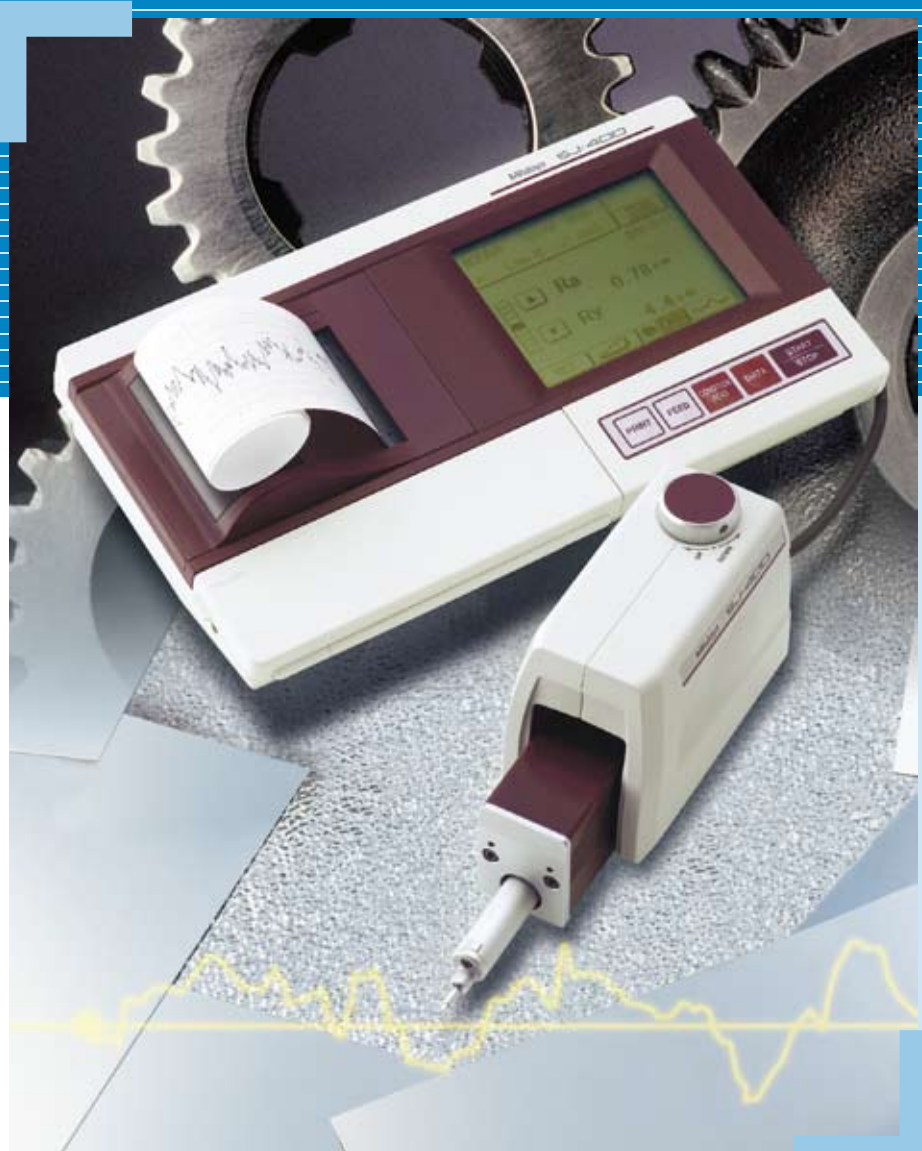


# Portable Surface Roughness Tester **SURFTES SJ-400 Series**

Catalog No. E15005



Compact roughness tester makes highly accurate skidless measurements to the latest international standards

**Mitutoyo**

# Revolutionary Portable Surface Roughness Tester

**Long-awaited performance and functionality are here: compact design, skidless and high-accuracy roughness measurements, multi-functionality and ease of operation.**



SJ-401

## High-accuracy measurements with a hand-held tester

A wide range, high-resolution detector and an ultra-straight drive unit provide class-leading accuracy.

### Detector

Measuring range: 800  $\mu\text{m}$  (on 800  $\mu\text{m}$  range)  
Resolution: 0.0001  $\mu\text{m}$  (on 8  $\mu\text{m}$  range)

### Drive unit

Straightness / traverse length  
SJ-401: 0.3  $\mu\text{m}$  / 25 mm  
SJ-402: 0.5  $\mu\text{m}$  / 50 mm

## Measurement/evaluation of stepped features and straightness

Ultra-fine steps, straightness and waviness are easily measured by switching to skidless measurement mode. The ruler function enables simpler surface feature evaluation on the LCD monitor.

## Cylinder surface roughness measurements with a hand-held tester

The skidless measurement and R-surface compensation functions make it possible to evaluate cylinder surface roughness.



## Roughness parameters that conform to international standards

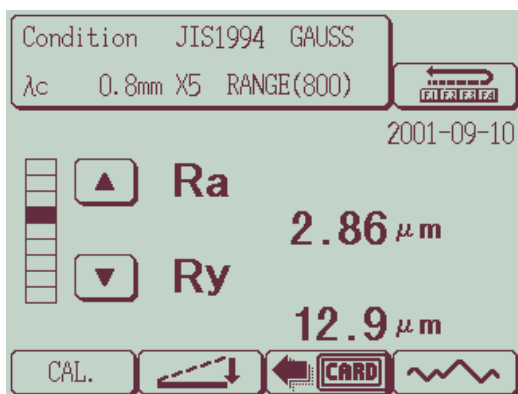
The SJ-400 series can evaluate 38 kinds of roughness parameters conforming to the latest ISO, VDA, and ANSI standards, as well as to JIS standards (2001/1994/1982).

## Positioning of measurement start point

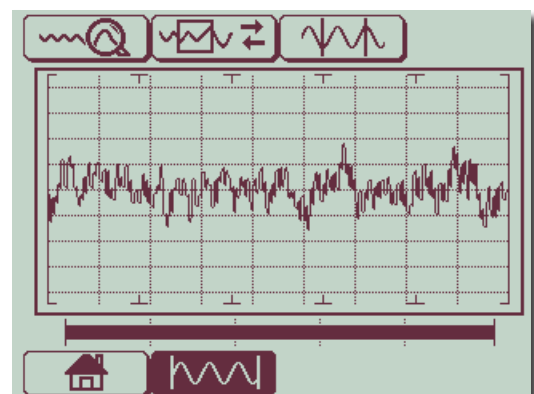
The drive mechanism on the SJ-400 series can be controlled simply by manipulating icons on the LCD monitor. You can start measurement from any position you choose.

## Confirmation of measurement results and assessed profiles without a printout

The large, integrated, touch-panel LCD monitor clearly displays evaluation results and measured profiles.



Calculation Result screen



Measured Profile screen

## Advanced data processing with extended analysis (Option)

The SJ-400 series allows data processing identical to that in the high-end class. These data analysis and report creation capabilities are achieved using the surface roughness / contour analysis software FORMTRACEPAK.

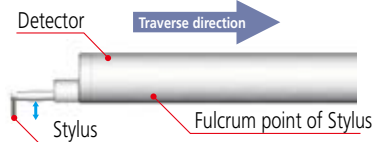
## Your choice of skidless or skidded measurement

The Surftest SJ-400 series can switch between skidless or skidded measurement. Skidless measurement can measure finely contoured features and has an R-surface compensation function for measuring around the circumference of cylinders.

Patent registered in Japan. Patent pending in Germany.

### Skidless measurement

Skidless measurement is where surface features are measured relative to the drive unit reference surface. This measures waviness and finely stepped features accurately, in addition to surface roughness, but range is limited to the stylus travel available. The SJ-400 series supports a variety of surface feature measurements simply by replacing the stylus.



Measuring example of stepped features: Skidless

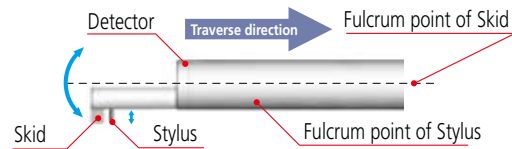


Measured profile



### Skidded measurement

In skidded measurements, surface features are measured with reference to a skid following close behind the stylus. This cannot measure waviness and stepped features exactly but measuring range is greater because the skid tracks the workpiece surface contour.



Measuring example of stepped features: Skidded

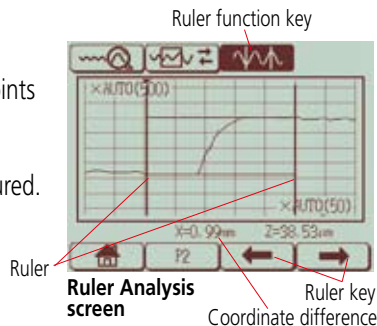


Measured profile



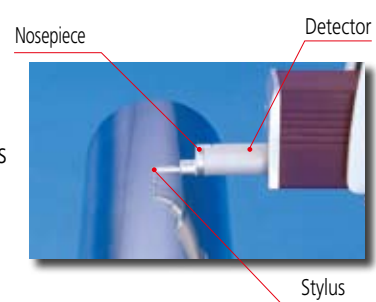
### Ruler function simplifies surface feature evaluation

This function determines the coordinate difference between two arbitrary points so feature characteristics, such as step height and width, etc., can be measured.



### Interchangeable attachments for high versatility

Attachments such as the stylus and nosepiece can be changed to suit different types of measurement. (See pages 8 and 9.)

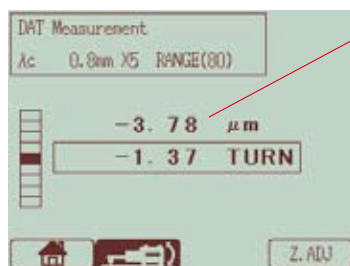


## Powerful Support for Leveling

The height/tilt adjustment unit comes as standard for leveling the drive unit prior to making skidless measurements and, supported by guidance from the unique D.A.T. function, makes it easy to achieve highly accurate alignment.

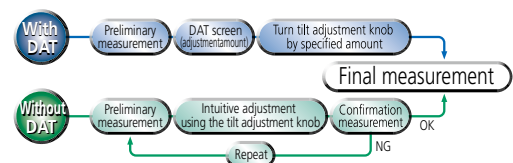
### The D.A.T. Function

Patent registered in Japan. Patent pending in Germany.



DAT screen guides the user when leveling

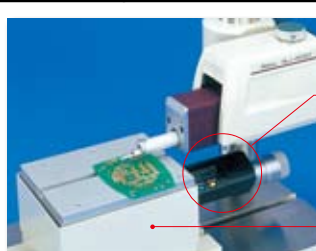
Turn tilt adjustment knob by 1.37 turns counter-clockwise to level



### D.A.T. Function for the optional leveling table

Patent registered in Japan. Patent pending in Germany.

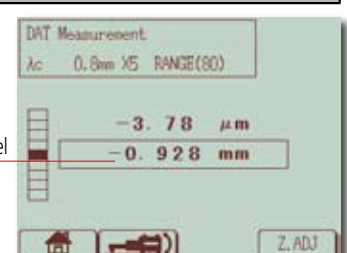
Adjustments can be performed via the leveling table even when using the manual column stand. The adjustment operation is intuitive with the movement distance displayed on the screen.



Digimatic micrometer head

Adjust the micrometer head by -0.928 mm to level

Leveling table (D.A.T.) (optional)



DAT screen guides the user when leveling

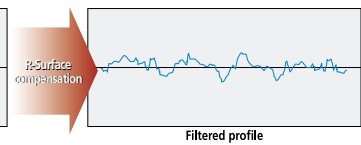
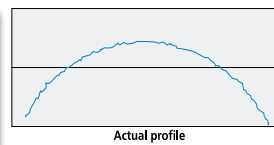
**Mitutoyo**



# More Measuring Functions Than Expected From a Compact Tester

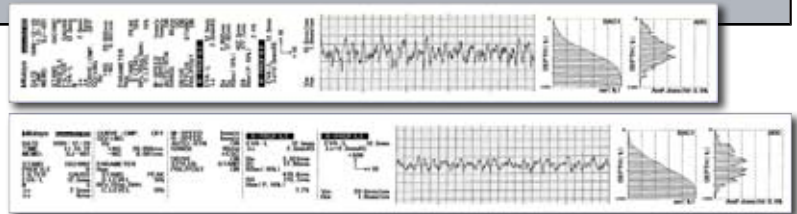
## Measuring curved-surface roughness (skidless measurement)

Usually, a spherical or cylindrical surface (R-surface) cannot be evaluated, but, by removing the radius with a filter, R-surface data is processed as if taken from a flat surface.



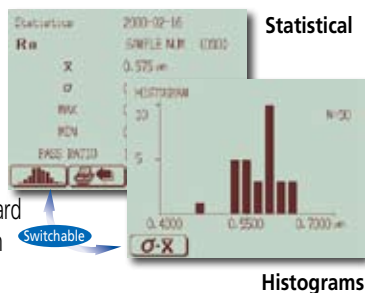
## Built-in thermal printer

A high quality, high-speed thermal printer prints out measured results. It can also print a BAC curve or an ADC curve as well as calculated results and assessed profiles. These results and profiles are printed out in landscape format, just as they appear on the LCD, in easy-to-understand form.

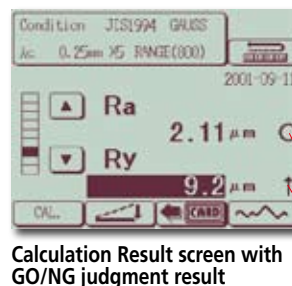


## Statistics

Statistical processing can be performed on multiple measurements for one roughness parameter. Histograms can be displayed and printed in addition to statistical results (mean, standard deviation, maximum/minimum value and acceptance ratio)



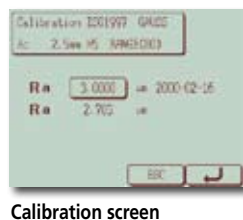
## GO/NG indication



Upper and lower tolerance limits can be set for up to 3 roughness parameters. A GO/NG indication is displayed after a measurement. The calculation result is highlighted if NG.

## Auto-Calibration

The SJ-400 series is equipped with Ra calibration and step calibration methods for detector calibration (gain adjustment). In both calibration methods only the calibrated value of the precision specimen needs to be entered. No other operations are required to calibrate the tester.



## Recalculating

Previously measured data can be recalculated for use in other evaluations by changing the current standard, assessed profile and roughness parameters.

## Arbitrary length measurement

This function allows a sampling length to be arbitrarily set in 0.1mm increments (SJ-401: 0.1mm to 25.4mm, SJ-402: 0.1mm to 50.8mm). It also allows the SJ-400 series to make both narrow and wide range measurements.

## Storing/recalling measured data and conditions

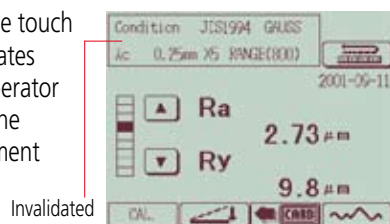
The measurement conditions and data can be stored in the control unit or memory card (optional) and recalled as required. Batch printout of data after on-site measurement improves measuring efficiency.

### Storage capacity

Measurement conditions	Control unit: 5 conditions Memory card: 20 conditions
Measurement data	Memory card: 999 or more items of data

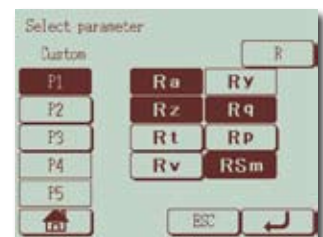
## Key masking

Locks out input from the touch panel keys. This eliminates the possibility of the operator accidentally changing the calibration or measurement conditions.



## Customizing

The SJ-400 series can be set up to calculate and display only a subset of the roughness parameters available. Parameters can be added later for recalculation, if required.



## Carrying Case

The unit is easily transported in a dedicated carrying case which includes holders for the accessories as well as the tester itself. (Standard accessory.)



## Real sampling

This function samples stylus displacement for a specified time without engaging detector traverse. This function has a wide range of uses, such as a simplified vibration meter or a displacement gage incorporated in another system.

# Specifications

Model No.		SJ-401		SJ-402	
Type of detector		0.75 mN	4 mN	0.75 mN	4 mN
Order No.	mm / inch	178-956-4	178-946-4	178-958-4	178-940-4
	mm <sup>*1</sup>	178-956-4K	178-946-4K	178-958-4K	178-940-4K
	inch / mm	178-957-4	178-947-4	178-959-4	178-945-4
Measuring range	X-axis	25.4 mm (1")		50.8 mm (2")	
	Z1-axis (detector unit)	800 μm / 80 μm / 8 μm (32000 μinch / 3200 μinch / 320 μinch) Up to 2,400 μm with an optional stylus			
Detector <sup>*1</sup>	Detecting scheme	Differential inductance			
	Resolution	0.01 μm (800 μm range) / 0.001 μm (80 μm range) / 0.0001 μm (8 μm range) 0.4 μinch (32000 μinch) / 0.04 μinch (3200 μinch) / 0.004 μinch (320 μinch)			
	Stylus tip	60° / R2 μm (80 μin)	90° / R5 μm (200 μin)	60° / R2 μm (80 μin)	90° / R5 μm (200 μin)
	Measuring force	0.75 mN	4 mN	0.75 mN	4 mN
	Radius of skid curvature	R40 mm (R1.57")			
	Measuring method	Skidded measurement / skidless measurement			
Drive unit: X-axis	Measuring speed	0.05, 0.1, 0.5, 1.0 mm/s (0.002, 0.004, 0.02, 0.04 inch/s)			
	Drive speed	0.5, 1, 2.0 mm/s (0.02, 0.04, 0.08 inch/s)			
	Straightness	0.3 μm / 25 mm (12 μinch / 1 inch)		0.5 μm / 50 mm (2 μinch / 1 inch)	
Height-tilt adjustment unit	Height adjustment	10 mm (0.39")			
	Tilt adjustment	±1.5°			
Conformable standards		JIS1982 / JIS1994 / JIS2001 / ISO1997 / ANSI / VDA			
Parameters		Ra, Ry, Rz, Rq, Pc, R3z, mr, Rt, Rp, Rv, Sm, S, $\bar{\sigma}$ c, Rk, Rpk, Rvk, Mr1, Mr2, A1, A2, Lo, Ppi, R, AR, Rx, $\Delta$ a, $\Delta$ q, Ku, HSC, mrd, Sk, Vo, W, AW, Wt, Wte, Rz1max (ISO), Rmax (VDA, ANSI)			
Assessed profiles		Primary Profile, Roughness profile, Filtered waviness curve Roughness motif, Waviness motif, DIN4776 curve			
Graphs		Bearing Area Curve (BAC), Amplitude distribution Curve (ADC)			
Data compensation		Tilt compensation, R-surface compensation, Compensation off			
Filters		2CR, PC75, Gaussian filter,			
Cutoff length	$\lambda c$	0.08, 0.25, 0.8, 2.5, 8 mm (0.003", 0.01", 0.03", 0.1", 0.3")			
Sampling length		0.08, 0.25, 0.8, 2.5, 8 mm (0.003", 0.01", 0.03", 0.1", 0.3")			
Number of sampling lengths (xn)		x1, x3, x5			
Arbitrary length		0.5 to 25.4 mm		0.5 to 50.8 mm	
Display unit	Customize	Display/Roughness parameter selectable			
	Ruler function	Displays the coordinate difference of any two points			
	D.A.T. function	Helps to adjust leveling during skidless measurement			
	Real sampling function	Enables the stylus displacement to be input while the drive unit is stopped			
	Statistical processing	Maximum value, Minimum value, Mean value, Standard deviation(s), Pass ratio, Histogram			
	Tolerance judgment	Upper and lower limit values for three parameters can be specified			
	Measurement conditions saving	5 cases max. (Display unit)			
	Printing function	Waveform (profile, BAC1, BAC2, ADC), Calculation result, Statistics result, Frequency table Measurement condition, Memorandum, Hard copy of a screen			
	Diplay languages	Japanese, English, German, French, Italian, Spanish			
	Memory card (128 MB, Optional Accessory)	Storage/recall of measurement condition (20 cases max.) and measurement data (999 cases max.)			
External input / output		RS-232C input/output, SPC output			
Power supply		Two-way power supply: battery (rechargeable Ni-MH battery) and AC adapter *Charging time: about 15 hours (may vary due to ambient temperature) *Endurance: about 600 measurements without printing (differs slightly due to use conditions/environment)			
Size	Diplay unit	307×165×94 mm (12"×6.5"×3.7")			
	Height adjustment unit	131×63×99 mm (5.16"×2.48"×3.9")			
	Drive unit	128×36×47 mm (5.04"×1.42"×1.85")		155×36×47 mm (6.08"×1.42"×1.85")	
Mass	Diplay unit	1.2 kg			
	Height adjustment unit	0.4 kg			
	Drive unit	0.6 kg		0.7 kg	
Standard accessories		Detector <sup>*2</sup> , Stylus <sup>*3</sup> , Roughness specimen 12AAA357: Carrying case 12BAA689: Touch pen 12BAA690: Touch-panel protection sheet 270732: Printing paper Flat-blade screwdriver, Hexagonal wrench, AC adapter, Power cord, User's manual Quick reference manual, Warranty			

\*1: Specification for Korea.

\*2: Either **No.178-396** or **No.178-397** is supplied as a standard accessory depending on the Order No. of the main unit for SJ-400 Series.

\*3: The standard stylus (**No.12AAC731** or **No.12AAB403**), which is compatible with the detector supplied, is a standard accessory.

Note 1) See pages 8, 9 for details about stylus, detector, nosepiece.

2) To denote your AC line voltage add the following suffixes (e.g. 178-956-4A), A for 120 V, D for 220 V, E for 240 V, DC for 220 V (for China), 4 K for 220 V (for Korea)

## Factory default unit

System of units	Factory default unit	Remarks
mm	mm	The unit is mm only
mm / inch	mm	The unit can be switched to inch
inch / mm	inch	The unit can be switched to mm

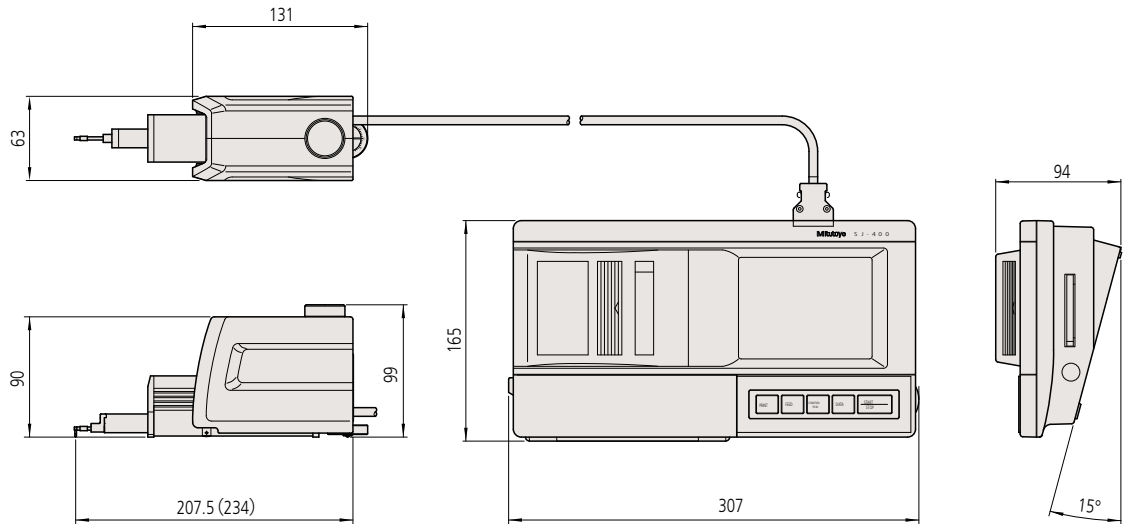
**Mitutoyo**



# Dimensions

**SJ-401**

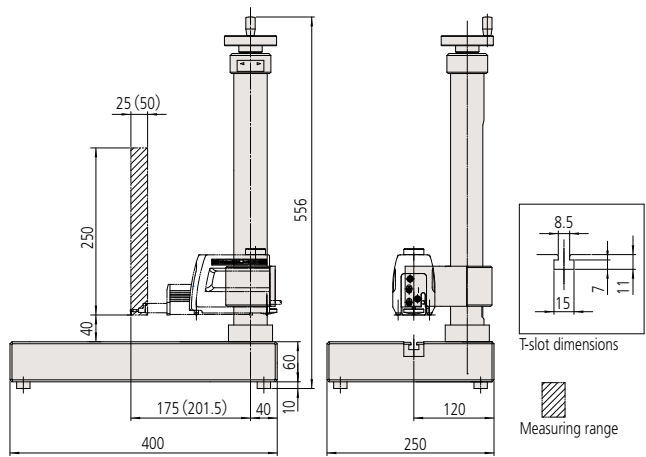
Unit: mm



\*The dimensions in parentheses indicate those for **SJ-402**

Example of mounting on manual column stand. (Code No. 178-039)\*  
\*For details see page 10.

Unit: mm



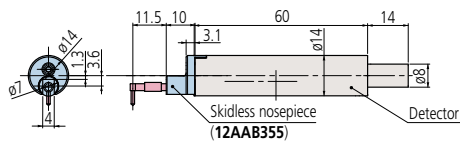
\*The dimensions in parentheses indicate those for **SJ-402**

# Option: Detectors / Styli

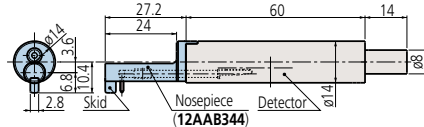
## Detectors

Unit: mm

### Skidless



### Skidded



Code No.	Measuring force
178-396-2 <sup>*1,*3</sup>	0.75 mN
178-397-2 <sup>*1,*4</sup>	4 mN
178-396 <sup>*2,*3</sup>	0.75 mN
178-397 <sup>*2,*4</sup>	4 mN

Standard accessories

\*1: Skidless nosepiece (12AAB355)

\*2: Skidless nosepiece (12AAB355), Skidded nosepiece (12AAB344)

\*3: Standard styli (12AAC731)

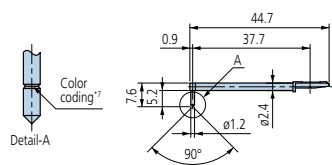
\*4: Standard styli (12AAB403)

## Styli

Unit: mm

### Standard type

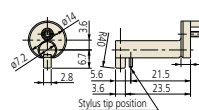
12AAE882 (1 μm)<sup>\*5</sup>  
12AAE924 (1 μm)  
12AAC731 (2 μm)<sup>\*5</sup>  
12AAB403 (5 μm)  
12AAB415 (10 μm)  
12AAE883<sup>\*8</sup> (250 μm)  
( ): Tip radius



### Nosepiece

Standard type

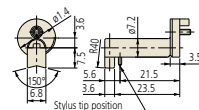
Parts No. 12AAB344



Cylinder type

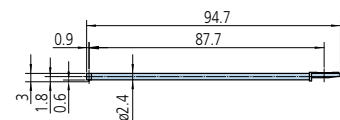
Parts No. 12AAB345

Remarks: ø2-20



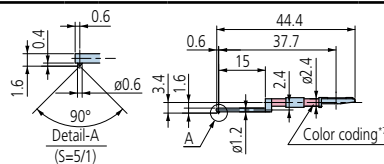
### Double-length for deep hole<sup>\*6</sup>

12AAE898 (2 μm)<sup>\*5</sup>  
12AAE914 (5 μm)  
( ): Tip radius



### Small hole type

12AAC732 (2 μm)<sup>\*5</sup>  
12AAB404 (5 μm)  
12AAB416 (10 μm)  
( ): Tip radius



### Nosepiece

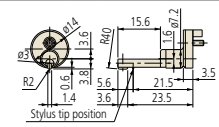
Small hole type

Parts No. 12AAB346

Remarks

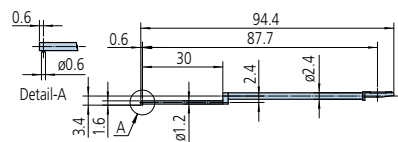
Hole diameter: More than ø4

Hole depth: Less than 15



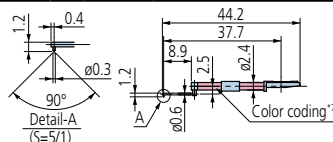
### For small hole / Double-length for deep hole<sup>\*6</sup>

12AAE892 (2 μm)<sup>\*5</sup>  
12AAE908 (5 μm)  
( ): Tip radius



### Ultra-small hole type

12AAC733 (2 μm)<sup>\*5</sup>  
12AAB405 (5 μm)  
12AAB417 (10 μm)  
( ): Tip radius



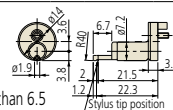
### Nosepiece

Ultra-small hole type

Parts No. 12AAB347

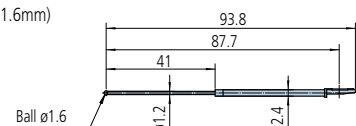
Remarks

Hole diameter: More than ø2.3 Hole depth: Less than 6.5



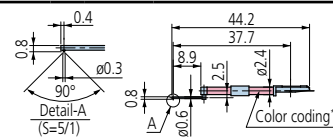
### For small hole<sup>\*8</sup>

12AAE884  
(ø1.6mm)



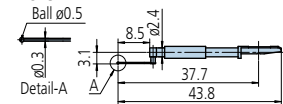
### Extra-small hole

12AAC734 (2 μm)<sup>\*5</sup>  
12AAB406 (5 μm)  
12AAB418 (10 μm)  
( ): Tip radius



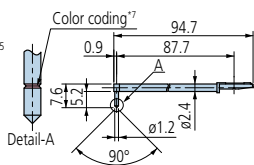
### For Ultra-small hole<sup>\*8</sup>

12AAJ662  
(ø0.5mm)

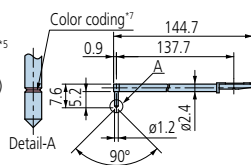


### For deep hole<sup>\*6</sup>

2x  
12AAC740 (2 μm)<sup>\*5</sup>  
12AAB413 (5 μm)  
12AAB425 (10 μm)  
( ): Tip radius

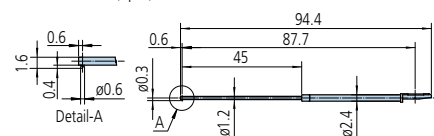


3x  
12AAC741 (2 μm)<sup>\*5</sup>  
12AAB414 (5 μm)  
12AAB426 (10 μm)  
( ): Tip radius



### For small slotted hole<sup>\*6</sup>

12AAE938 (2 μm)<sup>\*5</sup>  
12AAE940 (5 μm)



\*5: Tip angle 60°

\*6: For downward-facing measurement only.

\*7:

Tip radius	1 μm	2 μm	5 μm	10 μm	250 μm
Color coding	White	Black	No color	Yellow	No notch or color

\*8: Used for calibration, a standard step gauge (No.178-611, option) is also required

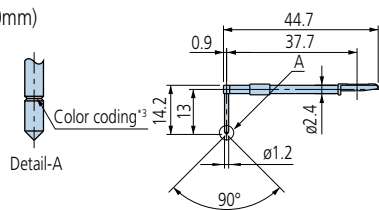


# Styli

Unit: mm

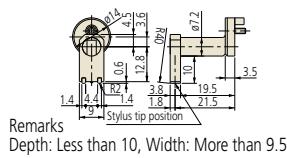
## Deep groove type (10mm)

12AAC735 (2μm)<sup>\*1</sup>  
12AAB409 (5μm)  
12AAB421 (10μm)  
( ): Tip radius



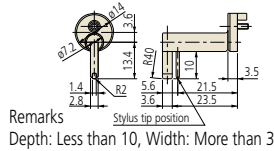
## Nosepiece

Deep groove 10  
12AAB349



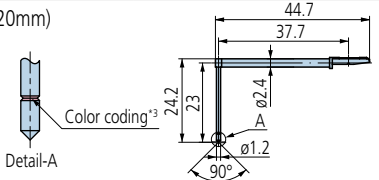
Remarks  
Depth: Less than 10, Width: More than 9.5

Narrow groove  
12AAB350



## Extra deep groove<sup>\*2</sup> (20mm)

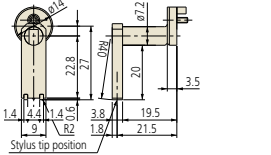
12AAC736 (2μm)<sup>\*1</sup>  
12AAB408 (5μm)  
12AAB420 (10μm)  
( ): Tip radius



## Nosepiece

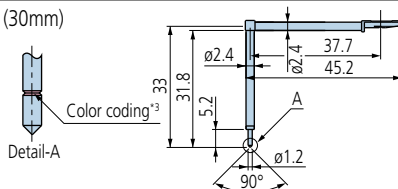
Deep groove 20  
12AAB348

Remarks  
Groove depth: Less than 20  
Groove width: More than 9.5



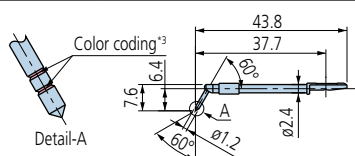
## Extra deep groove<sup>\*2</sup> (30mm)

12AAC737 (2μm)<sup>\*1</sup>  
12AAB407 (5μm)  
12AAB419 (10μm)  
( ): Tip radius



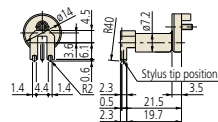
## Gear face type

12AAB339 (2μm)<sup>\*1</sup>  
12AAB410 (5μm)<sup>\*1</sup>  
12AAB422 (10μm)<sup>\*1</sup>  
( ): Tip radius



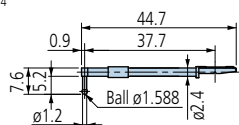
## Nosepiece

Corner surface  
12AAB353



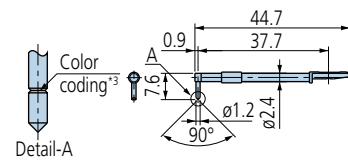
## Rolling circle waviness type<sup>\*4</sup>

12AAB338 (ø1.588)



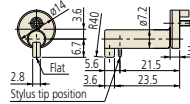
## Knife-edge type

12AAC738 (2μm)<sup>\*1</sup>  
12AAB411 (5μm)  
12AAB423 (10μm)  
( ): Tip radius



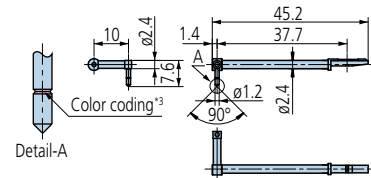
## Nosepiece

Knife edge type  
12AAB354



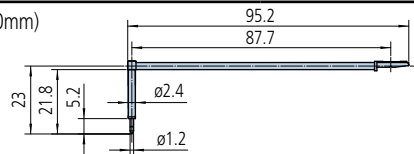
## Eccentric type<sup>\*2</sup>

Parts No.  
12AAC739 (2μm)<sup>\*1</sup>  
12AAB412 (5μm)  
12AAB424 (10μm)  
( ): Tip radius



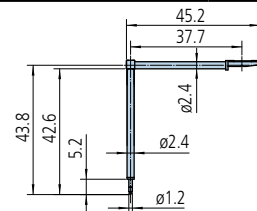
## Deep groove type<sup>\*2</sup> (20mm)

12AAE893 (2μm)<sup>\*1</sup>  
12AAE909 (5μm)  
( ): Tip radius



## Deep groove type<sup>\*2</sup> (40mm)

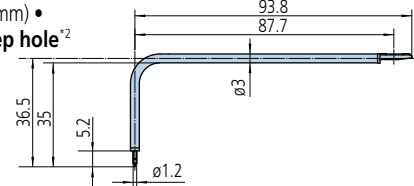
12AAE895 (2μm)<sup>\*1</sup>  
12AAE911 (5μm)  
( ): Tip radius



## Deep groove type (30mm) •

### Double-length for deep hole<sup>\*2</sup>

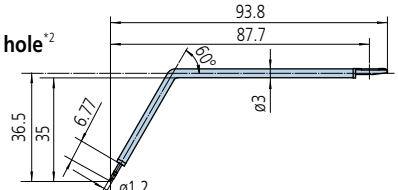
12AAE894 (2μm)<sup>\*1</sup>  
12AAE910 (5μm)  
( ): Tip radius



## Gear face type •

### Double-length for deep hole<sup>\*2</sup>

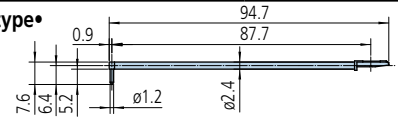
12AAE896 (2μm)<sup>\*1</sup>  
12AAE912 (5μm)<sup>\*1</sup>  
( ): Tip radius



## Rolling circle waviness type •

### Double-length for deep hole<sup>\*2,4</sup>

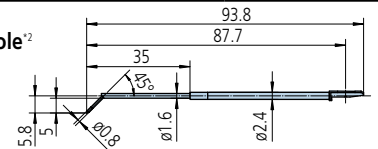
12AAE886 (250μm)



## Corner bold type •

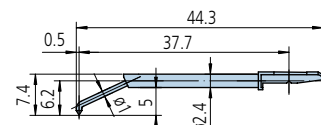
### Double-length for deep hole<sup>\*2</sup>

12AAE897 (2μm)<sup>\*1</sup>  
12AAE913 (5μm)<sup>\*1</sup>  
( ): Tip radius



## Bottom surface type

12AAE899 (2μm)<sup>\*1</sup>  
12AAE915 (5μm)  
( ): Tip radius



\*1: Tip angle 60°

\*2: For downward-facing measurement only.

Note: Customized special interchangeable styli are available on request.  
Please contact any Mitutoyo office for more information.

\*3:

Tip radius	2 μm	5 μm	10 μm
Color coding	Black	No color	Yellow

\*4: Used for calibration, a standard step gauge (178-611, optional) is also required

# Optional accessories

## Stand, Tables

### XY leveling tables

The tester includes X- and Y-axis micrometer heads. This makes axis alignment much easier because the tilt adjustment center is the same as the rotation center of the table.

(178-042-1/178-043-1)



178-042-1

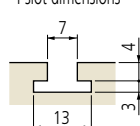


178-049

• Movement is in X- and Y-axis only.

Order No.	178-042-1 (with digital heads)	178-043-1 (with analog heads)	178-049 (with digital heads)
Table dimensions	130 × 100 mm		
Maximum load	15 kg		
Inclination adjustment angle	± 1.5°		
Swiveling angle	± 3°		
XY-axis travel range	±12.5 mm	±12.5 mm	±12.5 mm
Resolution	0.001 mm	0.01 mm	0.001 mm
Dimensions (WxDxH)	262 × 233 × 83 mm	220 × 189 × 83 mm	262 × 233 × 55 mm
Mass	6.3 kg	6 kg	5 kg

• T-slot dimensions



Unit: mm

### Precision vise

• Fits on the stand.



Application

Order No.	178-019
Clamping method	Sliding jaws
Jaw opening	36 mm
Jaw width	44 mm
Jaw depth	16 mm
Height	38 mm

### Manual column stand for SJ-400 Series

Can be adjusted to match the height of the item to be measured.

178-039

Vertical adjustment range: 250mm  
Dimensions: 400×250×556mm  
Mass: 20kg



### Leveling table (for D.A.T. function)

Patent pending in Japan, U.S.A, German.

Can be used together with the XY leveling tables.



178-048

Inclination adjustment angle: ±1.5°  
Table dimensions: 130×100mm  
Maximum load: 15kg

### Cylinder attachment

A block that can be positioned on top of cylindrical objects to perform measurements.

12AAB358

Diameter: ø15~60 mm



\*Drive unit is not included

## Measuring data output

### Input Tool: Calculation results input unit

Surftest SJ-400 series calculation results can be loaded directly into commercial spreadsheet software via this unit simply by connecting it to the USB connector on a computer or a PS/2 type keyboard connector. (See Catalog Nos. E4250-264, E4391 for details.)

For USB keyboards

IT-012U 264-012-10\*

USB-ITN-D 06ADV380D

For PS/2 keyboards

IT-005D 264-005\*



\*Digimatic output cable (option) is required separately.

### Digimatic mini processor DP-1VR

Provides an extensive range of statistical analyses.

264-504

To denote your AC line voltage add the following suffixes (e.g. 264-504-5A).

5A for 120V, 5D for 230V, 5E for 230V (for UK), 5DC for 220V (for China), 5K for 220V (for Korea), 5F for 230V (for Oceania)

\*The following Digimatic output cable (option) is required for connecting with SJ-400 series.



### Digimatic output cable

- 1m 936937
- 2m 965014

## Others

### Memory card

Stores/recalls measuring conditions (20 max.), measured data, and statistical data.

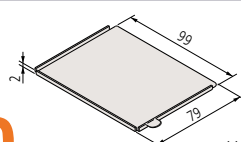
Memory: 128 MB

12AAA841



### LCD protective sheet

For touch panel protection  
(10 sheet set) 12AAA896



Unit: mm

### Reference step specimen

Used to calibrate detector sensitivity.

178-611

Step nominal values: 2µm/10µm

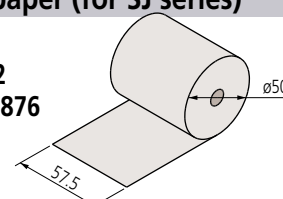


### Printer paper (for SJ series)

Five rolls (25m)

Standard paper: 270732

Durable paper: 12AAA876



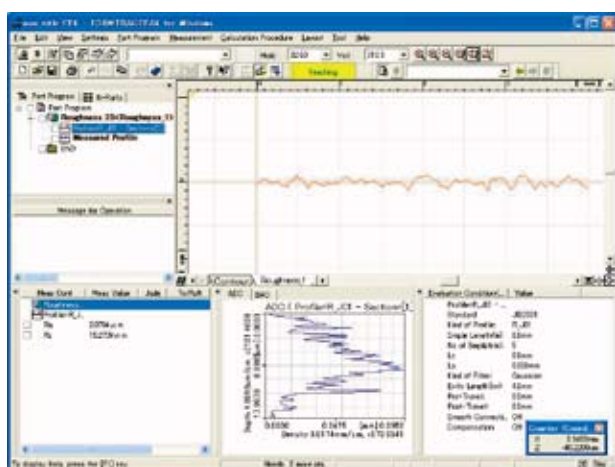
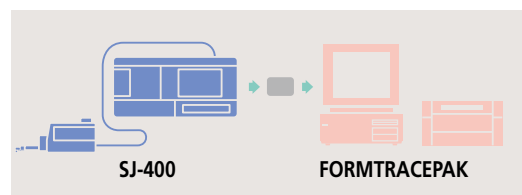
Unit: mm

**Mitutoyo**

## Contour / Roughness analysis software

# FORMTRACEPAK

More advanced analysis can be performed by loading SJ-400 series measurement data to software program FORMTRACEPAK via a memory card (option) for office processing.



## Simplified communication program for SURFTEST SJ-400 series

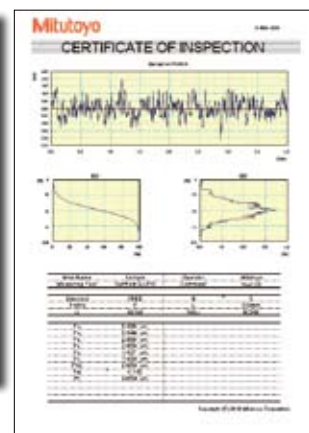
The SurfTest SJ-400 series has an RS-232C interface, enabling data to be transferred to a spreadsheet or other software. We also provide a program that lets you create inspection record tables using a Microsoft Excel\* macro.

This program can be downloaded for free from the Mitutoyo website.  
<http://www.mitutoyo.co.jp>

### Required environment\*

- OS: Windows 2000 SP4  
Windows XP  
Windows Vista  
Windows 7
- Spreadsheet software:  
Microsoft Excel 2000  
Microsoft Excel 2002  
Microsoft Excel 2003  
Microsoft Excel 2007

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



### Required accessories

- RS-232C cable for SJ-400 series  
**12AAA882**



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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

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<http://www.mitutoyo.co.jp>

# Mitutoyo

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