Mazak

Digital Manufacturing Innovation

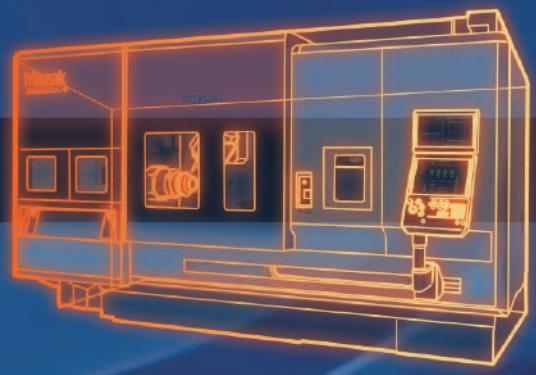
MAZATROL SMOOTH Ai

Next generation MAZATROL Smooth CNC system innovation for higher productivity

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

MAZATROL TWINS

Virtual TWINS of machines equipped with the MAZATROL SmoothAi



Digital Twin

Make programs in an office with machine specific data

Automation

Advanced automation utilizing robot and software

MAZATROL SMOOTH Ai

Next generation MAZATROL Smooth CNC

Designed to provide you unsurpassed productivity by faster setups and cycle times, improved surface finishes, high accuracy machining as well as incomparable ease of operation.

AI

Increase your productivity thanks to AI technology

Shown with optional Smooth Ai second monitor for Smooth Ai Spindle, Smooth PMC and Smooth RCC

Innovative functions for higher productivity

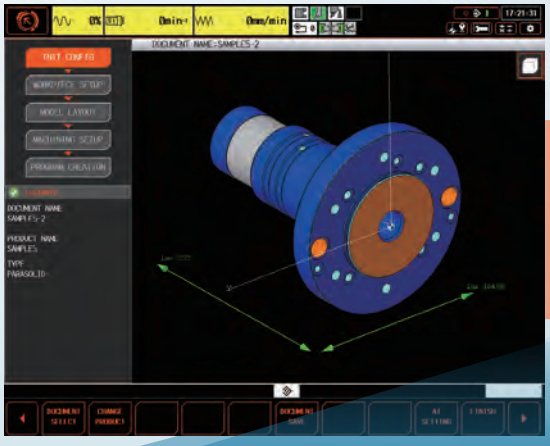
MAZATROL SMOOTH Ai

AI support for operation normally requiring extensive experience and skills

Solid MAZATROL Optimize machining process by AI determination

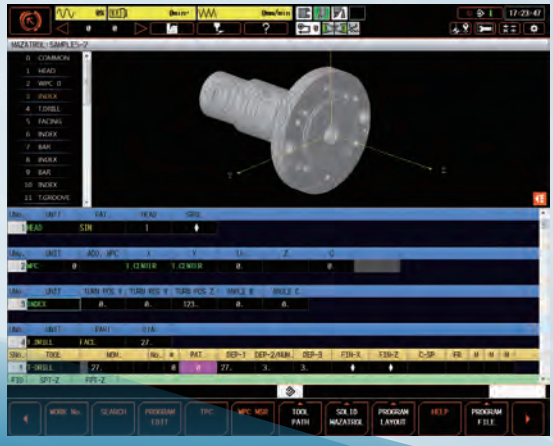
Extremely fast programming using 3D CAD data

Import 3D CAD model



Required time for programming **2.5 min.**

MAZATROL programming completed

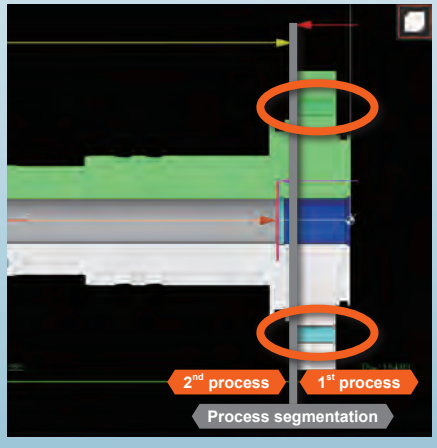


Ai

Optimum machining process thanks to AI learning

Thanks to AI learning, which utilizes machining expertise from accumulated programming experience, the optimum machining processes will be automatically determined and programs will be generated. Standard equipment for the INTEGREX i-H series equipped with the SmoothAi CNC

Example of machining process determination



Without AI learning

1st process Turning, Drilling

2nd process Turning

Interrupted cutting will be required in 2nd process which will affect finished surface

Ai

1st process Turning

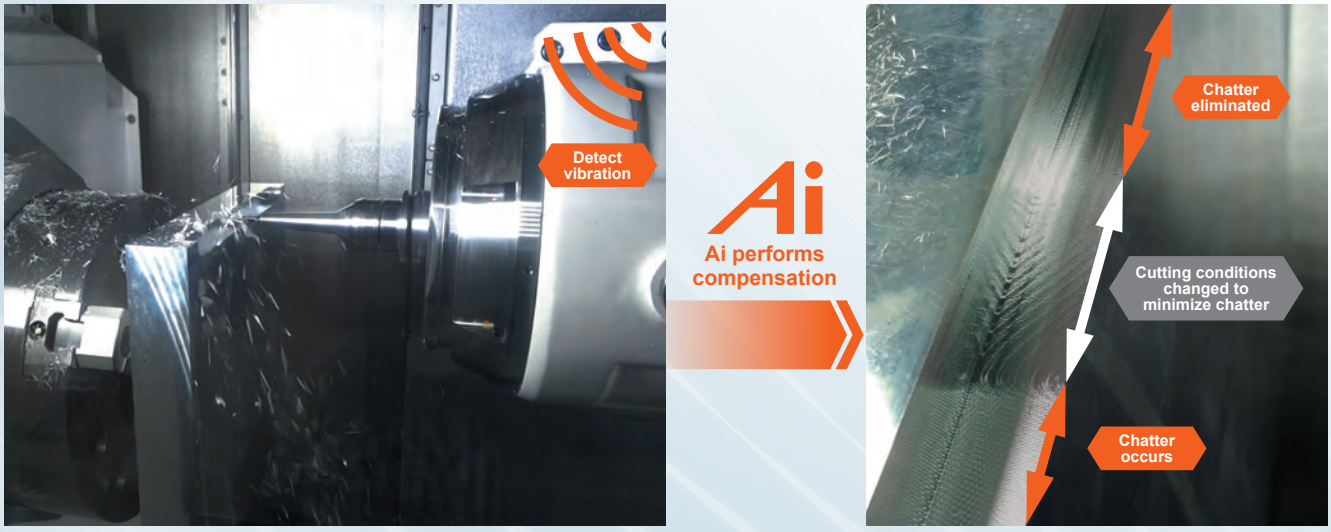
2nd process Turning, Drilling

Drilling performed in the 2nd process for high accuracy finished surface

Smooth Ai Spindle Optimized cutting conditions

Advanced spindle vibration detection by AI improves finished surfaces and productivity

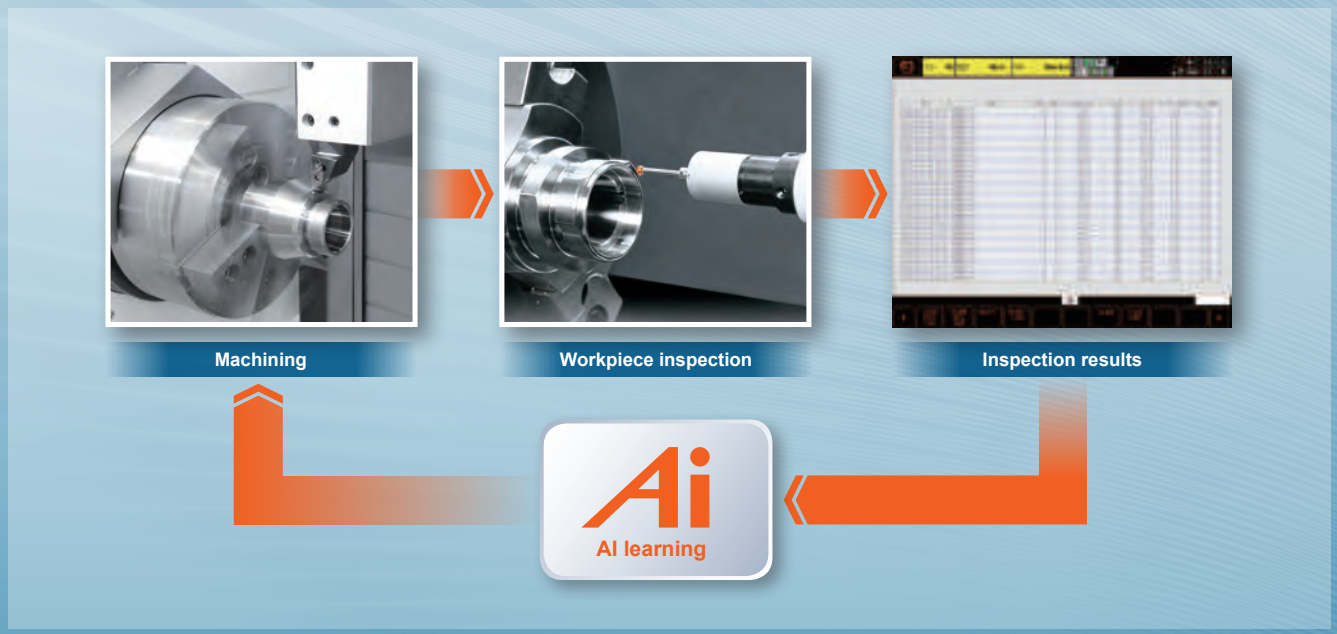
Using AI, milling spindle vibration is detected and machining conditions are automatically changed to realize unsurpassed surface finishes and high productivity.



Ai Thermal Shield Ensures stable machining accuracy

Ai Thermal Shield ensures enhanced heat displacement compensation

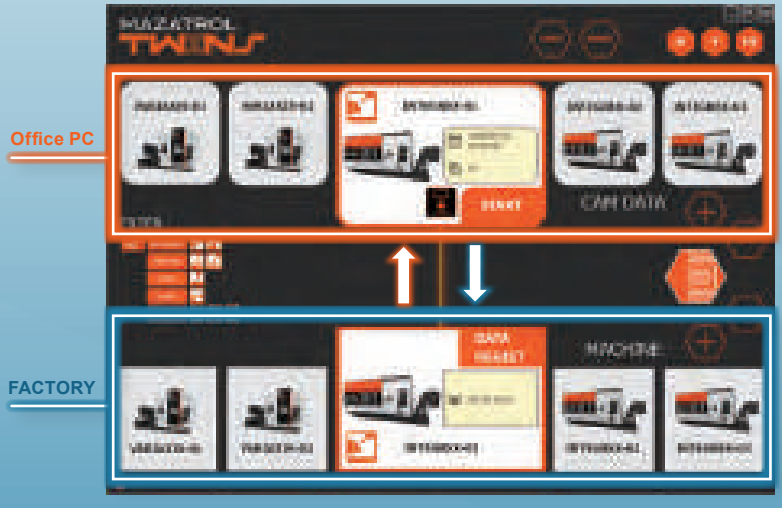
New algorithms automatically determine the amount of compensation to be automatically applied according to changes in the temperature to ensure even higher machining accuracy.



Advanced digital technology for manufacturing

MAZATROL TWINS

Virtual machines in your office accurately duplicate the operation of machines on your factory floor. Available software can be used together with machines equipped with the MAZATROL SmoothAi CNC to substantially increase the efficiency of your production.



SMOOTH PROJECT MANAGER

File management

Convenient management of data required to execute machining programs.

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

Project data synchronization

Project data is synchronized between machines and Smooth CAM Ai and other CAD / CAM software. Data produced by virtual machines are output to machines equipped with the MAZATROL SmoothAi CNC for fast setups.

ESPRIT CAM System
hyperMILL
AUTODESK FUSION 360
Mastercam

SMOOTH CAM Ai

Programs can be made and edited, as well as performing simulation and analysis on the Smooth CAM Ai for multiple machines. These data are sent to machines in the factory for fast and accurate machine setups.

SMOOTH Tool Management

The Smooth Tool Management software manages data of the large number of tools in use by a factory. By centrally managing tools and registering tool data as well as tool setup, machine non-cutting time can be reduced. This software can also eliminate tool information input errors in the CNC to improve productivity.

MAZATROL TWINS

SMOOTH CAM Ai

Efficient workpiece programming in your office

Cutting Adviser

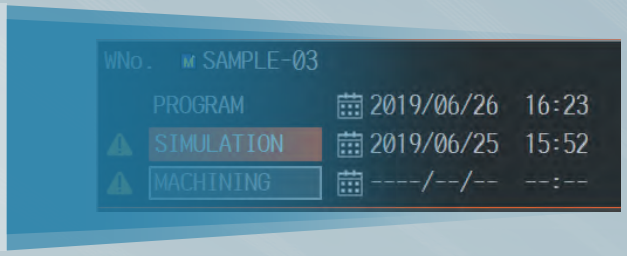
Cutting adviser optimizes machining conditions by MAZATROL SmoothAi CNC and MAZATROL Smooth CAM Ai simulation.

Select data

Simulation results

OR

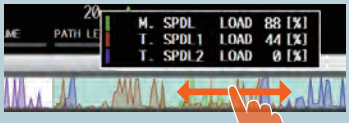
Machining results



Machining data

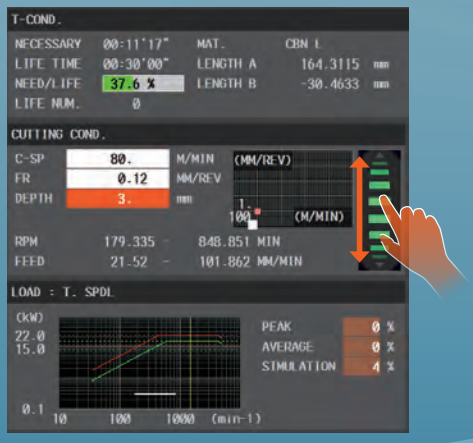
- Tools
- Material removal amount
- Machining load
- Machining time

Spindle : servo load data



Change of machining conditions

- Cutting speed
- Feedrate
- Depth of cut



SMC (SMOOTH MACHINING CONFIGURATION)

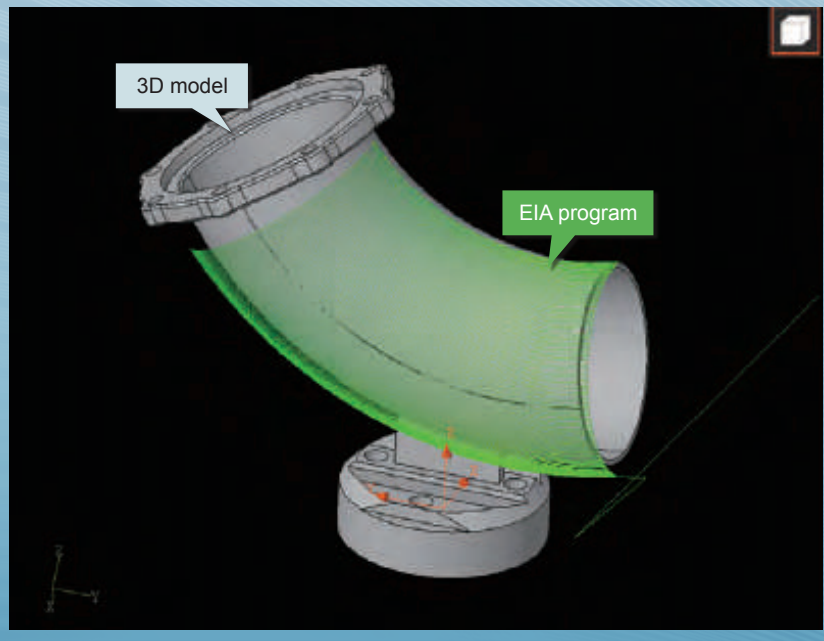
Tuning machining features

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. Additionally, the rotary axis acceleration tuning parameter can now be adjusted by a slider switch as well as selecting speed priority or accuracy priority. These operations can be performed by both the Smooth CAM Ai and MAZATROL SmoothAi CNC.

SMC PLUS OPTION

Optimize EIA programs utilizing 3D models

Compares tool contact point of EIA program with 3D model so that program points can be changed to ensure the correct tool path and high accuracy finished surfaces. This is optionally available for the MAZATROL SmoothAi.



Advanced automation utilizing robots

- Making production schedule
- Checking production status
- Management of required tools / fixtures
- Report missing tools / alarm

Optional second monitor

Schedule

Required tools

SMOOTH RCC

Dedicated management software for high-mix, low-volume production utilizing a robot — operator can easily make the production schedule for extended periods of operation and check resources on the dedicated screen. OPTION

Functions to reduce automatic operation setup time

Resource check

Prevent missing items which will stop automatic operation

Smooth RCC displays missing programs and tools thanks to resource check. During automatic operation, real-time tool simulation displays tools which have short remaining tool life to indicate which tools must be setup.

Before start of operation

- Workpiece/fixture set up
- Required program in CNC memory
- Confirm required tools for machining are in magazine and tool life is sufficient for scheduled machining

During operation

Continue to check remaining tool life to confirm there is sufficient tool life to perform production over the next 16 hours

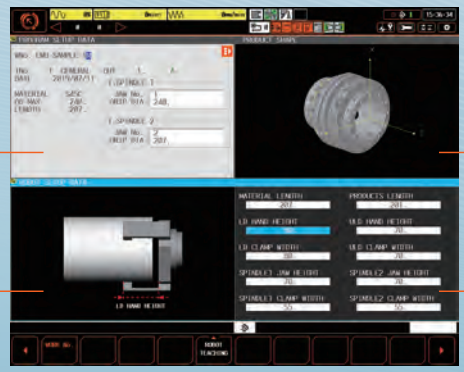
If something missing

Instructions are displayed on screen

Robot setup assist

Fast and easy robot setup

Automatically makes robot programs by inputting length of material, diameter and robot hand specification into the MAZATROL SmoothAi. For exceptional ease of operation, this conversational programming eliminates robot teaching.



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Mazak

YAMAZAKI MAZAK CORPORATION

1-131 Takeda, Oguchi-cho, Niwa-gun, Aichi-pref., Japan
TEL : +(81)587-95-1131

www.mazakeu.com

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