

Bore Gages

For easy and accurate measurement of inside diameters

Bore Gages

SERIES 526 — for Extra Small Holes

- These gages are designed to measure the diameters of very small holes.
- The indicator (dial indicator, Digimatic indicator) and dial protection cover are optional. Select an indicator from the recommended dial indicators and Digimatic indicators. Please contact us for advice when using an indicator other than the recommended indicators.
- An optional stand (215-120-10) is available for efficient measurement of multiple small holes. (Refer to page C-30 for details)



526-170-11

Note: The dial indicator and the protection cover are optional.

SPECIFICATIONS

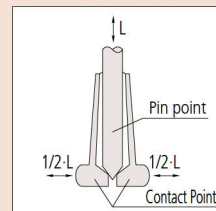
Metric							
Order No.	Range (mm)	Accuracy (μm)	Repeatability (μm)	Bore gage	Dial indicator	Dial protection cover	Setting ring
526-170-10	0.95 - 1.55	4	1	526-170-10	Not supplied	Not supplied	Not supplied
526-160-10	1.50 - 3.95	4		526-160-10			
526-150-10	3.70 - 7.30	6		526-150-10			
526-172-20	0.95 - 1.55	4		526-170-10	2109AB-10 (Graduation: 0.001 mm)	21DZA000	
526-162-20	1.50 - 3.95	4		526-160-10			
526-152-20	3.70 - 7.30	6		526-150-10			
526-173-20	0.95 - 1.55	4		526-170-10	2046AB (Graduation: 0.01 mm)	21DZA000	
526-163-20	1.50 - 3.95	4		526-160-10			
526-153-20	3.70 - 7.30	6		526-150-10			
526-170-11	0.95 - 1.55	4		526-170-10	Not supplied	Not supplied	Supplied
526-160-11	1.50 - 3.95	4		526-160-10			
526-150-11	3.70 - 7.30	6		526-150-10			
526-172-21	0.95 - 1.55	4		526-170-10	2109AB-10 (Graduation: 0.001 mm)	21DZA000	
526-162-21	1.50 - 3.95	4		526-160-10			
526-152-21	3.70 - 7.30	6		526-150-10			
526-173-21	0.95 - 1.55	4		526-170-10	2046AB (Graduation: 0.01 mm)	21DZA000	
526-163-21	1.50 - 3.95	4	526-160-10				
526-153-21	3.70 - 7.30	6	526-150-10				

Inch							
Order No.	Range (in)	Accuracy (in)	Repeatability (in)	Bore gage	Dial indicator	Dial protection cover	Setting ring
526-175-10	0.037 - 0.061	0.00016	0.00004	526-175-10	Not supplied	Not supplied	Not supplied
526-165-10	0.059 - 0.156	0.00016		526-165-10			
526-155-10	0.146 - 0.287	0.00024		526-155-10			
526-176-20	0.037 - 0.061	0.00016		526-175-10	2923AB-10 (Graduation: 0.0001 in)	21DZA000	
526-166-20	0.059 - 0.156	0.00016		526-165-10			
526-156-20	0.146 - 0.287	0.00024		526-155-10			
526-175-11	0.037 - 0.061	0.00016		526-175-10	Not supplied	Not supplied	Supplied
526-165-11	0.059 - 0.156	0.00016		526-165-10			
526-155-11	0.146 - 0.287	0.00024		526-155-10			
526-176-21	0.037 - 0.061	0.00016		526-175-10	2923AB-10 (Graduation: 0.0001 in)	21DZA000	
526-166-21	0.059 - 0.156	0.00016		526-165-10			
526-156-21	0.146 - 0.287	0.00024		526-155-10			

Note: Setting rings are not supplied with some models. Please purchase them separately if necessary. For details of setting rings, refer to page C-47.



Measurement Principle



Setting Rings (Metric models)

Nominal size

- Order No. 526-170-11 etc.

177-220: 1.0 mm

177-222: 1.1 mm

177-225: 1.2 mm

177-227: 1.3 mm

177-230: 1.4 mm

- Order No. 526-160-11 etc.

177-236: 1.75 mm

177-239: 2.00 mm

177-242: 2.25 mm

177-208: 2.50 mm

177-246: 2.75 mm

177-248: 3.00 mm

177-250: 3.25 mm

177-252: 3.50 mm

177-255: 3.75 mm

- Order No. 526-150-11 etc.

177-204: 4.0 mm

177-257: 4.5 mm

177-205: 5.0 mm

177-263: 5.5 mm

177-267: 6.0 mm

177-271: 6.5 mm

177-275: 7.0 mm

Setting Rings (Inch models)

Nominal size

- Order No. 526-175-11 etc.

177-350: 0.040 in

177-351: 0.045 in

177-352: 0.050 in

177-353: 0.055 in

177-354: 0.060 in

- Order No. 526-165-11 etc.

177-355: 0.07 in

177-356: 0.08 in

177-357: 0.09 in

177-358: 0.10 in

177-359: 0.11 in

177-360: 0.12 in

177-361: 0.13 in

177-362: 0.14 in

177-363: 0.15 in

- Order No. 526-155-11 etc.

177-364: 0.16 in

177-365: 0.18 in

177-366: 0.20 in

177-367: 0.22 in

177-368: 0.24 in

177-369: 0.26 in

177-370: 0.28 in

DIMENSIONS

Optional Accessories

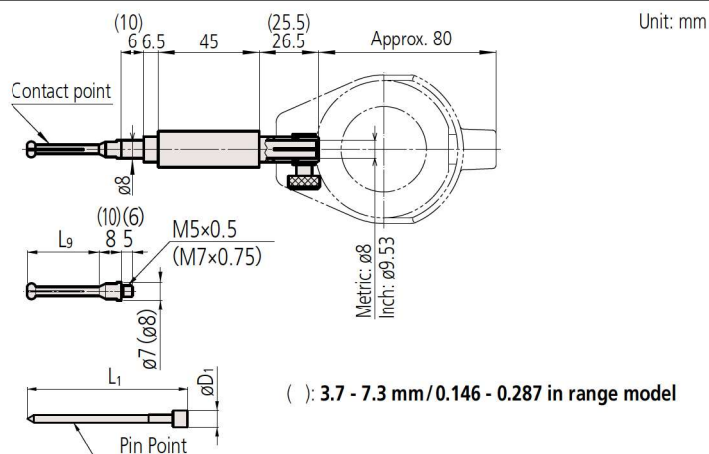
- Dial indicator (See Chapter F)
- Dial protection cover: **21DZA000**
(See page C-45)
- Setting ring (See page C-47)
- Bore gage stand: **215-120-10**
(See page C-30)

Recommended Dial Indicators (see Chapter F)

- Metric models: **2046AB** (0.01 mm)
2972AB (0.01 mm - One-revolution type)
2109AB-10 (0.001 mm)
2900AB-10 (0.001 mm - One-revolution type)
- Inch models: **2922AB** (0.0005 in)
2977AB (0.0005 in - One-revolution type)
2923AB-10 (0.0001 in)
2910AB-10 (0.0001 in - One-revolution type)

Recommended Digimatic Indicators (see page F-14)

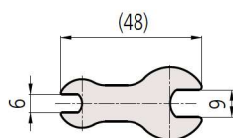
- Metric models: **543-310B** (0.001 mm)
 - Inch models: **543-312B** (0.001 mm/0.00005 in)
- Note: Indicators equipped with rubber bellows, such as water-proof types, cannot be used.



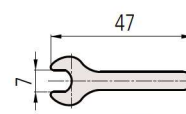
Bore gage (Main body)	Contact point				Pin point		
	Marked No.	Order No.	Range	L ₉	L ₁	øD ₁	Order No.
526-170-10 526-175-10	1.0	21DAA601A	0.95 - 1.15 mm/0.037 - 0.045 in	11.5	27.5	2.5	201435
	1.1	21DAA601B	1.07 - 1.25 mm/0.042 - 0.049 in				
	1.2	21DAA601C	1.17 - 1.35 mm/0.046 - 0.053 in				
	1.3	21DAA601D	1.27 - 1.45 mm/0.050 - 0.057 in				
	1.4	21DAA601E	1.37 - 1.55 mm/0.054 - 0.061 in				
526-160-10 526-165-10	1.75	21DAA602A	1.50 - 1.90 mm/0.059 - 0.075 in	17.5	33.8	3.5	201436
	2.00	21DAA602B	1.80 - 2.20 mm/0.071 - 0.087 in				
	2.25	21DAA602C	2.05 - 2.45 mm/0.081 - 0.096 in				
	2.50	21DAA602D	2.30 - 2.70 mm/0.091 - 0.106 in	22.5	39.3	3.5	201437
	2.75	21DAA602E	2.55 - 2.95 mm/0.100 - 0.116 in				
	3.00	21DAA602F	2.80 - 3.20 mm/0.110 - 0.126 in				
	3.25	21DAA602G	3.05 - 3.45 mm/0.120 - 0.136 in				
	3.50	21DAA602H	3.30 - 3.70 mm/0.130 - 0.146 in				
3.75	21DAA602J	3.55 - 3.95 mm/0.140 - 0.156 in					
526-150-10 526-155-10	4.0	21DAA603A	3.7 - 4.3 mm/0.146 - 0.169 in	32	53	5.5	201438
	4.5	21DAA603B	4.2 - 4.8 mm/0.165 - 0.189 in				
	5.0	21DAA603C	4.7 - 5.3 mm/0.185 - 0.209 in				
	5.5	21DAA603D	5.2 - 5.8 mm/0.205 - 0.228 in				
	6.0	21DAA603E	5.7 - 6.3 mm/0.224 - 0.248 in				
	6.5	21DAA603F	6.2 - 6.8 mm/0.244 - 0.268 in				
	7.0	21DAA603G	6.7 - 7.3 mm/0.264 - 0.287 in				

Note: Pin point and contact point are consumable parts. Please replace them with new one when degrading of accuracy, operation, or measuring range. After replacement, calibrate using a reference instrument.

Spanner 210188

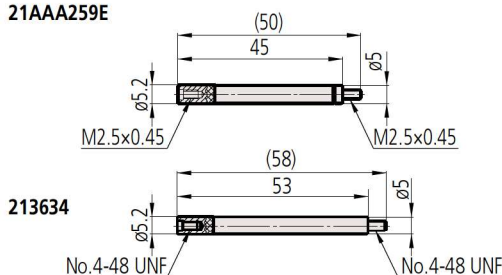


102148



Thickness: 1.5

Extension rod 21AAA259E



Bore gage	Spanner	Extension rod
526-170-10	210188	21AAA259E
526-160-10		
526-150-10		
526-175-10	210188	213634
526-165-10		
526-155-10		

(): 3.7 - 7.3 mm / 0.146 - 0.287 in range model

Note: This is not a component for extending the probing depth. (Standard Accessory)

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Bore Gages

SERIES 526 — for Extra Small Holes

- These gages are designed to measure the diameters of very small holes.
- The indicator (dial indicator, Digimatic indicator) and dial protection cover are optional. Select an indicator from the recommended dial indicators and Digimatic indicators. Please contact us for advice when using an indicator other than the recommended indicators.
- An optional stand (**215-120-10**) is available for efficient measurement of multiple small holes. (Refer to page C-30 for details)



526-101

Note: The dial indicator and the protection cover are optional.

SPECIFICATIONS

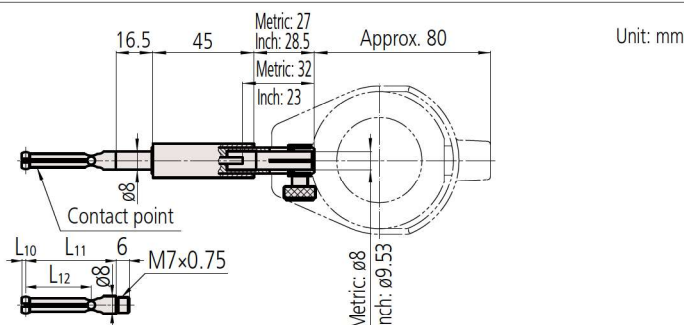
Metric				cover are optional.			
Order No.	Range (mm)	Accuracy (µm)	Repeatability (µm)	Bore gage	Dial indicator	Dial protection cover	Setting ring
526-101	7 - 10	4	2	526-101	Not supplied	Not supplied	Not supplied
526-102	10 - 18	6		526-102			
526-124-20	7 - 10	4		526-101	2109AB-10 (Graduation: 0.001 mm)	21DZA000	
526-125-20	10 - 18	6		526-102			
526-126-20	7 - 10	4		526-101	2046AB (Graduation: 0.01 mm)		
526-127-20	10 - 18	6		526-102			

Inch							
Order No.	Range (in)	Accuracy (in)	Repeatability (in)	Bore gage	Dial indicator	Dial protection cover	Setting ring
526-103	0.3 - 0.4	0.00016	0.00008	526-103	Not supplied	Not supplied	Not supplied
526-104	0.4 - 0.7	0.00024		526-104			
526-122-20	0.3 - 0.4	0.00016		526-103	2923AB-10 (Graduation: 0.0001 in)	21DZA000	
526-123-20	0.4 - 0.7	0.00024		526-104			
526-119-20	0.3 - 0.4	0.00016		526-103	2922AB (Graduation: 0.0005 in)		
526-120-20	0.4 - 0.7	0.00024		526-104			

Note: Setting rings are not supplied.

Please purchase them separately if necessary. For details of the setting rings, refer to page C-47.

DIMENSIONS



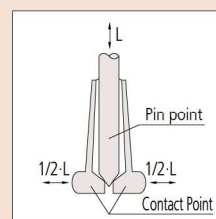
STANDARD ACCESSORIES

Bore gage (Main body)	Contact point						Spanner
	Marked No.	Order No.	Range	L10	L11	L12	
526-101 526-103	1	102469	7.0 - 7.5 mm/0.28 - 0.30 in	1.8	40	29.2	102148
	2	102470	7.5 - 8.0 mm/0.30 - 0.32 in				
	3	102471	8.0 - 8.5 mm/0.32 - 0.34 in				
	4	102472	8.5 - 9.0 mm/0.34 - 0.36 in				
	5	102473	9.0 - 9.5 mm/0.36 - 0.38 in				
	6	102474	9.5 - 10.0 mm/0.38 - 0.40 in				
526-102 526-104	1	102454	10 - 11 mm/0.40 - 0.44 in	2.7	46	38	102148
	2	102455	11 - 12 mm/0.44 - 0.48 in				
	3	102456	12 - 13 mm/0.48 - 0.52 in				
	4	102457	13 - 14 mm/0.52 - 0.56 in				
	5	102458	14 - 15 mm/0.56 - 0.60 in				
	6	102459	15 - 16 mm/0.60 - 0.64 in				
	7	102460	16 - 17 mm/0.64 - 0.68 in				
	8	102461	17 - 18 mm/0.68 - 0.72 in				

Note: Contact point is consumable part. Please replace it with new one when degrading of accuracy, operation, or measuring range.



Measurement Principle



Optional Accessories

- Dial indicator (See Chapter F)
- Dial protection cover: **21DZA000** (See page C-45)
- Setting ring (See page C-47)
- Bore gage stand: **215-120-10** (See page C-30)

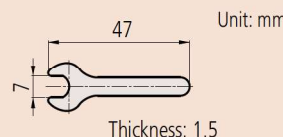
Recommended Dial Indicators (see Chapter F)

- Metric models: **2046AB** (0.01 mm)
2972AB (0.01 mm - One-revolution type)
2109AB-10 (0.001 mm)
2900AB-10 (0.001 mm - One-revolution type)
- Inch models: **2922AB** (0.0005 in)
2977AB (0.0005 in - One-revolution type)
2923AB-10 (0.0001 in)
2910AB-10 (0.0001 in - One-revolution type)

Recommended Digimatic Indicators (see Chapter F)

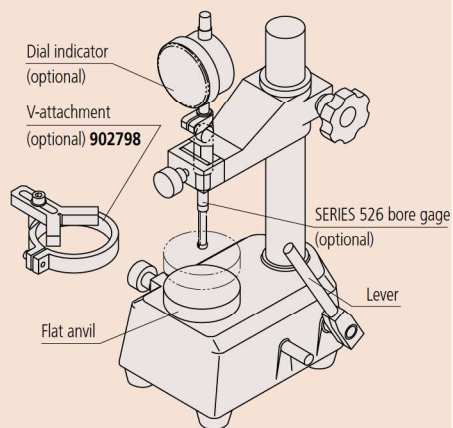
- Metric models: **543-310B (ID-C112GXB)** (0.001 mm)
 - Inch models: **543-312B (ID-C112GEXB)** (0.001 mm/0.00005 in)
- Note: Indicators equipped with rubber bellows, such as water-proof types, cannot be used.

Spanner
102148



Operating Method

- Pulling the lever forwards moves the platen upwards and the instrument goes into measurement mode.
- The V-attachment (optional) aids positioning the workpiece on the platen and is useful when measuring a large number of the same size of workpiece.



Optional Accessory

- V-attachment: 902798

Bore Gage Stand SERIES 215

- Optimal for efficient measurement of multiple small holes with a bore gage. (SERIES 526)

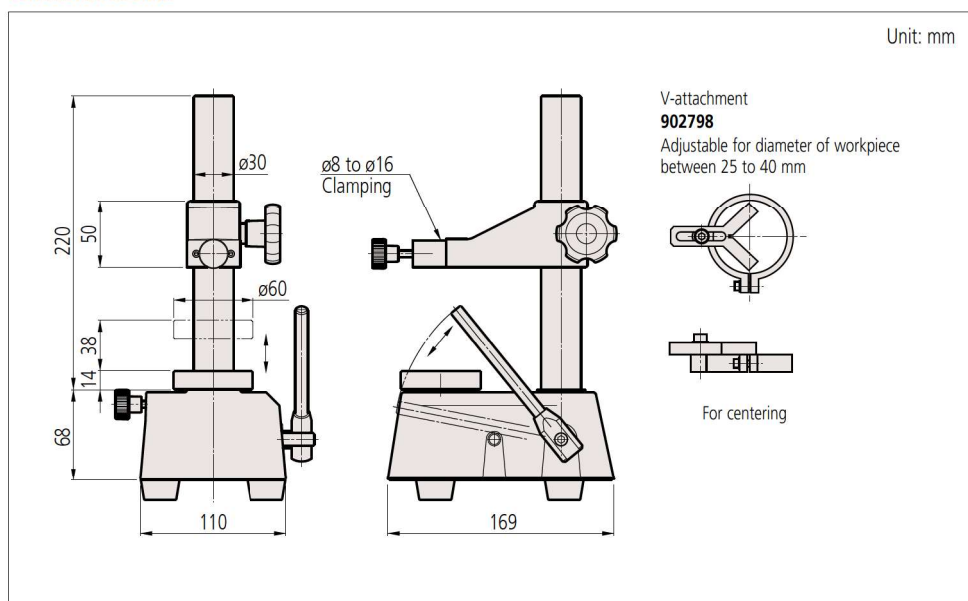


215-120-10

SPECIFICATIONS

Order No.	Measuring table displacement (mm)	Measuring table
215-120-10	38	Anvil (ø60 mm)

DIMENSIONS



Bore Gages

For easy and accurate measurement of inside diameters

Bore Gages SERIES 511 — for Small Holes

- These gages are designed to measure the diameters of very small holes.
- The indicator (dial indicator, Digimatic indicator) and dial protection cover are optional. Select an indicator from the recommended dial indicators and Digimatic indicators. Please contact us for advice when using an indicator other than the recommended indicators.
- Setting Rings are available to aid in accurately setting a gage before making a measurement. (For details, refer to page C-47)



511-201

Note: The dial indicator and protection cover are optional.

SPECIFICATIONS

Metric

Order No.	Range (mm)	Stroke of contact point (mm)	Measuring force (N)	Guide force (N)	Content of set					Probing depth (mm)
					Bore gage	Dial indicator	Dial protection cover	Anvil	Interchangeable Washer	
511-209	6 - 10	0.5	2 or less	—	511-209	Not supplied	Not supplied	9 pcs.	Not supplied	50
511-201	10 - 18.5	0.6		6 or less	511-201					100
511-210-20	6 - 10	0.5	2 or less	—	511-209	2109AB-10 (Graduation: 0.001 mm)	21DZA000	9 pcs.	Not supplied	50
511-203-20	10 - 18.5	0.6		6 or less	511-201					100
511-211-20	6 - 10	0.5	2 or less	—	511-209	2046AB (Graduation: 0.001 mm)	21DZA000	9 pcs.	Not supplied	50
511-204-20	10 - 18.5	0.6		6 or less	511-201					100

Inch

Order No.	Range (in)	Stroke of contact point (in)	Measuring force (N)	Guide force (N)	Content of set					Probing depth (in)
					Bore gage	Dial indicator	Dial protection cover	Anvil	Interchangeable Washer	
511-214	0.24 - 0.4	0.020	2 or less	—	511-214	Not supplied	Not supplied	9 pcs.	Not supplied	2
511-205	0.4 - 0.74	0.024		6 or less	511-205					4
511-212-20	0.24 - 0.4	0.020	2 or less	—	511-214	2923AB-10 (Graduation: 0.0001 in)	21DZA000	9 pcs.	Not supplied	2
511-206-20	0.4 - 0.74	0.024		6 or less	511-205					4
511-213-20	0.24 - 0.4	0.020	2 or less	—	511-214	2922AB (Graduation: 0.0005 in)	21DZA000	9 pcs.	Not supplied	2
511-207-20	0.4 - 0.74	0.024		6 or less	511-205					4

Contact Points



Technical Data

- Accuracy: Metric models: 5 μ m
Inch models: 0.0002 in
- Repeatability: Metric models: 2 μ m
Inch models: 0.00008 in
- Adjacent error: Metric models: 2 μ m
Inch models: 0.00008 in

Optional Accessories

- Dial indicator (See Chapter F)
- Dial protection cover: **21DZA000**
(See page C-45)

Recommended Digimatic Indicators (see Chapter F)

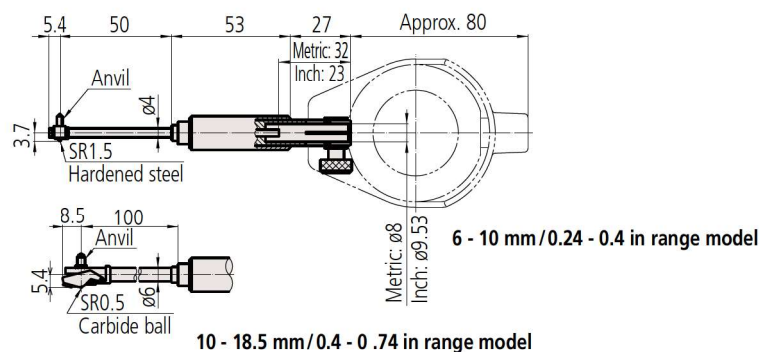
- Metric models: **2046AB** (0.01 mm)
2972AB (0.01 mm - One-revolution type)
2109AB-10 (0.001 mm)
2900AB-10 (0.001 mm - One-revolution type)
2922AB (0.0005 in)
- Inch models: **2977AB** (0.0005 in - One-revolution type)
2923AB-10 (0.0001 in)
2910AB-10 (0.0001 in - One-revolution type)

Recommended Digimatic Indicators (see Chapter F)

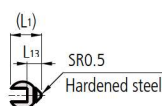
- Metric models: **543-310B (ID-C112GXB)** (0.001 mm)
 - Inch models: **543-312B (ID-C112GEXB)** (0.001 mm/0.0005 in)
- Note: Indicators equipped with rubber bellows, such as water-proof types, cannot be used.

DIMENSIONS

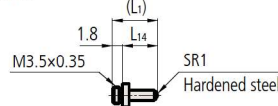
Unit: mm



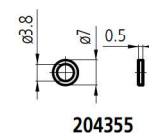
511-209/511-214
Anvil



511-201/511-205
Anvil



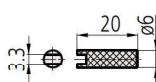
Interchangeable washer
(Supplied only with 511-201/511-205)



STANDARD ACCESSORIES

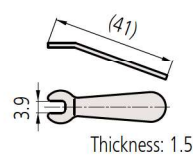
Bore gage (Main body)	Anvil					Interchangeable Washer	Spanner
	Marked No.	Order No.	Indication of measuring size	L ₁	L ₁₃	Order No.	Order No.
511-209 511-214	1	952168	6.0 mm/0.24 in	4.7	1.2	Not supplied	206709
	2	952169	6.5 mm/0.26 in	5.3	1.7		
	3	952170	7.0 mm/0.28 in	5.8	2.2		
	4	952414	7.5 mm/0.30 in	6.3	2.7		
	5	952415	8.0 mm/0.32 in	6.8	3.2		
	6	952416	8.5 mm/0.34 in	7.3	3.7		
	7	952417	9.0 mm/0.36 in	7.8	4.2		
	8	952418	9.5 mm/0.38 in	8.3	4.7		
	9	952419	10.0 mm/0.40 in	8.8	5.2		
Bore gage (Main body)	Anvil					Interchangeable Washer	Spanner
	Marked No.	Order No.	Indication of measuring size	L ₁	L ₁₄	Order No.	Order No.
511-201 511-205	1	204356	10 mm/0.40 in	3.8	2	204355	204354
	2	204357	11 mm/0.44 in	4.8	3		
	3	204358	12 mm/0.48 in	5.8	4		
	4	204359	13 mm/0.52 in	6.8	5		
	5	204360	14 mm/0.56 in	7.8	6		
	6	204361	15 mm/0.60 in	8.8	7		
	7	204362	16 mm/0.64 in	9.8	8		
	8	204363	17 mm/0.68 in	10.8	9		
	9	204364	18 mm/0.72 in	11.8	10		

Spanner
206709



204354

Unit: mm



Bore Gages

For easy and accurate measurement of inside diameters

Bore Gages SERIES 511

- Longer plunger stroke with no effect on accuracy.
- Carbide is used for the contact point ensuring high durability and wear resistance.
- This model reduces the influence of heat from the operator's hand by 50% by increasing the grip size and making the grip hollow-structured, thereby retaining high-accuracy measurement.
- The indicator (dial indicator, Digimatic indicator) and dial protection cover are optional. Select an indicator from the recommended dial indicators and Digimatic indicators. Please contact us for advice when using an indicator other than the recommended indicators.
- Optional Extension Rods can be attached for measuring deep holes. (For details, refer to page C-45)
- 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)



511-702



511-703



SPECIFICATIONS

Note: The dial indicator and the protection cover are optional.

Metric					(Note: The dial indicator and the protection cover are optional.)								
Order No.	Range (mm)	Stroke of contact point (mm)	Measuring force (N)	Guide force (N)	Content of set							Probing depth (mm)	
					Bore gage	Dial indicator	Dial protection cover	Anvil	Interchangeable Washer	Sub-Anvil	Spanner		
511-701	18 - 35	1.2	4 or less	6 or less	511-701	Not supplied	Not supplied	9 pcs.	2 pcs.	Not supplied	1 pc.	100	
511-702	35 - 60				511-702			6 pcs.	4 pcs.		1 pc.		
511-703	50 - 150				511-703			11 pcs.					
511-704	100 - 160		5 or less	10 or less	511-704			13 pcs.		Not supplied		Not supplied	
511-705	160 - 250				511-705			6 pcs.	7 pcs.				
511-706	250 - 400				511-706			5 pcs.			1 pc.		250
511-721-20	18 - 35	1.2	4 or less	6 or less	511-701	2109AB-10 (Graduation: 0.001 mm)	21DZA000	9 pcs.	2 pcs.	Not supplied	1 pc.	100	
511-722-20	35 - 60				511-702			6 pcs.	4 pcs.		1 pc.		
511-723-20	50 - 150				511-703			11 pcs.					Not supplied
511-724-20	100 - 160		5 or less	10 or less	511-704			13 pcs.					
511-725-20	160 - 250				511-705			6 pcs.	7 pcs.	1 pc.	250		
511-726-20	250 - 400				511-706			5 pcs.					
511-711-20	18 - 35	1.2	4 or less	6 or less	511-701	2046AB (Graduation: 0.01 mm)	21DZA000	9 pcs.	2 pcs.	Not supplied	1 pc.	100	
511-712-20	35 - 60				511-702			6 pcs.	4 pcs.		1 pc.		
511-713-20	50 - 150				511-703			11 pcs.					Not supplied
511-714-20	100 - 160		5 or less	10 or less	511-704			13 pcs.					
511-715-20	160 - 250				511-705			6 pcs.	7 pcs.	1 pc.	250		
511-716-20	250 - 400				511-706			5 pcs.					
511-921-20	18 - 150	—	—	—	511-701	2046AB	21DZA000	—	—	—	—	—	
511-922-20					511-702	2109AB-10							
511-925-10					511-703	543-310B							
Inch													
Order No.	Range (in)	Stroke of contact point (in)	Measuring force (N)	Guide force (N)	Content of set							Probing depth (in)	
					Bore gage	Dial indicator	Dial protection cover	Anvil	Interchangeable Washer	Sub-Anvil	Spanner		
511-731	0.7 - 1.4	0.047	4 or less	6 or less	511-731	Not supplied	Not supplied	9 pcs.	2 pcs.	Not supplied	1 pc.	4	
511-732	1.4 - 2.5				511-732			6 pcs.	4 pcs.		1 pc.		
511-733	2.0 - 6.0				511-733			11 pcs.					Not supplied
511-734	4.0 - 6.5		5 or less	10 or less	511-734			13 pcs.					
511-735	6.5 - 10.0				511-735			6 pcs.	7 pcs.	1 pc.	10		
511-736	10.0 - 16.0				511-736			5 pcs.					
511-751-20	0.7 - 1.4	0.047	4 or less	6 or less	511-731	2923AB-10 (Graduation: 0.0001 in)	21DZA000	9 pcs.	2 pcs.	Not supplied	1 pc.	4	
511-752-20	1.4 - 2.5				511-732			6 pcs.	4 pcs.		1 pc.		
511-753-20	2.0 - 6.0				511-733			11 pcs.					Not supplied
511-754-20	4.0 - 6.5		5 or less	10 or less	511-734			13 pcs.					
511-755-20	6.5 - 10.0				511-735			6 pcs.	7 pcs.	1 pc.	10		
511-756-20	10.0 - 16.0				511-736			5 pcs.					
511-741-20	0.7 - 1.4	0.047	4 or less	6 or less	511-731	2922AB (Graduation: 0.0005 in)	21DZA000	9 pcs.	2 pcs.	Not supplied	1 pc.	4	
511-742-20	1.4 - 2.5				511-732			6 pcs.	4 pcs.		1 pc.		
511-743-20	2.0 - 6.0				511-733			11 pcs.					Not supplied
511-744-20	4.0 - 6.5		5 or less	10 or less	511-734			13 pcs.					
511-745-20	6.5 - 10.0				511-735			6 pcs.	7 pcs.	1 pc.	10		
511-746-20	10.0 - 16.0				511-736			5 pcs.					
511-931-20	0.7 - 6.0	—	—	—	511-731	2922AB	21DZA000	—	—	—	—	—	
511-932-20					511-732	2923AB-10							
511-935-10					511-733	543-312B							

Note 1: A 50 mm sub-anvil is supplied with 511-703, and a 75 mm sub-anvil is supplied with 511-706.

Note 2: A 2 in sub-anvil is supplied with 511-733, and a 3 in sub-anvil is supplied with 511-736.

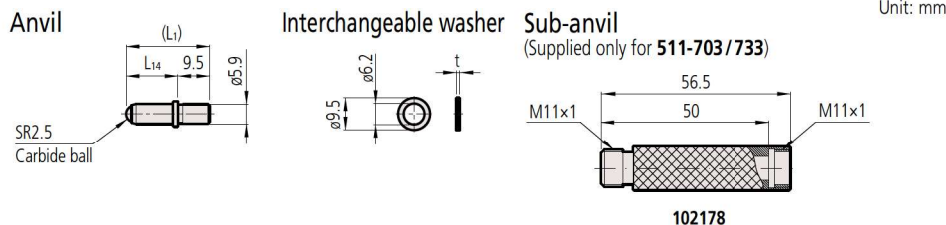
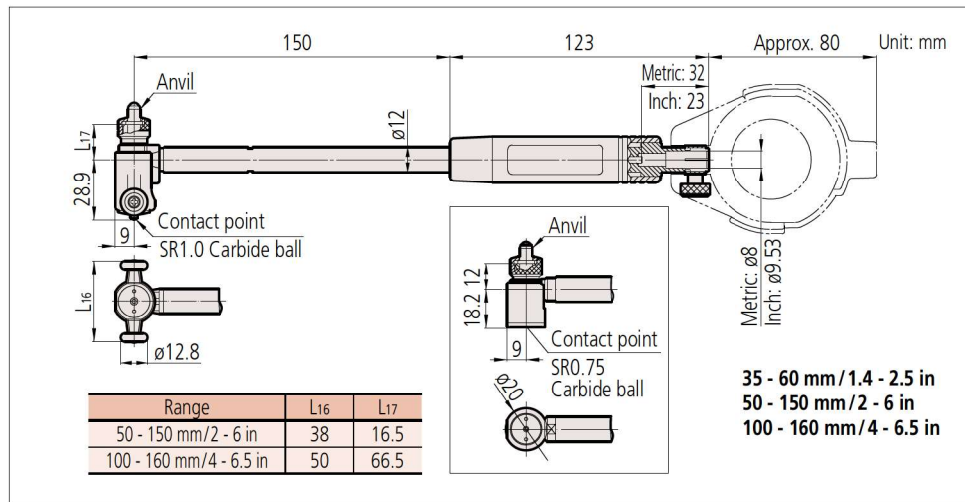
Note 3: It is not permissible to use a sub-anvil other than as supplied as a standard accessory, or widen a measuring range by using multiple sub-anvils. (The measurement accuracy in such cases is not guaranteed.)

Bore Gages

For easy and accurate measurement of inside diameters

Bore Gages SERIES 511

DIMENSIONS



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.)

STANDARD ACCESSORIES

Bore gage (Main body)	Marked No.	Anvil				Interchangeable washer		Sub-Anvil
		Order No.	Indication of measuring size	L1	L14	Order No.	t	
511-702 511-732	1	21DZA232A	35 mm / 1.38 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	102178 (50 mm / 2 in)
	2	21DZA232B	40 mm / 1.57 in	20	10.5			
	3	21DZA232C	45 mm / 1.77 in	25	15.5			
	4	21DZA232D	50 mm / 1.97 in	30	20.5			
	5	21DZA232E	55 mm / 2.17 in	35	25.5			
	6	21DZA232F	60 mm / 2.36 in	40	30.5			
511-703 511-733 () Using 50 mm / 2 in Sub-Anvil	1	21DZA232A	50 mm (100 mm) / 1.97 in (3.94 in)	15	5.5			
	2	21DZA232B	55 mm (105 mm) / 2.17 in (4.13 in)	20	10.5			
	3	21DZA232C	60 mm (110 mm) / 2.36 in (4.33 in)	25	15.5			
	4	21DZA232D	65 mm (115 mm) / 2.55 in (4.53 in)	30	20.5			
	5	21DZA232E	70 mm (120 mm) / 2.74 in (4.72 in)	35	25.5			
	6	21DZA232F	75 mm (125 mm) / 2.93 in (4.92 in)	40	30.5			
	7	21DZA232G	80 mm (130 mm) / 3.12 in (5.12 in)	45	35.5			
	8	21DZA232H	85 mm (135 mm) / 3.31 in (5.31 in)	50	40.5			
	9	21DZA232J	90 mm (140 mm) / 3.50 in (5.51 in)	55	45.5			
	10	21DZA232L	95 mm (145 mm) / 3.69 in (5.71 in)	60	50.5			
511-704 511-734	11	21DZA232M	100 mm (150 mm) / 3.88 in (5.91 in)	65	55.5			
	1	21DZA232A	100 mm / 3.94 in	15	5.5			
	2	21DZA232B	105 mm / 4.13 in	20	10.5			
	3	21DZA232C	110 mm / 4.33 in	25	15.5			
	4	21DZA232D	115 mm / 4.53 in	30	20.5			
	5	21DZA232E	120 mm / 4.72 in	35	25.5			
	6	21DZA232F	125 mm / 4.92 in	40	30.5			
	7	21DZA232G	130 mm / 5.12 in	45	35.5			
	8	21DZA232H	135 mm / 5.31 in	50	40.5			
	9	21DZA232J	140 mm / 5.51 in	55	45.5			
	10	21DZA232L	145 mm / 5.71 in	60	50.5			
	11	21DZA232M	150 mm / 5.91 in	65	55.5			
	12	21DZA232N	155 mm / 6.10 in	70	60.5			
	13	21DZA232P	160 mm / 6.30 in	75	65.5			

Recommended Digimatic Indicators (see Chapter F)

- Metric models: 543-310B (ID-C112GXB: 0.001 mm)
- Inch models: 543-312B (ID-C112GEXB: 0.001 mm / 0.0005 in)



- The ID measurement can be performed easily since the minimum value is detected automatically.
 - Up to three combinations of master value and tolerance value can be set.
 - Nine measurement results (maximum) can be saved and recalled from memory (when no external device is connected).
- Refer to page F-14 for details.

Bore Gage Checker

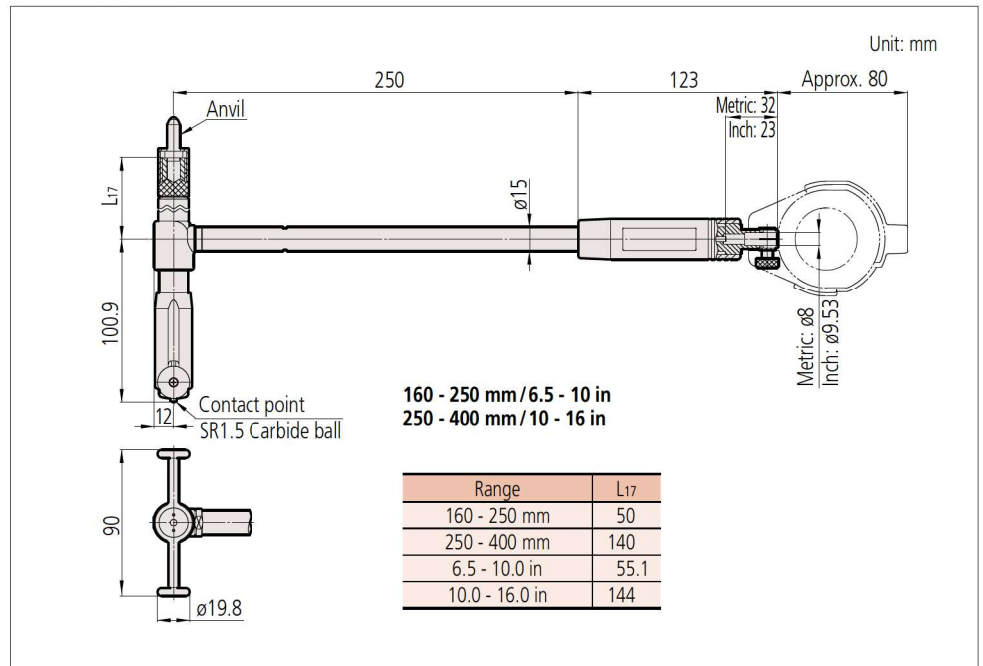
515-590

- The Bore Gage Checker allows easy setting of dial bore gages with ranges of 18 mm (0.7 in) through 400 mm (16 in) using gauge blocks.
- Refer to page C-46 for details.

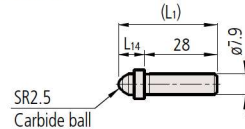


Standard configuration: Stand, Attachment A, B, C 1 pc. for each, Parallel Jaw (2 pcs.)

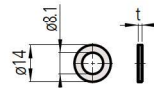
DIMENSIONS



Anvil

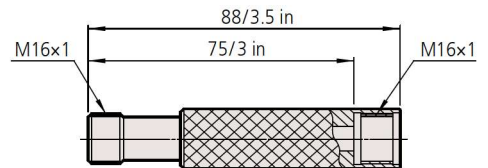


Interchangeable washer



Sub-anvil

Supplied only for 511-706 (202974) and 511-736 (202975)



202974 (511-706)
202975 (511-736)

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.)

STANDARD ACCESSORIES

Bore gage (Main body)	Anvil					Interchangeable washer		Sub-Anvil
	Marked No.	Order No.	Indication of measuring size	L1	L14	Order No.	t	Order No.
511-705 511-735	1	21DZA241A	160 mm/6.50 in	38	10	205467 205461 205462 205463 205464 205465 205466	0.5 mm/0.02 in 1.0 mm/0.04 in 2.0 mm/0.08 in 3.0 mm/0.12 in 4.0 mm/0.16 in 5.0 mm/0.20 in 6.0 mm/0.24 in	Metric: 202974 (75 mm) Inch: 202975 (3.0 in)
	2	21DZA241B	175 mm/7.09 in	53	25			
	3	21DZA241C	190 mm/7.68 in	68	40			
	4	21DZA241D	205 mm/8.27 in	83	55			
	5	21DZA241E	220 mm/8.86 in	98	70			
	6	21DZA241F	235 mm/9.45 in	113	85			
511-706 511-736 () Using 75 mm/3 in Sub-Anvil	1	21DZA241A	250 mm (325 mm)/10.00 in (13.00 in)	38	10	205467 205461 205462 205463 205464 205465 205466	0.5 mm/0.02 in 1.0 mm/0.04 in 2.0 mm/0.08 in 3.0 mm/0.12 in 4.0 mm/0.16 in 5.0 mm/0.20 in 6.0 mm/0.24 in	Metric: 202974 (75 mm) Inch: 202975 (3.0 in)
	2	21DZA241B	265 mm (340 mm)/10.59 in (13.59 in)	53	25			
	3	21DZA241C	280 mm (355 mm)/11.18 in (14.18 in)	68	40			
	4	21DZA241D	295 mm (370 mm)/11.77 in (14.77 in)	83	55			
	5	21DZA241E	310 mm (385 mm)/12.36 in (15.36 in)	98	70			

Bore Gages

For easy and accurate measurement of inside diameters

Bore Gages

SERIES 511 — Short Leg Type

- Compact and lightweight due to the short length below the grip.
- Longer plunger stroke with no effect on accuracy.
- Carbide contact point ensures high durability and wear resistance.
- This model reduces the influence of heat from the operator's hand by approx. 50% by increasing the grip size and making the grip hollow-structured, thereby retaining high-accuracy measurement.
- The indicator (dial indicator, Digimatic indicator) and dial protection cover are optional. Select an indicator from the recommended dial indicators and Digimatic indicators. Please contact us for advice when using an indicator other than the recommended indicators.
- 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)



511-761



511-762



511-763



511-761

Note: The dial indicator and the protection cover are optional.



511-763

Note: The dial indicator and the protection cover are optional.



Technical Data

- Accuracy: Metric models 2 μ m
Inch models 0.00008 in
- Repeatability: Metric models 0.5 μ m
Inch models 0.00002 in
- Adjacent error: Metric models 1 μ m
Inch models 0.00004 in

Optional Accessories

- Dial indicator (See Chapter F)
- Dial protection cover: **21DZA000**
(See page C-45)

Recommended Dial Indicators (see Chapter F)

- Metric models: **2046AB** (0.01 mm)
2972AB (0.01 mm - One revolution type)
2109AB-10 (0.001 mm)
2900AB-10 (0.001 mm - One-revolution type)
- Inch models: **2922AB** (0.0005 in)
2977AB (0.0005 in - One-revolution type)
2923AB-10 (0.0001 in)
2910AB-10 (0.0001 in - One-revolution type)

Note: Indicators equipped with rubber bellows, such as water-proof types, cannot be used.

SPECIFICATIONS

Metric													
Order No.	Range (mm)	Stroke of contact point (mm)	Measuring force (N)	Guide force (N)	Content of set							Probing depth (mm)	
					Bore gage	Dial indicator	Dial protection cover	Anvil	Interchangeable Washer	Sub-Anvil	Spanner		
511-761	18 - 35	1.2	4 or less	6 or less	511-761	Not supplied	Not supplied	9 pcs.	2 pcs.	Not supplied	1 pc.	50	
511-762	35 - 60				511-762			6 pcs.	4 pcs.		Not supplied		Not supplied
511-763	50 - 150				511-763			11 pcs.					
511-764	100 - 160				511-764			13 pcs.					
511-771-20	18 - 35	1.2	4 or less	6 or less	511-761	2109AB-10 (Graduation: 0.001 mm)	21DZA000	9 pcs.	2 pcs.	Not supplied	1 pc.	50	
511-772-20	35 - 60				511-762			6 pcs.	4 pcs.		Not supplied		Not supplied
511-773-20	50 - 150				511-763			11 pcs.					
511-774-20	100 - 160				511-764			13 pcs.					
511-766-20	18 - 35	1.2	4 or less	6 or less	511-761	2046AB (Graduation: 0.01 mm)	21DZA000	9 pcs.	2 pcs.	Not supplied	1 pc.	50	
511-767-20	35 - 60				511-762			6 pcs.	4 pcs.		Not supplied		Not supplied
511-768-20	50 - 150				511-763			11 pcs.					
511-769-20	100 - 160				511-764			13 pcs.					

Inch													
Order No.	Range (in)	Stroke of contact point (in)	Measuring force (N)	Guide force (N)	Content of set							Probing depth (in)	
					Bore gage	Dial indicator	Dial protection cover	Anvil	Interchangeable Washer	Sub-Anvil	Spanner		
511-781	0.7 - 1.4	0.047	4 or less	6 or less	511-781	Not supplied	Not supplied	9 pcs.	2 pcs.	Not supplied	1 pc.	2	
511-782	1.4 - 2.5				511-782			6 pcs.	4 pcs.		Not supplied		Not supplied
511-783	2.0 - 6.0				511-783			11 pcs.					
511-784	4.0 - 6.5				511-784			13 pcs.					
511-791-20	0.7 - 1.4	0.047	4 or less	6 or less	511-781	2923AB-10 (Graduation: 0.0001 in)	21DZA000	9 pcs.	2 pcs.	Not supplied	1 pc.	2	
511-792-20	1.4 - 2.5				511-782			6 pcs.	4 pcs.		Not supplied		Not supplied
511-793-20	2.0 - 6.0				511-783			11 pcs.					
511-794-20	4.0 - 6.5				511-784			13 pcs.					
511-786-20	0.7 - 1.4	0.047	4 or less	6 or less	511-781	2922AB (Graduation: 0.0005 in)	21DZA000	9 pcs.	2 pcs.	Not supplied	1 pc.	2	
511-787-20	1.4 - 2.5				511-782			6 pcs.	4 pcs.		Not supplied		Not supplied
511-788-20	2.0 - 6.0				511-783			11 pcs.					
511-789-20	4.0 - 6.5				511-784			13 pcs.					

Note 1: A 50 mm sub-anvil is supplied with **511-763**.

Note 2: A 2 in sub-anvil is supplied with **511-783**.

Note 3: 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-avils. (The measurement accuracy in such cases is not guaranteed.)

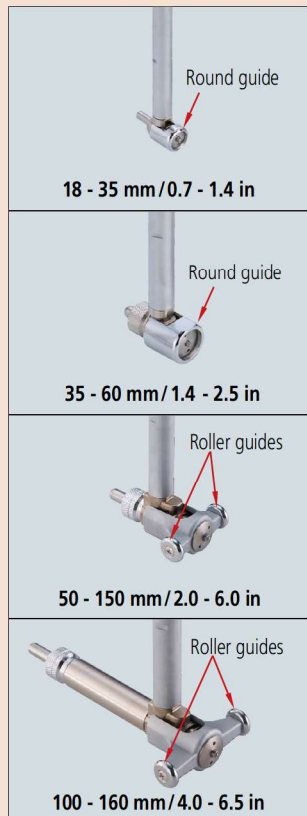
Recommended Digimatic Indicators (see Chapter F)

- Metric models: **543-310B** (ID-C112GXB: 0.001 mm)
- Inch models: **543-312B** (ID-C112GEXB: 0.001 mm/0.00005 in)

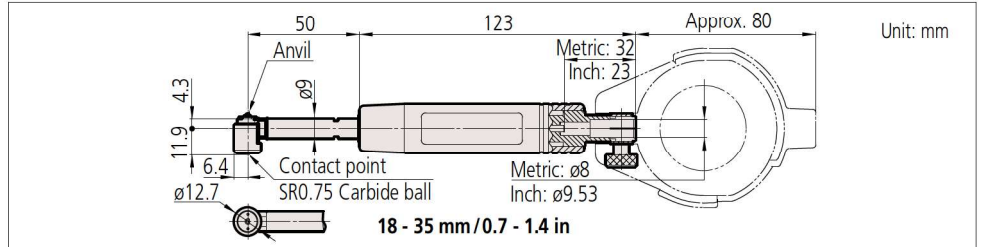


- The ID measurement can be performed easily since the minimum value is detected automatically.
 - Up to three combinations of master value and tolerance value can be set.
 - Nine measurement results (maximum) can be saved and recalled from memory (when no external device is connected).
- Refer to page F-14 for details.

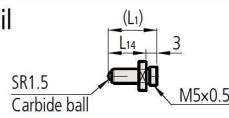
Contact Points



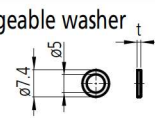
DIMENSIONS



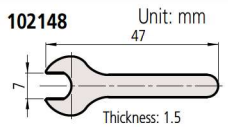
Anvil



Interchangeable washer



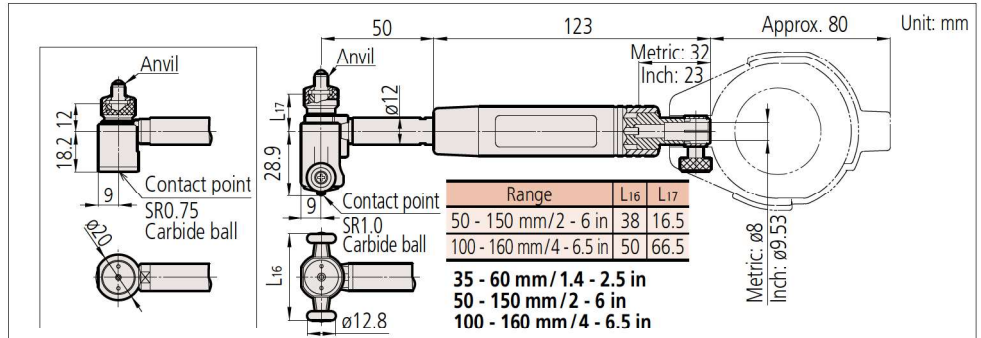
Spanner 102148



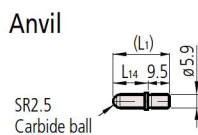
STANDARD ACCESSORIES

Bore gage (Main body)	Anvil				Interchangeable washer		Spanner
	Marked No.	Order No.	Indication of measuring size	L ₁	L ₁₄	t	
511-761 511-781	1	21DZA213A	18 mm/0.71 in	5.5 mm/0.22 in	2.5 mm/0.10 in	205623 205624	102148
	2	21DZA213B	20 mm/0.79 in	7.5 mm/0.30 in	4.5 mm/0.18 in		
	3	21DZA213C	22 mm/0.87 in	9.5 mm/0.37 in	6.5 mm/0.26 in		
	4	21DZA213D	24 mm/0.94 in	11.5 mm/0.45 in	8.5 mm/0.33 in		
	5	21DZA213E	26 mm/1.02 in	13.5 mm/0.53 in	10.5 mm/0.41 in		
	6	21DZA213F	28 mm/1.10 in	15.5 mm/0.61 in	12.5 mm/0.49 in		
	7	21DZA213G	30 mm/1.18 in	17.5 mm/0.69 in	14.5 mm/0.57 in		
	8	21DZA213H	32 mm/1.26 in	19.5 mm/0.77 in	16.5 mm/0.65 in		
	9	21DZA213J	34 mm/1.34 in	21.5 mm/0.85 in	18.5 mm/0.73 in		

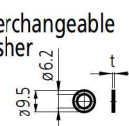
DIMENSIONS



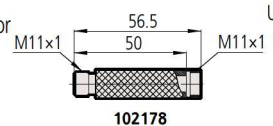
Anvil



Interchangeable washer



Sub-anvil (Supplied only for 511-763 and 511-783.)



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.)

STANDARD ACCESSORIES

Bore gage (Main body)	Anvil				Interchangeable washer		Sub-Anvil
	Marked No.	Order No.	Indication of measuring size	L ₁	L ₁₄	t	
511-762 511-782	1	21DZA232A	35 mm/1.38 in	15	5.5	205457 205458 205459 205460	102178 (50 mm/2 in)
	2	21DZA232B	40 mm/1.57 in	20	10.5		
	3	21DZA232C	45 mm/1.77 in	25	15.5		
	4	21DZA232D	50 mm/1.97 in	30	20.5		
	5	21DZA232E	55 mm/2.17 in	35	25.5		
	6	21DZA232F	60 mm/2.36 in	40	30.5		
511-763 511-783 () Using 50 mm/2 in Sub-Anvil	1	21DZA232A	50 mm (100 mm)/1.97 in (3.94 in)	15	5.5		
	2	21DZA232B	55 mm (105 mm)/2.17 in (4.13 in)	20	10.5		
	3	21DZA232C	60 mm (110 mm)/2.36 in (4.33 in)	25	15.5		
	4	21DZA232D	65 mm (115 mm)/2.55 in (4.53 in)	30	20.5		
	5	21DZA232E	70 mm (120 mm)/2.74 in (4.72 in)	35	25.5		
	6	21DZA232F	75 mm (125 mm)/2.93 in (4.92 in)	40	30.5		
	7	21DZA232G	80 mm (130 mm)/3.12 in (5.12 in)	45	35.5		
	8	21DZA232H	85 mm (135 mm)/3.31 in (5.31 in)	50	40.5		
	9	21DZA232J	90 mm (140 mm)/3.50 in (5.51 in)	55	45.5		
	10	21DZA232L	95 mm (145 mm)/3.69 in (5.71 in)	60	50.5		
511-764 511-784	11	21DZA232M	100 mm (150 mm)/3.88 in (5.91 in)	65	55.5		
	1	21DZA232A	100 mm/3.94 in	15	5.5		
	2	21DZA232B	105 mm/4.13 in	20	10.5		
	3	21DZA232C	110 mm/4.33 in	25	15.5		
	4	21DZA232D	115 mm/4.53 in	30	20.5		
	5	21DZA232E	120 mm/4.72 in	35	25.5		
	6	21DZA232F	125 mm/4.92 in	40	30.5		
	7	21DZA232G	130 mm/5.12 in	45	35.5		
	8	21DZA232H	135 mm/5.31 in	50	40.5		
	9	21DZA232J	140 mm/5.51 in	55	45.5		
	10	21DZA232L	145 mm/5.71 in	60	50.5		
	11	21DZA232M	150 mm/5.91 in	65	55.5		
	12	21DZA232N	155 mm/6.10 in	70	60.5		
	13	21DZA232P	160 mm/6.30 in	75	65.5		

Bore Gages

For easy and accurate measurement of inside diameters

Bore Gages

SERIES 511 — with Micrometer Head

- Micrometer head is attached to the anvil for accurate dimensional setting.
- Longer plunger stroke with no effect on accuracy.
- Carbide is used for the contact point ensuring high durability and wear resistance.
- This model reduces the influence of heat from the operator's hand by approx. 50% by increasing the grip size and making the grip hollow-structured, thereby retaining high-accuracy measurement.
- Wide measuring range with sub-anvils.
- The indicator (dial indicator, Digimatic indicator) and dial protection cover are optional. Select an indicator from the recommended dial indicators and Digimatic indicators. Please contact us for advice when using an indicator other than the recommended indicators.
- Optional Extension Rods can be attached for measuring deep holes. (For details, refer to page C-45)
- 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)



511-803

511-804



511-804

Note: The dial indicator and the protection cover are optional.



511-806

Note: The dial indicator and the protection cover are optional.

SPECIFICATIONS

Metric											
Order No.	Range (mm)	Stroke of contact point (mm)	Measuring force (N)	Guide force (N)	Bore gage	Dial indicator	Dial protection cover	Micrometer head	Sub-Anvil	Spanner	Probing depth (mm)
511-803	60 - 100	1.6	5 or less	10 or less	511-803	Not supplied	Not supplied	1 pc.	2 pcs.	3 pcs.	150
511-804	100 - 160				511-804				3 pcs.		
511-805	150 - 250		6 or less	15 or less	511-805				4 pcs.	2 pcs.	250
511-806	250 - 400				511-806				3 pcs.		
511-807	400 - 600				511-807				2 pcs.		
511-808	600 - 800	1.6	5 or less	10 or less	511-803	2109AB-10 (Graduation: 0.001 mm)	21DZA000	1 pc.	2 pcs.	3 pcs.	150
511-823-20	60 - 100				511-804				3 pcs.		
511-824-20	100 - 160		6 or less	15 or less	511-805				4 pcs.	2 pcs.	250
511-825-20	150 - 250				511-806				3 pcs.		
511-826-20	250 - 400				511-807				2 pcs.		
511-827-20	400 - 600	1.6	5 or less	10 or less	511-803	2046AB (Graduation: 0.01 mm)	21DZA000	1 pc.	2 pcs.	3 pcs.	150
511-828-20	600 - 800				511-804				3 pcs.		
511-813-20	60 - 100		6 or less	15 or less	511-805				4 pcs.	2 pcs.	250
511-814-20	100 - 160				511-806				3 pcs.		
511-815-20	150 - 250				511-807				2 pcs.		
511-816-20	250 - 400	1.6	5 or less	10 or less	511-803	2046AB (Graduation: 0.01 mm)	21DZA000	1 pc.	2 pcs.	3 pcs.	150
511-817-20	400 - 600				511-804				3 pcs.		
511-818-20	600 - 800	1.6	6 or less	15 or less	511-805	2046AB (Graduation: 0.01 mm)	21DZA000	1 pc.	4 pcs.	2 pcs.	250
					511-806				3 pcs.		
		1.6	6 or less	15 or less	511-807	2046AB (Graduation: 0.01 mm)	21DZA000	1 pc.	2 pcs.	2 pcs.	250
					511-808				2 pcs.		

Inch											
Order No.	Range (in)	Stroke of contact point (in)	Measuring force (N)	Guide force (N)	Bore gage	Dial indicator	Dial protection cover	Micrometer head	Sub-Anvil	Spanner	Probing depth (in)
511-833	2.4 - 4.0	0.063	5 or less	10 or less	511-833	Not supplied	Not supplied	1 pc.	2 pcs.	3 pcs.	6
511-834	4.0 - 6.4				511-834				3 pcs.		
511-835	6.0 - 10.0		6 or less	15 or less	511-835				4 pcs.	2 pcs.	10
511-836	10.0 - 16.0				511-836				3 pcs.		
511-837	16.0 - 24.0				511-837				2 pcs.		
511-838	24.0 - 32.0	0.063	5 or less	10 or less	511-833	2923AB-10 (Graduation: 0.0001 in)	21DZA000	1 pc.	2 pcs.	3 pcs.	4
511-853-20	2.4 - 4.0				511-834				3 pcs.		
511-854-20	4.0 - 6.4		6 or less	15 or less	511-835				4 pcs.	2 pcs.	6
511-855-20	6.0 - 10.0				511-836				3 pcs.		
511-856-20	10.0 - 16.0				511-837				2 pcs.		
511-857-20	16.0 - 24.0	0.063	5 or less	10 or less	511-833	2922AB (Graduation: 0.0005 in)	21DZA000	1 pc.	2 pcs.	3 pcs.	4
511-858-20	24.0 - 32.0				511-834				3 pcs.		
511-843-20	2.4 - 4.0		6 or less	15 or less	511-835				4 pcs.	2 pcs.	6
511-844-20	4.0 - 6.4				511-836				3 pcs.		
511-845-20	6.0 - 10.0				511-837				2 pcs.		
511-846-20	10.0 - 16.0	0.063	5 or less	10 or less	511-833	2922AB (Graduation: 0.0005 in)	21DZA000	1 pc.	2 pcs.	3 pcs.	4
511-847-20	16.0 - 24.0				511-834				3 pcs.		
511-848-20	24.0 - 32.0	0.063	6 or less	15 or less	511-835	2922AB (Graduation: 0.0005 in)	21DZA000	1 pc.	4 pcs.	2 pcs.	6
					511-836				3 pcs.		
		0.063	6 or less	15 or less	511-837	2922AB (Graduation: 0.0005 in)	21DZA000	1 pc.	2 pcs.	2 pcs.	10
					511-838				2 pcs.		

Note 1: Storage boxes for 511-807/808/837/838 models are made of wood. The boxes of other models are made of plastic.

Note 2: It is not permissible to expand measuring range using sub-anvils other than as supplied as standard accessories. (The measurement accuracy in such cases is not guaranteed.)

Technical Data

- Accuracy: Metric models 2 µm
Inch models 0.00008 in
- Repeatability: Metric models 0.5 µm
Inch models 0.00002 in
- Adjacent error: Metric models 1 µm
Inch models 0.00004 in

Optional Accessories

- Dial indicator (See Chapter F)
- Dial protection cover: **21DZA000** (See page C-45)

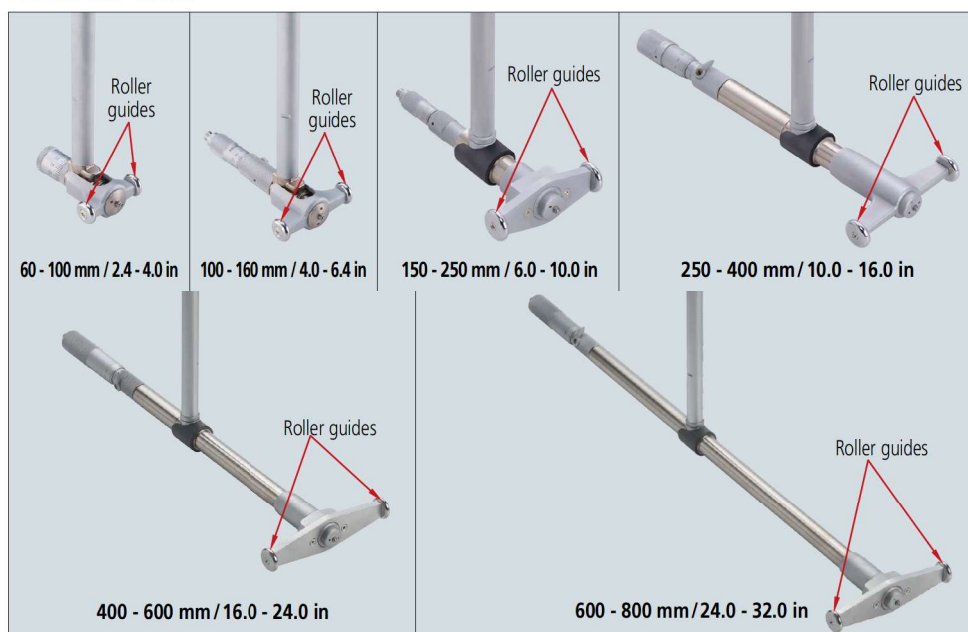
Recommended Dial Indicators (see Chapter F)

- Metric models: **2046AB** (0.01 mm)
2972AB (0.01 mm - One-revolution type)
2109AB-10 (0.001 mm)
2900AB-10 (0.001 mm - One-revolution type)
- Inch models: **2922AB** (0.0005 in)
2977AB (0.0005 in - One-revolution type)
2923AB-10 (0.0001 in)
2910AB-10 (0.0001 in - One-revolution type)

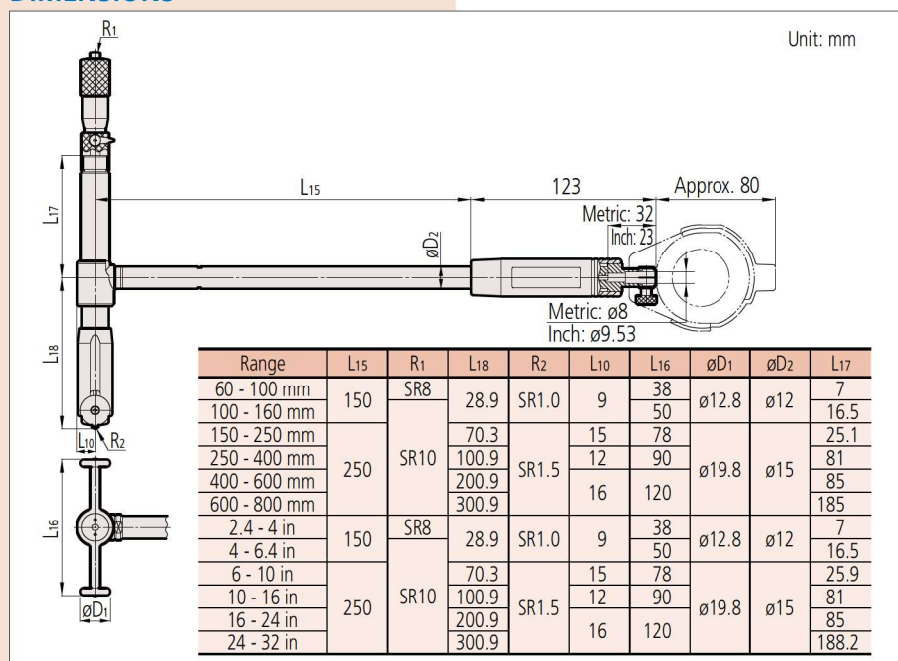
Recommended Digimatic Indicators (see Chapter F)

- Metric models: **543-310B** (ID-C112GXB: 0.001 mm)
 - Inch models: **543-312B** (ID-C112GEXB: 0.001 mm/0.00005 in)
- Note: Indicators equipped with rubber bellows, such as water-proof types, cannot be used.

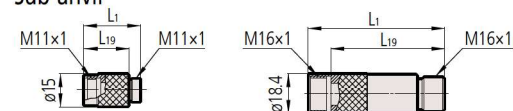
Contact Points



DIMENSIONS



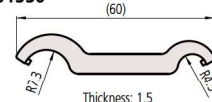
Sub-anvil



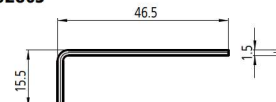
Note: It is not permissible to use a sub-anvil other than as supplied as a standard accessory, or widen a measuring range by using multiple sub-anvils. (The measurement accuracy in such cases is not guaranteed.)

Spanner

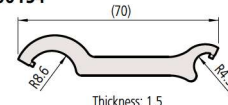
301336



202863



200154



STANDARD ACCESSORIES

Metric									
Bore gage (Main body)	Micrometer head			Sub-Anvil				Spanner	
	Order No.	Stroke (mm)	Screw size	Marked No. (mm)	Order No.	L1 (mm)	L19 (mm)	Order No.	
511-803	21DZA267	10	M11x1	10	208892	15	10	301336 (2 pcs.) 202863 (1 pc.)	
				20	208894	25	20		
511-804	21DZA268	13	M11x1	10	208892	15	10	301336 (2 pcs.)	
				20	208894 (2 pcs.)	25	20		
511-805	21DZA268	13	M11x1	10	208892	15	10	301336 (2 pcs.)	
				20	208894 (2 pcs.)	25	20		
				50	21DAA492	55	50		
511-806	953118	25	M16x1	25	208926	35	25	200154 (2 pcs.)	
				50	208928 (2 pcs.)	60	50		
511-807	953120	50	M16x1	50	208928	60	50	200154 (2 pcs.)	
				100	208932	110	100		
511-808	953120	50	M16x1	50	208928	60	50	200154 (2 pcs.)	
				100	208932	110	100		

Inch									
Bore gage (Main body)	Micrometer head			Sub-Anvil				Spanner	
	Order No.	Stroke (in)	Screw size	Marked No. (in)	Order No.	L1 (in)	L19 (in)	Order No.	
511-833	21DZA272	0.4	M11x1	0.4	208893	0.6	0.4	301336 (2 pcs.) 202863 (1 pc.)	
				0.8	208895	1.0	0.8		
511-834	21DZA273	0.5	M11x1	0.4	208893	0.6	0.4	301336 (2 pcs.)	
				0.8	208895 (2 pcs.)	1.0	0.8		
511-835	21DZA273	0.5	M11x1	0.4	208893	0.6	0.4	301336 (2 pcs.)	
				0.8	208895 (2 pcs.)	1.0	0.8		
				2	21DAA493	2.2	2		
511-836	21DZA275	1.0	M16x1	1	208927	1.4	1	200154 (2 pcs.)	
				2	208929 (2 pcs.)	2.4	2		
511-837	902313	2.0	M16x1	2	208929	2.4	2	200154 (2 pcs.)	
				4	208933	4.4	4		
511-838	902313	2.0	M16x1	2	208929	2.4	2	200154 (2 pcs.)	
				4	208933	4.4	4		

Bore Gages

For easy and accurate measurement of inside diameters

Bore Gages

SERIES 511 — for Blind Holes

- Capable of ID (inside diameter) measurement close to the bottom of a hole.
- Carbide contact point ensuring high durability and wear resistance.
- Grip is large and hollow to reduce effect of body heat on high-accuracy measurements.
- The indicator (dial indicator, Digimatic indicator) and dial protection cover are optional. Select an indicator from the recommended dial indicators and Digimatic indicators. Please contact us for advice when using an indicator other than the recommended indicators.
- Optional Extension Rods can be attached for measuring deep holes. (For details, refer to page C-45)
- 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)



511-416

Note: The dial indicator and protection cover are optional.



511-417

Note: The dial indicator and protection cover are optional.

SPECIFICATIONS

Metric									
Order No.	Range (mm)	Stroke of contact point (mm)	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	1.2	4 or less	6 or less	511-415	Not supplied	Not supplied	11 pcs.	1 pc.
511-416	35 - 60		5 or less	10 or less	511-416			6 pcs.	4 pcs.
511-417	50 - 150	1.2	4 or less	6 or less	511-415	2046AB (Graduation: 0.01 mm)	21DZA000	11 pcs.	1 pc.
511-425-20	15 - 35		5 or less	10 or less	511-416			6 pcs.	4 pcs.
511-426-20	35 - 60	1.2	4 or less	6 or less	511-415	2109AB-10 (Graduation: 0.001 mm)	21DZA000	11 pcs.	1 pc.
511-427-20	50 - 150		5 or less	10 or less	511-416			6 pcs.	4 pcs.
511-435-20	15 - 35	1.2	4 or less	6 or less	511-415	2109AB-10 (Graduation: 0.001 mm)	21DZA000	11 pcs.	1 pc.
511-436-20	35 - 60		5 or less	10 or less	511-416			6 pcs.	4 pcs.
511-437-20	50 - 150	1.2	4 or less	6 or less	511-415	2109AB-10 (Graduation: 0.001 mm)	21DZA000	11 pcs.	1 pc.
			5 or less	10 or less	511-416			6 pcs.	4 pcs.

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.)

Contact Points



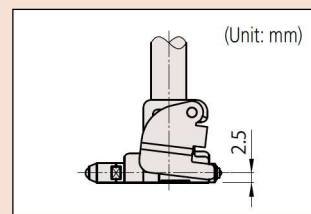
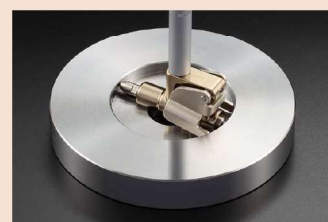
15 - 35 mm / 0.6 - 1.4 in



35 - 60 mm / 1.4 - 2.4 in



50 - 150 mm / 2.0 - 6.0 in



Technical Data

- Accuracy: Metric models 4 μ m
Inch models 0.00016 in
- Repeatability: Metric models 1 μ m
Inch models 0.00004 in
- Adjacent error: Metric models 1 μ m
Inch models 0.00004 in

Optional Accessories

- Dial indicator (See Chapter F)
- Dial protection cover: 21DZA000 (See page C-45)

Recommended Dial Indicators (see Chapter F)

- Metric models: 2046AB (0.01 mm)
2972AB (0.01 mm - One-revolution type)
2109AB-10 (0.001 mm)
2900AB-10 (0.001 mm - One-revolution type)
- Inch models: 2922AB (0.0005 in)
2977AB (0.0005 in - One-revolution type)
2923AB-10 (0.0001 in)
2910AB-10 (0.0001 in - One-revolution type)

Recommended Digimatic Indicators (see Chapter F-14)

- Metric models: 543-310B (0.001 mm)
- Inch models: 543-312B (0.001 mm / 0.00005 in)

Note: Indicators equipped with rubber bellows, such as water-proof types, cannot be used.

Inch									
Order No.	Range (in)	Stroke of contact point (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	0.047	4 or less	6 or less	511-418	Not supplied	Not supplied	11 pcs.	1 pc.
511-419	1.4 - 2.4		5 or less	10 or less	511-419			6 pcs.	4 pcs.
511-420	2.0 - 6.0	0.047	4 or less	6 or less	511-418	2922AB (Graduation: 0.0005 in)	21DZA000	11 pcs.	1 pc.
511-428-20	0.6 - 1.4		5 or less	10 or less	511-419			6 pcs.	4 pcs.
511-429-20	1.4 - 2.4	0.047	4 or less	6 or less	511-418	2923AB-10 (Graduation: 0.0001 in)	21DZA000	11 pcs.	1 pc.
511-430-20	2.0 - 6.0		5 or less	10 or less	511-419			6 pcs.	4 pcs.
511-438-20	0.6 - 1.4	0.047	4 or less	6 or less	511-418	2923AB-10 (Graduation: 0.0001 in)	21DZA000	11 pcs.	1 pc.
511-439-20	1.4 - 2.4		5 or less	10 or less	511-419			6 pcs.	4 pcs.
511-440-20	2.0 - 6.0	0.047	4 or less	6 or less	511-418	2923AB-10 (Graduation: 0.0001 in)	21DZA000	11 pcs.	1 pc.
			5 or less	10 or less	511-419			6 pcs.	4 pcs.