### Standard Specifications

<table>
<thead>
<tr>
<th></th>
<th>MAZATROL SmoothX</th>
<th>MAZATROL SmoothG</th>
<th>MAZATROL SmoothC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CNC</strong></td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Least input increment</strong></td>
<td>0.0001 mm, 0.0001 inch, 0.0001 deg</td>
<td>0.0001 mm, 0.0001 inch, 0.0001 deg</td>
<td>0.0001 mm, 0.0001 inch, 0.0001 deg</td>
</tr>
<tr>
<td><strong>Equipment Network</strong></td>
<td>PROFIBUS-DP, EtherCAT, CC-Link</td>
<td>PROFIBUS-DP, EtherCAT, CC-Link</td>
<td>PROFIBUS-DP, EtherCAT, CC-Link</td>
</tr>
<tr>
<td><strong>Operational panel</strong></td>
<td>19 inch color SXGA TFT</td>
<td>19 inch color SXGA TFT</td>
<td>10.4&quot; VGA</td>
</tr>
<tr>
<td><strong>Keyboard</strong></td>
<td>Screen keyboard</td>
<td>Screen keyboard</td>
<td>Mechanical keyboard</td>
</tr>
<tr>
<td><strong>Pointing device</strong></td>
<td>Electromechanical touch panel</td>
<td>Electromechanical touch panel</td>
<td>Mechanical keypad</td>
</tr>
<tr>
<td><strong>IF</strong></td>
<td>Ethernet (10 M / 100 M / 1 Gbps), USB (×2), SD card</td>
<td>Ethernet (10 M / 100 M / 1 Gbps), USB (×2), SD card</td>
<td>Ethernet (10 M / 100 M / 1 Gbps), USB (×2), SD card</td>
</tr>
</tbody>
</table>

---

**Specifications are subject to change without notice.**

This product is subject to all applicable export control laws and regulations.

The accuracy data and other data presented in this catalogue were obtained under specific conditions. They may not be duplicated under different conditions (room temperature, workpiece materials, tool material, cutting conditions, etc.).
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

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

- 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.
Smooth operation

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.

Programming
Workpiece shape and simulation time of selected program are displayed.

Tool data
Tool data and tool life are displayed.

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

Machining
Axis travel, spindle load, etc, are displayed.

Maintenance
Fast view of the status of items requiring maintenance.

Current process display

By touching menu icons, the screen is quickly changed to another process display.
APPS MANAGER
Convenient management of applications and shortcuts

Energy consumption displayed on graph
Energy consumption by workpieces
Display approximate CO2 emission and electrical power cost

ENERGY DASHBOARD
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
Smooth EIA program checking

**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.

Selecting tool path by touching the screen. The displayed 3D model is updated in real time as program data are input.

Moving to the corresponding EIA program line.

Quickly move to the corresponding section of the MAZATROL program by touching the 3D model.

The displayed 3D model is updated in real time as program data are input.
Simplified display and key input operation

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

Comprehensive status display on one screen

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

Focus on Essential Functions

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.

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

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

**SMOOTH MACHINING CONFIGURATION**
Machining time, finished surface smoothness and machining shape can be adjusted for improved productivity

**Heat Displacement Control**
Unique Mazak heat displacement compensation system

**INTELLIGENT THERMAL SHIELD**
Heat Displacement Control

**Machine Interference Prevention**
INTELLIGENT SAFETY SHIELD
For safe operation

**INTELLIGENT BAR LOADER SYSTEM**
Scheduling which determines machining sequence for minimum unused bar remnant

**INTELLIGENT BALANCE ANALYZER**
Shows required weight and locations to eliminate unbalanced condition

**MAZAK VOICE ADVISER**
Verbal support for machine setup and safe conditions confirmation

**INTELLIGENT MAZA-CHECK**
High-Accuracy 5-Axis Calibration
Position misalignment and incline of the rotary axes can automatically be measured and compensated to realize high-accuracy 5-axis machining

**INTELLIGENT MAINTENANCE SUPPORT**
Useful information for improved preventative maintenance to prevent unexpected machine downtime

**INTELLIGENT PERFORMANCE SPINDLE**
Monitoring milling spindle status — designed to minimize downtime and improve preventative maintenance

**SMOOTH MACHINING CONFIGURATION**
for improved productivity

**Advanced Intelligent Functions**
Set up

**Preventative Maintenance**
Monitoring milling spindle status — designed to minimize downtime and improve machine efficiency.

**INTELLIGENT PERFORMANCE SPINDLE**

**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.

**INTELLIGENT MAINTENANCE SUPPORT**
Comprehensive Maintenance Monitor

**INTELLIGENT SAFETY SHIELD**
For safe operation

**INTELLIGENT BAR LOADER SYSTEM**
Scheduling which determines machining sequence for minimum unused bar remnant

**INTELLIGENT BALANCE ANALYZER**
Shows required weight and locations to eliminate unbalanced condition

**MAZAK VOICE ADVISER**
Verbal support for machine setup and safe conditions confirmation

**INTELLIGENT MAZA-CHECK**
High-Accuracy 5-Axis Calibration
Position misalignment and incline of the rotary axes can automatically be measured and compensated to realize high-accuracy 5-axis machining.

**INTELLIGENT MAINTENANCE SUPPORT**
Useful information for improved preventative maintenance to prevent unexpected machine downtime

**INTELLIGENT PERFORMANCE SPINDLE**
Monitoring milling spindle status — designed to minimize downtime and improve preventative maintenance

**Heat Displacement Control**
INTELLIGENT THERMAL SHIELD

**INTELLIGENT PERFORMANCE SPINDLE**

**SMOOTH MACHINING CONFIGURATION**
for improved productivity

**Advanced Intelligent Functions**
Set up

**Preventative Maintenance**
Monitoring milling spindle status — designed to minimize downtime and improve machine efficiency.

**INTELLIGENT PERFORMANCE SPINDLE**

**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.

**INTELLIGENT MAINTENANCE SUPPORT**
Comprehensive Maintenance Monitor

**INTELLIGENT SAFETY SHIELD**
For safe operation

**INTELLIGENT BAR LOADER SYSTEM**
Scheduling which determines machining sequence for minimum unused bar remnant

**INTELLIGENT BALANCE ANALYZER**
Shows required weight and locations to eliminate unbalanced condition

**MAZAK VOICE ADVISER**
Verbal support for machine setup and safe conditions confirmation

**INTELLIGENT MAZA-CHECK**
High-Accuracy 5-Axis Calibration
Position misalignment and incline of the rotary axes can automatically be measured and compensated to realize high-accuracy 5-axis machining.

**INTELLIGENT MAINTENANCE SUPPORT**
Useful information for improved preventative maintenance to prevent unexpected machine downtime

**INTELLIGENT PERFORMANCE SPINDLE**
Monitoring milling spindle status — designed to minimize downtime and improve preventative maintenance

**Heat Displacement Control**
INTELLIGENT THERMAL SHIELD

**INTELLIGENT PERFORMANCE SPINDLE**

**SMOOTH MACHINING CONFIGURATION**
for improved productivity

**Advanced Intelligent Functions**
Set up

**Preventative Maintenance**
Monitoring milling spindle status — designed to minimize downtime and improve machine efficiency.

**INTELLIGENT PERFORMANCE SPINDLE**

**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.

**INTELLIGENT MAINTENANCE SUPPORT**
Comprehensive Maintenance Monitor

**INTELLIGENT SAFETY SHIELD**
For safe operation

**INTELLIGENT BAR LOADER SYSTEM**
Scheduling which determines machining sequence for minimum unused bar remnant

**INTELLIGENT BALANCE ANALYZER**
Shows required weight and locations to eliminate unbalanced condition

**MAZAK VOICE ADVISER**
Verbal support for machine setup and safe conditions confirmation

**INTELLIGENT MAZA-CHECK**
High-Accuracy 5-Axis Calibration
Position misalignment and incline of the rotary axes can automatically be measured and compensated to realize high-accuracy 5-axis machining.

**INTELLIGENT MAINTENANCE SUPPORT**
Useful information for improved preventative maintenance to prevent unexpected machine downtime

**INTELLIGENT PERFORMANCE SPINDLE**
Monitoring milling spindle status — designed to minimize downtime and improve preventative maintenance
Intelligent+ Functions

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

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.

Seamless Corner Control

SMOOTH CORNER CONTROL

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

Minimized Vibration

ACTIVE VIBRATION CONTROL

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

Convenient Parameter Setting and Fine Tuning Function

SMOOTH MACHINING CONFIGURATION

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.

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

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

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

- Real time machine status
- Remote monitoring

- Automatic operation of PALLETECH
- Monitoring status
- Unmanned operation for maximum productivity
### Standard Specifications

<table>
<thead>
<tr>
<th></th>
<th>MAZATROL SmoothX</th>
<th>MAZATROL SmoothG</th>
<th>MAZATROL SmoothC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CNC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. controlled /</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>simultaneous axes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Least increment</strong></td>
<td>0.0001 mm, 0.00001 inch, 0.0001 deg</td>
<td>0.0001 mm, 0.00001 inch, 0.0001 deg</td>
<td>0.0001 mm, 0.00001 inch, 0.0001 deg</td>
</tr>
<tr>
<td><strong>Network</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operation panel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Keyboard</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pointing device</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I/F</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CNC display panel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### YAMAZAKI MAZAK CORPORATION

1-125 Takeda, Oguchi-cho, Nisshin, Aichi-ken, Japan
TEL: +(81)587-95-1131 FAX: +(81)587-95-2717

Specifications are subject to change without notice.
This product is subject to all applicable export control laws and regulations.
The accuracy data and other data presented in this catalogue were obtained under specific conditions.
They may not be duplicated under different conditions (room temperature, workpiece materials, tool materials, cutting conditions, etc.)

www.mazak.com