

Surftest SJ-500, SV-2100

SERIES 178 — with Dedicated Control / Display Unit

Technical Data: SJ-500

X-axis (drive unit)	
Measuring range:	50mm
Resolution:	0.05μm
Measurement method:	Linear encoder
Drive speed:	0 - 20mm/s
Measuring speed:	0.02 - 5mm/s
Traversing direction:	Backward
Traverse linearity:	0.2μm / 50mm
Positioning:	±1.5° (tilting, with DAT function) 30mm (up/down)
Detector	
Range / resolution:	800μm / 0.01μm, 80μm / 0.001μm, 8μm / 0.0001μm
Detecting method:	Skidless / skid measurement
Measuring force:	4mN or 0.75mN (low force type)
Stylus tip:	Diamond, 90° / 5μmR (60° / 2μmR: low force type)
Skid radius of curvature:	40mm
Detecting method:	Differential inductance
Control unit	
Display:	7.5" color TFT with backlight
Printer:	Built-in thermal printer
Magnification:	Horizontal: X10 to X500,000, Auto Vertical: X0.5 to X10,000, Auto
Drive unit control:	Joystick operation with manual knob

Technical Data: SV-2100

X-axis (drive unit)	
Measuring range:	100mm
Resolution:	0.05μm
Measurement method:	Linear encoder
Drive speed:	0 - 40mm/s
Measuring speed:	0.02 - 5mm/s
Traversing direction:	Backward
Traverse linearity:	0.15μm / 100mm
Z2-axis (column)	
Type:	Manual operation or power drive
Vertical travel:	350mm or 550mm*
Resolution*:	1μm
Measurement method*:	Rotary encoder
Drive speed*:	0 - 20mm/s
*Only for power drive type	
Detector	
Range / resolution:	800μm / 0.01μm, 80μm / 0.001μm, 8μm / 0.0001μm
Detecting method:	Skidless / skid measurement
Measuring force:	4mN or 0.75mN (low force type)
Stylus tip:	Diamond, 90° / 5μmR (60° / 2μmR: low force type)
Skid radius of curvature:	40mm
Detecting method:	Differential inductance
Control unit	
Display:	7.5" color TFT with backlight
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Magnification:	Horizontal: X10 to X500,000, Auto Vertical: X0.5 to X10,000, Auto
Drive unit control:	Joystick operation with manual knob

Evaluation Capability

Assessed profiles
P (primary profile), R (roughness profile), WC, WCA, WE, WEA, envelope residual profile, roughness motif, waviness motif

Evaluation parameters
Ra, Rc, Ry, Rz, Rq, Rt, Rmax, Rp, Rv, R3z, Sm, S, Pc, mr(c), δc, mr, tp, Htp, Lo, Ir, Ppi, HSC, Δa, Δq, Ku, Sk, Rpk, Rvk, Rk, Mr1, Mr2, At, Az, Vo, λa, λq
Roughness motif parameters: R, AR, Rx
Waviness motif parameters: W, AW, Wx, Wte

Analysis graphs
ADC, BAC, power spectrum chart

Digital filter 2CR-75%, PC-75%, Gaussian, Robust Spline
Cutoff length
λs: 0.25mm, 0.8mm, 2.5mm, 8mm, 25mm, 250mm, no filter
λc*: 0.025mm, 0.08mm, 0.25mm, 0.8mm, 2.5mm, 8mm, 25mm
λf: 0.08mm, 0.25mm, 0.8mm, 2.5mm, 8mm, 25mm, no filter
Sampling length (L)*
0.025mm, 0.08mm, 0.25mm, 0.8mm, 2.5mm, 8mm, 25mm, 80mm (SV-2100 only)

Data compensation functions
Parabola compensation, hyperbola compensation, ellipse compensation, R-plane (curved surface) compensation, conic compensation, tilt compensation

*Arbitrary length can be specified in the range from 0.02mm to 50mm.

High precision and high performance type surface roughness tester with a dedicated control unit, achieving user-friendly display and simple operation

FEATURES

- User-friendly display and simple operation
Equipped with a highly visible color 7.5-inch TFT LCD, employing a color icon display and a touch panel achieves user-friendly display and simple operation.
- Easy positioning
A joy stick built in the dedicated control unit allows easy and quick positioning. Fine positioning of a small stylus, required for measuring the inner side of a small hole, can be easily made using the manual knob.

- Easy setting of measuring conditions for surface roughness.
Equipped with simple input function allows inputs according to drawing instruction symbols of ISO/JIS roughness standards. Troublesome measuring condition settings can be easily input by directly selecting a drawing instruction symbol for surface roughness from the menu.



SPECIFICATIONS

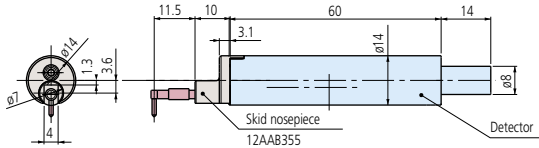
Model No.	SJ-500	SJ-500	SV-2100M4	SV-2100M4
Order No.* (mm)	178-532-01	178-532-02	178-636-01	178-636-02
Order No.* (inch)	178-533-01	178-533-02	178-637-01	178-637-02
Measuring force of detector	0.75mN	4mN	0.75mN	4mN
X-axis measuring range	50mm		100mm	
Vertical travel	—		350mm manual column	
Granite base size (WxD)	—		600 x 450mm	
Dimensions (main unit, WxDxH)	—		716 x 450 x 863mm	
Mass	6.7kg		144kg	

* To denote your AC line voltage add the following suffixes to the order No. (e.g.: **178-532-01A**):
A for UL/CSA, **D** for CEE, **E** for BS, **DC** for China, **K** for EK, **No suffix** is required for JIS/100V

Model No.	SV-2100S4	SV-2100S4	SV-2100H4	SV-2100H4	SV-2100W4	SV-2100W4
Order No.* (mm)	178-680-01	178-680-02	178-682-01	178-682-02	178-684-01	178-684-02
Order No.* (inch)	178-681-01	178-681-02	178-683-01	178-683-02	178-685-01	178-385-02
Measuring force of detector	0.75mN	4mN	0.75mN	4mN	0.75mN	4mN
X-axis measuring range	100mm		100mm		100mm	
Vertical travel	350mm power column		550mm power column		550mm power column	
Granite base size (WxD)	600 x 450mm		600 x 450mm		1000 x 450mm	
Dimensions (main unit, WxDxH)	766 x 482 x 966mm		766 x 482 x 1166mm		1166 x 482 x 1176mm	
Mass	144kg		154kg		224kg	

Optional Styli for Surface Roughness Measurement

Compatible with SJ-400, SJ-500, SV-2100



Detector (0.75mN): **178-396-2**
 Detector (4mN): **178-397-2**

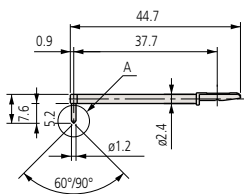
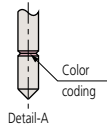


Extension rods
 (12AAG202: 50mm, 12AAG203: 100mm)

Styli

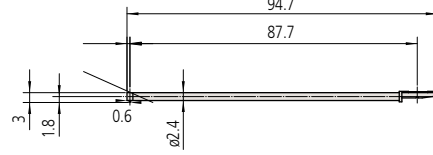
Unit: mm

Standard stylus



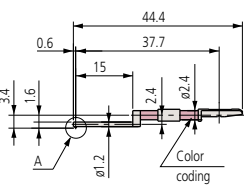
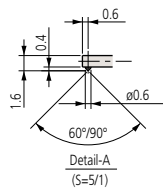
12AAE882 (1μm)*
12AAE924 (1μm)**
12AAC731 (2μm)*
12AAB403 (5μm)**
12AAB415 (10μm)**
12AAE883 (250μm)
 (): Tip radius
 *Tip angle: 60° **Tip angle: 90°

Double-length for deep hole



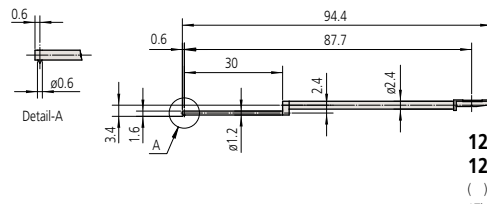
12AAE898 (2μm)*
12AAE914 (5μm)**
 (): Tip radius
 *Tip angle: 60° **Tip angle: 90°

For small hole



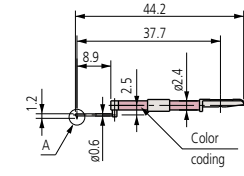
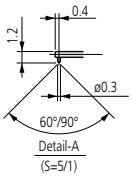
12AAC732 (2μm)*
12AAB404 (5μm)**
12AAB416 (10μm)**
 (): Tip radius
 *Tip angle: 60° **Tip angle: 90°

For small hole/Double-length for deep hole



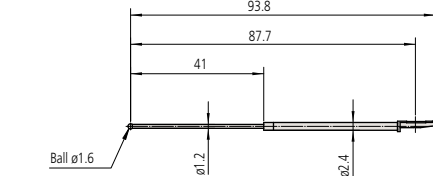
12AAE892 (2μm)*
12AAE908 (5μm)**
 (): Tip radius
 *Tip angle: 60° **Tip angle: 90°

For extra small hole



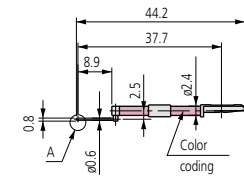
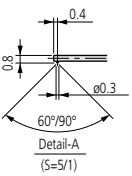
12AAC733 (2μm)*
12AAB405 (5μm)**
12AAB417 (10μm)**
 (): Tip radius
 *Tip angle: 60° **Tip angle: 90°

For small hole



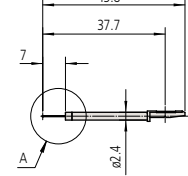
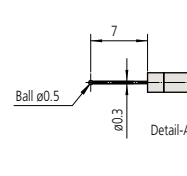
12AAE884 (0.8mm)
 (): Tip radius

For extra minute hole



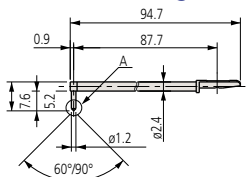
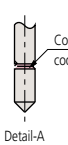
12AAC734 (2μm)*
12AAB406 (5μm)**
12AAB418 (10μm)**
 (): Tip radius
 *Tip angle: 60° **Tip angle: 90°

For ultra small hole

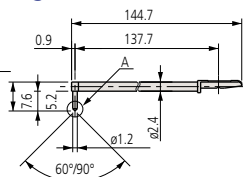
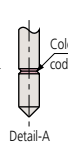


12AAE885 (0.25mm)
 (): Tip radius

For deep hole (double-length and triple-length)

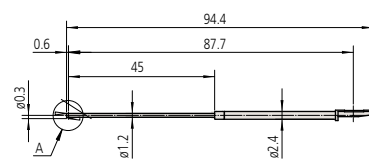
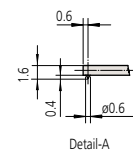


2X stylus
12AAC740 (2μm)*
12AAB413 (5μm)**
12AAB425 (10μm)**
 (): Tip radius
 *Tip angle: 60° **Tip angle: 90°



3X stylus
12AAC741 (2μm)*
12AAB414 (5μm)**
12AAB426 (10μm)**
 (): Tip radius
 *Tip angle: 60° **Tip angle: 90°

For small slotted hole

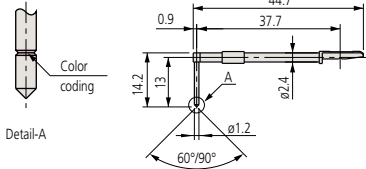


12AAE938 (2μm)*
12AAE940 (5μm)**
 (): Tip radius
 *Tip angle: 60° **Tip angle: 90°

Styli

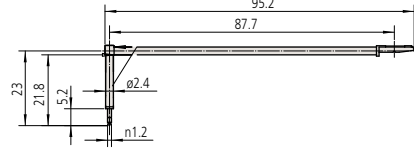
Unit: mm

For deep groove (10mm)



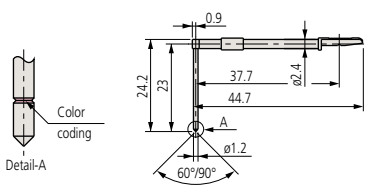
12AAC735 (2μm)*
12AAB409 (5μm)**
12AAB421 (10μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For deep groove (20mm)/Double-length for deep hole



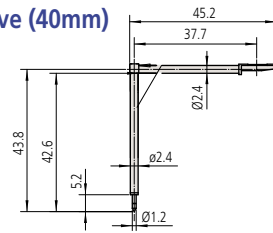
12AAE893 (2μm)*
12AAE909 (5μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For deep groove (20mm)



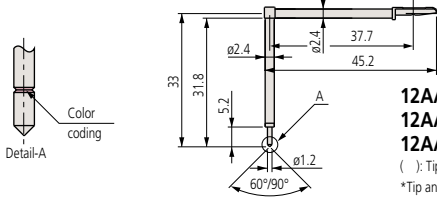
12AAC736 (2μm)*
12AAB408 (5μm)**
12AAB420 (10μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For deep groove (40mm)



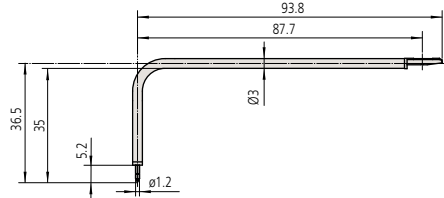
12AAE895 (2μm)*
12AAE911 (5μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For deep groove (30mm)



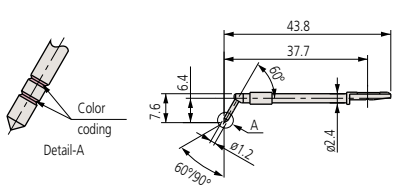
12AAC737 (2μm)*
12AAB407 (5μm)**
12AAB419 (10μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For deep groove (30mm)/Double-length for deep hole



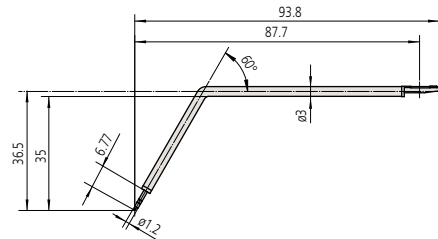
12AAE894 (2μm)*
12AAE910 (5μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For gear tooth



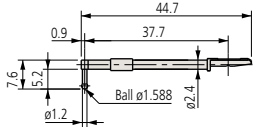
12AAB339 (2μm)*
12AAB410 (5μm)**
12AAB422 (10μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For gear tooth/Double-length for deep hole



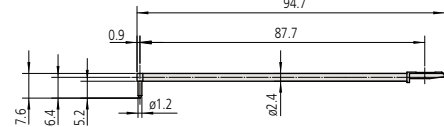
12AAE896 (2μm)*
12AAE912 (5μm)**
 () : Tip radius

For rolling circle waviness surface



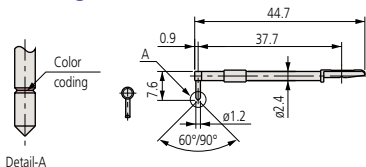
12AAB338 (0.8mm)
 () : Tip radius

For rolling circle waviness/Double-length for deep hole



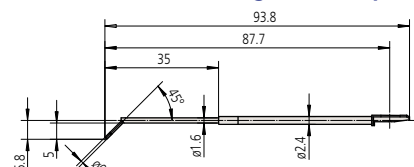
12AAE886 (0.25mm)
 () : Tip radius

For knife-edge detector



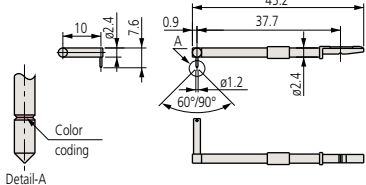
12AAC738 (2μm)*
12AAB411 (5μm)**
12AAB423 (10μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For corner hole/Double-length for deep hole



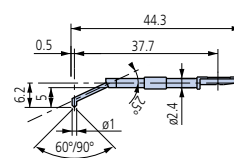
12AAE897 (2μm)*
12AAE913 (5μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For eccentric arm



12AAC739 (2μm)*
12AAB412 (5μm)**
12AAB424 (10μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°

For bottom surface



12AAE899 (2μm)*
12AAE915 (5μm)**
 () : Tip radius
 *Tip angle: 60° **Tip angle: 90°