# 31 ROUNDNESS, PROFILE AND ROUGHNESS TESTERS

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# ROUNDNESS/CYLINDRICITY TESTER
# CODE RCT-300


- Automatic centering and leveling
- Evaluation items
  -Cylindricity module: cylindricity, radial full run, coaxiality, taper, radius
  -Roundness module: roundness, concentricity, radial single jump, wall thickness difference
  -Straightness module: straightness, parallelism, squareness
  -Single section flatness module: single section flatness, axial single hop, perpendicularity, parallelism
  -Multi-section flatness module: multi-section flatness, parallelism, axial full runout, perpendicularity
  -Commutator module: monolithic bounce, immediate bounce, interval difference
- Analytical ability
  -Cylindricity function: 2-10 sections, 3 evaluation methods
  -Reference benchmarks for cylindricity evaluation: LSCY, MZCY, MICY, MCCY, OSCY
  -Reference circle for roundness evaluation: LSC, MZC, MIC, MCC
  -Measurement band: 1-15upr, 1-50upr, 1-150upr, 1-250upr, 1-500upr, 15-100upr, 15-500upr, 2-15upr, 1-1500upr, custom
  -Notched measurement



**SPECIFICATION**

| | | |
|---|---|---|
| Probe | measuring range | ±500μm |
| | resolution | 1:262144 |
| | linear accuracy | 0.1% |
| Ruby stylus | size | Ø2x10mm |
| | direction | two directions |
| | adjustable angle | ±45° |
| X axis | travel | 165mm |
| | excess range | 25mm |
| | drive mode | motor |
| | moving speed | 0.1~50mm/s |
| Z axis | measuring range | 480mm |
| | straightness | 0.3μm/100mm |
| | movement speed | 0.1~10mm/s |
| | movement mode | motor |
| Detector | acquisition device | circular grating |
| | circumferential sampling points | 14400 |
| Granite stage | | 900×500mm |
| Rotary stage | rotation accuracy | (0.025+6H/10000)μm, H is the measuring height in mm |
| | rotation speed | 6rpm, 8rpm, 10rpm |
| | max. measuring diameter | 300mm |
| | max. workpiece diameter (rotation diameter) | 450mm |
| Automatic adjustment stage | workbench diameter | 280mm |
| | adjustment range of center | ±3mm |
| | adjustment range of level | ±1° |
| | weight capacity | 30kg |
| Precision chuck | external grip diameter | Ø1~Ø81mm |
| | internal grip diameter | Ø31~Ø70mm |
| Air filter | pressure range | 0~0.8MPa |
| | oil mist removal accuracy | 0.01μm |
| | export oil mist concentration | 0.5mg/m³ |
| Dimension (LxWxH) | | 1680×862×1685mm |
| Power supply | | 220±10%V, 50Hz |
| Power | | 500W |
| Weight | | 350kg |

To be continued

Continued from previous page


air filter (included)


standard block (included)

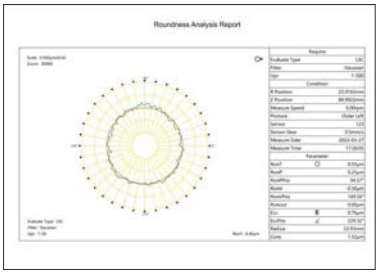

column adjusting rod (included)


precision chuck (included)

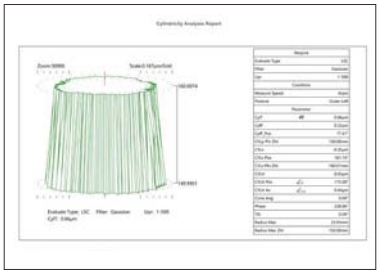


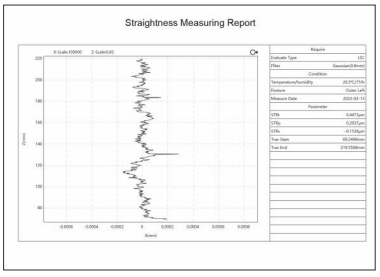
## STANDARD DELIVERY

| | |
|---|---|
| Main unit | 1 pc |
| Probe (with ruby stylus) | 1 pc each |
| Standard block | 1 pc |
| Column adjusting rod | 1 set |
| Precision chuck | 1 pc |
| Automatic adjustment stage | 1 pc |
| Roundness cylindricity acquisition and analysis system | 1 set |
| Air filter | 1 set |
| Computer | 1 pc |
| Printer | 1 pc |
| Installation tools | 1 set |

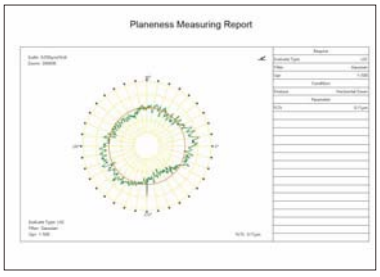


roundness analysis


cylindricity analysis



straightness analysis

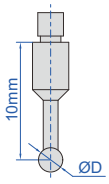


planeness analysis

## OPTIONAL ACCESSORY

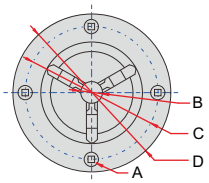
| | |
|---|---|
| Probes | see below details |
| Precision chucks | see below details |
| Dryer | ISC-DRY |

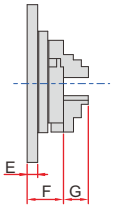
### SPECIFICATION OF PROBES




| Code | Diameter (ØD) | Remark |
|---|---|---|
| RCT-RA260-T1 | 2mm | included |
| RCT-RA260-T2 | 0.5mm | optional |
| RCT-RA260-T3 | 1mm | optional |
| RCT-RA260-T4 | 4mm | optional |
| RCT-RA260-T5 | 8mm | optional |

### SPECIFICATION OF PRECISION CHUCKS

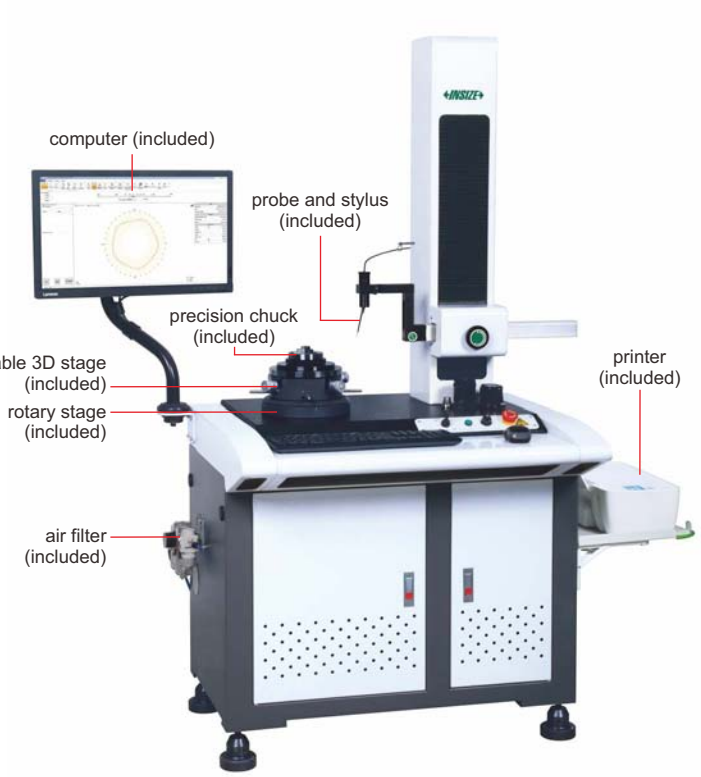



(mm)

| Code | A | B | C | D | E | F | G | Clamping range | | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | external grip dia. | internal grip dia. | |
| RCT-RA260-C1 | M5x0.8 | 16 | 100 | 118 | 8 | 28 | 13 | Ø0.8~63 | Ø23~58 | optional |
| RCT-RA260-C2 | M6x1.0 | 20 | 116 | 143 | 10.5 | 37 | 15 | Ø1~81 | Ø31~70 | included |
| RCT-RA260-C3 | M6x1.0 | 26 | 140 | 168 | 10 | 39 | 19 | Ø1~100 | Ø36~90 | optional |

# ROUNDNESS MEASURING MACHINE
# CODE RCT-RA260




- Air-floating spindle
- Can measure roundness, coaxiality, concentricity, flatness, radial runout, axial runout, parallelism and perpendicularity
- Spectrum analysis, automatic gap/burr removal, waveform analysis
- 4 roundness evaluation methods: smallest area method, least square method, smallest circumscribed circle method, largest inscribed circle method
- Measuring filer: 1-15upr, 1-50upr, 1-150upr, 1-250upr, 1-500upr, 15-100upr, 15-500upr, 2-15upr
- Filter form: gauss (ISO standard)
- Software is included, for measurement, analysis, data output, etc.



**SPECIFICATION**

| | | |
|---|---|---|
| Probe | measuring range | ±300μm |
| | resolution | 0.001μm |
| | linear accuracy | 0.25% |
| Ruby stylus | size | Ø2x10mm |
| | direction | two directions |
| | adjustable angle | ±45° |
| X axis | travel | 165mm |
| | excess range | 25mm |
| | drive mode | by hand |
| Z axis | drive mode | motor |
| | travel | 320mm |
| | movement speed | 0.5~10mm/s |
| Rotary stage | rotation accuracy | (0.025+6H/10000)μm for H≤20mm, H is the measuring height in mm |
| | rotation speed | 6rpm |
| | max. measuring diameter | 260mm |
| | max. workpiece diameter (rotation diameter) | 400mm |
| Rotary axis | radial rotation accuracy | ±0.0125μm |
| | axial runout accuracy | ±0.05μm |
| Adjustable 3D stage | diameter | 180mm |
| | adjustment range of center | ±3mm |
| | adjustment range of level | ±2° |
| | weight capacity | 20kg |
| Granite stage | | 700×500mm |
| Precision chuck | external grip diameter | Ø1~Ø81mm |
| | internal grip diameter | Ø31~Ø70mm |
| Air filter | pressure range | 0~0.8MPa |
| | oil mist removalaccuracy | 0.01μm |
| | export oil mist concentration | 0.5mg/m³ |
| Dimension (LxWxH) | | 1300×795×1715mm |
| Power supply | | 220±10%V, 50Hz |
| Power | | 500W |
| Weight | | 320kg |

To be continued

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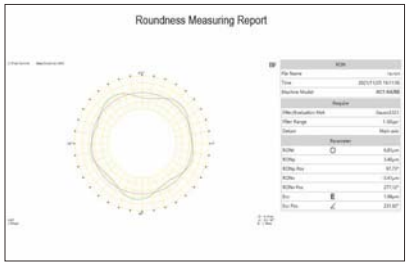
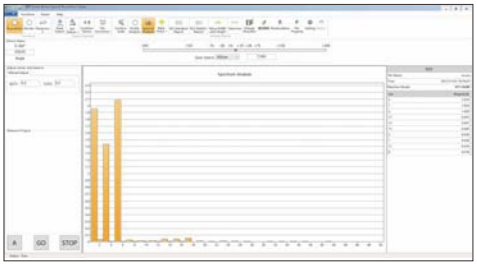


measurement


spectrum analysis

## STANDARD DELIVERY

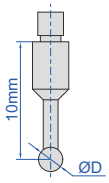
| | |
|---|---|
| Main unit | 1 pc |
| Probe (with ruby stylus) | 1 pc each |
| Standard block | 1 pc |
| Precision chuck | 1 pc |
| Adjustable 3D stage | 1 pc |
| Rotary stage | 1 pc |
| Computer | 1 pc |
| Software | 1 set |
| Printer | 1 pc |
| Air filter | 1 set |
| Installation tools | 1 set |


standard block (included)

## OPTIONAL ACCESSORY

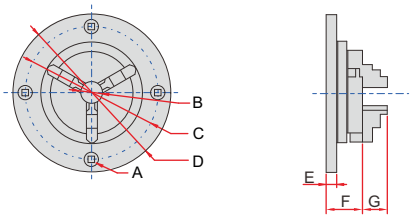
| | |
|---|---|
| Probes | refer to details |
| Precision chucks | refer to details |
| Dryer | ISC-DRY |

## SPECIFICATION OF PROBES




| Code | Diameter (ØD) | Remark |
|---|---|---|
| RCT-RA260-T1 | 2mm | included |
| RCT-RA260-T2 | 0.5mm | optional |
| RCT-RA260-T3 | 1mm | optional |
| RCT-RA260-T4 | 4mm | optional |
| RCT-RA260-T5 | 8mm | optional |

## SPECIFICATION OF PRECISION CHUCKS



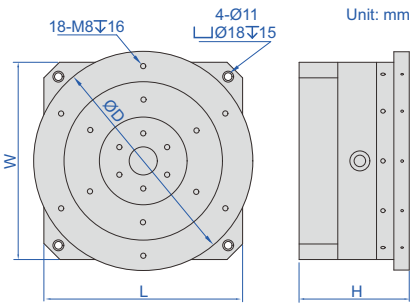

(mm)

| Code | A | B | C | D | E | F | G | Clamping range | | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | external grip dia. | internal grip dia. | |
| RCT-RA260-C1 | M5x0.8 | 16 | 100 | 118 | 8 | 28 | 13 | Ø0.8~63 | Ø23~58 | optional |
| RCT-RA260-C2 | M6x1.0 | 20 | 116 | 143 | 10.5 | 37 | 15 | Ø1~81 | Ø31~70 | included |
| RCT-RA260-C3 | M6x1.0 | 26 | 140 | 168 | 10 | 39 | 19 | Ø1~100 | Ø36~90 | optional |

# PRECISION AIR FLOATING ROTARY TABLES

VIDEO

6875-320






air filter (included)

- Manual rotation
- Optional accessory:
  high precision digital indicators (code **2133** series),
  hydraulic universal magnetic stands (code **6274** series)

| Code | Stage size ØD | Max. RPM | Air supply pressure | Max. load | Radial stiffness | Axial stiffness | Radial runout | Axial runout | L×W×H |
|---|---|---|---|---|---|---|---|---|---|
| **6875-320** | 320mm | 500rpm | 5-6bar | 100kg | 250N/μm | 500N/μm | <0.3μm | <0.3μm | 272x272x161mm |
| **6875-400** | 400mm | 500rpm | 5-6bar | 100kg | 250N/μm | 500N/μm | <0.3μm | <0.3μm | 272x272x161mm |
| **6875-500** | 500mm | 500rpm | 5-6bar | 100kg | 250N/μm | 500N/μm | <0.3μm | <0.3μm | 272x272x191mm |

**Standard glass hemisphere (optional)**

| Code | Roundness |
|---|---|
| **6875-BALL*** | 0.05μm |

*To check the accuracy of rotary table

**6875-BALL**

application

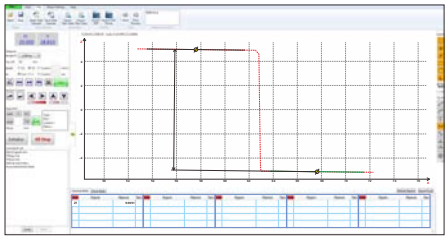
**Clamp for glass hemisphere (optional)**

| Code |
|---|
| **6875-CLAMP** |

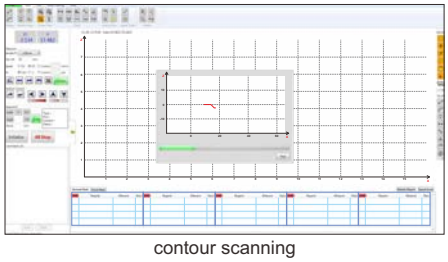
**6875-CLAMP**

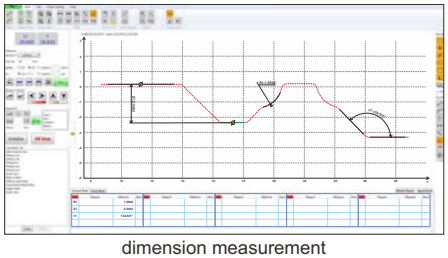
# SURFACE PROFILE MEASURING MACHINE
# CODE SPM-1000

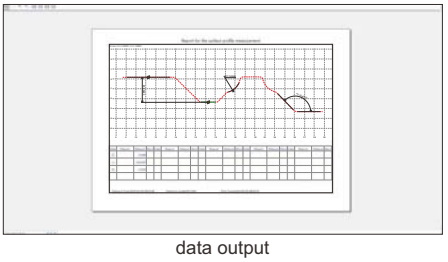
- Software is included, for surface profile measurement and data output
- Probe compensation
- Output as format txt, csv, etc.
- Large range design, the leverage ratio is 1:2.2, maintain the original accuracy of the sensor
- The overall structure of the Z-axis sensor does not have any elastic components, ensuring the measuring force is constant regardless the position of probe



calibration

VIDEO

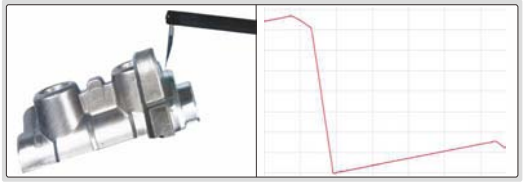

contour scanning


dimension measurement


data output

**SPECIFICATION**

| | |
|---|---|
| X axis measuring range | 140mm |
| X axis resolution | 0.2μm |
| X axis straightness | 0.8μm/100mm |
| X axis moving speed | 0.1~10mm/s |
| Z axis measuring range | ±20mm |
| Z axis resolution | 0.05μm |
| Z axis moving speed | 0.5~10mm/s |
| Linear accuracy | ±(1.5+\|0.2H\|)μm, H is measuring height in mm |
| Angular measuring accuracy | ±2′ |
| Arc measuring accuracy | ±(2+R/8)μm, R is 2~10mm standard ball |
| Radius of probe tip | 25μm |
| Moving direction | backward |
| Measuring force | 6.86~9.8mN |
| Measuring unit | mm/inch |
| Traceable angle | 72° (upward), 87° (downward) |
| Drive mode | motor |
| Travel of Z axis | 430mm |
| Dimension (L×W×H) | 1200×700×1780mm |
| Power supply | 220±5%V, 50Hz |
| Weight | 320kg |




standard balls (included)


standard blocks (included)

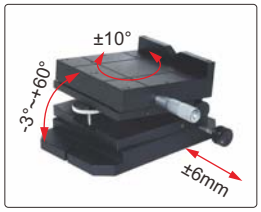

standard shaft (included)

To be continued

Continued from previous page

## STANDARD DELIVERY

| | |
|---|---|
| **Main unit** | 1 pc |
| **Standard probe and arm** | 1 pc of each |
| **Standard block** | 2 pcs |
| **Standard ball** | 2 pcs |
| **Standard shaft** | 1 pc |
| **Stage** | 1 pc |
| **Vise** | 1 pc |
| **Measuring arm** | 1 pc |
| **Computer** | 1 pc |
| **Measurement software** | 1 pc |
| **Printer** | 1 pc |
| **Installation tools** | 1 set |



stage (included)


vise (included)

## OPTIONAL ACCESSORY

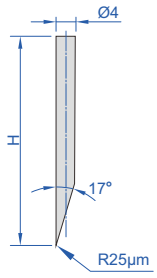
| | |
|---|---|
| **Probe** | refer to details |



## SPECIFICATION OF PROFILE PROBES

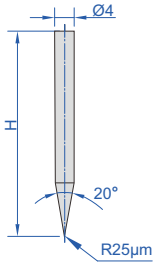
Unit: mm

### chisel stylus



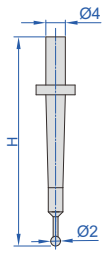

code **SPM-1000-T01** (H=32mm, included)
code **SPM-1000-T02** (H=48mm, **optional**)
code **SPM-1000-T03** (H=68mm, **optional**)

### cone stylus



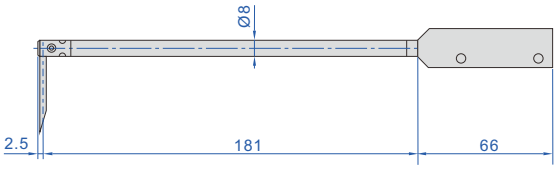

code **SPM-1000-Z01** (H=32mm, **optional**)
code **SPM-1000-Z02** (H=48mm, **optional**)
code **SPM-1000-Z03** (H=68mm, **optional**)

### ball stylus

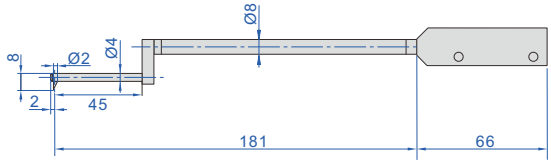



code **SPM-1000-R01** (H=32mm, **optional**)
code **SPM-1000-R02** (H=48mm, **optional**)
code **SPM-1000-R03** (H=68mm, **optional**)

### standard arm, code SPM-1000-SP (included), stylus is not included

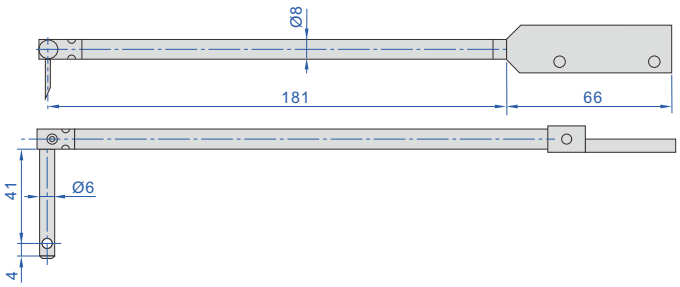



### probe for small holes, code SPM-1000-SBP (optional), stylus is included



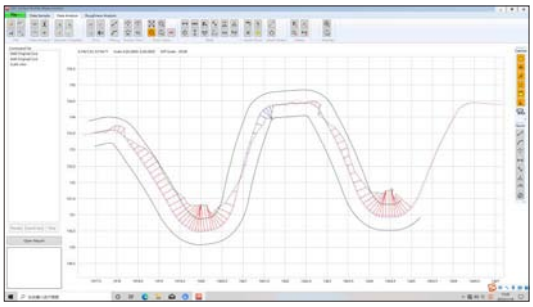

measure the contour of holes with diameter>Ø8mm

### transverse probe, code SPM-1000-LP (optional), stylus is included




measure the contour of holes in radial direction

# ROUGHNESS AND PROFILE MEASURING MACHINE
# CODE SPM-2000



CAD profile comparison


- Software is included, for measurement and data output
- Profile sensor with low noise
- Wide range roughness sensor without skid
- Meet ISO1997, ISO1984, BS1988, DIN1990, ASME1995, JIS1982, JIS1994 standards
- 65 roughness parameters

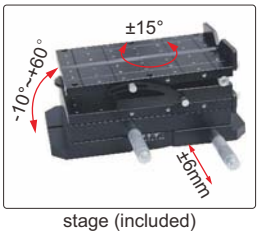


## PROFILE MEASUREMENT SPECIFICATION

| | |
|---|---|
| X axis measuring range | 140mm |
| X axis resolution | 0.2μm |
| X axis traverse speed | 0.05~15mm/s |
| Z axis measuring range | 50mm |
| Z axis resolution | 0.05μm |
| Z axis traverse speed | 0.2~15mm/s |
| Straightness | 0.5μm/100mm |
| Linear accuracy | ±(0.8+\|0.15H\|)μm, H is measuring height in mm |
| Angular measuring accuracy | ±1′ |
| Arc measuring accuracy | ±(1.5+R/12)μm, R is 2~10mm standard ball |
| Measuring unit | μm/μin |
| Measuring speed | 0.05~1mm/s |
| Traceable angle | 72° (upward), 88° (downward) |
| Travel of Z axis | 430mm |
| Power supply | 220±5%V, 50Hz |
| Dimension (L×W×H) | 1400×850×1780mm |
| Weight | 350kg |

## ROUGHNESS MEASUREMENT SPECIFICATION

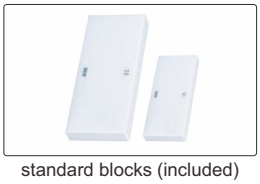
| | |
|---|---|
| Roughness parameters | Ra, Rp, Rv, Rz, Rz (JIS), R3z, Rz (DIN), Rzj, Rmax, Rc, Rt, Rq, Rsk, Rku, Rsm, Rs , PΔq, Rk, Rpk, Rvk, Mr1, Mr2, Rmr |
| Waviness parameters | Wa, Wt, Wp, Wv, Wz, Wq, Wsm, Wsk, Wku, Wmr |
| Primary profile parameters | Pa, Pt, Pp, Pv, Pz, Pq, Psm, Psk, Pku, Pmr |
| Measuring range | ±420μm |
| Resolution | 0.001μm |
| Linear accuracy | ≤±(5nm+2.8%) |
| Probe radius/angle | 5μm/90° |
| Cut off | 0.025/0.08/0.25/0.8/2.5/8mm |
| Number of cut-offs | 2~7 |
| Measuring unit | μm |
| Measuring speed | 0.05~0.25mm/s |




stage (included)

vise (included)

standard shaft (included)



standard blocks (included)

standard balls (included)

To be continued

Continued from previous page

## STANDARD DELIVERY

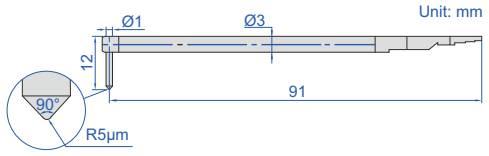
| | |
|---|---|
| **Main unit** | 1 pc |
| **Calibration block** | 1 set |
| **Roughness probe arm** | 1 pc |
| **Roughness stylus** | 1 pc |
| **Profile probe arm** | 1 pc |
| **Profile chisel stylus** | 1 pc |
| **Stage** | 1 set |
| **Vise** | 1 set |
| **Computer** | 1 pc |
| **Software** | 1 set |
| **Printer** | 1 pc |
| **Installation tools** | 1 set |

## OPTIONAL ACCESSORY

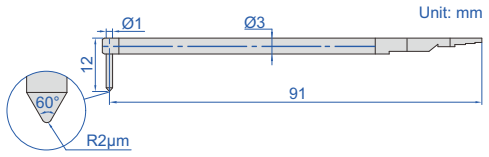
| | |
|---|---|
| **Probe** | refer to details |

## SPECIFICATION OF ROUGHNESS PROBE

**standard probe, code SPM-2000-P** (included), **stylus is included**




**small roughness probe, code SPM-2000-P1 (optional), stylus is included**

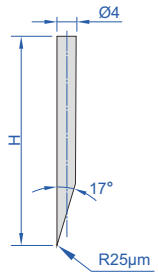



31

## SPECIFICATION OF PROFILE PROBES

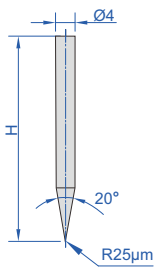
Unit: mm

**chisel stylus**



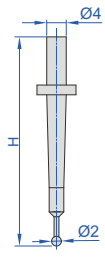

code **SPM-1000-T01** (H=32mm, included)
code **SPM-1000-T02** (H=48mm, **optional**)
code **SPM-1000-T03** (H=68mm, **optional**)

**cone stylus**



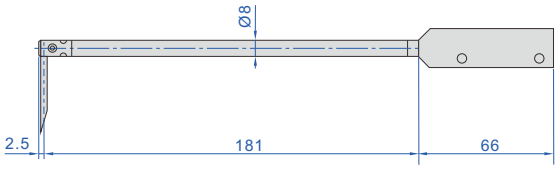

code **SPM-1000-Z01** (H=32mm, **optional**)
code **SPM-1000-Z02** (H=48mm, **optional**)
code **SPM-1000-Z03** (H=68mm, **optional**)

**ball stylus**

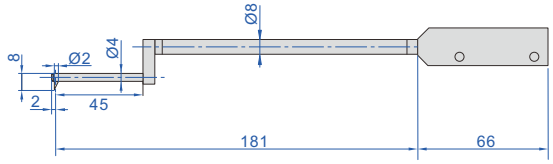



code **SPM-1000-R01** (H=32mm, **optional**)
code **SPM-1000-R02** (H=48mm, **optional**)
code **SPM-1000-R03** (H=68mm, **optional**)

**standard arm, code SPM-1000-SP** (included), **stylus is not included**

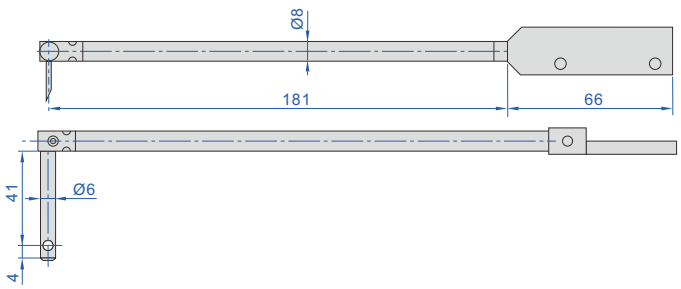



**probe for small holes, code SPM-1000-SBP (optional), stylus is included**




measure the contour of holes with diameter>Ø8mm

**transverse probe, code SPM-1000-LP (optional), stylus is included**

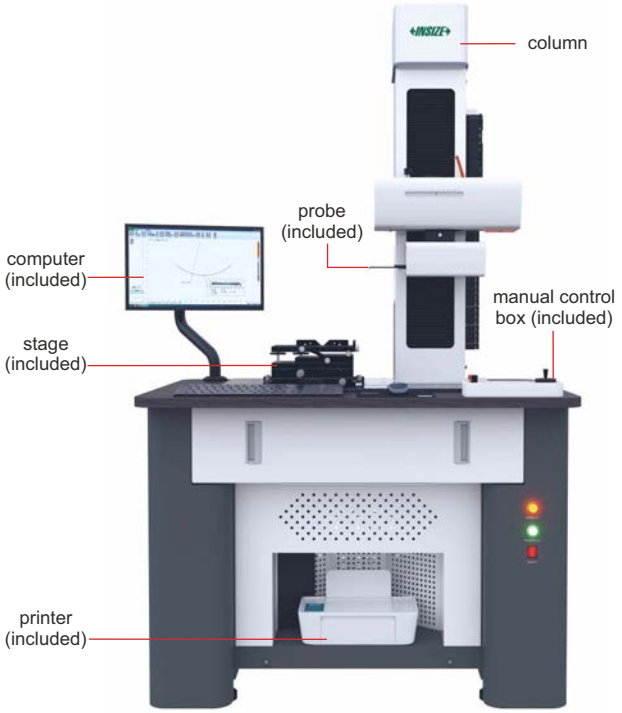



measure the contour of holes in radial direction

# ROUGHNESS AND PROFILE MEASURING MACHINE (ONE PROBE TYPE)
# CODE SPM-5000

VIDEO

- Roughness, waviness, and profile analysis can be achieved with just one measurement
- Can measure all roughness and waviness parameters
- Can be used for automatic measurement system
- Air flotation and shockproof system to reduce measurement deviation
- Free to edit measurement reports



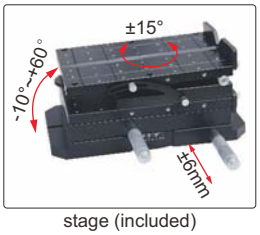



## PROFILE MEASUREMENT SPECIFICATION

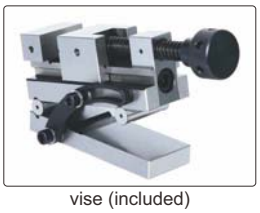
| | |
|---|---|
| X axis measuring range | 100mm |
| X axis resolution | 0.2μm |
| X axis traverse speed | 0.05~50mm/s |
| X axis linear accuracy | ±(0.8+\|0.015L\|)μm, L is measuring length in mm |
| Z axis measuring range | ±10mm |
| Z axis resolution | 0.01μm |
| Z axis traverse speed | 0.2~50mm/s |
| Z axis linear accuracy | ±(0.5+\|0.08H\|)μm, H is measuring height in mm |
| Angular measuring accuracy | ±1′ |
| Arc measuring accuracy | ±(1+R/12)μm, R is 2~10mm standard ball |
| Straightness | 0.3μm/100mm, |
| Measuring unit | mm/inch |
| Travel of Z axis | 320mm |
| Power supply | 220±5%V, 50Hz |
| Dimension (L×W×H) | 1700×820×1900mm |
| Weight | 500kg |

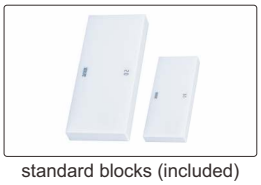

standard balls (included)


standard shaft (included)



stage (included)


vise (included)


standard blocks (included)

## ROUGHNESS MEASUREMENT SPECIFICATION

| | |
|---|---|
| Roughness parameters | Ra, Ramax, Ramin, Rasd, Rp, Rpmax, Rpmin, Rpsd, Rv, Rvmax, Rvmin, Rvsd, Rz, Rzmax, Rzmin, Rzsd, R3z, Rc, Rcmax, Rcmin, Rcsd, Rt, Rq, Rqmax, Rqmin, Rdsd, Rsk, Rskmax, Rskmin, Rsksd, Rku, Rkumax, Rkumin, Rkusd, Rsm, Rsmmax, Rsmmin, Rsmsd, Rs, RΔa, RΔamax, RΔamin, RΔasd, RΔq, RΔqmax, RΔqmin, RΔqsd, Rk, Rpk, Rvk, Mr1, Mr2, Rλa, Rλamax, Rλamin, Rλasd, Rλq, Rλqmax, Rλqmin, Rλqsd, Rδc, Rpc, Rmr |
| Waviness parameters | Wa, Wamax, Wamin, Wasd, Wsa, Wca, Wa08, Wc, Wcmax, Wcmin, Wcsd, Wt, Wz, Wzmax, Wzmin, Wzsd, Wp, Wpmax, Wv, Wvmax, Wvmin, Wvsd, Wq, Wqmax, Wqmin, Wqsd, Wsm, Wsmmax, Wsmmin, Wsmsd, Wsk, Wskmax, Wskmin, Wsksd, Wku, Wkumax, Wkumin, Wkusd, WΔq, WΔqmax, WΔqmin, WΔqsd, Wδc, Wmr, Wpsd, Wpmin |
| Original profile parameters | Pa, Pt, Pp, Pc, Pv, Pz, Pq, Psm, Psk, Pku, RzJ, Rpq, Rvq, Rmq, Pmr, PΔq, Avh, Hmax, Hmin, Area, Pδc, Tilta |
| Motif parameters | Ncrx, R, Rx, AR, Nr, Cpm, Sr, Sar, W, Wx, Aw, Wte, Nw, Sw, Saw |
| Measuring range | ±10mm |
| Resolution | 0.01μm |
| Linear accuracy | ≤±(4nm+2.5%) |
| Probe radius/angle | 5μm/90° |
| Cut off | 0.025/0.08/0.25/0.8/2.5/8mm |
| Number of cut-offs | 2~7 |
| Measuring unit | μm |
| Measuring speed | 0.1~2mm/s |

To be continued

Continued from previous page

## STANDARD DELIVERY

| | |
|---|---|
| **Main unit (including workbench, controller, driver, sensor)** | 1 pc |
| **Calibration block** | 1 set |
| **Probe arm** | 1 pc |
| **Stylus** | 1 pc |
| **Air flotation and shockproof system** | 1 set |
| **Stage** | 1 set |
| **Vise** | 1 set |
| **Computer** | 1 pc |
| **Software** | 1 set |
| **Printer** | 1 pc |
| **Installation tools** | 1 set |

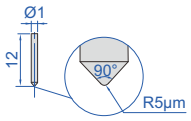
## OPTIONAL ACCESSORY

| | |
|---|---|
| **Probe** | refer to details |

## SPECIFICATION OF STANDARD PROBE

Unit: mm

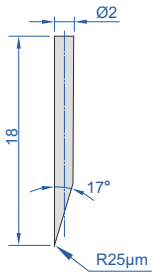
**standard stylus , code SPM-5000-R1** (included)




## SPECIFICATION OF PROFILE PROBES

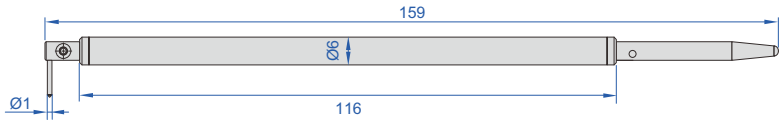
Unit: mm

**chisel stylus**

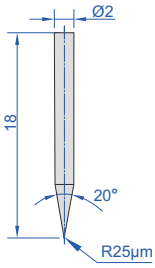



code **SPM-5000-T01** (**optional**)

**standard arm, code SPM-5000-P1** (included), **stylus is not included**

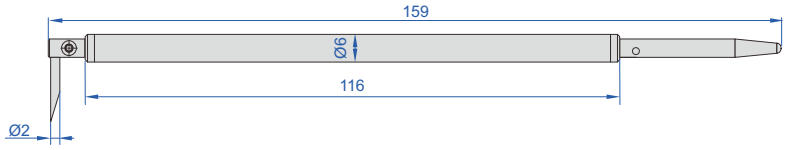



**cone stylus**

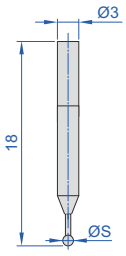



code **SPM-5000-Z01** (**optional**)

**profile arm, code SPM-5000-P2** (**optional**), **stylus is not included**

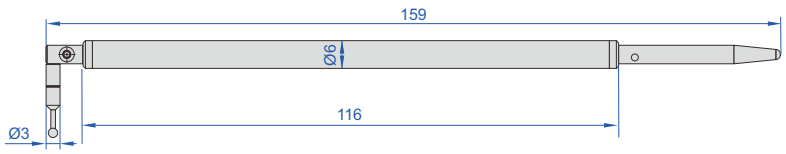



**ball stylus**




code **SPM-5000-S01** (ØS=1mm, **optional**)
code **SPM-5000-S02** (ØS=2mm, **optional**)

**profile arm, code SPM-5000-P3** (**optional**), **stylus is not included**



# BIDIRECTIONAL ROUGHNESS AND PROFILE MEASURING MACHINE
# CODE SPM-6000

VIDEO

- Intelligent tracking control system, real-time scanning measurement
- Bidirectional probe measurement
- Constant measuring force
- Can be used to measure absolute diameters
- Real time variable speed measurement, high-speed measurement can also ensure accuracy
- The trajectory of the probe is vertical, with more realistic Z-axis coordinate point and large range
- The profile data point cloud spacing is consisten, enabling high accuracy measurement



### PROFILE MEASUREMENT SPECIFICATION

| | |
|---|---|
| X axis measuring range | 325mm |
| X axis resolution | 0.01μm |
| X axis traverse speed | 0.1~10mm/s |
| X axis straightness | 0.5μm/100mm |
| X axis linear accuracy | ±(1.5+\|0.15L\|)μm, L is measuring length in mm |
| X axis measuring speed | 0.1~2mm/s |
| Z axis measuring range | 325mm |
| Z axis resolution | 0.05μm |
| Z axis traverse speed | 0.1~10mm/s |
| Z axis straightness | 0.5μm/100mm |
| Z axis linear accuracy | ±(1.5+\|0.15H\|)μm, H is measuring height in mm |
| Z axis measuring speed | 0.1~2mm/s |
| Angular measuring accuracy | ±2′ |
| Arc measuring accuracy | ±(2+R/8)μm |
| Measuring unit | mm/inch |
| Traceable angle | 72° (upward), 89° (downward) |
| Power supply | 220±5%V, 50Hz |
| Dimension (L×W×H) | 1700×820×1900mm |
| Weight | 500kg |

### ROUGHNESS MEASUREMENT SPECIFICATION

| | |
|---|---|
| Roughness parameters | Ra, Ramax, Ramin, Rasd, Rp, Rpmax, Rpmin, Rpsd, Rv, Rvmax, Rvmin, Rvsd, Rz, Rzmax, Rzmin, Rzsd, R3z, Rc, Rcmax, Rcmin, Rcsd, Rt, Rq, Rqmax, Rqmin, Rdsd, Rsk, Rskmax, Rskmin, Rsksd, Rku, Rkumax, Rkumin, Rkusd, Rsm, Rsmmax,Rsmmin, Rsmsd, Rs, RΔa, RΔamax, RΔamin, RΔasd, RΔq, RΔqmax, RΔqmin, RΔqsd, Rk, Rpk, Rvk, Mr1, Mr2, Rλa,Rλamax, Rλamin, Rλasd, Rλq, Rλqmax, Rλqmin, Rλqsd, Rδc, Rpc, Rmr |
| Waviness parameters | Wa, Wamax, Wamin, Wasd, Wsa, Wca, Wa08, Wc, Wcmax, Wcmin, Wcsd, Wt, Wz, Wzmax, Wzmin, Wzsd, Wp, Wpmax, Wv, Wvmax, Wvmin, Wvsd, Wq, Wqmax, Wqmin, Wqsd, Wsm, Wsmmax, Wsmmin, Wsmsd, Wsk, Wskmax, Wskmin, Wsksd, Wku, Wkumax, Wkumin, Wkusd, WΔq, WΔqmax, WΔqmin, WΔqsd, Wδc, Wmr, Wpsd, Wpmin |
| Original profile parameters | Pa, Pt, Pp, Pc, Pv, Pz, Pq, Psm, Psk, Pku, RzJ, Rpq, Rvq, Rmq, Pmr, PΔq, Avh, Hmax, Hmin, Area, Pδc, Tilta |
| Motif parameters | Ncrx, R, Rx, AR, Nr, Cpm, Sr, Sar, W, Wx, Aw, Wte, Nw, Sw, Saw |
| Resolution | 0.01μm |
| Linear accuracy | ≤±(20nm+5%) |
| Probe radius/angle | 5μm/90° |
| Cut off | 0.025/0.08/0.25/0.8/2.5/8mm |
| Number of cut-offs | 2~7 |
| Measuring unit | μm |
| Measuring speed | 0.1~2mm/s |

To be continued

Continued from previous page

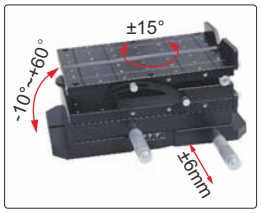

standard balls (included)


standard shaft (included)

**STANDARD DELIVERY**

| | |
|---|---|
| **Main unit (including workbench, controller, driver, sensor)** | 1 set |
| **Calibration block** | 1 set |
| **Profile arm** | 1 pc |
| **Bidirectional profile stylus** | 1 pc |
| **Roughness arm** | 1 pc |
| **Unidirectional roughness stylus** | 1 pc |
| **Stage** | 1 pc |
| **Vise** | 1 pc |
| **Computer** | 1 pc |
| **Software** | 1 set |
| **Printer** | 1 pc |
| **Installation tools** | 1 set |


vise (included)

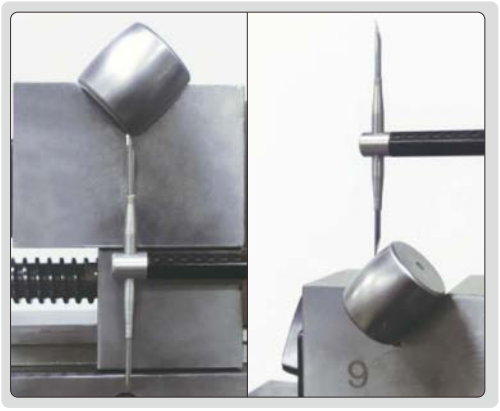


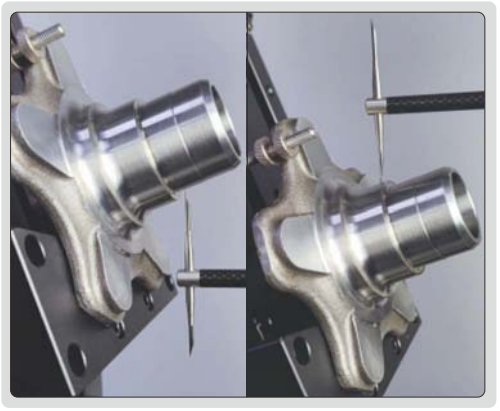
stage (included)

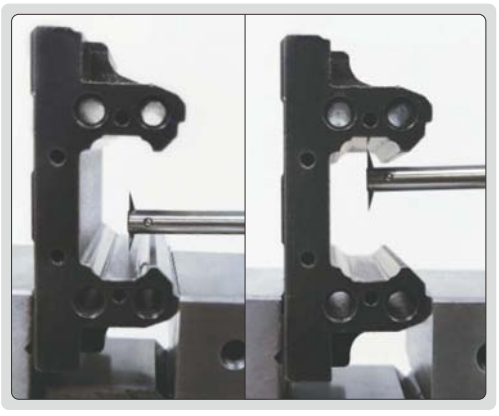

standard blocks (included)

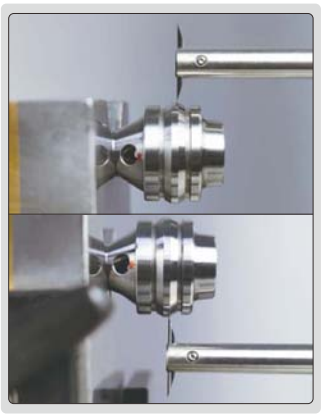


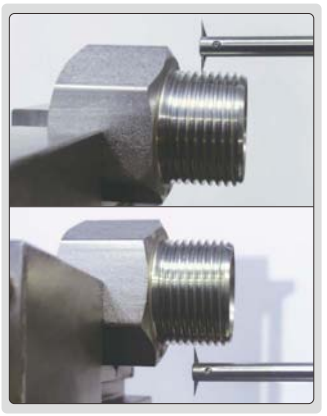
**APPLICATION EXAMPLES**


roller bearing


hub bearing


slider


valve spool


thread

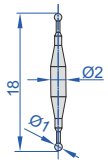
To be continued

Continued from previous page

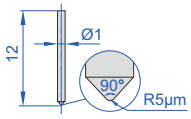
## SPECIFICATION OF PROBES

Unit: mm

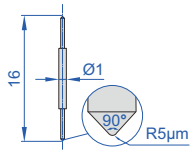
**bidirectional spherical stylus**
code **SPM-6000-R01 (optional)**



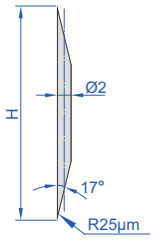

**unidirectional roughness stylus**
code **SPM-6000-S01** (included)



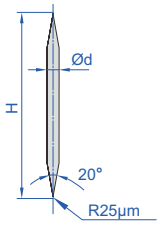

**bidirectional roughness stylus**
code **SPM-6000-S02 (optional)**



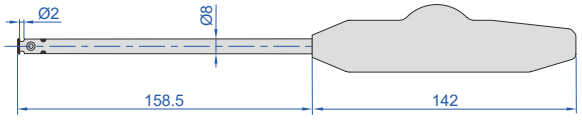

**bidirectional chisel stylus**
code **SPM-6000-T01** (H=16mm, included)
code **SPM-6000-T02** (H=24mm, **optional**)
code **SPM-6000-T03** (H=30mm, **optional**)



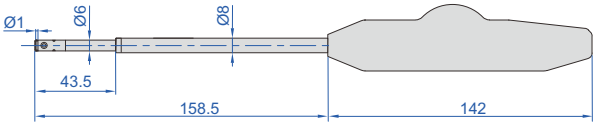

**bidirectional cone stylus**
code **SPM-6000-Z01** (H=12mm, Ød=2mm, **optional**)
code **SPM-6000-Z02** (H=24mm, Ød=2mm, **optional**)
code **SPM-6000-Z03** (H=10mm, Ød=1mm, **optional**)




**profile arm,**
code **SPM-6000-ARM1**
(included)




**roughness arm,**
code **SPM-6000-ARM2**
(included)

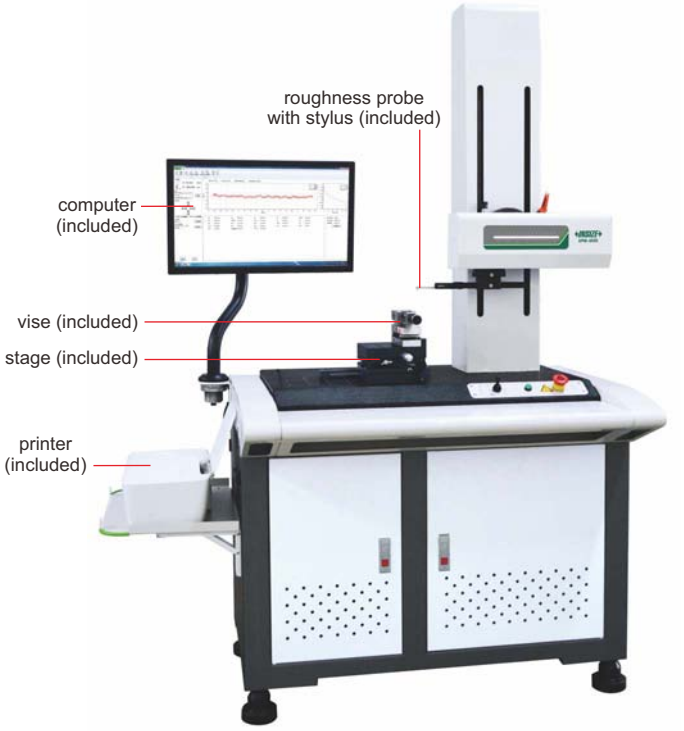





# ROUGHNESS MEASURING MACHINE CODE SPM-4000

VIDEO

- Skidless probe
- Hundreds of parameters can be evaluated, such as roughness profile, waviness profile, primary profile, etc.
- Software is included, for measurement and data output

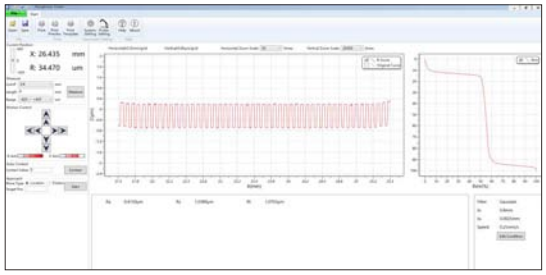



## STANDARD DELIVERY

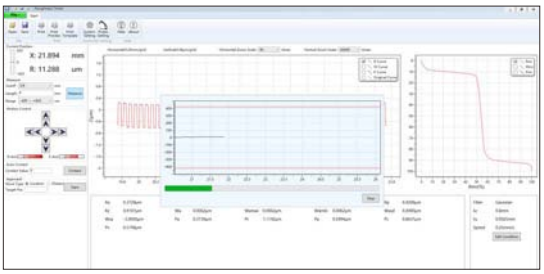
| | |
|---|---|
| Main unit | 1 pc |
| Roughness probe (with stylus) | 1 pc |
| Calibration block | 1 pc |
| Stage | 1 pc |
| Vise | 1 pc |
| Computer | 1 pc |
| Software | 1 set |
| Printer | 1 pc |
| Installation tools | 1 set |

To be continued

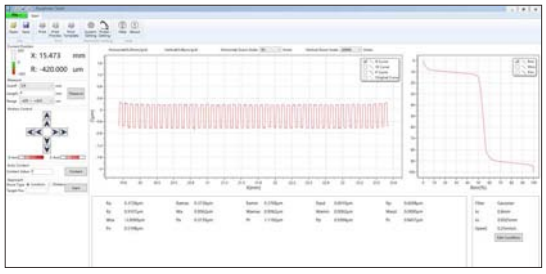
Continued from previous page



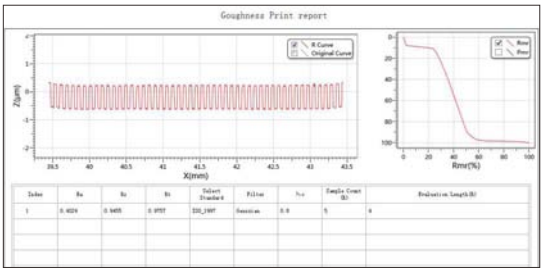
calibration



measurement



parameter measurement




data output

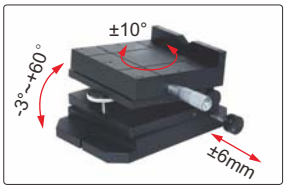


## SPECIFICATION

| | |
|---|---|
| **Roughness parameters** | Ra, Rp, Rv, Rz, Rz (JIS), R3z, Rz (DIN), Rzj, Rmax, Rc, Rt, Rq, Rsk, Rku, Rsm, Rs, RΔq, Rk, Rpk, Rvk, Mr1, Mr2, Rmr |
| **Waviness parameters** | Wa, Wt, Wp, Wv, Wz, Wq, Wsm, Wsk, Wku, Wmr |
| **Primary profile parameters** | Pa, Pt, Pp, Pv, Pz, Pq, Psm, Psk, Pku, Pmr |
| **X axis measuring range** | 100mm |
| **X axis resolution** | 0.2μm |
| **X axis straightness** | 0.5μm/100mm |
| **X axis moving speed** | 0.1~10mm/s |
| **Z axis measuring range** | ±420μm |
| **Z axis resolution** | 0.001μm |
| **Z axis linear accuracy** | ≤±(7nm+3.5%) |
| **Z axis moving speed** | 0.5~10mm/s |
| **Z axis repeatability** | 1δ≤2nm |
| **Radius/angle of stylus** | 5μm/90° |
| **Cut off length** | 0.025/0.08/0.25/0.8/2.5/8mm |
| **Number of cut-offs** | 2~7 |
| **Measuring unit** | μm |
| **Drive mode** | motor |
| **Travel of Z axis** | 320mm |
| **Dimension (LxWxH)** | 1200×700×1780mm |
| **Power supply** | 220±5%V, 50Hz |
| **Weight** | 320kg |

calibration block (included)

vise (included)




stage (included)

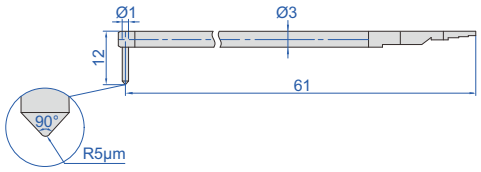
## OPTIONAL ACCESSORY

| | |
|---|---|
| **Small roughness probe** | refer to details |

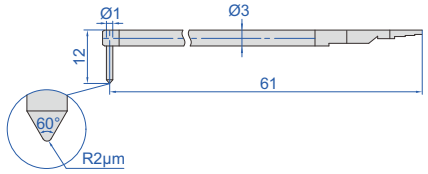
## SPECIFICATION OF ROUGHNESS PROBE

Unit: mm

**standard probe, code SPM-4000-P** (included)




**small roughness probe, code SPM-4000-P1 (optional)**



# ROUGHNESS TESTER (COMPACT TYPE)
# CODE ISR-C200

BLUETOOTH | DATA OUTPUT | PROBE CAN BE CHANGED

INSIZE PLUS
MADE IN EUROPE


VIDEO

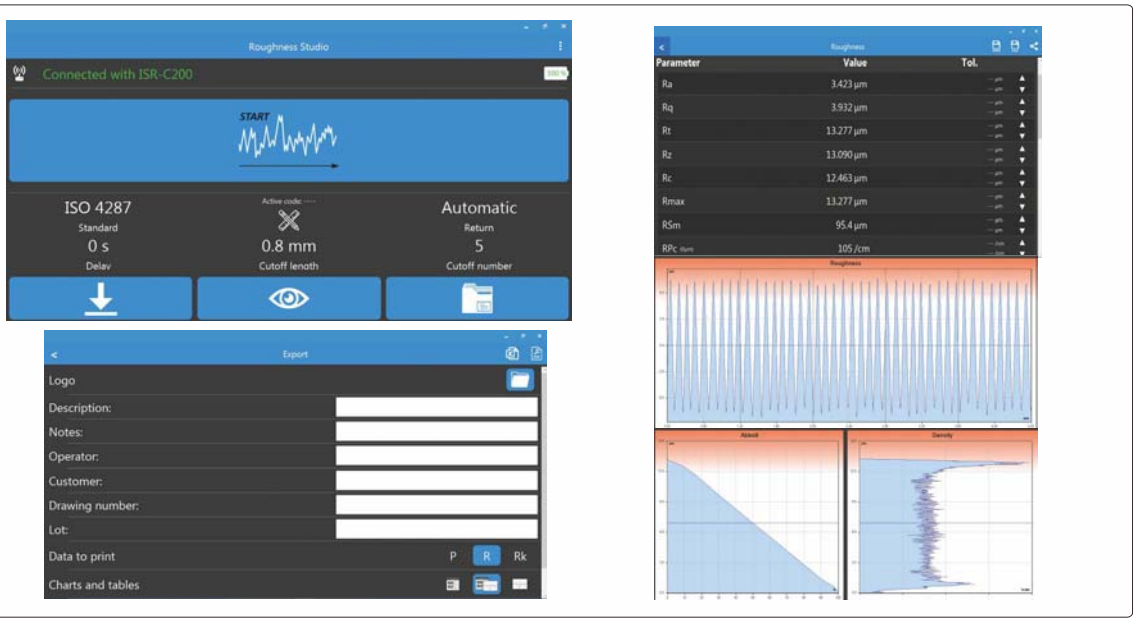
- The product is light, reliable and durable
- 13 roughness parameters
- Can be operated by mobile phones (only Android system) or computers
- Measurement results can be exported in Excel and PDF format
- Memory of 18000 measurements with only parameters or 30 measurements with graph
- Automatic power off



probe can be set at 90°,
for transverse measurement

probe cover (included)

adjustable stand (included)




measuring software (included), connect to mobile phones via bluetooth (only Android system) to control roughness tester, or connect to computers via USB cable or bluetooth to control roughness tester, display roughness values and curve, results can be exported in Excel and PDF format

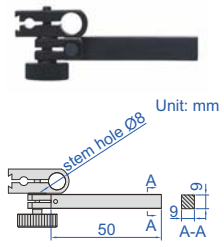
To be continued

Continued from pevious page

magnetic stand adapter (included)


can be installed on magnetic stands

dial test indicator holder (**optional**)




can be installed on height gages

## SPECIFICATION

| | | |
|---|---|---|
| **Parameters** | | Ra, Rq, Rt, Rz, Rc, Rmax, RSm, Rpc, Pt, R, AR, Rx, Ppc |
| **Range** | **X axis** | 17.5mm |
| | **Z axis** | 250μm |
| **Accuracy** | | ±(5%+0.025)μm |
| **Resolution (Ra)** | | 0.001μm |
| **Probe** | **type** | inductive |
| | **stylus radius/angle** | 2μm/90° |
| | **stylus material** | diamond |
| **Measuring unit** | | μm/μin |
| **Cut off** | | 0.25/0.8/2.5mm |
| **Number of cut-off** | | 1~5 |
| **Moving speed** | | 0.5mm/s, 1mm/s |
| **Memory** | | 18000 measurements with only parameters, 30 measurements with graph |
| **Power** | | built-in rechargeable battery |
| **Dimension (L×W×H)** | | 160×34×33.5mm |
| **Weight** | | 200g |

## STANDARD DELIVERY

| | |
|---|---|
| **Main unit** | 1 pc |
| **Standard probe** | 1 pc |
| **Calibration block** | 1 pc |
| **Adjustable stand** | 1 pc |
| **Probe cover** | 1 pc |
| **Magnetic stand adapter** | 1 pc |
| **Software and USB cable** | 1 pc |
| **AC/DC adapter** | 1 pc |

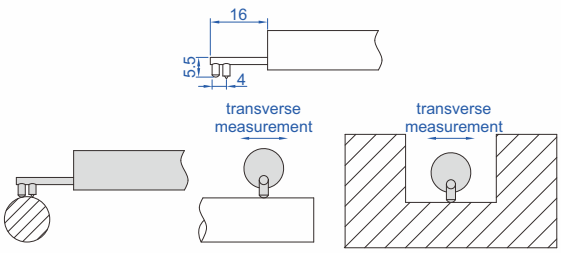
## OPTIONAL ACCESSORY

| | |
|---|---|
| **Dial test indicator holder** | **6293-6** |
| **Groove probe** | **ISR-C200-SB21** |
| **Small hole probe** | **ISR-C200-SB31** |
| **Deep groove probe** | **ISR-C200-SB121** |
| **Extension rod** | **ISR-C200-ER50** |
| **Extension rod** | **ISR-C200-ER100** |

## SPECIFICATION OF PROBES

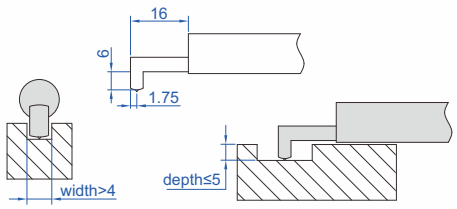
Unit: mm

**standard probe** (included)



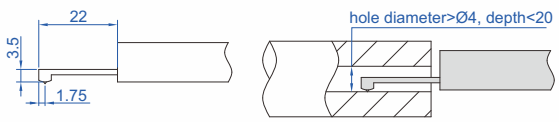

measurement for plane surfaces, also transverse measurement for plane surfaces, cylinders and grooves

**groove probe (optional), code ISR-C200-SB21**



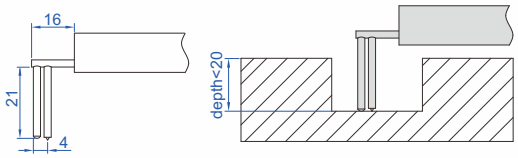

measure plane surfaces and grooves

**small hole probe (optional), code ISR-C200-SB31**



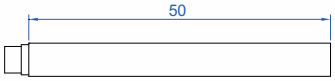

measure holes with diameter>Ø4mm and depth<20mm

**deep groove probe (optional), code ISR-C200-SB121**



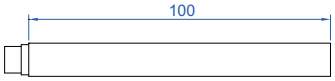

measure grooves with depth<20mm

**extension rod (optional), code ISR-C200-ER50**




for long holes

**extension rod (optional), code ISR-C200-ER100**




for long holes

# ROUGHNESS TESTER
# CODE ISR-C002

BLUETOOTH | DATA OUTPUT | CAN BE OPERATED BY MOBILE PHONES OR COMPUTERS

VIDEO

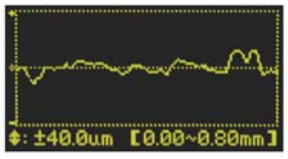
- Roughness tester can be operated by mobile phones (only Android system) or computers
- Data can be sent to Excel by connecting to computers via bluetooth or SPC cable
- Support bluetooth printer
- 21 roughness parameters
- Display roughness value, profile and curve
- Memory of maximum 100 results
- Automatic power off


software flash disk (included)

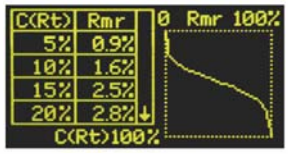


screen display


measurement result




roughness profile




Rmr analysis

probe cover (included)

put the small workpieces directly under the probe for measurement

adjustable stand (included)

operate roughness tester by mobile phones

connect to mobile phones via bluetooth (only Android system), display roughness values, profile and curve

operate roughness tester by computers

connect to computers via USB cable (software is included), display roughness values, profile and curve

data can be sent to Excel by connecting to computer via bluetooth or SPC cable

**via bluetooth**

receiver (**optional**)

**via SPC cable**

SPC cable (**optional**)

receiver (**optional**)

bluetooth printer (**optional**)

To be continued

Continued from previous page

light duty test stand (**optional**)

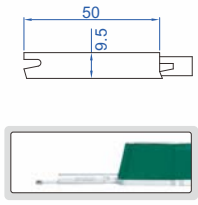
the maximum workpiece height is 220mm

heavy duty test stand (**optional**)

the maximum workpiece height is 310mm

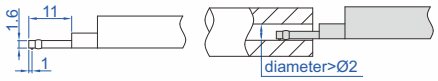
Unit: mm

**extension rod (optional), code ISR-C002-ER**

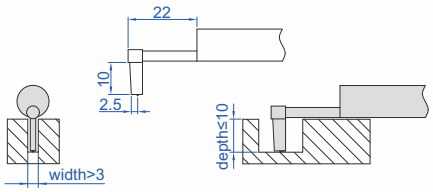



**transverse rod (optional), code ISR-C002-TR**

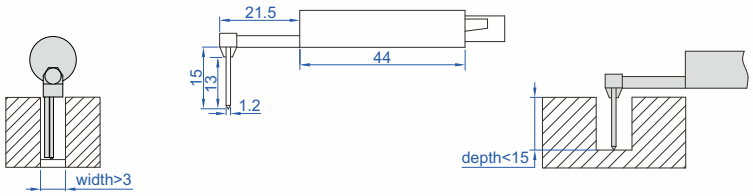
**tiny hole probe (optional), code ISR-C002-SBP**




**deep groove probe (optional), code ISR-C002-DGP**




**deep groove probe (optional), code ISR-C002-DGP1**




## SPECIFICATION

| | | |
|---|---|---|
| **Parameters** | | Ra, Rz, Rq, Rv, Rp, RS, R3z, R3y, Rt, Rz (JIS), Rk, Rku, Rsm, Rpc, Rpk, Rvk, Rsk, Mr1, Mr2, Ry (JIS), Rmax |
| **Range** | | 320μm (-160μm~160μm) |
| **Accuracy** | | ±10% |
| **Resolution (Ra)** | | 0.001μm |
| **Probe** | **type** | inductive |
| | **stylus radius/angle** | 5μm/90° |
| | **stylus material** | diamond |
| **Measuring force** | | 4mN |
| **Measuring unit** | | μm/μin |
| **Cut off** | | 0.25/0.8/2.5mm |
| **Number of cut-off** | | 1 to 5 |
| **Moving speed** | | 0.5mm/s, 1mm/s |
| **Memory** | | 100 measurement results |
| **Output** | | bluetooth and USB |
| **Power** | | built-in rechargeable battery |
| **Dimension (L×W×H)** | | 141×55×40mm |
| **Weight** | | 400g |

## STANDARD DELIVERY

| | |
|---|---|
| **Main unit** | 1 pc |
| **Standard probe** | 1 pc |
| **Calibration block and support** | 1 pc of each |
| **Adjustable stand** | 1 pc |
| **Probe cover** | 1 pc |
| **Software and USB cable** | 1 pc |
| **AC/DC adapter** | 1 pc |

## OPTIONAL ACCESSORY

| | |
|---|---|
| **Extension rod** | **ISR-C002-ER** |
| **Transverse rod** | **ISR-C002-TR** |
| **Tiny hole probe** | **ISR-C002-SBP** |
| **Deep groove probe** | **ISR-C002-DGP** |
| **Deep groove probe** | **ISR-C002-DGP1*** |
| **Light duty test stand** | **ISR-C002-STAND1** |
| **Heavy duty test stand** | **ISR-C002-STAND** |
| **Bluetooth printer** | **ISR-C002-PRINTER** |
| **Receiver** | **ISR-C300-RECEIVER** |
| **SPC cable** | **ISR-C300-SPC** |

*Need to be delivered with roughness tester **ISR-C002**

# ROUGHNESS TESTER (SEPARABLE TYPE)
# CODE ISR-C300

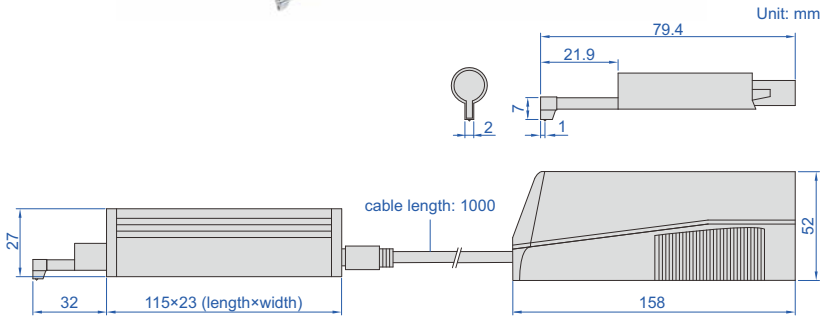
BLUETOOTH | TOUCH SCREEN | CAN BE OPERATED BY COMPUTERS OR MOBILE PHONES | DATA OUTPUT

POPULAR MODEL

- Roughness tester can be operated by mobile phones (only Android system) or computers
- Data can be sent to Excel by connecting to computers via bluetooth or SPC cable
- Support bluetooth printer
- 22 roughness parameters
- Meet ISO, DIN, ANSI, JIS standards
- Display roughness values, profile and curve
- Memory of maximum 100 data and waveform
- Built-in lithium battery, working time more than 50 hours
- Touch screen
- Automatic power off

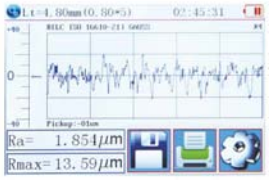


Unit: mm




roughness tester screen display


measurement result




roughness profile


Rmr analysis

VIDEO

software flash disk (included)

probe and main unit can be combined together

operate roughness tester by mobile phones

connect to mobile phones via bluetooth (only Android system), display roughness values, profile and curve

operate roughness tester by computers

connect to computers via USB cable (software is included), display roughness values, profile and curve

To be continued

Continued from pevious page

data can be sent to Excel by connecting to computer via bluetooth or SPC cable

**via bluetooth**

receiver (**optional**)

**via SPC cable**

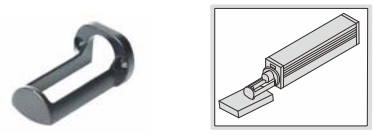
SPC cable (**optional**)

receiver (**optional**)

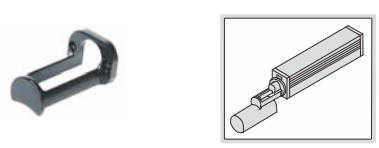
bluetooth printer (**optional**)

probe support (**optional**)

support for flat surface



support for cylindrical surface



adjustable stand (included)

height is adjustable (40mm)

magnetic stand adapter (included)

Ø8mm

can be installed on magnetic stands

height gage adapter (**optional**)

9×9mm

can be installed on height gages

**NOTE**: Please check whether the adapter can fit your height gages. When using **INSIZE** height gages, please use the dial test indicator holder of height gages

light duty test stand (**optional**)

the maximum workpiece height is 220mm

heavy duty test stand (**optional**)

the maximum workpiece height is 310mm

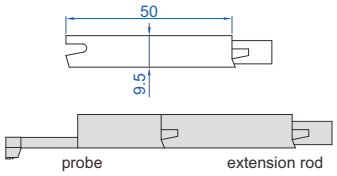
To be continued

Continued from pevious page

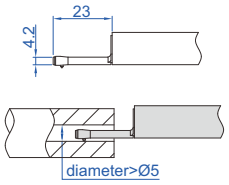
optional probes

Unit: mm

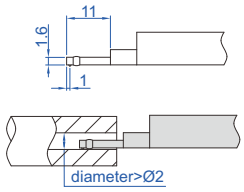
**extension rod (optional), code ISR-C002-ER**



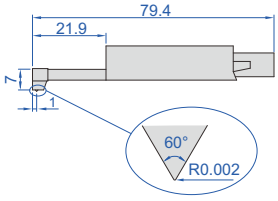

**small hole probe (optional), code ISR-C002-PROBE**



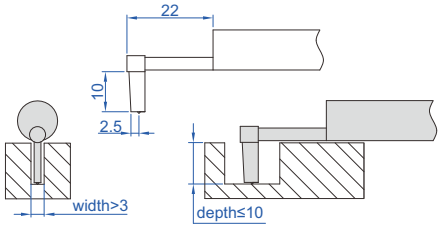

**tiny hole probe (optional), code ISR-C002-SBP**



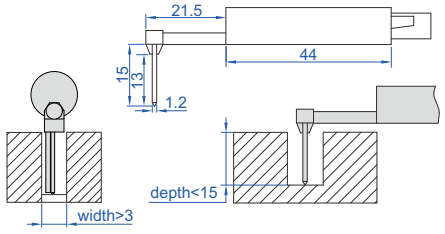

**2μm/60° probe (optional), code ISR-C300-P2UM (When Ra<0.5μm, the accuracy with this probe is better)**




**deep groove probe (optional), code ISR-C002-DGP**




**deep groove probe (optional), code ISR-C002-DGP1**




31

## SPECIFICATION

| | | |
|---|---|---|
| **Parameters** | | Ra, Rz, Rq, Rv, Rp, Rs, R3z, R3y, Rt, Rc, Rz (JIS), Rk, Rku, Rsm, Rpc, Rpk, Rvk, Rsk, Mr1, Mr2, Ry, Rmax |
| **Range** | **X axis** | 17.5mm |
| | **Z axis** | 320μm (-160μm~160μm) |
| **Accuracy** | | ±10% |
| **Resolution (Ra)** | | 0.001μm |
| **Probe** | **type** | inductive |
| | **stylus radius/angle** | 5μm/90° |
| | **stylus material** | diamond |
| **Measuring force** | | 4mN |
| **Measuring unit** | | μm/μin |
| **Cut off** | | 0.25/0.8/2.5mm |
| **Number of cut-offs** | | 1~5 |
| **Moving speed** | | 0.135mm/s, 0.5mm/s, 1mm/s |
| **Memory** | | 100 measurement results |
| **Output** | | USB and bluetooth |
| **Power** | | built-in rechargeable battery |
| **Dimension (L×W×H)** | | 158×64×52mm |
| **Weight** | | 400g |

## STANDARD DELIVERY

| | |
|---|---|
| **Main unit** | 1 pc |
| **Standard probe** | 1 pc |
| **Calibration block and support** | 1 pc of each |
| **Connecting cable (long and short)** | 1 pc of each |
| **Magnetic stand adapter** | 1 pc |
| **Adjustable stand** | 1 pc |
| **Touch pen** | 1 pc |
| **Software and USB cable** | 1 pc |
| **AC/DC adapter** | 1 pc |

## OPTIONAL ACCESSORY

| | |
|---|---|
| **Extension rod** | **ISR-C002-ER** |
| **Small hole probe** | **ISR-C002-PROBE** |
| **Tiny hole probe** | **ISR-C002-SBP** |
| **Deep groove probe** | **ISR-C002-DGP** |
| **Deep groove probe** | **ISR-C002-DGP1*** |
| **2μm/60° probe** | **ISR-C300-P2UM** |
| **Bluetooth printer** | **ISR-C002-PRINTER** |
| **Height gage adapter** | **ISR-C300-LB1** |
| **Receiver** | **ISR-C300-RECEIVER** |
| **SPC cable** | **ISR-C300-SPC** |
| **Support for flat surface** | **ISR-C300-COVER1** |
| **Support for cylindrical surface** | **ISR-C300-COVER2** |
| **Light duty test stand** | **ISR-C002-STAND1** |
| **Heavy duty test stand** | **ISR-C002-STAND** |

*Need to be delivered with roughness tester **ISR-C300**

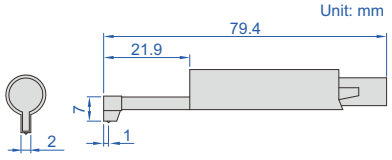
DATA OUTPUT | BLUETOOTH | TOUCH SCREEN | CAN BE OPERATED BY MOBILE PHONES OR COMPUTERS

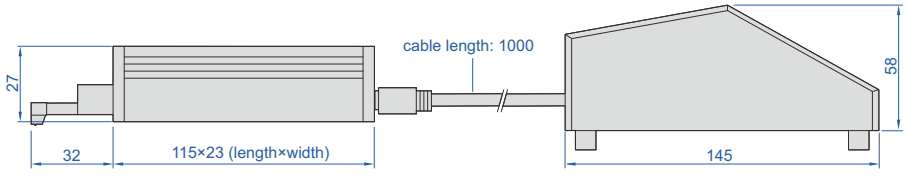
# ROUGHNESS TESTER
# CODE ISR-T120


VIDEO



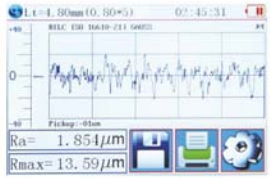
- Roughness tester can be operated by mobile phones (only Android system) or computers
- Data can be sent to Excel by connecting to computers via bluetooth or SPC cable
- Built-in printer can print measurement results and graphics
- 22 roughness parameters
- Meet ISO, DIN, ANSI, JIS standards
- Display roughness values, profile and curve
- Memory of maximum 100 data and waveform
- Built-in lithium battery, working time more than 50 hours
- Automatic power off




roughness tester screen display


measurement result




roughness profile


Rmr analysis

operate roughness tester by mobile phones

connect to mobile phones via bluetooth (only Android system), display roughness values, profile and curve

operate roughness tester by computers

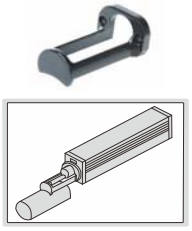
connect to computers via USB cable (software is included), display roughness values, profile and curve

To be continued

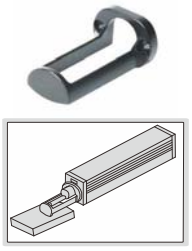
Continued from pevious page

probe support (**optional**)

support for cylindrical surface



support for flat surface



data can be sent to Excel by connecting to computer via bluetooth or SPC cable

**via bluetooth**

receiver (**optional**)

**via SPC cable**

SPC cable (**optional**)

receiver (**optional**)



height gage adapter (**optional**)


can be installed on height gages

**NOTE**: Please check whether the adapter can fit your height gages. When using **INSIZE** height gages, please use the dial test indicator holder of height gages

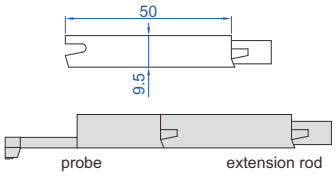
magnetic stand adapter (included)


can be installed on magnetic stands

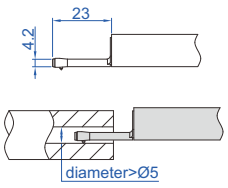
optional probes

Unit: mm

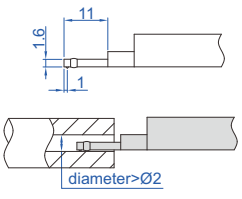
**extension rod (optional), code ISR-C002-ER**



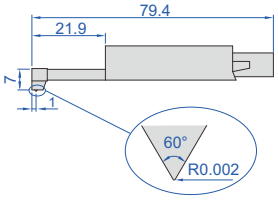

**small hole probe (optional), code ISR-C002-PROBE**



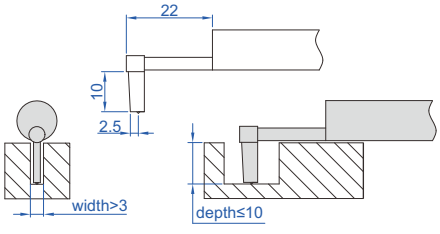

**tiny hole probe (optional), code ISR-C002-SBP**



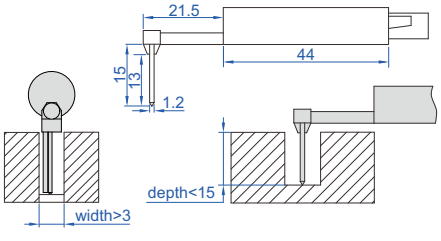

**2μm/60° probe (optional), code ISR-C300-P2UM (When Ra<0.5μm, the accuracy with this probe is better)**




**deep groove probe (optional), code ISR-C002-DGP**




**deep groove probe (optional), code ISR-C002-DGP1**




To be continued

Continued from pevious page

light duty test stand (**optional**)

the maximum workpiece height is 220mm

heavy duty test stand (**optional**)

the maximum workpiece height is 310mm



## SPECIFICATION

| | | |
|---|---|---|
| **Parameters** | | Ra, Rz, Rq, Rv, Rp, Rs, R3z, R3y, Rt, Rc, Rz (JIS), Rk, Rku, Rsm, Rpc, Rpk, Rvk, Rsk, Mr1, Mr2, Ry, Rmax |
| **Range** | **X axis** | 17.5mm |
| | **Z axis** | 640μm (-320μm~320μm) |
| **Accuracy** | | ±10% |
| **Resolution (Ra)** | | 0.001μm |
| **Probe** | **type** | inductive |
| | **stylus radius/angle** | 5μm/90° |
| | **stylus material** | diamond |
| **Measuring force** | | 4mN |
| **Measuring unit** | | μm/μin |
| **Cut off** | | 0.25/0.8/2.5mm |
| **Number of cut-offs** | | 1~5 |
| **Traverse speed** | | 0.135mm/s, 0.5mm/s, 1mm/s |
| **Memory** | | 100 measurement results |
| **Output** | | bluetooth and USB |
| **Power** | | built-in rechargeable battery |
| **Dimension (L×W×H)** | | 155×145×58mm |
| **Weight** | | 1000g |

## STANDARD DELIVERY

| | |
|---|---|
| **Main unit** | 1 pc |
| **Standard probe** | 1 pc |
| **Calibration block and support** | 1 pc of each |
| **Magnetic stand adapter** | 1 pc |
| **Adjustable stand** | 1 pc |
| **Touch pen** | 1 pc |
| **Software and USB cable** | 1 pc |
| **AC/DC adapter** | 1 pc |

## OPTIONAL ACCESSORY

| | |
|---|---|
| **Extension rod** | **ISR-C002-ER** |
| **Small hole probe** | **ISR-C002-PROBE** |
| **Tiny hole probe** | **ISR-C002-SBP** |
| **2μm/60° probe** | **ISR-C300-P2UM** |
| **Deep groove probe** | **ISR-C002-DGP** |
| **Deep groove probe** | **ISR-C002-DGP1*** |
| **Height gage adapter** | **ISR-C300-LB1** |
| **Receiver** | **ISR-C300-RECEIVER** |
| **SPC cable** | **ISR-C300-SPC** |
| **Support for flat surface** | **ISR-C300-COVER1** |
| **Support for cylindrical surface** | **ISR-C300-COVER2** |
| **Light duty test stand** | **ISR-C002-STAND1** |
| **Heavy duty test stand** | **ISR-C002-STAND** |

*Need to be delivered with roughness tester **ISR-T120**

## ROUGHNESS TESTER (BASIC TYPE)
## CODE ISR-C003

**ATTENTION: THIS ROUGHNESS TESTER IS NOT SUITABLE FOR ROUGH TURNING, MILLING AND PLANING WORKPIECES**

- Unit: μm, μin
- Automatic power off


VIDEO

### SPECIFICATION

| | | |
|---|---|---|
| Parameters | | Ra, Rz, Rq, Rt |
| Range | | Ra, Rq: 0.05~15μm<br>Rz, Rt: 0.1~50μm |
| Accuracy | | ±10% |
| Resolution (Ra) | | 0.01μm |
| Probe | type | piezoelectric |
| | stylus radius/angle | 10μm/90° |
| | stylus material | diamond |
| Measuring force | | 5mN |
| Measuring unit | | μm/μin |
| Cut off | | 0.25/0.8/2.5mm |
| Evaluation length | | 1.25mm for cut off 0.25mm<br>4mm for cut off 0.8mm<br>5mm for cut off 2.5mm |
| Moving speed | | 0.75mm/s |
| Power | | built-in rechargeable battery |
| Dimension (L×W×H) | | 106×70×24mm |
| Weight | | 200g |

fixture for small shafts (**optional**)

application

calibration block (included)

### STANDARD DELIVERY

| | |
|---|---|
| Main unit | 1 pc |
| Calibration block | 1 pc |
| AC/DC adapter | 1 pc |

### OPTIONAL ACCESSORY

| | |
|---|---|
| Fixture for small shafts | ISR-C003-FIXTURE |

## SURFACE ROUGHNESS SPECIMEN SET
## CODE ISR-CS130-W

INSIZE PLUS
MADE IN EUROPE

- For checking, identifying and specifying the roughness by symbol
- Rust-proof, made of pure Nickel

| Machining method | Roughness (Ra) * | Roughness (Rz) * | Quantity |
|---|---|---|---|
| Flat lapping | 0.05, 0.1, 0.2μm<br>2, 4, 8μin | 0.55, 1, 1.6μm | 3 pcs |
| Reaming | 0.4, 0.8, 1.6μm<br>16, 32, 63μin | 3, 6, 10μm | 3 pcs |
| Plain grinding | 0.05, 0.1, 0.2, 0.4, 0.8, 1.6μm<br>2, 4, 8, 16, 32, 63μin | 0.55, 1, 1.6, 3, 6, 10μm | 6 pcs |
| Horizontal milling | 0.4, 0.8, 1.6, 3.2, 6.3, 12.5μm<br>16, 32, 63, 125, 250, 500μin | 2.5, 4, 8, 16, 32, 50μm | 6 pcs |
| Vertical milling | 0.4, 0.8, 1.6, 3.2, 6.3, 12.5μm<br>16, 32, 63, 125, 250, 500μin | 2.5, 4, 8, 16, 32, 50μm | 6 pcs |
| Turning | 0.4, 0.8, 1.6, 3.2, 6.3, 12.5μm<br>16, 32, 63, 125, 250, 500μin | 2.5, 4, 8, 16, 32, 50μm | 6 pcs |

* The actual value is the value to be calibrated

## SURFACE ROUGHNESS SPECIMENS

INSIZE PLUS
MADE IN EUROPE

- For checking, identifying and specifying the roughness by symbol
- Rust-proof, made of pure Nickel

ISR-CS315

| Code | Machining method | | Roughness (Ra)* | Roughness (Rz)* | Quantity |
|---|---|---|---|---|---|
| ISR-CS315 | surface grinding | | 0.025, 0.05, 0.1, 0.2, 0.4, 0.8, 1.6, 3.2µm | 0.29, 0.55, 0.91, 1.74, 2.6, 4.65, 7.87, 15.6µm | 8 pcs |
| ISR-CS316 | cylindrical grinding | | 0.025, 0.05, 0.1, 0.2, 0.4, 0.8, 1.6, 3.2µm | 0.3, 0.53, 0.88, 1.56, 2.64, 4.4, 7.71, 15.3µm | 8 pcs |
| ISR-CS317 | flat lapping | criss-cross | 0.025, 0.05, 0.1, 0.2µm | 0.4, 0.6, 0.74, 1.26µm | 4 pcs |
| | | parallel | 0.025, 0.05, 0.1, 0.2µm | 0.34, 0.56, 1.12, 1.5µm | 4 pcs |
| ISR-CS318 | cylindrical lapping | | 0.025, 0.05, 0.1, 0.2µm | 0.46, 0.54, 0.63, 1.23µm | 4 pcs |
| | superfinishing | | 0.025, 0.05, 0.1, 0.2µm | 0.36, 0.7, 1, 1.4µm | 4 pcs |
| ISR-CS319 | face turning | | 0.4, 0.8, 1.6, 3.2, 6.3, 12.5, 25, 50µm | 1.92, 3.2, 6.15, 12.5, 23.7, 48.7, 102, 185µm | 8 pcs |
| ISR-CS320 | cylindrical turning | | 0.4, 0.8, 1.6, 3.2, 6.3, 12.5, 25, 50µm | 1.7, 3.2, 6.1, 12.2, 23.7, 47.5, 95, 190µm | 8 pcs |
| ISR-CS321 | end milling | | 0.4, 0.8, 1.6, 3.2, 6.3, 12.5, 25, 50µm | 1.92, 3.82, 6.45, 12.2, 25.2, 49.8, 92.6, 191µm | 8 pcs |
| ISR-CS322 | reaming | | 0.4, 0.8, 1.6, 3.2µm | 1.7, 3.2, 6.4, 12.8µm | 4 pcs |
| | drilling | | 1.6, 3.2, 6.3, 12.5µm | 7.5, 15.5, 31, 60µm | 4 pcs |
| ISR-CS323 | horizontal milling | | 0.4, 0.8, 1.6, 3.2, 6.3, 12.5, 25, 50µm | 1.8, 3.68, 6.63, 12.8, 25.6, 53, 97.5, 197µm | 8 pcs |
| ISR-CS325 | shaping (planing) | | 0.8, 1.6, 3.2, 6.3, 12.5, 25, 50, 100µm | 3.84, 6.7, 12.2, 25.2, 48.7, 99.9, 190, 361µm | 8 pcs |
| ISR-CS326 | linishing (belt sanding) | | 0.1, 0.2, 0.4, 0.8, 1.6, 3.2µm | 0.9, 1.55, 3.37, 7.42, 18.5, 31µm | 6 pcs |
| ISR-CS328 | vertical grinding | | 0.2, 0.4, 0.8, 1.6, 3.2, 6.3µm | 1.1, 3.5, 6.15, 8.78, 22.19, 40.8µm | 6 pcs |
| ISR-CS329 | grit blasting | | 3.2, 10.5, 18, 25µm | 19.2, 63, 108, 150µm | 4 pcs |
| | shot blasting | | 3.2, 8, 13, 18µm | 19.2, 48, 78, 108µm | 4 pcs |
| ISR-CS331 | spark erosion (EDM) | | 0.4, 0.8, 1.6, 3.2, 6.3, 12.5, 25, 50µm | 2.5, 4.5, 7.2, 14.2, 24.7, 51.2, 105, 196µm | 8 pcs |
| ISR-CS333 | hand filing | | 0.4, 0.8, 1.6, 3.2, 6.3µm | 3, 5.6, 12.4, 22.5, 61µm | 5 pcs |
| ISR-CS334 | castings | | 0.8, 1.6, 3.2, 6.3, 12.5, 25, 50µm | 3.2, 8, 16, 32, 56, 112, 225µm | 7 pcs |
| ISR-CS335 | honing | | 0.05, 0.1, 0.2, 0.4, 0.8, 1.6µm | 0.31, 0.56, 1, 2, 4.2, 9µm | 6 pcs |
| ISR-CS336 | polishing | | 0.0125, 0.025, 0.05, 0.1, 0.2µm | 0.29, 0.35, 0.67, 0.72, 1.52µm | 5 pcs |

* The actual value is the value to be calibrated

## SHOT AND GRIT BLASTING SURFACE ROUGHNESS SPECIMENS

INSIZE PLUS
MADE IN EUROPE

- To check the roughness of steel surfaces which have been blast cleaned before painting
- Meets ISO 8503/1
- Rust-proof, made of pure Nickel
- Each piece contains 4 parts

ISR-CS017

| Code | Machining method | Roughness (Ra)* | Roughness (Rz)* |
|---|---|---|---|
| ISR-CS017 | shot blasting | 3.2, 8, 13, 18µm | 19.2, 48, 78, 108µm |
| ISR-CS018 | grit blasting | 3.2, 10.5, 18, 25µm | 19.2, 63, 108, 150µm |

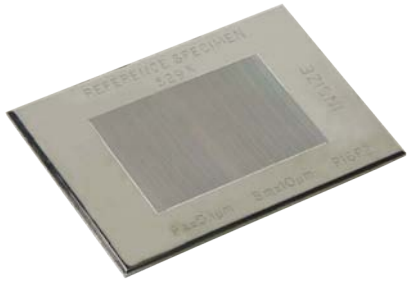
* The actual value is the value to be calibrated

## SURFACE ROUGHNESS REFERENCE SPECIMENS

INSIZE PLUS
MADE IN EUROPE

MEASURING ACCURACY OF ROUGHNESS TESTERS CAN BE IMPROVED, IF THE CALIBRATION IS MADE ON A REFERENCE SPECIMEN WITH THE ROUGHNESS VALUE CLOSE TO THE WORKPIECE TO BE MEASURED

- To calibrate roughness testers
- Meets ISO 5436-1: 2000
- Rust proof, made of pure Nickel



ISR-RS529X



| Code | Roughness (Ra) |
|---|---|
| ISR-RS525X | 6.25μm* |
| ISR-RS526X | 3.15μm* |
| ISR-RS527X | 3.0μm * |
| ISR-RS528X | 0.5μm * |
| ISR-RS529X | 0.1μm * |
| ISR-RS530X | 1.0μm * |
| ISR-RS531X | 0.3μm * |

*The actual value may be slightly different

## SURFACE ROUGHNESS REFERENCE SPECIMENS

MEASURING ACCURACY OF ROUGHNESS TESTERS CAN BE IMPROVED, IF THE CALIBRATION IS MADE ON A REFERENCE SPECIMEN WITH THE ROUGHNESS VALUE CLOSE TO THE WORKPIECE TO BE MEASURED

- To calibrate roughness testers
- Made of glass


ISR-LS603

| Code | Roughness (Ra) | Deviation* | Uniformity |
|---|---|---|---|
| ISR-LS601 | 0.1μm | -20%~+10% | 3% |
| ISR-LS602 | 0.2μm | ±10% | 3% |
| ISR-LS603 | 0.4μm | ±10% | 3% |
| ISR-LS604 | 0.8μm | ±10% | 3% |
| ISR-LS605 | 1.6μm | ±10% | 3% |
| ISR-LS606 | 3.2μm | ±10% | 2% |
| ISR-LS607 | 6.4μm | ±10% | 2% |

*Deviation between the actual value when supply and the nominal value