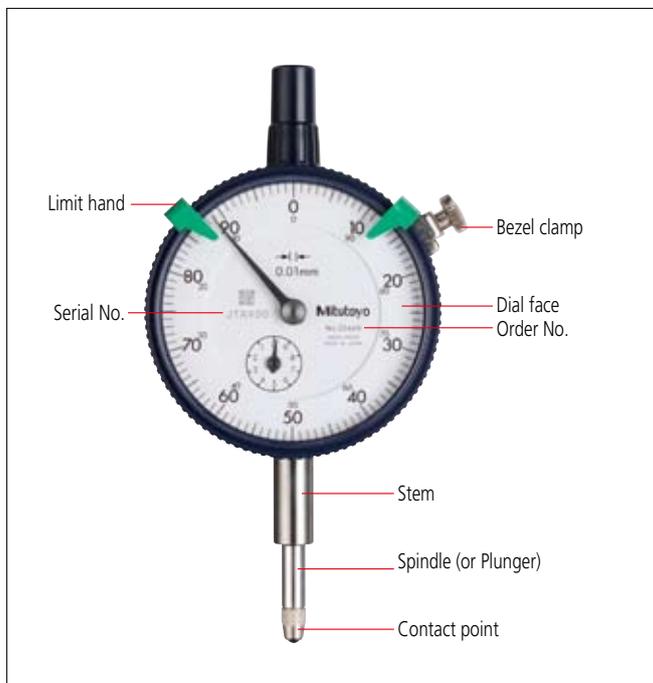


Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

Dial Indicators

Mitutoyo's dial indicators have long been used by many of our customers. In full recognition of their needs, we have devoted ourselves to the research and development necessary to produce high-quality and high-accuracy dial indicators. Due to the recent re-acknowledgement of the importance of measurement technologies, the demands on dial indicators are many and varied: installation in measuring jigs, mounting in countless types of precision equipment, etc. We offer numerous models with various types of dial faces, measuring ranges, graduation styles and environmental resistance ratings. The stems, which ensure the fixture reliability, and the spindles, which are the basis of accuracy, have excellent resistance against hard use thanks to the hardened stainless steel construction. 0.01mm resolution dial indicators have a grand gear made of stainless steel with high resistance to wear and deformation. 0.001mm graduation dial indicators employ a sector gear made of a special alloy in order to further increase the resistance to wear. S-type dial indicators employ an O-ring to ensure the air tightness between the outer frame and the crystal case in order to prevent water or oil penetration. Important factors in choosing a dial indicator: the size (bezel diameter), resolution (graduation) and measuring range. Use the table on the right to help choose a suitable model for your application.



Parts of a dial indicator

Feature icons

Icon	Feature description
	Continuous scale
	Balanced scale
	Reverse reading type, Suitable for depth and step measurement.
	One revolution type for easy and error-free reading
	Double scale spacing type, easy-on-the-eyes
	Shockproof
	Waterproof (IP63)
	Waterproof (IP64)
	With damper at lowest rest point
	Jeweled bearing
	Peak retaining
	Dustproof
	With coaxial revolution counter
	Back plunger
	Adjustable hand

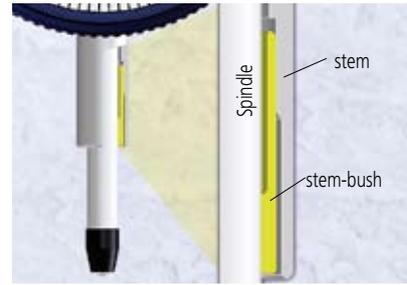
*Mitutoyo produces ASME-compatible products. Contact us for details.



FEATURES: S Series (Series 2, 3, 4)



- No through screw-holes on the frame for high oil- and dust-resistance. The bezel clamp can be attached either to the right or left side.
- Improved Impact- and oil-resistant materials are employed in the outer frame. Easier reading is due to the improved shape of the crystal face.



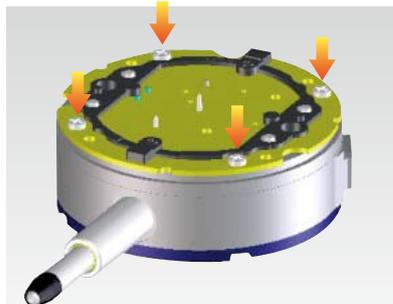
- Revolutionary stem-bush design for trouble-free stem clamping (longer clamping range; maximum tightening torque at the clamping point with M5 screw: 150N-cm).



- The spindle lifting lever (optional: 21AZB149) can be attached to either the right or left side providing high operability and smooth movement. This lever can be easily installed and removed without tools.



- Limit markers (1) can be moved without interfering with the clamp (2).



- Greater rigidity in the bearing plate for reduced retrace error (20%) and 4-screw mounting for increased impact resistance.

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.



An inspection certificate is supplied as standard. Refer to page IX for details.

SERIES 2 — Standard Type, 0.01mm Graduation

- Standard 0.01mm graduation dial gages having a bezel with an outside diameter of 57mm. All types come with limit markers and a bezel clamp as standard.
- The bezel clamp and lifting lever (optional) can be attached to either the right or left side. These parts can be easily installed and removed without tools.
- Secure adhesion between the bezel and crystal as well as the use of an O-ring prevents water or oil penetration.
- The spindle is made of high-strength quench-hardened stainless steel suitable for heavy-duty use.
- A carbide contact point is used.
- The grand gear is made of stainless steel with high resistance to wear and deformation.
- Application of a hard coating on the surface of the crystal makes the gage highly scratch- and chemical-resistant.



20465



Continuous scale



Graduation: 0.01mm,
Measuring range: 10mm

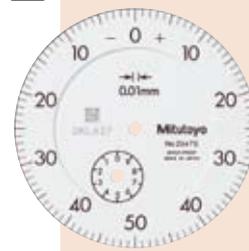
20465

20465-09

Shockproof type



Balanced scale



Graduation: 0.01mm,
Measuring range: 10mm

20475



Reverse reading type. Suitable for depth and step measurement.



Graduation: 0.01mm,
Measuring range: 10mm

29025



Continuous scale



Graduation: 0.01mm,
Measuring range: 10mm

2310S-10

With coaxial revolution counter

Jeweled bearing type



Continuous scale



Graduation: 0.01mm,
Measuring range: 5mm

20445

20445-09

Shockproof



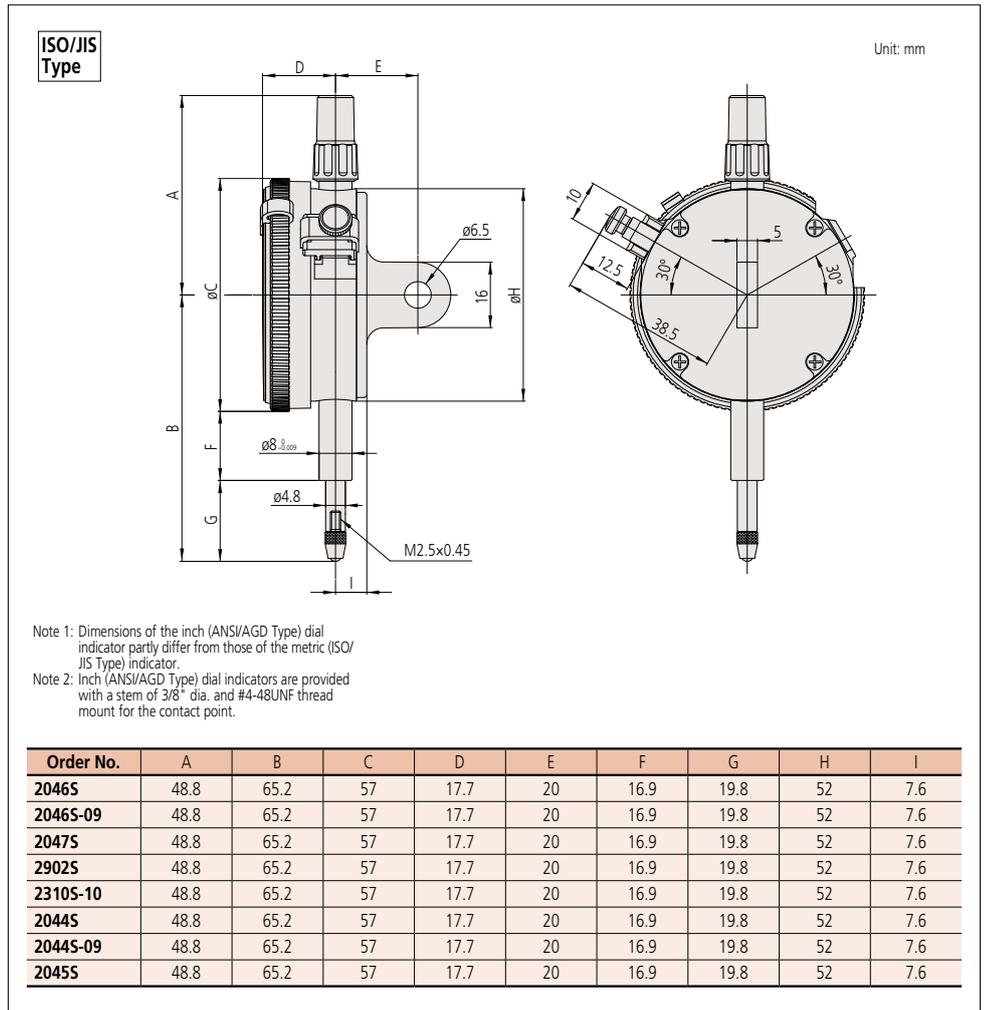
Balanced scale



Graduation: 0.01mm,
Measuring range: 5mm

20455

DIMENSIONS



FEATURES

Metric									
Order No.	Order No.	✓	—	—	—	—	—	—	—
w/ lug	Flat-back								
2046S	2046SB	✓	—	—	—	—	—	—	—
2046S-09	2046SB-09	✓	—	—	✓	—	—	—	—
2047S	2047SB	—	✓	—	—	—	—	—	—
2902S	2902SB	—	—	✓	—	—	—	—	✓
2310S-10	2310SB-10	✓	—	—	—	—	✓	✓	—
2044S	2044SB	✓	—	—	—	—	—	—	—
2044S-09	2044SB-09	✓	—	—	✓	—	—	—	—
2045S	2045SB	—	✓	—	—	—	—	—	—

SPECIFICATIONS

Metric		ISO/JIS type									
Order No.	Order No.	Graduation	Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force	
w/ lug	Flat-back			Overall	Retrace	1/10 Rev	1 Rev				
2046S	2046SB	0.01mm	10mm (1mm)	13μm	3μm	5μm	10μm	3μm	±0-100	1.4N or less	
2046S-09	2046SB-09	0.01mm	10mm (1mm)	15μm	3μm	5μm	10μm	3μm	±0-100	1.4N or less	
2047S	2047SB	0.01mm	10mm (1mm)	13μm	3μm	5μm	10μm	3μm	0-50-0	1.4N or less	
2902S	2902SB	0.01mm	10mm (1mm)	13μm	3μm	5μm	10μm	3μm	100-0	1.4N or less	
2310S-10	2310SB-10	0.01mm	10mm (1mm)	15μm	3μm	5μm	10μm	3μm	±0-100	1.4N or less	
2044S	2044SB	0.01mm	5mm (1mm)	12μm	3μm	5μm	10μm	3μm	±0-100	1.4N or less	
2044S-09	2044SB-09	0.01mm	5mm (1mm)	12μm	3μm	5μm	10μm	3μm	±0-100	1.4N or less	
2045S	2045SB	0.01mm	5mm (1mm)	12μm	3μm	5μm	10μm	3μm	0-50-0	1.4N or less	

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.



An inspection certificate is supplied as standard. Refer to page IX for details.

SERIES 2 — Standard Type, 0.001mm & 0.005mm Graduation

- Standard 0.001mm and 0.005mm graduation dial indicators having a bezel with an outside diameter of $\varnothing 57\text{mm}$. All types come with limit markers and a bezel clamp.
- The outer clamp and lifting lever (optional) can be attached to either the right or left side. These parts can be easily installed and removed without tools.
- Secure adhesion between the bezel and crystal as well as the use of an O-ring prevents water or oil penetration.
- The spindle is made of high-strength quench-hardened stainless steel which resists arduous use.
- A carbide contact point is used.
- A special alloy is used for the sector gears to provide improved wear resistance.
- The indicator uses jeweled bearings, providing excellent indication sensitivity and durability.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.



2109S-10



Balanced scale



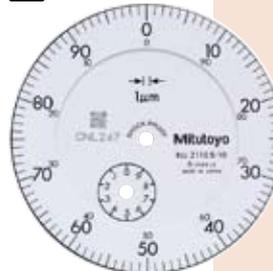
Graduation: 0.001mm,
Measuring range: 1mm

2109S-10

Shockproof type
Jeweled bearing type



Continuous scale



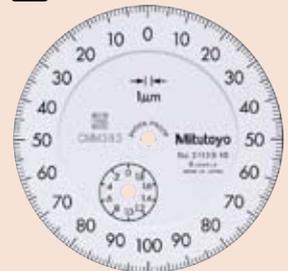
Graduation: 0.001mm,
Measuring range: 1mm

2110S-10

Double scale spacing type
Shockproof type
Jeweled bearing type



Balanced scale



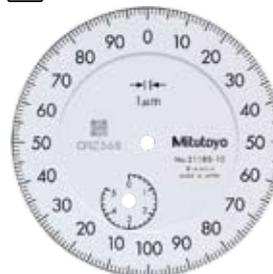
Graduation: 0.001mm,
Measuring range: 2mm

2113S-10

Shockproof type
Jeweled bearing type



Continuous scale



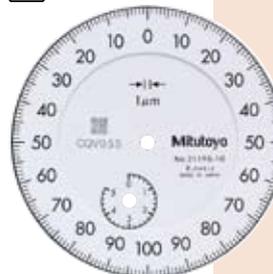
Graduation: 0.001mm,
Measuring range: 5mm

2118S-10

Jeweled bearing



Balanced scale



Graduation: 0.001mm,
Measuring range: 5mm

2119S-10

Jeweled bearing



Continuous scale

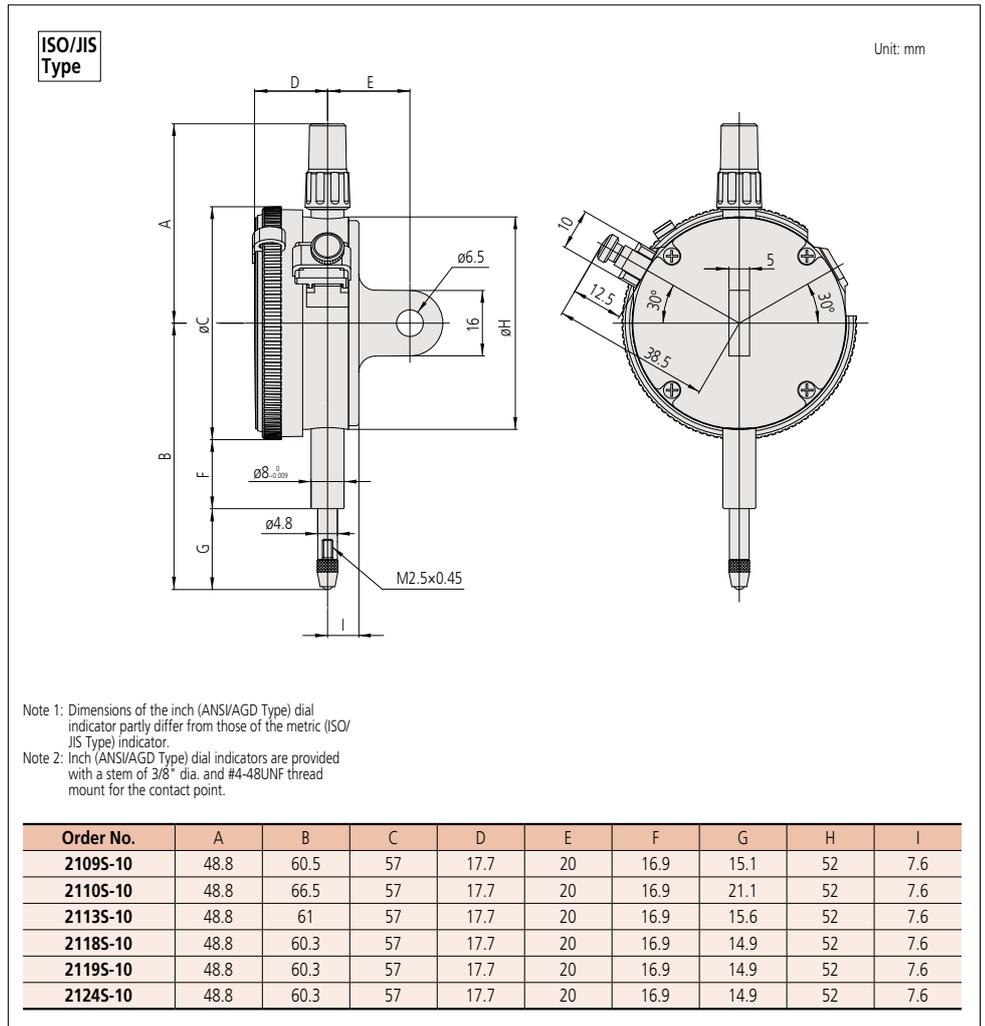


Graduation: 0.005mm,
Measuring range: 5mm

2124S-10

Jeweled bearing

DIMENSIONS



FEATURES

Metric							
Order No.							
w/ lug	Flat-back						
2109S-10	2109SB-10	—	✓	✓	—	✓	—
2110S-10	2110SB-10	✓	—	✓	—	✓	✓
2113S-10	2113SB-10	—	✓	✓	—	✓	—
2118S-10	2118SB-10	✓	—	—	—	✓	—
2119S-10	2119SB-10	—	✓	—	—	✓	—
2124S-10	2124SB-10	✓	—	—	—	✓	—

SPECIFICATIONS

Metric										□ ISO/JIS type
Order No.	Order No.	Graduation	Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force
				Overall	Retrace	1/10 Rev	1 Rev			
w/ lug	Flat-back									
2109S-10	2109SB-10	0.001mm	1mm (0.2mm)	5μm	2μm	2μm	4μm	0.5μm	0-100-0	1.5N or less
2110S-10	2110SB-10	0.001mm	1mm (0.1mm)	5μm	2μm	2μm	4μm	0.5μm	±0-100	1.5N or less
2113S-10	2113SB-10	0.001mm	2mm (0.2mm)	7μm	2μm	2μm	5μm	0.5μm	0-100-0	1.5N or less
2118S-10	2118SB-10	0.001mm	5mm (0.2mm)	10μm	3μm	3.5μm	6μm	1μm	0-100-100	1.5N or less
2119S-10	2119SB-10	0.001mm	5mm (0.2mm)	10μm	3μm	3.5μm	6μm	1μm	0-100-0	1.5N or less
2124S-10	2124SB-10	0.005mm	5mm (0.5mm)	12μm	3μm	5μm	9μm	3μm	±0-50	1.5N or less

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.



An inspection certificate is supplied as standard. Refer to page IX for details.

SERIES 2 — Waterproof Type, 0.01mm & 0.001mm Graduation

- Waterproof type dial gages having a bezel with an outside diameter of 57mm. All types come with limit markers and a bezel clamp as standard.
- The bezel clamp can be attached to either the right or left side. These parts can be easily installed and removed without tools.
- The stem and spindle are made of high-strength quench-hardened stainless steel suitable for heavy-duty use.
- A carbide contact point is used.
- Application of a hard coating on the surface of the crystal makes the gage highly scratch- and chemical-resistant.



20465-60

Continuous scale



Graduation: 0.01mm, Measuring range: 10mm **Waterproof**

Continuous scale

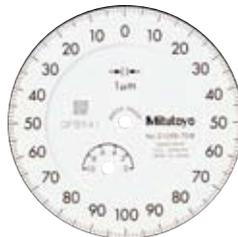


Graduation: 0.01mm, Measuring range: 5mm **Waterproof**



21095-70

Balanced scale



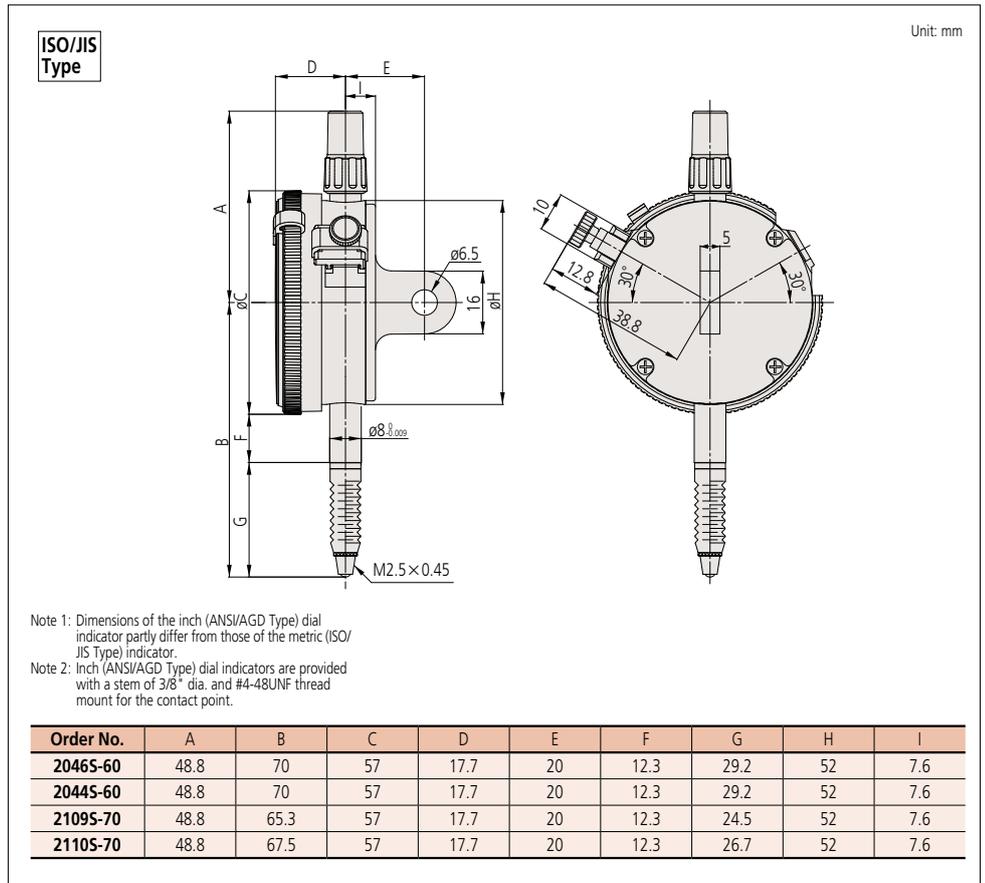
Graduation: 0.001mm, Measuring range: 1mm **Waterproof**
 Shockproof
 Jeweled bearing

Continuous scale



Graduation: 0.001mm, Measuring range: 1mm **Waterproof**
 Double scale spacing
 Shockproof
 Jeweled bearing

DIMENSIONS



FEATURES

Metric							
Order No.							
w/ lug	Flat-back						
2046S-60	2046SB-60	✓	—	—	✓	—	—
2044S-60	2044SB-60	✓	—	—	✓	—	—
2109S-70	2109SB-70	—	✓	✓	✓	✓	—
2110S-70	2110SB-70	✓	—	✓	✓	✓	✓

SPECIFICATIONS

Metric		ISO/JIS type									
Order No.		Graduation	Range (range/rev)	Accuracy			Repeat-ability	Dial reading	Measuring force		
w/ lug	Flat-back			Overall	Retrace	1/10 Rev				1 Rev	
2046S-60	2046SB-60	0.01mm	10mm (1mm)	13µm	3µm	5µm	10µm	3µm	±0-100	2.5N or less	
2044S-60	2044SB-60	0.01mm	5mm (1mm)	12µm	3µm	5µm	10µm	3µm	±0-100	2.5N or less	
2109S-70	2109SB-70	0.001mm	1mm (0.2mm)	5µm	2µm	2µm	4µm	0.5µm	0-100-0	2.0N or less	
2110S-70	2110SB-70	0.001mm	1mm (0.1mm)	5µm	2µm	2µm	4µm	0.5µm	±0-100	2.0N or less	

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

SERIES 2 — Standard Type, Inch Reading

SPECIFICATIONS

Inch		ANSI/AGD type						
Order No.		Graduation	Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
2414S	2414SB	.001"	.5" (.1")	±.001" / ±.001" / ±.001"	.0002"	±.0002"	±0-100	1.8N or less
2415S	2415SB	.001"	.5" (.1")	±.001" / ±.001" / ±.001"	.0002"	±.0002"	0-50-0	1.8N or less
2914S	2914SB	.001"	.5" (.1")	±.001" / ±.001" / ±.001"	.0002"	±.0002"	100-0	1.8N or less
2506S	2506SB	.0005"	.125" (.05")	±.0005" / ±.0005" / —	.00016"	±.0001"	±0-50	1.8N or less
2507S	2507SB	.0005"	.125" (.05")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-25-0	1.8N or less
2514S	2514SB	.0005"	.5" (.05")	±.0005" / ±.0005" / ±.0015"	.00016"	±.0001"	±0-50	1.8N or less
2922S	2922SB	.0005"	.125" (.05")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-25-0	1.8N or less
2356S-10	2356SB-10	.0001"	.25" (.01")	±.0002" / ±.0002" / ±.0003" ±.0004" (First 20rev) / ±.0005" (Over 20rev)	.0001"	±.00003"	0-10	2.0N or less
2358S-10	2358SB-10	.0001"	.5" (.01")	±.0002" / ±.0002" / ±.0003" ±.0004" (First 20rev) / ±.0008" (Over 20rev)	.00015"	±.00003"	0-10	2.0N or less
2802S-10	2802SB-10	.0001"	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	0-10	2.0N or less
2803S-10	2803SB-10	.0001"	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	0-5-0	2.0N or less
2804S-10	2804SB-10	.0001"	.05" (.01")	±.0001" / ±.0001" / ±.0002"	.0001"	±.00003"	0-10	2.0N or less
2805S-10	2805SB-10	.0001"	.05" (.01")	±.0001" / ±.0001" / ±.0002"	.0001"	±.00003"	0-5-0	2.0N or less
2905S-10	2905SB-10	.0001"	.05" (.01")	±.0001" / ±.0001" / ±.0002"	.0001"	±.00003"	10-0	2.0N or less
2923S-10	2923SB-10	.0001"	.05" (.01")	±.0001" / ±.0001" / ±.0002"	.0001"	±.00003"	0-5-0	2.0N or less

FEATURES

Inch		ANSI/AGD type		
Order No.		E	R	D
w/ lug	Flat-back			
2414S	2414SB	—	—	—
2415S	2415SB	—	—	—
2914S	2914SB	—	✓	—
2506S	2506SB	—	—	—
2507S	2507SB	—	—	—
2514S	2514SB	—	—	—
2922S	2922SB	—	—	—
2356S-10	2356SB-10	—	—	✓
2358S-10	2358SB-10	—	—	✓
2802S-10	2802SB-10	✓	—	✓
2803S-10	2803SB-10	✓	—	✓
2804S-10	2804SB-10	✓	—	✓
2805S-10	2805SB-10	✓	—	✓
2905S-10	2905SB-10	✓	✓	✓
2923S-10	2923SB-10	✓	—	✓



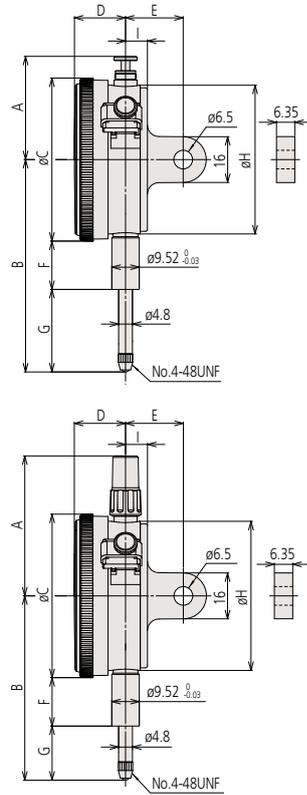
An inspection certificate is supplied as standard. Refer to page IX for details.

Optional Accessories

- : Backs (See page F-55.)
- : Contact points (See page F-51 to F-54.)

DIMENSIONS

ANSI/AGD
Type



Unit: mm

Order No.	A	B	C	D	E	F	G	H	I
2414S	38.9	64.1	57	17.7	19	13.6	22	52	7.6
2415S	38.9	64.1	57	17.7	19	13.6	22	52	7.6
2914S	38.9	64.1	57	17.7	19	13.6	22	52	7.6
2506S	48.8	54.3	57	17.7	19	13.6	12.2	52	7.6
2507S	48.8	54.3	57	17.7	19	13.6	12.2	52	7.6
2514S	38.9	64.1	57	17.7	19	13.6	22	52	7.6
2922S	48.8	54.3	57	17.7	19	13.6	12.2	52	7.6
2356S-10	48.8	57.2	57	17.7	19	13.6	15.1	52	7.6
2358S-10	38.9	63.6	57	17.7	19	13.6	21.5	52	7.6
2802S-10	48.8	51.4	57	17.7	19	13.6	9.3	52	7.6
2803S-10	48.8	51.4	57	17.7	19	13.6	9.3	52	7.6
2804S-10	48.8	51.7	57	17.7	19	13.6	9.6	52	7.6
2805S-10	48.8	51.7	57	17.7	19	13.6	9.6	52	7.6
2905S-10	48.8	51.7	57	17.7	19	13.6	9.6	52	7.6
2923S-10	48.8	51.7	57	17.7	19	13.6	9.6	52	7.6

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.



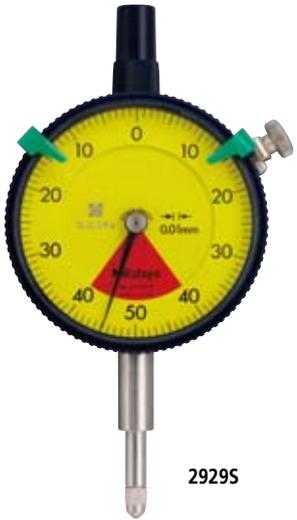
An inspection certificate is supplied as standard. Refer to page IX for details.

SERIES 2 — Standard One Revolution Type for Error-free Reading

- Mitutoyo's unique shock-proof mechanism is incorporated, providing improved resistance to shock due to sudden spindle retraction caused by impact.
- This series has been developed to eliminate the possibility of reading errors due to miscounting multiple revolutions.
- The dead zone in red indicates "accuracy not guaranteed".



2900S-10



2929S

One revolution type Back plunger dial gages are also available. (Refer to pages F-49 to F-50 for details.)



2990T-10



Balanced scale



Graduation: 0.001mm,
Measuring range: 0.08mm

2900S-10

One revolution

Shockproof

Jeweled bearing

2900S-72

One revolution

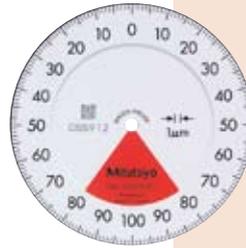
Shockproof

Dustproof

Jeweled bearing



Balanced scale



Graduation: 0.001mm,
Measuring range: 0.16mm

2901S-10

One revolution

Shockproof

Jeweled bearing



Balanced scale



Graduation: 0.1mm,
Measuring range: 4mm

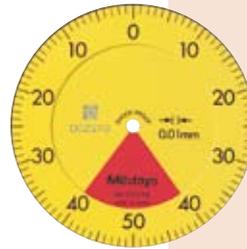
2928S

One revolution

Shockproof



Balanced scale



Graduation: 0.01mm,
Measuring range: 0.8mm

2929S

One revolution

Shockproof

2929S-62

One revolution

Shockproof

Dustproof



Balanced scale



Graduation: 0.01mm,
Measuring range: 1.6mm

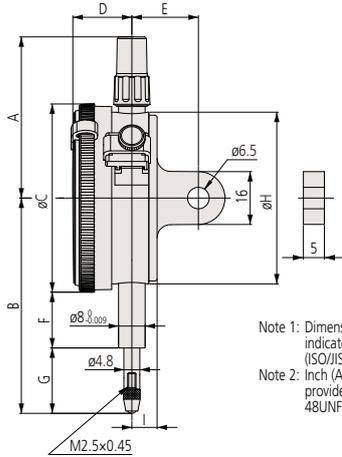
2959S

One revolution

Shockproof

DIMENSIONS

ISO/JIS Type

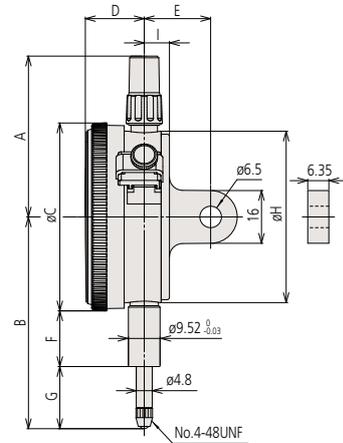


Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.
Note 2: Inch (ANSI/AGD Type) dial indicators are provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.

Order No.	A	B	C	D	E	F	G	H	I
2928S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2929S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2929S-62	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2959S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2900S-10	48.8	66	57	17.7	20	16.9	20.6	52	7.6
2900S-72	48.8	66	57	17.7	20	16.9	20.6	52	7.6
2901S-10	48.8	66.1	57	17.7	20	16.9	20.7	52	7.6

ANSI/AGD Type

Unit: mm



Order No.	A	B	C	D	E	F	G	H	I
2909S-62	48.8	51.9	57	17.7	19	13.6	9.8	52	7.6
2910S-10	48.8	51.2	57	17.7	19	13.6	9.1	52	7.6

FEATURES

Metric

Order No.		ISO/JIS	64	Waterproof	Diamond	—	—
w/ lug	Flat-back						
2928S	2928SB	✓	—	—	—	—	—
2929S	2929SB	✓	—	—	—	—	—
2929S-62	2929SB-62	✓	—	✓	—	—	—
2959S	2959SB	✓	—	—	—	—	—
2900S-10	2900SB-10	✓	—	—	✓	—	—
2900S-72	2900SB-72	✓	—	✓	✓	—	—
2901S-10	2901SB-10	✓	—	—	✓	—	—

Inch

Order No.		ISO/JIS	64	Waterproof	Diamond	—	—
w/ lug	Flat-back						
2909S-62	2909SB-62	✓	—	✓	—	—	—
2910S-10	2910SB-10	✓	—	—	✓	—	—

SPECIFICATIONS

Metric

□ ISO/JIS type

Order No.		Graduation	Range (range/rev)	Accuracy				Repeatability	Dial reading	Measuring force
w/ lug	Flat-back			Overall	Retrace	1/10 Rev	1 Rev			
2928S	2928SB	0.1mm	4mm (5mm)	40μm	20μm	20μm	—	20μm	2-0-2	1.4N or less
2929S	2929SB	0.01mm	0.8mm (1mm)	8μm	3μm	5μm	—	3μm	40-0-40	1.4N or less
2929S-62	2929SB-62	0.01mm	0.8mm (1mm)	8μm	3μm	5μm	—	3μm	40-0-40	2.0N or less
2959S	2959SB	0.01mm	1.6mm (2mm)	10μm	3μm	5μm	—	3μm	80-0-80	1.4N or less
2900S-10	2900SB-10	0.001mm	0.08mm (0.1mm)	3μm	2μm	2μm	—	0.5μm	40-0-40	1.4N or less
2900S-72	2900SB-72	0.001mm	0.08mm (0.1mm)	3μm	2μm	2μm	—	0.5μm	40-0-40	2.0N or less
2901S-10	2901SB-10	0.001mm	0.16mm (0.2mm)	4μm	2μm	2μm	—	0.5μm	80-0-80	1.4N or less

Inch

□ ANSI/AGD type

Order No.		Graduation	Range (range/rev)	Accuracy		Repeatability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
2909S-62	2909SB-62	.0005"	.04" / .05"	±.0005" / — / —	.00016"	±.0001"	20-0-20	2.5N or less
2910S-10	2910SB-10	.0001"	.008" / .01"	±.0001" / — / —	.0001"	±.00003"	4-0-4	1.8N or less

Dial Indicators

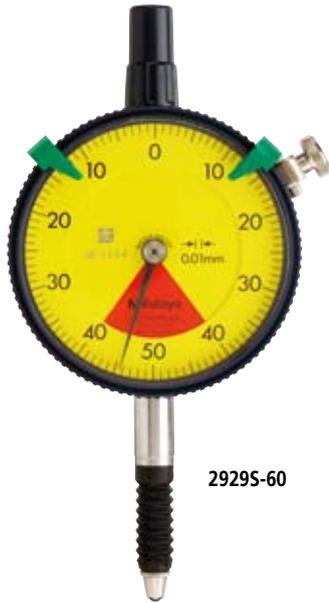
Comparison measuring instruments which ensure high quality, high accuracy and reliability.

SERIES 2 — Standard One Revolution Type for Error-free Reading, Waterproof Type

- Mitutoyo's unique shock-proof mechanism is incorporated, providing improved resistance to shock due to sudden spindle retraction caused by impact.
- This series has been developed to eliminate the possibility of reading errors due to miscounting multiple revolutions.
- The dead zone in red indicates "accuracy not guaranteed".
- One revolution type Back plunger dial gages are also available. (Refer to pages F-44 to F-45 for details.)



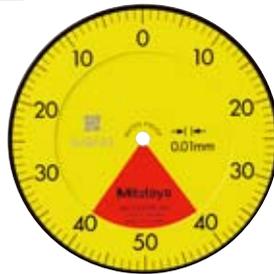
An inspection certificate is supplied as standard. Refer to page IX for details.



2929S-60



Balanced scale



Graduation: 0.01mm,
Measuring range: 0.8mm

2929S-60

One revolution

Shockproof

Waterproof



2900S-70



Balanced scale



Graduation: 0.01mm,
Measuring range: 0.08mm

2900S-70

One revolution

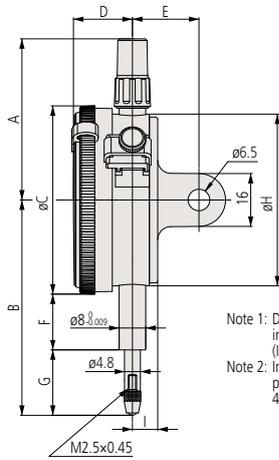
Shockproof

Waterproof

Jeweled bearing

DIMENSIONS

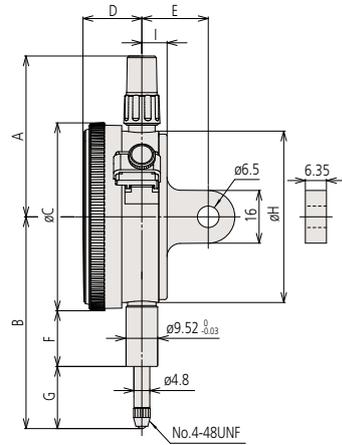
ISO/JIS Type



Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.
 Note 2: Inch (ANSI/AGD Type) dial indicators are provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.

Order No.	A	B	C	D	E	F	G	H	I
2929S-60	48.8	70	57	17.7	20	12.3	29.2	52	7.6
2900S-70	48.8	67	57	17.7	20	12.3	26.2	52	7.6

ANSI/AGD Type



Unit: mm

Order No.	A	B	C	D	E	F	G	H	I
2910S-72	48.8	51.2	57	17.7	19	13.6	9.1	52	7.6

FEATURES

Metric

Order No.		Flat-back	64	Light	Diamond	—	—
2929S-60	2929SB-60	✓	✓	—	—	—	—
2900S-70	2900SB-70	✓	✓	—	✓	—	—

Inch

Order No.		Flat-back	64	Light	Diamond	—	—
2910S-72	2910SB-72	✓	✓	✓	✓	—	—

SPECIFICATIONS

Metric

□ ISO/JIS type

Order No.		Graduation	Range (range/rev)	Accuracy				Repeatability	Dial reading	Measuring force
w/ lug	Flat-back			Overall	Retrace	1/10 Rev	1 Rev			
2929S-60	2929SB-60	0.01mm	0.8mm (1mm)	8μm	3μm	5μm	—	3μm	40-0-40	2.0N or less
2900S-70	2900SB-70	0.001mm	0.08mm (0.1mm)	3μm	2μm	2μm	—	0.5μm	40-0-40	2.0N or less

Inch

□ ANSI/AGD type

Order No.		Graduation	Range (range/rev)	Accuracy		Repeatability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
2910S-72	2910SB-72	.0001"	.008" / .01"	±.0001" / — / —	.0001"	±.00003"	4-0-4	2.5N or less

Dial Indicators

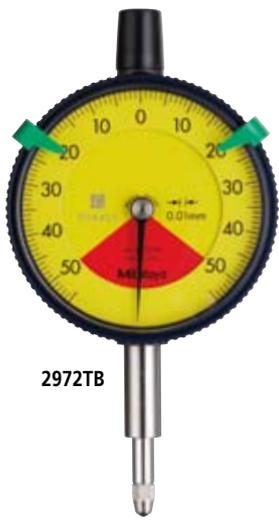
Comparison measuring instruments which ensure high quality, high accuracy and reliability.



An inspection certificate is supplied as standard. Refer to page IX for details.

SERIES 2 — Standard One Revolution Type for Error-free Reading, Lightweight Type

- Excellent water- and drip-proof characteristics (IP43).
- Smooth movement thanks to the improved design of bush and stem.
- Application of a hard coating on the surface of the crystal makes the gage scratch- and oil-resistant.
- Lightweight type (70g).



2972TB



Balanced scale



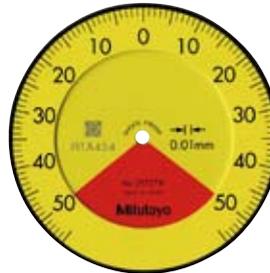
Graduation: 0.01mm,
Measuring range: 0.5mm

2971TB

- One revolution
- Shockproof
- Dustproof



Balanced scale



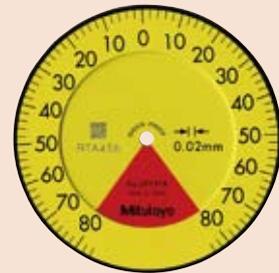
Graduation: 0.01mm,
Measuring range: 1mm

2972TB

- One revolution
- Shockproof
- Dustproof



Balanced scale



Graduation: 0.02mm,
Measuring range: 1.6mm

2973TB

- One revolution
- Shockproof
- Dustproof

DIMENSIONS

Unit: mm

* When installing an optional back (refer to page F-55 for details) please separately prepare 4 fixing screws (Order No. 546666: Self-tapping screw only for resin). Do not apply a tightening torque of more than 20N-cm in order to avoid stripping the screw threads.

* An optional lifting lever, release or outer frame clamp cannot be installed.

Order No.	A	B	C	D	F	G	H	I
2971TB	43.2	65.6	57	16.5	21	16.8	55	7.6
2972TB	43.2	66	57	16.5	21	17.2	55	7.6
2973TB	43.2	66.3	57	16.5	21	17.5	55	7.6
2976TB	43.2	64.7	57	16.5	20.3	15.9	55	7.6
2977TB	43.2	65	57	16.5	20.3	16.2	55	7.6
2978TB	43.2	65.3	57	16.5	20.3	16.5	55	7.6

*Refer to page F-51 to F-54 for details of contact points.

FEATURES

Metric					
Order No.	Flat-back				
— 2971TB	✓	✓	✓	✓	✓
— 2972TB	✓	✓	✓	✓	✓
— 2973TB	✓	✓	✓	✓	✓

Inch					
Order No.	Flat-back				
— 2976TB	✓	✓	✓	✓	✓
— 2977TB	✓	✓	✓	✓	✓
— 2978TB	✓	✓	✓	✓	✓

SPECIFICATIONS

Metric				Accuracy						
Order No.	Flat-back	Graduation	Range (range/rev)	Overall	Retrace	1/10 Rev	1 Rev	Repeat-ability	Dial reading	Measuring force
— 2971TB	ISO/JIS type	0.01mm	0.5mm (0.7mm)	8µm	3µm	5µm	—	3µm	25-0-25	1.4N or less
— 2972TB	ISO/JIS type	0.01mm	1mm (1.4mm)	8µm	3µm	5µm	—	3µm	50-0-50	1.4N or less
— 2973TB	ISO/JIS type	0.02mm	1.6mm (2mm)	16µm	6µm	8µm	—	5µm	80-0-80	1.4N or less

Inch				Accuracy						
Order No.	Flat-back	Graduation	Range (range/rev)	Accuracy			Repeat-ability	Dial reading	Measuring force	
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace					
— 2976TB	ANSI/AGD type	.0005"	.02" (.028")	±.0005"/-/-			.00016"	±.0001"	10-0-10	1.4N or less
— 2977TB	ANSI/AGD type	.0005"	.04" (.055")	±.0005"/-/-			.00016"	±.0001"	20-0-20	1.4N or less
— 2978TB	ANSI/AGD type	.001"	.06" (.079")	±.001"/-/-			.0002"	±.0002"	30-0-30	1.4N or less

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.



An inspection certificate is supplied as standard. Refer to page IX for details.

SERIES 2 — Long Stroke Type

- Long stroke dial indicators with a $\varnothing 57\text{mm}$ outer frame. All the models are equipped with limit markers and a bezel clamp as standard.
- An O-ring is employed to ensure air-tightness between the outer frame and the crystal case to prevent water or oil penetration.
- Both the stem and the spindle are made of high-strength quench-hardened stainless steel suitable for heavy-duty use.
- A carbide contact point is employed.
- The grand gear is made of stainless steel with high resistance to wear and deformation.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.
- The bezel clamp and lifting lever* (optional) can be attached to either the right or left side. These parts can be easily installed and removed without any tools.

* Not available for waterproof type.



2050S



2050S-60

Continuous scale



Graduation: 0.01mm,
Measuring range: 20mm

2050S

With damper at lowest rest point

2050S-19

Shockproof

Jeweled bearing

With damper at lowest rest point

2050S-60

Waterproof

Continuous scale



Graduation: 0.01mm,
Measuring range: 30mm

2052S

With damper at lowest rest point

2052S-19

Shockproof

Jeweled bearing

With damper at lowest rest point

Continuous scale



Graduation: 0.01mm,
Measuring range: 30mm

2330S-10

With coaxial revolution counter

With damper at lowest rest point

Jeweled bearing

Continuous scale



Graduation: 0.01mm,
Measuring range: 20mm

2320S-10

With coaxial revolution counter

With damper at lowest rest point

Jeweled bearing

Reverse reading



Graduation: 0.01mm,
Measuring range: 30mm

2952S

With damper at lowest rest point

FEATURES

Metric

Order No.									
w/ lug	Flat-back								
2050S	2050SB	✓	—	—	—	—	—	—	—
2050S-60	2050SB-60	✓	—	—	—	—	—	—	—
2050S-19	2050SB-19	✓	—	—	✓	—	✓	✓	—
2320S-10	2320SB-10	✓	—	—	—	—	✓	✓	✓
2052S	2052SB	✓	—	—	—	—	—	✓	—
2052S-19	2052SB-19	✓	—	—	✓	—	—	✓	—
2330S-10	2330SB-10	✓	—	—	—	—	—	✓	✓
2952S	2952SB	—	—	✓	—	—	—	—	—

SPECIFICATIONS

Metric

ISO/JIS type

Order No.		Graduation	Range (range/rev)	Accuracy			Repeat-ability	Dial reading	Measuring force	
w/ lug	Flat-back			Overall	Retrace	1/10 Rev				1 Rev
2050S	2050SB	0.01mm	20mm (1mm)	20μm	5μm	8μm	15μm	4μm	±0-100	2.0N or less
2050S-60	2050SB-60	0.01mm	20mm (1mm)	20μm	5μm	8μm	15μm	4μm	±0-100	2.5N or less
2050S-19	2050SB-19	0.01mm	20mm (1mm)	20μm	5μm	8μm	15μm	4μm	±0-100	2.0N or less
2320S-10	2320SB-10	0.01mm	20mm (1mm)	20μm	5μm	8μm	15μm	4μm	±0-100	2.0N or less
2052S	2052SB	0.01mm	30mm (1mm)	25μm	7μm	10μm	15μm	5μm	±0-100	2.5N or less
2052S-19	2052SB-19	0.01mm	30mm (1mm)	25μm	7μm	10μm	15μm	5μm	±0-100	2.5N or less
2330S-10	2330SB-10	0.01mm	30mm (1mm)	25μm	7μm	10μm	15μm	5μm	±0-100	2.5N or less
2952S	2952SB	0.01mm	30mm (1mm)	25μm	7μm	10μm	15μm	5μm	100-0	2.5N or less

* 2050S-60 and 2050SB-60 are waterproof types that use a rubber bellows to cover the spindle. Please note that the outer diameter of the bellows (ø9.5) is larger than that of the stem (ø8).

Inch

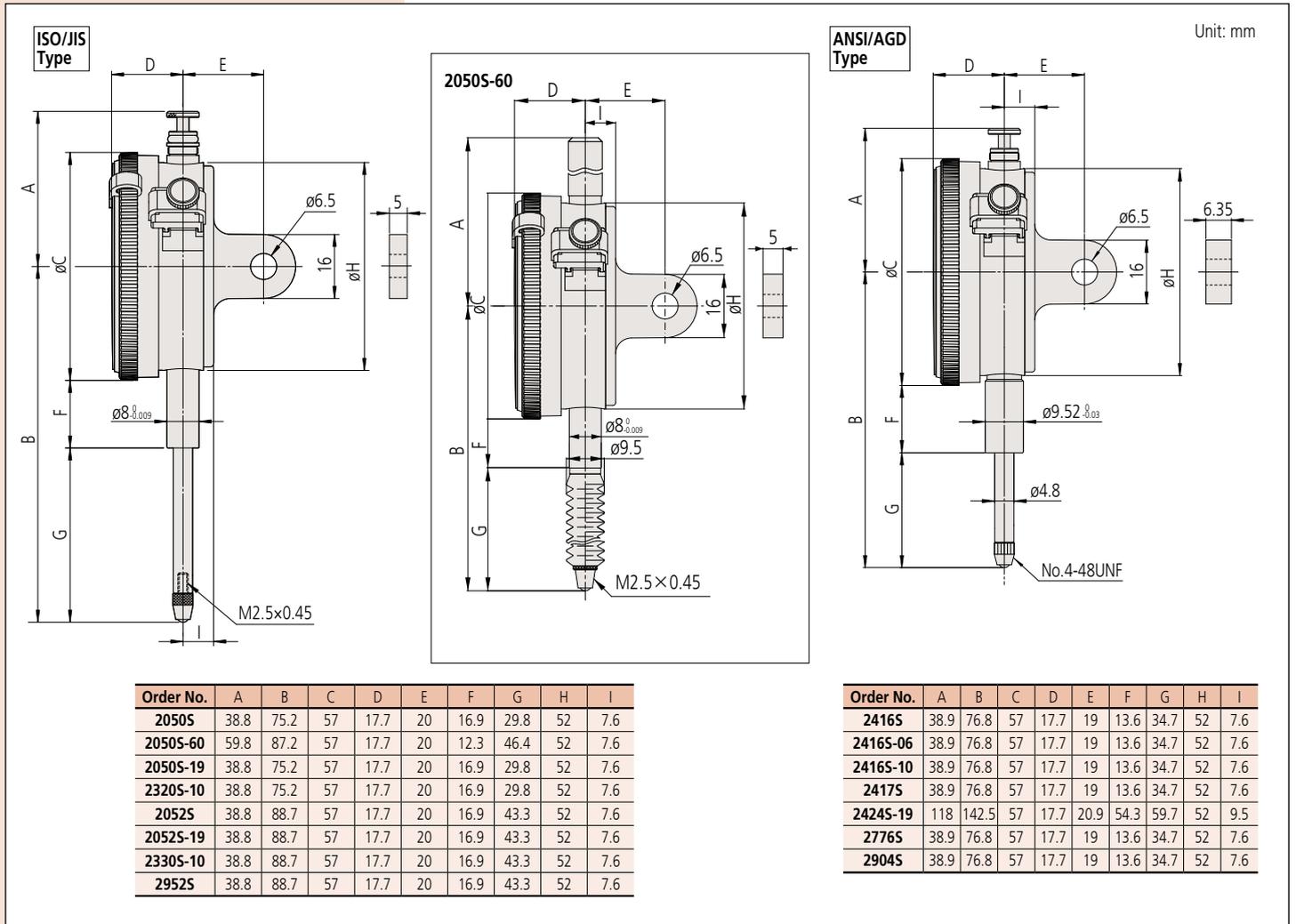
Order No.									
w/ lug	Flat-back								
2416S	2416SB	✓	—	—	—	—	—	—	—
2416S-06	2416SB-06	✓	—	—	—	—	—	—	—
2416S-10	2416SB-10	✓	—	—	—	—	—	—	—
2417S	2417SB	—	✓	—	—	—	—	—	—
2424S-19	2424SB-19	✓	—	✓	—	—	—	—	✓
2776S	2776SB	✓	—	—	—	—	—	—	—
2904S	2904SB	—	—	—	—	—	—	—	—

Inch

ANSI/AGD type

Order No.		Graduation	Range (range/rev)	Accuracy			Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace	1 Rev			
2416S	2416SB	.001"	1" (.1")	±.001" / ±.001" / ±.002"	.0002"	±.0002"	±0-100	1.8N or less	
2416S-06	2416SB-06	.001"	1" (.1")	±.001" / ±.001" / ±.002"	.0002"	±.0002"	±0-100	1.8N or less	
2416S-10	2416SB-10	.001"	1" (.1")	±.001" / ±.001" / ±.002"	.0002"	±.0002"	±0-100	1.8N or less	
2417S	2417SB	.001"	1" (.1")	±.001" / ±.001" / ±.002"	.0002"	±.0002"	0-50-0	1.8N or less	
2424S-19	2424SB-19	.001"	2" (.1")	±.001" / ±.001" / ±.002" / ±.003" (First 20Rev)	.00033"	±.0002"	±0-100	2.5N or less	
2776S	2776SB	.0005"	1" (.05")	±.0005" / ±.0005" / ±.0015"	.0002"	±.0001"	±0-50	2.5N or less	
2904S	2904SB	.001"	1" (.1")	±.001" / ±.001" / ±.002"	.0002"	±.0002"	100-0	1.8N or less	

DIMENSIONS



Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.



An inspection certificate is supplied as standard. Refer to page IX for details.

SERIES 1 — Compact Type, Small Diameter

- Compact dial indicators with bezel diameters of $\varnothing 31$ or $\varnothing 36$ mm for restricted-space applications in gaging jigs.



1911T-10



Balanced scale



Graduation: 0.01mm,
Measuring range: 2.5mm

1911T-10

Jeweled bearing



Balanced scale



Graduation: 0.02mm,
Measuring range: 0.5mm

1913T-10

Jeweled bearing



1003T



Balanced scale



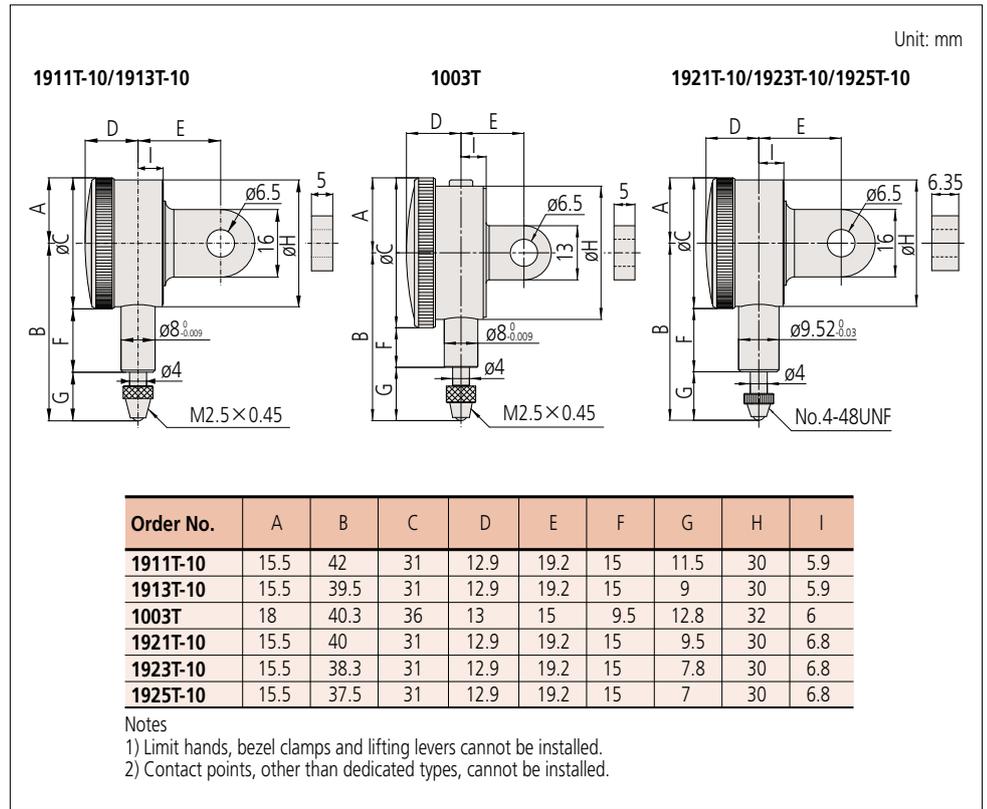
Graduation: 0.01mm,
Measuring range: 4mm

1003T



An inspection certificate is supplied as standard. Refer to page IX for details.

DIMENSIONS



SPECIFICATIONS

ISO/JIS type

Order No.		Graduation	Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			Overall	Retrace	1/10 Rev	1 Rev			
1911T-10	1911TB-10	0.01mm	2.5mm (1mm)	12μm	4μm	8μm	10μm	3μm	0-50-0	1.8N or less
1913T-10	1913TB-10	0.002mm	0.5mm (0.2mm)	6μm	2.5μm	2.5μm	5μm	1μm	0-100-0	1.8N or less
1003TB	1003TB	0.01mm	4mm (1mm)	13μm	4μm	8μm	11μm	3μm	0-50-0	1.4N or less

ANSI/AGD type

Order No.		Graduation	Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
1921T-10	1921TB-10	.001"	.1" (.04")	±.001" / ±.001" / —	.0002"	±.0002"	0-20-0	1.8N or less
1923T-10	1923TB-10	.0005"	.05" (.02")	±.0005" / ±.005" / —	.00016"	±.0001"	0-10-0	1.8N or less
1925T-10	1925TB-10	.0001"	.025" (.01")	±.0002" / ±.0002" / —	.0001"	±.00003"	0-5-0	1.8N or less

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.



An inspection certificate is supplied as standard. Refer to page IX for details.

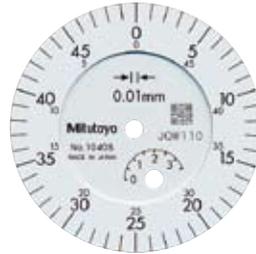
SERIES 1 — Compact Type, Small Diameter

- Compact dial indicators with bezel diameters of $\varnothing 40\text{mm}$ for restricted-space applications in gaging jigs.



1044S

Continuous scale



Graduation: 0.01mm, Measuring range: 3.5mm
 Double scale spacing

Balanced scale



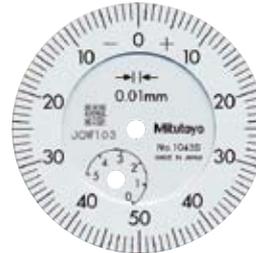
Graduation: 0.01mm, Measuring range: 3.5mm
 Double scale spacing

Continuous scale



Graduation: 0.01mm, Measuring range: 5mm
1044S-15
 Jeweled bearing

Balanced scale



Graduation: 0.01mm, Measuring range: 5mm
1045S



1109S-10

Balanced scale



Graduation: 0.001mm, Measuring range: 1mm
1109S-10
 Shockproof
 Jeweled bearing

Balanced scale



Graduation: 0.002mm, Measuring range: 1mm
1013S-10
 Shockproof
 Jeweled bearing

Continuous scale



Graduation: 0.005mm, Measuring range: 3.5mm
1124S



1044S-60

Continuous scale



Graduation: 0.01mm,
Measuring range: 5mm Waterproof

ISO/JIS type

SPECIFICATIONS

Metric		Graduation	Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force
Order No.	w/ lug			Flat-back	Overall	Retrace	1/10 Rev			
1013S-10	1013SB-10	0.002mm	1mm (0.2mm)	6µm	2.5µm	2.5µm	5µm	1µm	0-100-0	1.5N or less
1040S	1040SB	0.01mm	3.5mm (0.5mm)	13µm	4µm	8µm	11µm	3µm	±0-50	1.4N or less
1041S	1041SB	0.01mm	3.5mm (0.5mm)	13µm	4µm	8µm	11µm	3µm	0-25-0	1.4N or less
1044S	1044SB	0.01mm	5mm (1mm)	13µm	4µm	8µm	11µm	3µm	±0-100	1.4N or less
1044S-15	1044SB-15	0.01mm	5mm (1mm)	13µm	4µm	8µm	11µm	3µm	±0-100	0.4N or less*
1044S-60	1044SB-60	0.01mm	5mm (1mm)	13µm	4µm	8µm	11µm	3µm	±0-100	2.0N or less
1045S	1045SB	0.01mm	5mm (1mm)	13µm	4µm	8µm	11µm	3µm	0-50-0	1.4N or less
1109S-10	1109SB-10	0.001mm	1mm (0.2mm)	5µm	2µm	2.5µm	4.5µm	1µm	0-100-0	1.5N or less
1124S	1124SB	0.005mm	3.5mm (0.5mm)	12µm	3.5µm	6µm	10µm	3µm	±0-50	1.4N or less

Inch		Graduation	Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force
Order No.	w/ lug			Flat-back	First 1 Rev / 2.5 Rev / 10 Rev			
1410S	1410SB	.001"	.25" (.1")	±.001" / ±.001" / —	.0002"	±.0002"	0-100	1.4N or less
1411S	1411SB	.001"	.25" (.1")	±.001" / ±.001" / —	.0002"	±.0002"	0-50-0	1.4N or less
1410S-10	1410SB-10	.001"	.25" (.1")	±.001" / ±.001" / —	.0002"	±.0002"	0-100	1.4N or less
1780S	1780SB	.001"	.125" (.05")	±.001" / ±.001" / —	.0002"	±.0002"	0-50	1.4N or less
1781S	1781SB	.001"	.125" (.05")	±.001" / ±.001" / —	.0002"	±.0002"	0-25-0	1.4N or less
1506S	1506SB	.0005"	.125" (.05")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-50	1.4N or less
1507S	1507SB	.0005"	.125" (.05")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-25-0	1.4N or less
1670S	1670SB	.0005"	.1" (.04")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-40	1.4N or less
1671S	1671SB	.0005"	.1" (.04")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-20-0	1.4N or less
1802S-10	1802SB-10	.0001"	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	0-10	1.5N or less
1803S-10	1803SB-10	.0001"	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	0-5-0	1.5N or less

ANSI/AGD type

FEATURES

Metric		Flat-back			
Order No.	w/ lug				
1013S-10	1013SB-10	—	✓	—	—
1040S	1040SB	✓	—	—	—
1041S	1041SB	✓	—	—	—
1044S	1044SB	—	—	—	—
1044S-15	1044SB-15	—	✓	—	—
1044S-60	1044SB-60	—	—	—	✓
1045S	1045SB	—	—	—	—
1109S-10	1109SB-10	—	✓	—	—
1124S	1124SB	—	—	—	—

Inch		Flat-back		
Order No.	w/ lug			
1410S	1410SB	—	—	—
1411S	1411SB	—	—	—
1410S-10	1410SB-10	✓	—	—
1780S	1780SB	—	—	—
1781S	1781SB	—	—	—
1506S	1506SB	—	—	—
1507S	1507SB	—	—	—
1670S	1670SB	—	—	—
1671S	1671SB	—	—	—
1802S-10	1802SB-10	✓	—	✓
1803S-10	1803SB-10	✓	—	✓

DIMENSIONS

ANSI/AGD Type

Unit: mm

Order No.	A	B	C	D	E	F	G	H	I
1410S	32.5	47.6	40	14.5	19	12.8	14.8	38	6.6
1411S	32.5	47.6	40	14.5	19	12.8	14.8	38	6.6
1410S-10	32.5	47.6	40	14.5	19	12.8	14.8	38	6.6
1780S	32.5	44.1	40	14.5	19	12.8	11.3	38	6.6
1781S	32.5	44.1	40	14.5	19	12.8	11.3	38	6.6
1506S	32.5	44.1	40	14.5	19	12.8	11.3	38	6.6
1507S	32.5	44.1	40	14.5	19	12.8	11.3	38	6.6
1670S	32.5	43.4	40	14.5	19	12.8	10.6	38	6.6
1671S	32.5	43.4	40	14.5	19	12.8	10.6	38	6.6
1802S-10	32.5	41.3	40	14.5	19	12.5	8.5	38	6.6
1803S-10	32.5	41.3	40	14.5	19	12.5	8.5	38	6.6

ISO/JIS Type

Unit: mm

Order No.	A	B	C	D	E	F	G	H	I
1013S-10	32.5	49	40	14.5	20	13.8	15.2	38	6.6
1040S	32.5	46	40	14.5	20	13.8	12.2	38	6.6
1041S	32.5	46	40	14.5	20	13.8	12.2	38	6.6
1044S	32.5	47.5	40	14.5	20	13.8	13.7	38	6.6
1044S-15*	32.5	47.5	40	14.5	20	13.8	13.7	38	6.6
1044S-60	32.5	57	40	14.5	20	12.2	24.8	38	6.6
1045S	32.5	47.5	40	14.5	20	13.8	13.7	38	6.6
1109S-10	32.5	49	40	14.5	20	13.8	15.2	38	6.6
1124S	32.5	46	40	14.5	20	13.8	12.2	38	6.6

Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.

Note 2: Inch (ANSI/AGD Type) dial indicators are provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.

*2 Use in a vertical position (contact point downward) for the low measuring force model.

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.



An inspection certificate is supplied as standard. Refer to page IX for details.

SERIES 1 — Compact One Revolution Type for Error-free Reading

- Mitutoyo's unique shock-proof mechanism is incorporated, providing improved resistance to shock due to sudden spindle retraction caused by impact.
- This series has been developed to eliminate the possibility of reading errors due to miscounting multiple revolutions.
- The dead zone in red indicates "accuracy not guaranteed" .
- One revolution type Back plunger dial gages are also available. (Refer to pages F-49 to F-50 for details.)



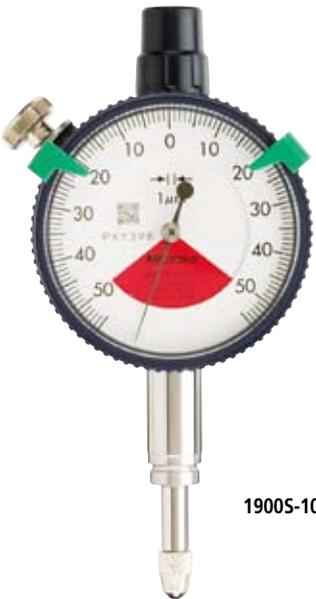
1929S

Balanced scale



Graduation: 0.01mm,
Measuring range: 1mm

- 1929S**
-  One revolution
 -  Shockproof
- 1929S-62**
-  One revolution
 -  Shockproof
 -  Dustproof



1900S-10

Balanced scale



Graduation: 0.001mm,
Measuring range: 0.1mm

- 1900S-10**
-  One revolution
 -  Shockproof
 -  Jeweled bearing
- 1900S-72**
-  One revolution
 -  Shockproof
 -  Dustproof
 -  Jeweled bearing

One revolution type Back plunger dial gages are also available. (Refer to pages F-49 to F-50 for details.)



2990T-10

FEATURES

Metric		Diamond	Oil Resistant	3-Point
Order No.	Order No.			
w/ lug	Flat-back			
1929S	1929SB	—	—	✓
1929S-62	1929SB-62	—	✓	✓
1900S-10	1900SB-10	✓	—	✓
1900S-72	1900SB-72	✓	✓	✓

Inch		Diamond	Oil Resistant	3-Point
Order No.	Order No.			
w/ lug	Flat-back			
1909S-62	1909SB-62	—	✓	✓
1910S-72	1910SB-72	✓	✓	✓

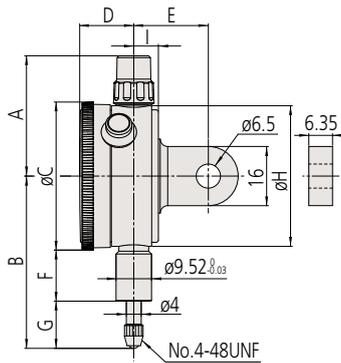
SPECIFICATIONS

Metric		Graduation	Range (range/rev)	Accuracy				Repeatability	Dial reading	Measuring force
Order No.	Order No.			Overall	Retrace	1/10 Rev	1 Rev			
1929S	1929SB	0.01mm	1mm (1.4mm)	11µm	4µm	7µm	—	3µm	50-0-50	1.4N or less
1929S-62	1929SB-62	0.01mm	1mm (1.4mm)	11µm	4µm	7µm	—	3µm	50-0-50	1.4N or less
1900S-10	1900SB-10	0.001mm	0.1mm (0.14mm)	5µm	2µm	2.5µm	—	1µm	50-0-50	1.5N or less
1900S-72	1900SB-72	0.001mm	0.1mm (0.14mm)	5µm	2µm	2.5µm	—	1µm	50-0-50	1.5N or less

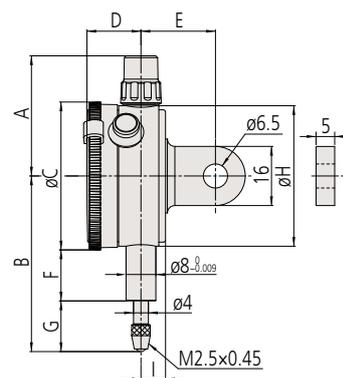
Inch		Graduation	Range (range/rev)	Accuracy			Repeatability	Dial reading	Measuring force
Order No.	Order No.			First 1 Rev / 2.5 Rev / 10 Rev	Retrace	Retrace			
1909S-62	1909SB-62	.0005"	.04" (.056")	±.0005" / — / —	.00016"	±.0001"	20-0-20	1.4N or less	
1910S-72	1910SB-72	.0001"	.006" (.008")	±.0001" / — / —	.0001"	±.00003"	3-0-3	1.5N or less	

DIMENSIONS

ANSI/AGD Type



ISO/JIS Type



Unit: mm

- Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.
 Note 2: Inch (ANSI/AGD Type) dial indicators are provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.

Order No.	A	B	C	D	E	F	G	H	I
1909S-62	32.5	41.7	40	14.5	19	12.8	8.9	38	6.6
1910S-72	32.5	40.8	40	14.5	19	12.8	8	38	6.6

Order No.	A	B	C	D	E	F	G	H	I
1929S	32.5	47.5	40	14.5	20	13.8	13.7	38	6.6
1929S-62	32.5	47.5	40	14.5	20	13.8	13.7	38	6.6
1900S-10	32.5	53.5	40	14.5	20	16.8	16.7	38	6.6
1900S-72	32.5	53.5	40	14.5	20	16.8	16.7	38	6.6

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

ANSI/AGD Type Metric Dial Indicator with $\varnothing 3/8"$ Stem and #4-48UNF-Thread Contact Point Compatible Type

SPECIFICATIONS

Metric		Series 1		ANSI/AGD type				
Order No.		Graduation	Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
1230S-01	1230SB-01	0.01mm	2.5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \text{—}$	3 μm	$\pm 2\mu\text{m}$	0-100	1.4N or less
1231S-01	1231SB-01	0.01mm	2.5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \text{—}$	3 μm	$\pm 2\mu\text{m}$	0-50-0	1.4N or less
1044S-01	1044SB-01	0.01mm	5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
1045S-01	1045SB-01	0.01mm	5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	0-50-0	1.4N or less
1010S-11	1010SB-11	0.002mm	0.5mm (0.2mm)	$\pm 2\mu\text{m} / \pm 2\mu\text{m} / \text{—}$	2 μm	$\pm 1\mu\text{m}$	0-20	1.5N or less
1011S-11	1011SB-11	0.002mm	0.5mm (0.2mm)	$\pm 2\mu\text{m} / \pm 2\mu\text{m} / \text{—}$	2 μm	$\pm 1\mu\text{m}$	0-10-0	1.5N or less

Metric		Series 2		ANSI/AGD type				
Order No.		Graduation	Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
2230S-01	2230SB-01	0.01mm	2.5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \text{—}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
2231S-01	2231SB-01	0.01mm	2.5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \text{—}$	3 μm	$\pm 3\mu\text{m}$	0-50-0	1.4N or less
2046S-01	2046SB-01	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
2046S-11	2046SB-11	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
2048S-11	2048SB-11	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
2047S-01	2047SB-01	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	0-50-0	1.4N or less
2047S-11	2047SB-11	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	0-50-0	1.4N or less
2902S-01	2902SB-01	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	100-0	1.4N or less
2050S-01	2050SB-01	0.01mm	20mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 15\mu\text{m} / \pm 20\mu\text{m} (20\text{Rev})$	4 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	2.0N or less
2050S-11	2050SB-11	0.01mm	20mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 15\mu\text{m} / \pm 20\mu\text{m} (20\text{Rev})$	4 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	2.0N or less
2056S-01	2056SB-01	0.01mm	25mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 15\mu\text{m} / \pm 20\mu\text{m} (20\text{Rev}) / \pm 25\mu\text{m} (20\text{Rev})$	4 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	2.5N or less
2900S-73*	2900SB-73*	0.001mm	0.08mm (0.1mm)	$\pm 2\mu\text{m} / \text{—} / \text{—}$	2 μm	$\pm 0.3\mu\text{m}$	40-0-40	2.0N or less
2109S-11	2109SB-11	0.001mm	1mm (0.2mm)	$\pm 3\mu\text{m} / \pm 3\mu\text{m} / \pm 4\mu\text{m}$	2 μm	$\pm 0.3\mu\text{m}$	0-10-0	1.5N or less
2119S-11	2119SB-11	0.001mm	5mm (0.2mm)	$\pm 7\mu\text{m} / \pm 7\mu\text{m} / \pm 8\mu\text{m} / \pm 10\mu\text{m} (20\text{Rev}) / \pm 10\mu\text{m} (20\text{Rev})$	2 μm	$\pm 0.3\mu\text{m}$	0-10-0	1.5N or less

*One revolution type

FEATURES

Metric		Series 1		ANSI/AGD type				
Order No.		Graduation	Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
1230S-01	1230SB-01	0.01mm	2.5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \text{—}$	3 μm	$\pm 2\mu\text{m}$	0-100	1.4N or less
1231S-01	1231SB-01	0.01mm	2.5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \text{—}$	3 μm	$\pm 2\mu\text{m}$	0-50-0	1.4N or less
1044S-01	1044SB-01	0.01mm	5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
1045S-01	1045SB-01	0.01mm	5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	0-50-0	1.4N or less
1010S-11	1010SB-11	0.002mm	0.5mm (0.2mm)	$\pm 2\mu\text{m} / \pm 2\mu\text{m} / \text{—}$	2 μm	$\pm 1\mu\text{m}$	0-20	1.5N or less
1011S-11	1011SB-11	0.002mm	0.5mm (0.2mm)	$\pm 2\mu\text{m} / \pm 2\mu\text{m} / \text{—}$	2 μm	$\pm 1\mu\text{m}$	0-10-0	1.5N or less

Metric		Series 2		ANSI/AGD type				
Order No.		Graduation	Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
2230S-01	2230SB-01	0.01mm	2.5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \text{—}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
2231S-01	2231SB-01	0.01mm	2.5mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \text{—}$	3 μm	$\pm 3\mu\text{m}$	0-50-0	1.4N or less
2046S-01	2046SB-01	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
2046S-11	2046SB-11	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
2048S-11	2048SB-11	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	1.4N or less
2047S-01	2047SB-01	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	0-50-0	1.4N or less
2047S-11	2047SB-11	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	0-50-0	1.4N or less
2902S-01	2902SB-01	0.01mm	10mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 13\mu\text{m}$	3 μm	$\pm 3\mu\text{m}$	100-0	1.4N or less
2050S-01	2050SB-01	0.01mm	20mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 15\mu\text{m} / \pm 20\mu\text{m} (20\text{Rev})$	4 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	2.0N or less
2050S-11	2050SB-11	0.01mm	20mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 15\mu\text{m} / \pm 20\mu\text{m} (20\text{Rev})$	4 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	2.0N or less
2056S-01	2056SB-01	0.01mm	25mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 15\mu\text{m} / \pm 20\mu\text{m} (20\text{Rev}) / \pm 25\mu\text{m} (20\text{Rev})$	4 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	2.5N or less
2900S-73*	2900SB-73*	0.001mm	0.08mm (0.1mm)	$\pm 2\mu\text{m} / \text{—} / \text{—}$	2 μm	$\pm 0.3\mu\text{m}$	40-0-40	2.0N or less
2109S-11	2109SB-11	0.001mm	1mm (0.2mm)	$\pm 3\mu\text{m} / \pm 3\mu\text{m} / \pm 4\mu\text{m}$	2 μm	$\pm 0.3\mu\text{m}$	0-10-0	1.5N or less
2119S-11	2119SB-11	0.001mm	5mm (0.2mm)	$\pm 7\mu\text{m} / \pm 7\mu\text{m} / \pm 8\mu\text{m} / \pm 10\mu\text{m} (20\text{Rev}) / \pm 10\mu\text{m} (20\text{Rev})$	2 μm	$\pm 0.3\mu\text{m}$	0-10-0	1.5N or less



An inspection certificate is supplied as standard. Refer to page IX for details.

Optional Accessories

- : Backs (See page F-50.)
- : Contact points (See pages F-46 to F-49.)

ANSI/AGD Type Metric Dial Indicator with $\varnothing 3/8$ " Stem and #4-48UNF-Thread Contact Point Compatible Type

FEATURES

Metric							
Order No.					—	—	—
w/ lug	Flat-back						
3052S-11	3052SB-11	✓	✓	✓	—	—	—
3058S-11	3058SB-11	✓	✓	✓	—	—	—

SPECIFICATIONS

Metric		Series 3		ANSI/AGD type					
Order No.		Graduation	Range (range/rev)	Accuracy		Retrace	Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev / 20 Rev / Over 20 Rev					
3052S-11	3052SB-11	0.01mm	30mm (1mm)	$\pm 10\mu\text{m} / \pm 10\mu\text{m} / \pm 15\mu\text{m} / \pm 20\mu\text{m} / \pm 30\mu\text{m}$	4 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	2.5N or less	
3058S-11	3058SB-11	0.01mm	50mm (1mm)	$\pm 15\mu\text{m} / \pm 15\mu\text{m} / \pm 20\mu\text{m} / \pm 25\mu\text{m} / \pm 40\mu\text{m}$	5 μm	$\pm 3\mu\text{m}$	$\pm 0-100$	3.0N or less	



An inspection certificate is supplied as standard. Refer to page IX for details.

Optional Accessories

- : Backs (See page F-50.)
- : Contact points (See pages F-46 to F-49.)

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

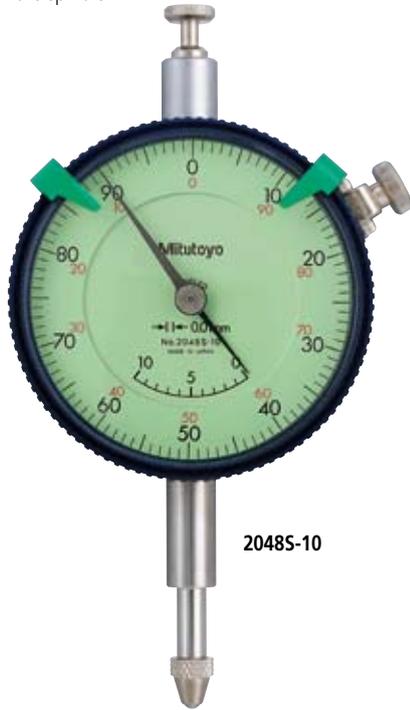


An inspection certificate is supplied as standard. Refer to page IX for details.

SERIES 2 — Special Dial Indicators

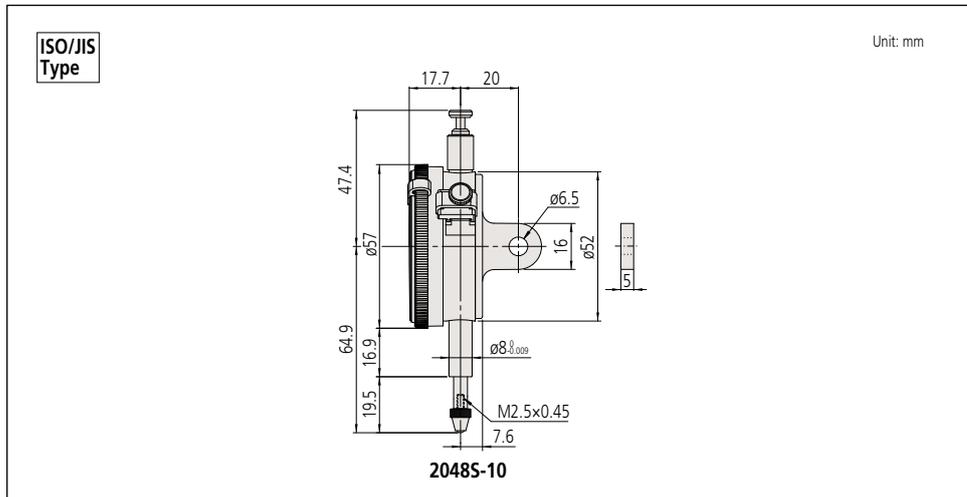
Adjustable hand dial gauge

- The hand position can be adjusted independently of the position of the spindle by rotating the top knob.



20485-10

DIMENSIONS



SPECIFICATIONS

Metric		ISO/JIS type									
Order No.		Graduation	Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force	
w/ lug	Flat-back			Overall	Retrace	1/10 Rev	1 Rev				
20485-10	20485B-10	0.01mm	10mm (1mm)	15µm	3µm	5µm	10µm	3µm	±0-100	1.4N or less	

Inch		ANSI/AGD type									
Order No.		Graduation	Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force			
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace						
29155-10	29155B-10	.001"	.5" (.1")	±.001" / ±.001" / ±.001	.0002	±.0002	±0-100	1.8N or less			
29185-10	29185B-10	.001"	.5" (.1")	±.001" / ±.001" / ±.001	.0002	±.0002	0-50-0	1.8N or less			

FEATURES

Metric		ANSI/AGD type				
Order No.		STOP	STOP	STOP	STOP	STOP
w/ lug	Flat-back	STOP	STOP	STOP	STOP	STOP
20485-10	20485B-10	✓	—	✓	—	—

Inch		ANSI/AGD type				
Order No.		STOP	STOP	STOP	STOP	STOP
w/ lug	Flat-back	STOP	STOP	STOP	STOP	STOP
29155-10	29155B-10	✓	—	✓	—	—
29185-10	29185B-10	✓	—	✓	—	—

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

Back Plunger Type Dial Indicator SERIES 2

- Back plunger type dial gauges are suitable for mounting onto leveling machine tool tables or inspection jigs, and for use in small spaces where the graduations of standard dial gauges are difficult to see.
- Models 2960T, 2961T, 2990T-10 and 2991T-10, which use Mitutoyo's proprietary shock-proofing mechanism, have excellent durability and shock resistance.
- Model 2990T-10 provides 0.001mm graduation.



An inspection certificate is supplied as standard. Refer to page IX for details.



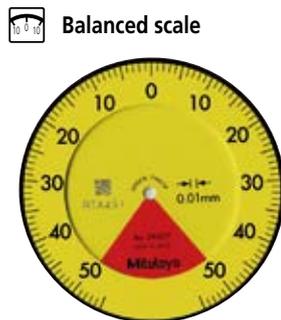
Holding bar (optional)

Order No.	øD	L
21AAA166	ø6mm	42mm
136567	ø6mm	81mm
124625	ø6.35mm	81mm
21AAA167	ø6.35mm	42mm
21AAA168	ø8mm	42mm
136568	ø8mm	81mm

* øD and L: detail shown in drawing below.



2960T



Balanced scale

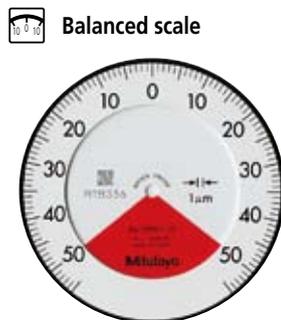
Graduation: 0.01mm,
Measuring range: 1mm

2960T

- One revolution
- Shockproof
- Back plunger



2990T-10



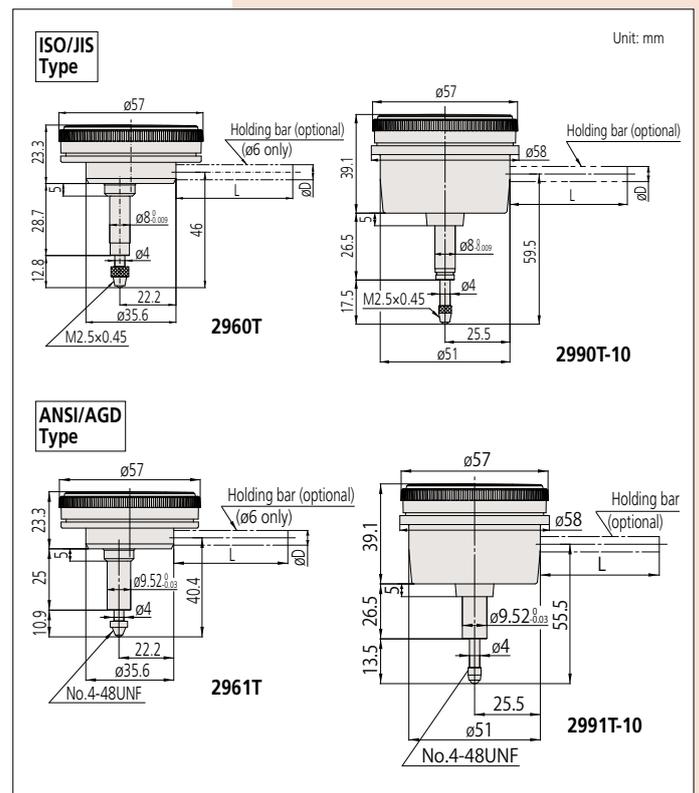
Balanced scale

Graduation: 0.01mm,
Measuring range: 1mm

2990T-10

- One revolution
- Shockproof
- Back plunger
- Jeweled bearing

DIMENSIONS



Metric		Range (range/rev)	Accuracy				Repeatability	Dial reading	Measuring force
Order No.	Graduation		Overall	Retrace	1/10 Rev	1 Rev			
2960T	0.01mm	1mm (1.27mm)	14µm	4µm	8µm	—	3µm	50-0-50	1.4N or less
2990T-10	0.001mm	0.1mm (0.14mm)	5µm	2µm	2.5µm	—	1µm	50-0-50	1.5N or less

□ ISO/JIS type

Metric	One revolution	Shockproof	Jeweled bearing	—	—	—
2960T	✓	✓	—	—	—	—
2990T-10	✓	✓	✓	—	—	—

Inch		Range (range/rev)	Accuracy		Repeatability	Dial reading	Measuring force
Order No.	Graduation		First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
2961T	.0005"	.04" / .05"	±.0005" / — / —	.00016"	±.0001"	20-0-20	1.4N or less
2991T-10	.0001"	.008" / .01"	±.0002" / — / —	.0001"	±.00005"	4-0-4	1.5N or less

□ ANSI/AGD type

Inch	One revolution	Shockproof	Jeweled bearing	—	—	—
2961T	✓	✓	—	—	—	—
2991T-10	✓	✓	✓	—	—	—



An inspection certificate is supplied as standard. Refer to page IX for details.



Holding bar

Holding bar (optional)

Order No.	øD	L
21AAA166	ø6mm	42mm
136567	ø6mm	81mm
124625	ø6.35mm	81mm
21AAA167	ø6.35mm	42mm
21AAA168	ø8mm	42mm
136568	ø8mm	81mm

* øD and L: detail shown in drawing below.

Back Plunger Type Dial Indicator SERIES 1

- Back plunger type dial gauges are suitable for mounting onto leveling machine tool tables or inspection jigs, and for use in situations where standard dial gauges are difficult to read.
- Model 1960T and 1961T, which uses Mitutoyo's proprietary shock-proofing mechanism, has excellent durability and shock resistance.



1160T



Continuous scale



Graduation: 0.01mm,
Measuring range: 5mm

1160T

Back plunger



Reverse reading



Graduation: 0.01mm,
Measuring range: 5mm

1162T

Back plunger

DIMENSIONS

ANSI/AGD Type

Unit: mm

ISO/JIS Type

Unit: mm

Order No.	A	B	C	E	F	G	H
1166T	40	22.1	35.6	22.2	25	10.9	42
1167T	40	22.1	35.6	22.2	25	10.9	42
1168T	40	22.1	35.6	22.2	25	10.9	42
1961T	40	22.1	35.6	22.2	25	10.9	40

Order No.	A	B	C	E	F	G	H
1160T	40	22.1	35.6	22.2	25	13.8	43.3
1162T	40	22.1	35.6	22.2	25	13.8	43.3
1960T	40	22.1	35.6	22.2	28.7	12.8	46

Note 1: Refer to pages F-51 to F-54 for contact point details.
 Note 2: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.
 Note 3: Inch (ANSI/AGD Type) dial indicators are provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.



Balanced scale



Graduation: 0.01mm,
Measuring range: 1mm

1960T

One revolution

Shockproof

Back plunger

FEATURES

Order No.	Continuous scale	Reverse reading	Balanced scale	Shockproof	One revolution	Back plunger
1960T	✓	✓	—	—	—	—
1160T	—	—	—	—	—	—
1162T	—	—	✓	—	—	—

Inch

Order No.	Continuous scale	Reverse reading	Balanced scale	Shockproof	One revolution	Back plunger
1961T	✓	✓	—	—	—	—
1166T	—	—	—	—	—	—
1167T	—	—	—	—	—	—
1168T	—	—	✓	—	—	—

SPECIFICATIONS

Order No.	Graduation	Range (range/rev)	Accuracy				Repeatability	Dial reading	Measuring force
			Overall	Retrace	1/10 Rev	1 Rev			
1960T	0.01mm	1mm (1.27mm)	14µm	4µm	8µm	—	3µm	50-0-50	1.4N or less
1160T	0.01mm	5mm (1mm)	16µm	4µm	8µm	14µm	3µm	±0-100	1.4N or less
1162T	0.01mm	5mm (1mm)	16µm	4µm	8µm	14µm	3µm	100-0	1.4N or less

Inch

Order No.	Graduation	Range (range/rev)	Accuracy		Repeatability	Dial reading	Measuring force
			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
1961T	.001"	.04" (.05")	±.001" / — / —	.0002"	±.0002"	20-0-20	1.4N or less
1166T	.001"	.2" (.05")	±.001" / ±.001" / ±.001"	.00033"	±.0002"	±0-50	1.4N or less
1167T	.001"	.2" (.05")	±.001" / ±.001" / ±.001"	.00033"	±.0002"	0-25-0	1.4N or less
1168T	.001"	.2" (.05")	±.001" / ±.001" / ±.001"	.00033"	±.0002"	50-0	1.4N or less

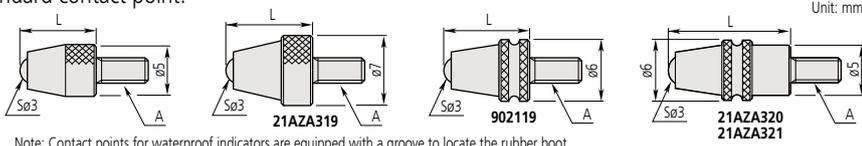
Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

Contact Points Optional Accessory for Digimatic and Dial Indicators and Linear Gages

Ball point

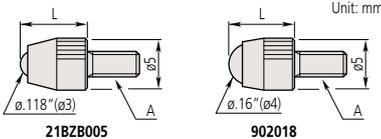
Standard contact point.



Note: Contact points for waterproof indicators are equipped with a groove to locate the rubber boot.

A: M2.5x0.45

L	Material	Carbide		Ruby	Plastic
		Without groove	With groove (waterproof type)	Without groove	Without groove
7.3		901312	—	120047	901994
8.3		21AZA319	902119	—	—
12.1		—	21AZA320	—	—
14		21JAA225	—	—	—
15		120049	—	120051	—
17		21JAA224	—	—	—
19.3		—	21AZA321	—	—
20		137391	—	137392	—
22		21JAA226	—	—	—
25		120053	—	120055	—
30		21AAA252	—	21AAA253	—

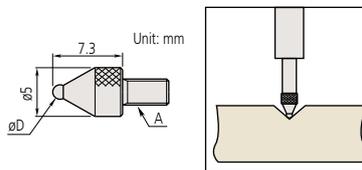


A: 4-48UNF

L	Material	Carbide	Plastic
1/4"		21BZB005	902018

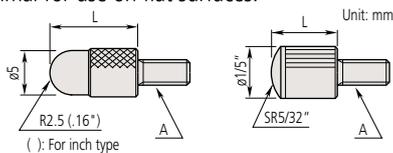
Ball point

Optimal for workpieces with deep indentations.



Shell Type Point

Contact point with a large radius.
Optimal for use on flat surfaces.



A: M2.5x0.45

Order No.	L
101386	5
101118	10
137393	15
101387	20
101388	25
21AAA254	30

A: 4-48UNF

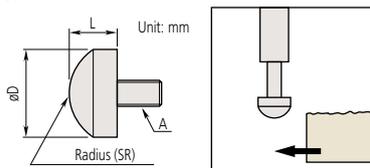
Order No.	L
193697	3/32"
101184	5/32"
21AAA031	1/4"
21AAA032	3/8"
101185	1/2"
21AAA033	5/8"
101186	3/4"
21AAA034	7/8"
101187	1"
21AAA035	1 1/4"
21AAA036	1 1/2"
21AAA037	1 3/4"
21AAA038	2"
21AAA039	2 1/4"
21AAA040	2 1/2"
21AAA041	2 3/4"
21AAA042	3"

A: M2.5x0.45

Order No.	SøD	ød
21AAA349	1mm, carbide	5mm
21AAA350	1.5mm, carbide	5mm
101122	1.8mm, steel	5mm
21AAA351	2.5mm, carbide	5mm
21AAA352	4mm, carbide	5mm

Spherical Point

A large radius makes this contact point optimal for use where the workpiece needs to slide from the side.



A: M2.5x0.45

Order No.	D	L	SR
111460	5.5	3	5
125258	7.9	5	5
101119	10	5	7

A: 4-48UNF

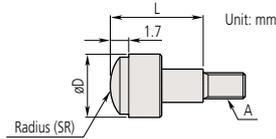
Order No.	D	L	SR
101205	1/2"	1/8"	.35"
101204	3/8"	3/32"	.28"

Contact Points

Optional Accessory for Digimatic and Dial Indicators and Linear Gages

Spherical Point (Carbide)

A large radius makes this contact point optimal for use where the workpiece needs to slide from the side.

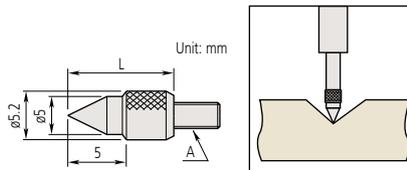


A: M2.5x0.45

Order No.	D	L	SR
120058	5.2	5	5
120059	7.5	10	7
120060	10.5	10	10

Conical Point

Used for positioning the measurement point. Since it can damage a workpiece easily, it is not suitable for use on soft materials.

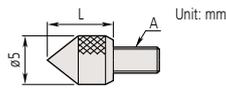


A: M2.5x0.45

Order No.	Tip angle	L
101120	60°	10

A: 4-48UNF

Order No.	L	A
101190	1/2"	.2"



A: M2.5x0.45

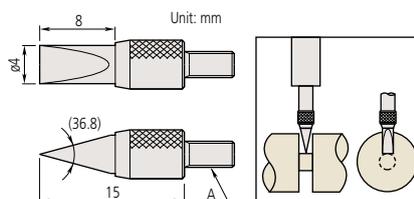
Order No.	Tip angle	L
101385	90°	5

A: 4-48UNF

Order No.	D	L
101191	.2"	1/4"

Knife Edge Point (Carbide)

Suitable for measuring narrow groove diameter, etc.

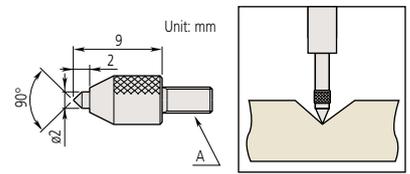


A: M2.5x0.45

Order No.
120067

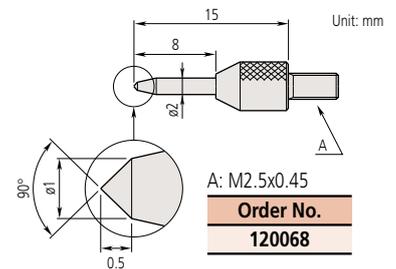
Conical Point (Carbide)

Used for positioning the measurement point. Since it can damage a workpiece easily, it is not suitable for use on soft materials.



A: M2.5x0.45

Order No.
120057

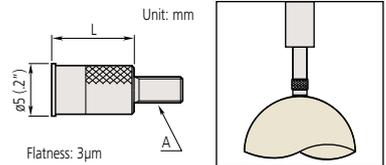


A: M2.5x0.45

Order No.
120068

Flat Point

Optimal for use on convex surfaces.

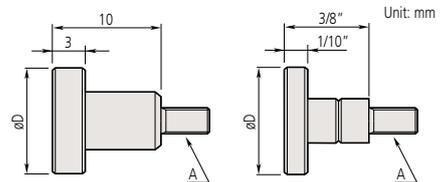


A: M2.5x0.45

Order No.	L
131365	8
21AAA340	10

A: 4-48UNF

Order No.	L
133017	5/16"
21AAA043	1/2"
21AAA044	3/4"
21AAA045	1"

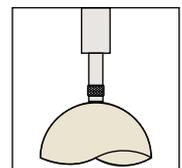


A: M2.5x0.45

Order No.	D
101117	10
21AAA341	15
21AAA342	20
21AAA343	25
21AAA344	30

A: 4-48UNF

Order No.	D
101188	1/2"
101189	3/8"



Dial Indicators

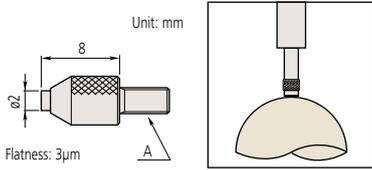
Comparison measuring instruments which ensure high quality, high accuracy and reliability.

Contact Points

Optional Accessory for Digimatic and Dial Indicators and Linear Gages

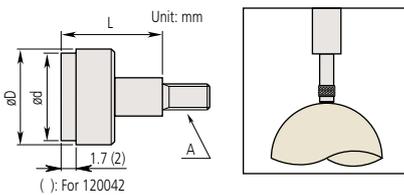
Flat Point (Carbide)

Optimal for use on convex surfaces.



A: M2.5x0.45

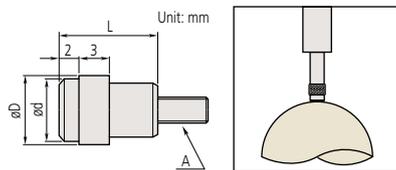
Order No.
120056



A: M2.5x0.45

Order No.	D	d	L
120041	5.2	4.3*	5
120042	7	6.5*	10
120043	10.5	9.5*	10
21AAA345	17	15**	10
21AAA346	22	20**	10
21AAA347	27	25**	10
21AAA348	32	30**	10

Flatness: *3µm, **5µm

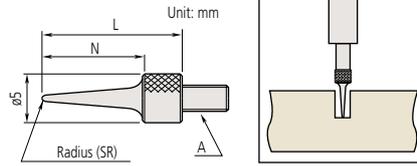


A: M2.5x0.45

Order No.	D	d	L
137255	7	6.4	10
137399	9	8	10

Needle Point

Suitable for probing the bottom of a groove or hole.



A: M2.5x0.45

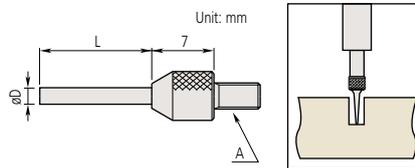
Order No.	N	L	SR
101121	11	15	0.4
137413	13	17	0.2
21AAA255	21	25	0.4
21AAA256	31	35	0.4

A: 4-48UNF

Order No.	L	SR
21AAA030	.6"	.016"
21AAA046	1"	.016"
21AAA047	1 1/2"	.016"
21AAA048	2"	.016"

Needle Point (Carbide)

Suitable for probing the bottom of a groove or hole.

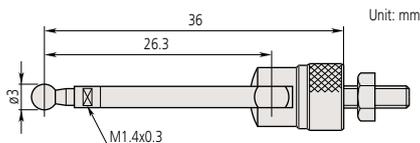


A: M2.5x0.45

Order No.	D	L
120066	0.45	3
21AAA329	0.45	5
120065	1	3
21AAA330	1	5
21AAA331	1	8
21AAA332	1	10
21AAA333	1	20
21AAA334	1	40
21AAA335	1.5	5
21AAA336	1.5	10
120064	1.5	13
21AAA337	1.5	20
21AAA338	1.5	40
137257	2	8
21AAA257	2	18
21AAA258	2	28
21AAA339	2	40

Lever Point

Suitable for use on perpendicular faces, such as those within mold cavities. Lever can be adjusted to the required angle.

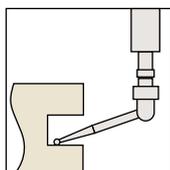


A: M2.5x0.45

Order No.
900391

A: 4-48UNF

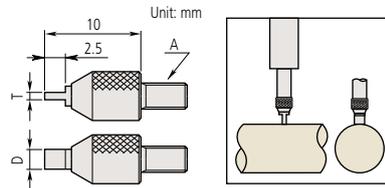
Order No.
900393



Contact Points Optional Accessory for Digimatic and Dial Indicators and Linear Gages

Blade Point (Carbide)

Suitable for use on convex surfaces, especially those with shallow grooves.

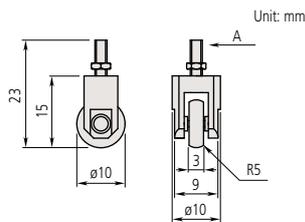


A: M2.5x0.45

Order No.	T	D
120061	0.4	2
120062	0.6	2
120063	1	4

Roller Point

Suitable for use on a moving workpiece surface, or where the workpiece needs to slide from the side.



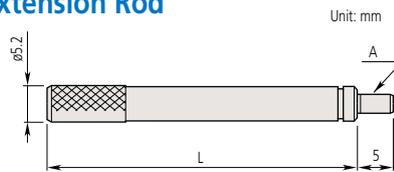
A: M2.5x0.45

Order No.
901954

A: 4-48UNF

Order No.
901991

Extension Rod



A: M2.5x0.45

Order No.	L
303611	10
21AAA259A	15
303612	20
21AAA259B	25
303613	30
21AAA259C	35
21AAA259D	40
21AAA259E	45
21AAA259F	50
21AAA259G	55
304146	60
21AAA259H	65
21AAA259J	70
21AAA259L	75
21AAA259M	80
304147	90
303614	100

A: 4-48UNF

Order No.	L
139167	1/2"
301655	1"
301657	2"
301659	4"

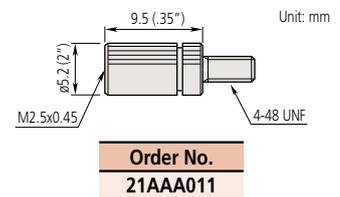
Interchangeable Contact Point Set

This set consists of six types of popular contact point for extending the use of an indicator to many applications.

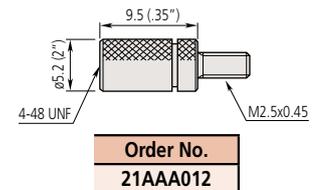


A: M2.5x0.45

Order No.	Contact points included
7822	Flat Point (131365, ø5mm)
	Flat Point (101117, ø10mm)
	Needle Point (101121)
	Spherical Point (101119)
	Shell Type Point (101118)
	Shell Type Point (101387)



Order No.
21AAA011



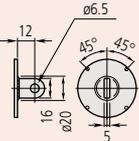
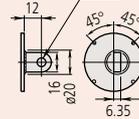
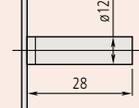
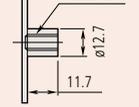
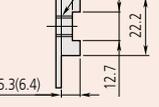
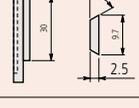
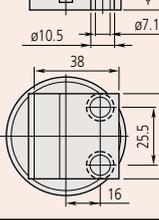
Order No.
21AAA012

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

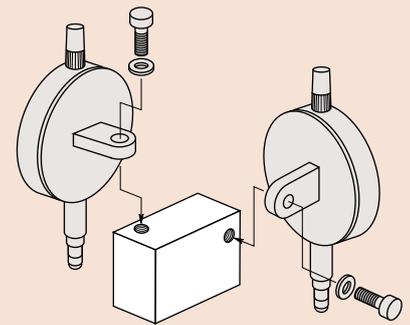
Interchangeable Backs Optional Accessory for Digimatic and Dial Indicators

SPECIFICATIONS

Description	Order No.	Series 1 (ø31, ø36, ø40mm)	Series 2(ø57mm)	Series 3, 4 (ø78, 91mm)
		Series 1 (ø31, ø36, ø40mm)	Series 2(ø57mm)	Series 3, 4 (ø78, 91mm)
Flat Back 	 Unit: mm a	101211: a=2.2 136872: for water-proof type 191559: for 1911TB-10, 1913TB-10, 1921TB-10, 1923TB-10, 1925TB-10 137906: for 1003TB	101039: a=2.5 21AZB231: for water-proof of S type 192910: (F type waterproof model)	100836: a=3.0
Lug-on-Center Back 	 Unit: mm ø6.5, 12, 16, ø20, 45°, 45°, 5	101210: metric type 101307: inch type 190561: for 1911T-10, 1913-10 190139: 1921T-10, 1923T-10, 1925T-10 137905: for 1003T	101040: metric type 101306: inch type 21AZB230: for water-proof of S type (mm) 21BZB104: for water-proof of S type (inch)	100691: metric type 100797: inch type
Magnetic Back 	 Unit: mm 8, ø44	Special order	900928	900929
Back with Offset Lug 	 Unit: mm 12, ø6.5, 16, ø20, 45°, 45°, 6.35	Special order	101167	100837
Back with Post 	 Unit: mm ø12.7, 28	193172 Custom made	101169	100839
Back with Screw Mount 	 Unit: mm M6 X1, ø12.7, 11.7	193173: M6x1, Custom made 193174: #1/4-28UNF, Custom made	136023: M6x1 101170: #1/4-28UNF	136024: M6x1 100840: #1/4-28UNF
Adjustable Back 	 Unit: mm 32, M6 X1, 22.2, 12.7, 5.3(6.4)	136025: M6x1 129721: #1/4-20UNC	136026: M6x1 101168: #1/4-20UNC	136027: M6x1 100838: #1/4-20UNC
Back with Dovetail 	 Unit: mm 6.4, A, 30, 6°, 9.7, 2.5	—	900008	Special order
Back with Adjustable Bracket 	 Unit: mm 50.2, 7, 18.5, ø10.5, ø7.1, 38, 25.5, 38, 16	—	901963	—

A dial or Digimatic indicator may be held in position by clamping on either the stem or the lug on the back of the indicator. The back of the indicator may need to be interchanged with another type for special applications. A wide variety of backs are available for Mitutoyo Digimatic and dial indicators.

Application



When installing to 297*TB series, please separately prepare 4 fixing screws (Order No.546666 Self-tapping screw only for resin). Do not apply a tightening torque of more than 20N-cm in order to avoid stripping the screw threads.

Spindle Lifting Lever and Cable Optional Accessories for Digimatic and Dial Indicators

Spindle Lifting Lever

- The Spindle Lifting Lever is attached to the top end of the spindle for improved inspection efficiency when using a dial indicator mounted on a stand.

902100

Use for S type Series 1 and F type Series 2 (up to 10mm/.4" range) dial indicators.



21AZB149

Use for S type Series 2, 3, and 4 dial indicators (up to 10mm/.4").

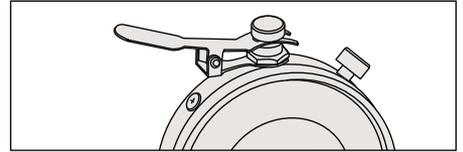
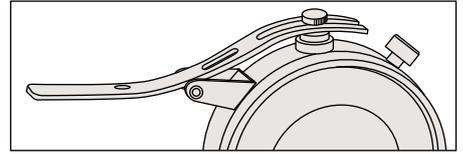


21AZB150

Use for S type Series 2 and 3 dial indicators (from 10mm/.4" up to 20mm/.8").



Application



21BZA205

Use for F type Series 1 dial indicators.



900527: Lever
101171: Screw

902011

Use for F type Series 2 dial indicators (up to 10mm/.4" range).



903424

Use for F type Series 2 dial indicators (up to 20mm/.8" range) and Series 3 and 4 indicators (up to 10mm/.4" range).



903307: Lever
192686: Screw

21EZA198

Use for ID-SS ID-SX ID-CX



21AZB149: Lever
101171: Screw

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

Spindle Lifting Cable

901975: with auto-stop function



Note: This accessory is not applicable to range of 20mm or more, 2048S(B), 2046S(B)-80, 1003T 1911T-10 1913T-10 1921T-10 1923T-10 1925T-10 and 2971TB to 2978TB.

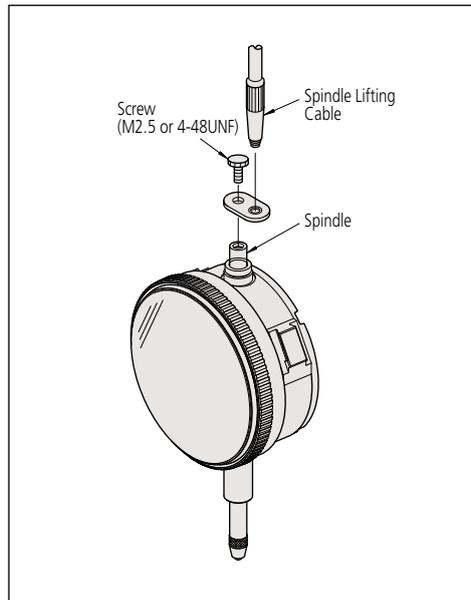
Spindle Lifting Knob

137693

Suitable for 4.8mm spindle diameter.



Application



Limit Stickers

- These are stuck onto the dial face or crystal of a Series 2 dial indicator (55.6mm or 57mm bezel diameter) to indicate tolerance limits.



Red



No.136420
(10 sheets/set)

Green



No.136421
(10 sheets/set)

Yellow



No.136422
(10 sheets/set)

Color-coded Spindle Caps

- 9 color-coded spindle caps are available for dial indicators with a range of 10mm or less.



Color	Order No.	
	Standard	Waterproof
Black	193051	193595
White	193051W	193595W
Red	193051R	193595R
Green	193051G	193595G
Blue	193051B	193595B
Yellow	193051Y	193595Y
Orange	193051D	193595D
Pink	193051P	193595P
Navy	193051S	193595S

Note: This accessory is not applicable to 1003T 1911T-10 1913T-10 1921T-10 1923T-10 1925T-10 and 2971TB to 2978TB.

Note: When attaching to small dial indicators, the overall height will be 8mm taller.

Dial Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

Dial Indicator Repair Tool Kit



Set 7823

Set Configuration

- (1) Spindle rest (**129730**)
- (2) Pin remover (**129732**)
- (3) Punch (**129733**)
- (4) Bearing adjuster (**129734**)
- (5) Pinion set (**129735**)
- (6) Reamer $\varnothing 1$ (**129736**)
- (7) Reamer $\varnothing 0.6$ (**193702**)
- (8) Reamer for pointer ($\varnothing 0.5$: 1/20 taper) (**21JAA273**)
- (9) Pointer removing tool (**126628**)
- (10) Pliers (**901180**)
- (11) Nippers (**901179**)
- (12) Pin rest (**129731**)
- (13) Grease (**901171**)
- (14) Hammer (**901178**)
- (15) Stick (**21JAA314**)
- (16) Brush (**901177**)
- (17) Brush (**901176**)
- (18) Pin-vise (**901175**)
- (19) Screwdriver (Phillips/flat blade) (**901174**)
- (20) Tweezers (**129729**)
- (21) Screwdriver (Phillips) (**901173**)
- (22) Lubricating oil (**21JAA313**)
- (23) Pointer removing tip ($\varnothing 0.8$) (**126630**)
- (24) Pointer removing tip ($\varnothing 0.5$) (**126630B**)
- (25) Pointer removing tip ($\varnothing 1.6$) (**126630C**)
- (26) Adjustable nut (**100699**)
- (27) Case (**901182**)

Application examples

Lubricate bezel to restore smooth operation

Apply the grease (No. 13) to the entire groove of the bezel with the brush (No. 16).

Renew lubricant in bearing

Apply the lubrication oil (No. 22) to the pinion bearing with the stick (No. 15).

Remove the long hand

Position the pointer removing tool (No. 9) on the hole diameter of the minute hand. Push the pivot with the pointer removing tool to remove the long hand.

Remove the little hand

Remove the little hand with the nippers (No. 11).

Adjust a bearing

Press the steel or jeweled bearing into its housing using the bearing adjuster (No. 4).

Remove or replace a pin

Place the spindle on the groove of the spindle rest (No. 1). Remove the pin with the pin remover (No. 2) and the hammer (No. 14). Tap the pin directly with the hammer (No. 14) to replace the pin.

Replace the long or little hand

Screw the pinion rest (No. 5) into the pin rest (No. 12). Support the pinion with the fixed pinion rest, and replace the hand with the punch (No. 3) and hammer (No. 14). Reaming is necessary in order to use a new hand. Use the reamer $\varnothing 1$ (No. 6) or reamer $\varnothing 0.6$ (No. 7) for F-type dial indicators and dial test indicators. Use the reamer for hands ($\varnothing 0.5$ 1/20 taper) (No.8) on S type and T type dial indicators.

Dial Indicator Crystal Setter



7000

- Used for fitting a crystal on dial indicators (Series 1 and 2), dial test indicators, and dial calipers. (Integrated molded crystals are excluded.)
- 8 sizes of crystal setting pads are supplied as standard.
- Application examples
 - Nos. 2 and 3: Pocket-type dial test indicators
 - Nos. 3 and 4: Dial test indicators, universal-type test indicators, full-range of Series 1 dial indicators, full range of dial calipers
 - Nos. 7 and 8: full-range of Series 2 dial indicators, dial height gage with counter
- Size of crystal setting pads (mm)
 - (1) $\varnothing 19.5$ (2) $\varnothing 22.5$ (3) $\varnothing 25.5$ (4) $\varnothing 28.5$
 - (5) $\varnothing 32.5$ (6) $\varnothing 35$ (7) $\varnothing 38$ (8) $\varnothing 50$
- Crystal setting pads set (including No. 1 to No. 8): 21JAA032

Note: Crystal setting pads for large dial indicators (Series 3 and 4) are available by special order.

Replacing bezels and graduation plates

A bezel and graduation plate must be swaged together so that the graduation plate always rotates with the bezel. Assemblies comprised of a swaged bezel and graduation plate are available for some models.

Code No. of dial indicators	Code No. of swaged assemblies
2046S	21AZB132
2109S-10	21AZB138
2046F	903457
2109F	903464



F