

Surftest

Surftest SJ-410 SERIES 178 Compact Surface Roughness Tester



SPECIFICATIONS

Model No.		SJ-411		SJ-412	
		inch/mm	178-581-31A	178-581-32A	178-583-31A
Measuring range			25 mm		50 mm
Detector	X-axis		800 μ m, 80 μ m, 8 μ m		Up to 2,400 μ m when using an optional stylus.
	Z-axis (detector)		Differential inductance		
	Detection method		0.0125 μ m (800 μ m range), 0.00125 μ m (80 μ m range), 0.000125 μ m (8 μ m range)		
	Resolution		60°/2 μ m	90°/5 μ m	60°/2 μ m
	Stylus tip shape (Angle/Radius)		0.75 mN	4 mN	0.75 mN
	Measuring force		40 mm		4 mN
	Radius of skid curvature		Skidless/Skidded (switchable)		
Drive unit (X-axis)	Measuring speed		0.05, 0.1, 0.2, 0.5, 1.0 mm/s		
	Drive speed		0.5, 1, 2, 5 mm/s		
	Straightness		0.3 μ m/25 mm		0.5 μ m/50 mm
Up/down inclination unit	Vertical travel		10 mm		
	Inclination adjustment angle		$\pm 1.5^\circ$		
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, RzJS*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 μ m		
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 (1 σ , 2 σ , 3 σ)		
	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		
Power supply	External I/O functions		USB I/F, Digimatic output, RS-232C I/F, Foot switch I/F		
	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		
Mass	Drive unit		128x35.8x46.6 mm	154.5x35.8x46.6 mm	
	Calculation display unit		1.7 kg		
	Up/down inclination unit		0.4 kg		
Standard Accessories	Drive unit		0.6 kg	0.64 kg	
	Detector*7/Standard stylus*8		Detector*7/Standard stylus*8		
	178-602		Roughness specimen (Ra3 μ m)		
	270732		Receipt paper (Standard type: 5-roll set)		
	12BAL402		Protective sheet for the LCD (x1 sheet)		
	12BAS507		Touch pen		
	12AAN041		Carrying case		
			AC adapter, Power cable, Flat-blade screwdriver, Phillips screwdriver, Hex wrench, Strap for the touch pen, Operation manual, One-sheet manual, Warranty card		

*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.

MeasurLink ENABLED
Data Management Software by Mitutoyo



Surfstand (optional accessory)

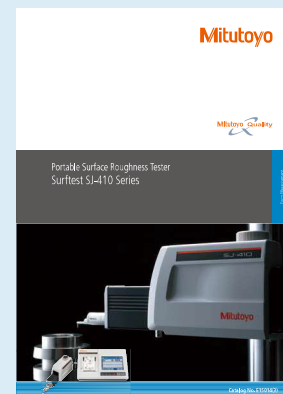
Mounted on the same large surface plate as the workpiece to be inspected, this substantially built stand can be maneuvered and adjusted to position the detector on practically any surface of the workpiece desired. The SJ-400 Series detector is carried on an adjustable-length tube mounted on an extendable 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



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