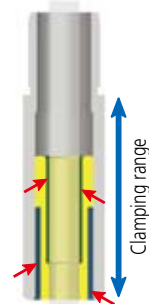


Dial Indicators

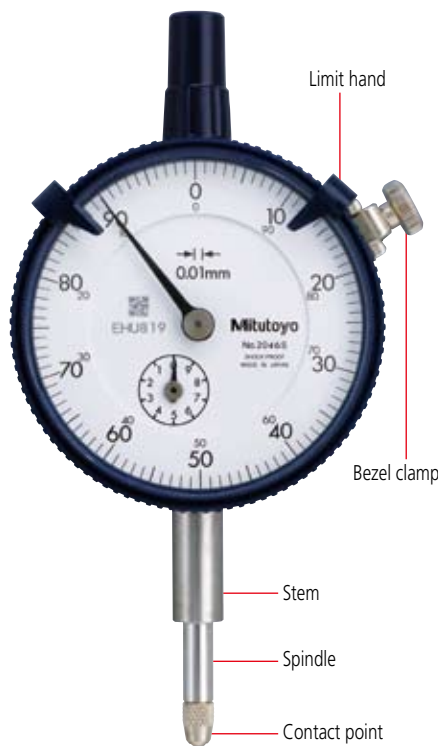
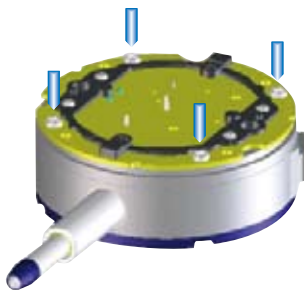
FEATURES: S Series (Series 2, 3, 4)

- Revolutionary stem-bush design for trouble-free stem clamping (longer clamping range; maximum clamp torque at the clamping point with M5 screw: 150N-cm)
- No through screw-hole on the frame for high dust-resistance.



Clearance to avoid direct influence of clamping force

- Involute curved lifting lever for smooth movement of spindle and dovetail joint for tool-less connection.
- Greater rigidity in the bearing plate for reducing retrace error (20%) and 4-screw mounting for increased impact resistance.



Feature icons

Icon	Feature description
	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 type
	Waterproof type (IP63)
	Waterproof type (IP64)
	With damper at lowest rest point
	Jeweled bearing type
	Peak retaining type
	Dustproof type
	With coaxial revolution counter
	Back plunger type
	Adjustable hand type

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

Dial Indicator

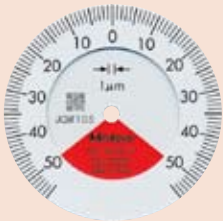
SERIES 1 — Compact One Revolution Type for Error-free Reading



(Refer to page VIII for details.)



1929S
1929S-62



1900S-10
1900S-72



One revolution type

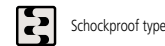


1929S

Unlike many other dial indicators, the one-revolution dial indicator literally shows the entire spindle travel or range as one sweep of the hand, eliminating the possibility of reading errors due to miscounting multiple revolutions. With one-revolution dial indicators, "within tolerance" and "out-of-tolerance" can never be misinterpreted. A unique shock-proof mechanism is incorporated, providing improved immunity to shock due to sudden spindle retraction caused by high impact.



Jeweled bearing type



Shockproof type



Dustproof type

FEATURES

Metric				
Order No.	Flat-back			
1929S	1929SB	—	—	✓
1929S-62	1929SB-62	—	✓	✓
1900S-10	1900SB-10	✓	—	✓
1900S-72	1900SB-72	✓	✓	✓

Inch				
Order No.	Flat-back			
1909S-62	1909SB-62	—	✓	✓
1910S-72	1910SB-72	✓	✓	✓

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)

SPECIFICATIONS

Metric		ISO/JIS type								
Graduation	Order No.		Range (range/rev)	Accuracy				Repeatability	Dial reading	Measuring force
	w/ lug	Flat-back		Overall	Retrace	1/10 Rev	1 Rev			
0.01mm	1929S	1929SB	1mm (1.4mm)	±11µm	6µm	7µm	—	5µm	50-0-50	1.4N or less
0.01mm	1929S-62	1929SB-62	1mm (1.4mm)	±11µm	6µm	7µm	—	5µm	50-0-50	1.4N or less
0.001mm	1900S-10	1900SB-10	0.1mm (0.14mm)	±6µm	4µm	5µm	—	1µm	50-0-50	1.5N or less
0.001mm	1900S-72	1900SB-72	0.1mm (0.14mm)	±6µm	4µm	5µm	—	1µm	50-0-50	1.5N or less

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

DIMENSIONS

ANSI/AGD Type

ISO/JIS Type

Unit: mm

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

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

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

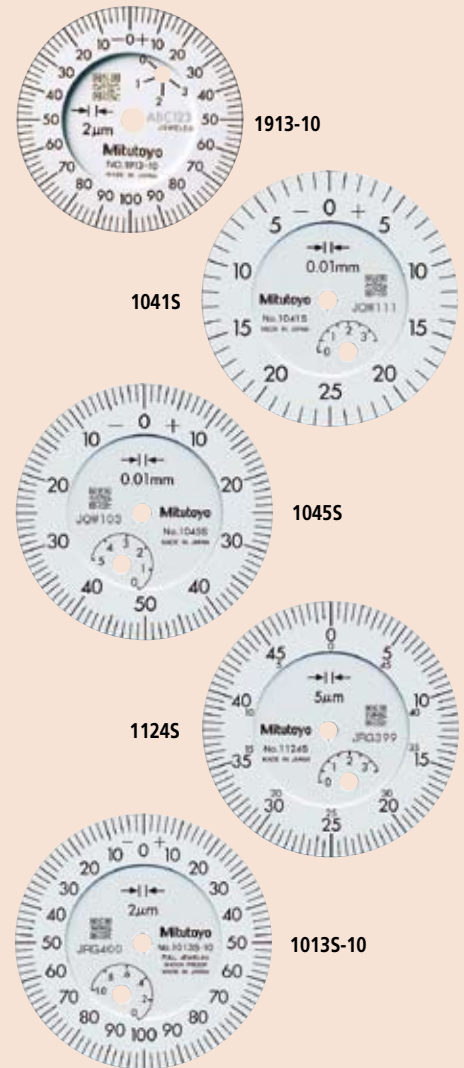
Dial Indicator

SERIES 1 — Compact Type

Mitutoyo's Series 1 dial indicators offer accuracy and durability for shop applications demanding highly accurate measurements where space is limited. The spindle is made of hardened stainless steel for durability, while the rack gear is machine ground for a tighter fit and increased accuracy.



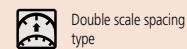
(Refer to page VIII for details.)



SPECIFICATIONS

Metric		ISO/JIS type									
Graduation	Order No.		Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force	
	w/ lug	Flat-back		Overall	Retrace	1/10 Rev	1 Rev				
0.01mm	1911	1911B	2.5mm (1mm)	±12µm	6µm	7µm	±10µm	5µm	0-50-0	1.8N or less	
0.002mm	1913-10	1913B-10	0.5mm (0.2mm)	±8µm	5µm	6µm	±7µm	2µm	0-100-0	1.8N or less	
0.01mm	1003	1003B	4mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	0-50-0	1.4N or less	
0.01mm	1044S	1044SB	5mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	±0-100	1.4N or less	
0.01mm	1045S	1045SB	5mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	0-50-0	1.4N or less	
0.01mm	1044S-15	1044SB-15	5mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	±0-100	0.4N or less*	
0.01mm	1044S-60	1044SB-60	5mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	±0-100	2.0N or less	
0.01mm	1040S	1040SB	3.5mm (0.5mm)	±13µm	6µm	8µm	±11µm	5µm	±0-50	1.4N or less	
0.01mm	1041S	1041SB	3.5mm (0.5mm)	±13µm	6µm	8µm	±11µm	5µm	0-25-0	1.4N or less	
0.005mm	1124S	1124SB	3.5mm (0.5mm)	±13µm	6µm	8µm	±11µm	5µm	±0-50	1.4N or less	
0.001mm	1109S-10	1109SB-10	1mm (0.2mm)	±7µm	5µm	5µm	±6µm	1µm	0-100-0	1.5N or less	
0.002mm	1013S-10	1013SB-10	1mm (0.2mm)	±10µm	5µm	7µm	±8µm	1µm	0-100-0	1.5N or less	

*Use in a vertical position only (contact point downward).



Double scale spacing type



Jeweled bearing type



Waterproof type

FEATURES

Metric		ISO/JIS type			
Order No.	w/ lug	Flat-back	Double scale spacing type	Jeweled bearing type	Waterproof type
1913-10	1913B-10	—	✓	—	
1003	1003B	—	—	—	
1044S	1044SB	—	—	—	
1045S	1045SB	—	—	—	
1044S-15	1044SB-15	—	✓	—	
1044S-60	1044SB-60	—	—	✓	
1040S	1040SB	—	✓	—	
1041S	1041SB	—	✓	—	
1124S	1124SB	—	—	—	
1109S-10	1109SB-10	—	✓	—	
1013S-10	1013SB-10	—	✓	—	



Jeweled bearing type



Shockproof type

FEATURES

Inch

Order No.	w/ lug	Flat-back		
1923	1923B	✓	—	
1927-10	1927B-10	✓	—	
1925-10	1925B-10	✓	—	
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	✓	✓	

SPECIFICATIONS

Inch

ANSI/AGD type

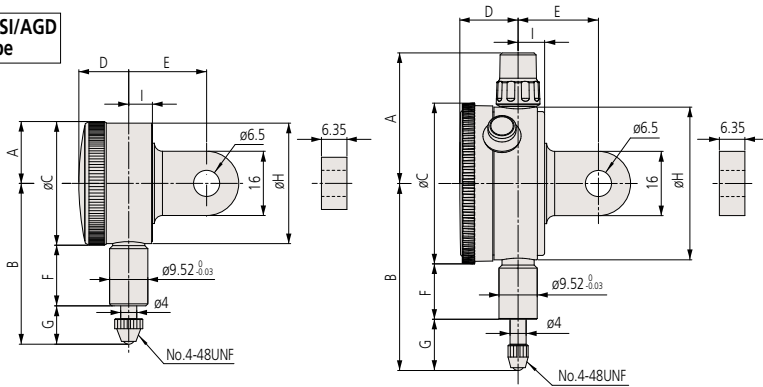
Graduation	Order No.		Range (range/rev)	Accuracy		Repeatability	Dial reading	Measuring force
	w/ lug	Flat-back		First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
.001"	1921	1921B	.1" (.04")	±.001" / ±.001" / —	.0002"	±.0002"	0-20-0	1.8N or less
.0005"	1923	1923B	.05" (.02")	±.0005" / ±.0005" / —	.0016"	±.0001"	0-10-0	1.8N or less
.0001"	1927-10	1927B-10	.01" (.004")	±.0002" / ±.0002" / —	.0001"	±.00003"	0-2-0	1.8N or less
.0001"	1925-10	1925B-10	.025" (.01")	±.0002" / ±.0002" / —	.0001"	±.00003"	0-5-0	1.8N or less
.001"	1410S	1410SB	.25" (.1")	±.001" / ±.001" / —	.0002"	±.0002"	0-100	1.4N or less
.001"	1411S	1411SB	.25" (.1")	±.001" / ±.001" / —	.0002"	±.0002"	0-50-0	1.4N or less
.001"	1410S-10	1410SB-10	.25" (.1")	±.001" / ±.001" / —	.0002"	±.0002"	0-100	1.4N or less
.001"	1780S	1780SB	.125" (.05")	±.001" / ±.001" / —	.0002"	±.0002"	0-50	1.4N or less
.001"	1781S	1781SB	.125" (.05")	±.001" / ±.001" / —	.0002"	±.0002"	0-25-0	1.4N or less
.0005"	1506S	1506SB	.125" (.05")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-50	1.4N or less
.0005"	1507S	1507SB	.125" (.05")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-25-0	1.4N or less
.0005"	1670S	1670SB	.1" (.04")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-40	1.4N or less
.0005"	1671S	1671SB	.1" (.04")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-20-0	1.4N or less
.0001"	1802S-10	1802SB-10	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	0-10	1.5N or less
.0001"	1803S-10	1803SB-10	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	0-5-0	1.5N or less

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)

DIMENSIONS

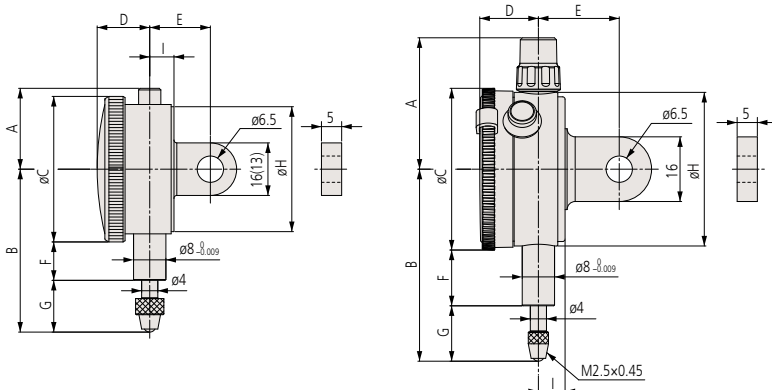
ANSI/AGD Type



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 indicator is provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.

ISO/JIS Type



Unit: mm

Order No.	A	B	C	D	E	F	G	H	I
1921	15.5	40	31	12.5	19	15	9.5	30	7
1923	15.5	38.3	31	12.5	19	15	7.8	30	7
1927-10	15.5	37.2	31	12.5	19	15	6.7	30	7
1925-10	15.5	37.5	31	12.5	19	15	7	30	7
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	44.4	40	14.5	19	12.8	11.3	38	6.6
1507S	32.5	44.4	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

Order No.	A	B	C	D	E	F	G	H	I
1911	15.5	42	31	12.5	19	15	11.5	30	7
1913-10	15.5	39.5	31	12.5	19	15	9	30	7
1003	20	40.3	36	13	15	9.5	12.8	32	6
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 and the long stroke model.

Dial Indicator

SERIES 2 — Standard Type, 0.01mm Resolution

Series 2 dial indicators are Mitutoyo's most popular, and have the widest application.

FEATURES

- Standard 0.01mm graduation dial gauges having a bezel with an outside diameter of 57mm. All types come with limit markers and a bezel clamp as standard.
- The bezel clamp and lifting lever (optional) can be attached to either the right or left side. These parts can be easily installed and removed without tools.
- Secure adhesion between the bezel and crystal as well as the use of an O-ring prevents water or oil penetration.
- The stem 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.



(Refer to page VIII for details.)



20465



20465-60



20465
20465-09



20465-60



20475



29025



2310S-10



Shockproof type



Waterproof type



Jeweled bearing type



w/coaxial revolution counter



Reverse reading type

FEATURES

Metric						
Order No.	Order No.					
w/ lug	Flat-back					
2044S	2044SB	—	—	—	—	—
2044S-09	2044SB-09	✓	—	—	—	—
2044S-60	2044SB-60	—	✓	—	—	—
2045S	2045SB	—	—	—	—	—
2046S	2046SB	—	—	—	—	—
2046S-09	2046SB-09	✓	—	—	—	—
2046S-60	2046SB-60	—	✓	—	—	—
2310S-10	2310SB-10	—	—	✓	✓	—
2902S	2902SB	—	—	—	—	✓
2047S	2047SB	—	—	—	—	—

SPECIFICATIONS

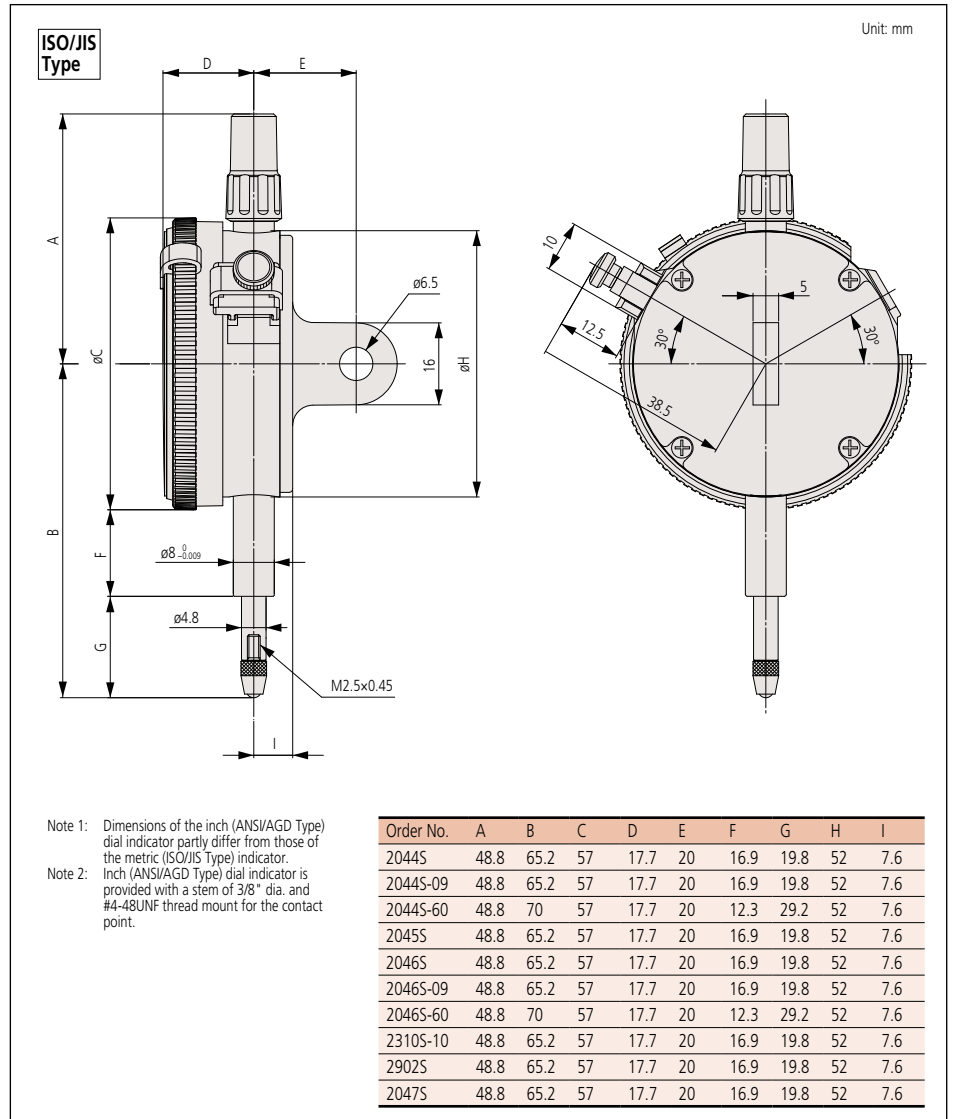
Metric		ISO/JIS type									
Graduation	Order No.		Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force	
	w/ lug	Flat-back		Overall	Retrace	1/10 Rev	1 Rev				
0.01mm	2044S	2044SB	5mm (1mm)	±12μm	5μm	8μm	±10μm	5μm	±0-100	1.4N or less	
0.01mm	2044S-09	2044SB-09	5mm (1mm)	±13μm	5μm	8μm	±10μm	5μm	±0-100	1.4N or less	
0.01mm	2044S-60	2044SB-60	5mm (1mm)	±12μm	5μm	8μm	±10μm	5μm	±0-100	2.5N or less	
0.01mm	2045S	2045SB	5mm (1mm)	±12μm	5μm	8μm	±10μm	5μm	0-50-0	1.4N or less	
0.01mm	2046S	2046SB	10mm (1mm)	±13μm	5μm	8μm	±10μm	5μm	±0-100	1.4N or less	
0.01mm	2046S-09	2046SB-09	10mm (1mm)	±15μm	5μm	8μm	±10μm	5μm	±0-100	1.4N or less	
0.01mm	2046S-60	2046SB-60	10mm (1mm)	±13μm	5μm	8μm	±10μm	5μm	±0-100	2.5N or less	
0.01mm	2310S-10	2310SB-10	10mm (1mm)	±15μm	5μm	8μm	±10μm	5μm	±0-100	1.4N or less	
0.01mm	2902S	2902SB	10mm (1mm)	±13μm	5μm	8μm	±10μm	5μm	100-0	1.4N or less	
0.01mm	2047S	2047SB	10mm (1mm)	±13μm	5μm	8μm	±10μm	5μm	0-50-0	1.4N or less	

*Use in a vertical position only (contact point downward).

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)

DIMENSIONS



2044S
2044S-60
2044S-09



2045S



Dial Indicator

SERIES 2 — Standard Type, 0.001mm Resolution

FEATURES

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



(Refer to page VIII for details.)



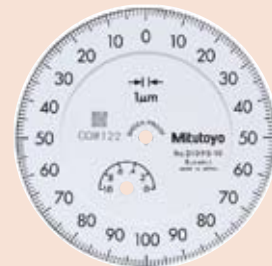
2109S-10



2110S-10



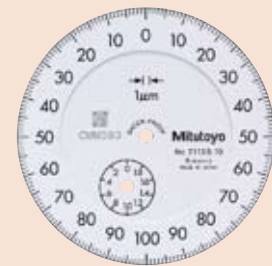
2119S-10



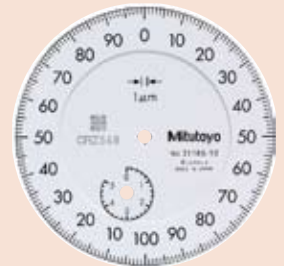
2109S-10
2109S-70



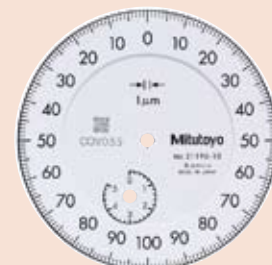
2110S-10
2110S-70



2113S-10



2118S-10



2119S-10



2124S-10



Shockproof type



Waterproof type



Jeweled bearing type



Double scale spacing type

FEATURES

Metric

Order No.					
w/ lug	Flat-back				
2109S-10	2109SB-10	✓	—	✓	—
2109S-70	2109SB-70	✓	✓	✓	—
2110S-10	2110SB-10	✓	—	✓	✓
2110S-70	2110SB-70	✓	✓	✓	✓
2113S-10	2113SB-10	✓	—	✓	—
2118S-10	2118SB-10	—	—	✓	—
2119S-10	2119SB-10	—	—	✓	—
2124S-10	2124SB-10	—	—	✓	—

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)

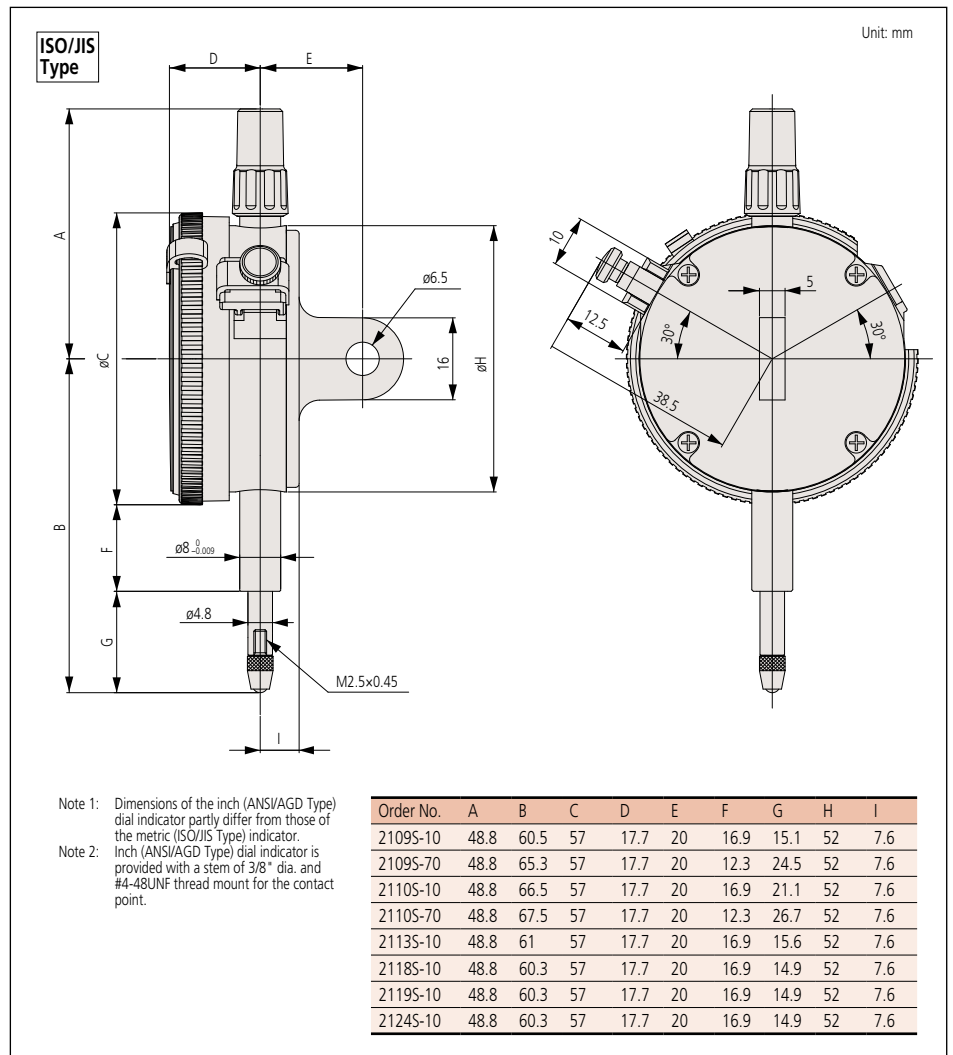
SPECIFICATIONS

Metric

ISO/JIS type

Graduation	Order No.		Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force
	w/ lug	Flat-back		Overall	Retrace	1/10 Rev	1 Rev			
0.001mm	2109S-10	2109SB-10	1mm (0.2mm)	±5μm	3μm	2.5μm	±4μm	0.5μm	0-100-0	1.5N or less
0.001mm	2109S-70	2109SB-70	1mm (0.2mm)	±5μm	3μm	2.5μm	±4μm	0.5μm	0-100-0	2.0N or less
0.001mm	2110S-10	2110SB-10	1mm (0.1mm)	±5μm	3μm	2.5μm	±4μm	0.5μm	±0-100	1.5N or less
0.001mm	2110S-70	2110SB-70	1mm (0.1mm)	±5μm	3μm	2.5μm	±4μm	0.5μm	±0-100	2.0N or less
0.001mm	2113S-10	2113SB-10	2mm (0.2mm)	±7μm	3μm	4μm	±6μm	0.5μm	0-100-0	1.5N or less
0.001mm	2118S-10	2118SB-10	5mm (0.2mm)	±10μm	4μm	5μm	±7μm	1μm	0-100-100	1.5N or less
0.001mm	2119S-10	2119SB-10	5mm (0.2mm)	±10μm	4μm	5μm	±7μm	1μm	0-100-0	1.5N or less
0.005mm	2124S-10	2124SB-10	5mm (0.5mm)	±12μm	5μm	7μm	±9μm	3μm	±0-50	1.5N or less

DIMENSIONS







Dial Indicator

SERIES 2 — Standard Type, Inch Reading

SPECIFICATIONS

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

FEATURES

Inch		ANSI/AGD type						
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	✓	—	—	✓	—	—	—



(Refer to page VIII for details.)

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)



Shockproof type



Waterproof type



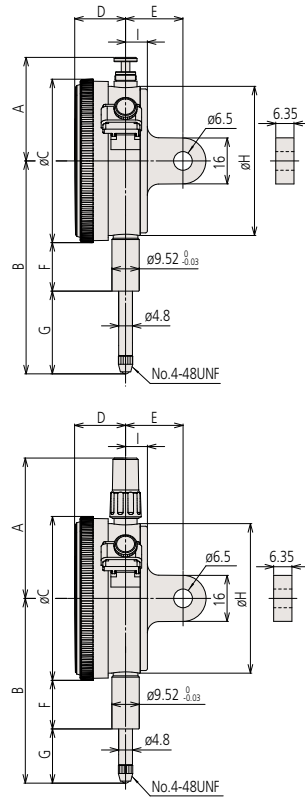
Reverse reading type



Jeweled bearing type

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

Special Dial Indicators

SERIES 2



Adjustable hand

Adjustable hand dial gauge

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

20485-10



Peak hold

Peak hold type dial gauge

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

20465-80

SPECIFICATIONS

ISO/JIS type

Graduation	Order No.		Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force
	w/ lug	Flat-back		Overall	Retrace	1/10 Rev	1 Rev			
0.01mm	20485-10	20485B-10	10mm (1mm)	±15µm	5µm	8µm	±10µm	5µm	0-100	1.4N or less
0.01mm	20465-80	20465B-80	10mm (1mm)	±15µm	—	8µm	±10µm	—	0-100	5.0N or less

Inch

ANSI/AGD type

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



(Refer to page VIII for details.)

FEATURES

Metric

Order No.		Adjustable hand	Peak hold	Flat-back	—	—
w/ lug	Flat-back					
20485-10	20485B-10	✓	—	✓	—	—
20465-80	20465B-80	—	✓	—	—	—

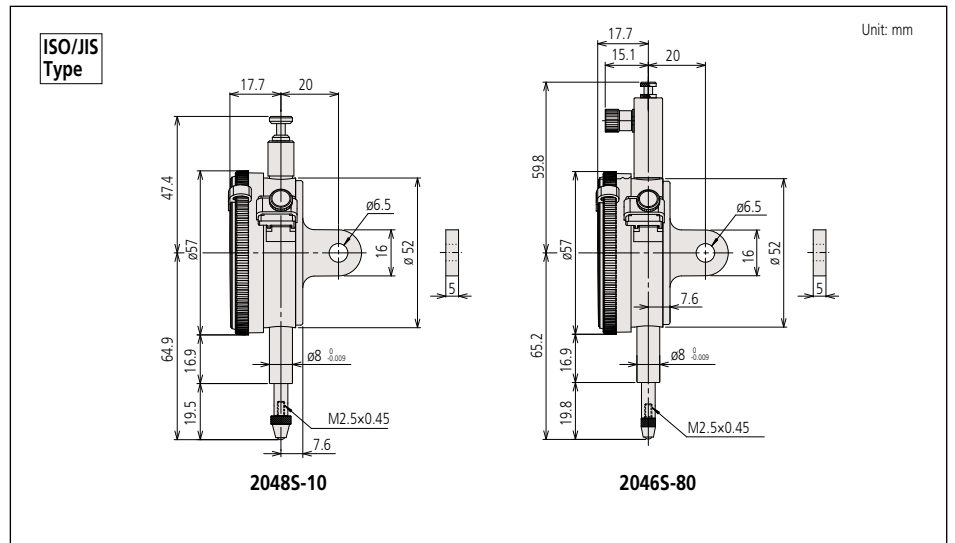
Inch

Order No.		Adjustable hand	Peak hold	Flat-back	—	—
w/ lug	Flat-back					
29155-10	29155B-10	✓	—	✓	—	—
29185-10	29185B-10	✓	—	✓	—	—

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)

DIMENSIONS



Dial Indicator

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

Unlike many other dial indicators, the one-revolution dial indicator literally shows the entire spindle travel or range as one sweep of the hand, eliminating the possibility of reading errors due to miscounting multiple revolutions. With one-revolution dial indicators, "within tolerance" and "out-of-tolerance" can never be misinterpreted.

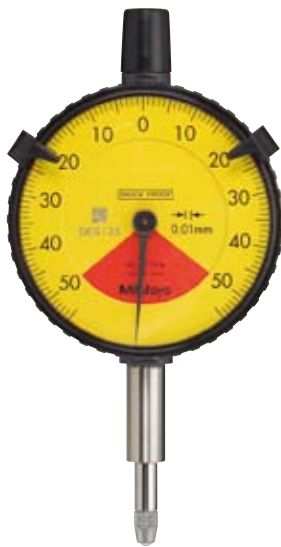
FEATURES

- A unique shock-proof mechanism is incorporated, providing improved immunity to shock due to sudden spindle retraction caused by high impact.

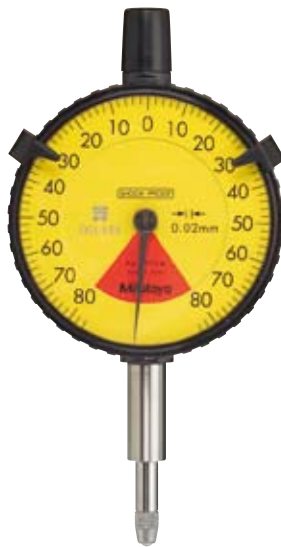
- The crystal is hard coated for durability and scratch resistance.
- Approximately 40% lighter than the conventional dial indicator.
- Provided with an improved resistance to shop floor contaminants such as water and dust.
- Due to the spindle bushing being offset from the stem, spindle movement will not be hindered or jammed when clamping along the stem.
- A pair of limit hands are provided for quick and easy tolerance judgment (GO/±NG).



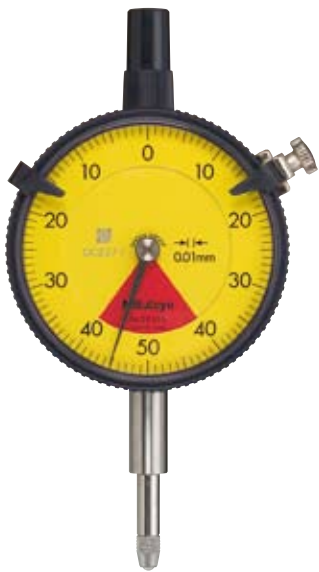
2971



2972



2973



29295



29005-10



2990



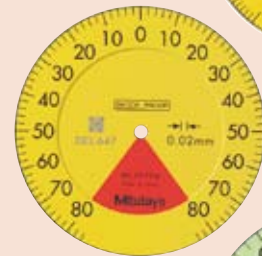
(Refer to page VIII for details.)



2971



2972



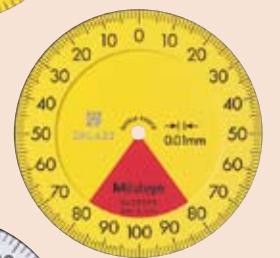
2973



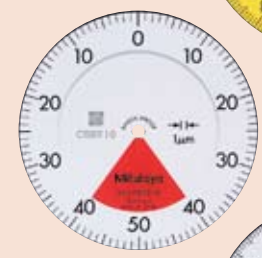
29285



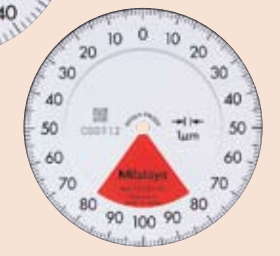
29295
29295-60
29295-62



29595



29005-10
29005-70
29005-72



29015-10



Shockproof type



Waterproof type



Dustproof type



Jeweled bearing type

FEATURES

Metric						—	—
Order No.	w/ lug	Flat-back					
2928S	2928SB	—	—	—	—	—	—
2929S	2929SB	—	—	—	—	—	—
2929S-60	2929SB-60	—	✓	—	—	—	—
2929S-62	2929SB-62	—	—	✓	—	—	—
2959S	2959SB	—	—	—	—	—	—
2900S-10	2900SB-10	—	—	—	✓	—	—
2900S-70	2900SB-70	—	✓	—	✓	—	—
2900S-72	2900SB-72	✓	—	✓	✓	—	—
2901S-10	2901SB-10	✓	—	—	✓	—	—
—	2973	—	—	—	—	—	—
—	2971	—	—	—	—	—	—
—	2972	—	—	—	—	—	—
2990*	—	—	—	—	—	—	—
—	2960F*	—	—	—	—	—	—

Inch						—	—
Order No.	w/ lug	Flat-back					
2909S-62	2909SB-62	—	—	✓	—	—	—
2910S-10	2910SB-10	✓	—	✓	✓	—	—
2910S-72	2910SB-72	✓	✓	—	✓	—	—
—	2978	—	—	—	—	—	—
—	2976	—	—	✓	—	—	—
—	2977	—	—	—	—	—	—
—	2991*	—	—	✓	—	—	—

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)

SPECIFICATIONS

Metric		ISO/JIS type								
Graduation	Order No.		Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force
	w/ lug	Flat-back		Overall	Retrace	1/10 Rev	1 Rev			
0.1mm	2928S	2928SB	4mm (5mm)	±40µm	20µm	20µm	—	20µm	2-0-2	1.4N or less
0.01mm	2929S	2929SB	0.8mm (1mm)	±9µm	5µm	6µm	—	5µm	40-0-40	1.4N or less
0.01mm	2929S-60	2929SB-60	0.8mm (1mm)	±9µm	5µm	6µm	—	5µm	40-0-40	2.0N or less
0.01mm	2929S-62	2929SB-62	0.8mm (1mm)	±9µm	5µm	6µm	—	5µm	40-0-40	2.0N or less
0.01mm	2959S	2959SB	1.6mm (2mm)	±13µm	6µm	8µm	—	5µm	80-0-80	1.4N or less
0.001mm	2900S-10	2900SB-10	0.08mm (0.1mm)	±3µm	2.5µm	2.5µm	—	0.5µm	40-0-40	1.4N or less
0.001mm	2900S-70	2900SB-70	0.08mm (0.1mm)	±3µm	2.5µm	2.5µm	—	0.5µm	40-0-40	2.0N or less
0.001mm	2900S-72	2900SB-72	0.08mm (0.1mm)	±3µm	2.5µm	2.5µm	—	0.5µm	40-0-40	2.0N or less
0.001mm	2901S-10	2901SB-10	0.16mm (0.2mm)	±4µm	3µm	3µm	—	0.5µm	80-0-80	1.4N or less
0.02mm	2973	—	1.6mm (2mm)	±16µm	6µm	8µm	—	5µm	80-0-80	1.4N or less
0.01mm	2971	—	0.5mm (0.7mm)	±10µm	5µm	7µm	—	5µm	25-0-25	1.4N or less
0.01mm	2972	—	1mm (1.4mm)	±12µm	5µm	7µm	—	5µm	50-0-50	1.4N or less
0.01mm	2990*	—	0.1mm (0.14mm)	±6.5µm	4µm	4µm	—	1µm	50-0-50	1.5N or less
0.001mm	2960F*	—	1mm (1.27mm)	±14µm	7µm	10µm	—	5µm	50-0-50	1.4N or less

*Back plunger type (see page F-34.)

Inch		ANSI/AGD type								
Graduation	Order No.		Range (range/rev)	Accuracy			Repeat-ability	Dial reading	Measuring force	
	w/ lug	Flat-back		First 1 Rev / 2.5 Rev / 10 Rev	Retrace					
.0005"	2909S-62	2909SB-62	.04" / .05"	±.0005" / — / —	—	.00016"	±.0001"	20-0-20	2.5N or less	
.0001"	2910S-10	2910SB-10	.008" / .01"	±.0001" / — / —	—	.0001"	±.00003"	4-0-4	1.8N or less	
.0001"	2910S-72	2910SB-72	.008" / .01"	±.0001" / — / —	—	.0001"	±.00003"	4-0-4	2.5N or less	
.001"	2978	—	.06" / .079"	±.001" / — / —	—	.0002"	±.0002"	30-0-30	1.4N or less	
.0005"	2976	—	.02" / .028"	±.0005" / — / —	—	.00016"	±.0001"	10-0-10	1.4N or less	
.0005"	2977	—	.04" / .055"	±.0005" / — / —	—	.00016"	±.0001"	20-0-20	1.4N or less	
.0001"	2991*	—	.008" / .01"	±.0002" / — / —	—	.0001"	±.00005"	4-0-4	1.5N or less	

*Back plunger type (see page 262.)

DIMENSIONS

ANSI/AGD Type

ISO/JIS 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
2910S-72	48.8	51.2	57	17.7	19	13.6	9.1	52	7.6
2978	43.2	65.3	55.6	16.2	—	21	16.5	55	7.6
2976	43.2	64.7	55.6	16.2	—	21	15.9	55	7.6
2977	43.2	65	55.6	16.2	—	21	16.2	55	7.6

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-60	48.8	70	57	17.7	20	12.3	29.2	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-70	48.8	67	57	17.7	20	12.3	26.2	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
2973	43.2	66.3	55.6	16.2	—	21	17.5	55	7.6
2971	43.2	65.6	55.6	16.2	—	21	16.8	55	7.6
2972	43.2	66.0	55.6	16.2	—	21	17.2	55	7.6

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

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

Dial Indicator

SERIES 2 — Long Stroke Type



2050S



2330S-10



2052S



(Refer to page VIII for details.)



2050S-60
2050S
2050S-19

2052S
2052S-19



2330S-10

2320S-10



2952S



Shockproof type



Waterproof type



w/ damper at lowest rest point



Jeweled bearing type



w/ coaxial revolution counter



Reverse reading type

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	—	—	✓	—	—	—

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)

SPECIFICATIONS

Metric

ISO/JIS type

Graduation	Order No.		Range (range/rev)	Accuracy				Repeatability	Dial reading	Measuring force
	w/ lug	Flat-back		Overall	Retrace	1/10 Rev	1 Rev			
0.01mm	2050S	2050SB	20mm (1mm)	±20μm	7μm	10μm	±15μm	5μm	±0-100	2.0N or less
0.01mm	2050S-60	2050SB-60	20mm (1mm)	±20μm	7μm	10μm	±15μm	5μm	±0-100	2.5N or less
0.01mm	2050S-19	2050SB-19	20mm (1mm)	±20μm	7μm	10μm	±15μm	5μm	±0-100	2.0N or less
0.01mm	2320S-10	2320SB-10	20mm (1mm)	±20μm	7μm	10μm	±15μm	5μm	±0-100	2.0N or less
0.01mm	2052S	2052SB	30mm (1mm)	±25μm	7μm	14μm	±18μm	5μm	±0-100	2.5N or less
0.01mm	2052S-19	2052SB-19	30mm (1mm)	±25μm	7μm	14μm	±18μm	5μm	±0-100	2.5N or less
0.01mm	2330S-10	2330SB-10	30mm (1mm)	±25μm	7μm	14μm	±18μm	5μm	±0-100	2.5N or less
0.01mm	2952S	2952SB	30mm (1mm)	±25μm	7μm	14μm	±18μm	5μm	100-0	2.5N or less

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

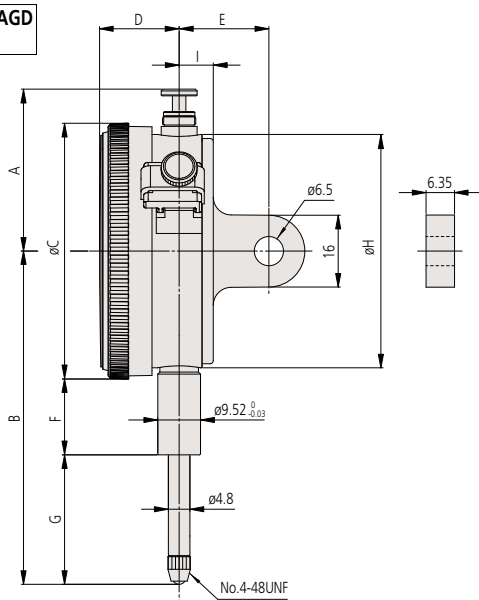
Inch

ANSI/AGD type

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

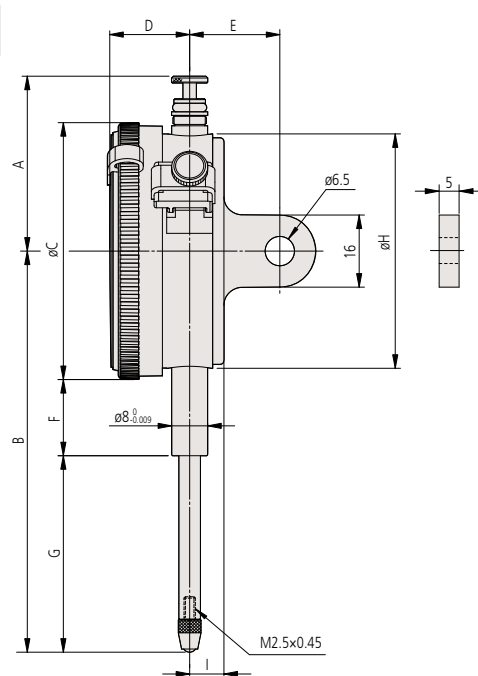
DIMENSIONS

ANSI/AGD Type



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

ISO/JIS 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

Unit: mm

Dial Indicator

SERIES 3, 4 — Large Dial Face and Long Stroke Type

- Dial gauges with a large-diameter dial face to ease reading.
- All types come with limit pins and a bezel clamp as standard.



3109S-10

3058S-19

4046S



(Refer to page VIII for details.)



3046S

3047S



3050S



3052S-19



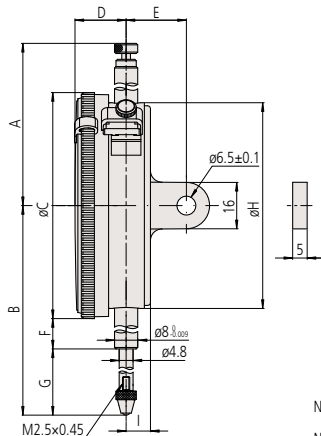
3060S-19



3062S-19



DIMENSIONS

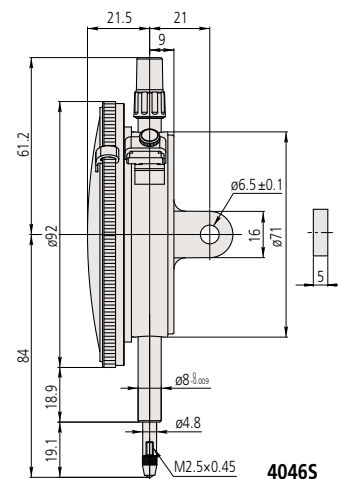


ISO/JIS Type

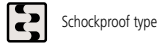
Unit: mm

Order No.	A	B	C	D
3046S	61.2	75.5	15.9	20.6
3047S	61.2	75.5	15.9	20.6
3050S	52.6	94	25.9	29.1
3052S-19	72.9	104.3	25.9	39.4
3058S-19	81.9	142.3	43.9	59.4
3060S-19	120.9	202.3	73.9	89.4
3062S-19	141.9	243.3	94.9	109.4
3109S-10	61.2	79	25.9	14.1

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 indicator is provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.



4046S



Shockproof type



w/ damper at lowest rest point



Jeweled bearing type



w/ coaxial revolution counter

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	✓	✓	✓	—	—	—

Optional Accessory

—: Contact points (See page F-36.)

SPECIFICATIONS

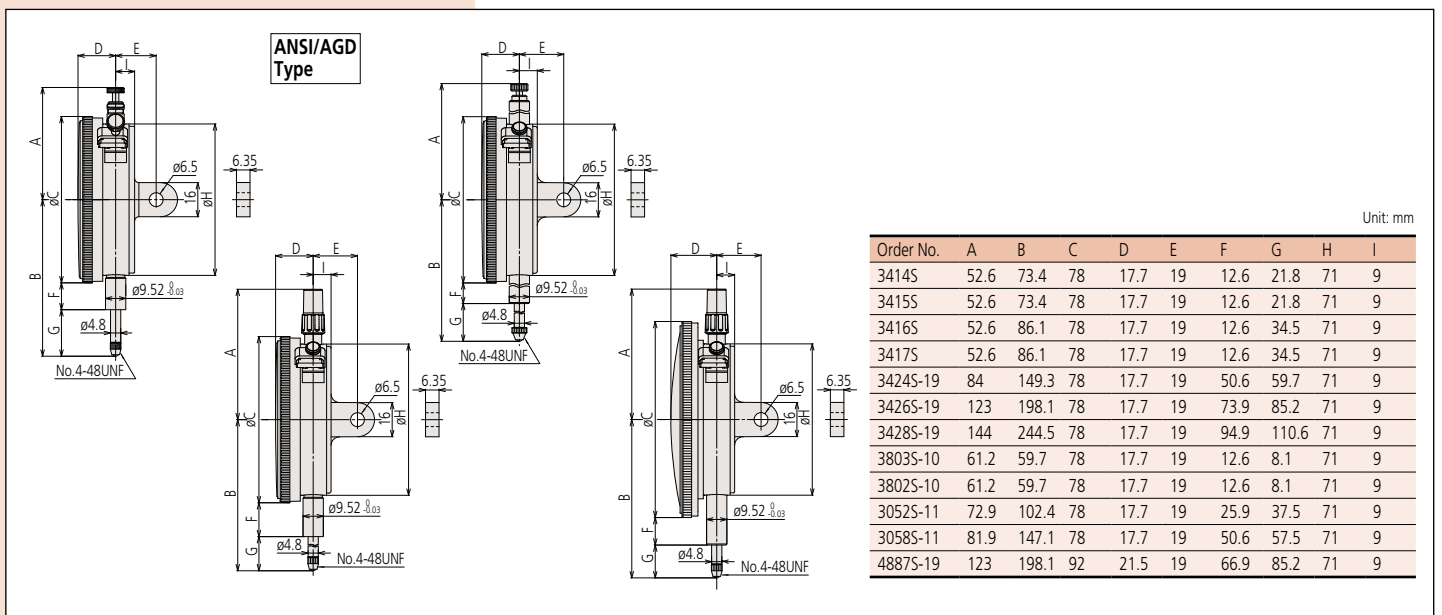
Metric		ISO/JIS type								
Graduation	Order No.		Range (range/rev)	Accuracy				Repeat-ability	Dial reading	Measuring force
	w/ lug	Flat-back		Overall	Retrace	1/10 Rev	1 Rev			
0.01mm	3046S	3046SB	10mm (1mm)	±15μm	5μm	8μm	±10μm	5μm	0-100	1.4N or less
0.01mm	3047S	3047SB	10mm (1mm)	±15μm	5μm	8μm	±10μm	5μm	0-50-0	1.4N or less
0.01mm	3050S	3050SB	20mm (1mm)	±20μm	7μm	10μm	±15μm	5μm	0-100	2.0N or less
0.01mm	3052S-19	3052SB-19	30mm (1mm)	±25μm	7μm	14μm	±18μm	5μm	0-100	2.5N or less
0.01mm	3058S-19	3058SB-19	50mm (1mm)	±30μm	9μm	15μm	±20μm	5μm	0-100	3.0N or less
0.01mm	3060S-19*	3060SB-19*	80mm (1mm)	±45μm	11μm	—	—	6μm	0-100	3.0N or less
0.01mm	3062S-19*	3062SB-19*	100mm (1mm)	±50μm	15μm	—	—	6μm	0-100	3.2N or less
0.001mm	3109S-10	3109SB-10	1mm (0.2mm)	±6μm	4μm	3μm	±5μm	1μm	0-100-0	1.5N or less
0.01mm	4046S	4046SB	10mm (1mm)	±15μm	6μm	8μm	±10μm	5μm	0-100	1.4N or less

*Use in a vertical position only.

Inch		ANSI/AGD type								
Graduation	Order No.		Range (range/rev)	Accuracy			Repeat-ability	Dial reading	Measuring force	
	w/ lug	Flat-back		First 1 Rev / 2.5 Rev / 10 Rev	Retrace					
.001"	3414S	3414SB	.5" (.1")	±.001" / ±.001" / ±.001"	.0002"	±.0002"	0-100	1.8N or less		
.001"	3415S	3415SB	.5" (.1")	±.001" / ±.001" / ±.001"	.0002"	±.0002"	0-50-0	1.8N or less		
.001"	3416S	3416SB	1" (.1")	±.001" / ±.001" / ±.002"	.0002"	±.0002"	±0-100	1.8N or less		
.001"	3417S	3417SB	1" (.1")	±.001" / ±.001" / ±.002"	.0002"	±.0002"	0-50-0	1.8N or less		
.001"	3424S-19	3424SB-19	2" (.1")	±.001" / ±.001" / ±.002" / ±.003" (20Rev)	.00033"	±.0002"	±0-100	3.0N or less		
.001"	3426S-19*	3426SB-19*	3" (.1")	±.001" / ±.001" / ±.002" / ±.003" (20Rev) / ±.005" (Over 20Rev)	.00033"	±.0002"	±0-100	3.0N or less		
.001"	3428S-19*	3428SB-19*	4" (.1")	±.001" / ±.001" / ±.002" / ±.003" (20Rev) / ±.005" (Over 20Rev)	.00033"	±.0002"	±0-100	3.2N or less		
.0001"	3802S-10	3802SB-10	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	0-5-0	2.0N or less		
.0001"	3803S-10	3803SB-10	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	0-10	2.0N or less		
.001"	4887S-19*	4887SB-19*	3" (.1")	±.001" / ±.001" / ±.002" / ±.003" (20Rev) / ±.005" (Over 20Rev)	.00033"	±.0002"	±0-100	3.0N or less		

*Use in a vertical position only.

DIMENSIONS



ANSI/AGD Type Metric Dial Indicator

with 3/8" DIA. Stem and #4-48UNF-Thread Contact Point Compatible Type

SPECIFICATIONS

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

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

*One revolution type

FEATURES

Metric		ANSI/AGD type						
Order No.	w/ lug	Flat-back						
1231S-01	1231SB-01	—	—	—	—	—	—	
1044S-01	1044SB-01	—	—	—	—	—	—	
1045S-01	1045SB-01	—	—	—	—	—	—	
1010S-11	1010SB-11	—	✓	—	—	—	✓	
1011S-11	1011SB-11	—	✓	—	—	—	✓	

Metric		ANSI/AGD type						
Order No.	w/ lug	Flat-back						
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	—	✓	—	—	—	—	



(Refer to page VIII for details.)

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)



Waterproof type



Jeweled bearing type



Adjustable hand type



w/ coaxial revolution counter



Schockproof type



Dustproof type






Double scale spacing type

ANSI/AGD Type Metric Dial Indicator

with 3/8" DIA. 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

Graduation	Order No.		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			
0.01mm	3052S-11	3052SB-11	30mm (1mm)	±10µm / ±10µm / ±15µm / ±20µm / ±30µm	4µm	±3µm	±0-100	2.5N or less
0.01mm	3058S-11	3058SB-11	50mm (1mm)	±15µm / ±15µm / ±20µm / ±25µm / ±40µm	5µm	±3µm	±0-100	3.0N or less



(Refer to page VIII for details.)

Optional Accessories

- : Backs (See page F-40.)
- : Contact points (See page F-36.)



Waterproof type



Jeweled bearing type



Adjustable hand type



w/ coaxial revolution counter



Schockproof type



Dustproof type



Double scale spacing type

Back Plunger Type Dial Indicator

SERIES 1 and 2

Mitutoyo's back plunger type dial indicators are built with the measuring plunger (or spindle) protruding from the back of the body instead of the side. This type of indicator offers the same precision and durability as all other Mitutoyo dial indicators, and operates very effectively with optional holding bars.

- Back plunger type dial gauges are suitable for mounting onto leveling machine tool tables or inspection jigs, and for use in small spaces where the graduations of standard dial gauges are difficult to see.
- Model No. 1960, which uses Mitutoyo's proprietary shock-proofing mechanism, has excellent durability and shock resistance.
- Model No. 2990 provides 0.001mm resolution.



(Refer to page VIII for details.)



1160



1960



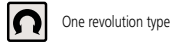
2960F



2990

Optional Accessories

- 136567:** Holding bar (ø6mm, L=81mm)
- 21AAA166:** Holding bar (ø6mm, L=42mm)
- 136568:** Holding bar (ø8mm, L=81mm)
- 21AAA168:** Holding bar (ø8mm, L=42mm)
- 124625:** Holding bar (.25" DIA, L=3.19")
- 21AAA167:** Holding bar (.25" DIA, L=1.65")



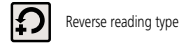
One revolution type



Shockproof type



Jeweled bearing type



Reverse reading type

FEATURES

Order No.						
1960	✓	✓	—	—	—	—
1160	—	—	—	—	—	—
1162	—	—	✓	—	—	—

Order No.						
1961	✓	✓	—	—	—	—
1166	—	—	—	—	—	—
1167	—	—	—	—	—	—
1168	—	—	✓	—	—	—

Order No.						
2960F	✓	✓	—	—	—	—
2990	✓	✓	✓	—	—	—

Order No.						
2961	✓	✓	—	—	—	—
2991	✓	✓	✓	—	—	—

SPECIFICATIONS

Metric		Series 1						ISO/JIS type	
Graduation	Order No.	Range (range/rev)	Accuracy				Repeatability	Dial reading	Measuring force
			Overall	Retrace	1/10 Rev	1 Rev			
0.01mm	1960	1mm (1.27mm)	±14μm	7μm	10μm	—	5μm	50-0-50	1.4N or less
0.01mm	1160	5mm (1mm)	±16μm	7μm	10μm	±14μm	5μm	0-100	1.4N or less
0.01mm	1162	5mm (1mm)	±16μm	7μm	10μm	±14μm	5μm	100-0	1.4N or less

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

Metric		Series 2						ISO/JIS type	
Graduation	Order No.	Range (range/full stroke)	Accuracy				Repeatability	Dial reading	Measuring force
			Overall	Retrace	1/10 Rev	1 Rev			
0.01mm	2960F	1mm (1.27mm)	±14μm	7μm	10μm	—	5μm	50-0-50	1.4N or less
0.001mm	2990	0.1mm (0.14mm)	±6.5μm	4μm	4μm	—	1μm	50-0-50	1.5N or less

Inch		Series 2						ANSI/AGD type	
Graduation	Order No.	Range (range/full stroke)	Accuracy				Repeatability	Dial reading	Measuring force
			First 1 Rev / 2.5 Rev / 10 Rev	Retrace					
.0005"	2961F	.04" / .05"	±.0005" / — / —	.0002"	±.0001"		20-0-20	1.4N or less	
.0001"	2991	.008" / .01"	±.0002" / — / —	.0001"	±.00005"		4-0-4	1.5N or less	

DIMENSIONS

ANSI/AGD Type

ISO/JIS Type

Unit: mm

Order No.	A	B	C	E	F	G	H
1160	39	21.5	35	22	25	13.8	43.3
1162	39	21.5	35	22	25	13.8	43.3
1960	39	21.5	35	22	28.7	12.8	46

Order No.	A	B	C	D	E	F	G	H	I
1166	39.6	21.5	35	—	22	25	10.9	42	—
1167	39.6	21.5	35	—	22	25	10.9	42	—
1168	39.6	21.5	35	—	22	25	10.9	42	—
1961	39.6	21.5	35	—	22	25	10.9	40	—
2961F	55.6	23	35	—	22	25	10.9	40	—
2991	58	40	51	—	25.5	26.5	13.5	55.5	—

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 indicator is provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.