

Bore Gages

For easy and accurate measurement of inside diameters

Bore Gages SERIES 511 — ABSOLUTE Digimatic Bore Gages

- These ABSOLUTE Digimatic bore gages are exclusively designed for inside diameter measurement.
- ABS (ABSOLUTE) type bore gages are not subject to overspeed error.
- Up to four Extension Rods (optional) can be connected for measuring at the bottom of a hole 2 m deep.



511-501

- 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.
- The gauge block set for master setting allows quick and accurate zero-point setting.
- A Bore Gage Checker and a range of Setting Rings are available to aid in accurately setting a gage before making a measurement. (For details, refer to pages C-46 and C-47)



SPECIFICATIONS

Metric		
Order No.	511-501	511-502
Range	45 - 100 mm	100 - 160 mm
Stroke of contact point	1.2 mm	
Resolution	0.001 mm	
Accuracy	Overall*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	
Battery	SR44 (2 pcs.), 938882 For initial operational checks (standard accessory)	
Battery life*2	Approx. 2,000 hours under normal use.	
Scale type	ABSOLUTE electrostatic linear encoder	
Sampling frequency*3	50 times/s	
Dust / Water protection level*4	IP53 (IEC60529/JIS D0207, C0920)	
Display	• 7 segments 6 digits decimal numeric with minus sign, in/mm • Tolerance judge indication • Analog indication	
Net weight	500 g	570 g

Inch		
Order 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	
Accuracy	Overall*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	
Battery	SR44 (2 pcs.), 938882 For initial operational checks (standard accessory)	
Battery life*2	Approx. 2,000 hours under normal use.	
Scale type	ABSOLUTE electrostatic linear encoder	
Sampling frequency*3	50 times/s	
Dust / Water protection level*4	IP53 (IEC60529/JIS D0207, C0920)	
Display	• 7 segments 6 digits decimal numeric with minus sign, 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

Products equipped with the measurement data output function can be connected to the measurement data network system MeasurLink (refer to page A-5 for details).

ABSOLUTE[™]



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

Optional Accessories

- Extension rod
250 mm (10 in): **21DZA089**
500 mm (20 in): **21DZA081**
Up to four extension rods can be jointed, and a maximum length of 2 m is allowed.
- Example of Connection
Using four 500 mm extension rods
- SPC Cable:
1 m: **905338**
2 m: **905409**
Refer to pages A-27 to A-29
- USB Input Tool Direct (2 m): **06AFM380F**
Refer to page A-28
- USB Keyboard Signal Conversion Type
Communication Conversion Type: **264-016**
- RS-232C Communication Conversion Type: **264-007**
Refer to page A-14
- Connecting Cables for U-WAVE-T (160 mm): **02AZD790F**
For foot switch: **02AZE140F**
Refer to page A-20
- Digimatic Mini-Processor **DP-1VA LOGGER: 264-505**

- Typical application



- Rectangular gauge blocks

Note: Available only for **511-501/521**

516-118-10

516-118-60 with calibration certificate

Description*		Order 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
Certificate of inspection			1

* Equivalent to JIS B 7506 Grade 0

- Square gauge blocks

Note: Available only for **511-501/521**

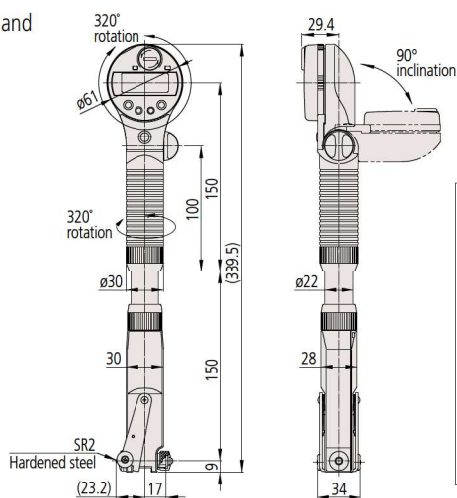
516-119-10

516-119-60 with calibration certificate

Description*		Order 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
Certificate of inspection			1

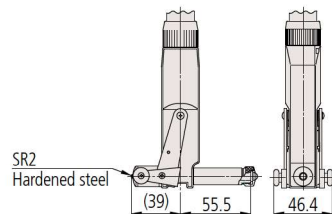
* Equivalent to JIS B 7506 Grade 0

**511-501 and
511-521**

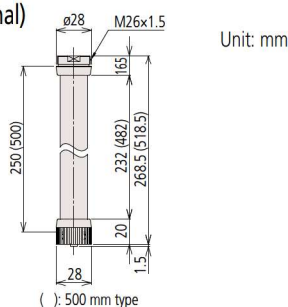


Unit: mm

511-502 and 511-522



Extension rod (optional)

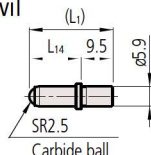


Unit: mm

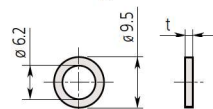
STANDARD ACCESSORIES

Bore gage	Anvil					Interchangeable washer	
(Main body)	Marked No.	Order No.	Indication of measuring size	L ₁ (mm)	L ₁₄ (mm)	Order 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		

Anvil



Interchangeable washer



Unit: mm