

Dial Indicators

Dial Indicators

Mitutoyo 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 harsh use thanks to the hardened stainless steel construction. 0.01 mm resolution dial indicators have a main 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. Many models employ an O-ring to ensure airtightness between the outer frame and the bezel in order to prevent water or oil penetration from the front. Mitutoyo Dial Indicators are manufactured and inspected according to JIS B 7503:2017. (Inspection orientation: vertical)

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.

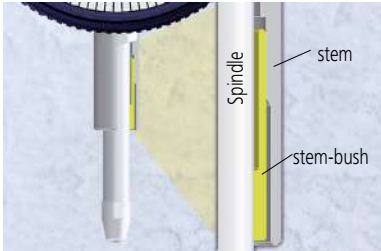
FEATURES: A Series (SERIES 2, 3, 4)



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



- The spindle lifting lever (optional: **21EZA198**) can be attached to either the right or left side providing high operability and smooth movement. This lever can be easily installed and removed.

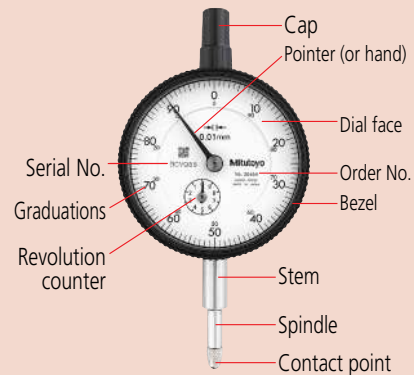


- Revolutionary stem-bush design for trouble-free stem clamping (longer clamping range; maximum tightening torque at the clamping point with M5 screw: 150 N·cm).



- The optional limit hands (1) can be moved without interfering with the optional bezel clamp (2).

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 top rest point
	With damper at lowest rest point
	Jeweled bearing
	Peak retaining
	Dustproof
	With coaxial revolution counter
	Back Plunger
	Adjustable hand

Note: Mitutoyo produces ASME-compatible products. Contact us for details.

- Application of anti-stain and anti-reflective coating improves scale visibility.

<Conventional model>

<New model>

Dial Indicators



SERIES 2 — Standard Type, 0.01 mm Graduation

- This model is the most popular Mitutoyo indicator with excellent accuracy and durability. Standard 0.01 mm graduation dial indicators have a bezel with an outside diameter of 57 mm.
- The indicator is highly durable thanks to its oil- and water-tight design, quenched hardened stainless-steel, carbide contact point, and a grand gear made of wear- and deformation-resistant material.
- Application of an anti-reflective and hard surface coating improves scale visibility along with scratch and chemical resistance.

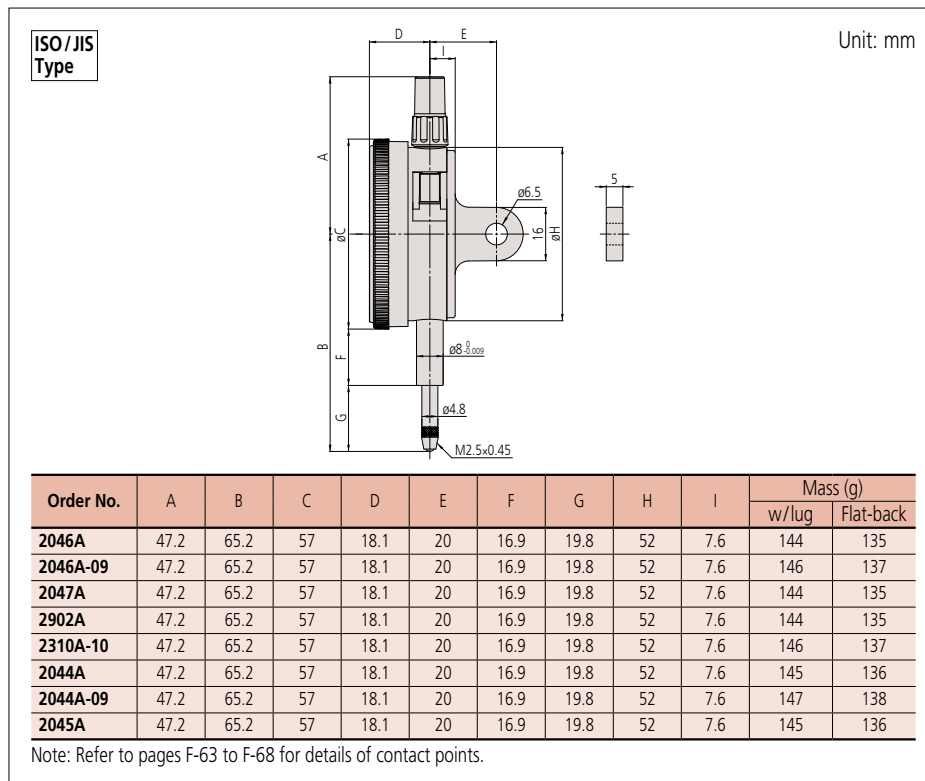


2046A

SPECIFICATIONS

Metric		Stem ø8mm, M2.5x0.45 Thread								ISO/JIS type		
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (µm)				Hysteresis	Repeat-ability	Dial reading	Measuring force (N)	
w/lug	Flat-back			1/10 Rev	1/2 Rev	1 Rev	Measuring range					
2046A	2046AB	0.01	10 (1)	5	9	10	13	3	3	±0-100	1.4 or less	
2046A-09	2046AB-09	0.01	10 (1)	5	9	10	15	3	3	±0-100	1.4 or less	
2047A	2047AB	0.01	10 (1)	5	9	10	13	3	3	0-50-0	1.4 or less	
2902A	2902AB	0.01	10 (1)	5	9	10	13	3	3	100-0	1.4 or less	
2310A-10	2310AB-10	0.01	10 (1)	5	9	10	15	3	3	±0-100	1.4 or less	
2044A	2044AB	0.01	5 (1)	5	9	10	12	3	3	±0-100	1.4 or less	
2044A-09	2044AB-09	0.01	5 (1)	5	9	10	12	3	3	±0-100	1.4 or less	
2045A	2045AB	0.01	5 (1)	5	9	10	12	3	3	0-50-0	1.4 or less	

DIMENSIONS



Get a Quote

Dial Indicators

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148**



SERIES 2 — Standard Type, 0.01 mm Graduation



Continuous scale



Graduation: 0.01 mm,
Measuring range: 10 mm

2046A

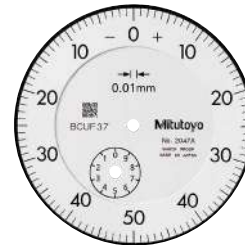
With damper at
top rest point

2046A-09

Shockproof



Balanced scale



Graduation: 0.01 mm,
Measuring range: 10 mm

2047A

With damper at
top rest point



Reverse reading type. Suitable
for depth and step measurement.



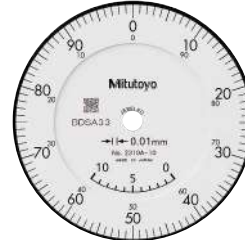
Graduation: 0.01 mm,
Measuring range: 10 mm

2902A

With damper at
top rest point



Continuous scale



Graduation: 0.01 mm,
Measuring range: 10 mm

2310A-10

With coaxial
revolution counter

Jeweled bearing



Continuous scale



Graduation: 0.01 mm,
Measuring range: 5 mm

2044A

With damper at
top rest point

2044A-09

With damper at
top rest point

Shockproof



Balanced scale



Graduation: 0.01 mm,
Measuring range: 5 mm

2045A

With damper at
top rest point

FEATURES

Metric

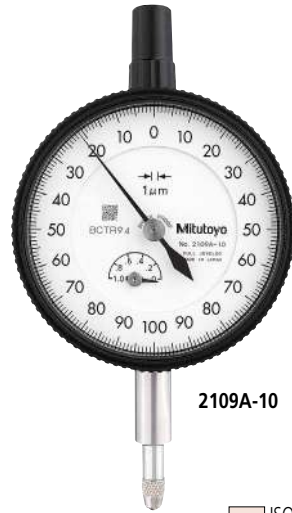
ISO/JIS type

Order No.											
w/lug	Flat-back	30 0 10	10 0 10	Reverse	Shockproof	60°	With damper at top rest point	Jeweled bearing	Coaxial revolution counter	Flat-back	Shockproof
2046A	2046AB	✓					✓				
2046A-09	2046AB-09	✓			✓						
2047A	2047AB		✓	✓			✓				
2902A	2902AB			✓			✓				
2310A-10	2310AB-10	✓						✓	✓		
2044A	2044AB	✓					✓				
2044A-09	2044AB-09	✓		✓							
2045A	2045AB		✓	✓			✓				

Dial Indicators

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

- Standard 0.001 mm and 0.005 mm graduation dial indicators have a bezel with an outside diameter of 57 mm. These indicators provide excellent accuracy and durability.
- The indicator is highly durable thanks to its oil- and water-tight design, quenched hardened stainless-steel, carbide contact point, and a grand gear made of wear- and deformation-resistant material.
- Application of an anti-reflective and hard surface coating improves scale visibility along with scratch and chemical resistance.
- The indicator uses jeweled bearings, providing excellent indication sensitivity and durability.

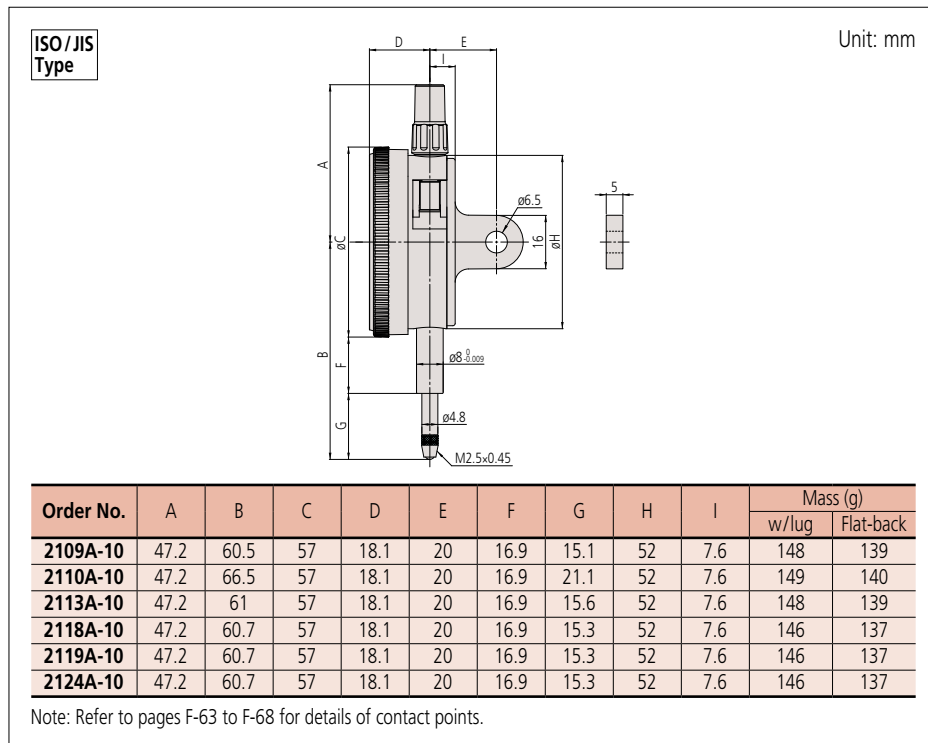


2109A-10

SPECIFICATIONS

Metric		Stem ø8mm, M2.5x0.45 Thread								ISO/JIS type		
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (µm)				Hysteresis	Repeat-ability	Dial reading	Measuring force (N)	
w/lug	Flat-back			1/10 Rev	1/2 Rev	1 Rev	Measuring range					
2109A-10	2109AB-10	0.001	1 (0.2)	2	3	4	5	2	0.5	0-100-0	1.5 or less	
2110A-10	2110AB-10	0.001	1 (0.1)	2	3	4	5	2	0.5	±0-100	1.8 or less	
2113A-10	2113AB-10	0.001	2 (0.2)	2	4	5	7	2	0.5	0-100-0	1.5 or less	
2118A-10	2118AB-10	0.001	5 (0.2)	3.5	5	6	10	3	1	0-100-100	1.5 or less	
2119A-10	2119AB-10	0.001	5 (0.2)	3.5	5	6	10	3	1	0-100-0	1.5 or less	
2124A-10	2124AB-10	0.005	5 (0.5)	5	8	9	12	3	3	±0-50	1.5 or less	

DIMENSIONS



Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models



21AZB148



Need Support?

Dial Indicators

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models

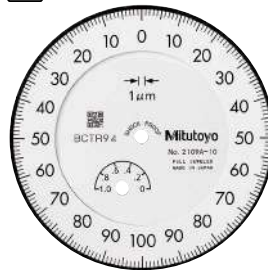


21AZB148

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



Balanced scale



Graduation: 0.001 mm,
Measuring range: 1 mm

2109A-10

Shockproof

Jeweled bearing



Continuous scale



Graduation: 0.001 mm,
Measuring range: 1 mm

2110A-10

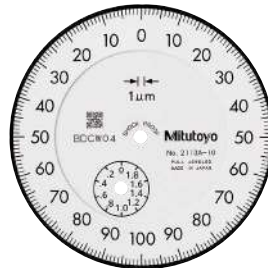
Double scale
spacing

Shockproof

Jeweled bearing



Balanced scale



Graduation: 0.001 mm,
Measuring range: 2 mm

2113A-10

Shockproof

Jeweled bearing



Continuous scale



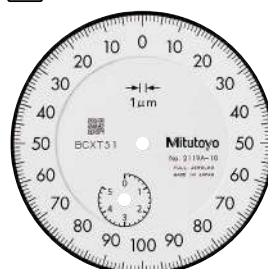
Graduation: 0.001 mm,
Measuring range: 5 mm

2118A-10

Jeweled bearing



Balanced scale



Graduation: 0.001 mm,
Measuring range: 5 mm

2119A-10

Jeweled bearing



Continuous scale



Graduation: 0.005 mm,
Measuring range: 5 mm

2124A-10

Jeweled bearing

FEATURES

Metric

ISO/JIS type

Order No.							
w/lug	Flat-back						
2109A-10	2109AB-10		✓	✓	✓		
2110A-10	2110AB-10	✓		✓	✓	✓	✓
2113A-10	2113AB-10		✓	✓	✓		
2118A-10	2118AB-10	✓			✓		
2119A-10	2119AB-10		✓		✓		
2124A-10	2124AB-10	✓			✓		

Dial Indicators

SERIES 2 — Water-proof Type, 0.01 mm & 0.001 mm Graduation

- Standard 0.01 mm and 0.001 mm graduation dial indicators have a highly water-resistant bezel with an outside diameter of 57 mm.
- O-rings and rubber bellows are used to prevent water and oil penetration.
- Excellent in accuracy and durability.
- The indicator is highly durable thanks to its oil- and water-tight design, quenched hardened stainless-steel, carbide contact point, and a grand gear made of wear- and deformation-resistant material.
- Application of an anti-reflective and hard surface coating improves scale visibility along with scratch and chemical resistance.

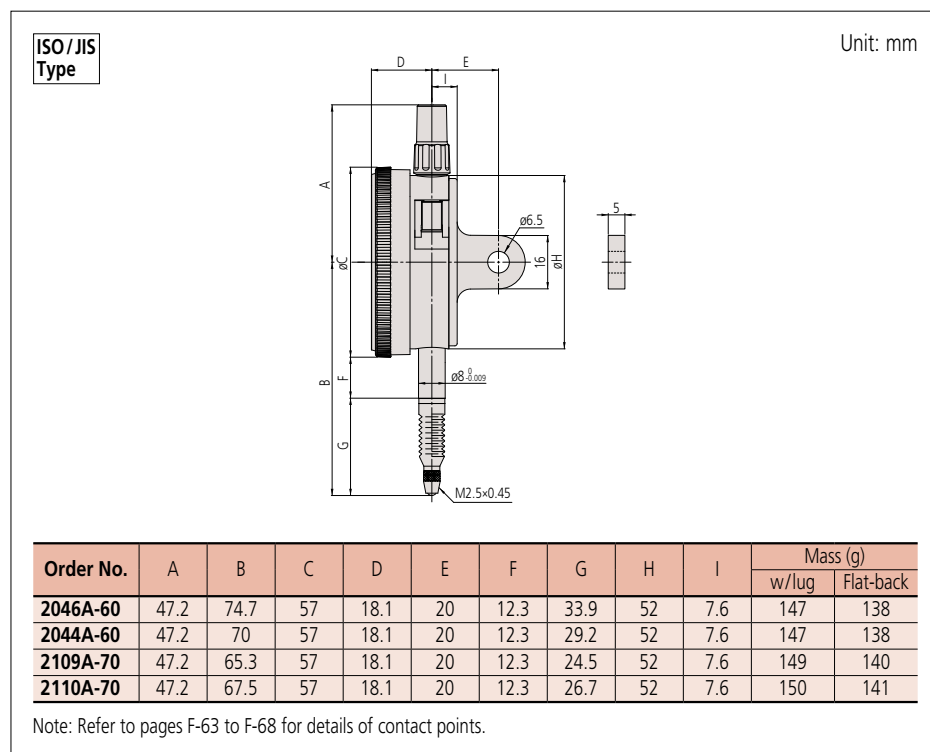


2046A-60

SPECIFICATIONS

Metric		Stem ø8mm, M2.5x0.45 Thread										ISO/JIS type	
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (μm)				Hysteresis	Repeat-ability	Dial reading	Measuring force (N)		
w/lug	Flat-back			1/10 Rev	1/2 Rev	1 Rev	Measuring range						
2046A-60	2046AB-60	0.01	10 (1)	5	9	10	13	3	3	±0-100	2.5 or less		
2044A-60	2044AB-60	0.01	5 (1)	5	9	10	12	3	3	±0-100	2.5 or less		
2109A-70	2109AB-70	0.001	1 (0.2)	2	3	4	5	2	0.5	0-100-0	2.0 or less		
2110A-70	2110AB-70	0.001	1 (0.1)	2	3	4	5	2	0.5	±0-100	2.0 or less		

DIMENSIONS



Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models



21AZB148



Need Service?

Dial Indicators

SERIES 2 — Water-proof Type, 0.01 mm & 0.001 mm Graduation

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models



21AZB148



Continuous scale



Graduation: 0.01 mm,
Measuring range: 10 mm

2046A-60

Waterproof

With damper at top rest point



Continuous scale



Graduation: 0.01 mm,
Measuring range: 5 mm

2044A-60

Waterproof

With damper at top rest point



Balanced scale



Graduation: 0.001 mm,
Measuring range: 1 mm

2109A-70

Waterproof

Shockproof

Jeweled bearing



Continuous scale



Graduation: 0.001 mm,
Measuring range: 1 mm

2110A-70

Waterproof

Double scale spacing

Shockproof

Jeweled bearing

FEATURES

Metric		ISO/JIS type						
Order No.								
2046A-60	2046AB-60	✓			✓	✓		
2044A-60	2044AB-60	✓			✓	✓		
2109A-70	2109AB-70		✓	✓	✓		✓	
2110A-70	2110AB-70	✓		✓	✓		✓	✓

Dial Indicators

SERIES 2 — Standard Type, Inch Reading

SPECIFICATIONS

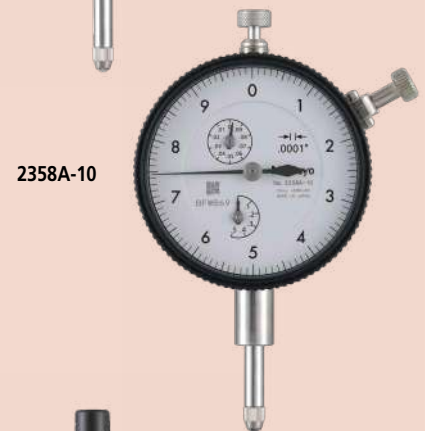
Inch		Stem $\varnothing 3/8"$, #4-48 UNF				<div></div> ANSI/AGD type		
Order No.		Graduation (in)	Range (range/rev) (in)	Accuracy (in)		Repeat- ability (in)	Dial reading	Measuring force (N)
w/lug	Flat-back			First 1 Rev/2.5 Rev/10 Rev	Retrace			
2414A	2414AB	0.001	0.5 (0.1)	$\pm 0.001/\pm 0.001/\pm 0.001$	0.0002	± 0.0002	± 0 -100	1.8 or less
2415A	2415AB	0.001	0.5 (0.1)	$\pm 0.001/\pm 0.001/\pm 0.001$	0.0002	± 0.0002	0-50-0	1.8 or less
2914A	2914AB	0.001	0.5 (0.1)	$\pm 0.001/\pm 0.001/\pm 0.001$	0.0002	± 0.0002	100-0	1.8 or less
2506A	2506AB	0.0005	0.125 (0.05)	$\pm 0.0005/\pm 0.0005/\text{—}$	0.00016	± 0.0001	± 0 -50	1.8 or less
2507A	2507AB	0.0005	0.125 (0.05)	$\pm 0.0005/\pm 0.0005/\text{—}$	0.00016	± 0.0001	0-25-0	1.8 or less
2514A	2514AB	0.0005	0.5 (0.05)	$\pm 0.0005/\pm 0.0005/\pm 0.0015$	0.00016	± 0.0001	± 0 -50	1.8 or less
2922A	2922AB	0.0005	0.125 (0.05)	$\pm 0.0005/\pm 0.0005/\text{—}$	0.00016	± 0.0001	0-25-0	1.8 or less
2356A-10	2356AB-10	0.0001	0.25 (0.01)	$\pm 0.0002/\pm 0.0002/\pm 0.0003/ \pm 0.0004$ (First 20rev)/ ± 0.0005 (Over 20rev)	0.0001	± 0.00003	0-10	2.0 or less
2358A-10	2358AB-10	0.0001	0.5 (0.01)	$\pm 0.0002/\pm 0.0002/\pm 0.0003/ \pm 0.0004$ (First 20rev)/ ± 0.0008 (Over 20rev)	0.00015	± 0.00003	0-10	2.0 or less
2802A-10	2802AB-10	0.0001	0.025 (0.01)	$\pm 0.0001/\pm 0.0001/\text{—}$	0.0001	± 0.00003	0-10	2.0 or less
2803A-10	2803AB-10	0.0001	0.025 (0.01)	$\pm 0.0001/\pm 0.0001/\text{—}$	0.0001	± 0.00003	0-5-0	2.0 or less
2804A-10	2804AB-10	0.0001	0.05 (0.01)	$\pm 0.0001/\pm 0.0001/\pm 0.0002$	0.0001	± 0.00003	0-10	2.0 or less
2805A-10	2805AB-10	0.0001	0.05 (0.01)	$\pm 0.0001/\pm 0.0001/\pm 0.0002$	0.0001	± 0.00003	0-5-0	2.0 or less
2905A-10	2905AB-10	0.0001	0.05 (0.01)	$\pm 0.0001/\pm 0.0001/\pm 0.0002$	0.0001	± 0.00003	10-0	2.0 or less
2923A-10	2923AB-10	0.0001	0.05 (0.01)	$\pm 0.0001/\pm 0.0001/\pm 0.0002$	0.0001	± 0.00003	0-5-0	2.0 or less

FEATURES

Inch							
Order No.		w/lug	Flat-back	3/8" UNF	3/8" UNF	3/8" UNF	3/8" UNF
2414A	2414AB						
2415A	2415AB						
2914A	2914AB						
2506A	2506AB						
2507A	2507AB						
2514A	2514AB						
2922A	2922AB						
2356A-10	2356AB-10						
2358A-10	2358AB-10						
2802A-10	2802AB-10						
2803A-10	2803AB-10						
2804A-10	2804AB-10						
2805A-10	2805AB-10						
2905A-10	2905AB-10						
2923A-10	2923AB-10						



2416A



2358A-10



2923A-10

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models



21AZB148

Dial Indicators

SERIES 2 — Standard Type, Inch Reading

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models

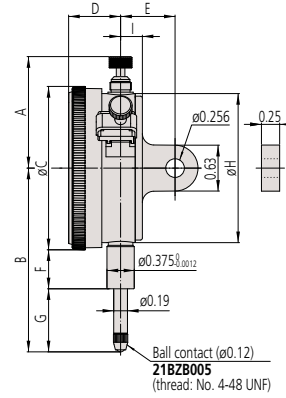


21AZB148

DIMENSIONS

ANSI/AGD
Type

Unit: in



Order No.	A	B	C	D	E	F	G	H	I	Mass (g)	
										w/lug	Flat-back
2414A	1.53	2.52	2.24	0.71	3/4	0.54	0.87	2.05	0.30	164	139
2415A	1.53	2.52	2.24	0.71	3/4	0.54	0.87	2.05	0.30	164	139
2914A	1.53	2.52	2.24	0.71	3/4	0.54	0.87	2.05	0.30	164	139
2506A	1.86	2.14	2.24	0.71	3/4	0.54	0.48	2.05	0.30	164	139
2507A	1.86	2.14	2.24	0.71	3/4	0.54	0.48	2.05	0.30	164	139
2514A	1.53	2.52	2.24	0.71	3/4	0.54	0.87	2.05	0.30	164	139
2922A	1.86	2.14	2.24	0.71	3/4	0.54	0.48	2.05	0.30	164	139
2356A-10	1.86	2.25	2.24	0.71	3/4	0.54	0.59	2.05	0.30	163	138
2358A-10	1.53	2.50	2.24	0.71	3/4	0.54	0.85	2.05	0.30	164	139
2802A-10	1.86	2.02	2.24	0.71	3/4	0.54	0.37	2.05	0.30	164	139
2803A-10	1.86	2.02	2.24	0.71	3/4	0.54	0.37	2.05	0.30	164	139
2804A-10	1.86	2.04	2.24	0.71	3/4	0.54	0.38	2.05	0.30	166	141
2805A-10	1.86	2.04	2.24	0.71	3/4	0.54	0.38	2.05	0.30	166	141
2905A-10	1.86	2.04	2.24	0.71	3/4	0.54	0.38	2.05	0.30	164	139
2923A-10	1.86	2.04	2.24	0.71	3/4	0.54	0.38	2.05	0.30	164	139



Need Calibration?

Dial Indicators

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

- The one revolution dial indicator prevents the possibility of reading errors.
- Proprietary Mitutoyo shock-proof mechanism is incorporated, providing improved resistance to shock due to sudden spindle retraction caused by impact.
- The indicator is highly durable thanks to its oil- and water-tight design, quenched hardened stainless-steel, carbide contact point, and a grand gear made of wear- and deformation-resistant material.
- Application of an anti-reflective and hard surface coating improves scale visibility along with scratch and chemical resistance.
- The red dead zone in the middle of the dial face is separated from the bezel and doesn't cover the graduations. Therefore, users can always see the range where accuracy is not guaranteed even if the bezel is rotated.



2900A-10



One revolution type Back Plunger dial gages are also available. (Refer to pages F-58 to F-59 for details.)



2990A-10

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models



21AZB148

SPECIFICATIONS

Inch		Stem $\varnothing 3/8"$, #4-48 UNF				ANSI/AGD type		ISO/JIS type	
Order No.		Graduation (in)	Range (range/rev) (in)	Accuracy (in)		Repeat- ability (in)	Dial reading	Measuring force (N)	
w/lug	Flat-back			First 1 Rev/2.5 Rev/10 Rev	Retrace				
2909A-62	2909AB-62	0.0005	0.04/0.05	± 0.0005 / — / —	0.00016	± 0.0001	20-0-20	2.5 or less	
2910A-10	2910AB-10	0.0001	0.008/0.01	± 0.0001 / — / —	0.0001	± 0.00003	4-0-4	1.8 or less	

Metric		Stem ø8mm, M2.5x0.45 Thread									
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (µm)				Hysteresis	Repeat-ability	Dial reading	Measuring force (N)
w/lug	Flat-back			1/10 Rev	1/2 Rev	1 Rev	Measuring range				
2928A	2928AB	0.1	4 (5)	20	—	—	40	20	20	2-0-2	1.4 or less
2929A	2929AB	0.01	0.8 (1)	5	—	—	8	3	3	40-0-40	1.4 or less
2929A-62	2929AB-62	0.01	0.8 (1)	5	—	—	8	3	3	40-0-40	2.0 or less
2959A	2959AB	0.01	1.6 (2)	5	—	—	10	3	3	80-0-80	1.4 or less
2900A-10	2900AB-10	0.001	0.08 (0.1)	2	—	—	3	2	0.5	40-0-40	1.5 or less
2900A-72	2900AB-72	0.001	0.08 (0.1)	2	—	—	3	2	0.5	40-0-40	2.0 or less
2901A-10	2901AB-10	0.001	0.16 (0.2)	2	—	—	4	2	0.5	80-0-80	1.5 or less

Special specifications

Upon request, we can manufacture custom types with changed graduation numbers, graduation lines, dead zones, etc. Please contact your nearest M³ Solution Center for more information.

Dial Indicators

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

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models

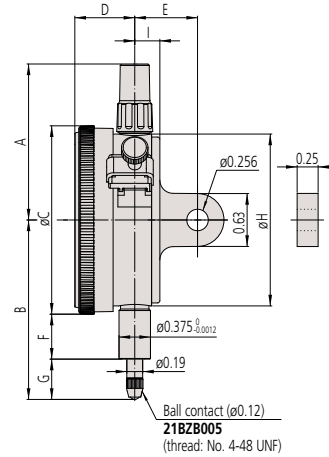


21AZB148

DIMENSIONS

ANSI / AGD
Type

Unit: in

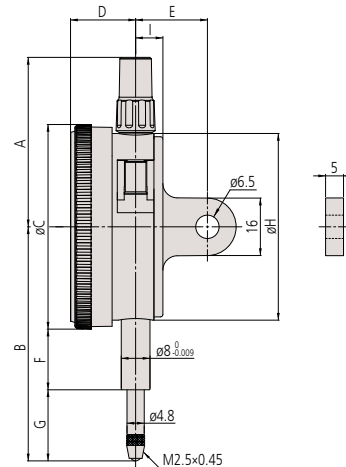


Order No.	A	B	C	D	E	F	G	H	I	Mass (g)	
										w/luq	Flat-back
2909A-62	1.86	2.04	2.24	0.71	3/4	0.54	0.39	2.05	0.30	163	138
2910A-10	1.86	2.02	2.24	0.71	3/4	0.54	0.36	2.05	0.30	164	139

Note: Refer to pages F-63 to F-68 for details of contact points.

ISO / JIS
Type

Unit: mm



Order No.	A	B	C	D	E	F	G	H	I	Mass (g)	
										w/luq	Flat-back
2928A	47.2	65.2	57	18.1	20	16.9	19.8	52	7.6	145	136
2929A	47.2	65.2	57	18.1	20	16.9	19.8	52	7.6	145	136
2929A-62	47.2	65.2	57	18.1	20	16.9	19.8	52	7.6	145	136
2959A	47.2	65.2	57	18.1	20	16.9	19.8	52	7.6	145	136
2900A-10	47.2	66	57	18.1	20	16.9	20.6	52	7.6	149	140
2900A-72	47.2	66	57	18.1	20	16.9	20.6	52	7.6	149	140
2901A-10	47.2	66.1	57	18.1	20	16.9	20.7	52	7.6	149	140

Note: Refer to pages F-63 to F-68 for details of contact points.

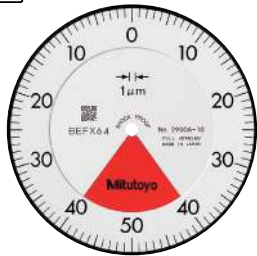


Find Training

Dial Indicators



Balanced scale



Graduation: 0.001 mm,
Measuring range: 0.08 mm

2900A-10

- One revolution
 - Shockproof
 - Jeweled bearing
- 2900A-72**
- One revolution
 - Shockproof
 - Dustproof
 - Jeweled bearing



Balanced scale



Graduation: 0.001 mm,
Measuring range: 0.16 mm

2901A-10

- One revolution
- Shockproof
- Jeweled bearing



Balanced scale



Graduation: 0.1 mm,
Measuring range: 4 mm

2928A

- One revolution
- Shockproof



Balanced scale



Graduation: 0.01 mm,
Measuring range: 0.8 mm

2929A

- One revolution
 - Shockproof
- 2929A-62**
- One revolution
 - Shockproof
 - Dustproof



Balanced scale



Graduation: 0.01 mm,
Measuring range: 1.6 mm

2959A

- One revolution
- Shockproof

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models



21AZB148

FEATURES

Inch ☐ ANSI/AGD type ☐ ISO/JIS type

Order No.							
w/lug	Flat-back						
2909A-62	2909AB-62	✓	✓	✓		✓	
2910A-10	2910AB-10	✓	✓	✓			✓

Metric ☐

Order No.							
w/lug	Flat-back						
2928A	2928AB	✓	✓	✓			
2929A	2929AB	✓	✓	✓			
2929A-62	2929AB-62	✓	✓	✓		✓	
2959A	2959AB	✓	✓	✓			
2900A-10	2900AB-10	✓	✓	✓			✓
2900A-72	2900AB-72	✓	✓	✓		✓	✓
2901A-10	2901AB-10	✓	✓	✓			✓



Find a Distributor

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models



21AZB148

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

- The one revolution dial indicator with improved water resistance prevents the possibility of reading errors.
- Proprietary Mitutoyo shock-proof mechanism is incorporated, providing improved resistance to shock due to sudden spindle retraction caused by impact.
- It is highly durable thanks to a hardened stainless-steel stem and spindle, carbide probe, and a large gear made of wear- and deformation-resistant materials.
- Application of an anti-reflective and hard surface coating improves scale visibility along with scratch and chemical resistance.
- The red dead zone in the middle of the dial face is separated from the bezel and doesn't cover the graduations. Therefore, users can always see the range where accuracy is not guaranteed even if the bezel is rotated.



2929A-60

SPECIFICATIONS

Inch		Stem ø3/8", #4-48 UNF				ANSI/AGD type		ISO/JIS type	
Order No.		Graduation (in)	Range (range/rev) (in)	Accuracy (in)		Repeat- ability (in)	Dial reading	Measuring force (N)	
w/lug	Flat-back			First 1 Rev/2.5 Rev/10 Rev	Retrace				
2910A-72	2910AB-72	0.0001	0.008/0.01	±0.0001 / — / —	0.0001	±0.00003	4-0-4	2.5 or less	

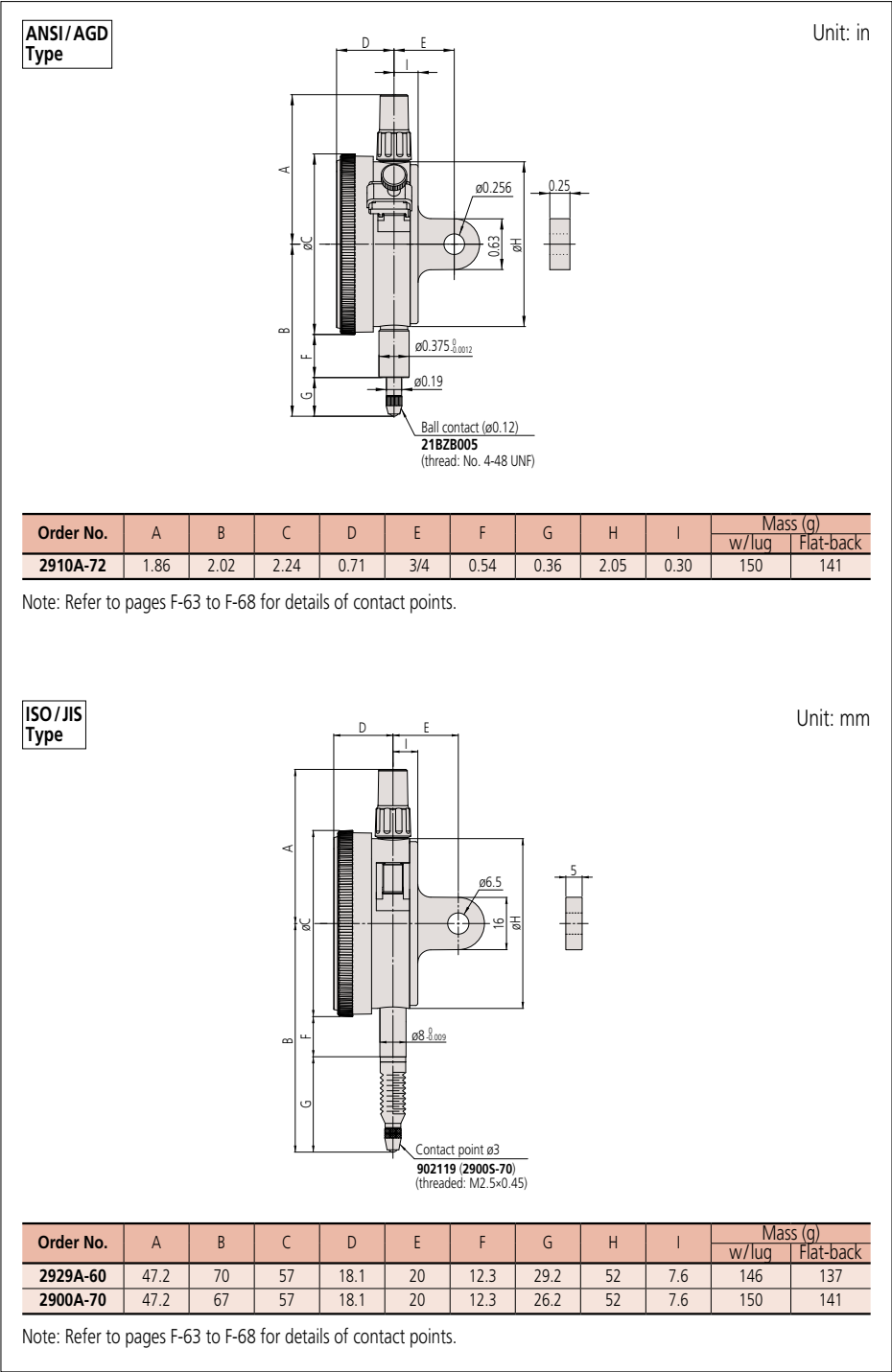
Metric		Stem ø8mm, M2.5x0.45 Thread									
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (µm)				Hysteresis	Repeat-ability	Dial reading	Measuring force (N)
w/lug	Flat-back			1/10 Rev	1/2 Rev	1 Rev	Measuring range				
2929A-60	2929AB-60	0.01	0.8 (1)	5	—	—	8	3	3	40-0-40	2.0 or less
2900A-70	2900AB-70	0.001	0.08 (0.1)	2	—	—	3	2	0.5	40-0-40	2.0 or less

Special specifications

Upon request, we can manufacture custom types with changed graduation numbers, graduation lines, dead zones, etc. Please contact your nearest M³ Solution Center for more information.

Dial Indicators

DIMENSIONS



Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models



21AZB148



Got Questions?

Dial Indicators

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



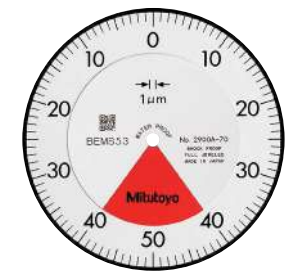
- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
*Included with ANSI/AGD models



21AZB148

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

 **Balanced scale**

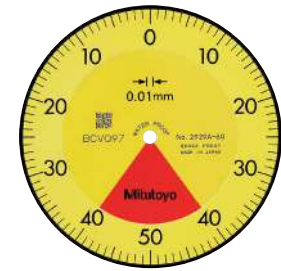


Graduation: 0.001 mm,
Measuring range: 0.08 mm

2900A-70




-  One revolution
-  Shockproof
-  Waterproof
-  Jeweled bearing

 **Balanced scale**



















Graduation: 0.01 mm,
Measuring range: 0.8 mm

2929A-60

-  One revolution
-  Shockproof
-  Waterproof

FEATURES

Inch		ANSI/AGD type		ISO/JIS type	
Order No.					
w/lug	Flat-back				
2910A-72	2910AB-72	✓	✓	✓	✓

Metric		ANSI/AGD type		ISO/JIS type	
Order No.					
w/lug	Flat-back				
2929A-60	2929AB-60	✓	✓	✓	✓
2900A-70	2900AB-70	✓	✓	✓	✓

Dial Indicators

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

- The one revolution dial indicator (lightweight type) prevents the possibility of reading errors.
- Proprietary Mitutoyo shock-proof mechanism is incorporated, providing improved resistance to shock due to sudden spindle retraction caused by impact.
- Lightweight type (70 g).
- It is highly durable thanks to a hardened stainless-steel stem and spindle, carbide probe, and a large gear made of wear- and deformation-resistant materials.
- Application of an anti-reflective and hard surface coating improves scale visibility along with scratch and chemical resistance.
- The red dead zone in the middle of the dial face is separated from the bezel and doesn't cover the graduations. Therefore, users can always see the range where accuracy is not guaranteed even if the bezel is rotated.



2972AB



Optional Accessory

- Limit hand (2 pcs.): **21AZB195**



SPECIFICATIONS

Inch		Stem ø3/8", #4-48 UNF		ANSI/AGD type		ISO/JIS type		
Order No.		Graduation (in)	Range (range/rev) (in)	Accuracy (in)		Repeat-ability (in)	Dial reading	Measuring force (N)
w/lug	Flat-back			First 1 Rev/2.5 Rev/10 Rev	Retrace			
—	2976AB	0.0005	0.02 (0.028)	±0.0005/—/—	0.00016	±0.0001	10-0-10	1.4 or less
—	2977AB	0.0005	0.04 (0.055)	±0.0005/—/—	0.00016	±0.0001	20-0-20	1.4 or less
—	2978AB	0.001	0.06 (0.079)	±0.001/—/—	0.0002	±0.0002	30-0-30	1.4 or less

Metric		Stem ø8mm, M2.5x0.45 Thread									
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (µm)				Hysteresis	Repeat- ability	Dial reading	Measuring force (N)
w/lug	Flat-back			1/10 Rev	1/2 Rev	1 Rev	Measuring range				
—	2971AB	0.01	0.5 (0.7)	5	—	—	8	3	3	25-0-25	1.4 or less
—	2972AB	0.01	1 (1.4)	5	—	—	8	3	3	50-0-50	1.4 or less
—	2973AB	0.02	1.6 (2)	8	—	—	16	6	5	80-0-80	1.4 or less

Special specifications

Upon request, we can manufacture custom types with changed graduation numbers, graduation lines, dead zones, etc. Please contact your nearest M³ Solution Center for more information.

Dial Indicators

Optional Accessory

- Limit hand (2 pcs.): **21AZB195**

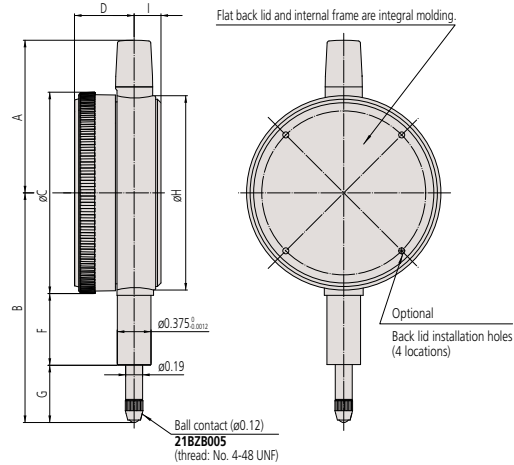


SERIES 2 — Standard One Revolution Type for Error-free Reading, Lightweight Type

DIMENSIONS

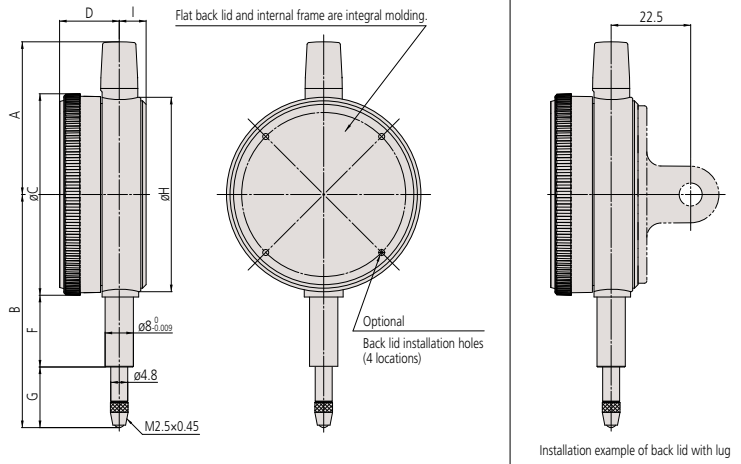
ANSI/AGD
Type

Unit: in



ISO/JIS
Type

Unit: mm



Note 1: When installing an optional back (refer to pages F-69 to F-70 for details) 4 retaining screws must also be obtained (**546666**: Self-tapping screw only for plastic).

Do not apply a tightening torque of more than 20 N·cm in order to avoid stripping the screw threads.

Note 2: An optional lifting lever, release or bezel clamp cannot be installed.

Inch

Order No.	A	B	C	D	F	G	H	I	Mass (g)
2976AB	1.70	2.55	2.24	0.67	0.80	0.63	2.17	0.30	70
2977AB	1.70	2.56	2.24	0.67	0.80	0.64	2.17	0.30	
2978AB	1.70	2.57	2.24	0.67	0.80	0.65	2.17	0.30	

Metric

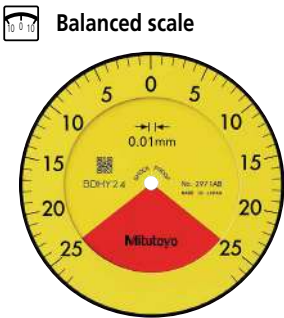
Order No.	A	B	C	D	F	G	H	I	Mass (g)
2971AB	43.2	65.6	57	16.9	20.3	16.8	55	7.6	70
2972AB	43.2	66	57	16.9	20.3	17.2	55	7.6	
2973AB	43.2	66.3	57	16.9	20.3	17.5	55	7.6	

Note: Refer to pages F-63 to F-68 for details of contact points.



Talk to Sales

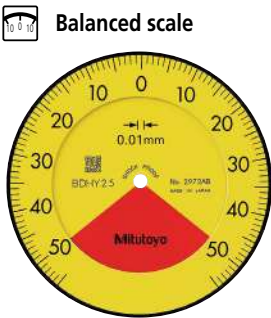
Dial Indicators



Graduation: 0.01 mm,
Measuring range: 0.5 mm

2971AB

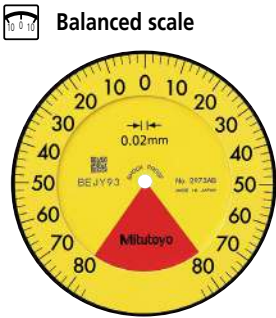
- One revolution
- Shockproof
- Dustproof



Graduation: 0.01 mm,
Measuring range: 1 mm

2972AB

- One revolution
- Shockproof
- Dustproof



Graduation: 0.02 mm,
Measuring range: 1.6 mm

2973AB

- One revolution
- Shockproof
- Dustproof

FEATURES

Inch		ANSI/AGD type		ISO/JIS type	
Order No.					
w/lug	Flat-back				
—	2976AB	✓	✓	✓	✓
—	2977AB	✓	✓	✓	✓
—	2978AB	✓	✓	✓	✓

Metric		ANSI/AGD type		ISO/JIS type	
Order No.					
w/lug	Flat-back				
—	2971AB	✓	✓	✓	✓
—	2972AB	✓	✓	✓	✓
—	2973AB	✓	✓	✓	✓

Optional Accessory

- Limit hand (2 pcs.): **21AZB195**



Need Repair?



Optional Accessory

- Limit hand (2 pcs.): **21AZB195**



Dial Indicators

SERIES 2 — Long Stroke Type

- Long stroke dial indicators with measuring range of 20 mm or more have a $\varnothing 57$ mm bezel.
- The indicator is highly durable thanks to its oil- and water-tight design, quenched hardened stainless-steel, carbide contact point, and a grand gear made of wear- and deformation-resistant material.
- Application of an anti-reflective and hard surface coating improves scale visibility along with scratch and chemical resistance.
- The lifting lever (optional) cannot be used with models that are water-proof or which have a measurement range of 30 mm.



SPECIFICATIONS

Inch		Stem $\varnothing 3/8"$, #4-48 UNF		ANSI/AGD type		ISO/JIS type			
Order No.		Graduation (in)	Range (range/rev) (in)	Accuracy (in)		Repeat-ability (in)	Dial reading	Measuring force (N)	
w/lug	Flat-back			First 1 Rev/2.5 Rev/10 Rev	Retrace				
2416A	2416AB	0.001	1 (0.1)	$\pm 0.001/\pm 0.001/\pm 0.002$	0.0002	± 0.0002	$\pm 0-100$	1.8 or less	
2416A-06	2416AB-06	0.001	1 (0.1)	$\pm 0.001/\pm 0.001/\pm 0.002$	0.0002	± 0.0002	$\pm 0-100$	1.8 or less	
2416A-10	2416AB-10	0.001	1 (0.1)	$\pm 0.001/\pm 0.001/\pm 0.002$	0.0002	± 0.0002	$\pm 0-100$	1.8 or less	
2417A	2417AB	0.001	1 (0.1)	$\pm 0.001/\pm 0.001/\pm 0.002$	0.0002	± 0.0002	0-50-0	1.8 or less	
2424A-19	2424AB-19	0.001	2 (0.1)	$\pm 0.001/\pm 0.001/\pm 0.002/\pm 0.003$ (First 20 Rev)	0.00033	± 0.0002	$\pm 0-100$	2.5 or less	
2776A	2776AB	0.0005	1 (0.05)	$\pm 0.0005/\pm 0.0005/\pm 0.0015/\pm 0.002$ (First 20 Rev)	0.0002	± 0.0001	$\pm 0-50$	2.5 or less	
2904A	2904AB	0.001	1 (0.1)	$\pm 0.001/\pm 0.001/\pm 0.002$	0.0002	± 0.0002	100-0	1.8 or less	

Metric		Stem ø8mm, M2.5x0.45 Thread									
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (µm)				Hysteresis	Repeat-ability	Dial reading	Measuring force (N)
w/lug	Flat-back			1/10 Rev	1/2 Rev	1 Rev	Measuring range				
2050A	2050AB	0.01	20 (1)	8	10	15	20	5	4	±0-100	2.0 or less
2050A-60*	2050AB-60*	0.01	20 (1)	8	10	15	20	5	4	±0-100	2.5 or less
2050A-19	2050AB-19	0.01	20 (1)	8	10	15	20	5	4	±0-100	2.0 or less
2320A-10	2320AB-10	0.01	20 (1)	8	10	15	20	5	4	±0-100	2.0 or less
2052A	2052AB	0.01	30 (1)	10	12	15	25	7	5	±0-100	2.5 or less
2052A-19	2052AB-19	0.01	30 (1)	10	12	15	25	7	5	±0-100	2.5 or less
2330A-10	2330AB-10	0.01	30 (1)	10	12	15	25	7	5	±0-100	2.5 or less
2952A	2952AB	0.01	30 (1)	10	12	15	25	7	5	100-0	2.5 or less

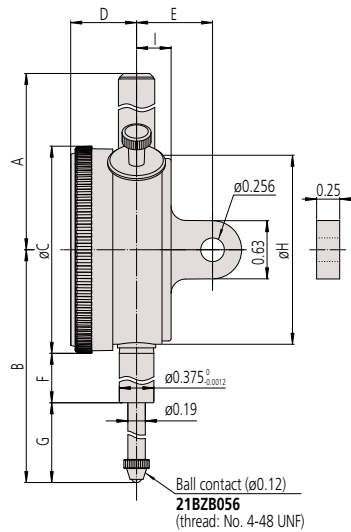
* **2050A-60** and **2050AB-60** are water-proof types that use a rubber bellows to cover the spindle.
Note that the outer diameter of the bellows ($\varnothing 9.5$) is larger than that of the stem ($\varnothing 8$).

Dial Indicators

DIMENSIONS

ANSI/AGD
Type

2424A-19



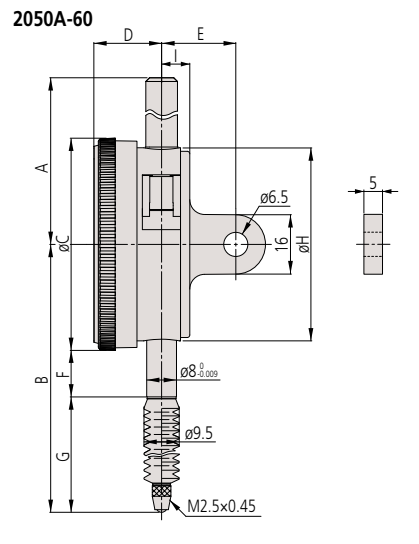
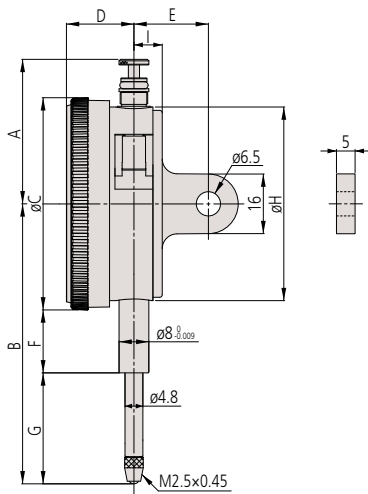
Unit: in

Order No.	A	B	C	D	E	F	G	H	I	Mass (g)	
										w/lug	Flat-back
2416A	1.53	3.02	2.24	0.71	3/4	0.54	1.37	2.05	0.30	164	139
2416A-06	1.53	3.02	2.24	0.71	3/4	0.54	1.37	2.05	0.30	164	139
2416A-10	1.53	3.02	2.24	0.71	3/4	0.54	1.37	2.05	0.30	164	139
2417A	1.53	3.02	2.24	0.71	3/4	0.54	1.37	2.05	0.30	164	139
2424A-19	4.67	5.61	2.24	0.71	5/6	2.14	2.35	2.05	0.37	248	239
2776A	1.53	3.02	2.24	0.71	3/4	0.54	1.37	2.05	0.30	164	139
2904A	1.53	3.02	2.24	0.71	3/4	0.54	1.37	2.05	0.30	164	139

Note: Refer to pages F-63 to F-68 for details of contact points.

ISO/JIS
Type

Unit: mm



Order No.	A	B	C	D	E	F	G	H	I	Mass (g)	
										w/lug	Flat-back
2050A	38.5	75.2	57	18.1	20	16.9	29.8	52	7.6	149	140
2050A-60	58.2	87.2	57	18.1	20	12.3	46.4	52	7.6	155	146
2050A-19	38.5	75.2	57	18.1	20	16.9	29.8	52	7.6	149	140
2320A-10	38.5	75.2	57	18.1	20	16.9	29.8	52	7.6	150	141
2052A	38.5	88.7	57	18.1	20	16.9	43.3	52	7.6	152	143
2052A-19	38.5	88.7	57	18.1	20	16.9	43.3	52	7.6	152	143
2330A-10	38.5	88.7	57	18.1	20	16.9	43.3	52	7.6	153	144
2952A	38.5	88.7	57	18.1	20	16.9	43.3	52	7.6	152	143

Note: Refer to pages F-63 to F-68 for details of contact points.

Optional Accessories

- Limit hand (2 pcs.): **21AZB195**



- Bezel clamp: **21AZB148** (for metric type)
21RZA065* (for inch type)
21RZA067 (included with **2424A(B)-19**)
*Included with ANSI/AGD models



21AZB148



Where to Buy

Dial Indicators

Optional Accessory

- Limit hand (2 pcs.): 21AZB195



SERIES 2 — Long Stroke Type



Continuous scale



Graduation: 0.01 mm,
Measuring range: 20 mm

2050A

With damper at lowest rest point

2050A-19

Shockproof

Jeweled bearing

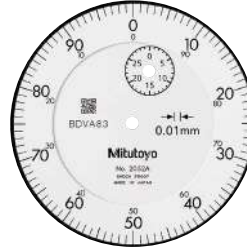
With damper at lowest rest point

2050A-60

Waterproof



Continuous scale



Graduation: 0.01 mm,
Measuring range: 30 mm

2052A

With damper at lowest rest point

2052A-19

Shockproof

Jeweled bearing

With damper at lowest rest point



Continuous scale



Graduation: 0.01 mm,
Measuring range: 30 mm

2330A-10

With coaxial revolution counter

With damper at lowest rest point

Jeweled bearing



Continuous scale



Graduation: 0.01 mm,
Measuring range: 20 mm

2320A-10

With coaxial revolution counter

With damper at lowest rest point

Jeweled bearing



Reverse reading



Graduation: 0.01 mm,
Measuring range: 30 mm

2952A

With damper at lowest rest point

FEATURES

Inch		ANSI/AGD type							ISO/JIS type						
Order No.	w/lug	Flat-back	Continuous scale	Reverse reading	Shockproof	Jeweled bearing	With damper at lowest rest point	With coaxial revolution counter	Order No.	w/lug	Flat-back	Continuous scale	Reverse reading	Shockproof	Jeweled bearing
2416A	2416AB		✓						2416A	2416AB		✓			
2416A-06	2416AB-06		✓						2416A-06	2416AB-06		✓			
2416A-10	2416AB-10		✓						2416A-10	2416AB-10		✓			
2417A	2417AB		✓						2417A	2417AB		✓			
2424A-19	2424AB-19		✓		✓		✓		2424A-19	2424AB-19		✓		✓	✓
2776A	2776AB		✓						2776A	2776AB		✓			
2904A	2904AB			✓					2904A	2904AB			✓		

Metric		ANSI/AGD type							ISO/JIS type						
Order No.	w/lug	Flat-back	Continuous scale	Reverse reading	Shockproof	Jeweled bearing	With damper at lowest rest point	With coaxial revolution counter	Order No.	w/lug	Flat-back	Continuous scale	Reverse reading	Shockproof	Jeweled bearing
2050A	2050AB		✓						2050A	2050AB		✓			
2050A-60	2050AB-60		✓						2050A-60	2050AB-60		✓			
2050A-19	2050AB-19		✓						2050A-19	2050AB-19		✓			
2320A-10	2320AB-10		✓						2320A-10	2320AB-10		✓			
2052A	2052AB		✓						2052A	2052AB		✓			
2052A-19	2052AB-19		✓						2052A-19	2052AB-19		✓			
2330A-10	2330AB-10		✓						2330A-10	2330AB-10		✓			
2952A	2952AB			✓					2952A	2952AB			✓		

Dial Indicators







Metric Dial Indicators — ANSI / AGD Type










SPECIFICATIONS

Metric		SERIES 1		Stem $\varnothing 3/8"$, #4-48 UNF		ANSI/AGD type		
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (μm)		Repeat-ability (μm)	Dial reading	Measuring force (N)
w/lug	Flat-back			First 1 Rev/2.5 Rev/10 Rev	Retrace			
1230A-01	1230AB-01	0.01	2.5 (1)	$\pm 10/\pm 10/-$	3	± 2	0-100	1.4 or less
1231A-01	1231AB-01	0.01	2.5 (1)	$\pm 10/\pm 10/-$	3	± 2	0-50-0	1.4 or less
1044A-01	1044AB-01	0.01	5 (1)	$\pm 10/\pm 10/\pm 13$	3	± 3	± 0 -100	1.4 or less
1045A-01	1045AB-01	0.01	5 (1)	$\pm 10/\pm 10/\pm 13$	3	± 3	0-50-0	1.4 or less
1010A-11	1010AB-11	0.002	0.5 (0.2)	$\pm 2/\pm 2/-$	2	± 1	0-20	1.5 or less
1011A-11	1011AB-11	0.002	0.5 (0.2)	$\pm 2/\pm 2/-$	2	± 1	0-10-0	1.5 or less

Metric		SERIES 2		Stem $\varnothing 3/8"$, #4-48 UNF		ANSI/AGD type		
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (μm)		Repeat-ability (μm)	Dial reading	Measuring force (N)
w/lug	Flat-back			First 1 Rev/2.5 Rev/10 Rev	Retrace			
2231A-01	2231AB-01	0.01	2.5 (1)	$\pm 10/\pm 10/-$	3	± 3	0-50-0	1.4 or less
2046A-01	2046AB-01	0.01	10 (1)	$\pm 10/\pm 10/\pm 13$	3	± 3	± 0 -100	1.4 or less
2046A-11	2046AB-11	0.01	10 (1)	$\pm 10/\pm 10/\pm 13$	3	± 3	± 0 -100	1.4 or less
2047A-01	2047AB-01	0.01	10 (1)	$\pm 10/\pm 10/\pm 13$	3	± 3	0-50-0	1.4 or less
2047A-11	2047AB-11	0.01	10 (1)	$\pm 10/\pm 10/\pm 13$	3	± 3	0-50-0	1.4 or less
2902A-01	2902AB-01	0.01	10 (1)	$\pm 10/\pm 10/\pm 13$	3	± 3	100-0	1.4 or less
2050A-01	2050AB-01	0.01	20 (1)	$\pm 10/\pm 10/\pm 15/\pm 20$ (20 Rev)	4	± 3	± 0 -100	2.0 or less
2056A-01	2056AB-01	0.01	25 (1)	$\pm 10/\pm 10/\pm 15/\pm 20$ (20 Rev)/ ± 25 (Over 20 Rev)	4	± 3	± 0 -100	2.5 or less
2109A-11	2109AB-11	0.001	1 (0.2)	$\pm 3/\pm 3/\pm 4$	2	± 0.3	0-10-0	1.5 or less
2119A-11	2119AB-11	0.001	5 (0.2)	$\pm 7/\pm 7/\pm 8/\pm 10$ (20 Rev)/ ± 10 (Over 20 Rev)	2.5	± 0.3	0-10-0	1.5 or less

FEATURES

Metric		<div><div></div> ANSI/AGD type</div>						
Order No.								
w/lug	Flat-back							
1230A-01	1230AB-01							
1231A-01	1231AB-01							
1044A-01	1044AB-01							
1045A-01	1045AB-01							
1010A-11	1010AB-11				✓		✓	
1011A-11	1011AB-11				✓		✓	

Metric		ANSI/AGD type									
Order No.											
w/lug	Flat-back										
2231A-01	2231AB-01										
2046A-01	2046AB-01										
2046A-11	2046AB-11				✓						
2047A-01	2047AB-01										
2047A-11	2047AB-11				✓						
2902A-01	2902AB-01									✓	
2050A-01	2050AB-01										
2056A-01	2056AB-01										
2109A-11	2109AB-11				✓			✓			
2119A-11	2119AB-11				✓						



Optional Accessories

- Backs (See pages F-69 to F-70)
- Contact points (See pages F-63 to F-68)



1010AB-11



2046A-11



Get a Quote



Dial Indicators

SERIES 2 — Special Dial Indicators

Adjustable hand dial indicator

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



2048A-10

Optional Accessories

- Limit hand (2 pcs.), Bezel clamp
- Refer to page F-27 for details.

SPECIFICATIONS

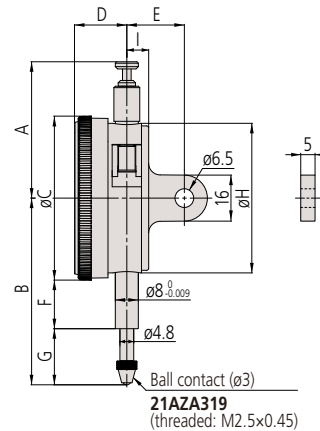
Metric

Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (μm)				Hysteresis	Repeat-ability	Dial reading	Measuring force (N)
w/lug	Flat-back			1/10 Rev	1/2 Rev	1 Rev	Measuring range				
2048A-10	2048AB-10	0.01	10 (1)	5	9	10	15	3	3	±0-100	1.4 or less

DIMENSIONS

ISO / JIS Type

Unit: mm



Order No.	A	B	C	D	E	F	G	H	I	Mass (g)	
										w/lug	Flat-back
2048A-10	47.4	64.9	57	18.1	20	16.9	19.5	52	7.6	144	135

Note: The shoulder on a contact point (standard accessory) acts as a stop to prevent spindle overrun that may otherwise damage the indicator. When replacing it with an optional contact point with a connector not exceeding $\varnothing 7$ mm in outside diameter, insert a washer (with $\varnothing 7$ mm outside diameter, $\varnothing 3$ mm inside diameter, and approximately 0.5 mm thickness) above the contact point.



Continuous scale



Graduation: 0.01 mm,
Measuring range: 10 mm

2048A-10

With coaxial revolution counter

Adjustable hand

Jeweled bearing

FEATURES

Metric

Order No.		w/lug	Flat-back	STOP	Jeweled bearing	Adjustable hand
2048A-10	2048AB-10	✓	✓	✓	✓	✓

Dial Indicators

SERIES 2 — Special Dial Indicators

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

Note: Clearance of peak hold: Push the nut in the direction of the arrow indicated in the dimensional drawing for **2046A-80**.



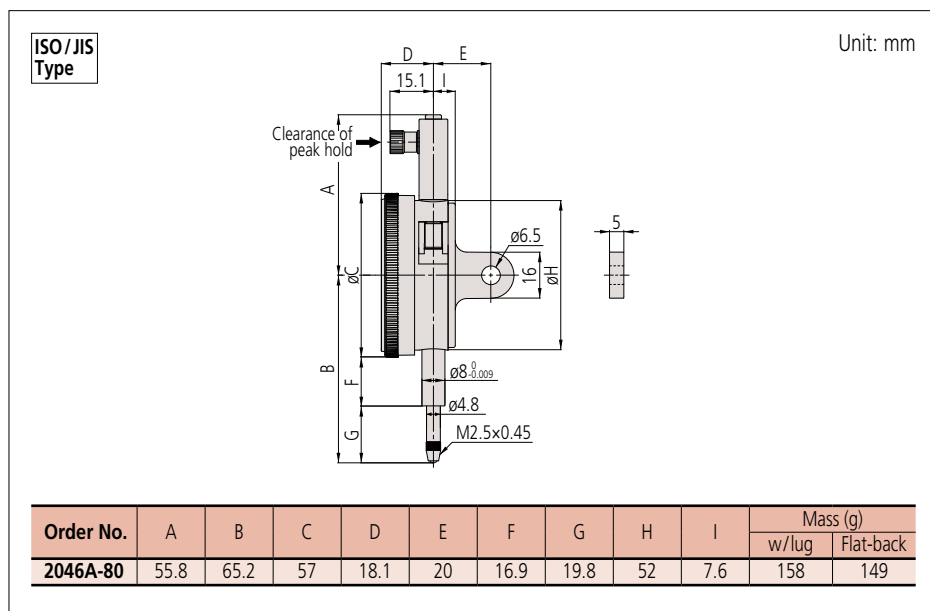
2046A-80

SPECIFICATIONS

Metric		Stem ø8mm, M2.5x0.45 Thread							ISO/JIS type		
Order No.		Graduation (mm)	Range (range/rev) (mm)	Accuracy (µm)				Hysteresis	Repeat-ability	Dial reading	Measuring force (N)
w/lug	Flat-back			1/10 Rev	1/2 Rev	1 Rev	Measuring range				
2046A-80	2046AB-80	0.01	10 (1)	5	9	10	15	—	—	±0-100	5.0 or less

Note: Completed products inspection is performed in the vertical orientation (contact point downward) and the stated accuracy is guaranteed.

DIMENSIONS



Continuous scale



Graduation: 0.01 mm,
Measuring range: 10 mm

2046A-80

Peak retaining

FEATURES

Metric	
Order No.	
w/lug	Flat-back
2046A-80	2046AB-80
✓	✓



Optional Accessories

- Limit hand (2 pcs.), Bezel clamp
- Refer to page F-27 for details.



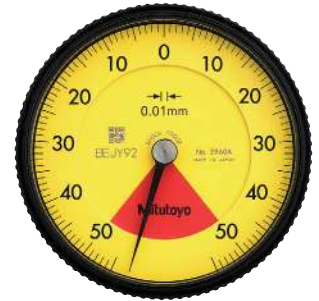
Need Support?



Dial Indicators

Back Plunger Type Dial Indicators SERIES 2

- The one revolution dial indicator (back plunger type) prevents the possibility of reading errors.
- 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.
- Proprietary Mitutoyo shockproof mechanism provides excellent durability and shock resistance.
- Model **2990A-10** provides 0.001 mm graduation.
- The red dead zone in the middle of the dial face is separated from the bezel and doesn't cover the graduations. Therefore, users can always see the range where accuracy is not guaranteed even if the bezel is rotated.



2960A



Holding bar (optional)

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

Note: øD and L: detail shown in drawing below.

Optional Accessory

- Limit hand (2 pcs.)
Refer to page F-41 for details.

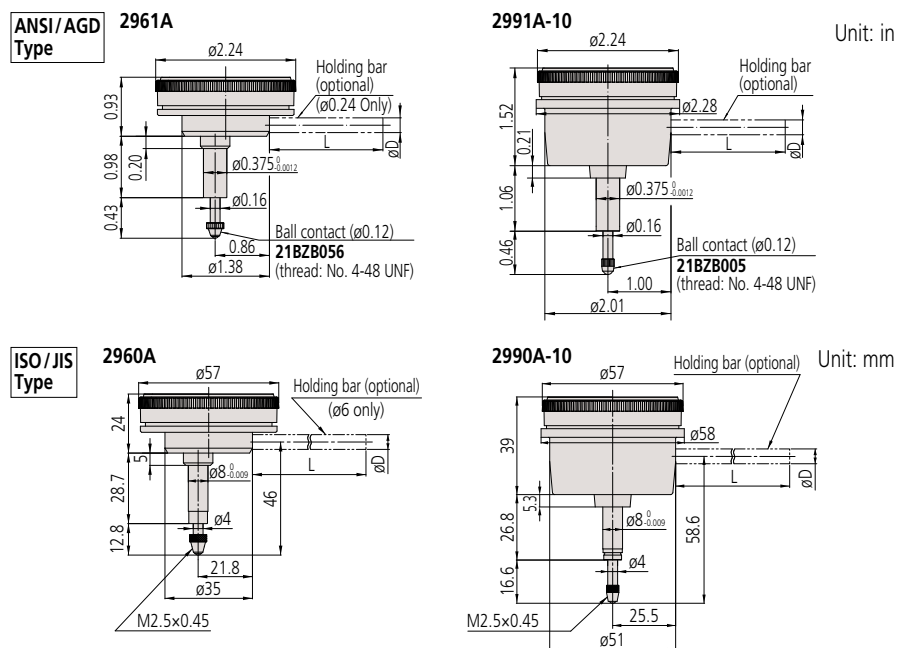
SPECIFICATIONS

Inch		Stem ø3/8", #4-48 UNF		ANSI/AGD type		ISO/JIS type		
Order No.	Graduation (in)	Range (range/rev) (in)	Accuracy (in)			Repeatability (in)	Dial reading	Measuring force (N)
			First 1 Rev/2.5 Rev/10 Rev	Retrace				
2961A	0.0005	0.04 (0.05)	±0.0005/—/—	0.00016		±0.0001	20-0-20	1.4 or less
2991A-10	0.0001	0.008 (0.01)	±0.0002/—/—	0.0001		±0.00005	4-0-4	1.5 or less

Metric		Stem ø8mm, M2.5x0.45 Thread		ANSI/AGD type		ISO/JIS type				
Order No.	Graduation (mm)	Range (range/rev) (mm)	Accuracy (µm)				Hysteresis	Repeat-ability	Dial reading	Measuring force (N)
			1/10 Rev	1/2 Rev	1 Rev	Measuring range				
2960A	0.01	1 (1.27)	8	—	—	14	4	3	50-0-50	1.4 or less
2990A-10	0.001	0.1 (0.14)	2.5	—	—	5	2	1	50-0-50	1.5 or less

Note 1: The bezel clamp cannot be used.

DIMENSIONS



- Note 1: The shoulder on a contact point (standard accessory) for **2960A** and **2961A** acts as a stop to prevent spindle overrun that may otherwise damage the indicator. When replacing it with an optional contact point with a connector not exceeding ø7 mm in outside diameter, insert a washer (with ø7 mm outside diameter, ø3 mm inside diameter, and approximately 0.5 mm thickness) above the contact point.
- Note 2: Refer to pages F-63 to F-68 for details of contact points.

Special specifications

Upon request, we can manufacture custom types with changed graduation numbers, graduation lines, dead zones, etc. Please contact your nearest M³ Solution Center for more information.