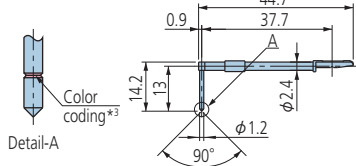


Styli

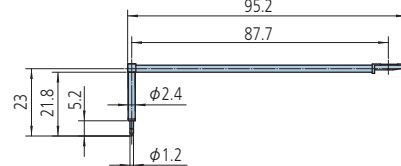
Unit: mm

For deep groove (10mm)



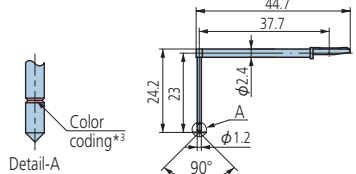
12AAC735 (2μm) *1
12AAB409 (5μm)
12AAB421 (10μm)
(): Tip radius

For deep groove *2 (20mm)



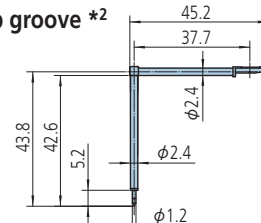
12AAE893 (2μm) *1
12AAE909 (5μm)
(): Tip radius

For deep groove *2 (20mm)



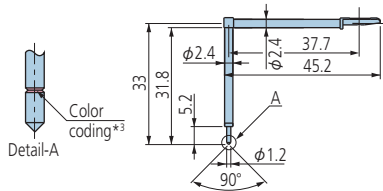
12AAC736 (2μm) *1
12AAB408 (5μm)
12AAB420 (10μm)
(): Tip radius

For deep groove *2 (40mm)



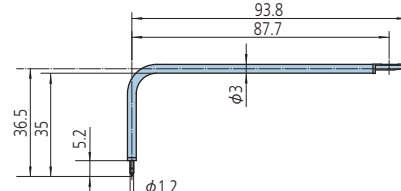
12AAE895 (2μm) *1
12AAE911 (5μm)
(): Tip radius

For deep groove *2 (30mm)



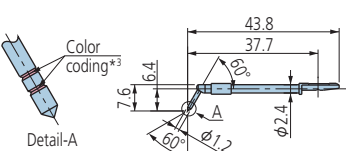
12AAC737 (2μm) *1
12AAB407 (5μm)
12AAB419 (10μm)
(): Tip radius

For deep groove (30mm) / Double-length for deep hole *2



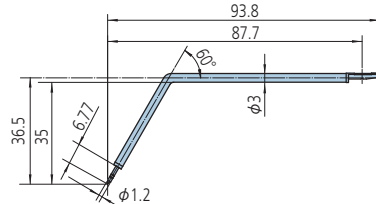
12AAE894 (2μm) *1
12AAE910 (5μm)
(): Tip radius

For gear tooth



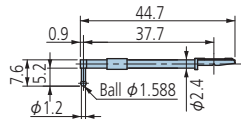
12AAB339 (2μm) *1
12AAB410 (5μm)
12AAB422 (10μm)
(): Tip radius

For gear tooth / Double-length for deep hole *2



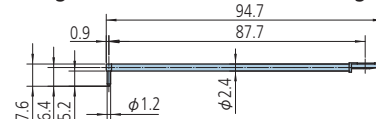
12AAE896 (2μm) *1
12AAE912 (5μm) *1
(): Tip radius

For rolling circle waviness surface *4



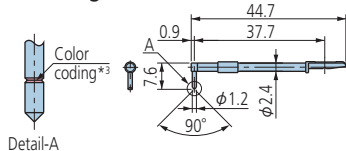
12AAB338 (ϕ1.588)
(): Tip radius

For rolling circle waviness / Double-length for deep hole *2 *4



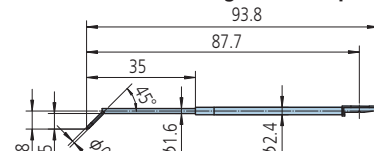
12AAE886 (250μm)
(): Tip radius

For knife-edge *4



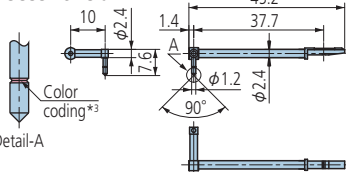
12AAC738 (2μm) *1
12AAB411 (5μm)
12AAB423 (10μm)
(): Tip radius

For corner hole / Double-length for deep hole *2



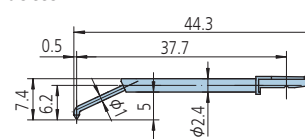
12AAE897 (2μm) *1
12AAE913 (5μm) *2
(): Tip radius

For eccentric arm *2



12AAC739 (2μm) *1
12AAB412 (5μm)
12AAB424 (10μm)
(): Tip radius

For hole bottom



12AAE899 (2μm) *1
12AAE914 (5μm)
(): Tip radius

*1: Tip angle 60°

*2: For downward-facing measurement only.

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

*3:

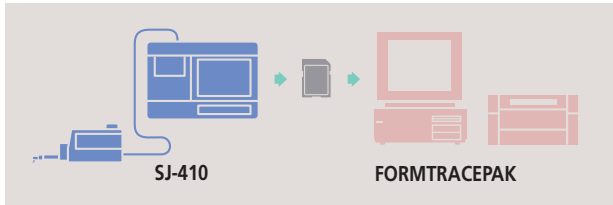
| | | | |
|--------------|-------|----------|--------|
| Tip radius | 2μm | 5μm | 10μm |
| Color coding | Black | No color | Yellow |

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

Optional Accessories: For External Output

Contour / Roughness analysis software FORMTRACEPAK

More advanced analysis can be performed by loading SJ-410 series measurement data to software program FORMTRACEPAK via a memory card (option) for processing back at base.



Digimatic mini processor DP-1VR

By connecting this printer to the Surfctest SJ-410's digimatic output, you can 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.



No.264-504 -5A

SJ-410 → DP-1VR Connecting cable
1m: **No.936937**
2m: **No.965014**

Measurement Data Wireless Communication System U-WAVE

This unit allows you to remotely load Surfctest SJ-410 calculation results (SPC output) into commercial spreadsheet software on a PC. You can essentially use a one-touch operation to enter the calculation results (values) into the cells in the spreadsheet software.



U-WAVE-R
(Connects to the PC)
No.02AZD810D



U-WAVE-T *
(Connects to the SJ-410)
No.02AZD880D

*Requires the optional Surfctest SJ-410 connection cable.

No.02AZD790D

Simplified communication program for SURFTEST SJ series

The Surfctest SJ-410 series has a USB 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 free of charge from the Mitutoyo website.
<http://www.mitutoyo.co.jp>

Required environment*

- OS: Windows XP-SP3
Windows Vista
Windows 7
- Spreadsheet software: Microsoft Excel 2002
Microsoft Excel 2003
Microsoft Excel 2007
Microsoft Excel 2010

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

The optional USB cable is also required.

- USB cable for SJ-410 series **No.12AAD510**

Calculation results input unit INPUT TOOL

This unit allows you to load Surfctest SJ-410 calculation results (SPC output) into commercial spreadsheet software on a PC via a USB connector. You can essentially use a one-touch operation to enter the calculation results (values) into the cells in the spreadsheet software.



USB-ITN-D
No.06ADV380D



USB keyboard signal conversion type*
IT-012U
No.264-012-10

*Requires the optional Surfctest SJ-410 connection cable.

1m: **No.936937**
2m: **No.965014**

Optional accessories, consumables, and others for SJ-410

- Printer paper (5 rolls) **No.270732**
- Durable printer paper (5 rolls) **No.12AAA876**
- Touch-screen protector sheet (10 sheets) **No.12AAN040**
- Memory card (2GB) * **No.12AAL069**
- Connecting cable (for RS-232C) **No.12AAA882**

*micro SD card (with a conversion adapter to SD card)

Specifications

Authorized Distributor:
Willrich Precision
Ph: 866-945-5742
email: sales@willrich.com

| Model No. | inch/mm | SJ-411 | | SJ-412 | |
|-----------------------------|---|--|--|---|---|
| | | 178-581-01A | 178-581-02A | 178-583-01A | 178-583-02A |
| Measuring range | X axis | 25mm (1inch) | | 50mm (2inch) | |
| | Z1 axis (detector unit) | 800 μ m, 80 μ m, 8 μ m *Up to 2,400 μ m with an optional stylus | | | |
| Detector | Measuring principle | Differential inductance | | | |
| | Resolution | 0.01 μ m (800 μ m range) / 0.001 μ m (80 μ m range) / 0.0001 μ m (8 μ m range) 0.4 μ inch (32000 μ inch) / 0.04 μ inch (3200 μ inch) / 0.004 μ inch (320 μ inch) | | | |
| | Stylus tip | 60°/2 μ m (80 μ inch) | 90°/5 μ m (200 μ inch) | 60°/2 μ m (80 μ inch) | 90°/5 μ m (200 μ inch) |
| | Measuring force | 0.75mN | 4mN | 0.75mN | 4mN |
| | Radius of skid curvature | R40 mm (R1.57") | | | |
| | Measuring method | Skidded measurement / skidless measurement | | | |
| Drive unit: X-axis | Measuring speed | 0.05, 0.1, 0.2, 0.5, 1.0mm/s (0.002, 0.004, 0.02, 0.04 inch/s) | | | |
| | Drive speed | 0.5, 1, 2, 5mm/s (0.02, 0.04, 0.08, 0.2 inch/s) | | | |
| | Straightness | 0.3 μ m / 25mm (12 μ inch/ 1inch) | | 0.5 μ m / 50mm (20 μ inch/ 2inch) | |
| Height-tilt adjustment unit | Height adjustment | 10mm (0.39inch) | | | |
| | Tilt adjustment | \pm 1.5° | | | |
| Standards | JIS1982 / JIS1994 / JIS2001 / ISO1997 / ANSI / VDA | | | | |
| Parameters | Ra, Rq, Rz, Ry, Rp, Rv, Rt, R3z, Rsk, Rku, Rc, Rpc, RSm, Rmax*1, Rz1max*2, S, HSC, RzJIS*3, Rppi, R Δ a, R Δ q, Rlr, Rmr, Rmr(c), R σ c, Rk, Rpk, Rvk, Mr1, Mr2, A1, A2, Vo, λ a, λ q, Lo, Rpm, tp*4, Htp*4, R, Rx, AR, W, AW, Wx, Wte, Possible Customize | | | | |
| Measured profiles | Primary, Roughness, DF, Filtered waviness curve, R-Motif, W-Motif | | | | |
| Graph analysis | BAC and ADC curves | | | | |
| Data compensation | Parabola/ Hyperbola/ Ellipse/ Circle/ Conic/ Tilting, Compensation off | | | | |
| Filter | 2CR, PC75, Gaussian filter | | | | |
| Cut-off length | λ c | 0.08, 0.25, 0.8, 2.5, 8.0mm | | | |
| | λ s *5 | 2.5, 8.0, 25mm (100, 320, 1000 μ inch) | | | |
| Sample length | 0.08, 0.25, 0.8, 2.5, 8.0, 25.0mm | | | | |
| Number of sampling lengths | x1, x2, x3, x4, x5, x6, x7, x8, x9, x10, x11, x12, x13, x14, x15, x16, x17, x18, x19, x20 | | | | |
| Arbitrary length | 0.1~25mm | | 0.1~50mm | | |
| Functions | Customization | Desired parameters can be selected for calculation and display | | | |
| | Simple contour analysis function | Step, Step volume, Dimensions, Coordinate difference | | | |
| | DAT function | Helps to adjust leveling during skidless measurement | | | |
| | Real sampling function | Samples stylus displacement for a specified time without engaging detector traverse. | | | |
| | Statistical processing | Static measurement (max. 3 parameters) is possible. Static processing for MAX, MIN, AVERAGE, standard deviation, histogram and pass rate is possible | | | |
| | GO/ NG judgement*6 | Max rule / 16% rule / Average rule / Standard deviation (1 σ , 2 σ , 3 σ) | | | |
| | Storage functions | 10 measuring conditions can be stored in internal memory | | | |
| | Printing function | Measurement conditions / Calculation results / GO / NG judgement result / Calculation results for each sampling length / Measurement curve / BAC / ADC / Environmental setting information | | | |
| | Display languages | Japanese, English, German, French, Italian, Spanish, Portuguese, Korean, Traditional Chinese, Simplified Chinese, Czech, Polish, Hungarian Turkish, Swedish, Dutch | | | |
| | Storage | Internal memory: Measurement condition (10 sets) Memory card (option): 500 measurement condition, 10000 measuring data, 10000 text data, 500 statistic data, 1 backup of machine setting, the last ten traces (Trace 10) | | | |
| External I/O | USB I/F, Digimatic output, RS-232C I/F, External SW I/F | | | | |
| Power supply | Battery | Two-way power supply: battery (rechargeable Ni-MH battery) and AC adapter *Charging time: about 4 hours (may vary due to ambient temperature) *Endurance: about 1500 measurements (differs slightly due to use conditions / environment) | | | |
| | Power consumption | 50W | | | |
| Size (WxDxH) | Display unit | 275x198x109mm (10.83x4.29x7.80inch) | | | |
| | Height adjustment unit | 130.9x63x99mm (5.16x2.48x3.90 inch) | | | |
| | Drive unit | 128x35.8x46.6mm (5.04x1.41x1.83 inch) | 154.5x35.8x46.6mm (6.08x1.41x1.83inch) | | |
| Mass | Display unit | 1.7kg | | | |
| | Height adjustment unit | 0.4kg | | | |
| | Drive unit | 0.6kg | | 0.64kg | |
| Standard accessories | Detector*7, Stylus*8, Roughness specimen 270732 Printing paper 12BAL402 Touch-screen protection sheet | | 12BAG834 Touch pen 12AAN041 Carrying case | | AC adapter, Philips screwdriver, Strap for stylus pen, Operation manual, Quick reference manual, Warranty |

*1: Only for VDA/ANSI/JIS'82 standards.

*2: Only for JIS'97 standard.

*3: Only for JIS'01 standard.

*4: Only for ANSI standard.

*5: λ s may not be switchable depending on standard selected.

*6: Standard deviation only can be selected in ANSI.16% rule cannot be selected in VDA.

*7: Either **No.178-396-2** or **No.178-397-2** is supplied as a standard accessory depending on the Order No. of the main unit for SJ-410 Series.

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