

Bore Gages

Bore Gages SERIES 511 — for Blind Holes

- This is a bore gage for measuring diameters near the bottom of a hole.
- Carbide-tipped contact point and anvil for durability and wear resistance.
- Optional extension rods can be attached for measuring deep holes.



511-415

Note: The dial indicator and the dial protection cover are optional.
Refer to page 08-50 for details.

SPECIFICATIONS

Metric

Code No.	Range (mm)	Stroke of contact point (mm)	Accuracy* (μm)	Repeatability* (μm)	Adjacent error* (μm)	Measuring force (N)	Guide force (N)	Content of set					Probing depth (mm)
								Bore gage	Dial indicator	Dial protection cover	Anvil	Washer	
511-415	15 - 35							511-415			11 pcs.	1 pc.	
511-416	35 - 60	1.2	4	1	1	4 or less	6 or less	511-416	Not supplied	Not supplied	6 pcs.	4 pcs.	150
511-417	50 - 150					5 or less	10 or less	511-417			11 pcs.		
511-425-20	15 - 35					4 or less	6 or less	511-415	2046AB (Graduation: 0.01 mm)	21DZA000	11 pcs.	1 pc.	150
511-426-20	35 - 60	1.2	4	1	1	4 or less	6 or less	511-416			6 pcs.	4 pcs.	
511-427-20	50 - 150					5 or less	10 or less	511-417			11 pcs.		
511-435-20	15 - 35					4 or less	6 or less	511-415	2109AB-10 (Graduation: 0.001 mm)	21DZA000	11 pcs.	1 pc.	150
511-436-20	35 - 60	1.2	4	1	1	4 or less	6 or less	511-416			6 pcs.	4 pcs.	
511-437-20	50 - 150					5 or less	10 or less	511-417			11 pcs.		

Inch

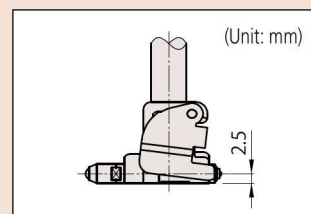
Code No.	Range (in)	Stroke of contact point (in)	Accuracy* (in)	Repeatability* (in)	Adjacent error* (in)	Measuring force (N)	Guide force (N)	Content of set					Probing depth (in)
								Bore gage	Dial indicator	Dial protection cover	Anvil	Washer	
511-418	0.6 - 1.4							511-418			11 pcs.	1 pc.	
511-419	1.4 - 2.4	0.047	0.00016	0.00004	0.00004	4 or less	6 or less	511-419	Not supplied	Not supplied	6 pcs.	4 pcs.	6
511-420	2.0 - 6.0					5 or less	10 or less	511-420			11 pcs.		
511-428-20	0.6 - 1.4					4 or less	6 or less	511-418	2922AB (Graduation: 0.0005 in)	21DZA000	11 pcs.	1 pc.	6
511-429-20	1.4 - 2.4	0.047	0.00016	0.00004	0.00004	4 or less	6 or less	511-419			6 pcs.	4 pcs.	
511-430-20	2.0 - 6.0					5 or less	10 or less	511-420			11 pcs.		
511-438-20	0.6 - 1.4					4 or less	6 or less	511-418	2923AB-10 (Graduation: 0.0001 in)	21DZA000	11 pcs.	1 pc.	6
511-439-20	1.4 - 2.4	0.047	0.00016	0.00004	0.00004	4 or less	6 or less	511-419			6 pcs.	4 pcs.	
511-440-20	2.0 - 6.0					5 or less	10 or less	511-420			11 pcs.		

* Accuracy of the bore gage alone.

Note 1: A 10 mm (0.4 in) sub-anvil is supplied with 511-415/425-20/435-20/418/428-20/438-20 and a 50 mm (2 in) sub-anvil is supplied with 511-417/427-20/437-20/420/430-20/440-20.

Note 2: It is not permissible to use a sub-anvil other than as supplied as a standard accessory, or widen a measuring range by using multiple sub-anvils. (The measurement accuracy in such cases is not guaranteed.)

Measurement example



Extension Rod

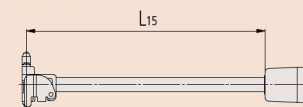
Refer to page 08-49.

The dial protection cover, recommended indicators

Refer to page 08-50.

Special size and specification other than standard can be custom-made by special order. Please contact your local Mitutoyo Sales Office for more information.

Example



Length below the grip

Model	L15 (mm)
511-415/416/417	50, 150, 200, 250, 300 400, 500

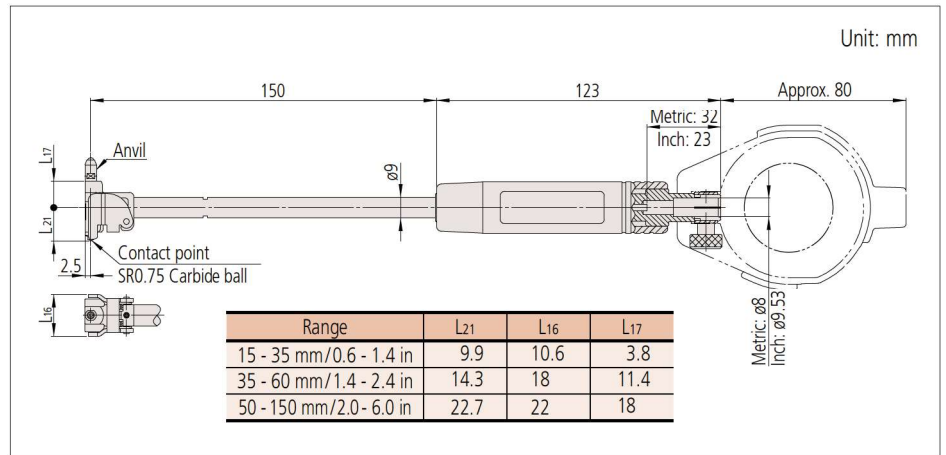
Contact Points



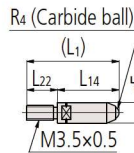
Recommended Digimatic Indicators

Refer to page 08-36.

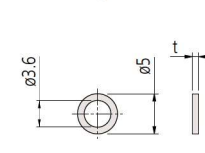
DIMENSIONS



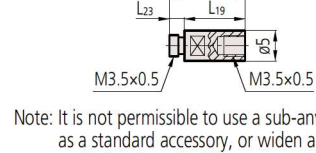
Anvil



Interchangeable washer

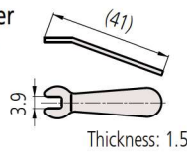


Sub-anvil

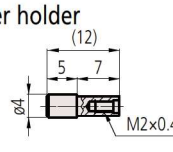


Note: It is not permissible to use a sub-anvil other than as supplied as a standard accessory, or widen a measuring range by using multiple sub-anvils. (The measurement accuracy in such cases is not guaranteed.)

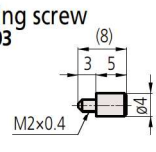
Spanner 204354



Washer holder 212202



Locking screw 212203



STANDARD ACCESSORIES

Bore gage (Main body)	Anvil							Interchangeable washer		Sub-Anvil		
	Marked No.	Code No.	Indication of measuring size	L1	L22	R4	L14	Code No.	t	Code No.	L23	L19
511-415 511-418 () Using 10 mm/0.4 in Sub-Anvil	1	21DZA376A	15 mm (25 mm)/0.59 in (0.98 in)	4.5	2.5	SR1	2	212127	0.5 mm/0.02 in	21DAA563	2.5	10 mm/ 0.4 in
	2	21DZA376B	16 mm (26 mm)/0.63 in (1.02 in)	5.5			3					
	3	21DZA376C	17 mm (27 mm)/0.67 in (1.06 in)	6.5			4					
	4	21DZA376D	18 mm (28 mm)/0.71 in (1.10 in)	7.5			5					
	5	21DZA376E	19 mm (29 mm)/0.75 in (1.14 in)	8.5			6					
	6	21DZA376F	20 mm (30 mm)/0.79 in (1.18 in)	9.5			7					
	7	21DZA376G	21 mm (31 mm)/0.83 in (1.22 in)	10.5	SR1.5	8						
	8	21DZA376H	22 mm (32 mm)/0.87 in (1.26 in)	11.5		9						
	9	21DZA376J	23 mm (33 mm)/0.91 in (1.30 in)	12.5		10						
	10	21DZA376L	24 mm (34 mm)/0.94 in (1.34 in)	13.5		11						
	11	21DZA376M	25 mm (35 mm)/0.98 in (1.38 in)	14.5		12						
511-416 511-419	1	21DZA404A	35 mm/1.38 in	17.5	7.5	SR1.5	10	212127 212128 212129 212130	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	21DZA404B	40 mm/1.57 in	22.5			15					
	3	21DZA404C	45 mm/1.77 in	27.5			20					
	4	21DZA404D	50 mm/1.97 in	32.5			25					
	5	21DZA404E	55 mm/2.17 in	37.5			30					
	6	21DZA404F	60 mm/2.36 in	42.5			35					
511-417 511-420 () Using 50 mm/2 in Sub-Anvil	1	21DZA404A	50 mm (100 mm)/1.97 in (3.94 in)	17.5	7.5	SR1.5	10	212127 212128 212129 212130	0.5 mm/0.02 in 1.0 mm/0.04 in 2.0 mm/0.08 in 3.0 mm/0.12 in	21DAA596	7.5	50 mm/ 2 in
	2	21DZA404B	55 mm (105 mm)/2.17 in (4.13 in)	22.5			15					
	3	21DZA404C	60 mm (110 mm)/2.36 in (4.33 in)	27.5			20					
	4	21DZA404D	65 mm (115 mm)/2.56 in (4.53 in)	32.5			25					
	5	21DZA404E	70 mm (120 mm)/2.76 in (4.72 in)	37.5			30					
	6	21DZA404F	75 mm (125 mm)/2.95 in (4.92 in)	42.5			35					
	7	21DZA404G	80 mm (130 mm)/3.15 in (5.12 in)	47.5			40					
	8	21DZA404H	85 mm (135 mm)/3.35 in (5.31 in)	52.5			45					
	9	21DZA404J	90 mm (140 mm)/3.54 in (5.51 in)	57.5			50					
	10	21DZA404L	95 mm (145 mm)/3.74 in (5.71 in)	62.5			55					
	11	21DZA404M	100 mm (150 mm)/3.94 in (5.91 in)	67.5			60					