

Surftest

Surftest SJ-410 SERIES 178 Compact Surface Roughness Tester



SPECIFICATIONS

Model No.		SJ-411		SJ-412	
Order No.	inch/mm	178-581-31A	178-581-32A	178-583-31A	178-583-32A
Measuring range	X-axis	25 mm		50 mm	
	Z-axis (detector)	800 μm, 80 μm, 8 μm Up to 2,400 μm when using an optional stylus.			
Detector	Detection method	Differential inductance			
	Resolution	0.0125 μm (800 μm range), 0.00125 μm (80 μm range), 0.000125 μm (8 μm range)			
	Stylus tip shape (Angle/Radius)	60°/2 μm	90°/5 μm	60°/2 μm	90°/5 μm
	Measuring force	0.75 mN	4 mN	0.75 mN	4 mN
	Radius of skid curvature	40 mm			
Drive unit (X-axis)	Measuring methods	Skidless/Skidded (switchable)			
	Measuring speed	0.05, 0.1, 0.2, 0.5, 1.0 mm/s			
	Drive speed	0.5, 1, 2, 5 mm/s			
Up/down inclination unit	Straightness	0.3 μm/25 mm		0.5 μm/50 mm	
	Vertical travel	10 mm			
	Inclination adjustment angle	±1.5°			
Applicable standards		JIS 1982/JIS 1994/JIS 2001/ISO 1997/ANSI/VDA			
Parameter		Ra, Rq, Rz, Ry, Rp, Rt, R3z, Rsk, Rku, Rc, RPC, RSm, Rmax*1, Rz1max*2, S, HSC, RzJIS*3, Rppi, RΔa, RΔq, Rlr, Rmr, Rmr(c), Rσc, Rk, Rpk, Rvk, Mr1, Mr2, A1, A2, Vo, λa, λq, Lo, Rpm, tp*4, Htp*4, R, Rx, AR, W, AW, Wx, Wte Customizable			
Filtered profile		Primary profile, Roughness profile, DF profile, Waviness profile, Roughness motif profile, Waviness motif profile			
Analysis graph		Material ratio curve, Profile height amplitude distribution curve			
Data compensation functions		Parabola, Hyperbola, Ellipse, Circle, Tilt, No compensation			
Filter		2CR, PC75, Gaussian			
Cutoff value	λc	0.08, 0.25, 0.8, 2.5, 8 mm			
	λs *5	2.5, 8, 25 μm			
Sampling length		0.08, 0.25, 0.8, 2.5, 8, 25 mm			
Number of intervals		x1, x2, x3, x4, x5, x6, x7, x8, x9, x10, x11, x12, x13, x14, x15, x16, x17, x18, x19, x20			
Arbitrary length		0.1 to 25 mm		0.1 to 50 mm	
Calculation display unit	Customization	Selection of display/evaluation roughness parameter			
	Simplified contour analysis function	Step, Step quantity, Area, Coordinate difference			
	D.A.T. (Digimatic Adjustment Table) function	Helps to level workpiece prior to skidless measurement			
	Real sampling function	Inputs the displacement of the detector while stopping the drive unit			
	Statistical processing	Calculates the maximum value, minimum value, average value, standard deviation, pass rate and histogram for each parameter.			
	Judgment*6	Maximum value rule, 16% rule, mean value rule, standard deviation (1σ, 2σ, 3σ)			
	Storing measurement condition	Max. 10 (calculation display unit)			
	Print function (Built-in thermal printer)	Measurement condition/Calculation result/Judgment result/Calculation result per segment/Tolerance value/Evaluation curve/Graphic curve/Material ratio curve/Profile height amplitude distribution curve/Environmental setting items/Statistical result (Histogram)			
	Display language	16 languages (Japanese, English, German, French, Italian, Spanish, Portuguese, Korean, Chinese (simplified/traditional), Czech, Polish, Hungarian, Turkish, Swedish, Dutch)			
	Storage function	Built-in memory: Measurement condition (Up to 10) Memory card (optional): 500 measurement conditions, 10000 measured profiles, 500 display images, 10000 text files, 500 statistical data, 1 backup file of device setting data, 10 data of Trace 10			
External I/O functions		USB I/F, Digimatic output, RS-232C I/F, Foot switch I/F			
Power supply	Battery	Built-in battery (rechargeable Ni-MH battery)/AC adapter			
	Charging time/Endurance	Charging time of the built-in battery: about 4 hours (may vary due to ambient temperature) Endurance: about 1000 measurements (differs slightly due to use conditions/environment)			
External dimensions (WxDxH)	Max. power consumption	50 W			
	Calculation display unit	275x198x109 mm			
	Up/down inclination unit	130.9x63x99 mm			
	Drive unit	128x35.8x46.6 mm		154.5x35.8x46.6 mm	
Mass	Calculation display unit			1.7 kg	
	Up/down inclination unit			0.4 kg	
	Drive unit	0.6 kg		0.64 kg	
Standard Accessories		Detector*7/Standard stylus*8		AC adapter, Power cable, Flat-blade screwdriver, Phillips screwdriver, Hex wrench, Strap for the touch pen, Operation manual, One-sheet manual, Warranty card	
		178-602 Roughness specimen (Ra3 μm)			
		270732 Receipt paper (Standard type: 5-roll set)			
		12BAL402 Protective sheet for the LCD (x1 sheet)			
		12BAR507 Touch pen			
		12AAN041 Carrying case			

*1 Calculation is available only when selecting the VDA, ANSI, or JIS 1982 standards.

*2 Calculation is available only when selecting the ISO 1997 standard. *3 Calculation is available only when selecting the JIS 2001 standard.

*4 Calculation is available only when selecting the ANSI standard. *5 Not available when selecting the JIS 1982 standard.

*6 Only the mean value rule is available for the ANSI standard. 16% rule is not available when selecting the VDA standard.

*7 Depending on the Order No. of the SJ-410 Series main unit, 178-396 (0.75 mN) or 178-397 (4 mN) is provided as standard.

*8 Standard stylus (12AAC731 or 12AAB403) supporting the provided detector is provided as standard.

MeasurLink¹ ENABLED
Data Management Software by Mitutoyo



Surfstand (optional accessory)

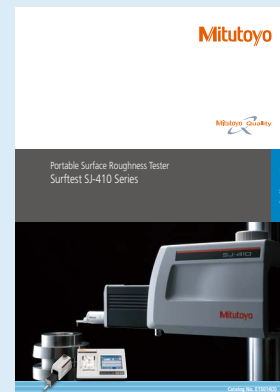
Mounted on the same large surface plate as the workpiece to be inspected, this substantially built stand can be maneuvered and adjusted to position the detector on practically any surface of the workpiece desired. The SJ-400 Series detector is carried on an adjustable-length tube mounted on an extendable arm carried by a vertically traveling carriage on the column, thus enabling positioning of the detector anywhere in the vertical plane within reach.



Order No.	64PMI307	
Measuring range	Z-axis at 0 degrees	663mm max
	X-axis at 0 degrees	550mm max from base
	Theta-1 axis	180°(+90°to -90°)
	Theta-2 axis	360°(+180°to -180°)
	Depth into bore	453mm max
Dimensions	Height	986mm (not including the lifting eye)
	Width	850mm max
	Depth	280mm
	Weight	55kg
Compatible Surftests		SJ-411 & SJ-412

Optional Accessories for SJ-410 Consumables

Receipt paper Standard type (5-roll set)	270732
Receipt paper High-durability paper (5-roll set)	12AAA876
Protective sheet for the touch panel (x10 sheets)	12AAN040
Memory card (2 GB)	12AAW452
Internal rechargeable battery pack	12AAN046

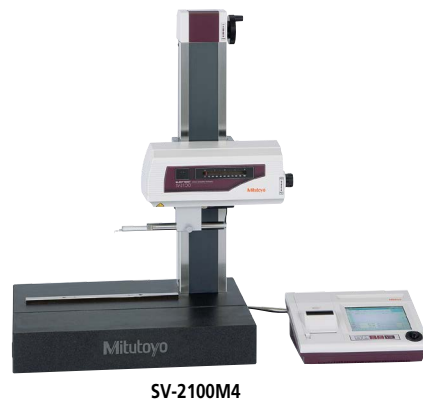


Refer to the Surftest SJ-410 Series Brochure (E15014(6)-US) for more details.

High Precision and High Performance Type

- Surface roughness tester with a dedicated control unit.
- User-friendly display and simple operation.
- Equipped with a 7.5-inch, color TFT LCD, color icons and touch panel controls, the display unit is easy to read and simple to operate.
- A built-in joystick on the control unit allows quick and easy positioning. The manual adjustment knob allows fine positioning of a small stylus for measuring small holes.
- In addition to the roughness parameters compliant with ISO/JIS/ANSI/VDA surface roughness standards, contour analysis is also available.

Surftest SJ-500/SV-2100 SERIES 178 — Dedicated Control Unit Type Surface Roughness Tester



SV-2100S4



SJ-500



SPECIFICATIONS

Model No.		SJ-500	SV-2100M4*1	SV-2100S4*1	SV-2100H4*1	SV-2100W4*1
Order No.	inch/mm	178-533-11	178-637-11	178-681-01A	178-683-01A	178-685-01A
Detector Measuring Force		0.75mN	0.75mN	0.75mN	0.75mN	0.75mN
Stand type		—*2	Manual stand	Motorized stand		
Measuring range	Z1-axis (detector)	800 μm, 80 μm, 8 μm				
	X-axis	50 mm	100 mm			
Resolution	X-axis	0.05 μm				
	Z1-axis (detector)	0.01 μm (800 μm), 0.001 μm (80 μm), 0.0001 μm (8 μm)				
	Z2-axis (column)	—	—	1 μm		
Assessed profile		Primary profile, Roughness profile, Waviness profile, DF profile, Roughness motif profile, Waviness motif profile				

*1 While the appearance of the natural stone measuring table varies according to the source, the high stability for which this material is known can always be relied upon.

*2 Stand for SJ-500 is optional.

A Data Processing Tester with PC

- Superior data analysis for higher efficiency.

Note: If a power column type (SV-2100S4/H4/W4) with PC data-processing is required, consider the FORMTRACER Avant S3000 Series (Refer to page L-9 for specifications).

Surftest SJ-500P

SERIES 178 — Data Processing Unit (PC) Surface Roughness Testers



SJ-500P

FORMTRACERPAK: Best-Selling Surface Roughness Analysis Program

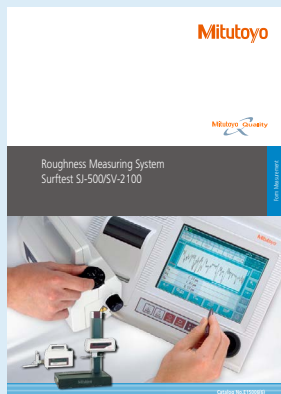
Best-selling dedicated software for surface roughness measurement and analysis. Features a flexible printer format and creation of an original inspection certificate.

SPECIFICATIONS

Type of data processing unit	PC type
Model No.	SJ-500P
Order No.	178-534-23
Detector Measuring Force	0.75mN
Elevating shaft mechanism of stand	—*2
Measuring range	X-axis Z1-axis (detector) Z2-axis (column) travel range
Resolution	X-axis Z1-axis (detector) Z2-axis (column)
Applicable standards	JIS 1982/JIS 1994/JIS 2001/ISO 1997/ANSI/VDA
Assessed profile	Primary profile, Roughness profile, Waviness profile, Filtered waviness profile, Rolling circle waviness profile, Rolling circle center line waviness profile, Envelope residual profile, DIN4776 profile, Roughness motif profile, Waviness motif profile

*1 While the appearance of the natural stone measuring table varies according to the source, the high stability for which this material is known can always be relied upon.

*2 The simplified stand or manual column stand is available as an optional accessory.



Refer to the Surftest SJ-500/SV-2100 Brochure (E15006(6)-US) for more details.