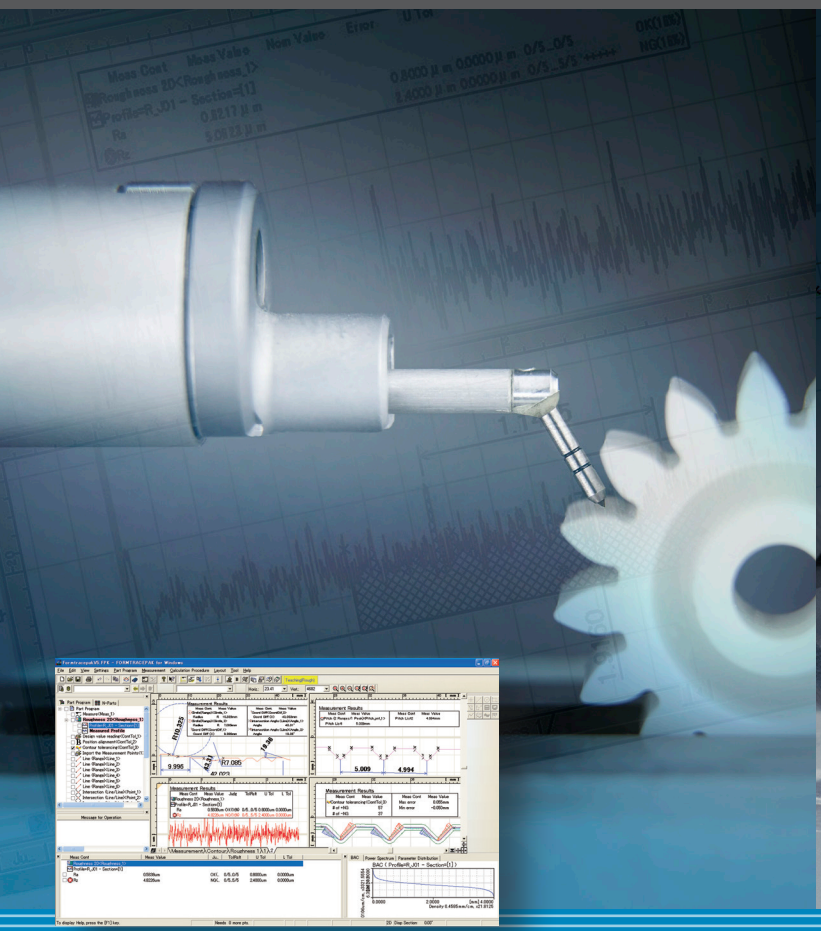
Mitutoyo

Mitutoyo Quality

FORMTRACEPAK

SURFACE ROUGHNESS/CONTOUR ANALYSIS SOFTWARE

FORM MEASUREMENT



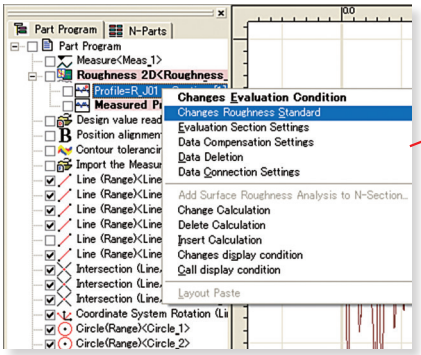
Bulletin No. 2010(2)

FORMTRACEPAK

FORMTRACEPAK functions offer total support for measurement system control, surface roughness analysis, contour analysis, contour tolerancing, and inspection report creation.

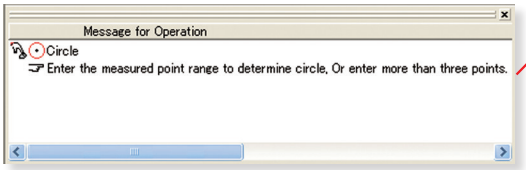
Editing measurement procedures

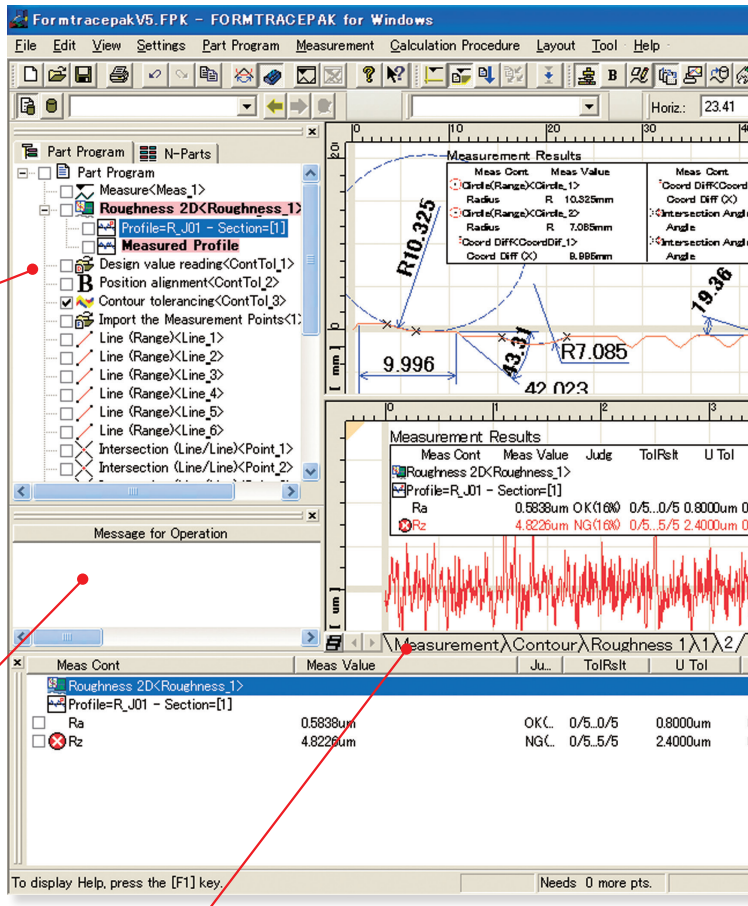
The items displayed in the measurement procedure window can be directly modified. You can, for example, perform new analyses by modifying the evaluation setup or roughness standard.



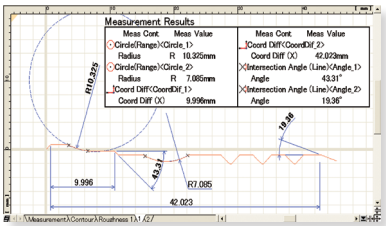
Operation messaging

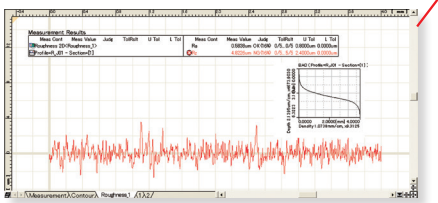
The operation message window for explaining the next step is incorporated.

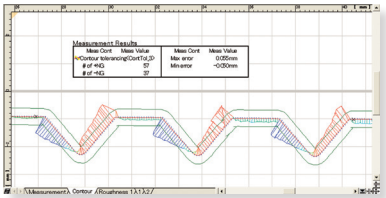


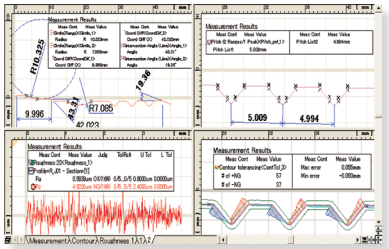


Versatile graphics windowing for data and analysis









Tab-selection graphics window

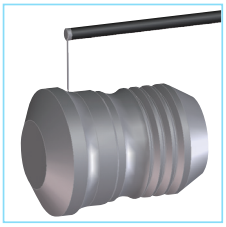
Just select a tab to display the measurement data required, such as contour, roughness, or tolerancing results.

Dividing the screen into two or four windows

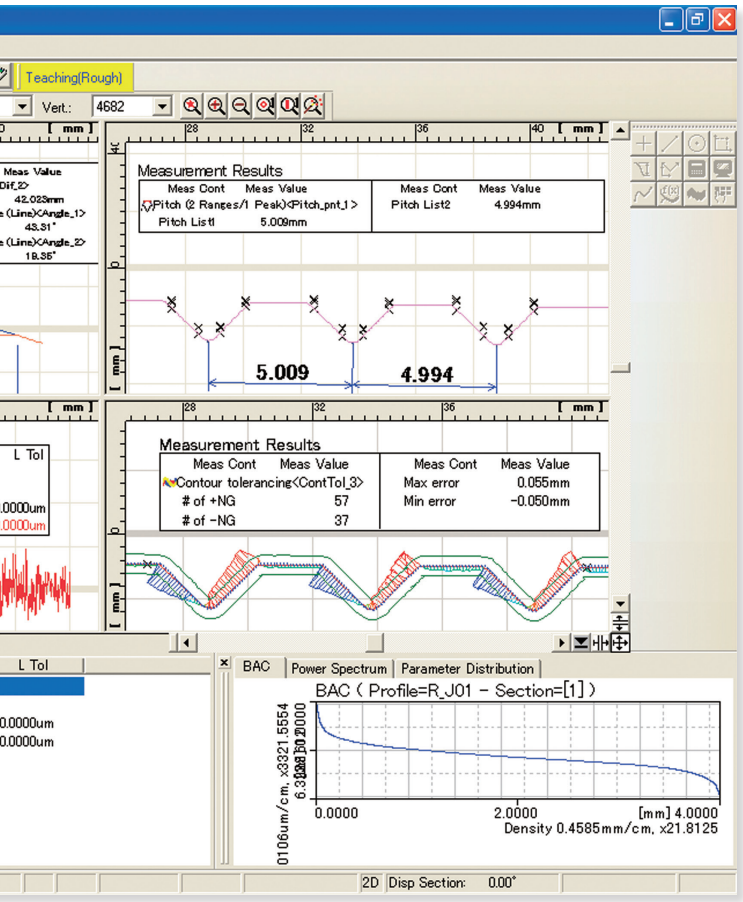
The screen can be divided into two, or four, windows for the convenient display of measurement data (for contour and roughness), analysis results, and contour tolerancing data, as required.

Displaying the results in the graphics window

You can paste the graphics obtained from measurements, as well as measurement values (including pass/fail results) and an analysis graph, into the graphics window. This enables you to check the graphics and measurement results at a glance using the graphics window alone.

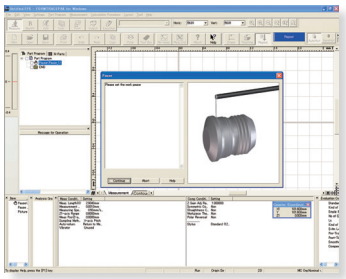


MiCAT
Mitutoyo Intelligent Computer Aided Technology
the standard in world metrology software
FORM

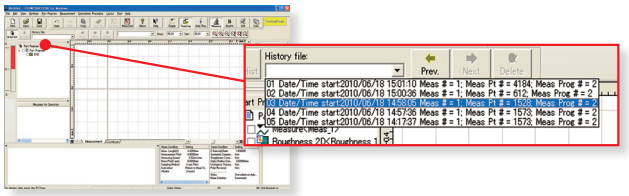


Measurement control

To make only a single measurement, you can create a part program in the single mode. To measure multiple workpieces of an identical shape, you can use the teaching mode.
Since you can embed the entire flow, from making measurement to printing a report, into a part program, you can efficiently make measurements, analyze data, and output a report. A function is also provided that enables you to insert comments accompanied with photographs at desired timings, enabling you to embed the roles described in a measurement procedure document that specifies important points such as work settings.

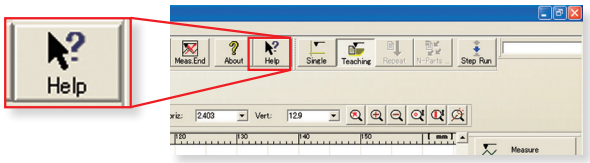


To make immediate measurements, you can use the pull-down menu to easily select and call up the desired operating procedure.



Online help functions*

Online help that can be viewed any time is incorporated into the software. In addition to index and keyword searches, a status-saving help button, which displays menus and Windows help with a click of the mouse, is provided.



*Online help function supports only Japanese and English.

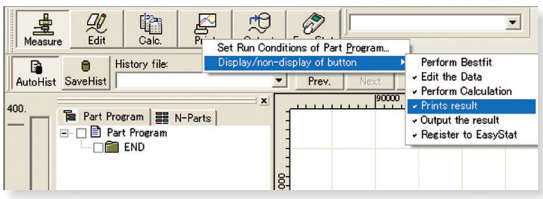
Multiple language support

You can switch the language* to be used in the measurement, analysis, and layout windows.
After measurements have been made, you can switch to another language and create a report in that language. This function can be used worldwide.

*Supported languages: Japanese, English, German, French, Italian, Spanish, Polish, Hungarian, Swedish, Czech, Simplified Chinese, Traditional Chinese, Korean, Turkish, Portuguese.

Button-editing function

You can hide buttons that are not used frequently. For example, you can choose to display only those buttons that are used frequently and increase the size of the displayed graphics window, thereby customizing the window to suit your needs.



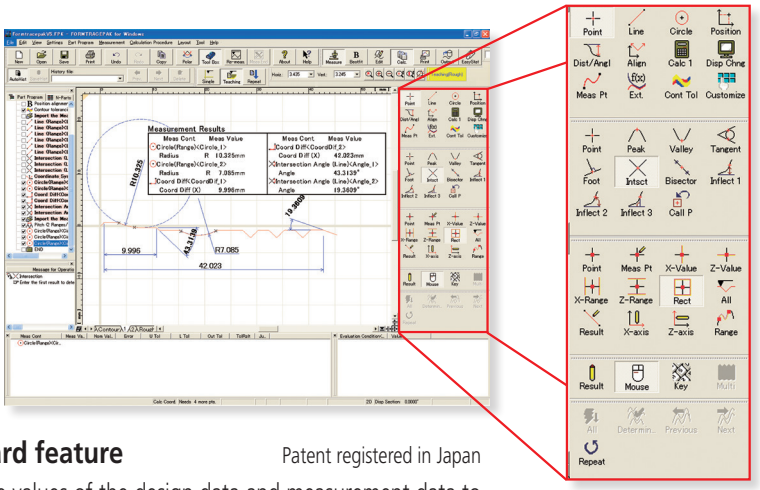
Simple statistical commands

You can perform statistical calculations of roughness parameters and contour analysis results without using a separate program such as Excel.

Contour Analysis

Contour analysis function

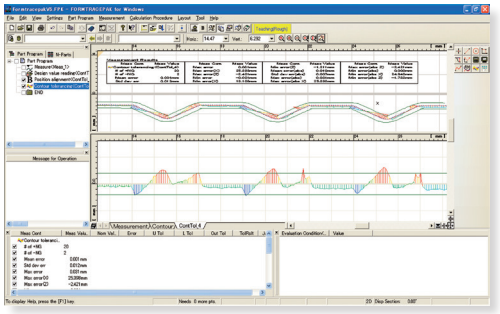
A wide variety of commands, which form the basic elements for analysis, are provided, including those for points (10 kinds), lines (6 kinds), and circles (6 kinds). A rich set of commands that combine these elements to calculate angles, pitches, and distances, a contour tolerancing function, and a design value generation function are also provided as standard features. These functions, combined with the function that allows you to customize the calculation command buttons by hiding less frequently used commands, let you tailor the window according to the user environment.



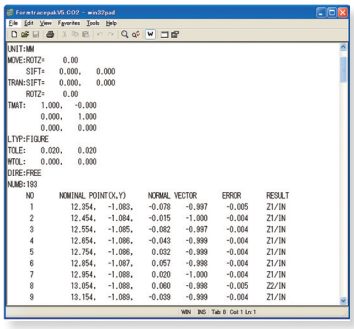
Contour-tolerancing function as a standard feature

Patent registered in Japan

The best-fit processing function that moves the coordinate values of the design data and measurement data to the optimum positions is provided as a standard feature. Since the tolerancing results can be visually displayed as graphics, displayed as tolerance values and tolerance expansions in each coordinate, or output as a text file, they can be utilized as feedback data for machining systems.



Example of contour-tolerancing result



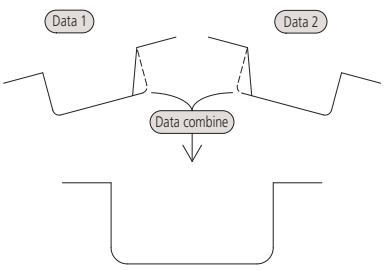
Example of outputting contour-tolerancing results as numeric values

Design value generation function

You can generate design data from CAD data (DXF or IGES file) or text data. Furthermore, since you can also convert measurement data into design data, you can save parts data prior to use (testing) as design data and effectively utilize it for checking the wear following use (testing).

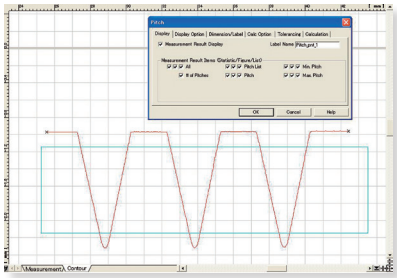
Data combination function

You can combine partial data collected separately from a workpiece because of its external shape into a single graphic and analyze it.



Simple pitch calculation function

You can efficiently analyze the pitch between identical shapes, such as a screw pitch and the distance between circles (center-to-center pitch), by simply specifying the desired range using mouse operations.



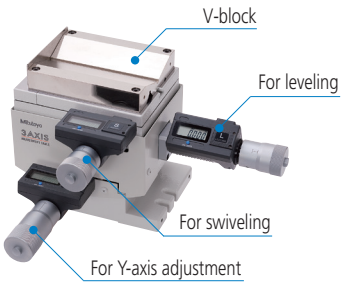
Example of range specification for screw thread pitches with rectangular tool.

Measurement-assisting function (for peak identification, alignment, and leveling)

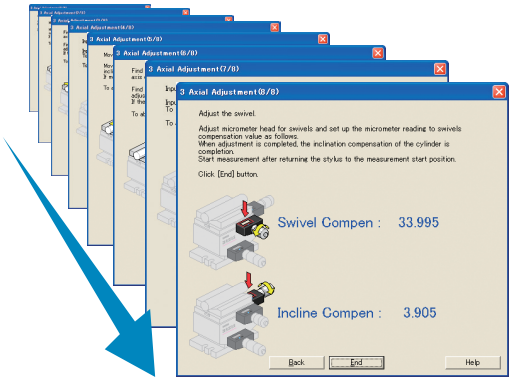
*Same functions as those used for surface roughness analysis

In order to accurately measure a cylindrical workpiece, it is necessary to set the workpiece axis parallel to the traverse direction (to achieve alignment) and to make leveling adjustments at the same time. FORMTRACEPAK enables you to easily perform alignment and leveling operations by simply following its guidance. Using optional accessories, you can also perform these operations automatically.

*For details on the models supported by the optional table, please contact us.



3-axis adjustment table



Guidance display when using 3-axis adjustment table

Batch calibration function

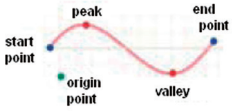
Patent registered in Japan

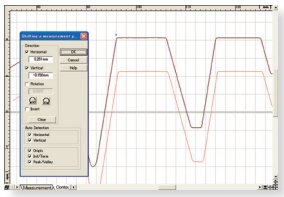
Using the calibration gauges specifically designed for batch calibration, you can perform cumbersome calibration tasks such as Z-axis gain, symmetry, and stylus radius all at once.
Conventional individual calibration is also supported.

Batch calibration kit for CV series

Data superimposition command

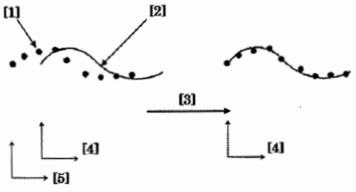
You can superimpose two sets of data by detecting their characteristic points. Use the mouse to drag and move the measurement point strings to the desired positions to be superimposed.





Best-fit processing function for measurement point strings

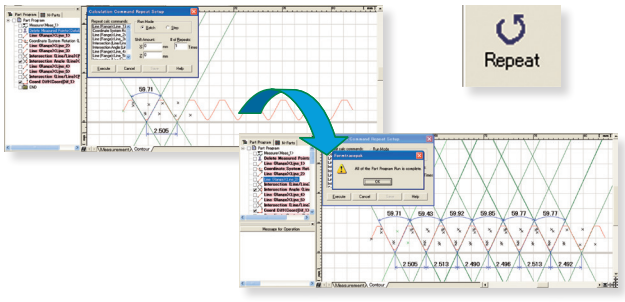
This function tries to fit the measurement points to the pre-registered reference data on the same coordinate system. It can eliminate the effects of a shift that may occur when setting the workpiece during automatic analysis.



[1]Measured Points/[2]Bestfit Reference Data/[3]Bestfit/[4]Reference Coordinate System/[5]Measurement Coordinate System

Calculation command repetition setting

When identical shapes have the same pitch, you can analyze all of the shapes in a batch by specifying a single analysis location and the pitch.



Circle and line automatic determination function

Patent registered in Japan

Using the circle/line auto-fitting command, you can automatically calculate all circles and lines contained in the data without having to click the command button each time.

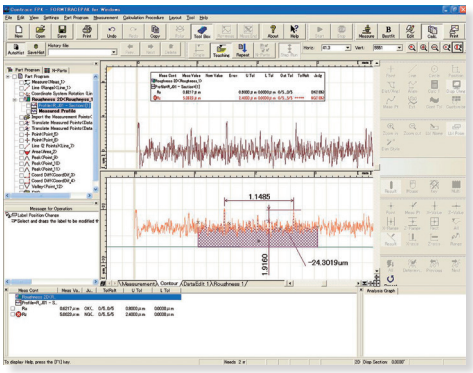
Text output of the calculation result and graphics data

You can output the calculation result as text (in csv or txt format), output graphics data obtained from measurements as point-string data to a text file or CAD file (in the DXF or IGES format), or copy the data to the clipboard.

Surface Roughness Analysis

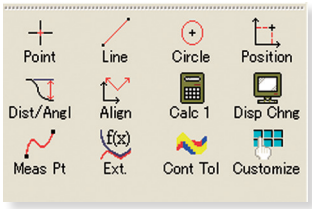
Surface Roughness analysis function

FORMTRACEPAK can perform surface roughness analyses that conform to various standards such as ISO, JIS ANSI, and VDA. For comparing the measurement values with the tolerance limits, you can use the 16% rule or the maximum value rule. Furthermore, since FORMTRACEPAK comes with parameter calculation functions as well as a rich set of graphic analysis functions, it can be widely utilized for everything from routine quality control to R&D applications. It also includes many other functions, such as the function for eliminating (compensating) shapes, such as slopes and R-surface, and a data deletion function.



Microscopic contour analysis function

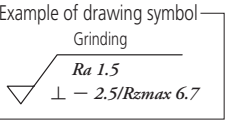
This function can calculate steps and surface areas from the roughness data. Furthermore, as with the contour analysis function, a rich set of calculation commands that combine various elements, such as points, lines, and circles, to calculate angles, pitches, and distances are provided as standard features.



Simple input using drawing symbols

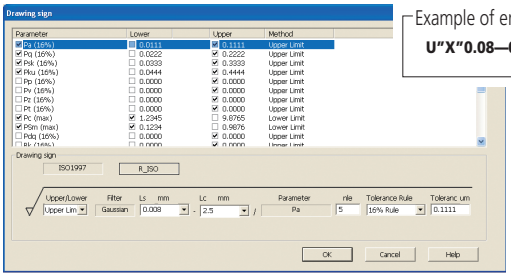
You can easily set up cumbersome measurement conditions by simply entering data according to the drawing symbols of the ISO/JIS roughness standard.

Example of drawing symbol



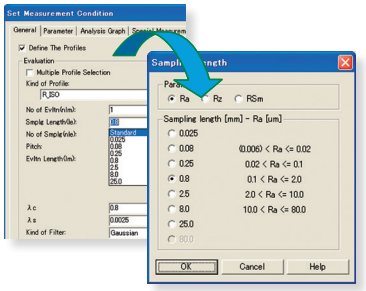
Example of entering data

U"X"0.08—0.8/Rz8max 3.3



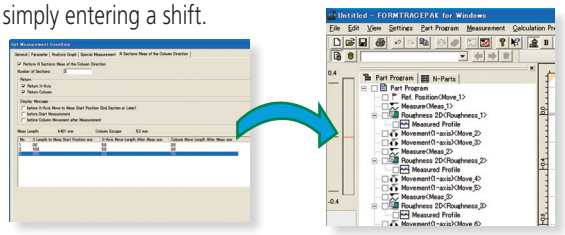
Reference length dialog box

When setting up the reference length in a measurement condition, you can display the standard values defined by the ISO/JIS standards by selecting the applicable standard.



Multiple-point measurement function

You can easily create a part program that measures multiple points by simply entering a shift.

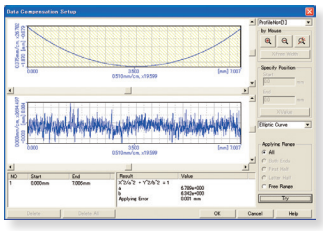


Analysis condition modification with a preview function

You can easily modify various types of analysis conditions such as the standard to be used, curve type, and filter. Furthermore, before eliminating (compensating) shapes such as slopes, R-surfaces, and parabolas, the preview function allows you to check the impact on the spot.

Before compensation

After compensation

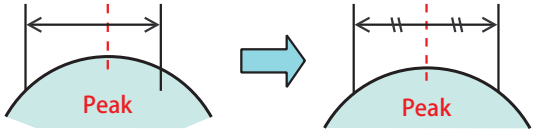


Analysis function using multiple-point measurements

For a workpiece that cannot be measured over the evaluation distance specified by a standard, you can calculate the roughness parameter from the data obtained by measuring multiple points, and compare the measurement data with the tolerance limits using the 16% rule, for example.

R-surface automatic measurement function

Based on the preliminary measurement results, you can automatically measure an R-surface by allocating measurement distances using the peak or bottom of the R-surface as the reference.



FORMTRACEPAK

Layout program

MiCAT
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the standard in world metrology software
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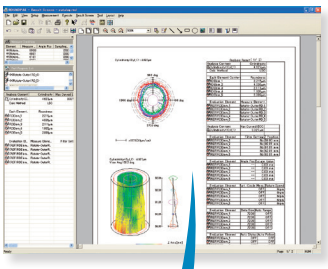
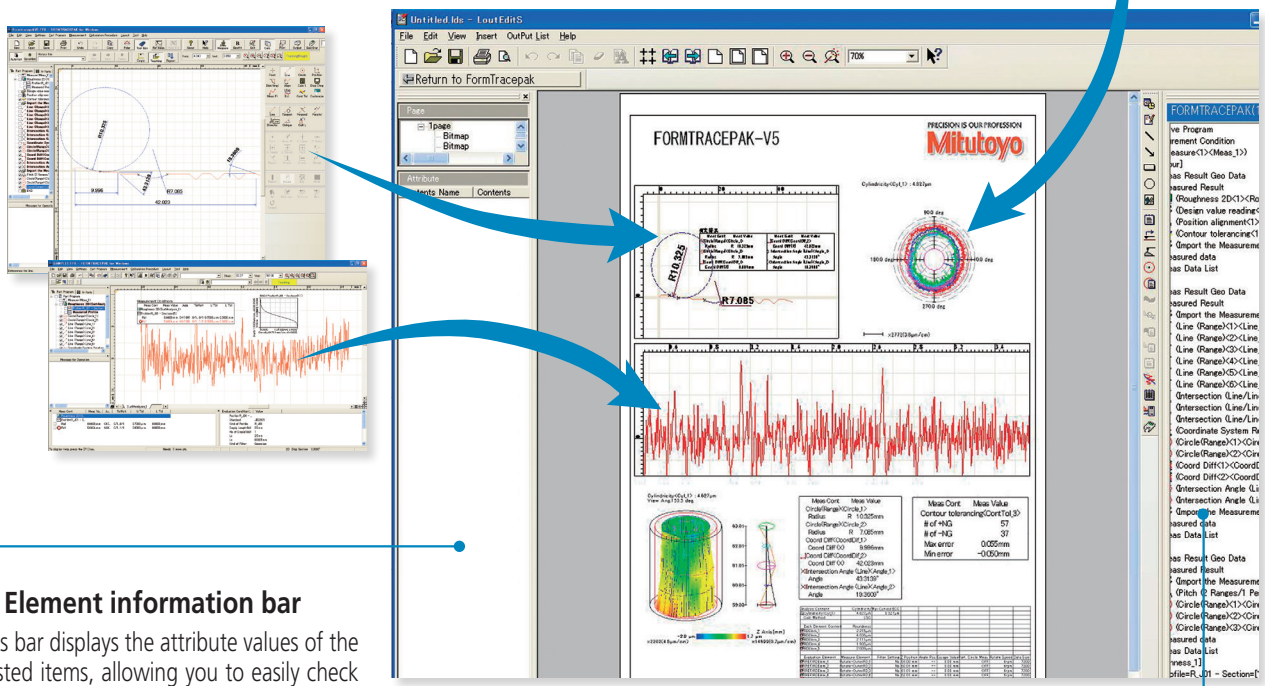
Integrating Contour, Surface Roughness, and Roundness Measurement Results into a Single Page!

Integrated layout

You can use simple operations to lay out graphics obtained from measurements as well as measurement results for surface roughness, contour, and roundness on a single page.
Furthermore, since the program now allows you to specify a saved file and paste it, you can easily paste results from multiple files.

*Note that the optional ROUNDPAK roundness/cylindricity analysis program is required.
(Ver. 7 or higher)



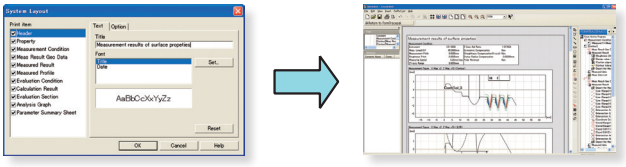


Element information bar

This bar displays the attribute values of the pasted items, allowing you to easily check the contents of the pasted measurement data files.

System layout printing

By simply selecting the items to be output, you can automatically lay out the page to be printed.
Use this feature when you wish to simplify the printing task.



Element insertion bar

Using the mouse to drag and drop the analysis content displayed in the element insertion bar, you can paste it onto the layout. From the contour analysis result, you can also select the analysis result for a circle or line alone and paste it in position.

Saving the result as a web page

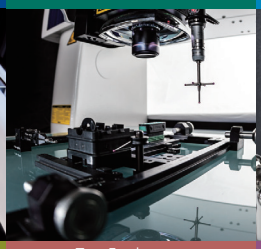
Since you can save the result in html or mhtml format, which can be displayed using Internet Explorer or Microsoft Word, you can check the result even on a PC in which no layout-editing program is installed.

Report creation function

You can freely assemble measurement results/conditions/graphics as well as comments/circles/lines/arrows, and print them out in a measurement result report. Furthermore, since you can paste bitmap files, you can also add a workpiece image or company logo to the layout.
You can also save the created layout and use it again later for similar measurements.

Coordinate Measuring Machines

Vision Measuring Systems



Form Measurement

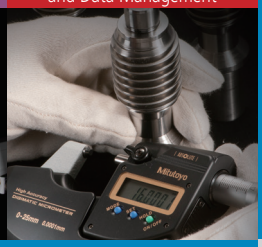
Optical Measuring

Sensor Systems

Test Equipment and Seismometers

Digital Scale and DRO Systems

Small Tool Instruments and Data Management



Whatever your challenges are,
Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top-quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

Find additional product literature and our product catalog

www.mitutoyo.com

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