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. 0.01 mm resolution dial indicators have a grand gear made of stainless steel with high resistance to wear and deformation. 0.001 mm 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

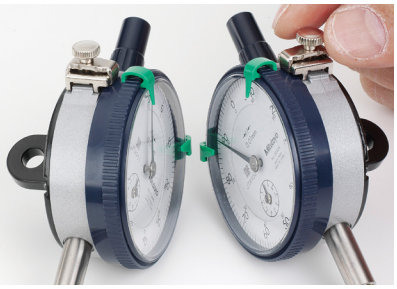
Feature icons

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

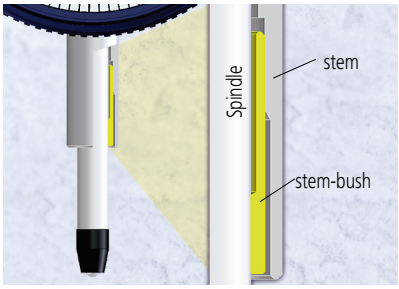
*Mitutoyo produces ASME-compatible products. Contact us for details.

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

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



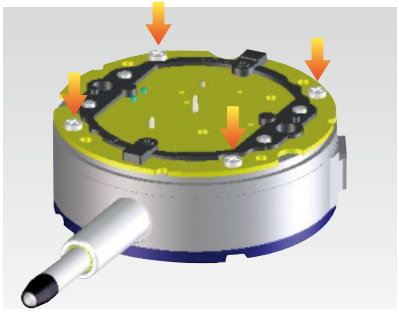
- No through screw-holes on the frame for high oil- and dust-resistance. The bezel clamp can be attached either to the right or left side.
- Improved Impact- and oil-resistant materials are employed in the outer frame. Easier reading is due to the improved shape of the crystal face.



- Revolutionary stem-bush design for trouble-free stem clamping (longer clamping range; maximum tightening torque at the clamping point with M5 screw: 150 N-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 and 4-screw mounting for increased impact resistance.

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Dial Indicators

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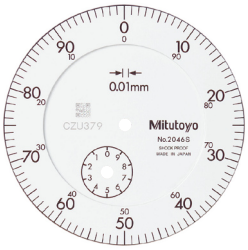
Refer to page X for details.

SERIES 2 — Standard Type, 0.01 mm Graduation

- Standard 0.01 mm graduation dial gages having a bezel with an outside diameter of 57 mm. 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.

2046S

Continuous scale

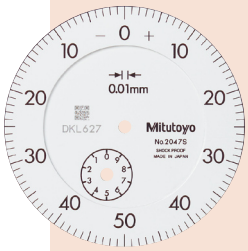


Graduation: 0.01 mm, Measuring range: 10 mm

2046S

2046S-09
Shockproof type

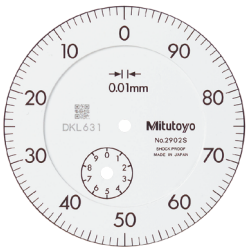
Balanced scale



Graduation: 0.01 mm, Measuring range: 10 mm

2047S

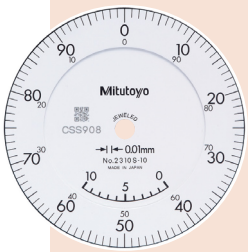
Reverse reading type. Suitable for depth and step measurement.



Graduation: 0.01 mm, Measuring range: 10 mm

2902S

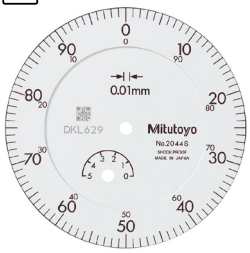
Continuous scale



Graduation: 0.01 mm, Measuring range: 10 mm

2310S-10
With coaxial revolution counter
Jeweled bearing type

Continuous scale

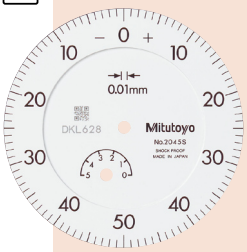


Graduation: 0.01 mm, Measuring range: 5 mm

2044S

2044S-09
Shockproof

Balanced scale



Graduation: 0.01 mm, Measuring range: 5 mm

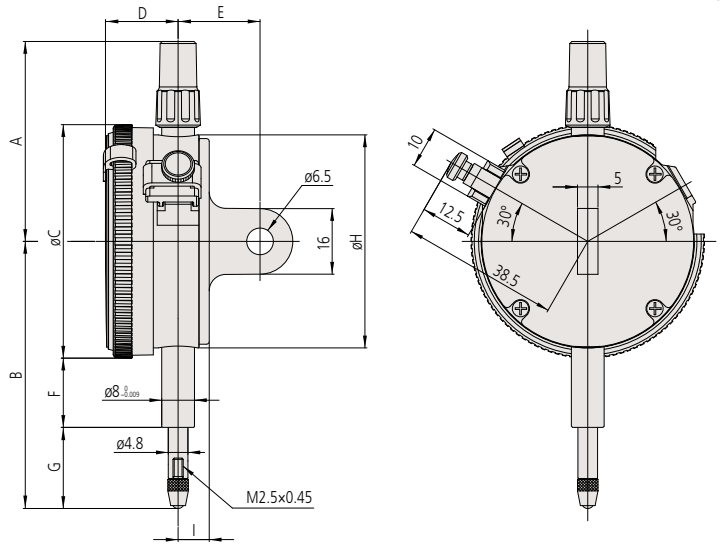
2045S

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

DIMENSIONS

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 inch dia. and #4-48UNF thread mount for the contact point.

Order No.	A	B	C	D	E	F	G	H	I
2046S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2046S-09	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2047S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2902S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2310S-10	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2044S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2044S-09	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2045S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6

FEATURES

Metric

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.		Graduation	Range (range/rev)	Accuracy*				Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			Overall	Retrace	1/10 Rev	1 Rev			
2046S	**2046SB**	0.01 mm	10 mm (1 mm)	13 µm	3 µm	5 µm	10 µm	3 µm	±0-100	1.4 N or less
2046S-09	**2046SB-09**	0.01 mm	10 mm (1 mm)	15 µm	3 µm	5 µm	10 µm	3 µm	±0-100	1.4 N or less
2047S	**2047SB**	0.01 mm	10 mm (1 mm)	13 µm	3 µm	5 µm	10 µm	3 µm	0-50-0	1.4 N or less
2902S	**2902SB**	0.01 mm	10 mm (1 mm)	13 µm	3 µm	5 µm	10 µm	3 µm	100-0	1.4 N or less
2310S-10	**2310SB-10**	0.01 mm	10 mm (1 mm)	15 µm	3 µm	5 µm	10 µm	3 µm	±0-100	1.4 N or less
2044S	**2044SB**	0.01 mm	5 mm (1 mm)	12 µm	3 µm	5 µm	10 µm	3 µm	±0-100	1.4 N or less
2044S-09	**2044SB-09**	0.01 mm	5 mm (1 mm)	12 µm	3 µm	5 µm	10 µm	3 µm	±0-100	1.4 N or less
2045S	**2045SB**	0.01 mm	5 mm (1 mm)	12 µm	3 µm	5 µm	10 µm	3 µm	0-50-0	1.4 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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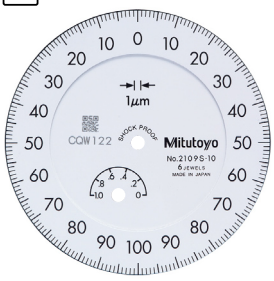
Refer to page X for details.

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

- Standard 0.001 mm and 0.005 mm graduation dial indicators having a bezel with an outside diameter of 57 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 wear and deformation.
- 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 gage highly scratch- and chemical-resistant.

2109S-10

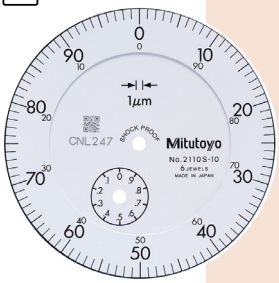
Balanced scale



Graduation: 0.001 mm, Measuring range: 1 mm

2109S-10
Shockproof type
Jeweled bearing type

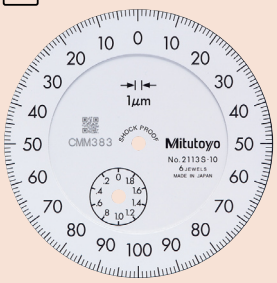
Continuous scale



Graduation: 0.001 mm, Measuring range: 1 mm

2110S-10
Double scale spacing type
Shockproof type
Jeweled bearing type

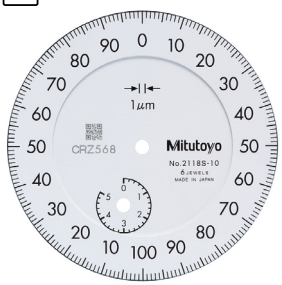
Balanced scale



Graduation: 0.001 mm, Measuring range: 2 mm

2113S-10
Shockproof type
Jeweled bearing type

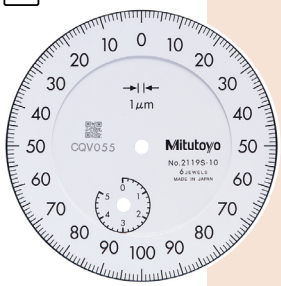
Continuous scale



Graduation: 0.001 mm, Measuring range: 5 mm

2118S-10
Jeweled bearing

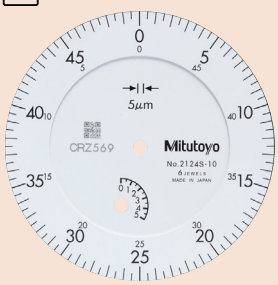
Balanced scale



Graduation: 0.001 mm, Measuring range: 5 mm

2119S-10
Jeweled bearing

Continuous scale



Graduation: 0.005 mm, Measuring range: 5 mm

2124S-10
Jeweled bearing

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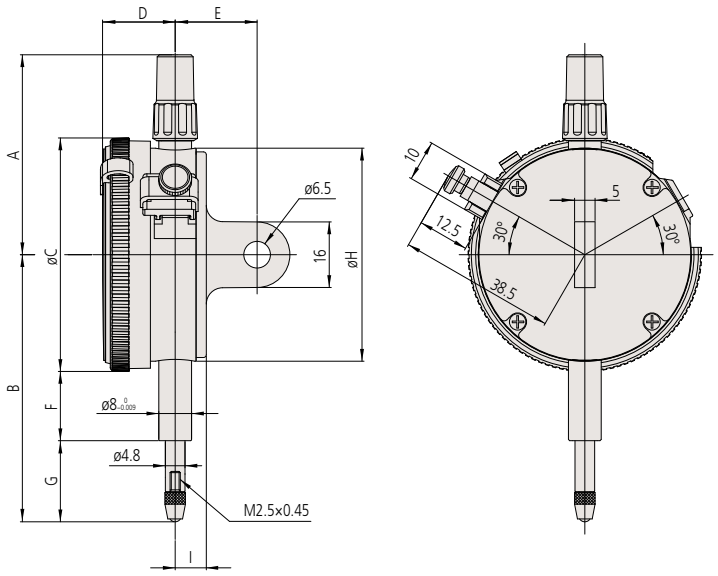
DIMENSIONS

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 inch dia. and #4-48UNF thread mount for the contact point.

Order No.	A	B	C	D	E	F	G	H	I
2109S-10	48.8	60.5	57	17.7	20	16.9	15.1	52	7.6
2110S-10	48.8	66.5	57	17.7	20	16.9	21.1	52	7.6
2113S-10	48.8	61	57	17.7	20	16.9	15.6	52	7.6
2118S-10	48.8	60.3	57	17.7	20	16.9	14.9	52	7.6
2119S-10	48.8	60.3	57	17.7	20	16.9	14.9	52	7.6
2124S-10	48.8	60.3	57	17.7	20	16.9	14.9	52	7.6

FEATURES

Metric

Order No. w/ lug	Order No. 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. w/ lug	Order No. Flat-back	Graduation	Range (range/rev)	Accuracy* Overall	Retrace	1/10 Rev	1 Rev	Repeat-ability	Dial reading	Measuring force
2109S-10	**2109SB-10**	0.001 mm	1 mm (0.2 mm)	5 µm	2 µm	2 µm	4 µm	0.5 µm	0-100-0	1.5 N or less
2110S-10	**2110SB-10**	0.001 mm	1 mm (0.1 mm)	5 µm	2 µm	2 µm	4 µm	0.5 µm	±0-100	1.8 N or less
2113S-10	**2113SB-10**	0.001 mm	2 mm (0.2 mm)	7 µm	2 µm	2 µm	5 µm	0.5 µm	0-100-0	1.5 N or less
2118S-10	**2118SB-10**	0.001 mm	5 mm (0.2 mm)	10 µm	3 µm	3.5 µm	6 µm	1 µm	0-100-100	1.5 N or less
2119S-10	**2119SB-10**	0.001 mm	5 mm (0.2 mm)	10 µm	3 µm	3.5 µm	6 µm	1 µm	0-100-0	1.5 N or less
2124S-10	**2124SB-10**	0.005 mm	5 mm (0.5 mm)	12 µm	3 µm	5 µm	9 µm	3 µm	±0-50	1.5 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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Dial Indicators

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

- Waterproof type dial indicators having a bezel with an outside diameter of 57 mm. 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.

2046S-60

Continuous scale

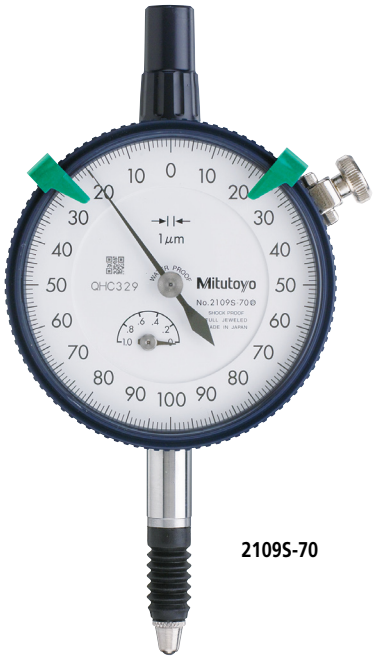
Graduation: 0.01 mm,
Measuring range: 10 mm

2046S-60
Waterproof

Continuous scale

Graduation: 0.01 mm,
Measuring range: 5 mm

2044S-60
Waterproof



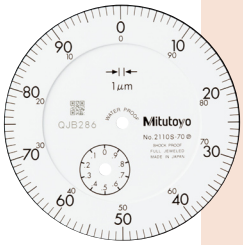
2109S-70

Balanced scale

Graduation: 0.001 mm,
Measuring range: 1 mm

2109S-70
Waterproof
Shockproof
Jeweled bearing

Continuous scale



Graduation: 0.001 mm,
Measuring range: 1 mm

2110S-70
Waterproof
Double scale spacing
Shockproof
Jeweled bearing

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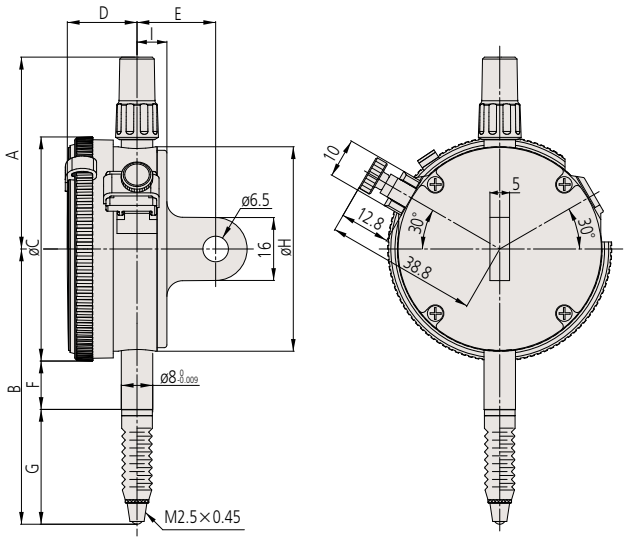
DIMENSIONS

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 inch dia. and #4-48UNF thread mount for the contact point.

Order No.	A	B	C	D	E	F	G	H	I
2046S-60	48.8	70	57	17.7	20	12.3	29.2	52	7.6
2044S-60	48.8	70	57	17.7	20	12.3	29.2	52	7.6
2109S-70	48.8	65.3	57	17.7	20	12.3	24.5	52	7.6
2110S-70	48.8	67.5	57	17.7	20	12.3	26.7	52	7.6

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**	0.01 mm	10 mm (1 mm)	13 µm	3 µm	5 µm	10 µm	3 µm	±0-100	2.5N or less
2044S-60	**2044SB-60**	0.01 mm	5 mm (1 mm)	12 µm	3 µm	5 µm	10 µm	3 µm	±0-100	2.5N or less
2109S-70	**2109SB-70**	0.001 mm	1 mm (0.2 mm)	5 µm	2 µm	2 µm	4 µm	0.5 µm	0-100-0	2.0N or less
2110S-70	**2110SB-70**	0.001 mm	1 mm (0.1 mm)	5 µm	2 µm	2 µm	4 µm	0.5 µm	±0-100	2.0N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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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**	0.001 in	0.5 in (0.1 in)	±0.001 in / ±0.001 in / ±0.001 in	0.0002 in	±0.0002 in	±0-100	1.8 N or less
2415S	**2415SB**	0.001 in	0.5 in (0.1 in)	±0.001 in / ±0.001 in / ±0.001 in	0.0002 in	±0.0002 in	0-50-0	1.8 N or less
2914S	**2914SB**	0.001 in	0.5 in (0.1 in)	±0.001 in / ±0.001 in / ±0.001 in	0.0002 in	±0.0002 in	100-0	1.8 N or less
2506S	**2506SB**	0.0005 in	0.125 in (0.05 in)	±0.0005 in / ±0.0005 in / —	0.00016 in	±0.0001 in	±0-50	1.8 N or less
2507S	**2507SB**	0.0005 in	0.125 in (0.05 in)	±0.0005 in / ±0.0005 in / —	0.00016 in	±0.0001 in	0-25-0	1.8 N or less
2514S	**2514SB**	0.0005 in	0.5 in (0.05 in)	±0.0005 in / ±0.0005 in / ±0.0015 in	0.00016 in	±0.0001 in	±0-50	1.8 N or less
2922S	**2922SB**	0.0005 in	0.125 in (0.05 in)	±0.0005 in / ±0.0005 in / —	0.00016 in	±0.0001 in	0-25-0	1.8 N or less
2356S-10	**2356SB-10**	0.0001 in	0.25 in (0.01 in)	±0.0002 in / ±0.0002 in / ±0.0003 in / ±0.0004 in (First 20rev) / ±0.0005 in (Over 20rev)	0.0001 in	±0.00003 in	0-10	2.0 N or less
2358S-10	**2358SB-10**	0.0001 in	0.5 in (0.01 in)	±0.0002 in / ±0.0002 in / ±0.0003 in / ±0.0004 in (First 20rev) / ±0.0008 in (Over 20rev)	0.00015 in	±0.00003 in	0-10	2.0N or less
2802S-10	**2802SB-10**	0.0001 in	0.025 in (0.01 in)	±0.0001 in / ±0.0001 in / —	0.0001 in	±0.00003 in	0-10	2.0 N or less
2803S-10	**2803SB-10**	0.0001 in	0.025 in (0.01 in)	±0.0001 in / ±0.0001 in / —	0.0001 in	±0.00003 in	0-5-0	2.0 N or less
2804S-10	**2804SB-10**	0.0001 in	0.05 in (0.01 in)	±0.0001 in / ±0.0001 in / ±0.0002 in	0.0001 in	±0.00003 in	0-10	2.0 N or less
2805S-10	**2805SB-10**	0.0001 in	0.05 in (0.01 in)	±0.0001 in / ±0.0001 in / ±0.0002 in	0.0001 in	±0.00003 in	0-5-0	2.0 N or less
2905S-10	**2905SB-10**	0.0001 in	0.05 in (0.01 in)	±0.0001 in / ±0.0001 in / ±0.0002 in	0.0001 in	±0.00003 in	10-0	2.0 N or less
2923S-10	**2923SB-10**	0.0001 in	0.05 in (0.01 in)	±0.0001 in / ±0.0001 in / ±0.0002 in	0.0001 in	±0.00003 in	0-5-0	2.0 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

FEATURES

Inch

Order No.				
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**	✔	—	✔

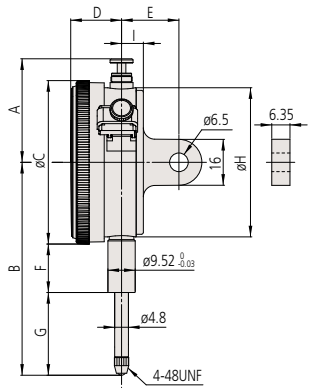
F

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

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

F

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

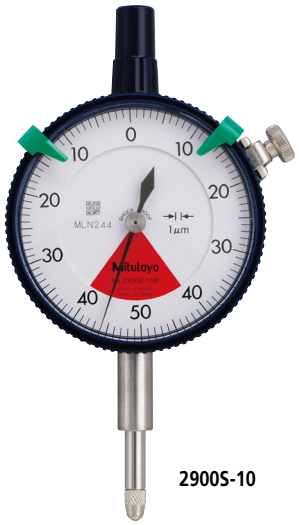
Dial Indicators

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

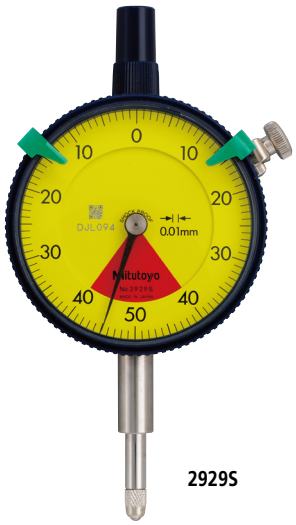
PROPRIETARY INSPECTION CERTIFICATE
An inspection certificate is supplied as standard.
Refer to page X for details.

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.
- 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.
- The stem and spindle are made of high-strength quench-hardened stainless steel which resists wear and deformation.
- A carbide contact point is used.
- A special alloy is used for the sector gears to provide improved wear resistance.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.
- 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

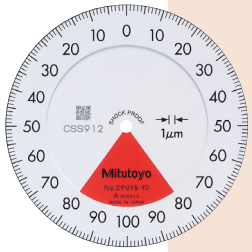
Balanced scale

Graduation: 0.001 mm, Measuring range: 0.08 mm

2900S-10
- One revolution
- Shockproof
- Jeweled bearing

2900S-72
- One revolution
- Shockproof
- Dustproof
- Jeweled bearing

Balanced scale



Graduation: 0.001 mm, Measuring range: 0.16 mm

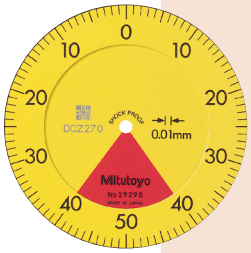
2901S-10
- One revolution
- Shockproof
- Jeweled bearing

Balanced scale

Graduation: 0.1 mm, Measuring range: 4 mm

2928S
- One revolution
- Shockproof

Balanced scale

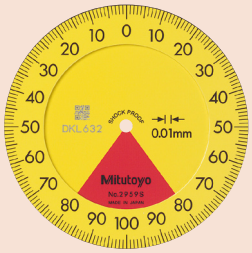


Graduation: 0.01 mm, Measuring range: 0.8 mm

2929S
- One revolution
- Shockproof

2929S-62
- One revolution
- Shockproof
- Dustproof

Balanced scale



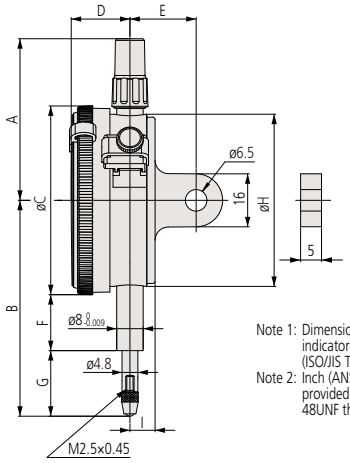
Graduation: 0.01 mm, Measuring range: 1.6 mm

2959S
- One revolution
- Shockproof

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

DIMENSIONS

ISO/JIS Type

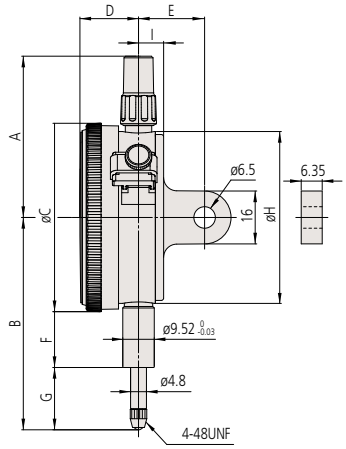


Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.
Note 2: Inch (ANSI/AGD Type) dial indicators are provided with a stem of 3/8 inch dia. and #4-48UNF thread mount for the contact point.

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.						—	—
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.						—	—
w/ lug	Flat-back						
2909S-62	**2909SB-62**	✔	—	✔	—	—	—
2910S-10	**2910SB-10**	✔	—	—	✔	—	—

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			
2928S	**2928SB**	0.1 mm	4 mm (5 mm)	40 µm	20 µm	20 µm	—	20 µm	2-0-2	1.4 N or less
2929S	**2929SB**	0.01 mm	0.8 mm (1 mm)	8 µm	3 µm	5 µm	—	3 µm	40-0-40	1.4 N or less
2929S-62	**2929SB-62**	0.01 mm	0.8 mm (1 mm)	8 µm	3 µm	5 µm	—	3 µm	40-0-40	2.0 N or less
2959S	**2959SB**	0.01 mm	1.6 mm (2 mm)	10 µm	3 µm	5 µm	—	3 µm	80-0-80	1.4 N or less
2900S-10	**2900SB-10**	0.001 mm	0.08 mm (0.1 mm)	3 µm	2 µm	2 µm	—	0.5 µm	40-0-40	1.5 N or less
2900S-72	**2900SB-72**	0.001 mm	0.08 mm (0.1 mm)	3 µm	2 µm	2 µm	—	0.5 µm	40-0-40	2.0 N or less
2901S-10	**2901SB-10**	0.001 mm	0.16 mm (0.2 mm)	4 µm	2 µm	2 µm	—	0.5 µm	80-0-80	1.5 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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			
2909S-62	**2909SB-62**	0.0005 in	0.04 in / 0.05 in	±0.0005 in / — / —	0.00016 in	±0.0001 in	20-0-20	2.5 N or less
2910S-10	**2910SB-10**	0.0001 in	0.008 in / 0.01 in	±0.0001 in / — / —	0.0001 in	±0.00003 in	4-0-4	1.8 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

F

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

Mitutoyo

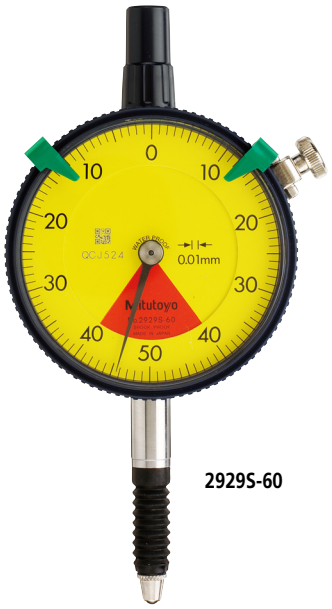
Dial Indicators

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

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

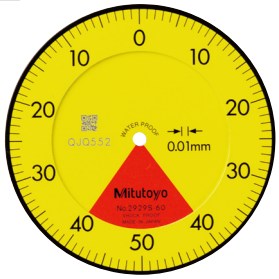
SERIES 2 — Standard One Revolution Type for Error-free Reading, Waterproof Type

- 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.
- 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.
- The stem and spindle are 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.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.
- The dead zone in red indicates "accuracy not guaranteed".



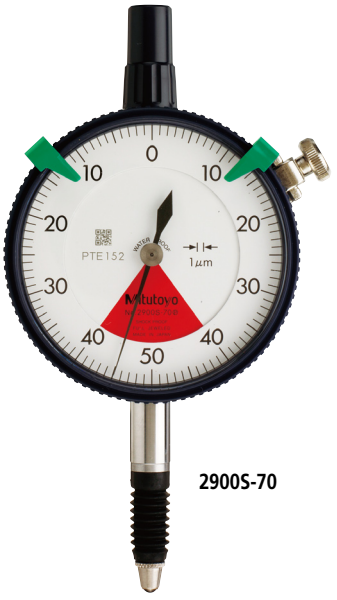
2929S-60

Balanced scale



Graduation: 0.01 mm,
Measuring range: 0.8 mm

2929S-60
One revolution
Shockproof
Waterproof



2900S-70

Balanced scale

Graduation: 0.001 mm,
Measuring range: 0.08 mm

2900S-70
One revolution
Shockproof
Waterproof
Jeweled bearing

F

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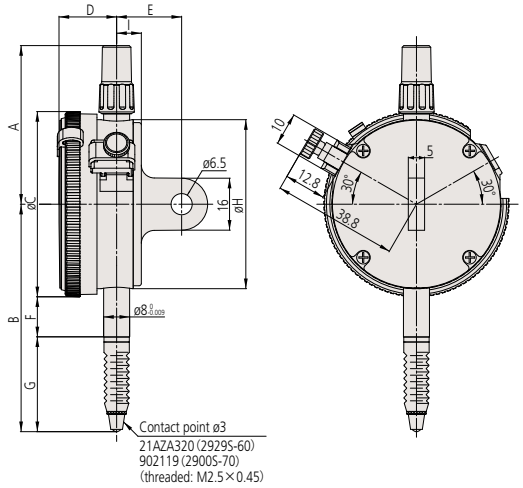
DIMENSIONS

ISO/JIS Type

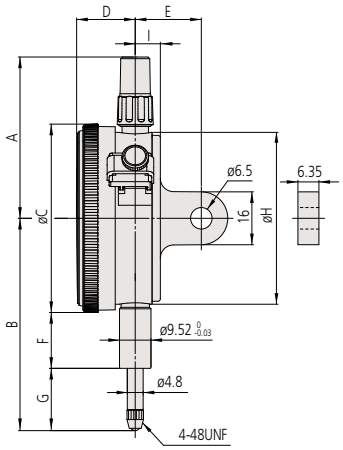


Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.
Note 2: Inch (ANSI/AGD Type) dial indicators are provided with a stem of 3/8 inch dia. and #4-48UNF thread mount for the contact point.

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.						—	—
w / lug	Flat-back						
2929S-60	**2929SB-60**	✔	✔	—	—	—	—
2900S-70	**2900SB-70**	✔	✔	—	✔	—	—

Inch

Order No.						—	—
w / lug	Flat-back						
2910S-72	**2910SB-72**	✔	✔	✔	✔	—	—

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			
2929S-60	**2929SB-60**	0.01 mm	0.8 mm (1 mm)	8 µm	3 µm	5 µm	—	3 µm	40-0-40	2.0 N or less
2900S-70	**2900SB-70**	0.001 mm	0.08 mm (0.1 mm)	3 µm	2 µm	2 µm	—	0.5 µm	40-0-40	2.0 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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			
2910S-72	**2910SB-72**	0.0001 in	0.008 in / 0.01 in	±0.0001 in / — / —	0.0001 in	±0.00003 in	4-0-4	2.5 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

F

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Mitutoyo

Dial Indicators

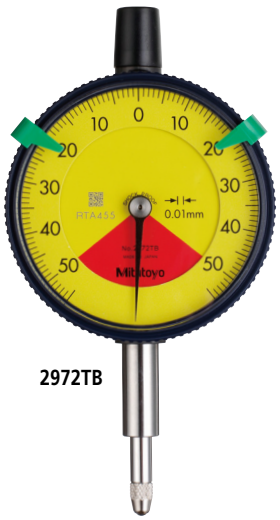
Comparison measuring instruments which ensure high quality, high accuracy and reliability.

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

IP43

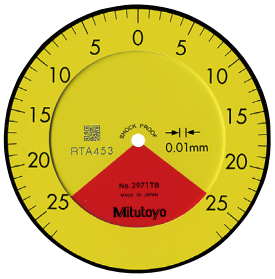
SERIES 2 — Standard One Revolution Type for Error-free Reading, Lightweight Type

- 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 stem and spindle are made of high-strength quench-hardened stainless steel which resists arduous use.
- A carbide contact point is used.
- Lightweight type (70 g).
- The dead zone in red indicates "accuracy not guaranteed".



2972TB

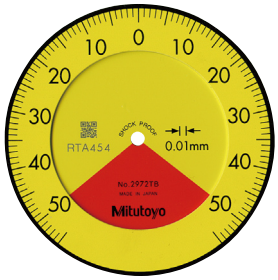
Balanced scale



Graduation: 0.01 mm,
Measuring range: 0.5 mm

2971TB
One revolution
Shockproof
Dustproof

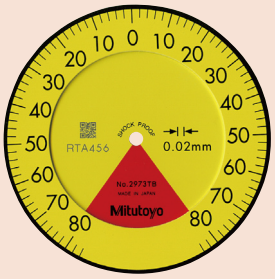
Balanced scale



Graduation: 0.01 mm,
Measuring range: 1 mm

2972TB
One revolution
Shockproof
Dustproof

Balanced scale



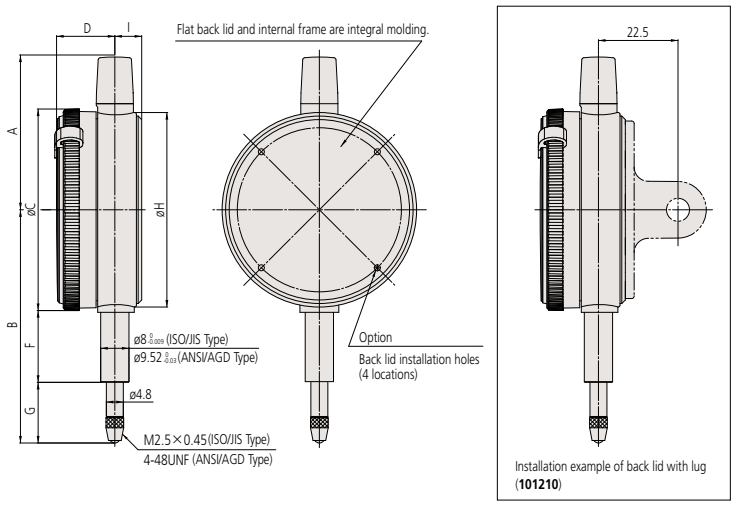
Graduation: 0.02 mm,
Measuring range: 1.6 mm

2973TB
One revolution
Shockproof
Dustproof

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

DIMENSIONS

Unit: mm



* When installing an optional back (refer to page F-55 for details) separately prepare 4 fixing screws (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 pages F-51 to F-54 for details of contact points.

FEATURES

Metric

Order No.					
w/ lug	Flat-back				
—	**2971TB**	✔	✔	✔	✔
—	**2972TB**	✔	✔	✔	✔
—	**2973TB**	✔	✔	✔	✔

Inch

Order No.					
w/ lug	Flat-back				
—	**2976TB**	✔	✔	✔	✔
—	**2977TB**	✔	✔	✔	✔
—	**2978TB**	✔	✔	✔	✔

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			
—	**2971TB**	0.01 mm	0.5 mm (0.7 mm)	8 µm	3 µm	5 µm	—	3 µm	25-0-25	1.4 N or less
—	**2972TB**	0.01 mm	1 mm (1.4 mm)	8 µm	3 µm	5 µm	—	3 µm	50-0-50	1.4 N or less
—	**2973TB**	0.02 mm	1.6 mm (2 mm)	16 µm	6 µm	8 µm	—	5 µm	80-0-80	1.4 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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			
—	**2976TB**	0.0005 in	0.02 in (0.028 in)	±0.0005 in / – / –	0.00016 in	±0.0001 in	10-0-10	1.4 N or less
—	**2977TB**	0.0005 in	0.04 in (0.055 in)	±0.0005 in / – / –	0.00016 in	±0.0001 in	20-0-20	1.4 N or less
—	**2978TB**	0.001 in	0.06 in (0.079 in)	±0.001 in / – / –	0.0002 in	±0.0002 in	30-0-30	1.4 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

F

Dial Indicators

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

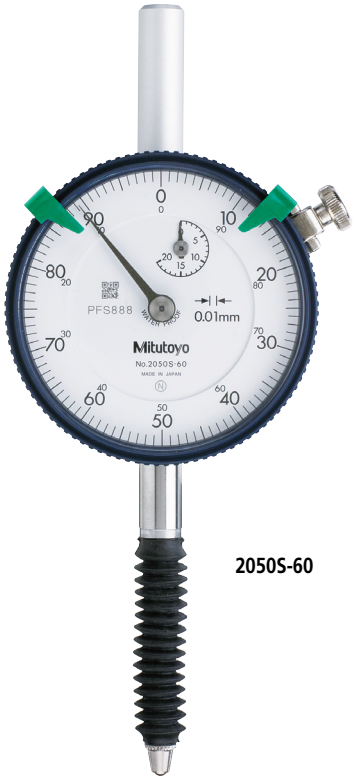
An inspection certificate is supplied as standard.
Refer to page X for details.

SERIES 2 — Long Stroke Type

- Long stroke dial indicators with a ø57 mm outer frame. All the models are equipped with limit markers and a bezel clamp as standard. (inch models are exception)
- An O-ring is employed to ensure air-tightness between the outer frame and the crystal case to prevent water or oil penetration.
- 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: 0.01 mm, Measuring range: 20 mm

2050S
With damper at lowest rest point

2050S-19
Shockproof
Jeweled bearing
With damper at lowest rest point

2050S-60
Waterproof

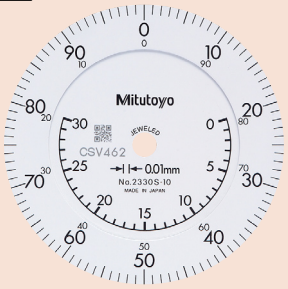
Continuous scale

Graduation: 0.01 mm, Measuring range: 30 mm

2052S
With damper at lowest rest point

2052S-19
Shockproof
Jeweled bearing
With damper at lowest rest point

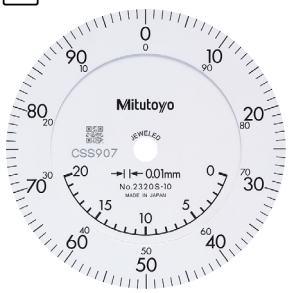
Continuous scale



Graduation: 0.01 mm, Measuring range: 30 mm

2330S-10
With coaxial revolution counter
With damper at lowest rest point
Jeweled bearing

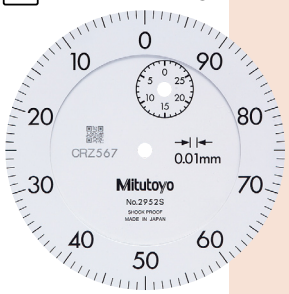
Continuous scale



Graduation: 0.01 mm, Measuring range: 20 mm

2320S-10
With coaxial revolution counter
With damper at lowest rest point
Jeweled bearing

Reverse reading



Graduation: 0.01 mm, Measuring range: 30 mm

2952S
With damper at lowest rest point

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

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	—	—	✔	—	—	✔	—	—

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	—	—	—	—	✔	—	—	—

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	0.01 mm	20 mm (1 mm)	20 µm	5 µm	8 µm	15 µm	4 µm	±0-100	2.0 N or less
2050S-60	2050SB-60	0.01 mm	20 mm (1 mm)	20 µm	5 µm	8 µm	15 µm	4 µm	±0-100	2.5 N or less
2050S-19	2050SB-19	0.01 mm	20 mm (1 mm)	20 µm	5 µm	8 µm	15 µm	4 µm	±0-100	2.0 N or less
2320S-10	2320SB-10	0.01 mm	20 mm (1 mm)	20 µm	5 µm	8 µm	15 µm	4 µm	±0-100	2.0 N or less
2052S	2052SB	0.01 mm	30 mm (1 mm)	25 µm	7 µm	10 µm	15 µm	5 µm	±0-100	2.5 N or less
2052S-19	2052SB-19	0.01 mm	30 mm (1 mm)	25 µm	7 µm	10 µm	15 µm	5 µm	±0-100	2.5 N or less
2330S-10	2330SB-10	0.01 mm	30 mm (1 mm)	25 µm	7 µm	10 µm	15 µm	5 µm	±0-100	2.5 N or less
2952S	2952SB	0.01 mm	30 mm (1 mm)	25 µm	7 µm	10 µm	15 µm	5µm	100-0	2.5 N or less

*1 2050S-60 and 2050SB-60 are waterproof types that use a rubber bellows to cover the spindle.
Note that the outer diameter of the bellows (ø9.5) is larger than that of the stem (ø8).
*2 Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

Inch

ANSI/AGD type

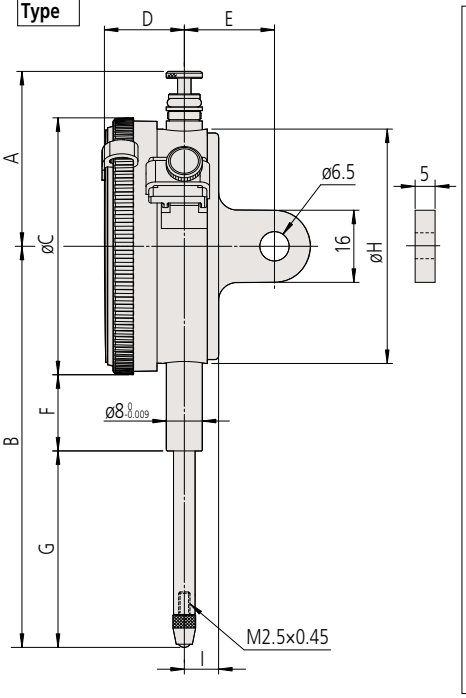
Order No.		Graduation	Range (range/rev)	Accuracy*		Repeat-ability	Dial reading	Measuring force
w/ lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
2416S	2416SB	0.001 in	1 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in	0.0002 in	±0.0002 in	±0-100	1.8 N or less
2416S-06	2416SB-06	0.001 in	1 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in	0.0002 in	±0.0002 in	±0-100	1.8 N or less
2416S-10	2416SB-10	0.001 in	1 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in	0.0002 in	±0.0002 in	±0-100	1.8 N or less
2417S	2417SB	0.001 in	1 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in	0.0002 in	±0.0002 in	0-50-0	1.8 N or less
2424S-19	2424SB-19	0.001 in	2 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in / ±0.003 in (First 20Rev)	0.00033 in	±0.0002 in	±0-100	2.5 N or less
2776S	2776SB	0.0005 in	1 in (0.05 in)	±0.0005 in / ±0.0005 in / ±0.0015 in / ±0.002 in (First 20Rev)	0.0002 in	±0.0001 in	±0-50	2.5 N or less
2904S	2904SB	0.001 in	1 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in	0.0002 in	±0.0002 in	100-0	1.8 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

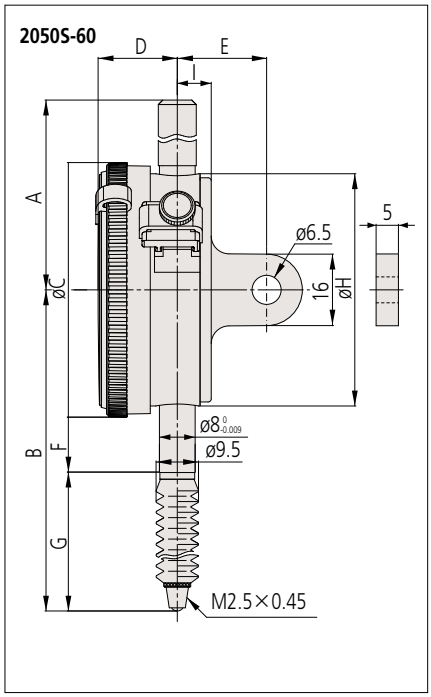
DIMENSIONS

Unit: mm

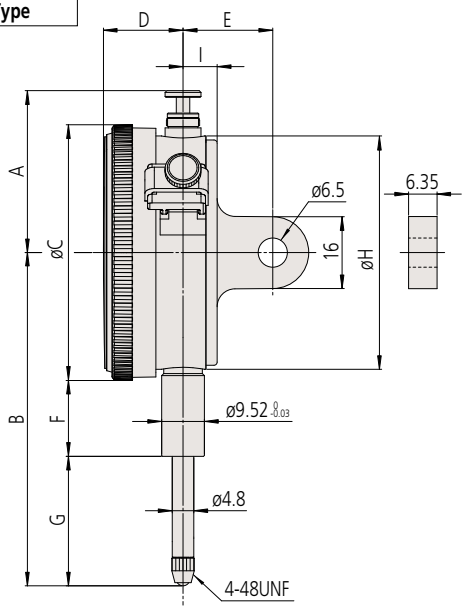
ISO/JIS Type



2050S-60



ANSI/AGD Type



Order No.	A	B	C	D	E	F	G	H	I
2050S	38.8	75.2	57	17.7	20	16.9	29.8	52	7.6
2050S-60	59.8	87.2	57	17.7	20	12.3	46.4	52	7.6
2050S-19	38.8	75.2	57	17.7	20	16.9	29.8	52	7.6
2320S-10	38.8	75.2	57	17.7	20	16.9	29.8	52	7.6
2052S	38.8	88.7	57	17.7	20	16.9	43.3	52	7.6
2052S-19	38.8	88.7	57	17.7	20	16.9	43.3	52	7.6
2330S-10	38.8	88.7	57	17.7	20	16.9	43.3	52	7.6
2952S	38.8	88.7	57	17.7	20	16.9	43.3	52	7.6

Order No.	A	B	C	D	E	F	G	H	I
2416S	38.9	76.8	57	17.7	19	13.6	34.7	52	7.6
2416S-06	38.9	76.8	57	17.7	19	13.6	34.7	52	7.6
2416S-10	38.9	76.8	57	17.7	19	13.6	34.7	52	7.6
2417S	38.9	76.8	57	17.7	19	13.6	34.7	52	7.6
2424S-19	118	142.5	57	17.7	20.9	54.3	59.7	52	9.5
2776S	38.9	76.8	57	17.7	19	13.6	34.7	52	7.6
2904S	38.9	76.8	57	17.7	19	13.6	34.7	52	7.6

F

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

Mitutoyo

Dial Indicators

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

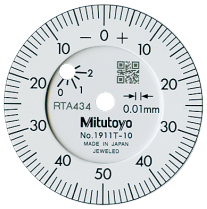
An inspection certificate is supplied as standard.
Refer to page X for details.

SERIES 1 — Compact Type, Extra Small Diameter

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

1911T-10

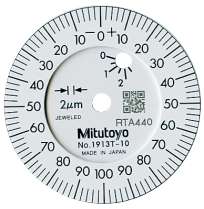
Balanced scale



Graduation: 0.01 mm,
Measuring range: 2.5 mm

1911T-10
Jeweled bearing

Balanced scale

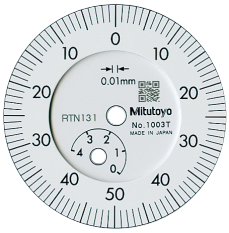


Graduation: 0.02 mm,
Measuring range: 0.5 mm

1913T-10
Jeweled bearing

1003T

Balanced scale



Graduation: 0.01 mm,
Measuring range: 4 mm

1003T

F

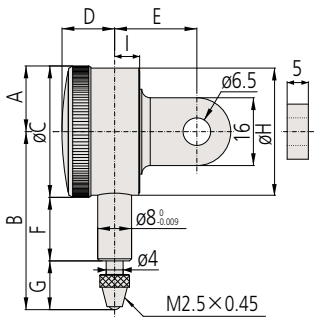
Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

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

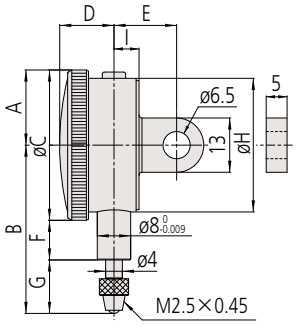
DIMENSIONS

Unit: mm

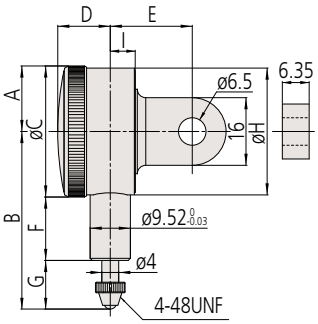
1911T-10/1913T-10



1003T



1921T-10/1923T-10/1925T-10



Order No.	A	B	C	D	E	F	G	H	I
1911T-10	15.5	42	31	12.9	19.2	15	11.5	30	5.9
1913T-10	15.5	39.5	31	12.9	19.2	15	9	30	5.9
1003T	18	40.3	36	13	15	9.5	12.8	32	6
1921T-10	15.5	40	31	12.9	19.2	15	9.5	30	6.8
1923T-10	15.5	38.3	31	12.9	19.2	15	7.8	30	6.8
1925T-10	15.5	37.5	31	12.9	19.2	15	7	30	6.8

Notes
1) Limit hands, bezel clamps and lifting levers cannot be installed.
2) The shoulder on a contact point (standard accessory) acts as a stop to prevent spindle overrun that may otherwise damage the indicator. For this reason, if you need to install an optional contact point with an outside diameter smaller than 7 mm, use a washer (with outside diameter of at least 7 mm, inside diameter of 3 mm, and thickness of approx. 0.5 mm) placed between the contact point and the spindle.

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			
1911T-10	**1911TB-10**	0.01 mm	2.5 mm (1 mm)	12 µm	4 µm	8 µm	10 µm	3 µm	0-50-0	1.8 N or less
1913T-10	**1913TB-10**	0.002 mm	0.5 mm (0.2 mm)	6 µm	2.5 µm	2.5 µm	5 µm	1 µm	0-100-0	1.8 N or less
1003T	**1003TB**	0.01 mm	4 mm (1 mm)	13 µm	4 µm	8 µm	11 µm	3 µm	0-50-0	1.4 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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			
1921T-10	**1921TB-10**	0.001 in	0.1 in (0.04 in)	±0.001 in / ±0.001 in / —	0.0002 in	±0.0002 in	0-20-0	1.8 N or less
1923T-10	**1923TB-10**	0.0005 in	0.05 in (0.02 in)	±0.0005 in / ±0.005 in / —	0.00016 in	±0.0001 in	0-10-0	1.8 N or less
1925T-10	**1925TB-10**	0.0001 in	0.025 in (0.01 in)	±0.0002 in / ±0.0002 in / —	0.0001 in	±0.00003 in	0-5-0	1.8 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

F

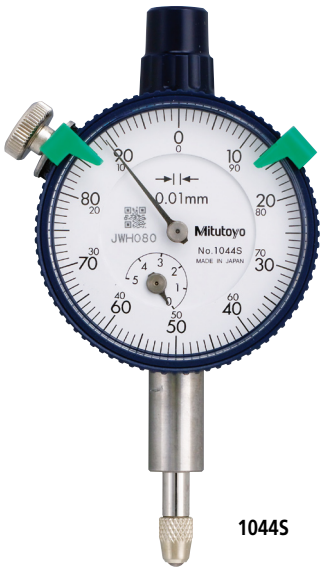
Dial Indicators

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

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

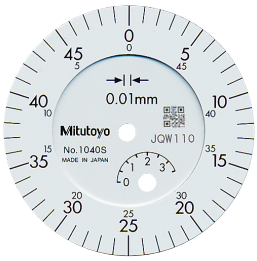
SERIES 1 — Compact Type, Small Diameter

- Compact dial indicators with bezel diameters of 40 mm for restricted-space applications in gaging jigs.
- All models come with limit markers and a bezel clamp.
- Secure adhesion between the bezel and crystal as well as the use of an O-ring prevents water or oil penetration.
- The stem and spindle are made of high-strength quench-hardened stainless steel which resists arduous use.
- A carbide contact point is used.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.



1044S

Continuous scale

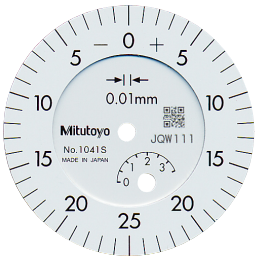


Graduation: 0.01 mm, Measuring range: 3.5 mm

1040S

Double scale spacing

Balanced scale

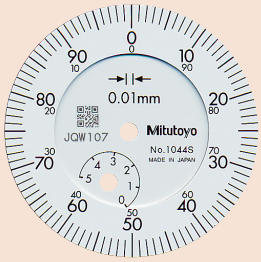


Graduation: 0.01 mm, Measuring range: 3.5 mm

1041S

Double scale spacing

Continuous scale



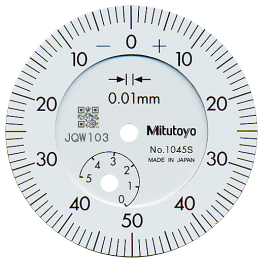
Graduation: 0.01 mm, Measuring range: 5 mm

1044S

1044S-15

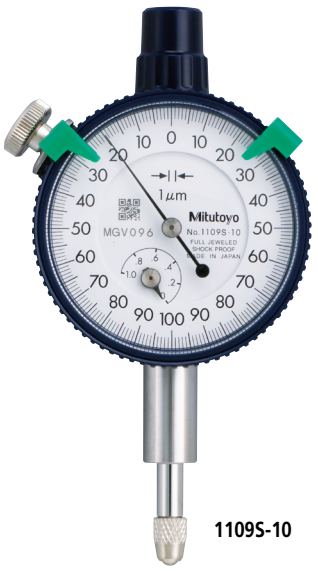
Jeweled bearing

Balanced scale



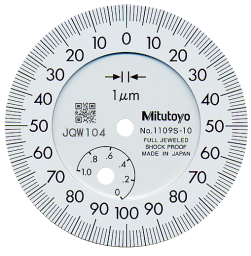
Graduation: 0.01 mm, Measuring range: 5 mm

1045S



1109S-10

Balanced scale



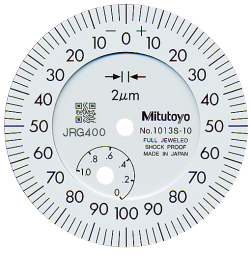
Graduation: 0.001 mm, Measuring range: 1 mm

1109S-10

Shockproof

Jeweled bearing

Balanced scale



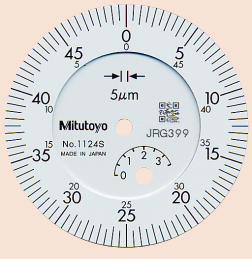
Graduation: 0.002 mm, Measuring range: 1 mm

1013S-10

Shockproof

Jeweled bearing

Continuous scale



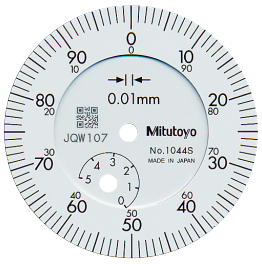
Graduation: 0.005 mm, Measuring range: 3.5 mm

1124S

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

1044S-60

Continuous scale



Graduation: 0.01 mm,
Measuring range: 5 mm

1044S-60
Waterproof

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			
1013S-10	**1013SB-10**	0.002 mm	1 mm (0.2 mm)	6 µm	2.5 µm	2.5 µm	5 µm	1 µm	0-100-0	1.5 N or less
1040S	**1040SB**	0.01 mm	3.5 mm (0.5 mm)	13 µm	4 µm	8 µm	11 µm	3 µm	±0-50	1.4 N or less
1041S	**1041SB**	0.01 mm	3.5 mm (0.5 mm)	13 µm	4 µm	8 µm	11 µm	3 µm	0-25-0	1.4 N or less
1044S	**1044SB**	0.01 mm	5 mm (1 mm)	13 µm	4 µm	8 µm	11 µm	3 µm	±0-100	1.4 N or less
1044S-15	**1044SB-15**	0.01 mm	5 mm (1 mm)	13 µm	4 µm	8 µm	11 µm	3 µm	±0-100	0.4 N or less*
1044S-60	**1044SB-60**	0.01 mm	5 mm (1 mm)	13 µm	4 µm	8 µm	11 µm	3 µm	±0-100	2.0 N or less
1045S	**1045SB**	0.01 mm	5 mm (1 mm)	13 µm	4 µm	8 µm	11 µm	3 µm	0-50-0	1.4 N or less
1109S-10	**1109SB-10**	0.001 mm	1 mm (0.2 mm)	5 µm	2 µm	2.5 µm	4.5 µm	1 µm	0-100-0	1.5 N or less
1124S	**1124SB**	0.005 mm	3.5 mm (0.5 mm)	12 µm	3.5 µm	6 µm	10 µm	3 µm	±0-50	1.4 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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			
1410S	**1410SB**	0.001 in	0.25 in (0.1 in)	±0.001 in / ±0.001 in / —	0.0002 in	±0.0002 in	0-100	1.4 N or less
1411S	**1411SB**	0.001 in	0.25 in (0.1 in)	±0.001 in / ±0.001 in / —	0.0002 in	±0.0002 in	0-50-0	1.4 N or less
1410S-10	**1410SB-10**	0.001 in	0.25 in (0.1 in)	±0.001 in / ±0.001 in / —	0.0002 in	±0.0002 in	0-100	1.4 N or less
1780S	**1780SB**	0.001 in	0.125 in (0.05 in)	±0.001 in / ±0.001 in / —	0.0002 in	±0.0002 in	0-50	1.4 N or less
1781S	**1781SB**	0.001 in	0.125 in (0.05 in)	±0.001 in / ±0.001 in / —	0.0002 in	±0.0002 in	0-25-0	1.4 N or less
1506S	**1506SB**	0.0005 in	0.125 in (0.05 in)	±0.0005 in / ±0.0005 in / —	0.00016 in	±0.0001 in	0-50	1.4 N or less
1507S	**1507SB**	0.0005 in	0.125 in (0.05 in)	±0.0005 in / ±0.0005 in / —	0.00016 in	±0.0001 in	0-25-0	1.4 N or less
1670S	**1670SB**	0.0005 in	0.1 in (0.04 in)	±0.0005 in / ±0.0005 in / —	0.00016 in	±0.0001 in	0-40	1.4 N or less
1671S	**1671SB**	0.0005 in	0.1 in (0.04 in)	±0.0005 in / ±0.0005 in / —	0.00016 in	±0.0001 in	0-20-0	1.4 N or less
1802S-10	**1802SB-10**	0.0001 in	0.025 in (0.01 in)	±0.0001 in / ±0.0001 in / —	0.0001 in	±0.00003 in	0-10	1.5 N or less
1803S-10	**1803SB-10**	0.0001 in	0.025 in (0.01 in)	±0.0001 in / ±0.0001 in / —	0.0001 in	±0.00003 in	0-5-0	1.5 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

FEATURES

Metric

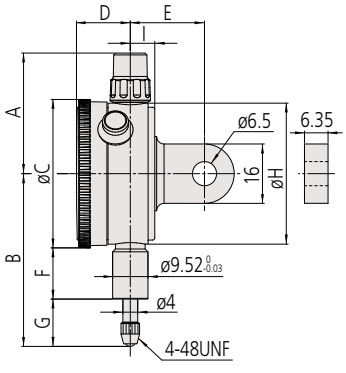
Order No.				
w / lug	Flat-back			
1013S-10	**1013SB-10**	—	✔	—
1040S	**1040SB**	✔	—	—
1041S	**1041SB**	✔	—	—
1044S	**1044SB**	—	—	—
1044S-15	**1044SB-15**	—	✔	—
1044S-60	**1044SB-60**	—	—	✔
1045S	**1045SB**	—	—	—
1109S-10	**1109SB-10**	—	✔	—
1124S	**1124SB**	—	—	—

Inch

Order No.			
w / lug	Flat-back		
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

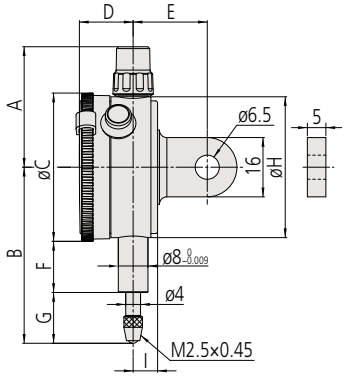


Unit: mm

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



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*2	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

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

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 inch dia. and #4-48UNF thread mount for the contact point.

F

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

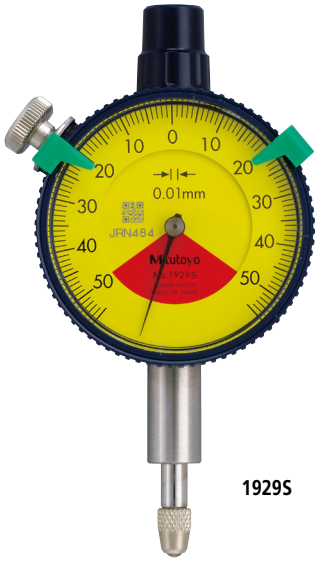
Dial Indicators

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

An inspection certificate is supplied as standard.
Refer to page X 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.)
- All types come with limit markers and a bezel clamp.



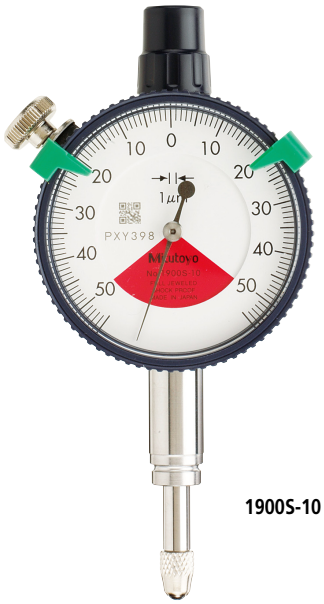
1929S

Balanced scale

Graduation: 0.01 mm,
Measuring range: 1 mm

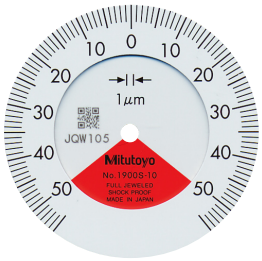
1929S
One revolution
Shockproof

1929S-62
One revolution
Shockproof
Dustproof



1900S-10

Balanced scale



Graduation: 0.001 mm,
Measuring range: 0.1 mm

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

F

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

FEATURES

Metric

Order No.				
w / lug	Flat-back			
1929S	**1929SB**	—	—	✔
1929S-62	**1929SB-62**	—	✔	✔
1900S-10	**1900SB-10**	✔	—	✔
1900S-72	**1900SB-72**	✔	✔	✔

Inch

Order No.				
w / lug	Flat-back			
1909S-62	**1909SB-62**	—	✔	✔
1910S-72	**1910SB-72**	✔	✔	✔

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			
1929S	**1929SB**	0.01 mm	1 mm (1.4 mm)	11 µm	4 µm	7 µm	—	3 µm	50-0-50	1.4 N or less
1929S-62	**1929SB-62**	0.01 mm	1 mm (1.4 mm)	11 µm	4 µm	7 µm	—	3 µm	50-0-50	1.4 N or less
1900S-10	**1900SB-10**	0.001 mm	0.1 mm (0.14 mm)	5 µm	2 µm	2.5 µm	—	1 µm	50-0-50	1.5 N or less
1900S-72	**1900SB-72**	0.001 mm	0.1 mm (0.14 mm)	5 µm	2 µm	2.5 µm	—	1 µm	50-0-50	1.5 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

Inch ☐ ANSI/AGD type

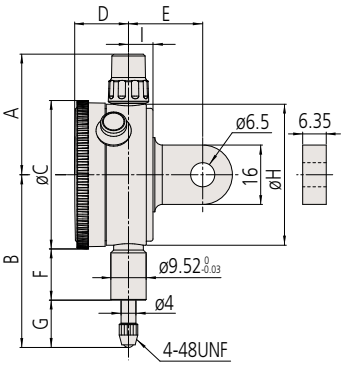
Order No.		Graduation	Range (range/rev)	Accuracy*		Repeat-ability	Dial reading	Measuring force
w / lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
1909S-62	**1909SB-62**	0.0005 in	0.04 in (0.056 in)	±0.0005 in / — / —	0.00016 in	±0.0001 in	20-0-20	1.4 N or less
1910S-72	**1910SB-72**	0.0001 in	0.006 in (0.008 in)	±0.0001 in / — / —	0.0001 in	±0.00003 in	3-0-3	1.5 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

DIMENSIONS

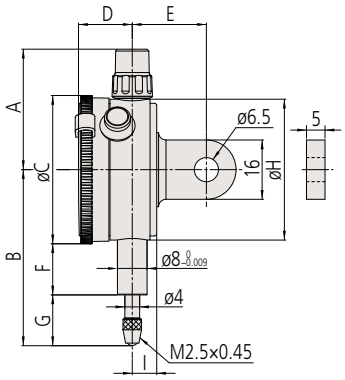
Unit: mm

ANSI/AGD Type



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

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 inch dia. and #4-48UNF thread mount for the contact point.

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

F

Dial Indicators

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

PROPRIETARY INSPECTION CERTIFICATE — Mitutoyo guarantees the product quality. Mitutoyo guarantees the product quality.

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

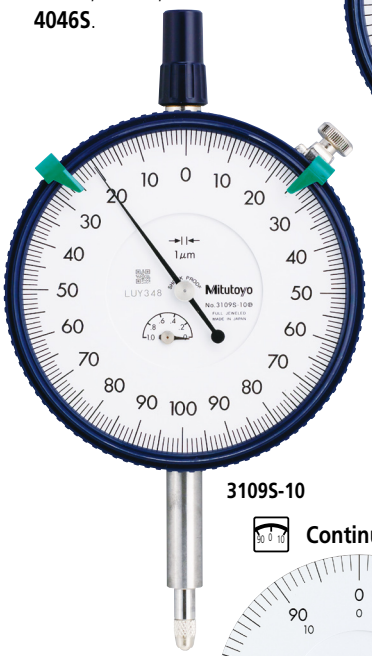
SERIES 3, 4 — Long StrokeType, Large Diameter

- Dial indicators with a large-diameter dial face for easy reading.
- Models with longer measuring ranges are also available.
- All types are supplied with limit markers and a bezel clamp as standard.
- Both the stem and the spindle are made of high-strength quench-hardened stainless steel suitable for heavy-duty use.
- The bezel clamp and lifting lever (optional)*1 can be attached to either the right or left side. These parts can be easily installed and removed without tools.

*1: Can be attached only to **3046S**, **3047S**, **3050S**, **3109S-10** and **4046S**.

4046S

3058S-19

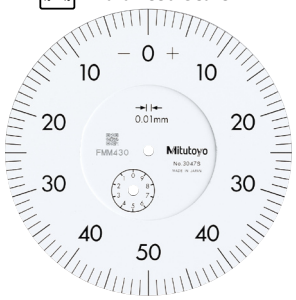


3109S-10

Continuous scale

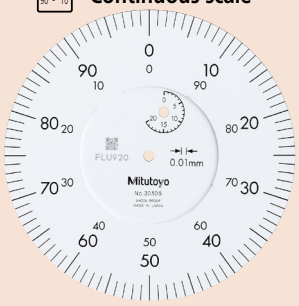
Graduation: 0.01 mm, Measuring range: 10 mm **3046S**

Balanced scale



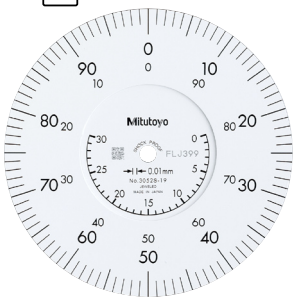
Graduation: 0.01 mm, Measuring range: 10 mm **3047S**

Continuous scale



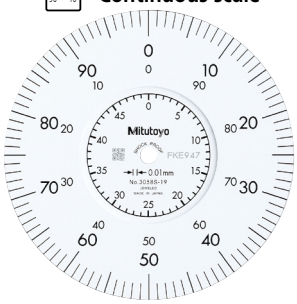
Graduation: 0.01 mm, Measuring range: 20 mm **3050S**

Continuous scale



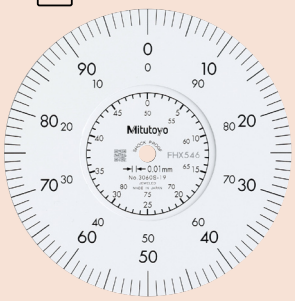
Graduation: 0.01 mm, Measuring range: 30 mm **3052S-19**

Continuous scale



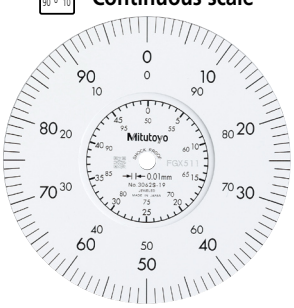
Graduation: 0.01 mm, Measuring range: 50 mm **3058S-19**

Continuous scale



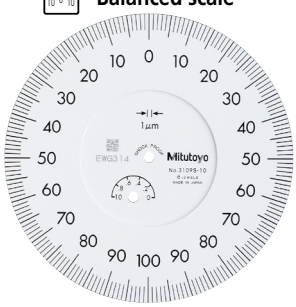
Graduation: 0.01 mm, Measuring range: 80 mm **3060S-19**

Continuous scale



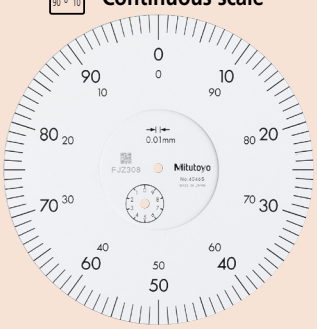
Graduation: 0.01 mm, Measuring range: 100 mm **3062S-19**

Balanced scale



Graduation: 0.001 mm, Measuring range: 1 mm **3109S-10**

Continuous scale



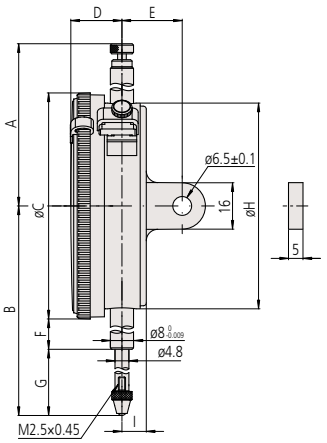
Graduation: 0.01 mm, Measuring range: 10 mm **4046S**

F

Mitutoyo reserves the right to change any or all aspects of any product specification, including prices, designs and service content, without notice.

DIMENSIONS

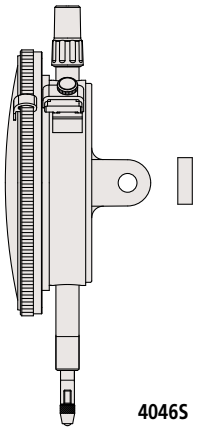
ISO/JIS Type



Unit: mm

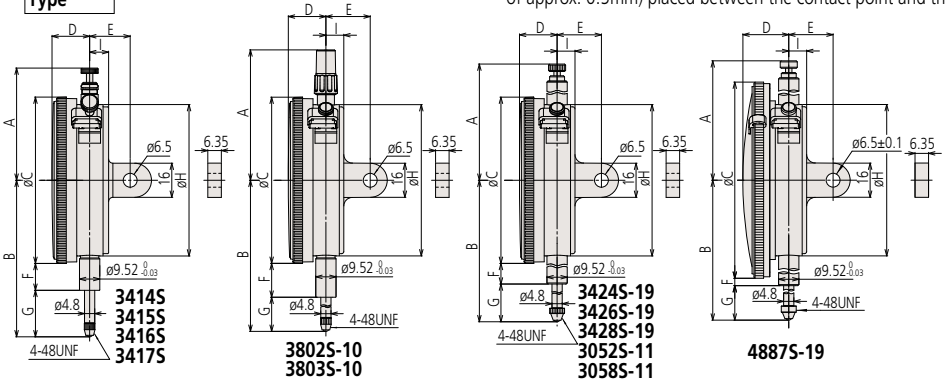
Order No.	A	B	C	D	E	F	G	H	I
3046S	61.2	75.5	78	17.7	21	15.9	20.6	71	9
3047S	61.2	75.5	78	17.7	21	15.9	20.6	71	9
3050S	52.6	94	78	17.7	21	25.9	29.1	71	9
3052S-19*	72.9	104.3	78	17.7	21	25.9	39.4	71	9
3058S-19*	81.9	142.3	78	17.7	21	43.9	59.4	71	9
3060S-19*	120.9	202.3	78	17.7	21	73.9	89.4	71	9
3062S-19*	141.9	243.3	78	17.7	21	94.9	109.4	71	9
3109S-10	61.2	79	78	17.7	21	25.9	14.1	71	9
4046S	61.2	84	92	21.5	21	18.9	19.1	71	9

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 inch dia. and #4-48UNF thread mount for the contact point.
* The shoulder on a contact point (standard accessory) acts as a stop to prevent spindle overrun that may otherwise damage the indicator. For this reason, if you need to install an optional contact point with an outside diameter smaller than 7 mm, use a washer (with outside diameter of at least 7 mm, inside diameter of 3 mm, and thickness of approx. 0.5mm) placed between the contact point and the spindle.



4046S

ANSI/AGD Type



Unit: mm

Order No.	A	B	C	D	E	F	G	H	I
3414S	52.6	73.4	78	17.7	19	12.6	21.8	71	9
3415S	52.6	73.4	78	17.7	19	12.6	21.8	71	9
3416S	52.6	86.1	78	17.7	19	12.6	34.5	71	9
3417S	52.6	86.1	78	17.7	19	12.6	34.5	71	9
3424S-19*	84	149.3	78	17.7	19	50.6	59.7	71	9
3426S-19*	123	198.1	78	17.7	19	73.9	85.2	71	9
3428S-19*	144	244.5	78	17.7	19	94.9	110.6	71	9
3803S-10	61.2	59.7	78	17.7	19	12.6	8.1	71	9
3802S-10	61.2	59.7	78	17.7	19	12.6	8.1	71	9
3052S-11*	72.9	102.4	78	17.7	19	25.9	37.5	71	9
3058S-11*	81.9	147.1	78	17.7	19	50.6	57.5	71	9
4887S-19*	123	198.1	92	21.5	19	66.9	85.2	71	9

FEATURES

Metric

Order No.						—	—
w/ lug	Flat-back						
3046S	3046SB	—	—	—	—	—	—
3047S	3047SB	—	—	—	—	—	—
3050S	3050SB	—	✔	—	—	—	—
3052S-19	3052SB-19	✔	—	✔	✔	—	—
3058S-19	3058SB-19	✔	—	✔	✔	—	—
3060S-19*	3060SB-19*	✔	—	✔	✔	—	—
3062S-19*	3062SB-19*	✔	—	✔	✔	—	—
3109S-10	3109SB-10	✔	—	✔	—	—	—
4046S	4046SB	—	—	—	—	—	—

Inch

Order No.					—	—	—
w/ lug	Flat-back						
3414S	3414SB	—	—	—	—	—	—
3415S	3415SB	—	—	—	—	—	—
3416S	3416SB	—	—	—	—	—	—
3417S	3417SB	—	—	—	—	—	—
3424S-19	3424SB-19	✔	✔	✔	—	—	—
3426S-19	3426SB-19	✔	✔	✔	—	—	—
3428S-19	3428SB-19	✔	✔	✔	—	—	—
3802S-10	3802SB-10	✔	✔	—	—	—	—
3803S-10	3803SB-10	✔	✔	—	—	—	—
4887S-19	4887SB-19	✔	✔	✔	—	—	—

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			
3046S	3046SB	0.01 mm	10 mm (1 mm)	15 µm	3 µm	5 µm	10 µm	3 µm	±0-100	1.4 N or less
3047S	3047SB	0.01 mm	10 mm (1 mm)	15 µm	3 µm	5 µm	10 µm	3 µm	0-50-0	1.4 N or less
3050S	3050SB	0.01 mm	20 mm (1 mm)	20 µm	5 µm	8 µm	15 µm	4 µm	±0-100	2.0 N or less
3052S-19	3052SB-19	0.01 mm	30 mm (1 mm)	25 µm	7 µm	10 µm	15 µm	5 µm	±0-100	2.5 N or less
3058S-19	3058SB-19	0.01 mm	50 mm (1 mm)	30 µm	8 µm	10 µm	15 µm	5 µm	±0-100	3.0 N or less
3060S-19*	3060SB-19*	0.01 mm	80 mm (1 mm)	45 µm	9 µm	12 µm	20 µm	5 µm	±0-100	3.0 N or less
3062S-19*	3062SB-19*	0.01 mm	100 mm (1 mm)	50 µm	9 µm	12 µm	20 µm	5 µm	±0-100	3.2 N or less
3109S-10	3109SB-10	0.001 mm	1 mm (0.2 mm)	5 µm	2 µm	2 µm	4 µm	0.5 µm	0-100-0	1.5 N or less
4046S	4046SB	0.01 mm	10 mm (1 mm)	15 µm	3 µm	5 µm	10 µm	3 µm	±0-100	1.4 N or less

*1 Use in a vertical position (contact point downward) for the long stroke model.
*2 Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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			
3414S	3414SB	0.001 in	0.5 in (0.1 in)	±0.001 in / ±0.001 in / ±0.001 in	0.0002 in	±0.0002 in	±0-100	1.8 N or less
3415S	3415SB	0.001 in	0.5 in (0.1 in)	±0.001 in / ±0.001 in / ±0.001 in	0.0002 in	±0.0002 in	0-50-0	1.8 N or less
3416S	3416SB	0.001 in	1 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in	0.0002 in	±0.0002 in	±0-100	1.8 N or less
3417S	3417SB	0.001 in	1 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in	0.0002 in	±0.0002 in	0-50-0	1.8 N or less
3424S-19	3424SB-19	0.001 in	2 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002" / ±0.003 in (20Rev)	0.00033 in	±0.0002 in	±0-100	3.0 N or less
3426S-19*	3426SB-19*	0.001 in	3 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in / ±0.003 in (20Rev) / ±0.005 in (Over 20Rev)	0.00033 in	±0.0002 in	±0-100	3.0 N or less
3428S-19*	3428SB-19*	0.001 in	4 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in / ±0.003 in (20Rev) / ±0.005 in (Over 20Rev)	0.00033 in	±0.0002 in	±0-100	3.2 N or less
3802S-10	3802SB-10	0.0001 in	0.025 in (0.01 in)	±0.0001 in / ±0.0001 in / —	0.0001 in	±0.00003 in	0-10	2.0 N or less
3803S-10	3803SB-10	0.0001 in	0.025 in (0.01 in)	±0.0001 in / ±0.0001 in / —	0.0001 in	0±.00003 in	0-5-0	2.0 N or less
4887S-19*	4887SB-19*	0.001 in	3 in (0.1 in)	±0.001 in / ±0.001 in / ±0.002 in / ±0.003 in (20Rev) / ±0.005 in (Over 20Rev)	0.00033 in	±0.0002 in	±0-100	3.0 N or less

*1 Use in a vertical position (contact point downward) for the long stroke model.
*2 Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

F

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Mitutoyo

Dial Indicators

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

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

ANSI/AGD Type Metric Dial Indicators with ø3/8 inch 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**	0.01 mm	2.5 mm (1 mm)	±10 µm / ±10 µm / —	3 µm	±2 µm	0-100	1.4 N or less
1231S-01	**1231SB-01**	0.01 mm	2.5 mm (1 mm)	±10 µm / ±10 µm / —	3 µm	±2 µm	0-50-0	1.4 N or less
1044S-01	**1044SB-01**	0.01 mm	5 mm (1 mm)	±10 µm / ±10 µm / ±13 µm	3 µm	±3 µm	±0-100	1.4 N or less
1045S-01	**1045SB-01**	0.01 mm	5 mm (1 mm)	±10 µm / ±10 µm / ±13 µm	3 µm	±3 µm	0-50-0	1.4 N or less
1010S-11	**1010SB-11**	0.002 mm	0.5 mm (0.2 mm)	±2 µm / ±2 µm / —	2 µm	±1 µm	0-20	1.5 N or less
1011S-11	**1011SB-11**	0.002 mm	0.5 mm (0.2 mm)	±2 µm / ±2 µm / —	2 µm	±1 µm	0-10-0	1.5 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

FEATURES

Metric

Order No.								—
w / lug	Flat-back							
1230S-01	**1230SB-01**	—	—	—	—	—	—	—
1231S-01	**1231SB-01**	—	—	—	—	—	—	—
1044S-01	**1044SB-01**	—	—	—	—	—	—	—
1045S-01	**1045SB-01**	—	—	—	—	—	—	—
1010S-11	**1010SB-11**	—	✔	—	—	✔	—	—
1011S-11	**1011SB-11**	—	✔	—	—	✔	—	—

Metric Series 2 — ANSI/AGD type

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

*1 One revolution type
*2 Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

Metric

Order No.								
w / lug	Flat-back							
2230S-01	**2230SB-01**	—	—	—	—	—	—	—
2231S-01	**2231SB-01**	—	—	—	—	—	—	—
2046S-01	**2046SB-01**	—	—	—	—	—	—	—
2046S-11	**2046SB-11**	—	✔	—	—	—	—	—
2048S-11	**2048SB-11**	—	✔	✔	✔	—	—	—
2047S-01	**2047SB-01**	—	—	—	—	—	—	—
2047S-11	**2047SB-11**	—	✔	—	—	—	—	—
2902S-01	**2902SB-01**	—	—	—	—	—	—	✔
2050S-01	**2050SB-01**	—	—	—	—	—	—	—
2050S-11	**2050SB-11**	—	✔	—	—	—	—	—
2056S-01	**2056SB-01**	—	—	—	—	—	—	—
2900S-73*	**2900SB-73***	—	✔	—	—	✔	✔	—
2109S-11	**2109SB-11**	—	✔	—	—	✔	—	—
2119S-11	**2119SB-11**	—	✔	—	—	—	—	

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ANSI/AGD Type Metric Dial Indicators with ø3/8 inch 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*		Repeat-ability	Dial reading	Measuring force
w / lug	Flat-back			First 1 Rev / 2.5 Rev / 10 Rev / 20 Rev / Over 20 Rev	Retrace			
3052S-11	**3052SB-11**	0.01 mm	30 mm (1 mm)	±10 µm / ±10 µm / ±15 µm / ±20 µm / ±30 µm	5 µm	±3 µm	±0-100	2.5 N or less
3058S-11	**3058SB-11**	0.01 mm	50 mm (1 mm)	±15 µm / ±15 µm / ±20 µm / ±25 µm / ±40 µm	6 µm	±3 µm	±0-100	3.0 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

PROPRIETARY INSPECTION CERTIFICATE

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

Optional Accessories

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

F

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Mitutoyo

Dial Indicators

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

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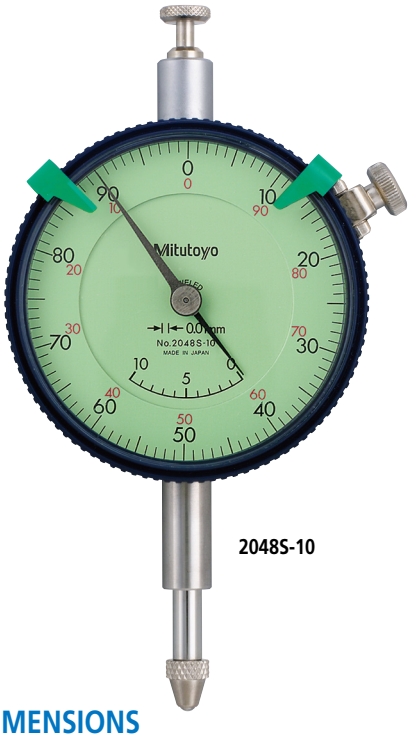
Refer to page X for details.

SERIES 2 — Special Dial Indicators

Adjustable hand dial indocator

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



2048S-10

Continuous scale

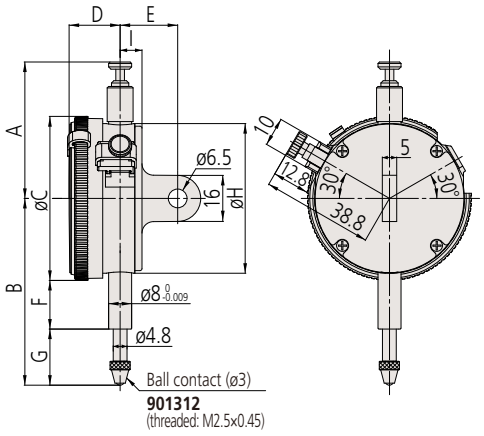
Graduation: 0.01 mm,
Measuring range: 10 mm

2048S-10
With coaxial revolution counter
Adjustable hand
Jeweled bearing

DIMENSIONS

ISO/JIS Type

Unit: mm



* Contact points, other than dedicated types, cannot be installed.
* The shoulder on a contact point (standard accessory) acts as a stop to prevent spindle overrun that may otherwise damage the indicator. For this reason, if you need to install an optional contact point with an outside diameter smaller than 7 mm, use a washer (with outside diameter of at least 7 mm, inside diameter of 3 mm, and thickness of approx. 0.5 mm) placed between the contact point and the spindle.

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			
2048S-10	**2048SB-10**	0.01 mm	10 mm (1 mm)	15 µm	3 µm	5 µm	10 µm	3 µm	±0-100	1.4N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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			
2915S-10	**2915SB-10**	0.001 in	0.5 in (0.1 in)	±0.001 in / ±0.001 in / ±0.001	0.0002	±0.0002	±0-100	1.8 N or less
2918S-10	**2918SB-10**	0.001 in	0.5 in (0.1 in)	±0.001 in / ±0.001 in / ±0.001	0.0002	±0.0002	0-50-0	1.8 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

FEATURES

Metric

Order No.						
w/ lug	Flat-back				—	—
2048S-10	**2048SB-10**	✔	—	✔	—	—

Inch

Order No.						
w/ lug	Flat-back				—	—
2915S-10	**2915SB-10**	✔	—	✔	—	—
2918S-10	**2918SB-10**	✔	—	✔	—	—

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Refer to page X for details.

SERIES 2 — Special Dial Indicators

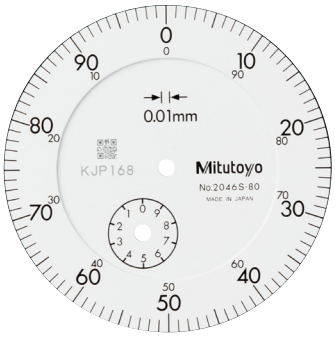
Peak hold type dial indicator

- A mechanism holds the pointer and the spindle at the position of maximum depression and hence displays the maximum value.

* Clearance of peak hold: push the nut in the direction of the arrow indicated in the dimensional drawing below.

2046S-80

Continuous scale



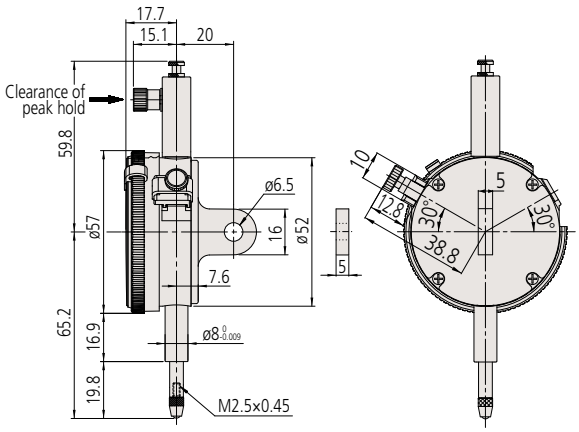
Graduation: 0.01 mm,
Measuring range: 10 mm

2046S-80
Peak retaining

DIMENSIONS

ISO/JIS Type

Unit: mm



2046S-80

FEATURES

Metric

Order No.						
w / lug	Flat-back				—	—
2046S-80	2046SB-80	—	✔	—	—	—

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-80	2046SB-80	0.01 mm	10 mm (1 mm)	15 µm	—	5 µm	10 µm	—	±0-100	5.0 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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Dial Indicators

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

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Refer to page X for details.

Back Plunger Type Dial Indicators SERIES 2

- Back Plunger type dial indicators are suitable for mounting onto leveling machine tool tables or inspection jigs, and for use in small spaces where the graduations of standard dial indicators 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 0.001 mm graduation.

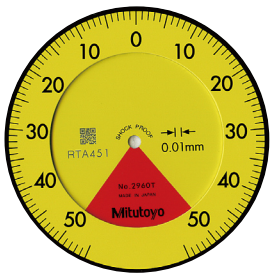
Holding bar (optional)

Order No.	D	L
21AAA166	ø6 mm	42 mm
136567	ø6 mm	81 mm
124625	ø6.35 mm	81 mm
21AAA167	ø6.35 mm	42 mm
21AAA168	ø8 mm	42 mm
136568	ø8 mm	81 mm

* ØD and L: detail shown in drawing below.

2960T

Balanced scale



Graduation: 0.01 mm, Measuring range: 1 mm

2960T
- One revolution
- Shockproof
- Back Plunger

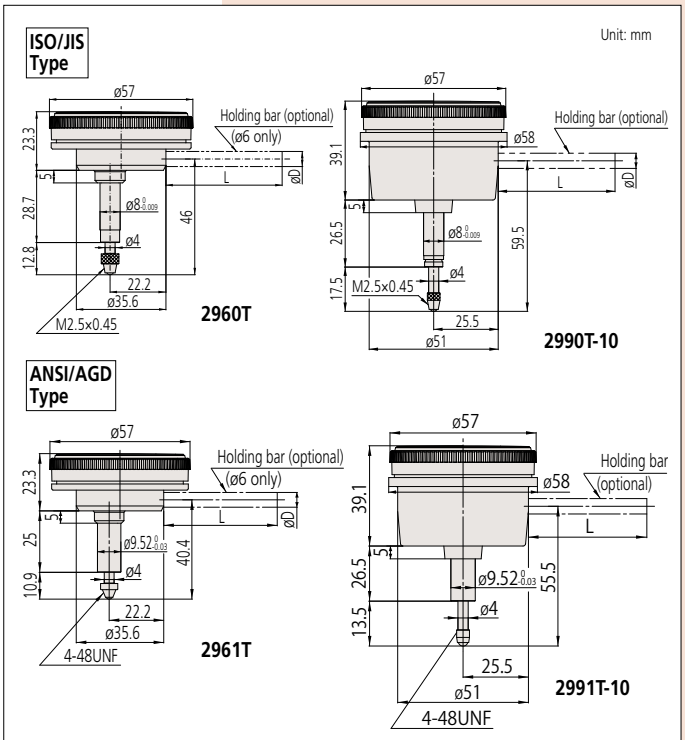
2990T-10

Balanced scale

Graduation: 0.01 mm, Measuring range: 1 mm

2990T-10
- One revolution
- Shockproof
- Back Plunger
- Jeweled bearing

DIMENSIONS



* The shoulder on a contact point (standard accessory) for 2960T and 2961T acts as a stop to prevent spindle overrun that may otherwise damage the indicator. For this reason, if you need to install an optional contact point with an outside diameter smaller than 7 mm, use a washer (with outside diameter of at least 7 mm, inside diameter of 3 mm, and thickness of approx. 0.5 mm) placed between the contact point and the spindle.

Metric — ISO/JIS type

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

Metric Order No.				—	—	—
2960T	✔	✔	—	—	—	—
2990T-10	✔	✔	✔	—	—	—

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

Inch — ANSI/AGD type

Order No.	Graduation	Range (range/rev)	Accuracy* First 1 Rev / 2.5 Rev / 10 Rev	Retrace	Repeatbility	Dial reading	Measuring force
2961T	0.0005 in	0.04 in / 0.05 in	±0.0005 in / — / —	0.00016 in	±0.0001 in	20-0-20	1.4 N or less
2991T-10	0.0001 in	0.008 in / 0.01 in	±0.0002 in / — / —	0.0001 in	±0.00005 in	4-0-4	1.5 N or less

Inch Order No.				—	—	—
2961T	✔	✔	—	—	—	—
299T-10	✔	✔	✔	—	—	—

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

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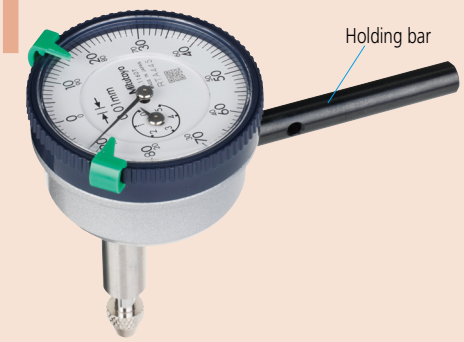
An inspection certificate is supplied as standard.
Refer to page X for details.

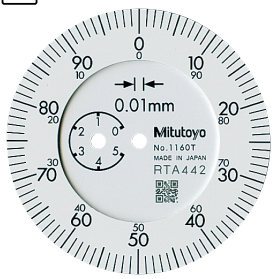
Back Plunger Type Dial Indicators SERIES 1



- Back Plunger type dial indicators are suitable for mounting onto leveling machine tool tables or inspection jigs, and for use in situations where standard dial indicators 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: 0.01 mm, Measuring range: 5 mm

1160T
Back Plunger

Reverse reading

Graduation: 0.01 mm, Measuring range: 5 mm

1162T
Back Plunger

Holding bar (optional)

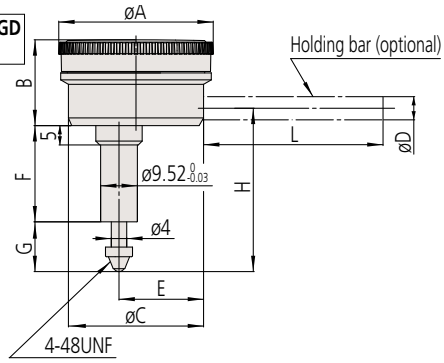
Order No.	D	L
21AAA166	ø6 mm	42 mm
136567	ø6 mm	81 mm
124625	ø6.35 mm	81 mm
21AAA167	ø6.35 mm	42 mm
21AAA168	ø8 mm	42 mm
136568	ø8 mm	81 mm

* øD and L: detail shown in drawing below.

DIMENSIONS

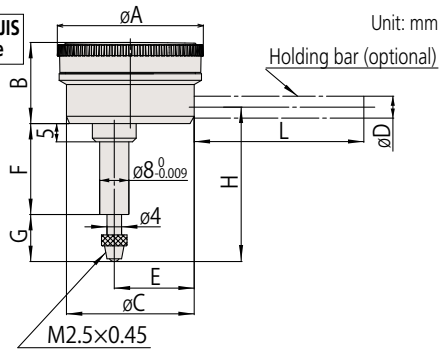
Unit: mm

ANSI/AGD Type



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

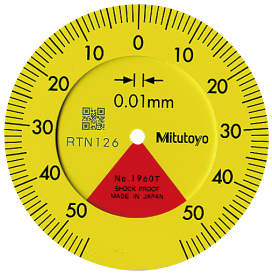
ISO/JIS Type



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: Contact point (standard accessory) for all products in this page has a role as a top dead point stopper. For this reason, if you need to install an optional contact point with an outside diameter smaller than 7 mm, use a washer (with outside diameter of at least 7 mm, inside diameter of 3 mm, and thickness of approx. 0.5 mm) placed between the contact point and the spindle.
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 inch dia. and #4-48UNF thread mount for the contact point.

Balanced scale



Graduation: 0.01 mm, Measuring range: 1 mm

1960T
One revolution
Shockproof
Back Plunger

FEATURES

Metric

Order No.				—	—	—
1960T	✔	✔	—	—	—	—
1160T	—	—	—	—	—	—
1162T	—	—	✔	—	—	—

Inch

Order No.				—	—	—
1961T	✔	✔	—	—	—	—
1166T	—	—	—	—	—	—
1167T	—	—	—	—	—	—
1168T	—	—	✔	—	—	—

SPECIFICATIONS

Metric

ISO/JIS type

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

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

Inch

ANSI/AGD type

Order No.	Graduation	Range (range/rev)	Accuracy*		Repeatbility	Dial reading	Measuring force
			First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
1961T	0.001 in	0.04 in (0.05 in)	±0.001 in / — / —	0.0002 in	±0.0002 in	20-0-20	1.4 N or less
1166T	0.001 in	0.2 in (0.05 in)	±0.001 in / ±0.001 in / ±0.001 in	0.00033 in	±0.0002 in	±0-50	1.4 N or less
1167T	0.001 in	0.2 in (0.05 in)	±0.001 in / ±0.001 in / ±0.001 in	0.00033 in	±0.0002 in	0-25-0	1.4 N or less
1168T	0.001 in	0.2 in (0.05 in)	±0.001 in / ±0.001 in / ±0.001 in	0.00033 in	±0.0002 in	50-0	1.4 N or less

* Completed products inspection is performed in the vertical position (contact point downward) and the stated accuracy is guaranteed.

F

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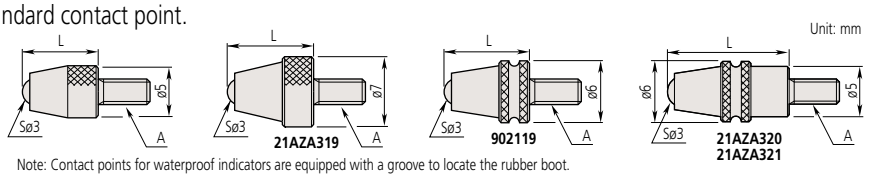
Dial Indicators

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.

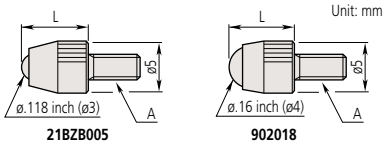


Unit: mm

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**	—



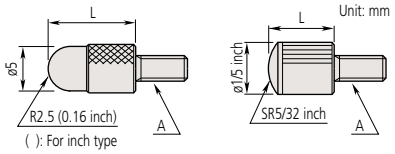
Unit: mm

A: 4-48UNF

L \ Material	Carbide	Plastic
1/4 inch	**21BZB005**	**902018**

Shell Type Point

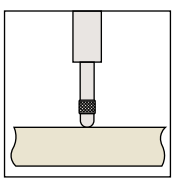
Contact point with a large radius.
Optimal for use on flat surfaces.



Unit: mm

A: M2.5x0.45

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

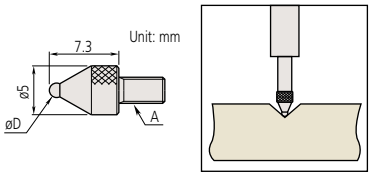


A: 4-48UNF

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

Ball point

Optimal for workpieces with deep indentations.



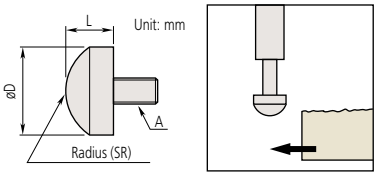
Unit: mm

A: M2.5x0.45

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

Spherical Point

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



Unit: mm

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 in	1/8 in	0.35 in
101204	3/8 in	3/32 in	0.28 in

F

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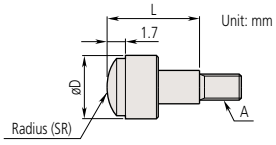
Contact Points
Optional Accessory for Digimatic and Dial Indicators and Linear Gages

Spherical Point (Carbide)

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

120059

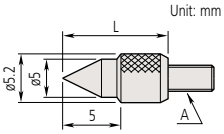


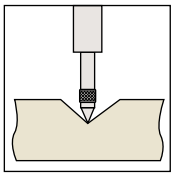
A: M2.5x0.45

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.





101120

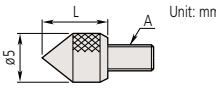
A: M2.5x0.45

Order No.	Tip angle	L
101120	60°	10

A: 4-48UNF

Order No.	L	A
101190	1/2 in	0.2 in

101385



A: M2.5x0.45

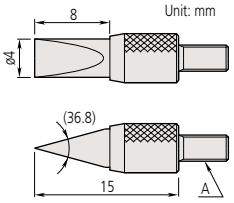
Order No.	Tip angle	L
101385	90°	5

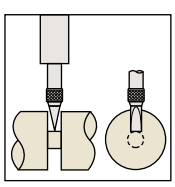
A: 4-48UNF

Order No.	D	L
101191	0.2 in	1/4 in

Knife Edge Point (Carbide)

Suitable for measuring narrow groove diameter, etc.





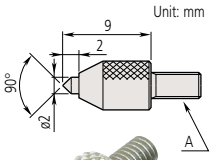
A: M2.5x0.45

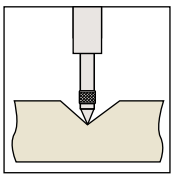
Order No.
120067

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.



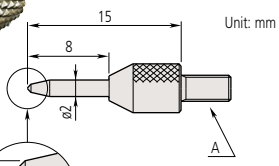


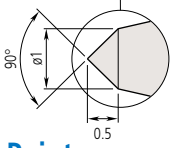
120057

A: M2.5x0.45

Order No.
120057

120068



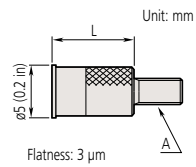


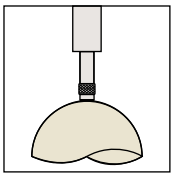
A: M2.5x0.45

Order No.
120068

Flat Point

Optimal for use on convex surfaces.





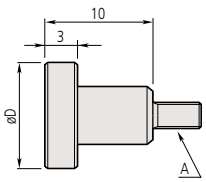
A: M2.5x0.45

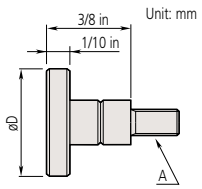
Order No.	L
131365	8
21AAA340	10

A: 4-48UNF

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

131365



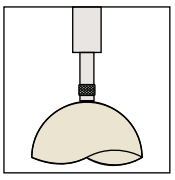


A: M2.5x0.45

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

A: 4-48UNF

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



101117

F

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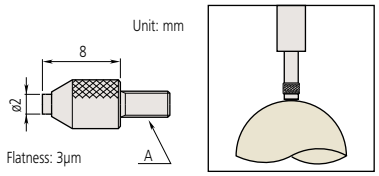
Dial Indicators

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)

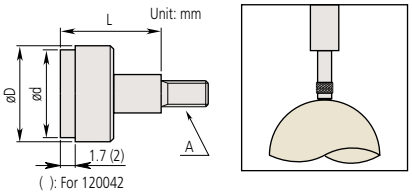
Optimal for use on convex surfaces.



120056

A: M2.5x0.45

Order No.
120056

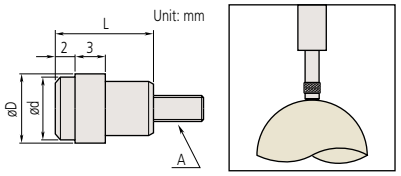


120043

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: *3 µm, **5 µm



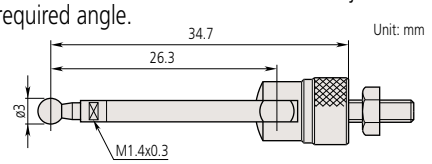
137255

A: M2.5x0.45

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

Lever Point

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



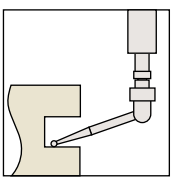
900391

A: M2.5x0.45

Order No.
900391

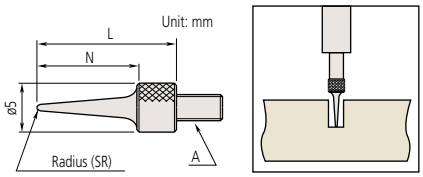
A: 4-48UNF

Order No.
900393



Needle Point

Suitable for probing the bottom of a groove or hole.



101121

A: M2.5x0.45

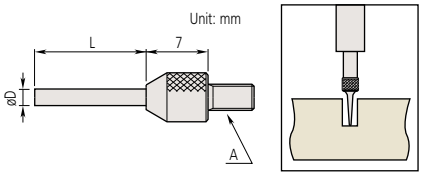
Order No.	N	L	SR
101121	11	15	0.4
137413	13	17	0.2
21AAA255	21	25	0.4
21AAA256	31	35	0.4

A: 4-48UNF

Order No.	L	SR
21AAA030	0.6 in	0.016 in
21AAA046	1 in	0.016 in
21AAA047	1 1/2 in	0.016 in
21AAA048	2 in	0.016 in

Needle Point (Carbide)

Suitable for probing the bottom of a groove or hole.



137257

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

Note1: Perform measurement in the same posture and conditions as the time of reference setting so that variation of the indication values that may be generated influenced by distortion on the lever portion can be reduced.
Note2: Gently bring the contact point into touch with the workpiece.
Also, use dialindicator with small measuring force as much as possible.

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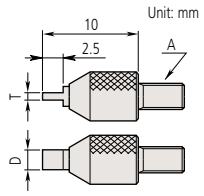
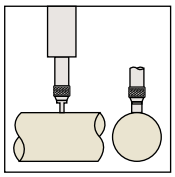
Contact Points
Optional Accessory for Digimatic and Dial Indicators and Linear Gages

Blade Point (Carbide)

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





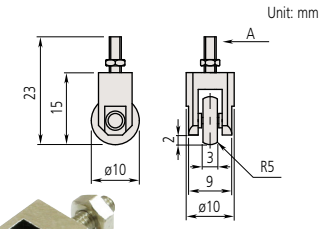
A: M2.5x0.45

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

120062

Roller Point

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



901954

A: M2.5x0.45

Order No.
901954

A: 4-48UNF

Order No.
901991

Interchangeable Contact Point Set

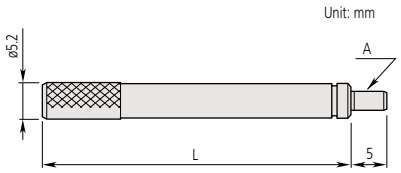
This set consists of six types of popular contact point for extending the use of an indicator to many applications.

A: M2.5x0.45

Order No.	Contact points included
7822	Flat Point (**131365**, ø5 mm)
	Flat Point (**101117**, ø10 mm)
	Needle Point (**101121**)
	Spherical Point (**101119**)
	Shell Type Point (**101118**)
	Shell Type Point (**101387**)

Extension Rod

303613

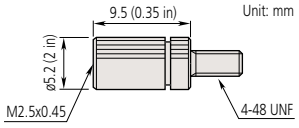


A: M2.5x0.45

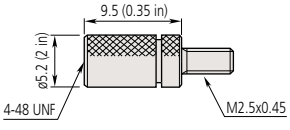
Order No.	L
303611	10
21AAA259A	15
303612	20
21AAA259B	25
303613	30
21AAA259C	35
21AAA259D	40
21AAA259E	45
21AAA259F	50
21AAA259G	55
304146	60
21AAA259H	65
21AAA259J	70
21AAA259L	75
21AAA259M	80
304147	90
303614	100

A: 4-48UNF

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



Order No.
21AAA011



Order No.
21AAA012

F

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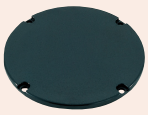
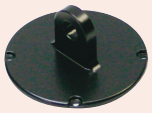
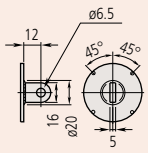
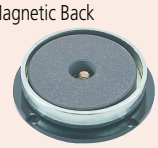
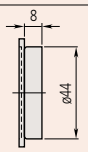
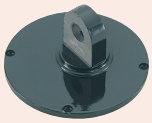
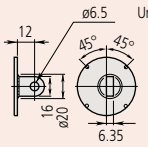
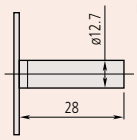
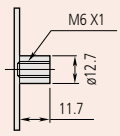
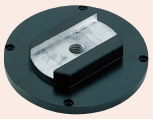
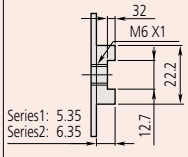
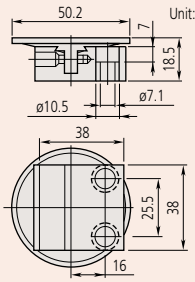
Dial Indicators

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

Interchangeable Backs
Optional Accessory for Digimatic and Dial Indicators

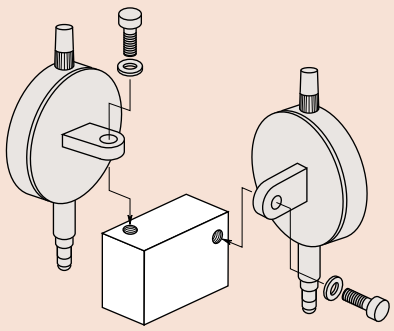
SPECIFICATIONS

Description		Order No. Series 1 (ø31, ø36, ø40 mm)	Series 2(ø57 mm)	Series 3, 4 (ø78, 91 mm)
Flat Back 	Unit: m 	**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: m 	**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: m 	**Special order**	**900928**	**900929**
Back with Offset Lug 	Unit: m 	**Special order**	**101167**	**100837**
Back with Post 	Unit: m 	**193172** Custom made	**101169**	**100839**
Back with Screw Mount 	Unit: m 	**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: m 	**136025**: M6x1 **129721**: #1/4-20UNC	**136026**: M6x1 **101168**: #1/4-20UNC	**136027**: M6x1 **100838**: #1/4-20UNC
Back with Adjustable Bracket 	Unit: m 	—	**901963**	—

When installing to 297*TB series, separately prepare 4 fixing screws (**546666** Self-tapping screw only for resin).
Do not apply a tightening torque of more than 20 N-cm in order to avoid stripping the screw threads.

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



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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 10 mm / 0.4 inch range) dial indicators.

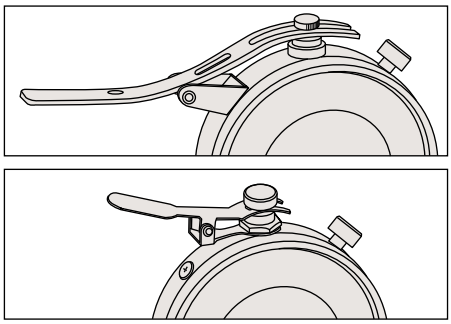
21AZB149

Use for S type Series 2, 3, and 4 dial indicators (up to 10 mm / 0.4 inc).

21AZB150

Use for S type Series 2 and 3 dial indicators (from 110 mm / 0.4 inch up to 20 mm / 0.8 inch).

Application



21BZA205

Use for F type Series 1 dial indicators.

902011

Use for F type Series 2 dial indicators (up to 10 mm / 0.4 inch range).

903424

Use for F type Series 2 dial indicators (up to 20 mm / 0.8 inch range) and Series 3 and 4 dial indicators (up to 10 mm / 0.4 inch range).

21EZA198

Use for ID-SS, ID-SX, ID-CX

* If the spindle lifting lever is installed on a water/dustproof type, waterproof performance is not guaranteed.

F

Dial Indicators

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

Spindle Lifting Cable

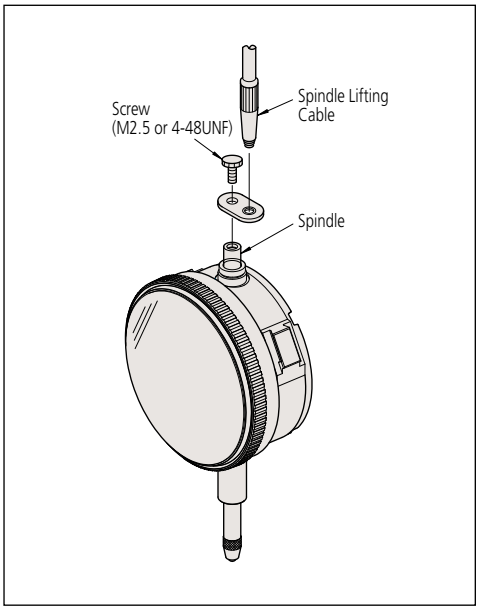
901975: with auto-stop function (300 mm)
540774: without auto-stop function (500 mm)

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

Spindle Lifting Lever

137693
Suitable for 4.8 mm spindle diameter.

Application



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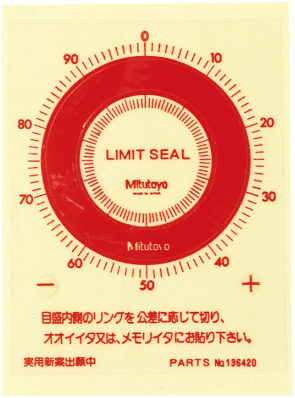
Limit Stickers

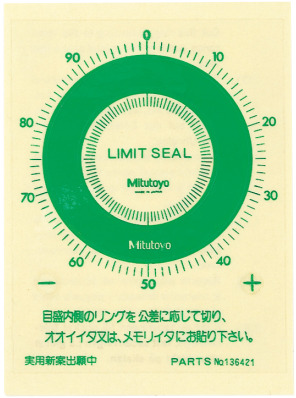
- These are stuck onto the dial face or crystal of a Series 2 dial indicator (55.6 mm or 57 mm bezel diameter) to indicate tolerance limits.

Red



136420
(10 sheets/set)

Green



136421
(10 sheets/set)

Yellow

136422
(10 sheets/set)

Color-coded Spindle Caps

- 9 color-coded spindle caps are available for dial indicators with a range of 10 mm 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 8 mm taller.

F

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Dial Indicators

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

Dial Indicator Repair Tool Kit

Set order No. 7823EU

Set Configuration

(1) Spindle rest (**129730**)
(2) Pin remover (**129732**)
(3) Punch (**129733**)
(4) Bearing adjuster (**129734**)
(5) Pinion set (**129735**)
(6) Reamer ø1 (**129736**)
(7) Reamer ø0.6 (**193702**)
(8) Reamer for pointer (ø0.5: 1/20 taper) (**21JAA273**)
(9) Pointer removing tool (**126628**)
(10) Pliers (**901180**)
(11) Nippers (**901179**)
(12) Pin rest (**129731**)
(13) Hammer (**901178**)
(14) Stick (**21JAA314**)
(15) Brush (**901177**)
(16) Brush (**901176**)
(17) Pin-vise (**901175**)
(18) Screwdriver (Phillips/flat blade) (**901174**)
(19) Tweezers (**129729**)
(20) Screwdriver (Phillips) (**901173**)
(21) Pointer removing tip (ø0.8) (**126630**)
(22) Pointer removing tip (ø0.5) (**126630B**)
(23) Pointer removing tip (ø1.6) (**126630C**)
(24) Adjustable nut (**100699**)
(25) Case (**901182**)

Application examples

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.

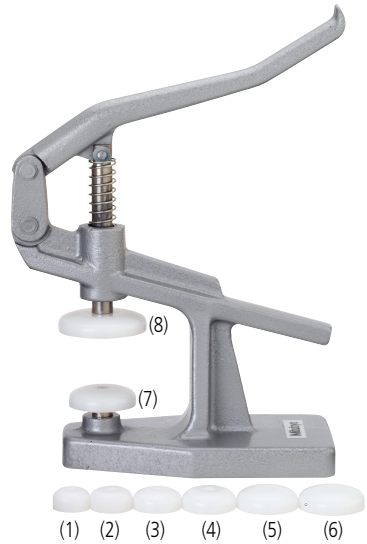
Remove the little hand
Remove the little hand with the nippers (No. 11).

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. 13). Tap the pin directly with the hammer (No. 13) 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. 13). Reaming is necessary in order to use a new hand. Use the reamer ø1 (No. 6) or reamer ø0.6 (No. 7) for F-type dial indicators and dial test indicators. Use the reamer for pointer (ø0.5 1/20 taper) (No.8) on S type and T type dial indicators.

Dial Indicator Crystal Setter



Order No. 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) ø19.5 (2) ø22.5 (3) ø25.5 (4) ø28.5
  (5) ø32.5 (6) ø35 (7) ø38 (8) ø50

- 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.

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

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