



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.

FEATURES

Order No.	ISO/JIS Type	ANSI/AGD Type	Continuous scale	Reverse reading	Balanced scale	Shockproof	Back Plunger
1960A		✓	✓	✓	✓		✓
1160A	✓						✓
1162A							✓

Order No.	ISO/JIS Type	ANSI/AGD Type	Continuous scale	Reverse reading	Balanced scale	Shockproof	Back Plunger
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	Repeat-ability		
			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			
			First 1 Rev	2.5 Rev				
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.