

Holding bar

Back Plunger Type Dial Indicators SERIES 1

- Back Plunger type dial indicators are suitable for mounting onto leveling machine tool tables or inspection jigs, and for use in situations where standard dial indicators are difficult to read.
- Model **1960A** and **1961A**, which uses Mitutoyo's proprietary shock-proofing mechanism, has excellent durability and shock resistance.

Holding bar (optional)

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

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

Optional Accessory

- Limit hand (2 pcs.): **21AAB363**

DIMENSIONS

ANSI/AGD Type

Unit: in

ISO/JIS Type

Unit: mm

Order No.	A	B	C	E	F	G	H	Mass (g) (Bar excluded)
1166A	1.57	0.89	1.40	7/8	0.98	0.43	1.67	80
1167A	1.57	0.89	1.40	7/8	0.98	0.43	1.67	80
1168A	1.57	0.89	1.40	7/8	0.98	0.43	1.67	80
1961A	1.57	0.89	1.40	7/8	0.98	0.43	1.59	80

Order No.	A	B	C	E	F	G	H	Mass (g) (Bar excluded)
1160A	40	22.7	35.6	21.8	25	13.8	43.3	80
1162A	40	22.7	35.6	21.8	25	13.8	43.3	80
1960A	40	22.7	35.6	21.8	28.7	12.8	46	80

Note 1: Contact point (standard accessory) for all products in this page has a role as a top dead point stopper. For this reason, if you need to install an optional contact point with an outside diameter smaller than 7 mm, use a washer (with outside diameter of at least 7 mm, inside diameter of 3 mm, and thickness of approx. 0.5 mm) placed between the contact point and the spindle.

Note 2: Refer to pages F-57 to F-60 for details of contact points.

Continuous scale

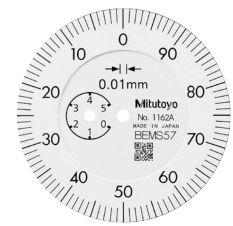


1160A

Graduation: 0.01 mm,
Measuring range: 5 mm

1160A
 Back Plunger

Reverse reading

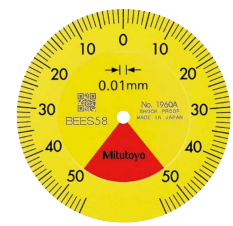


1162A

Graduation: 0.01 mm,
Measuring range: 5 mm

Back Plunger

Balanced scale



1960A

Graduation: 0.01 mm,
Measuring range: 1 mm

One revolution
 Shockproof
 Back Plunger

FEATURES

Order No.								
1960A		✓	✓	✓				✓
1160A	✓							✓
1162A							✓	✓

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

SPECIFICATIONS

Order No.	Graduation (mm)	Range (range/rev) (mm)	Maximum permissible error (MPE) (µm)							Dial reading	Measuring force (N)
			Indication error				Hysteresis	Repeatability			
			1/10 Rev	1/2 Rev	1 Rev	Measuring range					
1960A	0.01	1 (1.27)	8	—	—	14	4	3	50-0-50	1.4 or less	
1160A	0.01	5 (1)	8	12	14	16	4	3	±0-100	1.4 or less	
1162A	0.01	5 (1)	8	12	14	16	4	3	100-0	1.4 or less	

Note 1: Completed products inspection is performed in the vertical orientation (contact point downward) and the stated accuracy is guaranteed.
Note 2: The bezel clamp cannot be used.

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

Note 1: Completed products inspection is performed in the vertical orientation (contact point downward) and the stated accuracy is guaranteed.
Note 2: The bezel clamp cannot be used.