Surface roughness testers offer benchtop or portable operation and the choice of data analysis by PC or an easy-to-use dedicated processor.
**Dedicated data processor type**

**Surftest SJ-500/SV-2100**

**Improved operability**
- **7.5” Color TFT LCD**
  The dedicated data processor has a high-visibility 7.5” color TFT LCD. Icon display and touch panel operation provide user-friendly display and easy operation.
- **Positioning by joystick and manual control knobs on the processor**
  Easy-to-operate joystick. Fine positioning of stylus required for small-hole measurements can be easily performed using the manual fine-adjustment knobs.
- **Multiple trace function**
  A machine can be programmed to take up to three traces, one after the other.
- **Auto leveling table (optional)**
  Automatically levels the surface to be tested for easy, strain-free setup.

**Various types of analysis**
- **Capable of fine-contour analysis**
  Supports 43 types of analysis parameters, complying with surface roughness standards such as ISO 1997 and JIS 2001. Also capable of various fine-contour analysis.
  *Contour analyses: Area, circle, angle, coordinate difference, step, inclination*

**High-durability**
- **Ceramic guideway**
  A ceramic guideway, inherently free from wear and deterioration with age, is employed to maintain the traversing straightness of the drive unit (X-axis) indefinitely. Maintenance-free design, since anti-corrosion treatment is not required for ceramic.

---

**SJ-500**
- Traverse: 50mm
- Compact, high-performance type

**SV-2100M4**
- Traverse: 100mm
- Manual column type

**SV-2100S4/H4/W4**
- Traverse: 100mm
- Power column type

---

**Dedicated data processor**
- Advanced processing and easy operation
Easy operation, high-accuracy analysis of surface roughness and fine contours!

High-visibility color display panel
A high-visibility 7.5" color TFT LCD, color icon display and touch-operated panel provide user-friendly, easy operation. Built-in thermal printer. Fine contour analysis provided as standard.

Supports 16 languages
Japanese, English, German, French, Italian, Spanish, Portuguese, Korean, Simplified Chinese, Traditional Chinese, Czech, Polish, Hungarian, Turkish, Swedish, Dutch

Multiple trace programming function
A machine can be programmed to take up to three consecutive traces by one-key operation, as shown in the figure below.

- **SJ-500/SV-2100M4**
  Consecutive tracing in X-axis direction only

- **SV-2100S4/H4/W4**
  X-axis tracing with programmed Z-axis shifts possible

Efficient positioning by joystick and adjustment knobs
Both a fast-traverse joystick (X-axis: 20mm/s for SJ-500, 40mm/s for SV-2100, Z2-axis: 20mm/s for SV-2100S4/H4/W4) and manual fine-adjustment knobs, essential for positioning in small hole measurement, are standard features.

Positioning in small hole measurement
Positioning in Y/Z-direcions with column fine-adjustment knob (or detector elevation knob) and optional cross-travel table.

Positioning at the trace start point with X-axis fine-adjustment knob.

Navigation function aids leveling
When using an optional 3-axis adjustment table or leveling table, a navigation screen is available to help the operator level the surface to be tested.

Example of 3-axis adjustable table
The user is guided through the leveling procedure to determine the amount of adjustment needed.
A portable tester also boasting high performance in desktop applications

**Surftest SJ-500**

High accuracy, high performance, user-friendly display and easy operation

- **Vertical adjustment knob**
  - Essential for positioning the stylus close to the workpiece!

- **Support for testing problematic features**
  - Supports measurement in the axial direction for shrouded features, such as found on crankshafts, by simply swiveling the detector through 90 degrees.

**Class-leading traverse straightness:** 0.2μm/50mm
**High-speed traverse at up to 20mm/s under joystick control**
**Smooth positioning using the vertical adjustment knob**

**Drive unit inclination adjustment mechanism**

Digital Adjustment Tilting (DAT) function is supplied as standard for efficient leveling of workpieces: ±1.5°

**DAT function** Powerful support for manual leveling!!

- **On**
  - Preparation measurement
  - Adjustment value display
  - Adjust according to displayed value using leveling knob
  - Actual measurement
  - Reduction of setting time
  - Accurate leveling
  - Easy operation

- **Off**
  - Preparation measurement
  - Adjust using leveling knob
  - Verification measurement
  - Checking counter
  - OK
  - NG
  - Repeat
A desktop tester that’s easy to use for portable applications

**Surftest SV-2100**

By setting the origin point at start-up, the Absolute scale system allows accurate positioning for repeated or multiple measurements.

High-speed traverse at up to 40mm/s (X-axis) under joystick control
Smooth positioning, using the Z-axis fine-adjustment knobs
Stable, high-accuracy measurement with a traverse straightness of 0.15μm/100mm

1. Capable of a series of automatic measurements, plus auto leveling (optional) and stylus retraction. Accurate positioning for repeated or multiple measurements possible.

2. **SV-2100S4/H4/W4** models are equipped with an emergency stop button.

3. Base sizes and vertical travel range on column

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Vertical travel range</th>
<th>Vertical traverse method</th>
<th>Base size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV-2100S4</td>
<td>350mm</td>
<td></td>
<td>600x450mm</td>
</tr>
<tr>
<td>SV-2100H4</td>
<td>550mm</td>
<td>Power and manual</td>
<td>1000x450mm</td>
</tr>
<tr>
<td>SV-2100W4</td>
<td>350mm</td>
<td>Manual only</td>
<td>600x450mm</td>
</tr>
<tr>
<td>SV-2100M4</td>
<td>350mm</td>
<td></td>
<td>600x450mm</td>
</tr>
</tbody>
</table>

---

**Measurement setup screen**

**SV-2100M4**

**SV-2100S4**
Dedicated data processor

Data processing unit

- Data saving (internal memory)
- High-speed printing
- Expansion slot for external memory (CF card)
- Display supports 16 languages
- Key panel
- High-visibility 7.5" color LCD
- Touch panel with color icon display
- Joystick

Customizable menu screen

The menu customization function allows display of frequently used menu icons

Statistical processing

Statistical data processing possible (up to 300 data samples)
Statistical processing items: MAX, MIN, average, standard deviation, histogram, probability of acceptance.

Saving and recalling measurement setups

Up to 10 measurement setups can be saved to and recalled from internal memory.

Statistical data input

Statistical results

Measurement screen opens

Click the desired measurement setup file

One-touch recall of stored setups
Analysis to international standards

Evaluates surface roughness using up to 43 parameters complying with international standards such as ISO 1997 and JIS 2001. Bearing Area Curve (BAC), Amplitude Distribution Curve (ADC), and power spectrum (wavelength display) are readily available in graph form.

Easy, icon-based input of setup conditions

Setups are aided by icons representing ISO/JIS roughness standard parameters with appropriate values selected from recommended lists.

Typical surface roughness symbol on drawing

\[
\text{Grinding} \quad Ra 1.5 \\
0.08 - 0.8/Rz8max 3.3
\]

Typical result of icon-based setup

U"X"0.08—0.8/Rz8max 3.3

A large variety of optional accessories

Options supporting measurement including an auto leveling table, a 3-axis adjustment table, and a leveling table. Furthermore, these can be easily operated via a navigation function. (Supported accessories differ depending on the model.)

Fine-contour analysis

Various contour analyses (area, circle, angle, coordinate difference, step, inclination) are supplied as standard.

Select desired analysis icon and then specify the range.

Built-in thermal printer

Measurement data is printed by the high-definition, high-speed thermal printer. In addition to calculation results and evaluation results, BAC, ADC and other curves can also be printed.

Simplified communication program for SURFTEST SJ series

The Surfstest SJ-500/SV-2100 series has a USB interface, enabling data to be transferred to a spreadsheet or other software. We also provide a program that lets you create inspection record tables using Microsoft Excel* macro.

This program can be downloaded free of charge from the Mitutoyo website.

http://www.mitutoyo.co.jp

This program can be downloaded free of charge from the Mitutoyo website.

\* Windows OS and Microsoft Excel are products of Microsoft Corporation.

The optional USB cable is also required.

USB cable for SJ-500/SV-2100 series No.12AAH490
PC data processing type
Surftest SJ-500P/SV-2100M4

A superior data processing tester with PC data analysis for higher efficiency.

* If a power column type with PC data-processing is desired, consider the SV-3100 series
* Printer is optional.

Either FORMTRACEPAK or SURFPK-EZ software can be used.

**FORMTRACEPAK: Best-seller for surface roughness analysis**
A best-seller dedicated software especially for surface roughness measurement and analysis capable of free print format settings for original inspection certificates.

**SURFPK-EZ: Easy-to-use task-focused software**
User-friendly graphical display and button layout allows intuitive operation. Simplified fine-contour analysis provided as standard, including step, area, angle, and circle calculation.
## Specifications

### Type of data processing
- **Dedicated data processor**
- **PC system**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>SJ-500</th>
<th>SV-2100M4</th>
<th>SV-2100S4</th>
<th>SV-2100H4</th>
<th>SV-2100W4</th>
<th>SJ-500P</th>
<th>SV-2100M4</th>
</tr>
</thead>
</table>

### Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Dedicated data processor</th>
<th>PC system</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Travel range</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x axis</td>
<td>50mm (2 inch)</td>
<td>100mm (4 inch)</td>
</tr>
<tr>
<td>z2 axis (column)</td>
<td>350mm (13.8 inch)</td>
<td>350mm (13.8 inch)</td>
</tr>
<tr>
<td><strong>Measuring range</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x axis</td>
<td>800µm / 80µm / 8µm (3200µinch / 3200µinch / 320µinch)</td>
<td></td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x axis</td>
<td>0.05µm (1.97µinch)</td>
<td></td>
</tr>
<tr>
<td>z1 axis (detector unit)</td>
<td>0.01µm / 80µm range, 0.001µm / 8µm range, 0.0001µm / 8µm range (0.4µinch / 3200µinch, 0.04µinch / 320µinch)</td>
<td></td>
</tr>
<tr>
<td><strong>Power drive speed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x axis</td>
<td>0 - 20mm/s (via joystick) or manual</td>
<td></td>
</tr>
<tr>
<td>z2 axis (column)</td>
<td>0 - 20mm/s (via joystick) or manual</td>
<td></td>
</tr>
<tr>
<td><strong>Measuring speed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x axis</td>
<td>0.02 – 5mm/s</td>
<td></td>
</tr>
<tr>
<td>** Traverse guideway straightness**</td>
<td>0.2µm / 50mm</td>
<td></td>
</tr>
<tr>
<td><strong>Stylus up/down operation</strong></td>
<td>Arc movement</td>
<td></td>
</tr>
<tr>
<td><strong>Point of stylus</strong></td>
<td>Downward</td>
<td></td>
</tr>
<tr>
<td><strong>Detector</strong></td>
<td>Dedicated processor type: P (primary profile), R (roughness profile), WC, envelope residual profile, roughness motif, waviness motif</td>
<td></td>
</tr>
<tr>
<td><strong>Stylus tip</strong></td>
<td>0.75mN detector: 60°, R2µm</td>
<td></td>
</tr>
<tr>
<td><strong>Applicable standards</strong></td>
<td>JIS'82 / JIS'94 / JIS'01 / ISO'97 / ANSI / VDA</td>
<td></td>
</tr>
<tr>
<td><strong>Assessed profiles</strong></td>
<td>Dedicated processor type: P (primary profile), R (roughness profile), WC, WCA, WE, WEA, DIN4776 profile, E (envelope residual profile), roughness motif, waviness motif</td>
<td></td>
</tr>
<tr>
<td><strong>Evaluation parameters</strong></td>
<td>Dedicated processor type: Pa, Pq, Pz, Pp, Pv, Pv, P2, Rm, Rm</td>
<td></td>
</tr>
<tr>
<td><strong>Analysis graphs</strong></td>
<td>Dedicated processor type: ADC, BAC, power spectrum graph</td>
<td></td>
</tr>
<tr>
<td><strong>Curved surface compensation</strong></td>
<td>Dedicated processor type: Parabolic compensation, Hyperbolic compensation, Elliptical compensation, Circular compensation, Conic compensation, Inclination (Entire, Arbitrary)</td>
<td></td>
</tr>
<tr>
<td><strong>Contour analysis</strong></td>
<td>Dedicated processor type: Area, Circle, Angle, Coordinate difference, Step, Inclination</td>
<td></td>
</tr>
<tr>
<td><strong>Filters</strong></td>
<td>Dedicated processor type: 2CR-75%, 2CRPC-75%, Gaussian, Rubust-spline</td>
<td></td>
</tr>
<tr>
<td><strong>Base size (width x depth)</strong></td>
<td>600x450mm</td>
<td></td>
</tr>
<tr>
<td><strong>Base material</strong></td>
<td>Granite</td>
<td></td>
</tr>
<tr>
<td><strong>External dimensions (W x D x H)</strong></td>
<td>Main unit: 425x94x160mm</td>
<td>Display unit: 176x450x863mm</td>
</tr>
<tr>
<td><strong>Electronic unit</strong></td>
<td>766x450x966mm</td>
<td>766x450x1166mm</td>
</tr>
<tr>
<td><strong>PC IF unit</strong></td>
<td>1166x450x1176mm</td>
<td>425x94x160mm</td>
</tr>
</tbody>
</table>

### Notes
- To denote your AC line voltage add the following suffixes (e.g. 178-532-01A).
- A for 120V, C for 100V, D for 230V, E for 230V (for UK), DC for 220V (for China), K for 220V (for Korea).
Dimensions

SJ-500

Dedicated data processor

Electronic unit

Only for SV-2100S4 / H4 / W4

SV-2100M4

SV-2100S4 / SV-2100H4

SV-2100W4

Unit: mm
Optional Accessories

**Manual column stand: 178-085 (for SJ-500)**

Suitable for desktop use in inspection rooms, etc.

No.178-085 * Except for measuring unit
Vertical adjustment range: 300 mm
Dimension (W x D x H): 600 x 450 x 710 mm
Mass: 110 kg

Note: While the appearance of the natural stone stand varies according to the source, the high stability for which this material is known can always be relied upon.

**Simple column stand: 178-089 (for SJ-500)**

A portable simple column stand.

No.178-089 * Except for measuring unit
Vertical adjustment range: 250 mm
Dimension (W x D x H): 400 x 250 x 578.6 mm
Mass: 20 kg

Note: While the appearance of the natural stone stand varies according to the source, the high stability for which this material is known can always be relied upon.


This is a stage that performs fully automatic leveling as measurement starts, freeing the user from this tedious operation. Fully automatic leveling can be done quickly by anyone. In addition, the operation is easy and reliable.

- Inclination adjustment angle: ±2°
- Maximum load: 7kg
- Table dimensions: 130 x 100 mm
- Mass: 3.5kg

**DAT leveling table: 178-048**

This table can be used by itself or in conjunction with other leveling tables.

- Inclination adjustment angle: ±1.5°
- Maximum load: 7kg
- Table dimensions: 130 x 100 mm

**XY leveling tables**

<table>
<thead>
<tr>
<th>Order No.</th>
<th>178-042-1 (mm)</th>
<th>178-052-1 (inch)</th>
<th>178-043-1 (mm)</th>
<th>178-053-1 (inch)</th>
<th>178-049 (mm)</th>
<th>178-058 (inch/mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>with digital heads</td>
<td>with analog heads</td>
<td>with digital heads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table dimensions</td>
<td>130 x 100 mm</td>
<td>130 x 100 mm</td>
<td>130 x 100 mm</td>
<td>130 x 100 mm</td>
<td>130 x 100 mm</td>
<td>130 x 100 mm</td>
</tr>
<tr>
<td>Maximum load</td>
<td>15kg</td>
<td>15kg</td>
<td>15kg</td>
<td>15kg</td>
<td>15kg</td>
<td>15kg</td>
</tr>
<tr>
<td>Inclination adjustment angle</td>
<td>±1.5°</td>
<td>±1.5°</td>
<td>±1.5°</td>
<td>±1.5°</td>
<td>±1.5°</td>
<td>±1.5°</td>
</tr>
<tr>
<td>Swiveling angle</td>
<td>±3°</td>
<td>±3°</td>
<td>±3°</td>
<td>±3°</td>
<td>±3°</td>
<td>±3°</td>
</tr>
<tr>
<td>XYZ-axis travel range</td>
<td>±12.5mm</td>
<td>±12.5mm</td>
<td>±12.5mm</td>
<td>±12.5mm</td>
<td>±12.5mm</td>
<td>±12.5mm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.001 mm</td>
<td>0.001 mm</td>
<td>0.001 mm</td>
<td>0.001 mm</td>
<td>0.001 mm</td>
<td>0.001 mm</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>262 x 233 x 83 mm</td>
<td>262 x 233 x 83 mm</td>
<td>262 x 233 x 83 mm</td>
<td>262 x 233 x 83 mm</td>
<td>262 x 233 x 83 mm</td>
<td>262 x 233 x 83 mm</td>
</tr>
<tr>
<td>Mass</td>
<td>6.3 kg</td>
<td>6 kg</td>
<td>5 kg</td>
<td>5 kg</td>
<td>5 kg</td>
<td>5 kg</td>
</tr>
</tbody>
</table>

**DAT leveling table: 178-049**

This table can be used by itself or in conjunction with other leveling tables.

- Inclination adjustment angle: ±1.5°
- Maximum load: 7kg
- Table dimensions: 130 x 100 mm

**DAT leveling table: 178-058**

This table can be used by itself or in conjunction with other leveling tables.

- Inclination adjustment angle: ±1.5°
- Maximum load: 7kg
- Table dimensions: 130 x 100 mm
Optional Accessories

This table helps make the alignment adjustments required when measuring cylindrical surfaces. The corrections for the pitch angle and the swivel angle are determined from a preliminary measurement and the Digimatic micrometers are adjusted accordingly. A flat-surfaced workpiece can also be leveled with this table.

**3-axis adjustment table: 178-047**

- Indication adjustment angle ±1.5°
- Swiveling angle ±2°
- Y-axis range ±12.5mm
- Resolution of heads 0.001mm
- Table dimensions 130x100mm
- Maximum load 15kg

---

**System configuration including optional accessories (for SV-2100M4 / S4 / H4 / W4)**

*1: 70mm stage to be mounted onto the base required for calibration of roughness specimen. Not required when using cross-travel table, plain stage, cross-travel stage, or 3-axis adjustment table.


*3: PC for managing the analysis result externally output from the dedicated data processor.

*4: Only SV-2100M4 can be connected.

*5: Since print of unit does not support 'µm', use DP-1VR without print set of unit.

---

**Recorded profiles**

<table>
<thead>
<tr>
<th>Aligned</th>
<th>Not aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start point</td>
<td>End point</td>
</tr>
<tr>
<td>Traverse direction</td>
<td>Traverse direction</td>
</tr>
<tr>
<td>Start point</td>
<td>End point</td>
</tr>
<tr>
<td>Axial line</td>
<td>Axial line</td>
</tr>
</tbody>
</table>

---

**Indication adjustment angle ±1.5°**

**Swiveling angle ±2°**

**Y-axis range ±12.5mm**

**Resolution of heads 0.001mm**

**Table dimensions 130x100mm**

**Maximum load 15kg**

---

**Optimal Accessories**

- 3-axis adjustment table: 178-047
  - This table helps make the alignment adjustments required when measuring cylindrical surfaces. The corrections for the pitch angle and the swivel angle are determined from a preliminary measurement and the Digimatic micrometers are adjusted accordingly. A flat-surfaced workpiece can also be leveled with this table.
  - Indication adjustment angle ±1.5°
  - Swiveling angle ±2°
  - Y-axis range ±12.5mm
  - Resolution of heads 0.001mm
  - Table dimensions 130x100mm
  - Maximum load 15kg

---

**System configuration including optional accessories (for SV-2100M4 / S4 / H4 / W4)**

*1: 70mm stage to be mounted onto the base required for calibration of roughness specimen. Not required when using cross-travel table, plain stage, cross-travel stage, or 3-axis adjustment table.


*3: PC for managing the analysis result externally output from the dedicated data processor.

*4: Only SV-2100M4 can be connected.

*5: Since print of unit does not support 'µm', use DP-1VR without print set of unit.
Optional Accessories

System configuration including optional accessories (for SJ-500 with optional manual column stand)

Roughness specimen (standard accessory): 178-601

<table>
<thead>
<tr>
<th>Display</th>
<th>Ra = about 3 µm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Ni (TiN surface coating)</td>
</tr>
</tbody>
</table>

Roughness specimen: 178-604

For checking stylus tip

| Display | Ra = about 3 µm, about 0.4 µm |

Reference step specimen: 178-611 (mm), 178-612 (inch)

For sensitivity calibration of detector

| Nominal value of step | 2µm (79µin), 10µm (394µin) |

*1: 70mm stage to be mounted onto the base required for calibration of roughness specimen. Not required when using cross-travel table, plain stage, cross-travel stage, or 3-axis adjustment table.

*2: PC for managing the analysis result externally output from the dedicated data processor. Not required when using the SJ-500P. A USB cable is a standard accessory of the SJ-500P.

*3: Only SJ-500P can be connected. Use a USB cable when connecting the SJ-500P main unit and a PC. A USB cable is a standard accessory of the SJ-500P.

*4: Since print of unit does not support ‘µm’, use DP-1VR without print set of unit.

Roughness specimen: 178-604
Optional Styli

### Detectors

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Measuring force</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>178-396-2</td>
<td>0.75mN</td>
<td>‘97ISO and ‘01JIS compliant detectors</td>
</tr>
<tr>
<td>178-397-2</td>
<td>4mN</td>
<td>Detectors that comply with previous standards, for general use, etc.</td>
</tr>
</tbody>
</table>

12AAE882 (1μm)*1
12AAE924 (1μm)
12AAC731 (2μm)*1
12AAE840 (3μm)
12AAC841 (3μm)
12AAE883 (250μm)*4

*2: For downward-facing measurement only.

### Extension rods

- **12AAG202** Extension rod 50mm
- **12AAG203** Extension rod 100mm

* No more than one extension rod can be connected.

### Styli

#### Standard stylus

- 12AAE882 (1μm)*1
- 12AAC732 (2μm)*1
- 12AAE840 (3μm)
- 12AAC841 (3μm)
- 12AAE883 (250μm)*4

#### For small hole

- 12AAC732 (2μm)*1
- 12AAE840 (3μm)
- 12AAC841 (3μm)

#### For extra-small hole

- 12AAC733 (2μm)*1
- 12AAE840 (3μm)
- 12AAC841 (3μm)

#### For extra-minute hole

- 12AAC734 (2μm)*1
- 12AAE840 (3μm)
- 12AAC841 (3μm)

#### For deep hole (double-length and triple-length)*2

- 12AAC740 (2μm)*1
- 12AAE840 (3μm)
- 12AAC841 (3μm)

#### For small slotted hole*2

- 12AAE938 (2μm)*1

#### Double-length for deep hole*2

- 12AAE884 (φ1.6mm)

#### For small hole/Double-length for deep hole*2

- 12AAE892 (2μm)*1

#### For small hole*2*4

- 12AAE884 (φ1.6mm)

#### For ultra-small hole*4

- 12AAE662 (φ0.5mm)

*1: Tip angle 60°
*2: For downward-facing measurement only.
*3: Tip radius
*4: Used for calibration, a standard step gauge (No.178-611 or 178-612, option) is also required.

### Mitutoyo

*Tip radius | 1μm | 2μm | 5μm | 10μm | 25μm
---|---|---|---|---|---
Color Coding | White | Black | No color | Yellow | No notch or color
### Styli

<table>
<thead>
<tr>
<th>For deep groove (10mm)</th>
<th>For deep groove *2 (20mm)</th>
<th>For deep groove *2 (30mm)</th>
<th>For deep groove *2 (40mm)</th>
<th>For deep groove (30mm)/Double-length for deep hole *2</th>
<th>For gear tooth</th>
<th>For gear tooth/Double-length for deep hole *2</th>
<th>For rolling circle waviness/Dual-length for deep hole *2</th>
<th>For rolling circle waviness surface *4</th>
<th>For knife-edge *4</th>
<th>For corner hole/Double-length for deep hole *2</th>
<th>For eccentric arm *2</th>
<th>For bottom surface</th>
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<tr>
<td>12AAC735 (2μm)*1</td>
<td>12AAE895 (2μm)*1</td>
<td>12AAC737 (2μm)*1</td>
<td>12AAE894 (2μm)*1</td>
<td>12AAE896 (2μm)*1</td>
<td>12ABAB339 (2μm)*1</td>
<td>12AAE892 (2μm)*1</td>
<td>12AAE885 (250μm)*4</td>
<td>12ABAB338 (φ1.588)</td>
<td>12AAE897 (2μm)*1</td>
<td>12AAE912 (5μm)*1</td>
<td>12AAE889 (2μm)*1</td>
<td>12AAE915 (5μm)</td>
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<td>12AAE407 (5μm)</td>
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<td>12ABAB408 (5μm)*1</td>
<td>12AAE913 (5μm)*2</td>
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<td>12ABAB411 (5μm)</td>
<td>12AAE899 (2μm)*1</td>
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<td>12ABAB419 (10μm)*1</td>
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<td>(40mm)</td>
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</tr>
</tbody>
</table>

*1: Tip angle 60°

*2: For downward-facing measurement only.

*3: Customized special interchangeable stylus are available on request. Please contact any Mitutoyo office for more information.

*4: Used for calibration, a standard step gauge (No.178-611 or 178-612, option) is also required.

<table>
<thead>
<tr>
<th>Tip radius</th>
<th>2μm</th>
<th>5μm</th>
<th>10μm</th>
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<td>Yellow</td>
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</tbody>
</table>

- For deep groove
- For deep groove *2
- For deep groove *2 (20mm)
- For deep groove *2 (30mm)
- For deep groove *2 (40mm)
- For deep groove (30mm)/Double-length for deep hole *2
- For gear tooth
- For gear tooth/Double-length for deep hole *2
- For rolling circle waviness surface *4
- For rolling circle waviness/Dual-length for deep hole *2
- For rolling circle waviness surface *4
- For knife-edge *4
- For corner hole/Double-length for deep hole *2
- For eccentric arm *2
- For bottom surface
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