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Pickup for TIME3220/3221/3222/3223

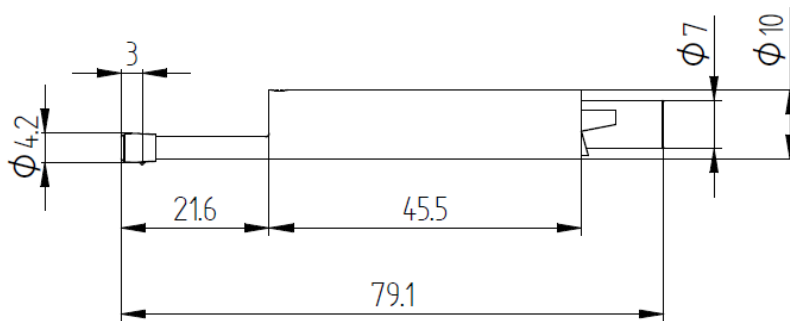
➤ Standard pickup

TIMES201 standard pickup

Standard pickup for integrated roughness tester TIME3220

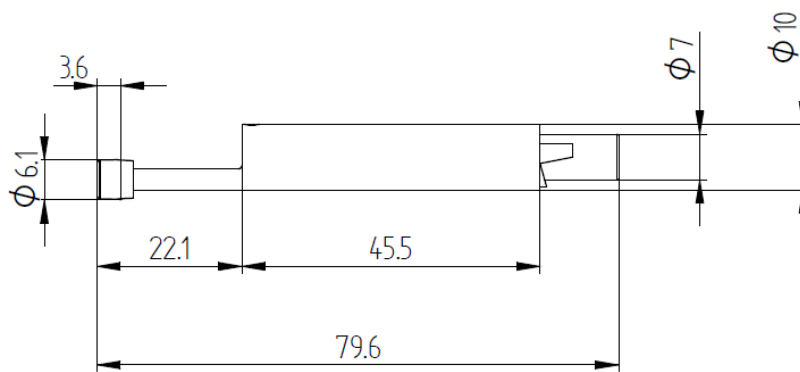
Standard pickup for separated roughness TIME3221/3222/3223 with square driver

It can measure plane and axis; when measuring the inner surface of the hole, the minimum diameter of the hole is 5mm, and the maximum depth is 20mm.



TIMES216 pipeline pickup

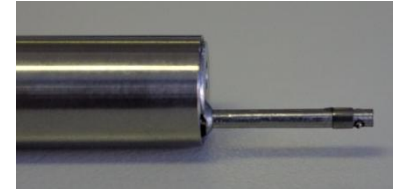
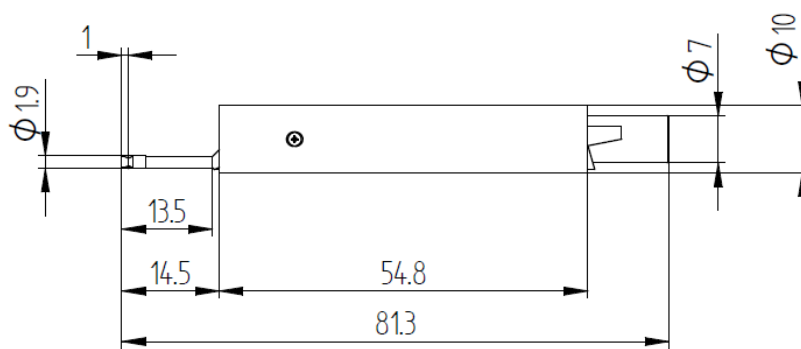
Standard pickup for separated roughness TIME3221/3222/3223 with round driver



➤ Pickup for holes

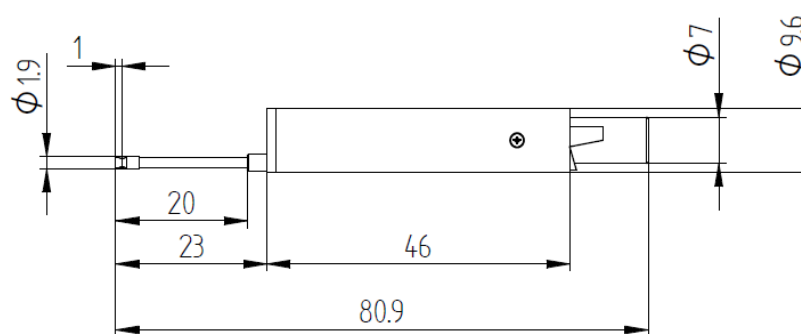
TIMES211 for small hole

The TIMES211 for small hole can measure the inner surface roughness of holes with a diameter greater than 2mm, and the maximum hole depth is 13.5mm. It needs to be used with tooling.



TIMES213 for deep hole

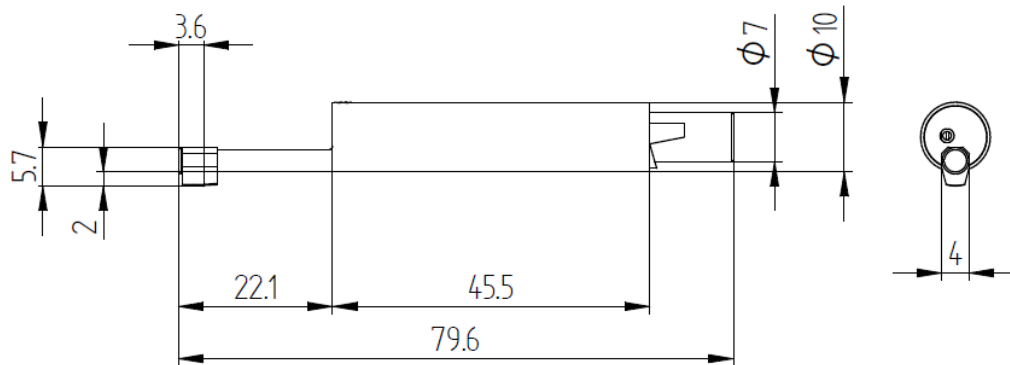
The TIMES213 for deep hole can measure the inner surface roughness of holes with a diameter greater than 2mm, and the maximum hole depth is 20mm. It needs to be used with tooling.



➤ Pickup for grooves

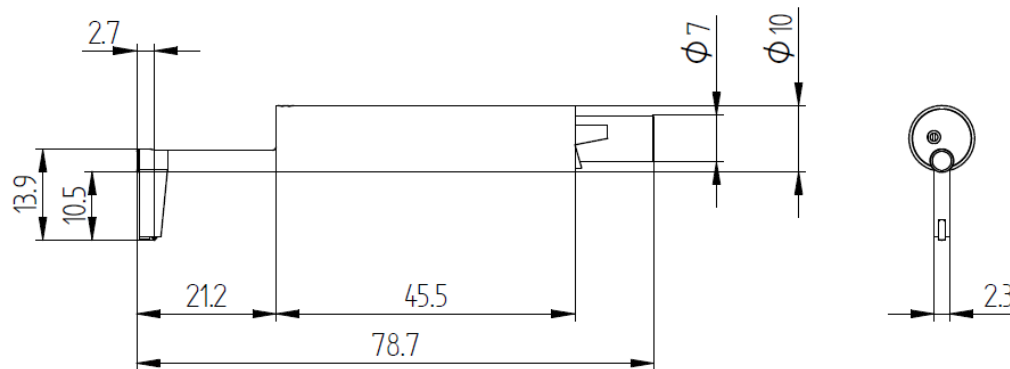
TIMES203 pickup for shallow groove

TIMES203 groove sensor can measure the surface roughness of plane, axis, groove with width greater than 4mm and depth less than 2mm, or the surface roughness of steps with height less than 2mm. It can replace the standard pickup and no tooling is needed. The structure of the guide is the same as that of Mitutoyo SJ210 standard sensor head.



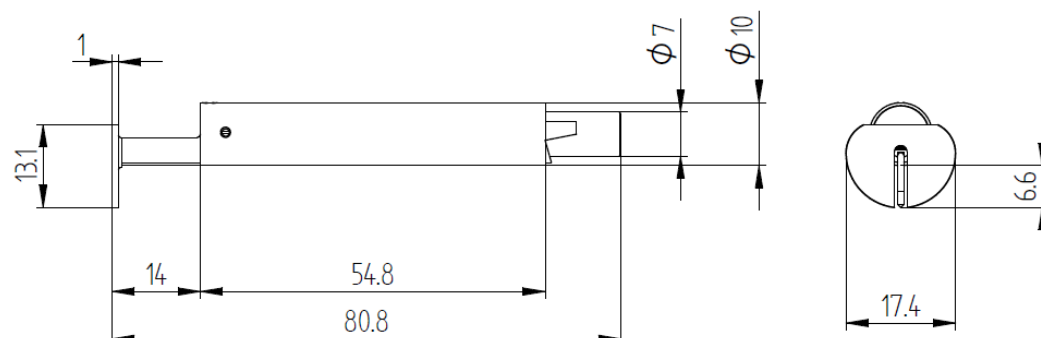
TIMES212 for deep groove

The TIMES212 deep groove sensor can measure grooves with width greater than 2.5mm and depth less than 10mm; or the surface roughness of a step with height less than 10mm. It needs to be used with tooling.



TIMES220 "O" type pickup

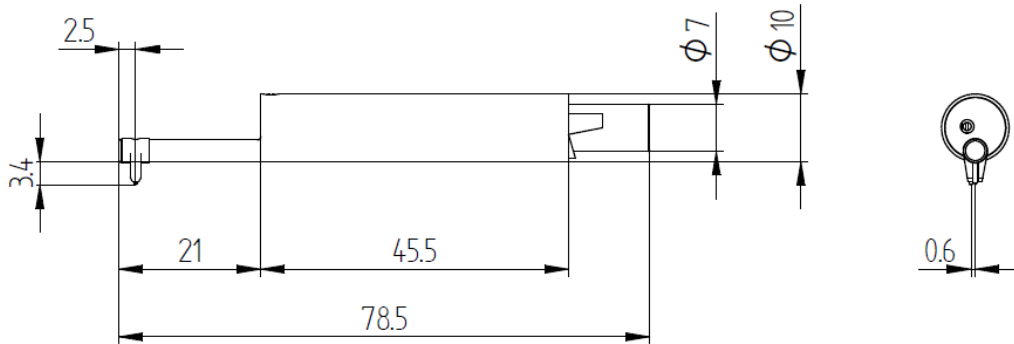
The TIMES220 "O" type sensor can measure the surface roughness of "O" type raceways, ring grooves, narrow grooves, narrow flat surfaces or curved surfaces. It needs to be used with tooling.



➤ Pickup for curved surface

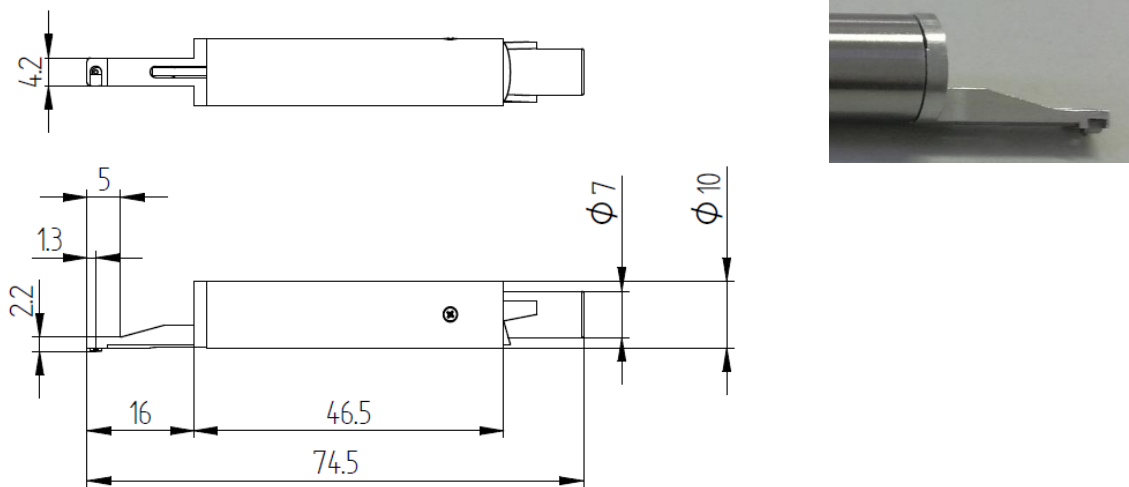
TIMES214 for curved surface

The TIMES214 for curved surface can measure the surface of convex and concave curved workpieces with a radius of curvature greater than 3mm. It needs to be used with tooling.



TIMES215 for tooth surface

The TIMES215 for tooth surface can measure the surface roughness of the gear tooth surface, or narrow gap or groove, and it needs to be used with tooling.



TIMES200 standard pickup

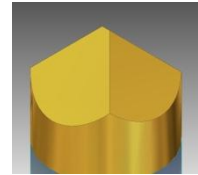
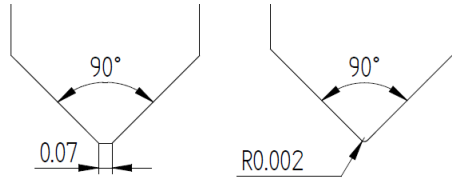
The TIMES200 standard sensor can measure the surface with high requirements for surface scratches. Because the sensor tip radius is only $2\mu\text{m}$ and the static measuring force is only 0.75mN , the scratches on the measured surface are shallow and the damage is small during use. The dimensions of the sensor are the same as those of the TIMES201 standard sensor, which can replace the TIMES201 standard sensor, and no tooling is needed.

➤ Blade type pickup

TIMES217 for powder metallurgy

TIMES217 is a sensor specially customized for the surface pore characteristics of powder metallurgy products. It conforms to the standard "GB/T 12767-91 powder metallurgy products surface roughness parameters and values". The dimensions of the sensor are the same with the TIMES201 standard sensor. No tooling is needed.

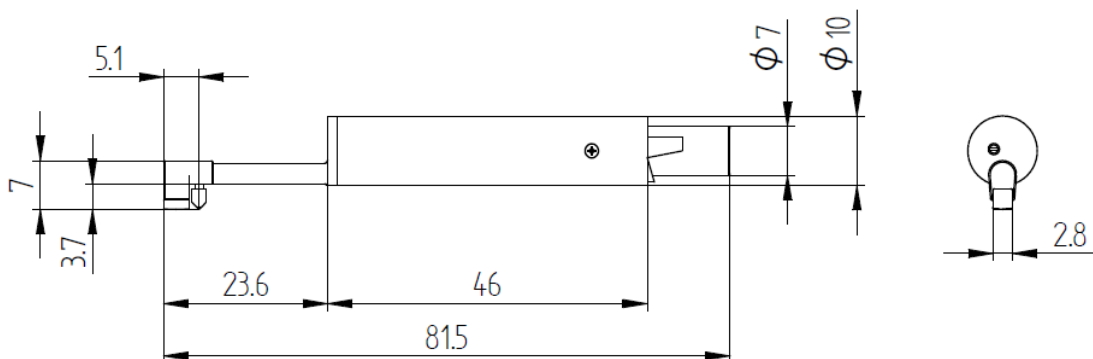
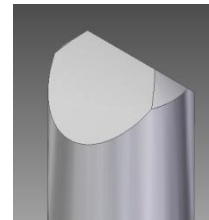
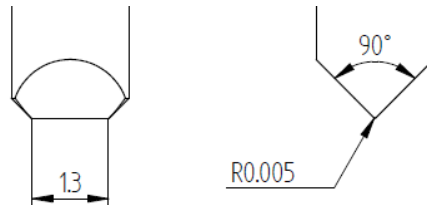
Needle shape: Axe-blade quadrangular pyramid
 Angle of needle: 90°
 Width of needle: $70\mu\text{m}$
 Radius of needle: $R=2\mu\text{m}$
 Force of needle: 0.0224N



TIMES218 axe blade pickup

The TIMES218 axe blade sensor can measure the surface roughness of extremely thin rods, sharp edges and rounded corners. It uses a wide axe blade stylus and needs to be used with tooling.

Needle shape: Axe Blade
 Angle of needle: 90°
 Width of needle: 1.3mm
 Radius of needle: $R=5\mu\text{m}$
 Force of needle: 0.0224N



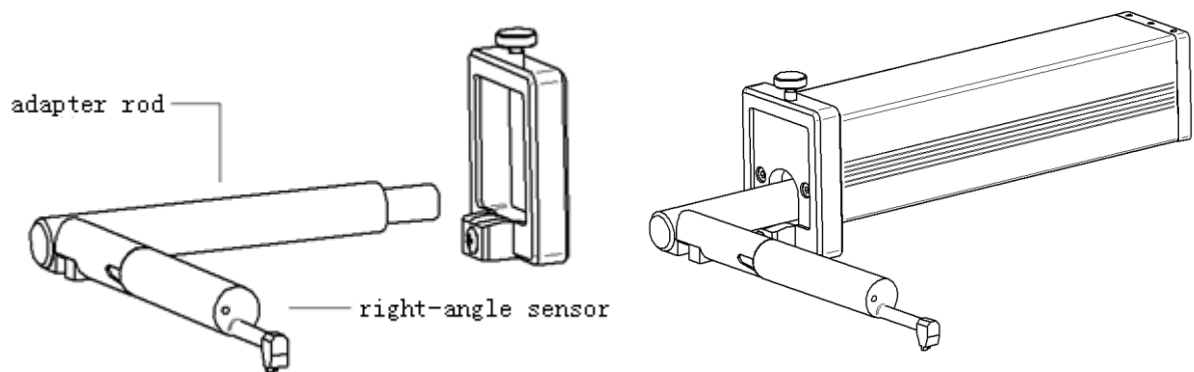
➤ Right-angle measuring mechanism

When measuring at right angles, the probe moves laterally for measurement. It can measure grooves, crankshafts and other surfaces. It includes a right angle measuring tooling, right angle sensor and right angle adapter rod. The minimum groove width of the measured workpiece is 5m. In addition, it can measure steps with height less than 2.5mm. It needs to be used with tooling.

TIMES219 right-angle measuring mechanism

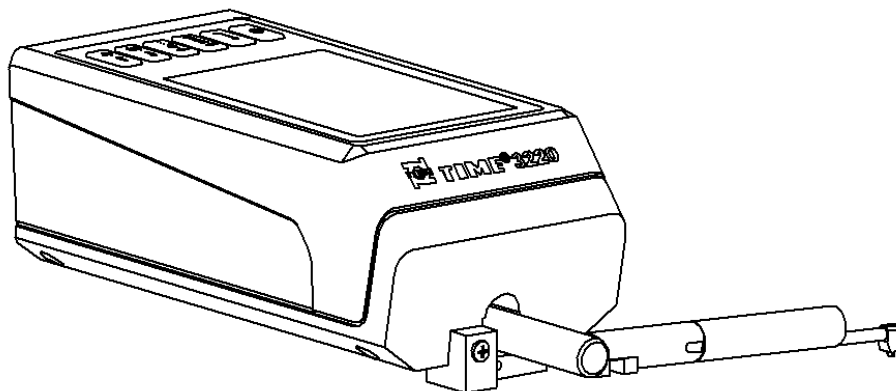
TIMES219 right-angle measuring mechanism is suitable for TIME3221 and TIME3223 with square driver. It includes a right-angle measuring tooling, right-angle sensor and adapter rod.

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TIMES202 right angle measuring mechanism

The TIMES202 right-angle measuring mechanism is suitable for TIME3220 surface roughness. It includes three parts: the right-angle measuring tooling, the right-angle sensor and the adapter rod.



Pickup for TIME3230/3231/3233/3234

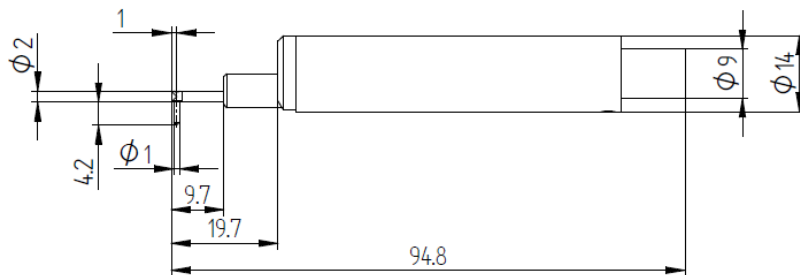
➤ Standard pickup

TIMES230 standard pickup

For TIME3230 and TIME3231 roughness tester

Measurement range: 800 μ m

Removable guide

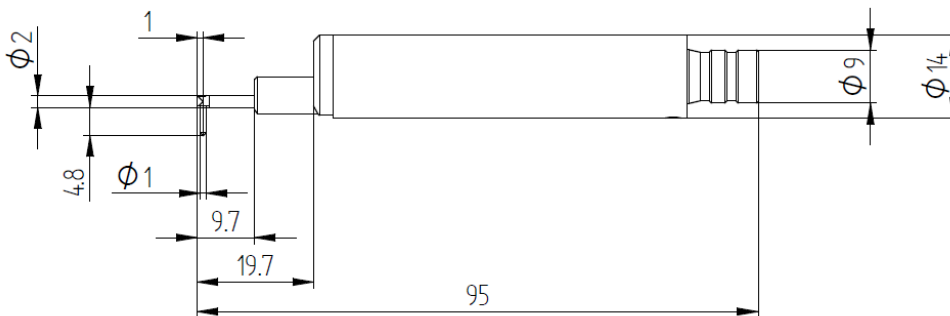


TIMES240 surface waviness pickup

For TIME3233 surface waviness tester

Measurement range: 800 μ m

Removable guide head



TIMES244 large range surface waviness pickup

For TIME3234 surface waviness tester

Measurement range: 100 μ m

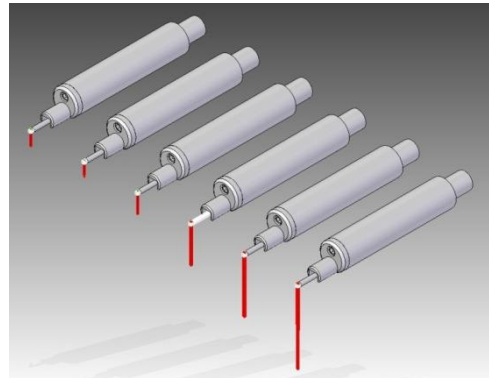
Removable guide head

The dimension is the same with that of TIMES240

➤ Pickup for deep groove

Similarities:

- Suitable for surface roughness meter TIME3230, 3231 and waviness tester TIME3233, 3234
- Long stylus is used to measure the surface roughness of deep grooves and steps
- The guide head is removable



Differences:

- Different needle length to measure different groove depth
- Stylus with different thickness, and some have variable diameter

TIMES230 U pickup

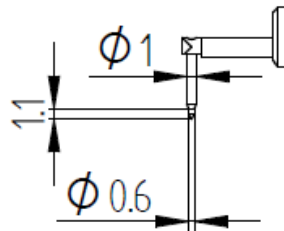
Needle diameter: $\phi 1\text{mm}$
Needle length: $H=7\text{mm}$

TIMES230 V pickup

Needle diameter: $\phi 1\text{mm}$, tip diameter: $\phi 0.6 \times 1.1\text{mm}$, Needle length: $H=7\text{mm}$

TIMES233 for deep groove

Needle diameter: $\phi 1\text{mm}$
Needle length: $H=10\text{mm}$



TIMES236 for extra deep groove

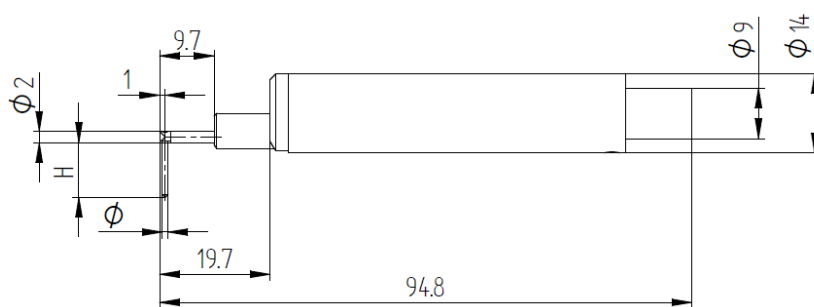
Needle diameter: $\phi 1.2\text{mm}$
Needle length: $H=20\text{mm}$

TIMES238 for super deep groove

Needle diameter: $\phi 1.4\text{mm}$
Needle length: $H=30\text{mm}$

TIMES239 for extremely deep groove

Needle diameter: $\phi 1.4\text{mm}$, tip diameter: $\phi 1 \times 18.5\text{mm}$, Needle length: $H=40\text{mm}$

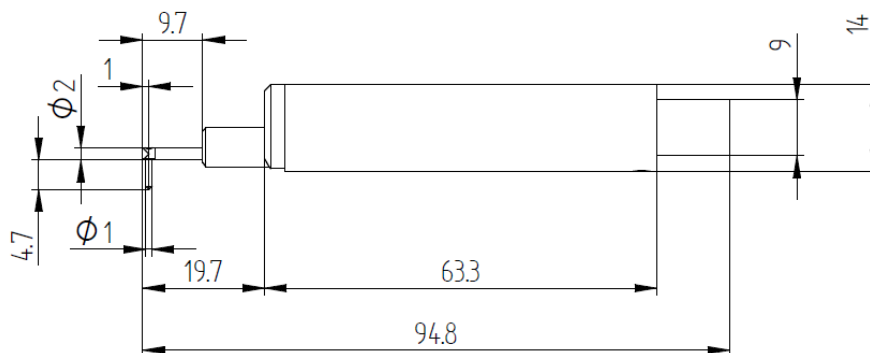
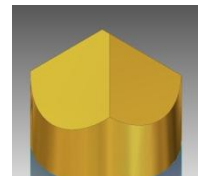
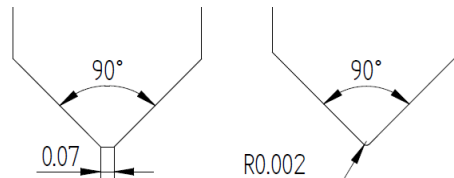


➤ Blade type pickup

TIMES235 axe blade pickup

TIMES235 axe blade pickup is specially customized for the surface pore characteristics of powder metallurgy products. It conforms to the standard "GB/T 12767-91 powder metallurgy products surface roughness parameters and values". It is suitable for TIME323X series.

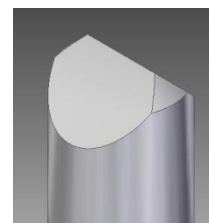
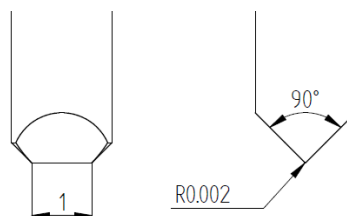
Needle shape: Axe-blade quadrangular pyramid
 Angle of needle: 90°
 Width of needle: 70μm
 Radius of needle: R=2μm
 Force of needle: 0.0224N
 Removable guide head



TIMES237 blade pickup

The TIMES2378 blade sensor can measure the surface roughness of extremely thin rods, sharp edges and rounded corners. It uses a wide axe blade stylus. The dimension is the same with that of TIMES235. Suitable for TIME323X series.

Needle shape: Axe Blade
 Angle of needle: 90°
 Width of needle: 1mm
 Radius of needle: R=2μm
 Force of needle: 0.0224N
 No guide head



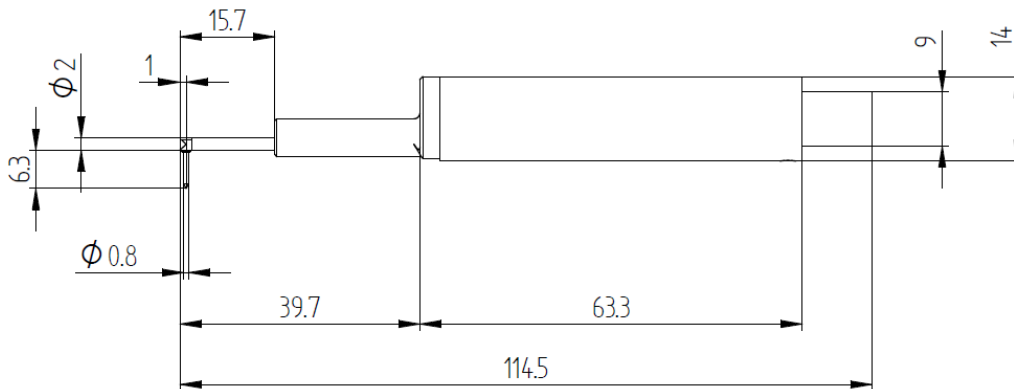
- **Large range pickup** (Currently suitable for TIME3231, the standard pickup range of TIME3234 surface waviness tester is already 1000μm)

TIMES241 large range pickup

The TIMES241 sensor has a measuring range of 1000μm, and the guide head is detachable, and the overall dimensions are the same with the TIMES230 standard sensor. Only applicable to TIME3231.

TIMES246 extra large range pickup (22A3580000)

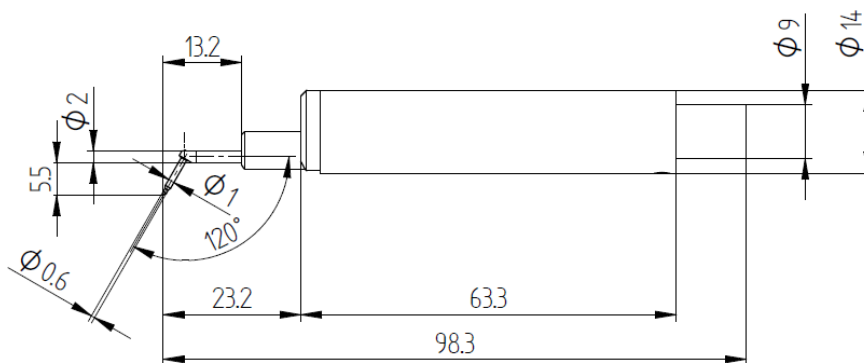
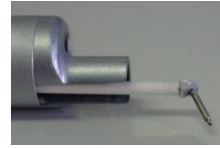
The TIMES246 sensor has a range of 1400μm and has no guide head. It can be used to measure the surface roughness of workpieces with large surface drops. It is the largest range that similar products can reach. Only applicable to TIME3231.



➤ Pickup for curved surface

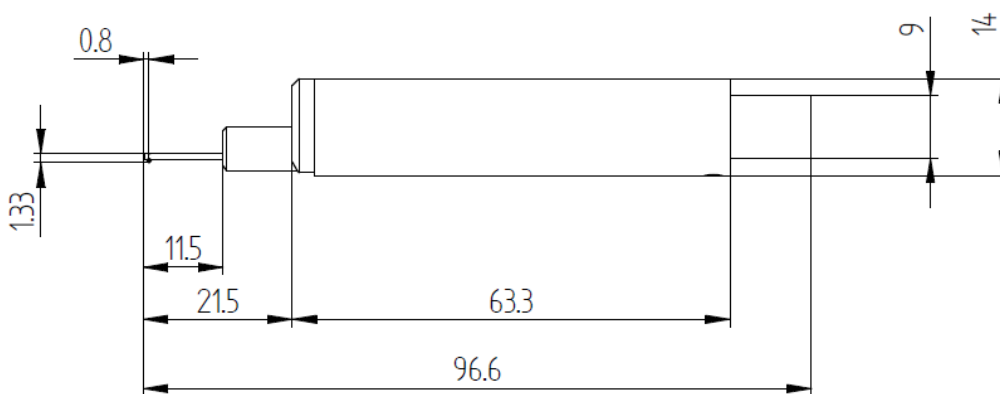
TIMES231 for tooth surface

The TIMES231 sensor can go deep into the position between the two teeth of the gear to measure the roughness of the tooth surface. It can also be used to measure the surface roughness of deep grooves, step roots, blind hole roots and other parts. It has no guide head. Applicable to TIME323X series.



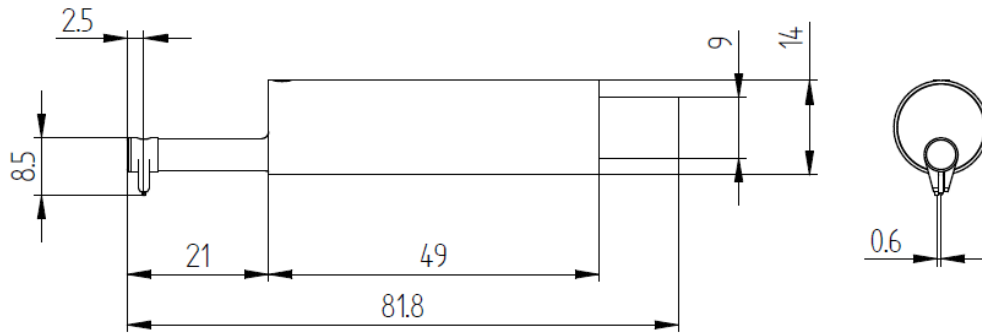
TIMES232 for small hole

The TIMES232 small hole sensor can measure the inner surface roughness of holes with a diameter greater than 1.5mm, and the maximum hole depth is 11.5mm. No guide head. Applicable to TIME323X series.



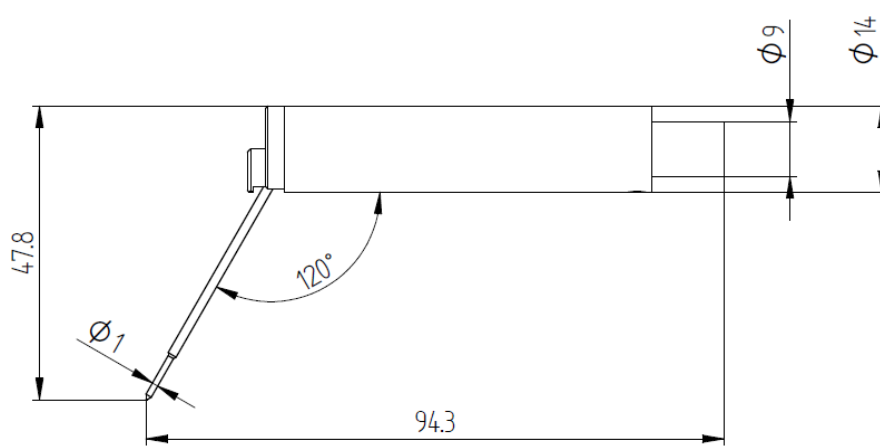
TIMES234 for curved surface

The TIMES234 curved surface sensor can measure the surface roughness of spherical surfaces, arc surfaces and other parts. It is only suitable for 0° measurement with the TIME3231 surface roughness meter. The guide head cannot be removed.



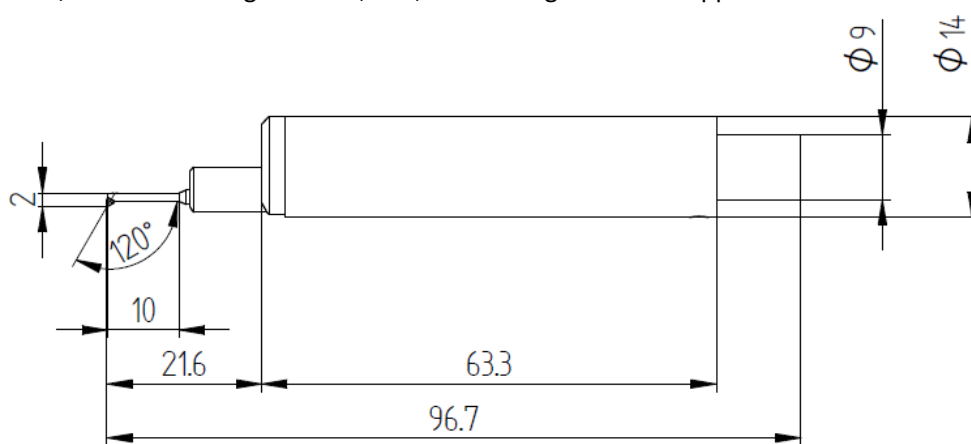
TIMES242 extended oblique stylus pickup

The TIMES242 extended oblique stylus sensor can measure the surface roughness of deep step roots, blind hole roots and other parts, without a guide head. Applicable to TIME323X series.



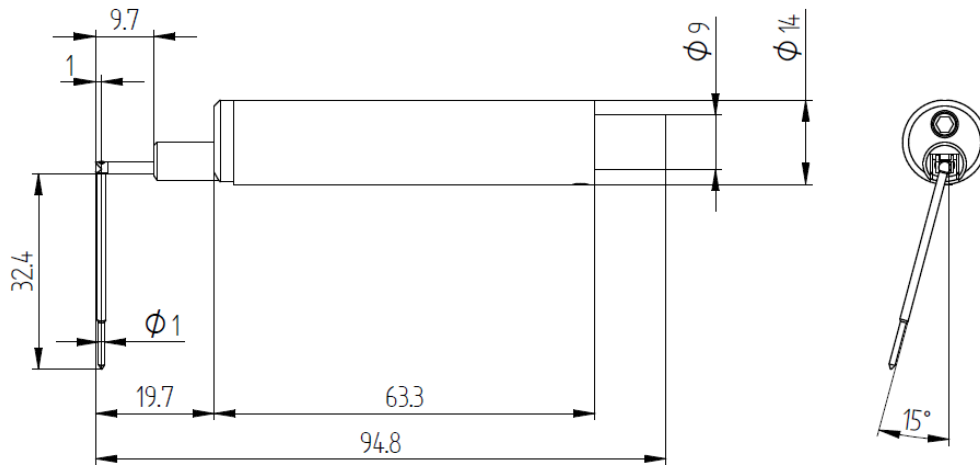
TIMES243 slot pickup

TIMES24 slot sensor can measure the surface roughness of shallow step roots, small blind hole roots, small modulus gear roots, etc., without a guide head. Applicable to TIME323X series.



TIMES245 crankshaft sensor

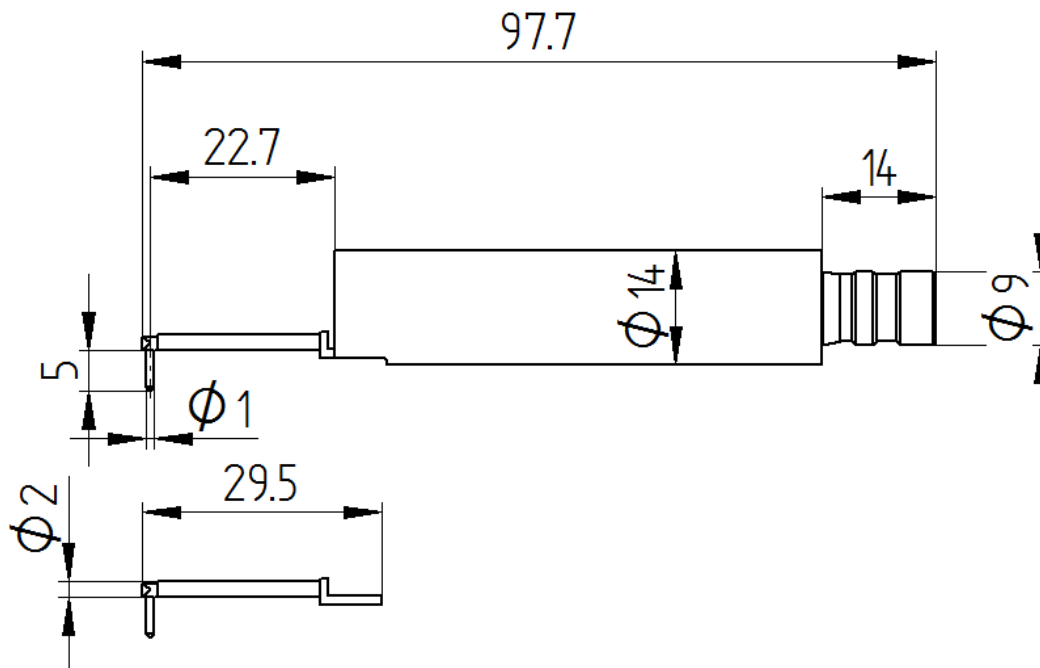
The TIMES245 sensor can measure the surface roughness of the crankshaft. It is only suitable for the 90° measurement with TIME3231 surface roughness tester. It can be measured from the root of the crankshaft and has no guide head.



➤ Replaceable needle series

TIMES247 separated pickup

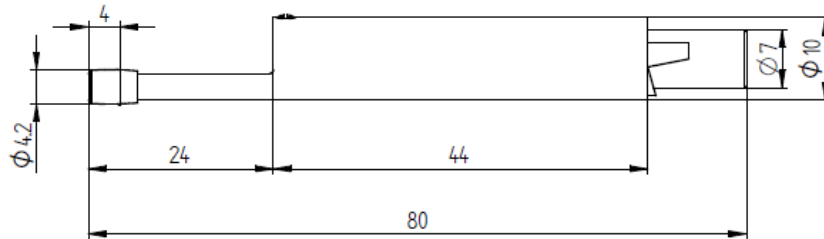
The needle and the sensor body are connected by magnetic attraction, and the needle can be replaced separately. When needle is pressed down excessively due to misoperation, it will separate from the sensor body to avoid damage to the needle or the connection rod. Applicable to the TIME323X series, the measuring range reaches $1000\mu\text{m}$.



Pickup for TIME3200/3201/3202

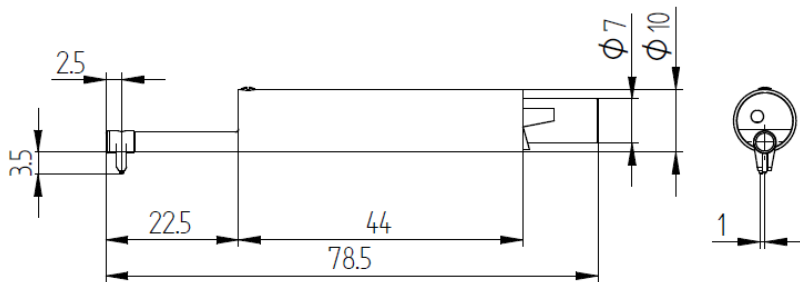
TS100 standard pickup

TS100 standard sensor can measure plane and axis; when measuring the inner surface of a hole, the minimum diameter of the hole is 5mm, and the maximum depth is 22mm.



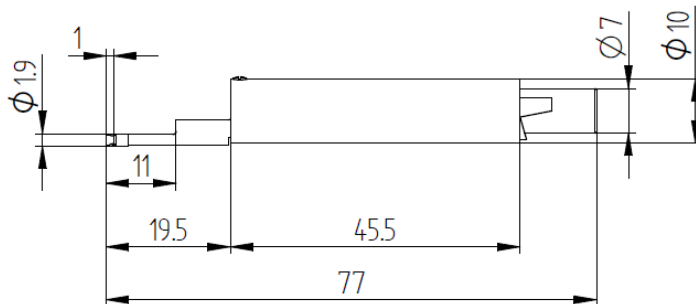
TS110 for curved surface

The TS110 curved surface sensor can measure the surface of convex and concave curved workpieces with a radius of curvature greater than 3mm. It can be used with tooling.



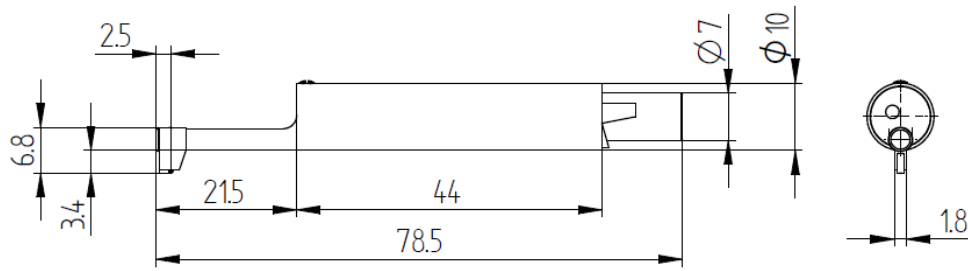
TS120 for small hole

TS120 small hole sensor can measure the inner surface roughness of holes with a diameter greater than 2mm. The maximum hole depth is 9mm. It can be used with tooling.



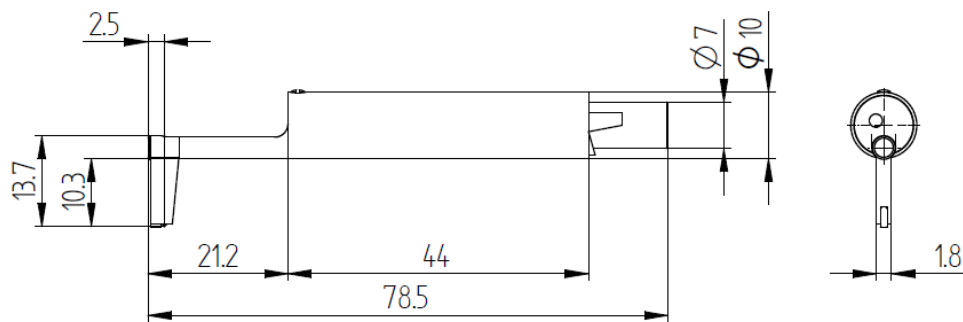
TS130 for groove

TS130 groove sensor can measure the surface roughness of grooves with groove width greater than 2mm, groove depth less than 3mm or steps with height less than 3mm, and used with tooling.



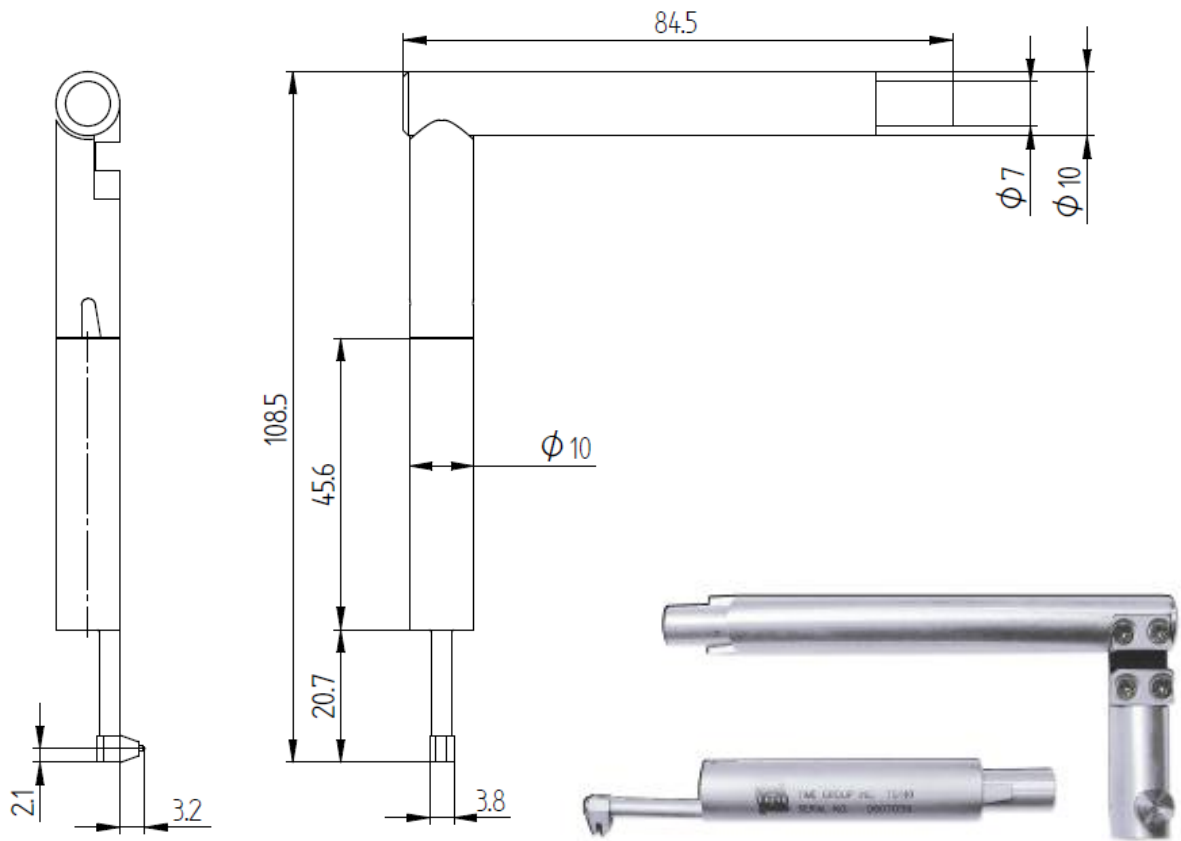
TS131 for deep groove

TS131 deep groove sensor can measure the groove width greater than 2mm and groove depth less than 10mm; or the surface roughness of steps less than 10mm in height, used with tooling.



TS140 right-angle measuring mechanism

The TS140 right-angle measuring mechanism includes a right-angle sensor and a right-angle adapter rod; the probe moves laterally for measurement. It can measure grooves, crankshafts and other surfaces. The minimum groove width of the measured workpiece is 5mm. In addition, it can also measure steps with a height of less than 2.5mm. Use with tooling.



Optional Tooling for Roughness Tester

➤ Marble platform

ETA650 (1100AF7810) for TIME3231/3232

TA650



Specifications :

Y-axial range: 300 ± 1 mm

The dimension of measuring platform: 600mm×420mm×80mm

Adjusting range of leveling table

X-axial direction: ± 12.5 mm

Y-axial direction: ± 12.5 mm

Rotation: 360° ; fine adjustment: $\pm 5^\circ$

Pitching: $0^\circ \sim 5^\circ$

➤ General tooling

TIMEA201 Stand
(1010A31600)



For
TIME3200/3201/3202/3220/3221/
/3222/3223/3233/3234
Coarse adjustment and fine
adjustment are supported
Lifting height: 110mm
Size: 108mm×100mm×240mm
Rotation: $-5^\circ \sim +2.5^\circ$

TIMEA202 Platform
(1010A35910)



For
TIME3200/3201/3202/3220/3221/
3222/3223/3233/3234
Ball screw lifting, high positioning
accuracy
Size: 300mm×200mm×400mm
Lifting height: 200mm
Rotation: $-85^\circ \sim +85^\circ$

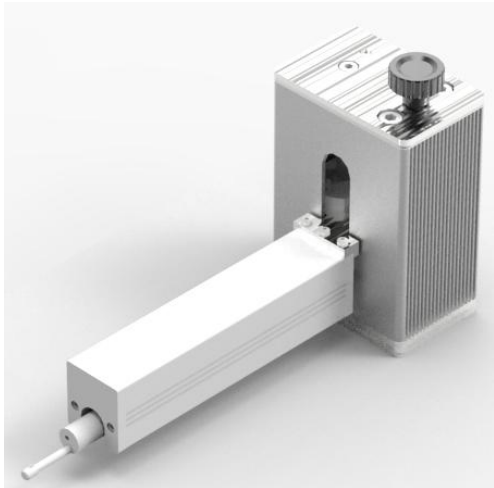
➤ Special tooling

Fine adjustment platform

For TIME3221/TIME3223 with square driver

Lifting height: 30mm

Size: 66mm*43mm*110mm



TIMEA332

(The accuracy not high)

For TIME3231/TIME3232

Rotation: $-15^{\circ} \sim +15^{\circ}$

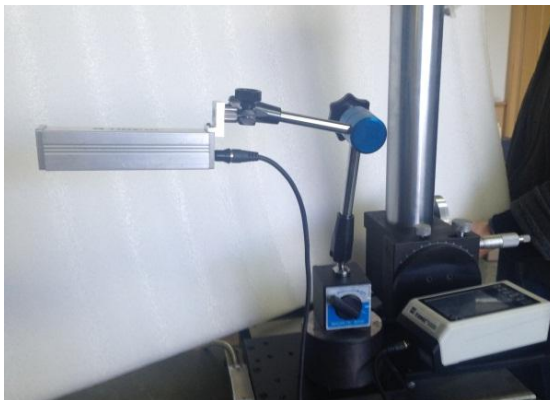
Size: 300mm*133mm*220mm



Magnetic base connection parts

Including magnetic base and connection parts.

Applicable for TIME3221/3223 with square driver. Universal adjustment.



Including height ruler and connection parts.

Applicable for TIME3221/3223 with square driver. Rotation 360° .



TIMEA321 Height ruler

TIMEA331 for surface waviness tester

For TIME3233/TIME3234 waviness tester

Lifting height: 115mm

Rotation: $-5^{\circ} \sim +2.5^{\circ}$

Size: 105mm*75mm*249mm

Weight: 2.5kg



TIMEA333 for surface waviness tester

Standard delivery for TIME3234

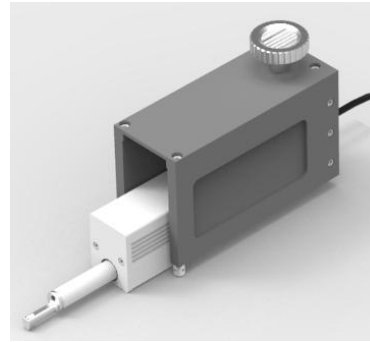
Optional delivery for TIME3233

Lifting height: 15mm

Rotation: $-2.5^{\circ} \sim +2.5^{\circ}$

Size: 160.5mm*60mm*122mm

Weight: 0.9kg



TIMEA334

For TIME3230/TIME3231 surface roughness tester

Lifting height: 280mm

Rotation: $-45^{\circ} \sim +45^{\circ}$

Size: 300mm*205mm*500mm

Weight: 14kg

