Mitutoyo

SURFTEST SJ-210/310 SERIES

Portable Surface Roughness Tester

FORM MEASUREMENT

Mitutoyo

Portable Surface Roughness Tester

Surftest SJ-210/310 Series

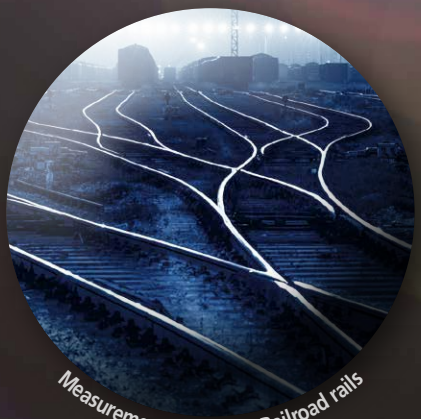
Compact but Highly Functional

These surface roughness testers with refined user-friendliness have been a customer favorite for many years.

Surftest SJ-210 Series

The exceptionally convenient and compact surface roughness tester that can be carried around like a handheld tool, perfect for on-site use.

Measurement example - Car engine parts



Measurement example - Railroad rails

With constant use throughout many industries for over 20 years, the SJ Series has been recognized as the pioneers of compact surface roughness testers!

With overwhelming performance, they contribute to manufacturing all over the world.

Measurement example - Bridge joints

Surftest SJ-310 Series

A compact surface roughness tester that not only has superior functionality and portability but also a built-in printer.

*Tackle Your Challenges With the **SJ-210/310** Series!*

Case 1

Not content with your current tester?

I require a device that clearly displays roughness during measurement and prints the results quickly.

Case 2

Fed up with transporting the workpieces to a stationary device?

Carrying workpieces to the inspection room a time-consuming pain.

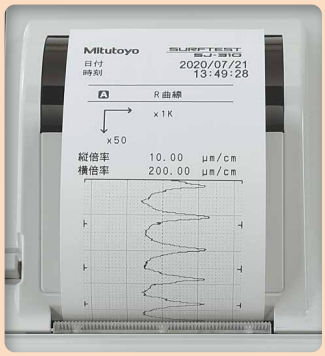
I need a way to measure different surfaces on the workpiece without moving it around.

Case 3

Don't own a surface roughness measuring machine?

Measuring roughness seems difficult...

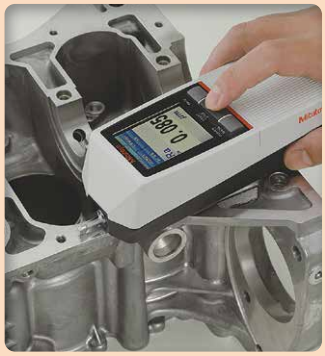
Can I do it myself?



With the **SJ-210/310** Series...

You can measure while checking roughness from the waveform!

Printing completes in just a few seconds! (SJ-310)



With the **SJ-210/310** Series...

No need to haul large, heavy workpieces because you can measure on-site!

Lightweight and compact, you can measure any side without trouble!

With the **SJ-210/310** Series...

Anyone can measure easily with skidded measurement*!

* A measurement method where leveling of the measurement surface is simplified since displacement is measured relative to the "skid" that follows the workpiece surface.

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So easy that anyone can use it!

Reduces data input labor significantly:

Wireless measurement data communication system

U-WAVE (optional)

Example of **SJ-210** installation

Example of **SJ-310** installation

"**U-WAVE**" is a system that allows measured parameter values to be imported to commonly used software (Excel, notepad, etc.) at the touch of a button. Being wireless, it does not affect the operability during measurement, and contributes to reducing data input labor and error, thereby improving work efficiency.

U-WAVE-R
(Connects to the PC)
02AZD810D

U-WAVE-T*
(Connects to the **SJ-210/310** Series)
02AZD880G
* Requires separate connection cable.
02AZD790D

Input at the touch of a button

USB INPUT TOOL (optional)

An interface that transmits the calculation results of the **SJ-210/310 Series** via USB to spreadsheet software on a PC allows you to input calculation results (numerical values) at the touch of a button. Allows you to input the calculation results (numerical values) at the touch of a button.

USB Input Tool-Direct
USB-ITN-D
06AFM380D

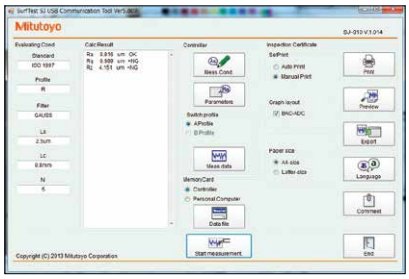
USB keyboard signal conversion type*
IT-016U
264-016-10
* Requires separate connection cable.
1 m: **936937**
2 m: **965014**

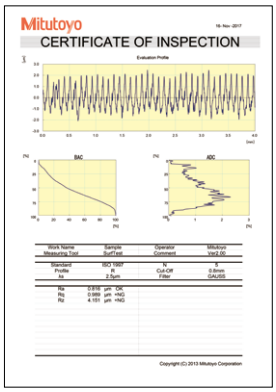
Time-saving and user-friendly! Advanced free software!

Further improve convenience by linking with a PC

USB Communication Tool for SURFTEST SJ

The program can not only start a measurement or change measurement conditions from a PC, but also create inspection record tables using Microsoft Excel macros. This allows you to operate **SJ-210/310** Series more conveniently and significantly reduce the time needed for creating reports.





This program can be downloaded free of charge from the Mitutoyo website.
https://www.mitutoyo.eu/en_us/downloads/software-and-updates

Required environment

- OS: Windows 7
  Windows 8
  Windows 10
- Spreadsheet software: Microsoft® Excel 2010
  Microsoft® Excel 2013
  Microsoft® Excel 2016
  Microsoft® Excel 2019
  Office365® ProPlus (Windows10 Pro)

Note: Windows OS, Microsoft® Excel, and Office365 ProPlus are products of Microsoft Corporation.

A separate USB cable is also required.

- USB cable for **SJ-210** Series (2 m)
  12AAL068
  Note: Commercially available USB Mini Type B cable or equivalent
- USB cable for **SJ-310** Series
  12AAD510
  Note: Commercially available USB Type B cable or equivalent

Optional combinations!

Improve work efficiency by utilizing diverse options

Contour/Roughness analysis software FORMTRACEPAK-AP

Data collected by the **SJ-210/310** Series can be loaded to **FORMTRACEPAK-AP**, a form assessment/analysis software package, via a memory card (optional) for more advanced analysis.

Digimatic mini processor DP-1VA LOGGER

Simply connect this printer to the Surftest **SJ-210/310** Series' digimatic output and print* calculation results, perform a variety of statistical analyses, draw a histogram or D chart, and also perform complicated operations for X-R control charts.

* The symbol 'µm' is not printable, but measurement results can still be printed out without setting the measurement unit.

264-505

- **SJ-210/310** Series → **DP-1VA LOGGER** Connecting cable
  1 m: **936937**
  2 m: **965014**

Foot switch

Start and stop measurements just by tapping! Allows you to significantly increase efficiency in measurements where large numbers of the same workpiece are fixed and measured in one go.

12AAJ088

Memory card (2 GB)

12AAW452

Note 1: micro SD card (with a conversion adapter to SD card)

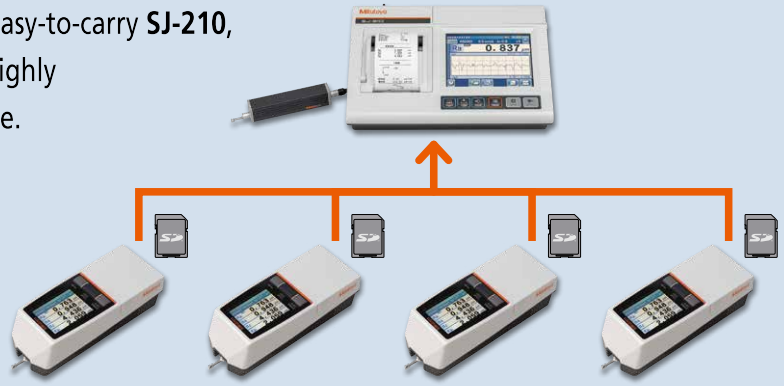
Note 2: Not all memory cards can be recognized. Please use the optional SD memory card.

The Convenient Functions of the SJ-210/310 Series 6

Enhance versatility by linking tester capabilities!

- SJ-210/310 Linkage -

"Measuring with the compact and easy-to-carry **SJ-210**, while analyzing and printing with highly functional **SJ-310**" is a useful feature.



Avoid annoying mishaps, such as forgetting to save or erroneously deleting data. - Trace 10 -

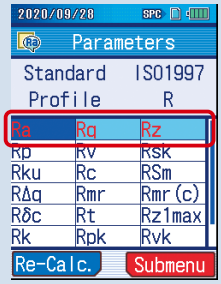
Enables displaying of the past 10 automatically saved calculation results. Allows for immediately checking of "recent numerical values" that you just cannot recall.

Note: Requires a memory card (optional).

Just choose the assessment conditions from the list.

- Single-Screen Parameter List -

Use the colorful graphic LCD to specify your settings with ease.
Chosen parameters are easily identifiable by their different background and letter color.



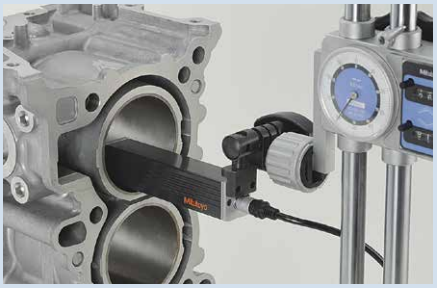
Parameter setting on **SJ-210**

Parameter setting on **SJ-310**

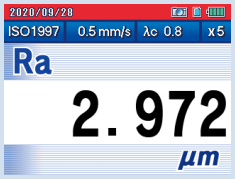
Don't stress about hard-to-see points with reliable contact detection!

- Contact Status Screen Display -

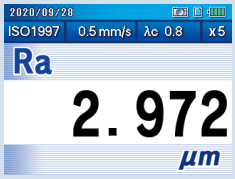
The detector contact status can be reliably judged by the red or blue colors on the display.



Display of **SJ-210**

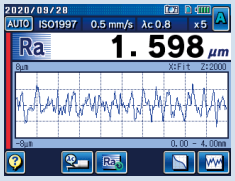


No Contact Detected

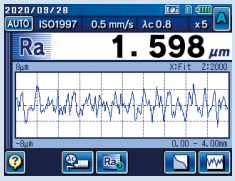


Contact Detected

Display of **SJ-310**



No Contact Detected



Contact Detected

No more erroneous measurements from vibrations!

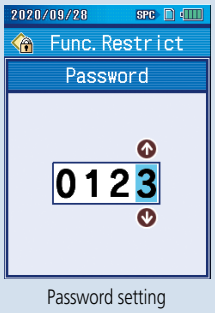
- Self-Timer -

No need to worry about erroneous measurements due to vibration since measurement can be started after the vibration subsides.

Using passwords means less worries for administrators!

- Function Restriction -

Allows locking of optional items, such as measurement and calibration conditions. Prevents erroneous measurements due to a careless setting change or accidental operation.



Password setting

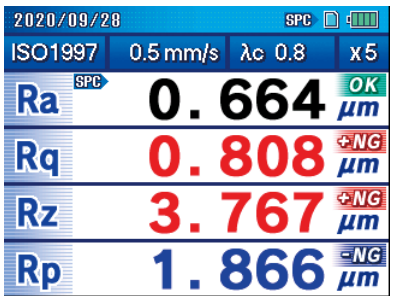
SJ-210 Series - Further Sophisticated Functions

Outstanding visibility! 2.4-inch color graphic LCD

A clear and easy to read large screen with backlight.

Clearly arranged GO/NG judgment screen

Clearly determine results at a glance -
pass and fail are indicated in different colors.



User-friendly operation keys: No more accidental operation!

Frequently used keys are arranged on the top surface of the main unit.
Rarely used keys are located under the cover to prevent accidental operation.

Shortcuts for intuitive operation

Display settings can be easily changed by operating the [←] and [→] keys inside the cover. For example, cutoff value (λc) , and number of segments (N) can be easily switched on the measurement screen.

Perfectly mobile: Easy to carry

Convenient, dedicated case for comfortable carrying (Standard accessory)

High-speed measurement data transmission

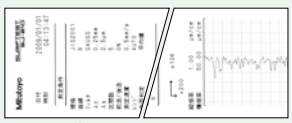
Equipped with several I/O ports,
including a high-speed USB interface, as standard.

Printer for SJ-210 (optional)

Assessed profiles, calculation results, and curves can be printed out by connecting the **SJ-210**-dedicated printer. Palm-sized (W×D×H: 93×125×70 mm) and with an internal battery, it can go where you go.

- Selectable power-supply (AC adapter or battery pack)
- Printable values:: Measurement conditions, calculation results, assessed profile, bearing area curve (BAC), amplitude distribution curve (ADC), and environment settings.

178-421D



Example of a printout

Printer supplies:

Printing paper standard type (5 rolls)
270732

Durable printer paper (5 rolls)
12AAA876

Surftest SJ-210 Series

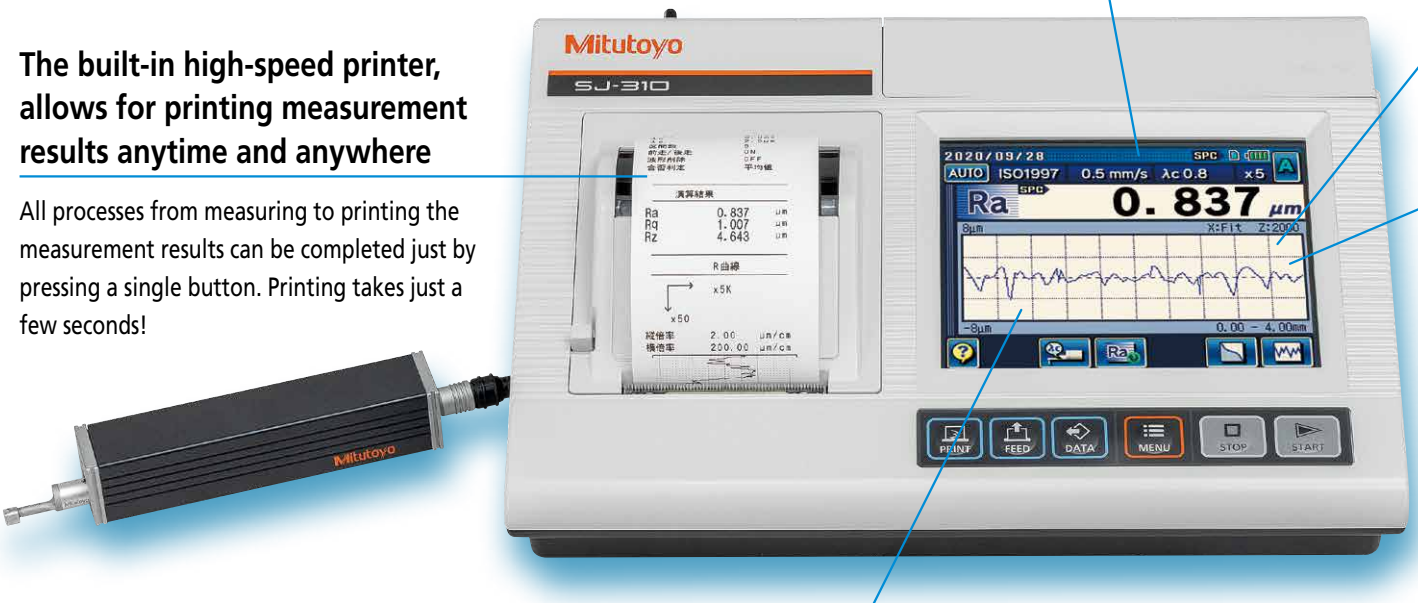
SJ-310 Series - Further Sophisticated Functions

Supports measurement with outstanding visibility on the large 5.7-inch color LCD

The large touch-panel LCD provides optimum operability for smooth measurements.

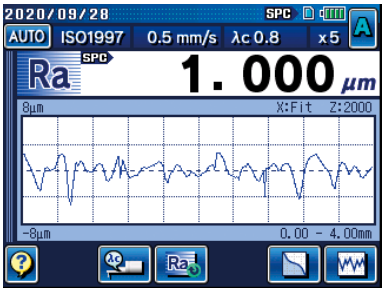
The built-in high-speed printer, allows for printing measurement results anytime and anywhere

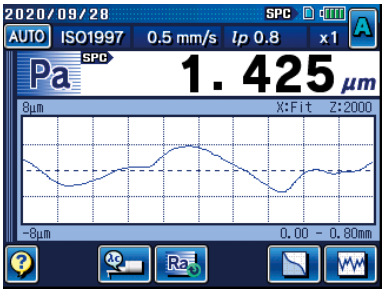
All processes from measuring to printing the measurement results can be completed just by pressing a single button. Printing takes just a few seconds!



The simultaneous two-curve assessment function enables advanced utilization of measurement data

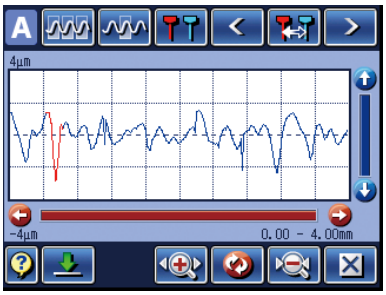
Allows acquisition of calculation and analysis results according to two different assessment conditions from one measurement.





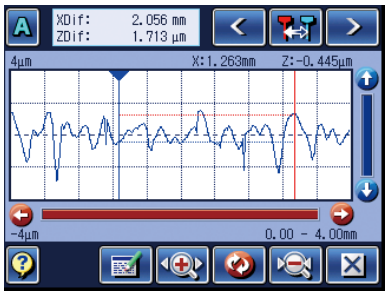
The delete function widens the utilization range of the data

Allows calculation by partially deleting abnormal results, such as cracks.



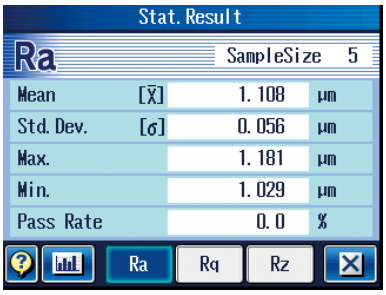
Coordinate difference analysis promptly picks up the workpiece status

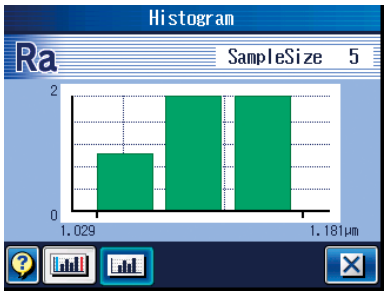
Allows calculation of the coordinate difference between two waveform points.
This lets you check workpiece unevenness on the screen, without printing.

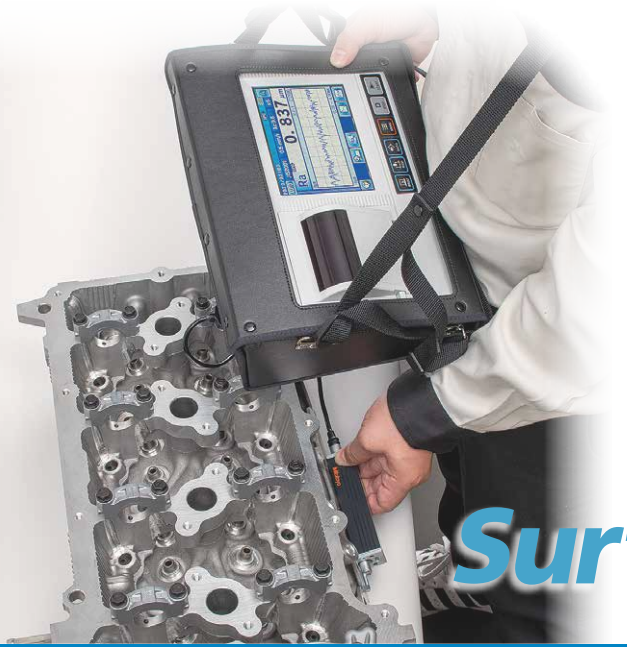


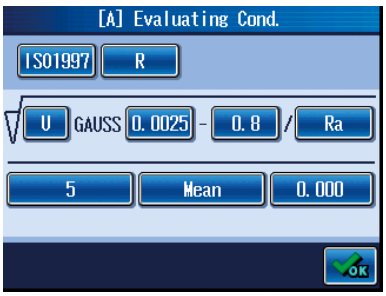
Statistical processing for perfect data management

Capable of up to 300 statistical measurements for a maximum of three parameters, enabling routine data to be appropriately managed.









Condition inputting possible in drawing instruction format

Also allows for assessment condition inputting using drawing instruction symbols compliant with ISO/JIS roughness standards.

Surftest SJ-310 Series

SJ-210 Series Specifications

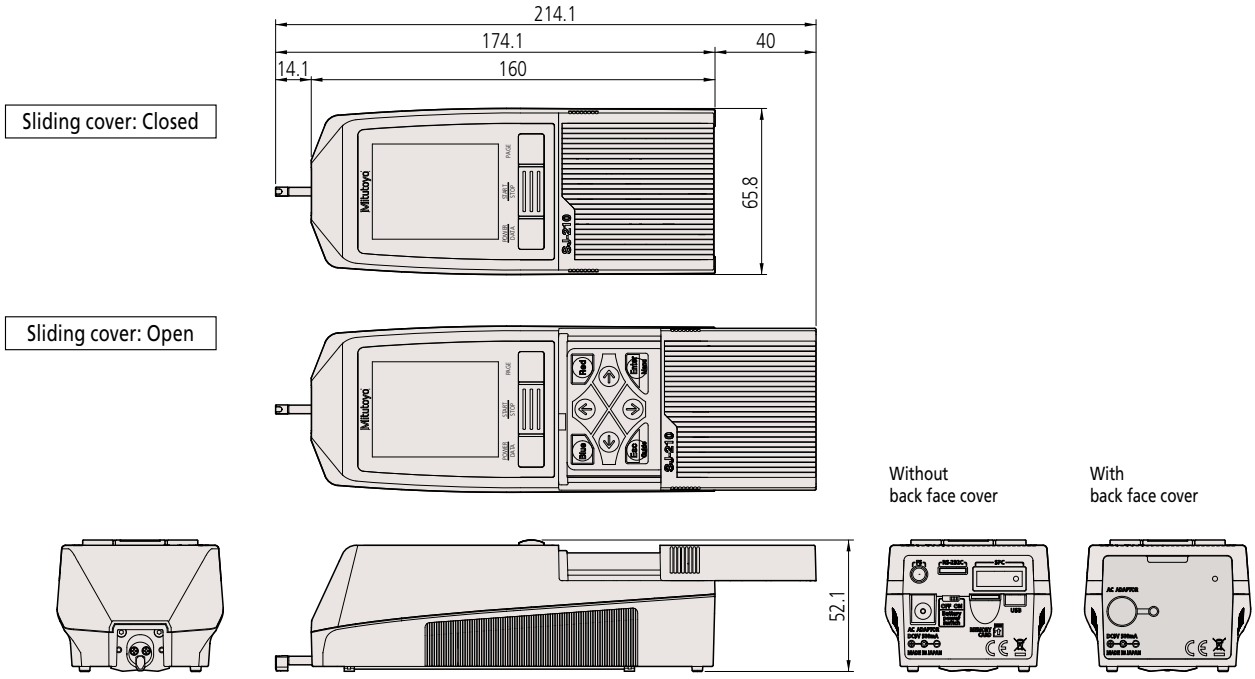
Type of detector			Standard drive unit type		Retractable drive unit type		Transverse tracing drive unit type	
Model No.			SJ-210 (0.75 mN type)	SJ-210 (4 mN type)	SJ-210R (0.75 mN type)	SJ-210R (4 mN type)	SJ-210S (0.75 mN type)	SJ-210S (4 mN type)
Order No.		mm	178-560-11 178-560-13	178-560-12	178-562-11	178-562-12	178-564-11	178-564-12
		inch/mm	178-561-11	178-561-12	178-563-11	178-563-12	178-565-11	178-565-12
Measuring range	X-axis		16,0 mm				5,6 mm	
	Z-axis (Detector)	Range	360 µm (-200 µm to +160 µm)					
		Range/ Resolution	360 µm/0,02 µm 100 µm/0,006 µm 25 µm/0,002 µm					
Measuring speed			When measuring: 0,25 mm/s, 0,5 mm/s, 0,75 mm/s When returning: 1 mm/s					
Measuring force/Stylus tip			0,75 mN type: 0,75 mN/2 µmR 60°, 4 mN type: 4 mN/5 µmR 90°					
Skid force			400 mN or less					
Applicable standards			JIS '82/JIS '94/JIS '01/ISO '97/ANSI/VDA					
Assessed profiles			Primary profile, Roughness profile, DF profile, Roughness profile-Motif					
Parameters			Ra, Rc, Ry, Rz, Rq, Rt, Rmax[*1], Rp, Rv, R3z, Rsk, Rku, Rc, RPc, Rsm, Rz1max[*2], S, HSC, RzJIS[*3], Rppi, RΔa, RΔq, Rlr, Rmr, Rmr(c), RδC, Rk, Rpk, Rvk, Mr1, Mr2, A1, A2, Vo, Rpm, tp[*4], Htp[*4], R, Rx, AR, Possible Customize					
Graph analysis			Bearing area curve, Amplitude distribution curve					
Filters			Gaussian, 2CR75, PC75					
Cut off length		λc	0,08, 0,25, 0,8, 2,5 mm					
		λs[*5]	2,5, 8 µm					
Sampling length			0,08, 0,25, 0,8, 2,5 mm					
Number of sampling lengths			x1, x2, x3, x4, x5, x6, x7, x8, x9, x10, arbitrary length (0,3 to 16,0 mm: 0,01 mm interval)				x1, x2, x3, x4, x5, x6, x7, x8, x9, x10, arbitrary length (0,3 to 5,6 mm: 0,01 mm interval)	
LCD dimensions			36,7×48,9 mm					
Display languages			All models except 178-560-13D: Japanese, English, German, French, Italian, Spanish, Portuguese, Korean, Traditional Chinese, Simplified Chinese, Czech, Polish, Hungarian, Turkish, Swedish, Dutch 178-560-13D: Japanese, English, Russian, Slovenian, Rumanian, Bulgarian, Finnish, German, French, Italian, Spanish, Czech, Polish, Hungarian, Turkish, Swedish					
Measurement result display			Vertical display: 1-parameter display/3-parameter display/Trace display Horizontal display: 1-parameter display/4-parameter display/Trace display (Horizontal display is invertible)					
Printing function[*6] (Dedicated printer is required separately)			Measurement conditions/Calculation results/GO/NG judgement result/Calculation results for each sampling length/ Assessed profile/Bearing area curve/Amplitude distribution curve/Environment setting information					
External I/O			USB I/F, Digimatic Output, Printer Output, RS-232C I/F, Foot SW I/F					
Functions	Customization		Desired parameters can be selected for calculation and display					
	GO/NG judgment[*7]		By max value/16 %/Standard deviation					
	Storage of measurement condition		Save the conditions at power OFF					
	Storage		Internal memory: Measurement condition (10 sets) Memory card (optional): 500 measurement conditions, 10000 measured profiles, 500 display images Text file (Measurement conditions/Measured profile/Assessed profile/ Bearing area curve/Amplitude distribution curve)					
	Calibration		Auto-calibration with the entry of numerical value/ Average calibration with multiple measurements (Max. 5 times) is available					
Power-saving function			Auto-sleep function (10-600 sec)[*8]					
Power supply			Two-way power supply: battery (rechargeable NiMH battery) and AC adapter Note 1: Charging time: about 4 hours (may vary due to ambient temperature) Note 2: Endurance: about 1000 measurements (differs slightly due to use conditions/environment)					
Size (W×D×H)		Display unit	52,1×65,8×160 mm (sliding cover closed, detector not mounted)					
		Drive unit	115×23×26 mm (detector not mounted)					
Mass			About 500 g (Display unit + Drive unit + Standard detector)					
Standard accessories			**12BAA303** Connecting cable[*9] **178-601** Roughness specimen (Ra 3 µm) **12BAR344** Carrying case **12BAK700** Calibration stage Protective sheets for display, AC Adapter, Operation manual, Quick reference manual, Warranty				**12BAA303** Connecting cable[*9] **178-605** Roughness specimen (Ra 1 µm) **12AAE643** Point-contact adapter **12AAE644** V-type adapter **12BAR344** Carrying case **12BAK700** Calibration stage Protective sheets for display AC Adapter, Operation manual Quick reference manual, Warranty	

*1 Calculation is available only when selecting the VDA, ANSI, or JIS '82 standard.
*2 Calculation is available only when selecting the ISO '97 standard.
*3 Calculation is available only when selecting the JIS '01 standard.
*4 Calculation is available only when selecting the ANSI standard.
*5 Not available when selecting the JIS '82 standard.
*6 Order the **SJ-210** printer (**178-421D**, optional accessory) separately.
*7 Standard deviation can only be selected in ANSI. 16 % rule cannot be selected in VDA.
*8 Auto-sleep function is invalid when AC adaptor is used.
*9 For connecting the calculation display unit and drive unit.
Note 1: Refer to pages 18 to 19 for details about consumables and options.
Note 2: To denote your AC line voltage add the following suffixes (e.g. **178-560-11A**).
A for 120 V, C for 100 V, D for 230 V, E for 230 V (for UK), DC for 220 V (for China), K for 220 V (for Korea)

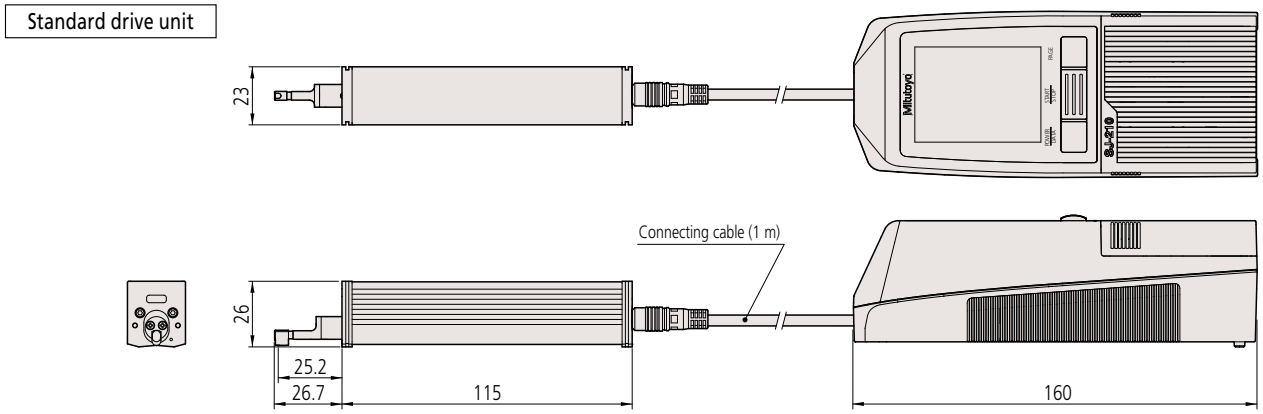
SJ-210 Series Dimensions

- Drive unit stored inside display unit (Standard detector installed in drive unit)

Unit: mm



- Drive unit not stored inside display unit (Standard detector installed in drive unit)



SJ-310 Series Specifications

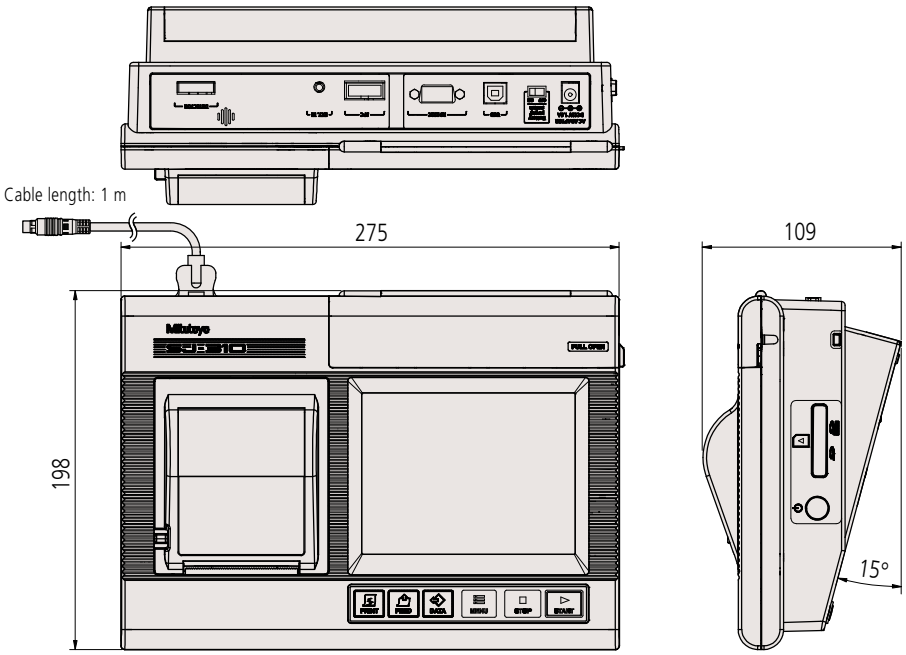
Type of detector			Standard drive unit type		Retractable drive unit type		Transverse tracing drive unit type	
Model No.			SJ-310 (0.75 mN type)	SJ-310 (4 mN type)	SJ-310R (0.75 mN type)	SJ-310R (4 mN type)	SJ-310S (0.75 mN type)	SJ-310S (4 mN type)
Order No.		mm	178-570-11	178-570-12	178-572-11	178-572-12	178-574-11	178-574-12
		inch/mm	178-571-11	178-571-12	178-573-11	178-573-12	178-575-11	178-575-12
Measuring range	X-axis		16.0 mm				5.6 mm	
	Detector	Range	360 µm (-200 µm to +160 µm) [14400 µinch (-7900 µinch to +6300 µinch)]					
		Range/resolution	360 µm/0,02 µm 100 µm/0,006 µm 25 µm/0,002 µm					
Measuring speed			When measuring: 0,25 mm/s, 0,5 mm/s, 0,75 mm/s, When returning: 1 mm/s					
Measuring force/Stylus tip			0,75 mN type: 0,75 mN/2 µmR 60°, 4 mN type: 4 mN/5 µmR 90°					
Skid force			400 mN or less					
Applicable standards			JIS '82/JIS '94/JIS '01/ISO '97/ANSI/VDA					
Assessed profiles			Primary profile, Roughness profile, DF profile, Roughness profile-Motif, W-Motif					
Parameters			Ra, Rc, Ry, Rz, Rq, Rt, Rmax[*1], Rp, Rv, R3z, Rsk, Rku, Rc, RPc, Rsm, Rz1max[*2], S, HSC, RzJIS[*3], Rppi, RΔa, RΔq, Rlr, Rmr, Rmr(c), RδC, Rk, Rpk, Rvk, Mr1, Mr2, A1, A2, Vo, λa, λq, L0, Rpm, tp[*4], Htp[*4], R, Rx, AR, W, AW, Wx, Wte, Possible Customize					
Graph analysis			Bearing area curve, Amplitude distribution curve					
Filters			Gaussian, 2CR75, PC75					
Cut-off length		λc	0,08, 0,25, 0,8, 2,5, 8 mm					
		λs[*5]	2,5, 8 µm					
Sampling length			0,08, 0,25, 0,8, 2,5, 8 mm					
Number of sampling lengths			×1, ×2, ×3, ×4, ×5, ×6, ×7, ×8, ×9, ×10, Arbitrary (0.3 to 16.0 mm: 0.01 mm Interval)				×1, ×2, ×3, ×4, ×5, ×6, ×7, ×8, ×9, ×10, Arbitrary (0.3 to 5.6 mm: 0.01 mm Interval)	
LCD dimensions			117.8×88.2 mm					
Display languages			Japanese, English, German, French, Italian, Spanish, Portuguese, Korean, Traditional Chinese, Simplified Chinese, Czech, Polish, Hungarian, Turkish, Swedish, Dutch					
Measurement result display			1-parameter display: one parameter measurement result 4-parameter display: four parameter measurement results Profile display: one parameter measurement result and the measured profile Trace display: The ten latest measurement results using the same parameter					
Printing function			Measurement conditions/Calculation results/GO/NG judgement result/Calculation results for each sampling length/ Tolerance value/Assessed profile/Graphic curve/Bearing area curve/Amplitude distribution curve/Environmental setting information					
External I/O			USB I/F, Digimatic output, RS-232C I/F, External SW I/F					
Functions	Customization		Desired parameters can be selected for calculation and display					
	GO/NG judgement[*6]		Max rule/16 % rule/Average rule/Standard deviation (1σ, 2σ, 3σ)					
	Storage of measurement condition		Save the condition at power OFF					
	Storage		Internal memory: Measurement condition (10 sets) Memory card (optional): 500 measurement conditions, 10000 measuring data, 500 statistic data, 10000 text data, 1 backup of machine setting, the last ten traces (Trace 10)					
	Calibration		Auto-calibration with the entry of numerical value/Average calibration with multiple measurements (Max. 12 times) is available					
Power-saving function			Auto-sleep function (30-600 sec)[*7]					
Power supply			Two-way power supply: battery (rechargeable Ni-MH battery) and AC adapter Note 1: Charging time: about 4 hours (may vary due to ambient temperature) Note 2: Endurance: about 1500 measurements (differs slightly due to use conditions/environment)					
Size (W×D×H)		Display unit	275×109×198 mm					
		Drive unit	115×23×26 mm (detector not mounted)					
Mass			About 1.8 kg (Display unit + Drive unit + Standard detector)					
Standard accessories			**12AAW066** Connecting cable[*8] **178-601** Roughness specimen (Ra 3 µm) **357651** AC adapter **12AAA217** Nosepiece for plane surface **12AAA218** Nosepiece for cylinder **12AAA216** Supporting leg **12BAK700** Calibration stage **12BAR507** Stylus pen **12BAL402** Protection sheet **270732** Printer paper (5 rolls) **12BAL400** Carrying case Philips screwdriver, Strap for stylus pen, Operation manual, Quick reference manual, Warranty				**12AAW066** Connecting cable[*8] **178-605** Roughness specimen (Ra 1 µm) **357651** AC adapter **12AAE643** Point-contact adapter **12AAE644** V-type adapter **12BAK700** Calibration stage **12BAR507** Stylus pen **12BAL402** Protection sheet **270732** Printer paper (5 rolls) **12BAL400** Carrying case Philips screwdriver, Strap for stylus pen, Operation manual, Quick reference manual, Warranty	

*1 Only for VDA/ANSI/JIS '82 standards.
*2 Only for ISO '97 standard.
*3 Only for JIS '01 standard.
*4 Only for ANSI standard.
*5 Not available for JIS '82 standard.
*6 Standard deviation can only be selected in ANSI.16 % rule cannot be selected in VDA.
*7 Auto-sleep function is invalid when AC adapter is used.
*8 For connecting the calculation display unit and drive unit.
Note 1: Refer to pages 18 to 19 for details about consumables and options.
Note 2: To denote your AC line voltage add the following suffixes (e.g. **178-570-11A**). A for 120 V, C for 100 V, D for 230 V, E for 230 V (for UK), DC for 220 V (for China), K for 220 V (for Korea)

SJ-310 Series Dimensions

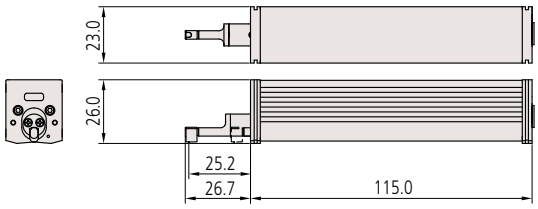
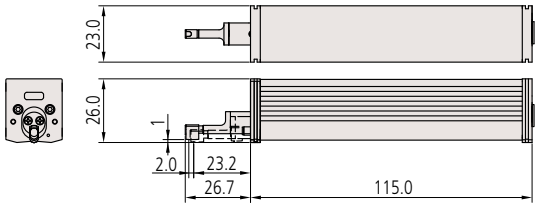
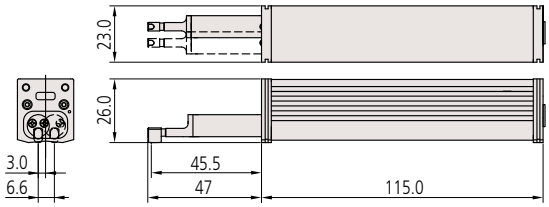
• **SJ-310 Series Display unit**

Unit: mm



• **Drive unit**

Unit: mm

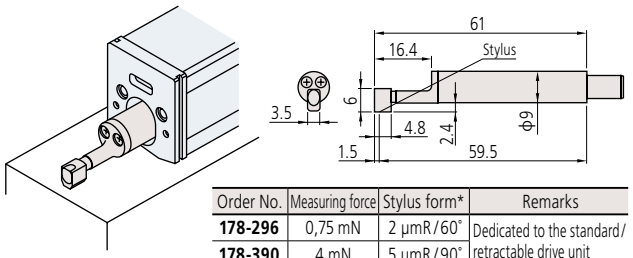
Drive unit type	Drive unit external view*
Standard drive unit	
Retractable drive unit	
Transverse tracing drive unit	

* External dimension for the models with standard detector conforms to each drive unit.

Detectors Dimensions

Unit: mm

Standard detectors



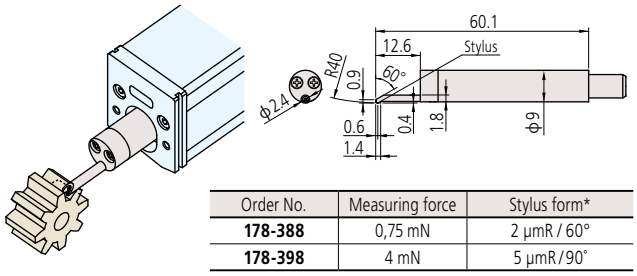
Order No.	Measuring force	Stylus form*	Remarks
178-296	0,75 mN	2 µmR/60°	Dedicated to the standard/ retractable drive unit
178-390	4 mN	5 µmR/90°	
178-387	0,75 mN	2 µmR/60°	Dedicated to the transverse tracing drive unit
178-386	4 mN	5 µmR/90°	
178-391	4 mN	10 µmR/90°	Dedicated to the standard/ retractable drive unit

* Tip radius/Tip angle

- Minimum measurable hole diameter

Hole depth=less than 12 mm: ø7 mm
Hole depth=12 - 22 mm: ø12 mm

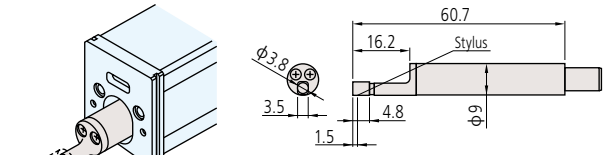
Gear-tooth surface detectors



Order No.	Measuring force	Stylus form*
178-388	0,75 mN	2 µmR / 60°
178-398	4 mN	5 µmR/90°

* Tip radius/Tip angle

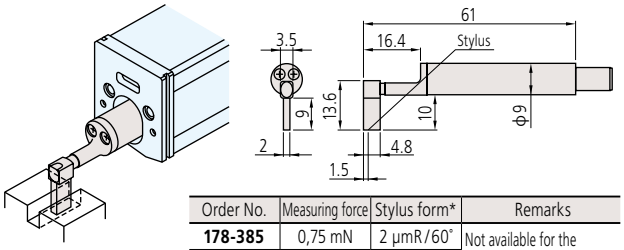
Small hole detectors



Order No.	Measuring force	Stylus form*	Remarks
178-383	0,75 mN	2 µmR/60°	Minimum measurable hole diameter: ø4.5 mm
178-392	4 mN	5 µmR/90°	

* Tip radius/Tip angle

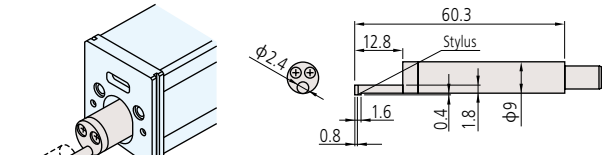
Deep groove detectors



Order No.	Measuring force	Stylus form*	Remarks
178-385	0,75 mN	2 µmR/60°	Not available for the transverse tracing drive unit
178-394	4 mN	5 µmR/90°	

* Tip radius/Tip angle

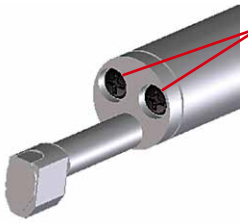
Extra small hole detectors



Order No.	Measuring force	Stylus form*	Remarks
178-384	0,75 mN	2 µmR/60°	Minimum measurable hole diameter: ø2.8 mm
178-393	4 mN	5 µmR/90°	

* Tip radius/Tip angle

- How to identify the stylus tip radius



- Custom-made for special order

Any specified detector other than the above listed can be custom-made for special order.
Please consult your local Mitutoyo sales office.

Optional Accessories for SJ-210 Series

- Optional accessories and consumables for **SJ-210**

Protective sheet for the color LCD (5-sheet set)	**12AAL066**
Connecting cable (for **SJ-210** Series)	**12AAL067**

Optional Accessories for SJ-310 Series

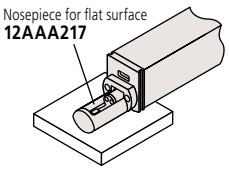
- Optional accessories and consumables for **SJ-310**

Printer paper standard type (5 rolls)	**270732**
Durable printer paper (5 rolls)	**12AAA876**
Touch-screen protector sheet (10 sheets)	**12AAN040**
Connecting cable (for **SJ-310** Series)	**12AAA882D**

Optional Accessories for SJ-210 / 310 Series

• Drive unit accessories

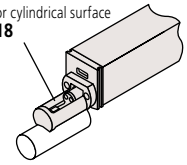
Nosepiece for flat surfaces



12AAA217

Note 1: Standard accessory for the standard / retractable drive unit of the **SJ-310** Series
Note 2: Not available for the transverse tracing drive unit.

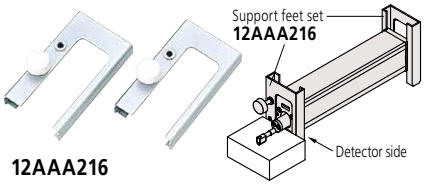
Nosepiece for cylindrical surfaces



12AAA218

Note 1: Standard accessory for the standard / retractable drive unit of the **SJ-310** Series
Note 2: Not available for the transverse tracing drive unit.

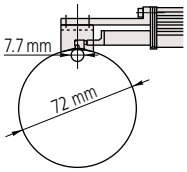
Support feet set



12AAA216

Note 1: Standard accessory for the standard / retractable drive unit of the **SJ-310** Series
Note 2: Not attachable to the detector side of the transverse tracing drive unit.

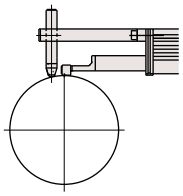
V-type adapter



12AAE644

Note 1: Transverse tracing type standard accessory.
Note 2: Dedicated to the transverse tracing drive unit.

Point-contact adapter

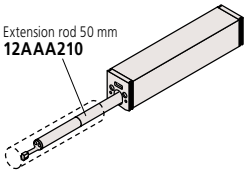


12AAE643

Note 1: Transverse tracing type standard accessory.
Note 2: Dedicated to the transverse tracing drive unit.

Extension rod (50 mm)

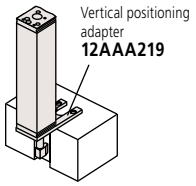
Note: Only one rod can be used.



12AAA210

Note: Not available for the transverse tracing drive unit.

Vertical positioning adapter

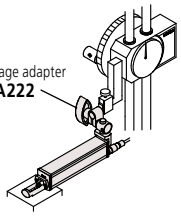


12AAA219

Note: Not available for the transverse tracing drive unit.

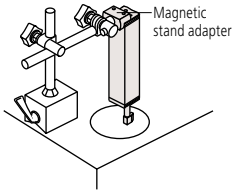
Height gauge adapter

Note: Suitable for a height gauge holder designed for 9×9 mm section scribers.



12AAA222

Magnetic stand adapter



12AAA221
(Mounting spigot diameter is 8 mm)

12AAA220
(Mounting spigot diameter is 9.5 mm)

Roughness specimen Ra 0,4 / Ra 3 µm [mm]

Display: Ra=Approx. 3 µm, Approx. 0,4 µm

178-604

Note: Ra=Approx. 0.4 µm can only be used for stylus tip checking.

Extension cable (1 m)

Note: Only one rod can be used.

12BAA303

Note: For connecting calculation display unit and drive unit.

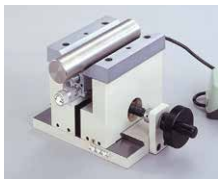
• Setting attachments

Note: Not available for the transverse tracing drive unit

Enhances measurement efficiency by facilitating the measurement setup of multiple workpieces of the same type or the hard-to-access sections of a workpiece.

Setting attachment: V type for measuring in the cylinder axis direction

The V-width is adjustable to the cylinder diameter facilitating axial measurement of a wide range of cylinder diameters.



- Adjustable range: ø5 - ø150 mm

178-033

Setting attachment: Slider type

This attachment is ideal for measuring a flat area of a workpiece that has an indentation or step that makes it difficult to attach the drive unit.

178-034

Setting attachment: Inside diameter type

Greatly facilitates measurement of internal wall surfaces of, for example, a cylinder block.

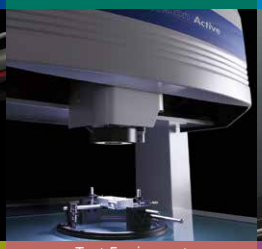
- Applicable diameter: ø75 - ø95 mm
- Accessible depth: 30 - 135 mm

178-035

- **Custom-made upon special order** Any specified attachment other than the above listed can be custom-made for special order. Please consult your local Mitutoyo sales office.
  Example: measurements for crankshaft, cylinder-block bores

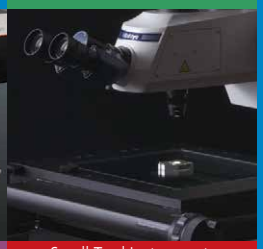
Coordinate Measuring Machines

Vision Measuring Systems



Form Measurement

Optical Measuring

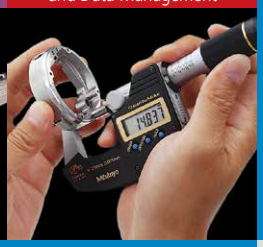


Sensor Systems

Test Equipment and Seismometers

Digital Scale and DRO Systems

Small Tool Instruments and Data Management



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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 up by comprehensive services, ensuring 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 bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

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