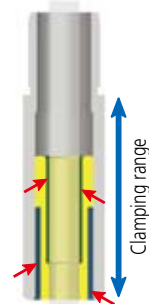


# Dial Indicators

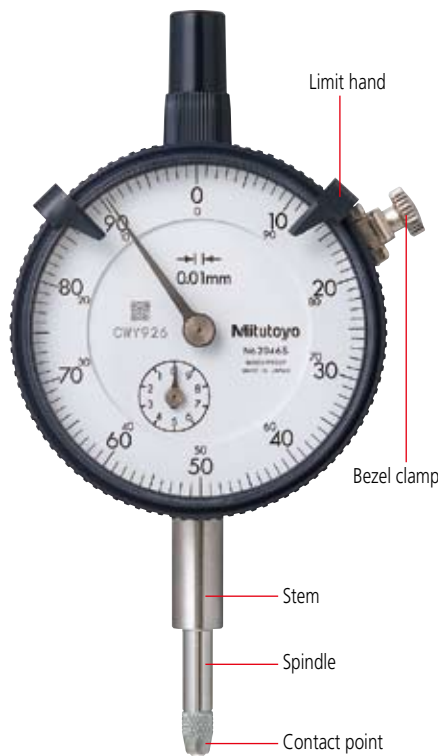
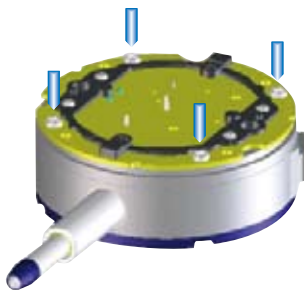
## FEATURES: S Series (Series 2, 3, 4)

- 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
	Long stem type
	Dustproof type
	With coaxial revolution counter
	Back plunger type
	Adjustable hand type
	Double-face 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 IX for details.)



1929S  
1929S-60  
1929S-62



1900S-10  
1900S-70  
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.



Double scale spacing type



Jeweled bearing type



Shockproof type



Dustproof type



Waterproof type

### FEATURES

#### Metric

Order No.							
w/ lug	Flat-back						
1929S	1929SB	—	—	—	—	—	—
1929S-60	1929SB-60	—	—	✓	—	✓	—
1929S-62	1929SB-62	—	—	—	✓	✓	—
1900S-10	1900SB-10	—	✓	—	—	✓	—
1900S-70	1900SB-70	—	✓	✓	—	✓	—
1900S-72	1900SB-72	—	✓	—	✓	✓	—

#### Inch

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

### 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	1929S	1929SB	1mm / 1.4mm	±11µm	6µm	7µm	—	5µm	50-0-50	1.4N or less
0.01mm	1929S-60	1929SB-60	1mm / 1.4mm	±11µm	6µm	7µm	—	5µm	50-0-50	2.0N 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-70	1900SB-70	0.1mm / 0.14mm	±6µm	4µm	5µm	—	1µm	50-0-50	2.0N 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

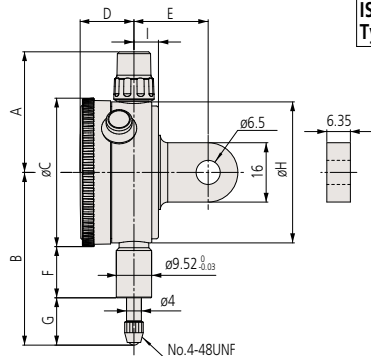
Graduation	Order No.		Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force
	w/ lug	Flat-back		First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
.0005"	1909S-62	1909SB-62	.04" / .056"	±.0005" / — / —	.00016"	±.0001"	20-0-20	1.4N or less
.0001"	1910S-72	1910SB-72	.006" / .008"	±.0001" / — /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

### Optional Accessories

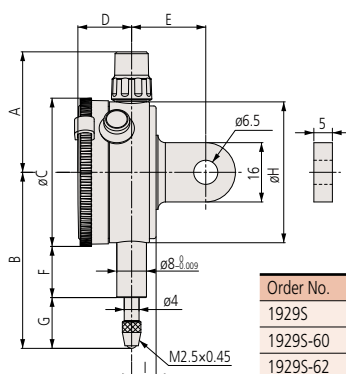
- : Backs (See page F-40.)
- : Contact points (See page F-36.)

### DIMENSIONS

ANSI/AGD Type



ISO/JIS Type



Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.  
Note 2: Inch (ANSI/AGD Type) dial 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
1909S-62	32.5	41.7	40	14.5	19	12.8	8.9	38	6.6
1910S-72	32.5	40.8	40	14.5	19	12.8	8	38	6.6

Order No.	A	B	C	D	E	F	G	H	I	Unit: mm
1929S	32.5	47.5	40	14.5	20	13.8	13.7	38	6.6	
1929S-60	32.5	55.5	40	14.5	20	12.2	23.3	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-70	32.5	54.5	40	14.5	20	12.2	22.3	38	6.6	
1900S-72	32.5	53.5	40	14.5	20	16.8	16.7	38	6.6	

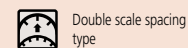
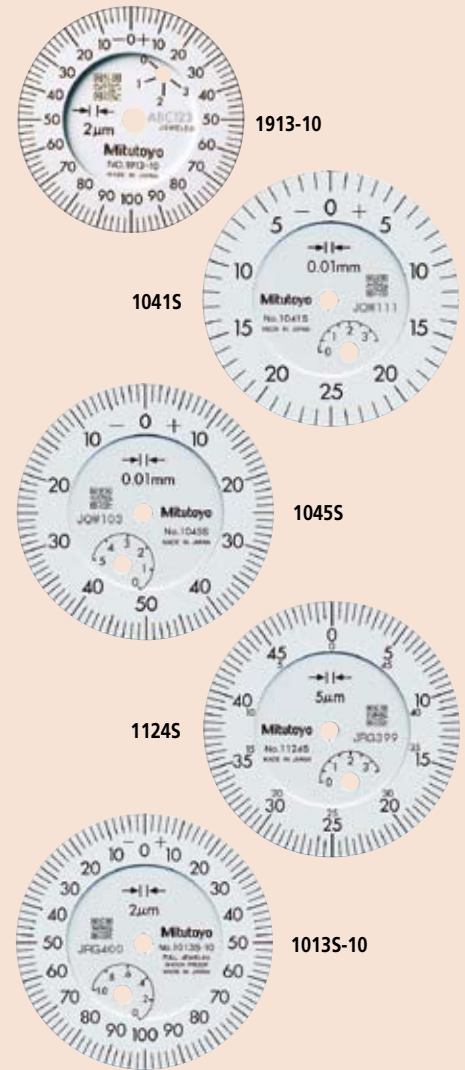
# Dial Indicator

## 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 IX for details.)



Double scale spacing type



Jeweled bearing type



Shockproof type



Dustproof type



Waterproof type

## 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	<b>1911</b>	<b>1911B</b>	2.5mm (1mm)	±12µm	6µm	7µm	±10µm	5µm	0-50-0	1.8N or less	
0.002mm	<b>1913-10</b>	<b>1913B-10</b>	0.5mm (0.2mm)	±8µm	5µm	6µm	±7µm	2µm	0-100-0	1.8N or less	
0.01mm	<b>1003</b>	<b>1003B</b>	4mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	0-50-0	1.4N or less	
0.01mm	<b>1044S</b>	<b>1044SB</b>	5mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	0-100	1.4N or less	
0.01mm	<b>1045S</b>	<b>1045SB</b>	5mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	0-50-0	1.4N or less	
0.01mm	<b>1044S-15</b>	<b>1044SB-15</b>	5mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	0-100	0.4N or less*	
0.01mm	<b>1044S-60</b>	<b>1044SB-60</b>	5mm (1mm)	±13µm	6µm	8µm	±11µm	5µm	0-100	2.0N or less	
0.01mm	<b>1040S</b>	<b>1040SB</b>	3.5mm (0.5mm)	±13µm	6µm	8µm	±11µm	5µm	0-50	1.4N or less	
0.01mm	<b>1041S</b>	<b>1041SB</b>	3.5mm (0.5mm)	±13µm	6µm	8µm	±11µm	5µm	0-25-0	1.4N or less	
0.005mm	<b>1124S</b>	<b>1124SB</b>	3.5mm (0.5mm)	±13µm	6µm	8µm	±11µm	5µm	0-50	1.4N or less	
0.001mm	<b>1109S-10</b>	<b>1109SB-10</b>	1mm (0.2mm)	±7µm	5µm	5µm	±6µm	1µm	0-100-0	1.5N or less	
0.002mm	<b>1013S-10</b>	<b>1013SB-10</b>	1mm (0.2mm)	±10µm	5µm	7µm	±8µm	1µm	0-100-0	1.5N or less	

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

## FEATURES

Metric		ISO/JIS type						
Order No.	Flat-back	Double scale spacing type	Jeweled bearing type	Shockproof type	Dustproof type	Waterproof type	—	
								w/ lug
<b>1911</b>	<b>1911B</b>	—	—	—	—	—	—	
<b>1913-10</b>	<b>1913B-10</b>	—	✓	—	—	—	—	
<b>1003</b>	<b>1003B</b>	—	—	—	—	—	—	
<b>1044S</b>	<b>1044SB</b>	—	—	—	—	—	—	
<b>1045S</b>	<b>1045SB</b>	—	—	—	—	—	—	
<b>1044S-15</b>	<b>1044SB-15</b>	—	✓	—	—	—	—	
<b>1044S-60</b>	<b>1044SB-60</b>	—	—	✓	—	—	—	
<b>1040S</b>	<b>1040SB</b>	✓	—	—	—	—	—	
<b>1041S</b>	<b>1041SB</b>	✓	—	—	—	—	—	
<b>1124S</b>	<b>1124SB</b>	—	✓	—	—	—	—	
<b>1109S-10</b>	<b>1109SB-10</b>	—	✓	—	—	—	—	
<b>1013S-10</b>	<b>1013SB-10</b>	—	✓	—	—	—	—	



Double scale spacing type



Jeweled bearing type



Waterproof type



Shockproof type



Dustproof type

## FEATURES

Inch							—
Order No.	Flat-back						—
1921	1921B	—	—	—	—	—	—
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	—	—	—	—	—	—
1570S	1570SB	—	✓	—	—	—	—
1571S	1571SB	—	✓	—	—	—	—
1470S	1470SB	—	—	—	—	—	—
1471S	1471SB	—	—	—	—	—	—
1802S-10	1802SB-10	—	✓	—	—	—	—
1803S-10	1803SB-10	—	✓	—	—	—	—

## SPECIFICATIONS

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"	1921	1921B	.1" (.04")	±.001" / ±.001" / —	.0002"	±.0002"	0-20-0	1.8N or less
.0005"	1923	1923B	.05" (.02")	±.0005" / ±.0005" / —	.00016"	±.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
.0005"	1570S	1570SB	.075" (.03")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-30	1.4N or less
.0005"	1571S	1571SB	.075" (.03")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-15-0	1.4N or less
.00025"	1470S	1470SB	.05" (.02")	±.00025" / ±.00025" / —	.000125"	±.0001"	0-20	1.4N or less
.00025"	1471S	1471SB	.05" (.02")	±.00025" / ±.00025" / —	.000125"	±.0001"	0-10-0	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	1.4N or less

## Optional Accessories

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

## DIMENSIONS

**ANSI/AGD Type**

**ISO/JIS Type**

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

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

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
1925-10	15.5	37.5	31	12.5	19	15	7	30	7
1927-10	15.5	37.2	31	12.5	19	15	6.7	30	7
1410S	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
1411S	32.5	47.6	40	14.5	19	12.8	14.8	38	6.6
1470S	32.5	42	40	14.5	19	12.8	9.2	38	6.6
1471S	32.5	42	40	14.5	19	12.8	9.2	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
1570S	32.5	42.7	40	14.5	19	12.8	9.9	38	6.6
1571S	32.5	42.7	40	14.5	19	12.8	9.9	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
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
1802S-10	32.5	41.3	40	14.5	19	8.5	9.9	38	6.6
1803S-10	32.5	41.3	40	14.5	19	8.5	9.9	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 pins 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.
- Secured adhesion between the bezel and crystal as well as the use of an O-ring ensure countermeasures against water and oil permeation via the front face.
- The stem spindle is made of high-strength quench-hardened stainless steel which resists strenuous use.
- A carbide contact point is used.
- The crown gear uses stainless steel that is resistant to wear and deformation.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.



(Refer to page IX for details.)



2046S



2046S-60



2046S  
2046SH  
2046S-09  
2046S-15  
2046S-80  
2046SLB

2046SY



2046S-60  
2046S-69

2047S



2902S



2310S-10





Shockproof type



Waterproof type



Long stem type



Jeweled bearing type



w/ coaxial revolution counter



Reverse reading type

## FEATURES

Metric

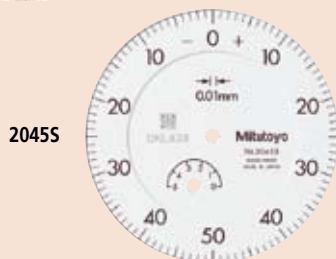
Order No.		Shockproof	Waterproof	Long stem	Jeweled bearing	Coaxial counter	Reverse reading
w/ lug	Flat-back						
2044S	2044SB	—	—	—	—	—	—
2044S-09	2044SB-09	✓	—	—	—	—	—
2044S-60	2044SB-60	—	✓	—	—	—	—
2045S	2045SB	—	—	—	—	—	—
2046S	2046SB	—	—	—	—	—	—
2046SY	2046SYB	—	—	—	—	—	—
2046SH	2046SHB	—	—	—	—	—	—
—	2046SLB	—	—	✓	—	—	—
2046S-09	2046SB-09	✓	—	—	—	—	—
2046S-60	2046SB-60	—	✓	—	—	—	—
2046S-69	2046SB-69	✓	✓	—	—	—	—
2046S-15	2046SB-15	—	—	—	✓	—	—
2310S-10	2310SB-10	—	—	—	✓	✓	—
2902S	2902SB	—	—	—	—	—	✓
2047S	2047SB	—	—	—	—	—	—

## Optional Accessories

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



2044S  
2044S-60  
2044S-09



2045S

## SPECIFICATIONS

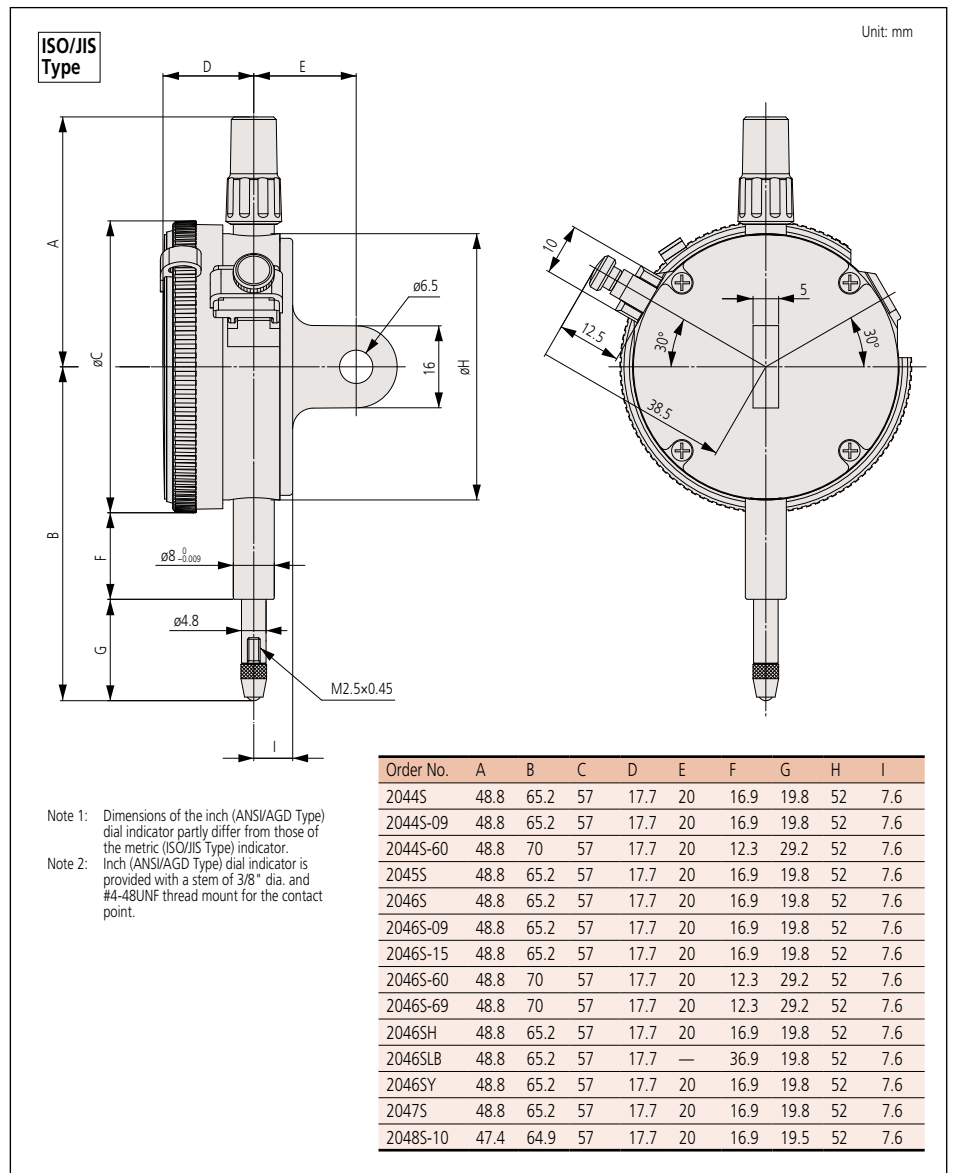
Metric

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	2046SY	2046SYB	10mm (1mm)	±13μm	5μm	8μm	±10μm	5μm	0-100	1.4N or less
0.01mm	2046SH	2046SHB	10mm (1mm)	±8μm	4μm	5μm	±7μm	4μm	0-100	1.4N or less
0.01mm	—	2046SLB	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	2046S-69	2046SB-69	10mm (1mm)	±15μm	5μm	8μm	±10μm	5μm	0-100	2.5N or less
0.01mm	2046S-15	2046SB-15	10mm (1mm)	±13μm	5μm	8μm	±10μm	5μm	0-100	0.8N 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).

## DIMENSIONS

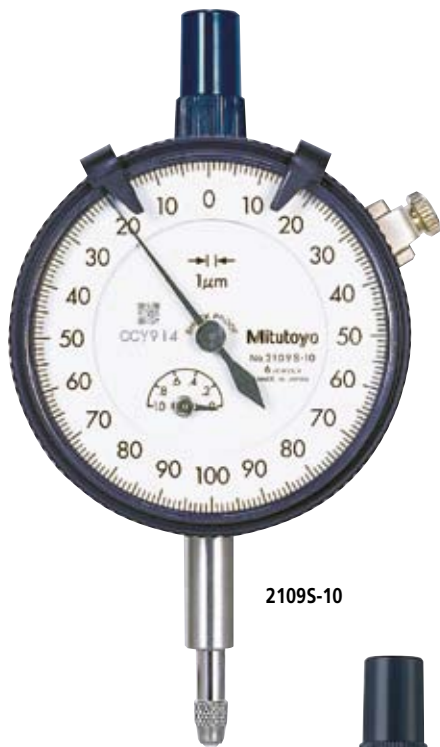


# Dial Indicator

## SERIES 2 — Standard Type, 0.001mm Resolution

### FEATURES

- Standard 0.01mm graduation dial gauges having a bezel with an outside diameter of  $\varnothing 57\text{mm}$ . All types come with limit pins 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 ensure prevention of water and oil ingress via the front face.
- The spindle is made of high-strength quench-hardened stainless steel which resists arduous use.
- A carbide contact point is used.
- The crown gear uses stainless steel that is resistant to wear and deformation.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.
- 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.



2109S-10



2110S-10



2119S-10



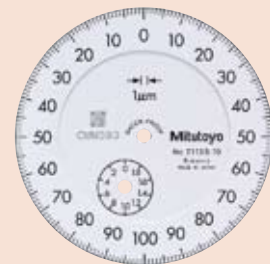
(Refer to page IX for details.)



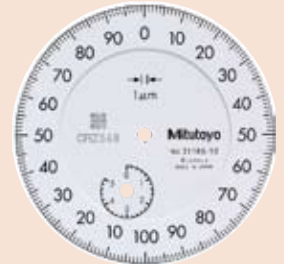
2109S-10  
2109SH-10  
2109S-70  
2109SLB-10



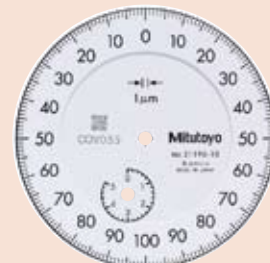
2110S-10  
2110S-70



2113S-10



2118S-10



2119S-10



2124S-10



Shockproof type



Waterproof type



Long stem type



Jeweled bearing type



Double scale spacing type

## FEATURES

Metric

Order No.		Shockproof type	Waterproof type	Long stem type	Jeweled bearing type	Double scale spacing type	—
w/ lug	Flat-back						
2124S-10	2124SB-10	—	—	—	✓	—	—
2110S-10	2110SB-10	✓	—	—	✓	✓	—
2110S-70	2110SB-70	✓	✓	—	✓	✓	—
2109S-10	2109SB-10	✓	—	—	✓	—	—
2109SH-10	2109SHB-10	✓	—	—	✓	—	—
—	2109SLB-10	✓	—	✓	✓	—	—
2109S-70	2109SB-70	✓	✓	—	✓	—	—
2113S-10	2113SB-10	✓	—	—	✓	—	—
2118S-10	2118SB-10	—	—	—	✓	—	—
2119S-10	2119SB-10	—	—	—	✓	—	—

## Optional Accessories

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

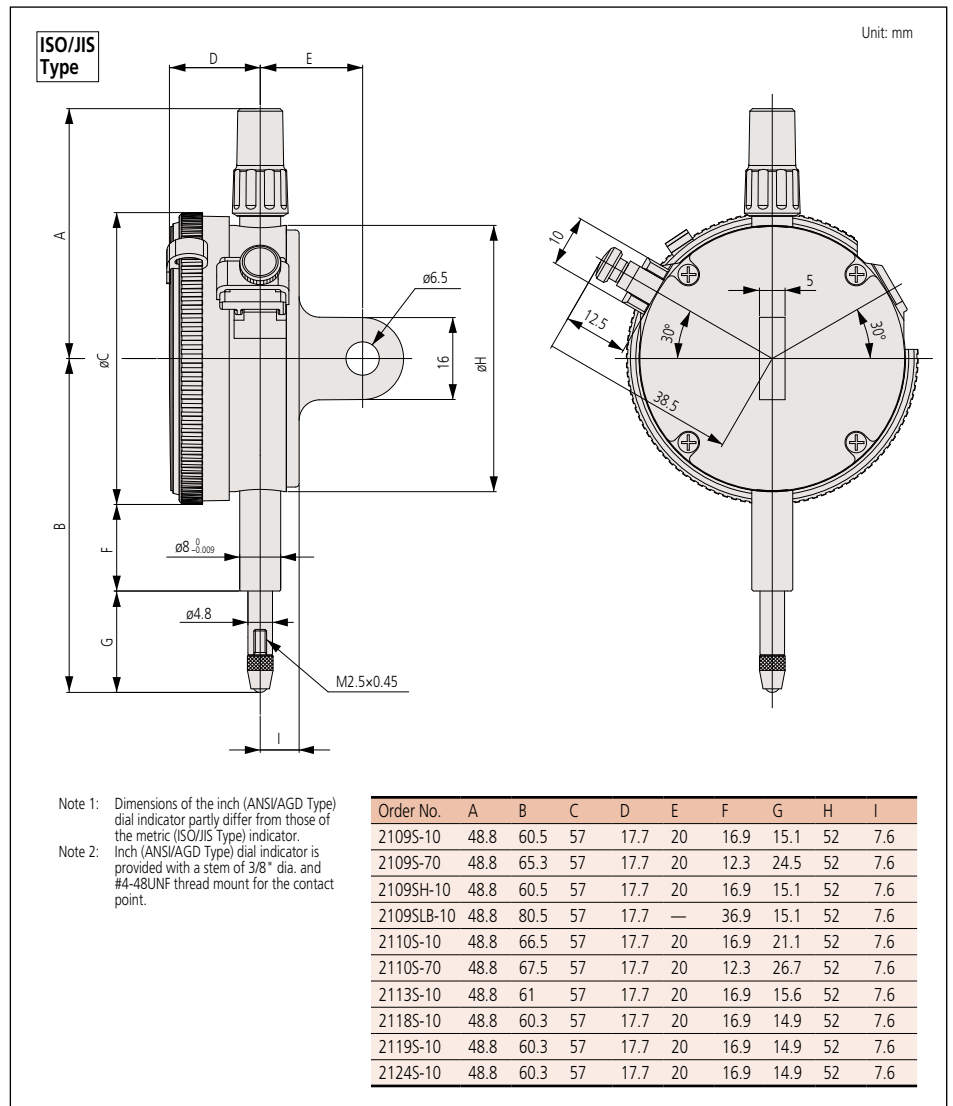
## SPECIFICATIONS

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			
0.005mm	2124S-10	2124SB-10	5mm (0.5mm)	±12μm	5μm	7μm	±9μm	3μm	0-50	1.5N 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	2109S-10	2109SB-10	1mm (0.2mm)	±5μm	3μm	2.5μm	±4μm	0.5μm	0-100-0	1.5N or less
0.001mm	2109SH-10	2109SHB-10	1mm (0.2mm)	±3μm	2μm	2μm	±3μm	0.5μm	0-100-0	1.5N or less
0.001mm	—	2109SLB-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	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

## DIMENSIONS

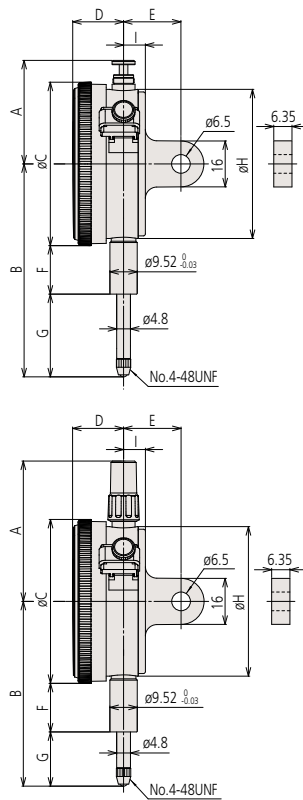






## DIMENSIONS

ANSI/AGD  
Type



Unit: mm

Order No.	A	B	C	D	E	F	G	H	I
2780S	48.8	54.3	57	17.7	19	13.6	12.2	52	7.6
2781S	48.8	54.3	57	17.7	19	13.6	12.2	52	7.6
2410S	48.8	57.8	57	17.7	19	13.6	15.7	52	7.6
2410S-10	48.8	57.8	57	17.7	19	13.6	15.7	52	7.6
2410S-60	48.8	62.7	57	17.7	19	10.6	23.6	52	7.6
2411S	48.8	57.8	57	17.7	19	13.6	15.7	52	7.6
2411S-10	48.8	57.8	57	17.7	19	13.6	15.7	52	7.6
2414S	38.9	64.1	57	17.7	19	13.6	22	52	7.6
2414S-10	38.9	64.1	57	17.7	19	13.6	22	52	7.6
2414S-60	48.8	69	57	17.7	19	10.6	29.9	52	7.6
2415S	38.9	64.1	57	17.7	19	13.6	22	52	7.6
2415S-10	38.9	64.1	57	17.7	19	13.6	22	52	7.6
2415S-60	48.8	69	57	17.7	19	10.6	29.9	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
2514S-60	48.8	69	57	17.7	19	10.6	29.9	52	7.6
2570S-10	48.8	52.9	57	17.7	19	13.6	10.8	52	7.6
2571S-10	48.8	52.9	57	17.7	19	13.6	10.8	52	7.6
2576S-70	48.8	63.5	57	17.7	19	10.6	24.4	52	7.6
2670S	48.8	53.6	57	17.7	19	13.6	11.5	52	7.6
2671S	48.8	53.6	57	17.7	19	13.6	11.5	52	7.6
2675S	48.8	61.2	57	17.7	19	13.6	19.1	52	7.6
2922S	48.8	54.3	57	17.7	19	13.6	12.2	52	7.6
2470S-10	48.8	52.2	57	17.7	19	13.6	10.1	52	7.6
2471S-10	48.8	52.2	57	17.7	19	13.6	10.1	52	7.6
2476S-70	48.8	60.9	57	17.7	19	10.6	21.8	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
2802S-70	48.8	56.3	57	17.7	19	10.6	17.2	52	7.6
2803S-10	48.8	51.4	57	17.7	19	13.6	9.3	52	7.6
2803S-70	48.8	56.3	57	17.7	19	10.6	17.2	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
2806S-10	48.8	53.4	57	17.7	19	13.6	11.3	52	7.6
2806S-70	48.8	58.3	57	17.7	19	10.6	19.2	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
2937S-10	48.8	51.3	57	17.7	19	13.6	9.2	52	7.6
2938S-10	48.8	51.3	57	17.7	19	13.6	9.2	52	7.6

# Special Dial Indicators

## SERIES 2



Adjustable hand



20485-10

### Adjustable hand dial gauge

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



Peak hold



20465-80

### 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.



Double-face type



2940S

### Double-face type dial gauge

The displacement of the spindle can be read from either the front or rear face.

## 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	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
0.01mm	2940S	—	10mm (1mm)	±15µm	5µm	8µm	±10µm	5µm	0-100	3.0N or less

Metric			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	20485-11	20485B-11	10mm (1mm)	±10µm / ±10µm / ±13µm	—	3µm	±3µm	±0-100	1.4N 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 IX for details.)

## FEATURES

Metric			Features					
Order No.	w/ lug	Flat-back	Adjustable hand	Peak hold	Double-face	—	—	—
			20485-10	20485B-10	✓	—	—	—
20465-80	20465B-80	—	✓	—	—	—	—	
2940S	—	—	—	—	✓	—	—	

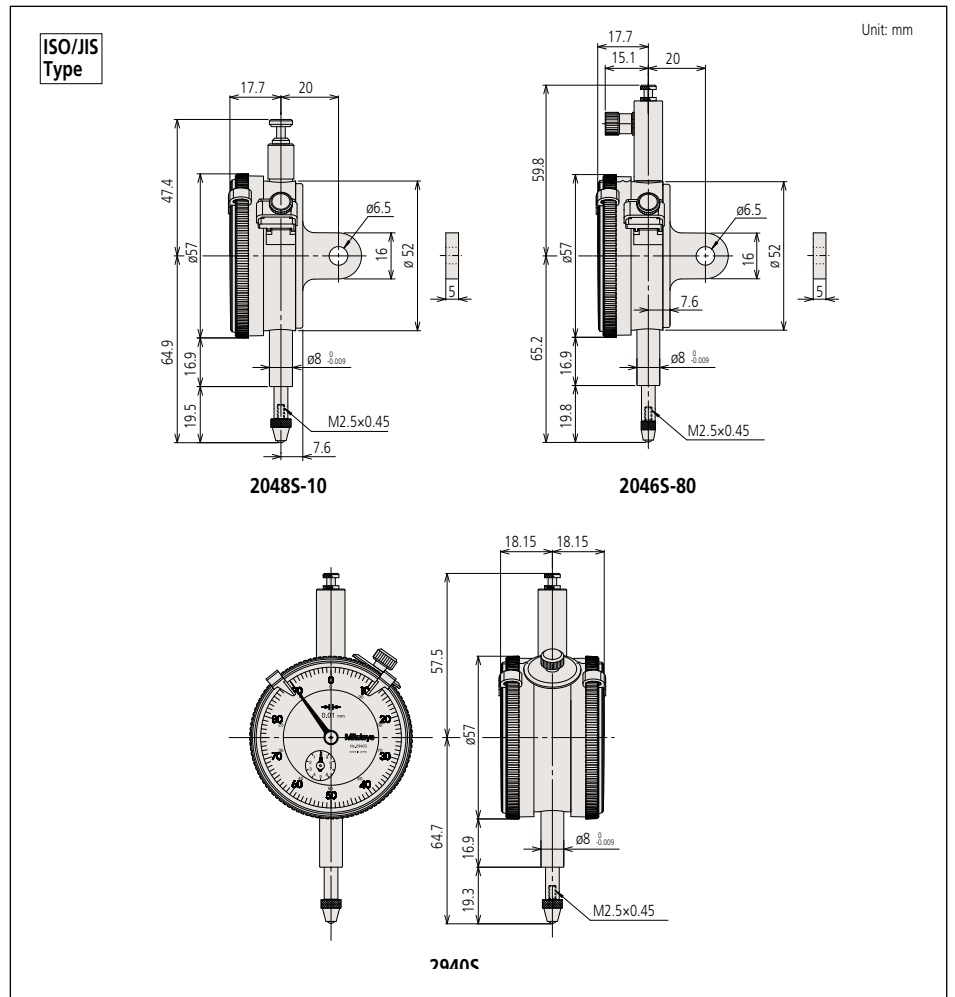
Metric			Features					
Order No.	w/ lug	Flat-back	Adjustable hand	Peak hold	Double-face	—	—	—
			20485-11	20485B-11	✓	—	—	—

Inch			Features					
Order No.	w/ lug	Flat-back	Adjustable hand	Peak hold	Double-face	—	—	—
			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.

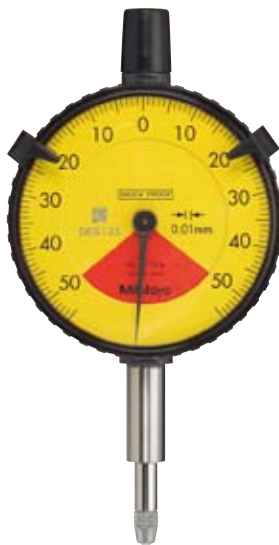
### FEATURES

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

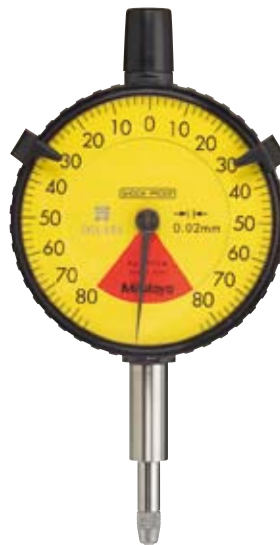
- The crystal is hard coated for durability and scratch resistance.
- Approximately 40% lighter than the conventional dial indicator.
- Provided with an improved resistance to shop floor contaminants such as water and dust.
- Due to the spindle bushing being offset from the stem, spindle movement will 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).



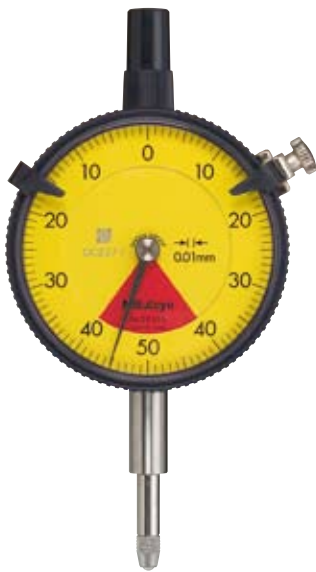
2971



2972



2973



29295



29005-10



2990



(Refer to page IX for details.)



2971



2972



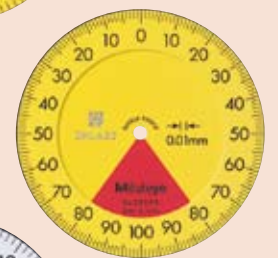
2973



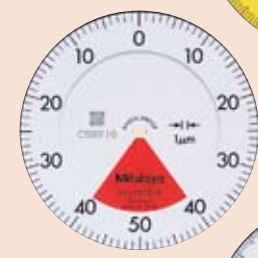
29285



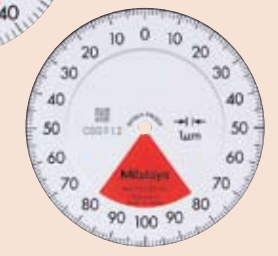
29295  
29295-60  
29295-62



29595



2900S-10  
2900S-70  
2900S-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					
2908S	2908SB	—	—	—	—	—	—
2908S-62	2908SB-62	—	✓	—	—	—	—
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

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 / 10mm	±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 262.)

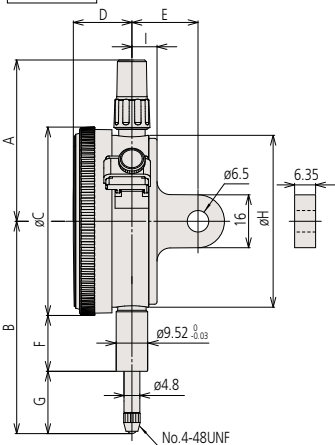
Graduation	Order No.		Range (range/rev)	Accuracy		Repeat-ability	Dial reading	Measuring force
	w/ lug	Flat-back		First 1 Rev / 2.5 Rev / 10 Rev	Retrace			
.001"	2908S	2908SB	.08" / .1"	±.001" / — / —	.0002"	±.0002"	40-0-40	1.8N or less
.001"	2908S-62	2908SB-62	.08" / .1"	±.001" / — / —	.0002"	±.0002"	40-0-40	2.5N or less
.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.)

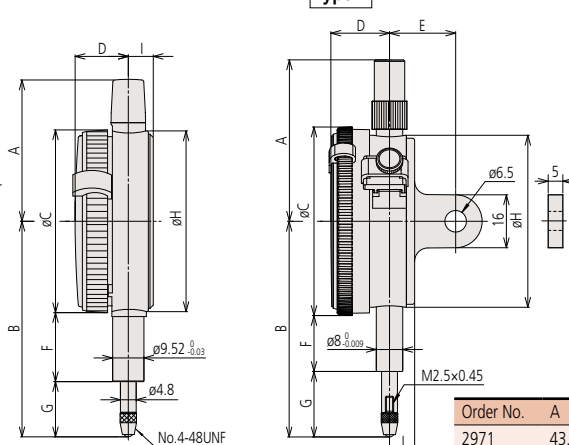
## DIMENSIONS

Unit: mm

ANSI/AGD Type



ISO/JIS Type



- Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.  
 Note 2: Inch (ANSI/AGD Type) dial 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
2908S	48.8	52.9	57	17.7	19	13.6	10.8	52	7.6
2908S-62	48.8	52.9	57	17.7	19	13.6	10.8	52	7.6
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
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
2978	43.2	65.3	55.6	16.2	—	21	16.5	55	7.6

Order No.	A	B	C	D	E	F	G	H	I
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
2973	43.2	66.3	55.6	16.2	—	21	17.5	55	7.6
2929S	48.8	65.2	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
2929S-60	48.8	70	57	17.7	20	12.3	29.2	52	7.6
2959S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6
2900S-10	48.8	66	57	17.7	20	16.9	20.6	52	7.6
2900S-72	48.8	66	57	17.7	20	16.9	20.6	52	7.6
2900S-70	48.8	67	57	17.7	20	12.3	26.2	52	7.6
2901S-10	48.8	66.1	57	17.7	20	16.9	20.7	52	7.6
2928S	48.8	65.2	57	17.7	20	16.9	19.8	52	7.6

# Dial Indicator

## SERIES 2 — Long Stroke Type



2050S



2330S-10



2052S



(Refer to page IX 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						
2204S	2204SB	—	—	—	—	—	—
2416S	2416SB	—	—	—	—	—	—
2416S-06	2416SB-06	—	—	—	—	—	—
2416S-10	2416SB-10	—	—	—	✓	—	—
2416S-60	2416SB-60	—	✓	—	—	—	—
2417S	2417SB	—	—	—	—	—	—
2424S-19	2424SB-19	✓	—	—	✓	—	✓
2776S	2776SB	—	—	—	—	—	—
2776S-60	2776SB-60	—	✓	—	—	—	—
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				Repeat-ability	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

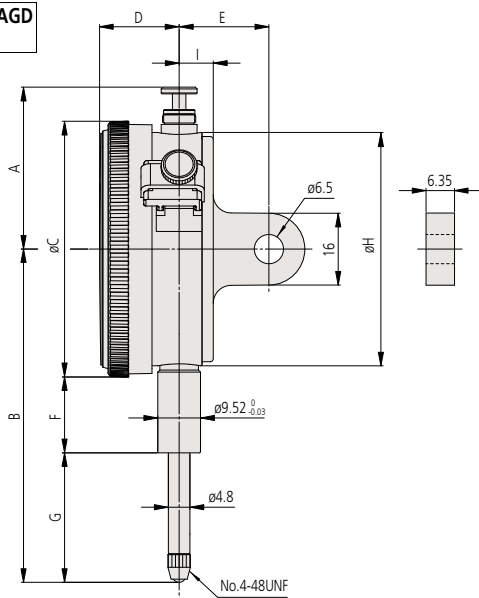
## Inch

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			
.01"	2204S	2204SB	1" (.1")	±.005" / — / —	.001"	±.002"	0-1000	1.8N or less
.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"	2416S-60	2416SB-60	1" (.1")	±.001" / ±.001" / ±.002"	.0002"	±.0002"	±0-100	2.5N 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"	.00033"	±.0002"	±0-100	2.5N or less
.0005"	2776S	2776SB	1" (.05")	±.0005" / ±.0005" / ±.0015"	.0002"	±.0001"	±0-50	1.8N or less
.0005"	2776S-60	2776SB-60	1" (.05")	±.0005" / ±.0005" / ±.0015"	.0002"	±.0001"	±0-50	2.5N or less
.001"	2904S	2904SB	1" (.1")	±.001" / ±.001" / ±.002"	.0002"	±.0002"	100-0	1.8N or less

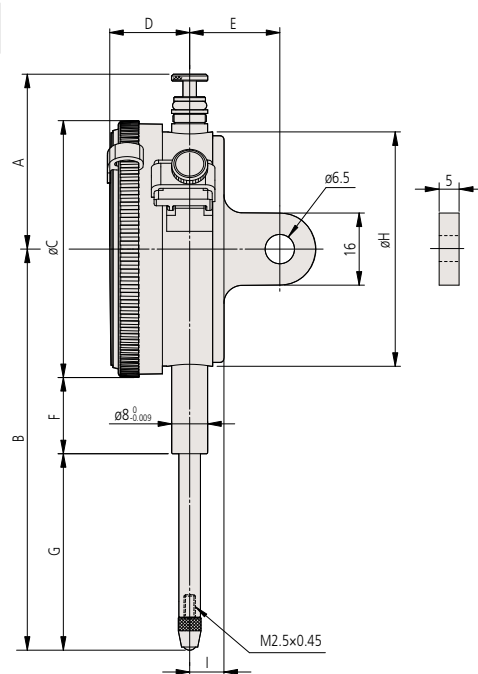
## DIMENSIONS

ANSI/AGD Type



Order No.	A	B	C	D	E	F	G	H	I
2204S	40.2	76.8	57	17.7	19	13.6	34.7	52	7.6
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
2416S-60	66.8	87.2	57	17.7	19	10.6	48.1	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
2776S-60	66.8	87.2	57	17.7	19	10.6	48.1	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.



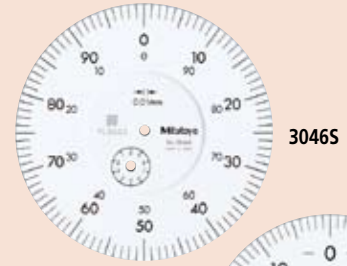
3109S-10

3058S-19

4046S



(Refer to page IX for details.)



3046S

3047S



3050S



3052S-19



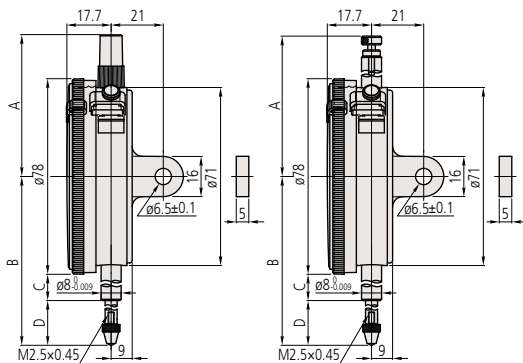
3060S-19



3062S-19



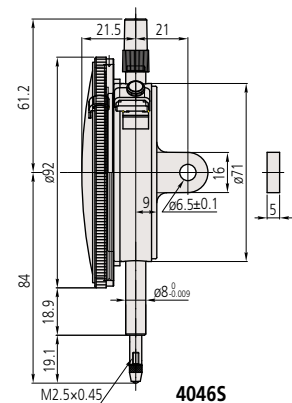
## DIMENSIONS



ISO/JIS Type

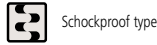
Unit: mm

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	50.5	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	79.3	25.9	14.1



4046S

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.



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	—	—	—	—	—	—

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

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	✓	✓	✓	—	—
3570S-10	3570SB-10	—	✓	—	—	—
3571S-10	3571SB-10	—	✓	—	—	—
3802S-10	3802SB-10	✓	✓	—	—	—
3803S-10	3803SB-10	✓	✓	—	—	—
4410S	4410SB	—	—	—	—	—
4887S-19	4887SB-19	✓	✓	✓	—	—
4570S-10	4570SB-10	—	✓	—	—	—
4802S-10	4802SB-10	✓	✓	—	—	—
4803S-10	4803SB-10	✓	✓	—	—	—

## Optional Accessory

—: 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	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.

Metric		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					
0.01mm	3052S-11	3052SB-11	30mm (1mm)	±10µm / ±10µm / ±15µm	4µm	±3µm	±0-100	2.5N or less		
0.01mm	3058S-11	3058SB-11	50mm (1mm)	±15µm / ±15µm / ±20µm	5µm	±3µm	±0-100	3.0N 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					
.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"	.00033"	±.0002"	±0-100	3.0N or less		
.001"	3426S-19*	3426SB-19*	3" (.1")	±.001" / ±.001" / ±.002"	.00033"	±.0002"	±0-100	3.0N or less		
.001"	3428S-19*	3428SB-19*	4" (.1")	±.001" / ±.001" / ±.002"	.00033"	±.0002"	±0-100	3.2N or less		
.0005"	3570S-10	3570SB-10	.075" (.03")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-30	1.8N or less		
.0005"	3571S-10	3571SB-10	.075" (.03")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-15-0	1.8N 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"	4410S	4410SB	.25" (.1")	±.001" / ±.001" / —	.0002"	±.0002"	±0-100	1.8N or less		
.001"	4887S-19*	4887SB-19*	3" (.1")	±.001" / ±.001" / ±.002"	.00033"	±.0002"	±0-100	3.0N or less		
.0005"	4570S-10	4570SB-10	.075" (.03")	±.0005" / ±.0005" / —	.00016"	±.0001"	0-30	1.8N or less		
.0001"	4802S-10	4802SB-10	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	0-10	2.0N or less		
.0001"	4803S-10	4803SB-10	.025" (.01")	±.0001" / ±.0001" / —	.0001"	±.00003"	±0-100	2.0N or less		

\*Use in a vertical position only.

## DIMENSIONS

Unit: mm

Order No.	A	B	C	D	E	F	G	H	I
3414S	51.3	73.4	78	17.7	19	12.6	21.8	71	9
3415S	51.3	73.4	78	17.7	19	12.6	21.8	71	9
3416S	52.6	86.1	78	17.7	19	12.6	34.5	71	9
3417S	52.6	86.1	78	17.7	19	12.6	34.5	71	9
3424S-19	84	149.3	78	17.7	19	50.6	59.7	71	9
3426S-19*2	120.9	198.1	78	17.7	19	73.9	85.2	71	9
3428S-19*2	144	244.5	78	17.7	19	94.9	110.6	71	9
3570S-10	61.2	62.1	78	17.7	19	12.6	10.5	71	9
3571S-10	61.2	62.1	78	17.7	19	12.6	10.5	71	9
3803S-10	61.2	59.7	78	17.7	19	12.6	8.1	71	9
3802S-10	61.2	59.7	78	17.7	19	12.6	8.1	71	9
4410S	61.2	74.3	92	21.5	19	12.9	15.4	71	9
4570S-10	61.2	69.4	92	21.5	19	12.9	10.5	71	9
4802S-10	61.2	67	92	21.5	19	12.9	8.1	71	9
4803S-10	61.2	67	92	21.5	19	12.9	8.1	71	9

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

# 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	<b>1230S-01</b>	<b>1230SB-01</b>	2.5mm (1mm)	±10µm / ±10µm / —	3µm	±2µm	0-100	1.4N or less
0.01mm	<b>1231S-01</b>	<b>1231SB-01</b>	2.5mm (1mm)	±10µm / ±10µm / —	3µm	±2µm	0-50-0	1.4N or less
0.01mm	<b>1044S-01</b>	<b>1044SB-01</b>	5mm (1mm)	±10µm / ±10µm / ±13µm	3µm	±3µm	±0-100	1.4N or less
0.01mm	<b>1045S-01</b>	<b>1045SB-01</b>	5mm (1mm)	±10µm / ±10µm / ±13µm	3µm	±3µm	0-50-0	1.4N or less
0.002mm	<b>1010S-11</b>	<b>1010SB-11</b>	0.5mm (0.2mm)	±2µm / ±2µm / —	2µm	±1µm	0-20	1.5N or less
0.002mm	<b>1011S-11</b>	<b>1011SB-11</b>	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	<b>2230S-01</b>	<b>2230SB-01</b>	2.5mm (1mm)	±10µm / ±10µm / —	3µm	±3µm	±0-100	1.4N or less
0.01mm	<b>2231S-01</b>	<b>2231SB-01</b>	2.5mm (1mm)	±10µm / ±10µm / —	3µm	±3µm	0-50-0	1.4N or less
0.01mm	<b>2231S-11</b>	<b>2231SB-11</b>	2.5mm (1mm)	±10µm / ±10µm / —	3µm	±3µm	0-50-0	1.4N or less
0.01mm	<b>2046S-01</b>	<b>2046SB-01</b>	10mm (1mm)	±10µm / ±10µm / ±13µm	3µm	±3µm	±0-100	1.4N or less
0.01mm	<b>2046S-11</b>	<b>2046SB-11</b>	10mm (1mm)	±10µm / ±10µm / ±13µm	3µm	±3µm	±0-100	1.4N or less
0.01mm	<b>2046S-61</b>	<b>2046SB-61</b>	10mm (1mm)	±10µm / ±10µm / ±13µm	3µm	±3µm	±0-100	2.5N or less
0.01mm	<b>2048S-11</b>	<b>2048SB-11</b>	10mm (1mm)	±10µm / ±10µm / ±13µm	3µm	±3µm	±0-100	1.4N or less
0.01mm	<b>2047S-01</b>	<b>2047SB-01</b>	10mm (1mm)	±10µm / ±10µm / ±13µm	3µm	±3µm	0-50-0	1.4N or less
0.01mm	<b>2047S-11</b>	<b>2047SB-11</b>	10mm (1mm)	±10µm / ±10µm / ±13µm	3µm	±3µm	0-50-0	1.4N or less
0.01mm	<b>2902S-01</b>	<b>2902SB-01</b>	10mm (1mm)	±10µm / ±10µm / ±13µm	3µm	±3µm	100-0	1.4N or less
0.01mm	<b>2050S-01</b>	<b>2050SB-01</b>	20mm (1mm)	±10µm / ±10µm / ±15µm	4µm	±3µm	±0-100	2.0N or less
0.01mm	<b>2050S-11</b>	<b>2050SB-11</b>	20mm (1mm)	±10µm / ±10µm / ±15µm	4µm	±3µm	±0-100	2.0N or less
0.01mm	<b>2056S-01</b>	<b>2056SB-01</b>	25mm (1mm)	±10µm / ±10µm / ±15µm	4µm	±3µm	±0-100	2.5N or less
0.002mm	<b>2010S-11</b>	<b>2010SB-11</b>	0.5mm (0.2mm)	±3µm / ±3µm / —	2µm	±0.3µm	0-20	1.5N or less
0.002mm	<b>2010S-71</b>	<b>2010SB-71</b>	0.5mm (0.2mm)	±3µm / ±3µm / —	2µm	±0.3µm	0-20	2.5N or less
0.002mm	<b>2011S-11</b>	<b>2011SB-11</b>	0.5mm (0.2mm)	±3µm / ±3µm / —	2µm	±0.3µm	0-10-0	1.5N or less
0.001mm	<b>2900S-73*</b>	<b>2900SB-73*</b>	0.08mm (0.1mm)	±2µm / — / —	2µm	±0.3µm	0-50-0	2.0N or less
0.001mm	<b>2109S-11</b>	<b>2109SB-11</b>	1mm (0.2mm)	±3µm / ±3µm / ±4µm	2µm	±0.3µm	0-10-0	1.5N or less
0.001mm	<b>2119S-11</b>	<b>2119SB-11</b>	5mm (0.2mm)	±7µm / ±7µm / ±8µm	2µm	±0.3µm	0-10-0	1.5N or less

\*One revolution type

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	Retrace			
0.01mm	<b>3052S-11</b>	<b>3052SB-11</b>	30mm (1mm)	±10µm / ±10µm / ±15µm	4µm	±3µm	±0-100	2.5N or less
0.01mm	<b>3058S-11</b>	<b>3058SB-11</b>	50mm (1mm)	±15µm / ±15µm / ±20µm	5µm	±3µm	±0-100	3.0N or less

## FEATURES

Metric

Order No.								
w/ lug	Flat-back							
<b>1230S-01</b>	<b>1230SB-01</b>	—	—	—	—	—	—	—
<b>1231S-01</b>	<b>1231SB-01</b>	—	—	—	—	—	—	—
<b>1044S-01</b>	<b>1044SB-01</b>	—	—	—	—	—	—	—
<b>1045S-01</b>	<b>1045SB-01</b>	—	—	—	—	—	—	—
<b>1010S-11</b>	<b>1010SB-11</b>	—	✓	—	—	—	—	—
<b>1011S-11</b>	<b>1011SB-11</b>	—	✓	—	—	—	—	—

Metric

Order No.									
w/ lug	Flat-back								
<b>2230S-01</b>	<b>2230SB-01</b>	—	—	—	—	—	—	—	—
<b>2231S-01</b>	<b>2231SB-01</b>	—	—	—	—	—	—	—	—
<b>2231S-11</b>	<b>2231SB-11</b>	—	✓	—	—	—	—	—	—
<b>2046S-01</b>	<b>2046SB-01</b>	—	—	—	—	—	—	—	—
<b>2046S-11</b>	<b>2046SB-11</b>	—	✓	—	—	—	—	—	—
<b>2046S-61</b>	<b>2046SB-61</b>	✓	—	—	—	—	—	—	—
<b>2048S-11</b>	<b>2048SB-11</b>	—	✓	✓	✓	—	—	—	—
<b>2047S-01</b>	<b>2047SB-01</b>	—	—	—	—	—	—	—	—
<b>2047S-11</b>	<b>2047SB-11</b>	—	✓	—	—	—	—	—	—
<b>2902S-01</b>	<b>2902SB-01</b>	—	—	—	—	—	—	—	—
<b>2050S-01</b>	<b>2050SB-01</b>	—	—	—	—	—	—	—	—
<b>2050S-11</b>	<b>2050SB-11</b>	—	✓	—	—	—	—	—	—
<b>2056S-01</b>	<b>2056SB-01</b>	—	—	—	—	—	—	—	—
<b>2010S-11</b>	<b>2010SB-11</b>	—	✓	—	—	✓	—	—	—
<b>2010S-71</b>	<b>2010SB-71</b>	✓	✓	—	—	—	—	—	—
<b>2011S-11</b>	<b>2011SB-11</b>	—	✓	—	—	✓	—	—	—
<b>2900S-73*</b>	<b>2900SB-73*</b>	—	✓	—	—	✓	✓	—	—
<b>2109S-11</b>	<b>2109SB-11</b>	—	✓	—	—	✓	—	—	—
<b>2119S-11</b>	<b>2119SB-11</b>	—	✓	—	—	—	—	—	—

Metric

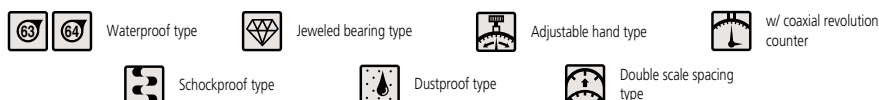
Order No.									
w/ lug	Flat-back								
<b>3052S-11</b>	<b>3052SB-11</b>	✓	✓	✓	—	—	—	—	—
<b>3058S-11</b>	<b>3058SB-11</b>	✓	✓	✓	—	—	—	—	—



(Refer to page IX for details.)

## Optional Accessories

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



# Hicator, Signal Hicator

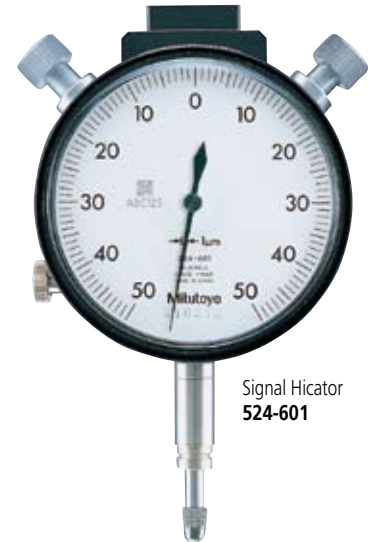
## SERIES 524 — High Accuracy One-Revolution Dial Indicator

### FEATURES

The Hicator is Mitutoyo's ultra-sensitive, one-revolution dial indicator. The spindle is made of highly durable stainless steel, and features jeweled bearings for extreme sensitivity as well as a shock-proof and dust-proof structure.

- The maximum, minimum, or runout value can be displayed during measurement.

- The Hicator is capable of comparative measurements to 0.0005mm.
- Connected to an optional Signal Box, the Signal Hicator can output limit signals to perform GO/±NO-GO judgment.
- Splash-proof structure.
- Lug-on-center back is optional.



### Optional Accessories

- 524-001: Signal box (100V AC)
- 524-001A: Signal box (120V AC)
- : Backs (See page F-40.)
- : Contact points (See page F-36.)

## ABSOLUTE Digimatic Indicator ID-C

### SERIES 543 — Signal Output Function Type



### FEATURES (See page F-7)

- With the Max/Min Value holding function, the Signal ID-C indicator can output a GO/±NG judgment result against the tolerance values set. Substituting for the traditional mechanical/electrical contact, the judgment is carried out by direct numerical comparison with the peak measurement data obtained. This provides high reliability with no drift of tolerance value setting.

### SPECIFICATIONS

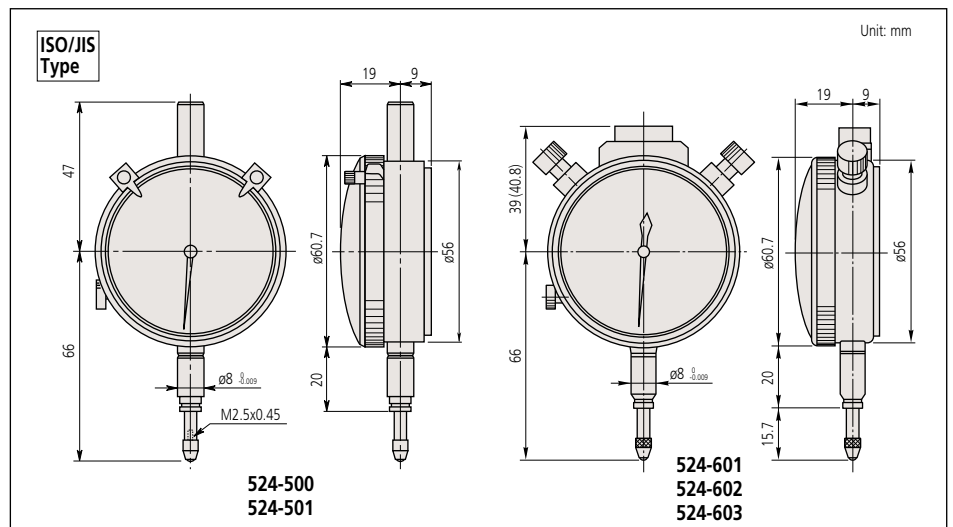
Metric		Hicator						ISO/JIS type
Graduation	Order No.*	Range	Dial reading	Spindle travel	Accuracy	Measuring force	Remarks	
0.001mm	524-501	±0.05mm	50-0-50	3mm	±1μm	1.2N or less	w/ spindle lifting cable	
0.0005mm	524-500	±0.03mm	30-0-30	3mm	±0.5μm	1.2N or less	w/ spindle lifting cable	

\*Flat back

Metric		Signal Hicator						ISO/JIS type
Graduation	Order No.*	Range	Dial reading	Spindle stroke	Accuracy	Measuring force	Remarks	
0.01mm	524-603	±0.5mm	50-0-50	3mm	±5μm	1.2N or less	w/ 2m signal cable	
0.002mm	524-602	±0.1mm	100-0-100	3mm	±1.5μm	1.2N or less	w/ 2m signal cable	
0.001mm	524-601	±0.05mm	50-0-50	3mm	±1μm	1.2N or less	w/ 2m signal cable	

\*Flat back

### DIMENSIONS



# 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 IX for details.)



1160



1960



1180-6

Holding bar (optional)



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