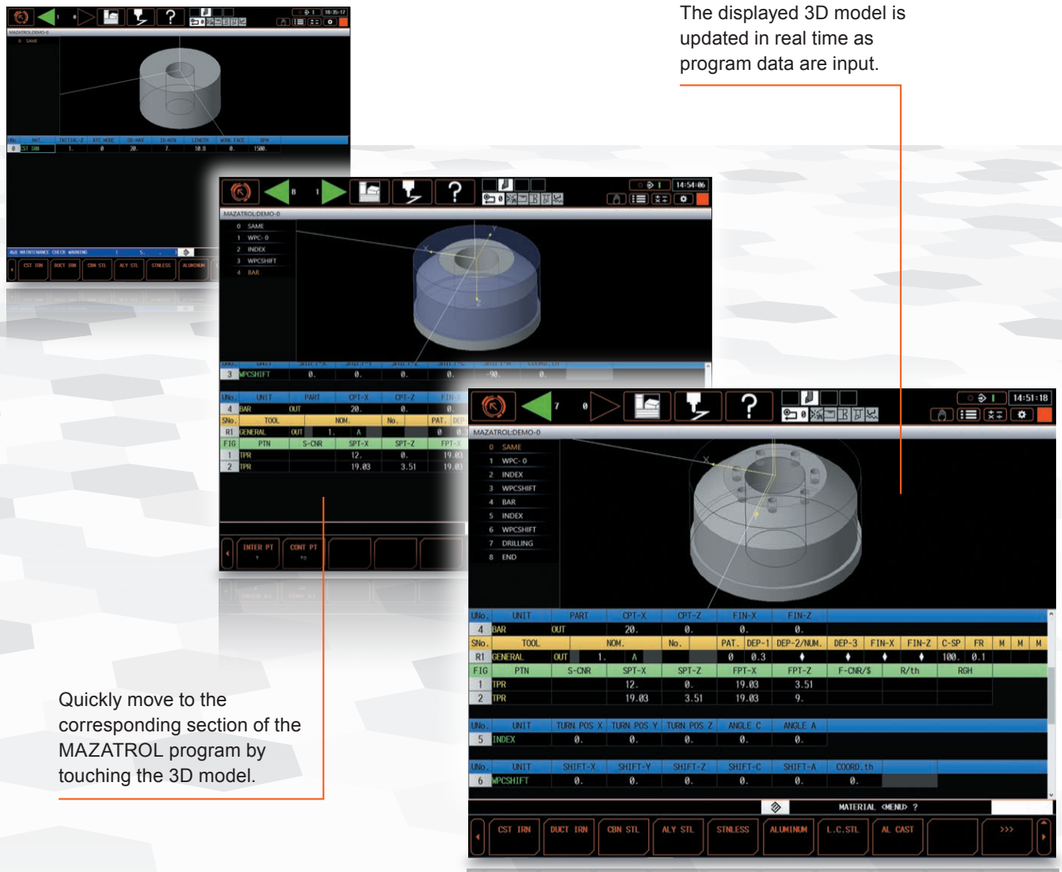
QUICK EIA

Quickly move to the corresponding section of an EIA program by touching the tool path.
Any problems can be confirmed by the program analysis function.



QUICK MAZATROL

By checking shapes and processes, program errors can be reduced for minimum programming time.
3D CAD data can be imported for fast and easy programming.



Simplified display and key input operation

Following traditional conversational MAZATROL programming,
this new system is designed for ease of operation by simplified key operation.

- Menu keys under the display can be pressed to go to other pages for program data input and editing.
- Home screen key goes to the home screen from any display.
- Compact keypad with unique design for ease of input

Comprehensive status display on one screen

The home screen displays overall process status in an easy to understand manner.

Home screen

Machining

Displays axes in operation and load on motors.

Programming

Displays the simulation time and machining time.

Tool data

Displays status of tool layout

Setup

Displays status of workpiece coordinate setting

Maintenance

Overview of the status of items requiring maintenance.

MAZATROL conversational programming

MAZATROL interactive programming uses conversational language and automatically determines cutting conditions, M codes, and G codes. Even a beginner operator can quickly make programs.

Advanced Intelligent Functions

INTELLIGENT MACHINE®

A variety of Intelligent+Functions provides incomparable operator support for exceptional ease of opeartion and the optimum machine efficiency.

Machining

SMC+

Convenient Parameter Setting and Fine Tuning Function

SMOOTH MACHINING CONFIGURATION

Machining time, finished surface smoothness and machining shape can be adjusted for improved productivity

ITS+

Heat Displacement Control

INTELLIGENT THERMAL SHIELD

Unique Mazak heat displacement compensation system

ISS+

Machine Interference Prevention

INTELLIGENT SAFETY SHIELD

For safe operation

IBA+

Unbalanced Table Detection and Analysis

INTELLIGENT BALANCE ANALYZER

Shows required weight and locations to eliminate unbalanced condition

Set up

IBL+

Bar Material Supply Control

INTELLIGENT BAR LOADER SYSTEM

Scheduling which determines machining sequence for minimum unused bar remnant

MVA+

Verbal Message System

MAZAK VOICE ADVISER

Verbal support for machine setup and safe conditions confirmation

IMC+

High-Accuracy 5-Axis Calibration

INTELLIGENT MAZA-CHECK

Position misalignment and incline of the rotary axes can automatically be measured and compensated to realize high-accuracy 5-axis machining

Maintenance

IMS+

Comprehensive Maintenance Monitor

INTELLIGENT MAINTENANCE SUPPORT

Useful information for improved preventative maintenance to prevent unexpected machine downtime

IPS+

Comprehensive Spindle Monitoring

INTELLIGENT PERFORMANCE SPINDLE

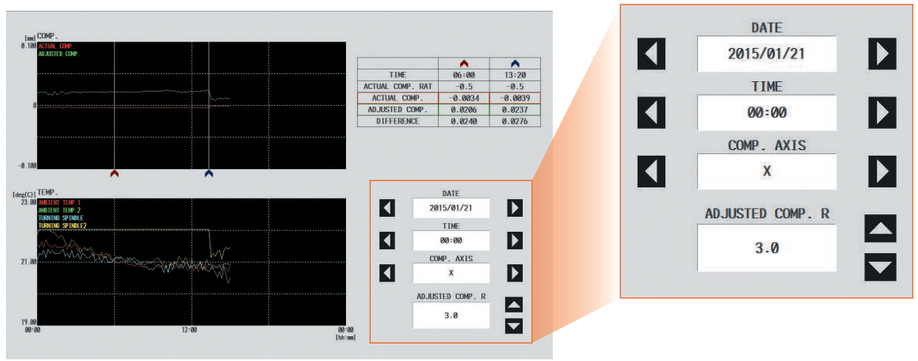
Monitoring milling spindle status —designed to minimize downtime and improve preventative maintenance

ITS+

Heat Displacement Control

INTELLIGENT THERMAL SHIELD

The INTELLIGENT THERMAL SHIELD is an automatic compensation for room temperature changes, which realizes enhanced continuous machining accuracy. MAZAK has performed extensive testing in a variety of environments in a temperature controlled room and has used the results to develop a control system that automatically compensates for temperature changes in the machining area. Changes in the room temperature and compensation data are shown visually.



Temperature and compensation is displayed on screen. Operator can adjust compensation by looking at the data.

Note : This function is not available on all machines.

MAZATROL SmoothX and SmoothG display shown

IMC+

High-Accuracy 5-Axis Calibration

INTELLIGENT MAZA-CHECK

Position misalignment and incline of the rotary axes can automatically be measured and compensated to realize high-accuracy 5-axis machining. The centers of rotation of both the C and B axes can be automatically measured and compensated

Measurement information setting

Automatic measurement program generation

Measurement item selection

MAZATROL SmoothX and SmoothG display shown

SMC+

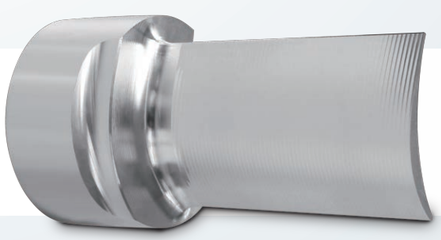
Convenient Parameter Setting and Fine Tuning Function

SMOOTH MACHINING CONFIGURATION

INTELLIGENT MACHINE®

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.

MAZATROL SmoothX and SmoothG display shown



Machining time for an aluminum turbine blade was reduced approximately 10-20% by using this function (test result for reference only)

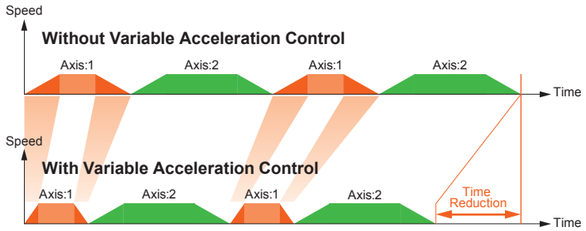
Smooth machining thanks to advanced CNC technology and Mazak's extensive expertise

VAC

Variable Acceleration Control Function

VARIABLE ACCELERATION CONTROL

Variable acceleration control is a new function which permits the faster acceleration capability of linear axes to be used whenever possible. The slower acceleration of the rotary axes is not used for all program commands, resulting in faster machining cycle times.



SCC

Seamless Corner Control

SMOOTH CORNER CONTROL

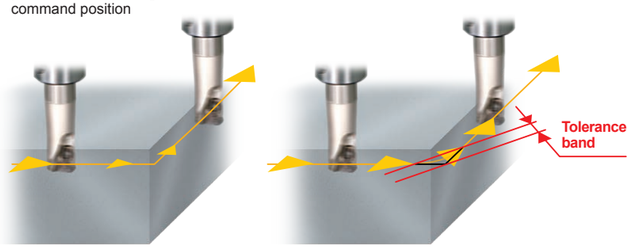
Improved finished surfaces and reduced cycle times by optimized acceleration/deceleration when machining corners

Other systems

Move to next command position after reaching current command position

SMOOTH CORNER CONTROL

Move to next command position within tolerance band



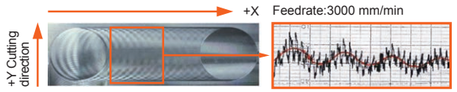
AVC

Minimized Vibration

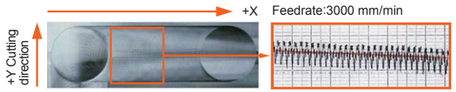
ACTIVE VIBRATION CONTROL

Minimized vibration function for high-speed, high-accuracy machining and longer tool life

Other Systems



ACTIVE VIBRATION CONTROL



Data to Increase your Productivity and Efficiency

Software modules are available that can comprise a comprehensive system for machine shop management. With functions ranging from machining program generation , centralized tool management, production scheduling to remote monitoring of machine status in real time, the sharing of data over a network will streamline the management of your machine shop to provide the highest efficiency.

SMOOTH PROCESS SUPPORT SOFTWARE

SMOOTH CAM RS

Programming

- Prepare programs
- Simulation
- Interference check
- Cycle time
- Required tools list

SMOOTH SCHEDULER

Scheduling

- Production schedule for each machine
- Load display for each machine
- Higher utilization

SMOOTH MONITOR

Machining

- Real time machine status
- Remote monitoring

SMOOTH TOOL MANAGEMENT

Setup

- Comprehensive factory tool data management
- Tool status monitoring in each machine

SMOOTH PMC

Setup / Machining

- Automatic operation of PALLETECH
- Monitoring status
- Unmanned operation for maximum productivity

Mazak

Standard Specifications

		MAZATROL SmoothX	MAZATROL SmoothG	MAZATROL SmoothC
CNC	Max. controlled / simultaneous axes	5	4	4
	Least input increment	0.0001 mm,0.00001 inch, 0.0001 deg	0.0001 mm,0.00001 inch, 0.0001 deg	0.0001 mm,0.00001 inch, 0.0001 deg
	Equipment Network	Expansion card connection (2ch) PROFIBUS-DP EtherNet/IP CC-Link	Expansion card connection (2ch) PROFIBUS-DP EtherNet/IP CC-Link	Expansion card connection (2ch) PROFIBUS-DP EtherNet/IP CC-Link
Operation panel	Display	19 inch color SXGA TFT	19 inch color SXGA TFT	10.4" VGA
	Internal storage	CFast 32 GB SSD	CFast 32 GB SSD	-
	Keyboard	Screen keyboard	Screen keyboard	Mechanical keypad
	Pointing device	Electrostatic touch panel	Electrostatic touch panel	-
	I/F	Ethernet (10 M / 100 M / 1 G bps), USB (×2), SD card	Ethernet (10 M / 100 M / 1 G bps), USB (×2), SD card	Ethernet (10 M / 100 M / 1 G bps), USB (×2), SD card

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