

Bore Gages

Bore Gages SERIES 511 — ABSOLUTE Digimatic Bore Gages

- This is an easy-to-use digital bore gage with preset and data output functions that are not available in analog models. It is useful in various applications, including go/no-go judgement using an analog bar indicator.
- ABS (ABSOLUTE) type bore gages are not subject to overspeed error.
- Up to four Extension Rods (optional) can be used for measuring at the bottom of a hole 2 m deep.
- The display and grip can be rotated up to 320° and the display can be inclined up to 90°, so that it is easily readable from any direction.
- The minimum value holding function provides easy measurement of hole diameter.



511-501

SPECIFICATIONS

Metric		
Code No.	511-501	511-502
Range	45 - 100 mm	100 - 160 mm
Stroke of contact point	1.2 mm	
Resolution	0.001 mm	
Wide range accuracy*1	0.003 mm or less	
Adjacent error	0.002 mm or less	
Repeatability	0.002 mm or less	
Measuring force	5 N or less	
Guide force	10 N or less	
Power source	SR44 battery (2 pcs.), 938882 included as standard (for operational checks)	
Battery life*2	Approx. 2,000 hours under normal use.	
Position detection method	ABSOLUTE electrostatic linear encoder	
Sampling frequency*3	50 times/s	
Dust / Water protection level*4	IP53 (IEC60529, JIS C 0920)	
Display	· 7 segments 6 digits decimal numeric with minus sign, Unit (mm) · Tolerance judge indication · Analog indication	
Net weight	500 g	570 g

Inch		
Code No.	511-521	511-522
Range	1.8 - 4.0 in	4.0 - 6.5 in
Stroke of contact point	0.048 in/1.2 mm	
Resolution	0.00005 in/0.001 mm	
Wide range accuracy*1	0.0001 in/0.003 mm or less	
Adjacent error	0.00008 in/0.002 mm or less	
Repeatability	0.0001 in/0.002 mm or less	
Measuring force	5 N or less	
Guide force	10 N or less	
Power source	SR44 battery (2 pcs.), 938882 included as standard (for operational checks)	
Battery life*2	Approx. 2,000 hours under normal use.	
Position detection method	ABSOLUTE electrostatic linear encoder	
Sampling frequency*3	50 times/s	
Dust / Water protection level*4	IP53 (IEC60529, JIS C 0920)	
Display	· 7 segments 6 digits decimal numeric with minus sign, Unit (in/mm) · Tolerance judge indication · Analog indication	
Net weight	500 g	570 g

*1 A quantizing error is excluded.

*2 When the usage time per day is eight hours.

*3 If the contact point detecting speed is over 50 µm/s, the peak value may not be displayed correctly.

*4 The level indicated is valid only if the output connector cap is installed.

MeasurLink[®] ENABLED
Data Management Software by Mitutoyo

ABSOLUTE[™]

Measurement example



Function

- Preset function
- Master value registration (3 values maximum)
- Tolerance judgment
- Upper/lower limit registration (3 values maximum)
- Minimum value holding
- Data output
- Display rotation (320°)
- Display inclination (90°, 7 steps)
- Low battery alarm display
- Error display

Extension Rod (optional)

250 mm (10 in): **21DZA089**

500 mm (20 in): **21DZA081**

Up to four extension rods can be joined, and a maximum length of 2 m is allowed.

Optional Accessories

Code No.	Type	description
264-020	—	USB Input Tool Series USB Keyboard Signal Conversion Type IT-020U
905338	F	Connection cable (1 m)
905409	F	Connection cable (2 m)
06AFM380F	F	USB Input Tool Direct (2 m)
02AZD730*	IP67	U-WAVE-T
02AZD880*	Buzzer	U-WAVE-T
02AZD790F	F	Connection cable for U-WAVE-T (160 mm)
02AZE140F	F	Connection cable for U-WAVE-T For foot switch

* Add suffix to Code No.; **G** for Asia, Europe and the Americas, **H** for Brazil and **J** for Korea.

- Typical application



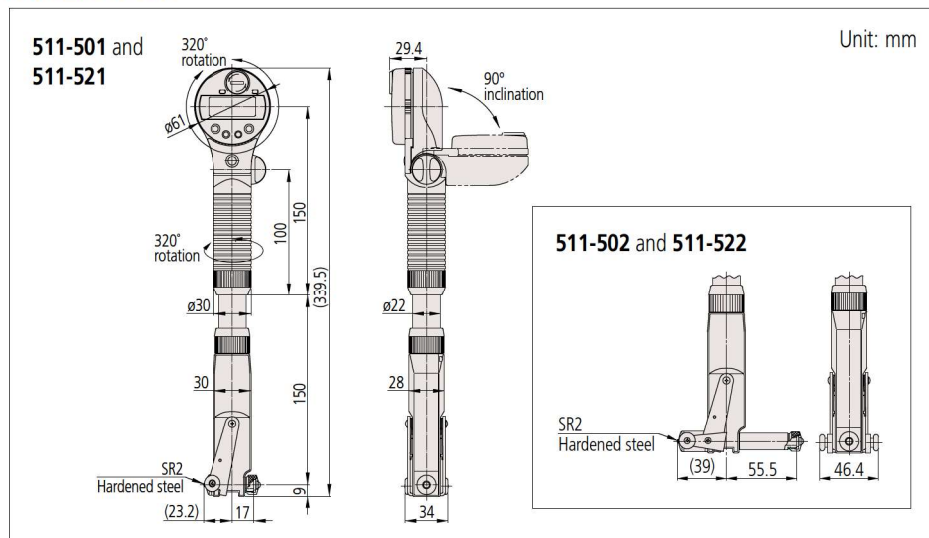
516-118-60 with calibration certificate

Description*		Code No.	Qty
Nominal length (mm)	1	611611-021	1
	2	611612-021	1
	3	611613-021	1
	5	611615-021	1
	10	611671-021	1
	20	611672-021	1
	30	611673-021	1
	40	611674-021	1
Flat jaw		630030	1 pair (2 pcs.)
Holder 160 mm		619004	1
Inspection certificate (8 pcs.)		—	1

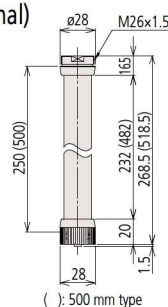
516-119-60 with calibration certificate

Description*	Code No.	Qty	
Nominal length (mm)	1	614611-021	1
	2	614612-021	1
	3	614613-021	1
	5	614615-021	1
	10	614671-021	1
	20	614672-021	1
	30	614673-021	1
40	614674-021	1	
Flat jaw		619072	1 pair (2 pcs.)
Tie rod 3 in		619062	1
Tie rod 2 1/4 in		619063	1
Tie rod 1 1/2 in		619064	1
Flat head screw 1 1/4 in		619057	2
Flat head screw 5/8 in		619058	2
Inspection certificate (8 pcs.)		—	1

DIMENSIONS



Unit: mm



STANDARD ACCESSORIES

Bore gage	Anvil					Interchangeable washer	
(Main body)	Marked No.	Code No.	Indication of measuring size	L ₁ (mm)	L ₁₄ (mm)	Code No.	t
511-501 511-521	1	21DZA232A	45 mm/1.8 in	15	5.5	205457 205458 205459 205460	0.5 mm/0.02 in 1.0 mm/0.04 in 2.0 mm/0.08 in 3.0 mm/0.12 in
	2	21DZA232B	50 mm/2.0 in	20	10.5		
	3	21DZA232C	55 mm/2.2 in	25	15.5		
	4	21DZA232D	60 mm/2.4 in	30	20.5		
	5	21DZA232E	65 mm/2.6 in	35	25.5		
	6	21DZA232F	70 mm/2.8 in	40	30.5		
	7	21DZA232G	75 mm/3.0 in	45	35.5		
	8	21DZA232H	80 mm/3.2 in	50	40.5		
	9	21DZA232J	85 mm/3.4 in	55	45.5		
	10	21DZA232L	90 mm/3.6 in	60	50.5		
	11	21DZA232M	95 mm/3.8 in	65	55.5		
	12	21DZA232N	100 mm/4.0 in	70	60.5		
511-502 511-522	1	21DZA232A	100 mm/4.0 in	15	5.5	205457 205458 205459 205460	0.5 mm/0.02 in 1.0 mm/0.04 in 2.0 mm/0.08 in 3.0 mm/0.12 in
	2	21DZA232B	105 mm/4.2 in	20	10.5		
	3	21DZA232C	110 mm/4.4 in	25	15.5		
	4	21DZA232D	115 mm/4.6 in	30	20.5		
	5	21DZA232E	120 mm/4.8 in	35	25.5		
	6	21DZA232F	125 mm/5.0 in	40	30.5		
	7	21DZA232G	130 mm/5.2 in	45	35.5		
	8	21DZA232H	135 mm/5.4 in	50	40.5		
	9	21DZA232J	140 mm/5.6 in	55	45.5		
	10	21DZA232L	145 mm/5.8 in	60	50.5		
	11	21DZA232M	150 mm/6.0 in	65	55.5		
	12	21DZA232N	155 mm/6.2 in	70	60.5		
	13	21DZA232P	160 mm/6.4 in	75	65.5		

