

Inside Diameter Measurement Bore Gage

勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



Best-selling range of bore gages now offers better accuracy,
user-friendliness and durability

Mitutoyo

Bore Gage

NEW

The Best-Selling Inside Diameter Measurement Tools are now

**More Accurate,
More Easily Used,
More Durable!**



Standard bore gage

Bore gage with micrometer head

1 All models now more accurate

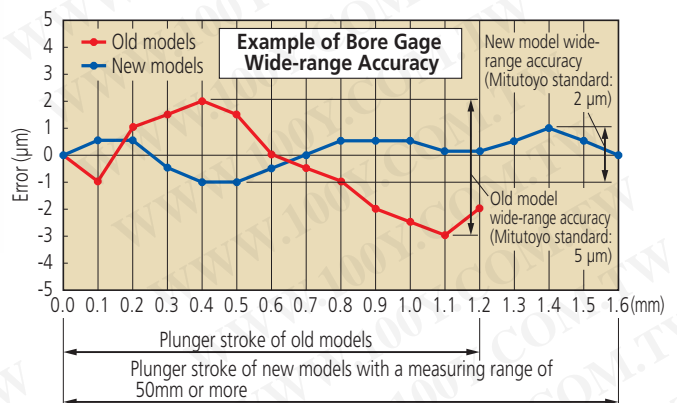
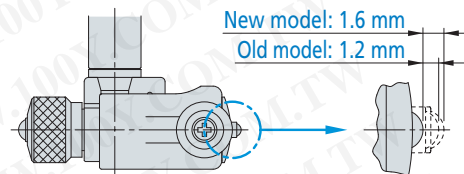
The measurement accuracy of new models has improved by 50% or more compared with their predecessors (in JIS standard values).

Wide-range accuracy:
Improved from 5 μm to 2 μm
Repeatability: Improved from 2 μm to 0.5 μm
Adjacent error: Improved from 2 μm to 1 μm



2 33% longer plunger stroke

The plunger stroke of flagship models has expanded from 1.2mm to 1.6mm, still maintaining the stated accuracy. (For information about compatible models, refer to the specification of each model on pages 4 and 6.)



Mitutoyo

Nakatsugawa Plant Dedicated to the Manufacture of Sensors

The Nakatsugawa Plant was established in 1997 as the twelfth Mitutoyo plant in Japan and is located in a beautiful natural environment within the central industrial complex of Nakatsugawa City, Gifu Prefecture. It is dedicated to sensor manufacture and incorporates an integrated production system from design to manufacture of measuring instruments such as dial gages, test indicators, digimatic indicators and bore gages. Leading-edge production technologies and facilities ensure that the Mitutoyo-brand instruments shipped from here are highly valued as the world's best, providing users with a strong feeling of confidence.



3 Carbide contact-tips and anvils

The new carbide-ball contact point and anvil tip have increased abrasion resistance compared with the steel-ball type and better surface roughness compared with the molded carbide-tip type. Thus, they almost never scratch a workpiece.

Improved abrasion resistance over a steel-ball type



Test method

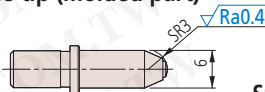
- Rotating a sandpaper-wrapped cylinder against the ball tip.

Sandpaper: 9 μm grit size
Load: 0.5N (50g)
Sliding distance: 1,000m

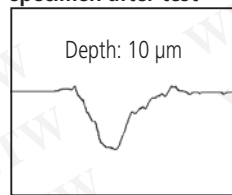


Much less damage to soft materials

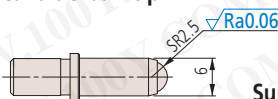
Old carbide tip (molded part)



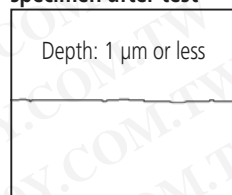
Surface profile of specimen after test



New type carbide ball-tip



Surface profile of specimen after test



Test method

- Reciprocating the tip 20 times on an aluminum plate under a load of 4N

4 New grip improves accuracy during prolonged use

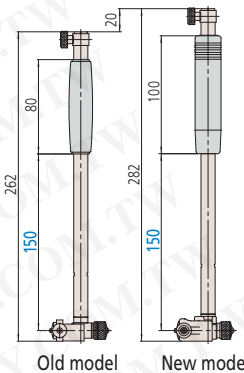
(Design registered in Japan)

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 length below the grip is the same as that of the old model. This guarantees no difference in operability of the gage.

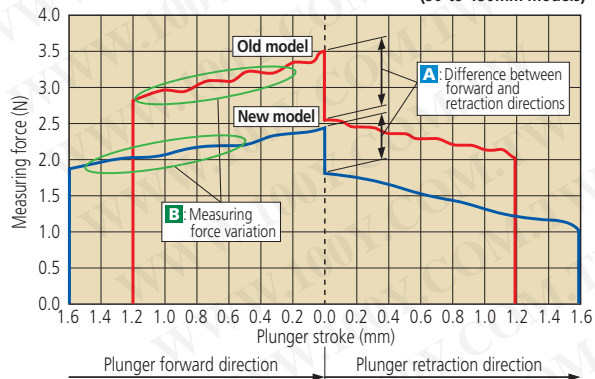
(Note: The overall length of this model is longer than that of its predecessor and therefore may not fit in an existing custom-made storage box.)



5 New contacts mean smoother action and better durability



Comparison of measuring force between the new and old models (50-to-150mm models)



- A:** The new models provide a minimum difference in measuring force between the forward and retraction directions, thus achieving smooth operation and high durability.
- B:** The new models enable stable measurement by reducing the variation of measuring force.

Series 511 Standard Bore Gage

Accuracy

- Wide-range accuracy: $2\ \mu\text{m} / .00008''$
- Repeatability: $0.5\ \mu\text{m} / .00002''$
- Adjacent error: $1\ \mu\text{m} / .00004''$

Standard Bore Gage



511-743



511-703

Measuring Heads



511-701/761/731/781

511-702/762/732/782

511-703/763/733/783

511-704/764/734/784

511-705/735

511-706/736

Specifications

• Inch Gage Stem $\varnothing\ 3/8''$

Measuring Range	Order No. Without Indicator	Order No. With 2922SB Graduation .0005"	Order No. With 2923SB-10 Graduation .0001"	Number of Anvils	Number of Spacers
.7 - 1.4"	511-731	511-741	511-751	9	2
1.4 - 2.5"	511-732	511-742	511-752	6	4
2.0 - 6.0"	511-733	511-743	511-753	11 (2" sub anvil)	4
4.0 - 6.5"	511-734	511-744	511-754	13	4
6.5 - 10"	511-735	511-745	511-755	6	7
10 - 16"	511-736	511-746	511-756	5 (3" sub anvil)	7
.7 - 6"	—	511-931	511-932	26 (2" sub anvil)	10

• Metric Gage Stem $\varnothing\ 3/8''$

Measuring Range	Order No. Without Indicator	Order No. With 2046SB Graduation 0.01mm	Order No. With 2109SB-10 Graduation 0.001mm	Number of Anvils	Number of Spacers
18 - 35mm	511-701	511-711	511-721	9	2
35 - 60mm	511-702	511-712	511-722	6	4
50 - 150mm	511-703	511-713	511-723	11 (50mm Sub Anvil)	4
100 - 160mm	511-704	511-714	511-724	13	4
160 - 250mm	511-705	511-715	511-725	6	7
250 - 400mm	511-706	511-716	511-726	5 (75mm Sub Anvil)	7
18 - 150mm	—	511-921 (3 pc set)	511-922 (3 pc set)	26 (50mm Sub Anvil)	10

Series 511 Short-leg Bore Gage



511-786

Short-leg Bore Gage



511-786

Measuring Heads



511-701/761/731/781

511-702/762/732/782

511-703/763/733/783

511-704/764/734/784

511-705/735

511-706/736

Specifications

•Inch

Gage Stem \varnothing 3/8"

Measuring Range	Order No. With 2922SB Graduation .0005"	Order No. With 2923SB-10 Graduation .0001"	Number of Anvils	Number of Spacers
.7 - 1.4"	511-786	511-791	9	2
1.4 - 2.5"	511-787	511-792	6	4
2.0 - 6.0"	511-788	511-793	11 (2" sub anvil)	4
4.0 - 6.5"	511-789	511-794	13	4

•Metric

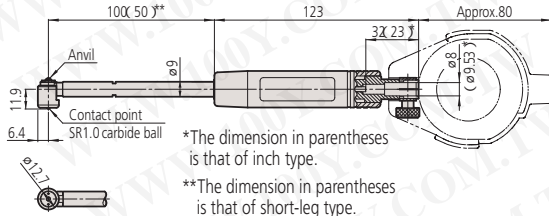
Gage Stem \varnothing 3/8"

Measuring Range	Order No. With 2046SB Graduation 0.01mm	Order No. With 2109SB-10 Graduation 0.001mm	Number of Anvils	Number of Spacers
18 - 35mm	511-766	511-771	9	2
35 - 60mm	511-767	511-772	6	4
50 - 150mm	511-768	511-773	11 (50mm Sub Anvil)	4
100 - 160mm	511-769	511-774	13	4

Dimensions

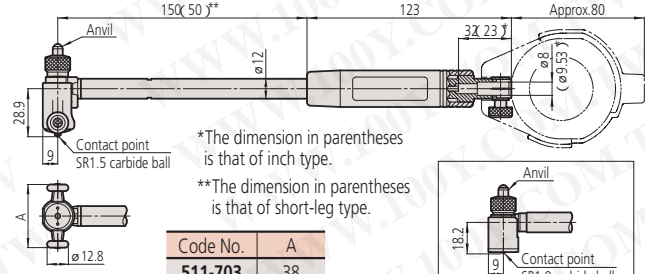
Unit: mm

7-1.4"/18-35mm



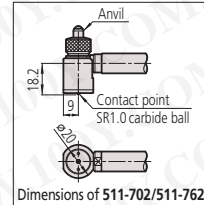
*The dimension in parentheses is that of inch type.
 **The dimension in parentheses is that of short-leg type.
 •Set of dial gage protective cover, retaining plate, and round-head Phillips screws: **No.21DZA000**

1.4-2.5"/35-60mm, 2-6"/50-150mm, 4-6.5"/100-160mm



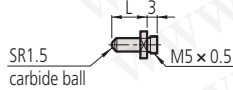
*The dimension in parentheses is that of inch type.
 **The dimension in parentheses is that of short-leg type.

Code No.	A
511-703	38
511-704	50



Dimensions of 511-702/511-762

Anvils



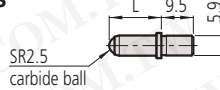
•Inch

Main unit	Marking	Size (inch)	L (inch)	Part No.
511-731 511-781	1	.709	.098	21DZA213A
	2	.787	.177	21DZA213B
	3	.866	.256	21DZA213C
	4	.945	.335	21DZA213D
	5	1.024	.413	21DZA213E
	6	1.102	.492	21DZA213F
	7	1.181	.571	21DZA213G
	8	1.260	.650	21DZA213H
	9	1.339	.728	21DZA213J

•Metric

Main unit	Marking	Size (mm)	L (mm)	Part No.
511-701 511-761	1	18	2.5	21DZA213A
	2	20	4.5	21DZA213B
	3	22	6.5	21DZA213C
	4	24	8.5	21DZA213D
	5	26	10.5	21DZA213E
	6	28	12.5	21DZA213F
	7	30	14.5	21DZA213G
	8	32	16.5	21DZA213H
	9	34	18.5	21DZA213J

Anvils



•Inch

Main unit	Marking	Size (inch)	L (inch)	Part No.	
511-732 511-782	1	1.378	.217	21DZA232A	
	2	1.575	.413	21DZA232B	
	3	1.772	.610	21DZA232C	
	4	1.969	.807	21DZA232D	
	5	2.165	1.004	21DZA232E	
	6	2.362	1.201	21DZA232F	
511-733 511-783	1	1.969(3.969)	.217	21DZA232A	
	2	2.165(4.165)	.413	21DZA232B	
	3	2.362(4.362)	.610	21DZA232C	
	4	2.559(4.559)	.807	21DZA232D	
	5	2.756(4.756)	1.004	21DZA232E	
	6	2.953(4.953)	1.201	21DZA232F	
	7	3.150(5.150)	1.398	21DZA232G	
	8	3.346(5.346)	1.594	21DZA232H	
	9	3.543(5.543)	1.791	21DZA232J	
	10	3.740(5.740)	1.988	21DZA232L	
	11	3.937(5.937)	2.185	21DZA232M	
	511-734 511-784	1	3.937	.217	21DZA232A
		2	4.134	.413	21DZA232B
3		4.331	.610	21DZA232C	
4		4.528	.807	21DZA232D	
5		4.724	1.004	21DZA232E	
6		4.921	1.201	21DZA232F	
7		5.118	1.398	21DZA232G	
8		5.315	1.594	21DZA232H	
9		5.512	1.791	21DZA232J	
10		5.709	1.988	21DZA232L	
11		5.906	2.185	21DZA232M	
12		6.102	2.382	21DZA232N	
13		6.299	2.579	21DZA232P	

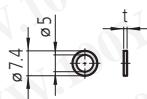
NOTE: Each dimension in parentheses is that of 511-733, indicating a size if the 2" sub-anvil is used.

•Metric

Main unit	Marking	Size (mm)	L (mm)	Part No.
511-702 511-762	1	35	5.5	21DZA232A
	2	40	10.5	21DZA232B
	3	45	15.5	21DZA232C
	4	50	20.5	21DZA232D
	5	55	25.5	21DZA232E
	6	60	30.5	21DZA232F
511-703 511-763	1	50(100)	5.5	21DZA232A
	2	55(105)	10.5	21DZA232B
	3	60(110)	15.5	21DZA232C
	4	65(115)	20.5	21DZA232D
	5	70(120)	25.5	21DZA232E
	6	75(125)	30.5	21DZA232F
	7	80(130)	35.5	21DZA232G
	8	85(135)	40.5	21DZA232H
	9	90(140)	45.5	21DZA232J
	10	95(145)	50.5	21DZA232L
511-704 511-764	1	100	5.5	21DZA232A
	2	105	10.5	21DZA232B
	3	110	15.5	21DZA232C
	4	115	20.5	21DZA232D
	5	120	25.5	21DZA232E
	6	125	30.5	21DZA232F
	7	130	35.5	21DZA232G
	8	135	40.5	21DZA232H
	9	140	45.5	21DZA232J
	10	145	50.5	21DZA232L
	11	150	55.5	21DZA232M
	12	155	60.5	21DZA232N
	13	160	65.5	21DZA232P

NOTE: Each dimension in parentheses is that of 511-703, indicating a size if the 50mm sub-anvil is used.

Adjustment spacers



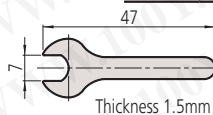
•Inch

t (inch)	Part No.
.02	205623
.04	205624

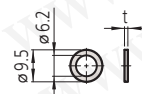
•Metric

t (mm)	Part No.
0.5	205623
1	205624

Wrench No.102148



Adjustment spacers



•Inch

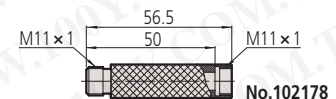
t (inch)	Part No.
.02	205457
.04	205458
.08	205459
.12	205460

•Metric

t (mm)	Part No.
0.5	205457
1	205458
2	205459
3	205460

Sub-anvil (2") 50mm

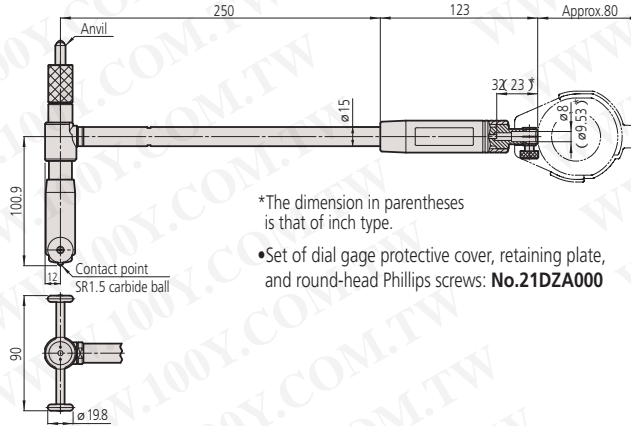
(supplied only for 511-703/733/783)



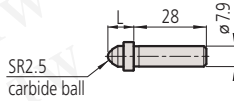
Dimensions

Unit: mm

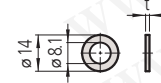
6.5-10"/160-250mm, 10-16"/250-400mm



Anvils



Adjustment spacers



•Inch

Main unit	Marking	Size (inch)	L (inch)	Part No.
511-735	1	6.500	.394	21DZA241A
	2	7.091	.984	21DZA241B
	3	7.681	1.575	21DZA241C
	4	8.272	2.165	21DZA241D
	5	8.862	2.756	21DZA241E
	6	9.453	3.346	21DZA241F
511-736	1	10.000(13.000)	.394	21DZA241A
NOTE: Each dimension in parentheses is that of 511-736, indicating a size if the 3" sub-anvil is used.	2	10.591(13.591)	.984	21DZA241B
	3	11.181(14.181)	1.575	21DZA241C
	4	11.772(14.772)	2.165	21DZA241D
	5	12.362(15.362)	2.756	21DZA241E

•Metric

Main unit	Marking	Size (mm)	L (mm)	Part No.
511-705	1	160	10	21DZA241A
	2	175	25	21DZA241B
	3	190	40	21DZA241C
	4	205	55	21DZA241D
	5	220	70	21DZA241E
	6	235	85	21DZA241F
511-706	1	25(325)	10	21DZA241A
NOTE: Each dimension in parentheses is that of 511-706, indicating a size if the 75mm sub-anvil is used.	2	26(340)	25	21DZA241B
	3	28(355)	40	21DZA241C
	4	29(370)	55	21DZA241D
	5	31(385)	70	21DZA241E

•Inch

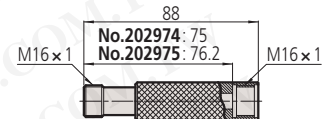
t (inch)	Part No.
.02	205467
.04	205461
.08	205462
.12	205463
.16	205464
.20	205465
.24	205466

•Metric

t (mm)	Part No.
0.5	205467
1	205461
2	205462
3	205463
4	205464
5	205465
6	205466

Sub-anvil (3") 75mm

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



No.202974: 75
No.202975: 76.2

No.202974 (511-706)
No.202975 (511-736)

Series 511 Micrometer Head Bore Gage

Accuracy

- Wide-range accuracy: 2 μm / .00008"
- Repeatability: 0.5 μm / .00002"
- Adjacent error: 1 μm / .00004"



511-843



511-814



511-804

(The dial gage and protective cover are optional.)



511-806

Measuring Heads



511-803/833

511-804/834

511-805/835

511-806/836



511-807/837

511-808/838

Specifications

•Inch Gage Stem \varnothing 3/8"

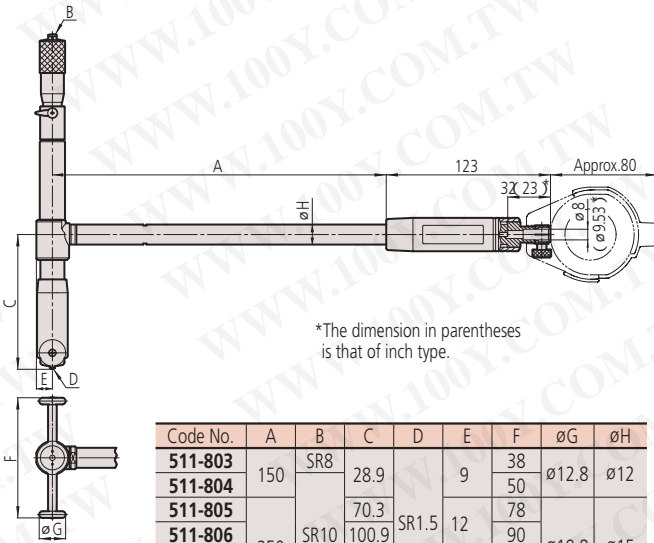
Measuring Range	Order No. Without Indicator	Order No. With 2922SB Graduation .0005"	Order No. With 2923SB-10 Graduation .0001"	Mic Head Travel	Sub Anvil
2.4 - 4.0"	511-833	511-843	511-853	.4"	.4", .8"
4.0 - 6.4"	511-834	511-844	511-854	.5"	.4", .8", .8"
6.0 - 10"	511-835	511-845	511-855	.5"	.4", .8", .8", 2"
10 - 16"	511-836	511-846	511-856	1"	1", 2", 2"
16 - 24"	511-837	511-847	511-857	2"	2", 4"
24 - 32"	511-838	511-848	511-858	2"	2", 4"

•Metric Gage Stem \varnothing 3/8"

Measuring Range	Order No. Without Indicator	Order No. With 2046SB Graduation 0.01mm	Order No. With 2109SB-10 Graduation 0.001mm	Mic Head Travel	Sub Anvil
60 - 100mm	511-803	511-813	511-823	10mm	10mm, 20mm
100 - 160mm	511-804	511-814	511-824	13mm	10mm, 20mm, 20mm
150 - 250mm	511-805	511-815	511-825	13mm	10mm, 20mm, 20mm, 50mm
250 - 400mm	511-806	511-816	511-826	25mm	25mm, 50mm, 50mm
400 - 600mm	511-807	511-817	511-827	50mm	50mm, 100mm
600 - 800mm	511-808	511-818	511-828	50mm	50mm, 100mm

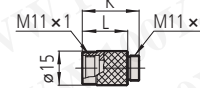
Dimensions

Unit: mm



Code No.	A	B	C	D	E	F	øG	øH		
511-803	150	SR8	28.9	SR1.5	9	38	ø12.8	ø12		
511-804			70.3		12	50				
511-805	250	SR10	100.9		12	78				
511-806			200.9		16	90			ø19.8	ø15
511-807			300.9		120					
511-808										

Sub-anvils

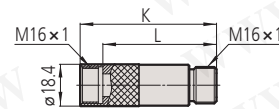


•Inch

Main unit	Marking	K (inch)	L (inch)	Part No.
511-833	.4	.6	.4	208893
511-834	.8	1	.8	208895
511-835	.4	.6	.4	208893
	.8	1	.8	208895
	2	2.2	2	21DAA493

•Metric

Main unit	Marking	K (mm)	L (mm)	Part No.
511-803	10	15	10	208892
511-804	20	25	20	208894
511-805	10	15	10	208892
	20	25	20	208894
	50	55	50	21DAA492



•Inch

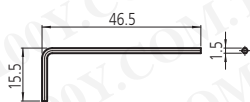
Main unit	Marking	K (inch)	L (inch)	Part No.
511-836	1	1.4	1	208927
	2	2.4	2	208929
511-837	2	2.4	2	208929
511-838	4	4.4	4	208933

•Metric

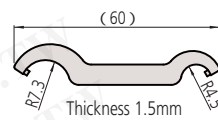
Main unit	Marking	K (mm)	L (mm)	Part No.
511-806	25	35	25	208926
	50	60	50	208928
511-807	50	60	50	208928
511-808	100	110	100	208932

Wrenches

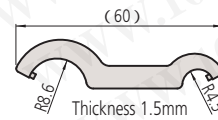
No. 202863



No. 301336



No. 200154



•Inch

Code No.	Part No.
511-833	301336 (2piece)
	202863 (1piece)
511-834	301336 (2piece)
511-835	301336 (2piece)
511-836	200154 (2piece)
511-837	200154 (2piece)
511-838	200154 (2piece)

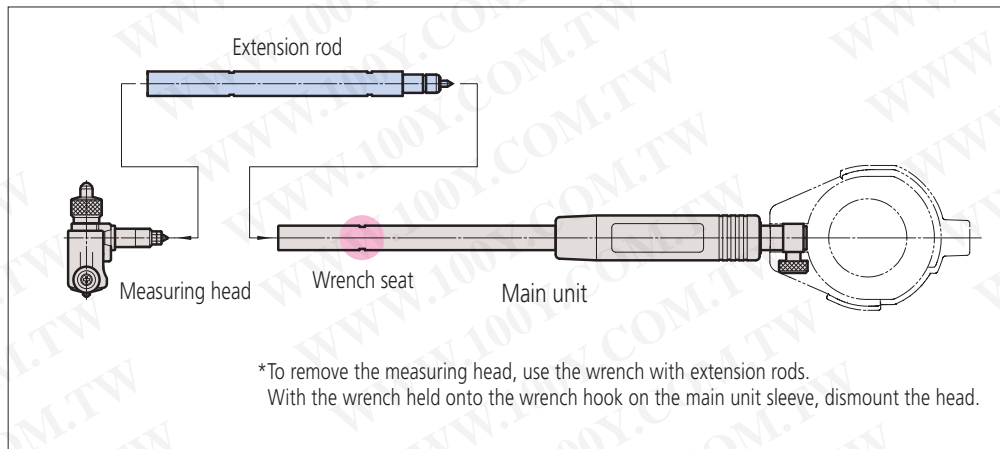
•Metric

Code No.	Part No.
511-803	301336 (2piece)
	202863 (1piece)
511-804	301336 (2piece)
511-805	301336 (2piece)
511-806	200154 (2piece)
511-807	200154 (2piece)
511-808	200154 (2piece)

Bore Gage Accessories (Options)

Extension Rods

- Extension rods (optional) are available to assist in deep-hole measurement.
- When a rod is connected, there might be error margins due the distortion of the rod, etc. In order to keep the error margins minimum, please don't connect more than 2 rods to a bore gage.
- The maximum extension is limited to 1,000 mm.
- If using an extension rod longer than 500 mm, use the bore gage only in the vertical orientation.

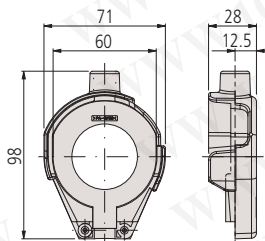
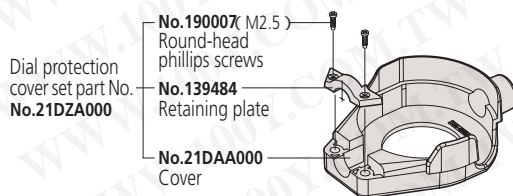


Specifications

Extension rod length					Extension rod diameter	Wrench Part No.	Applicable measuring range
125mm/5"	250mm/10"	500mm/20"	750mm/30"	1,000mm/40"			
953549	953550	953551	—	—	ø9	102148	18-35mm/1.7"-1.4"
953552	953553	953554	953555	953556	ø12	212556	35-60mm/1.4"-2.5"
							50-150mm/2"-6"
							100-160mm/4"-6.5"
							60-100mm/2.4"-4"
953557	952361	953558	953559	953560	ø15	212556	100-160mm/4.5"-6"
							160-250mm/6.5"-10"
							250-400mm/10"-16"
							150-250mm/6"-10"
							250-400mm/10"-16"
400-600mm/16"-24"							
600-800mm/24"-32"							

Dial Protection Cover

- It is possible to mount either flat back or lug-on-center back panels on the dial gage protective cover.



515-Series Bore Gage Zero-Checker

- The datum point of bore gages with a measuring range of 18 to 400mm can be easily set using an appropriate gage block in conjunction with this accessory.

Specifications

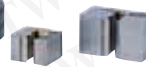
Order No.	Datum point checking range (mm)
515-590	18-400 / .7"-16"

Accuracy

Flatness of parallel jaws: 0.5 μ m (parallelism 1 μ m)



515-590
CCG-400



Standard configuration:

Stand
Attachment A, B, C (1 piece each)
Dedicated jaws (2 pieces)

177-Series Setting Rings

- These rings are used for checking the datum point of bore gages and others. Also, if a setting ring of an optimal size is prepared, it can be used for calibration. (For ordering details, refer to the Mitutoyo General Catalog No. US-1001.)

Steel setting rings



Ceramic setting rings





Coordinate Measuring Machines	
Vision Measuring Systems	
Form Measurement	
Optical Measuring	
Sensor Systems	
Testing Equipment and Seismometer	
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Mitutoyo
 Precision is our Profession

Absolute Digimatic Bore Gage

SERIES 511

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



SPECIFICATIONS

Metric				
Resolution	Range	Order No.	Probe depth	Mass
0.001mm	45 - 100mm	511-501	150mm	500g
Inch/Metric				
Resolution	Range	Order No.	Probe depth	Mass
0.001mm	1.8 - 4"	511-521	6"	1.10 lbs.

Technical Data

Display: LCD
Functions: Origin-Set (preset), Zero-Set, power on/off, inch/mm conversion (inch/mm type only), SPC data output, GO/±NG tolerance judgment
Battery: SR44 (1 pc.) (938882)
Battery life: Approx. 9 months for normal use
Alarm: Low battery voltage, scale contamination, over-flow error, tolerance limit setting error
Dust/Water protection level: Conforming to IP53
Operating temperature: 0°C to 40°C

OPTIONAL ACCESSORIES

Order No.	Description
21DZA089	Extension rod 250 mm (10")
21DZA081	Extension rod 500 mm (20")
516-118-10	Origin setup metric rectangular gauge block set
516-119-10	Origin setup metric square gauge block set
905338	SPC cable (1m)
905409	SPC cable (2m)

This absolute Digimatic bore gages are exclusively designed for ID measurement.

FEATURES

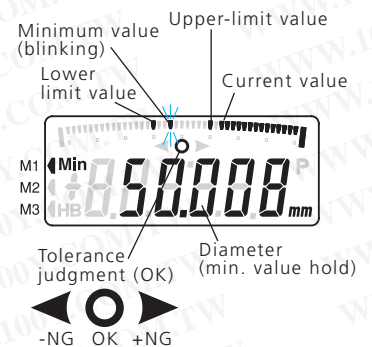
- The minimum value holding function provides the easy of detection of hole diameter.



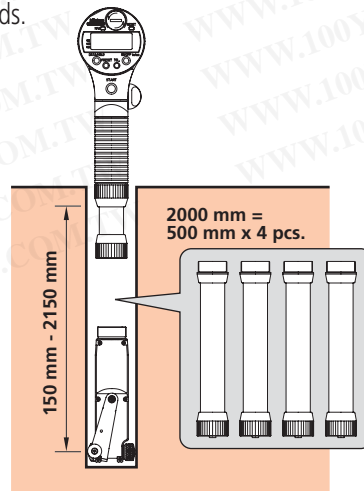
- Up to three sets of master value and upper/lower tolerance value can be memorized.



- An analog bar indicator is integrated to enhance the intuition in reading.
- GO/±NG judgment is performed by setting the upper and lower tolerances.



- Up to four rods can be used (500 mm (20") extension rod). The unit is also compatible with 250 mm (10") extension rods.



DIAL INDICATORS

IDC Series Absolute Digimatic Indicators

SERIES 543 — Exclusively Designed for Bore Gages



勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
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543-266B

SPECIFICATIONS

Metric			
Resolution	Range	Order No. (Flat-back)	Accuracy
0.001mm	12mm	543-264B	0.003mm
Inch/Metric			
Resolution	Range	Order No. (Flat-back)	Accuracy
.00005"/0.001mm	.5" (12.7mm)	543-266B	.00012"

Technical Data

- Display:** LCD
Functions: Origin-Set (preset), Zero-Set, power on/off, inch/mm conversion (inch/mm type only), SPC data output, counting direction switching, GO/±NG tolerance judgment SR44 (1 pc.) (938882)
Battery: Approx. 2000 hours in continuous use
Battery life: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
Stem diameter: Carbide ball with M2.5x0.45 thread (ISO/JIS type) or steel ball with #4-48UNF thread (ANSI/AGD type)
Contact point: Low battery voltage, scale contamination, over-flow error, tolerance limit setting error
Alarm: Dust/Water protection level: Conforming to IP42
Operating temperature: 0°C to 40°C

This IDC Series Digimatic Indicators are exclusively designed for ID measurement.

FEATURES

- The minimum value holding function provides the easy of detection of hole diameter.

Minimum value holding for easy measurement



- An analog bar indicator is integrated to enhance the intuition in reading.
- GO/±NG judgment is performed by setting the upper and lower tolerances.
- Up to three sets of master value and upper/lower tolerance value can be memorized.

OPTIONAL ACCESSORIES

Order No.	Description
905338	SPC cable (1m)
905409	SPC cable (2m)



Installed on bore gage probe (526-160)

Installed on bore gage probe (511-127)

BORE GAGE PROBES (Optional)

Range	Order No.
0.95 - 1.55mm	526-170
1.5 - 4.0mm	526-160
3.7 - 7.3mm	526-150
7.0 - 10.0mm	526-101
10 - 18mm	526-102
18 - 35mm	511-126
35 - 60mm	511-127
50 - 150mm	511-132

Bore Gages

SERIES 526 — for Extra Small Holes

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DIAL INDICATORS



SPECIFICATIONS

Metric				
Graduation	Range	Order No.	Probe depth	Mass
0.001mm	0.95 - 1.55mm	526-172*	11.5mm	326g
	1.5 - 4mm	526-162*	17.5, 22.5mm	385g
	3.7 - 7.3mm	526-152*	32mm	338g
	7 - 10mm	526-124	56mm	300g
	10 - 18mm	526-125	62mm	366g
0.01mm	0.95 - 1.55mm	526-173*	11.5mm	326g
	1.5 - 4mm	526-163*	17.5, 22.5mm	385g
	3.7 - 7.3mm	526-153*	32mm	338g
	7 - 10mm	526-126	56mm	300g
	10 - 18mm	526-127	62mm	366g

These Bore Gages measure diameters of small holes. The radial displacement of split-ball contact is converted to axial displacement of measuring rod, which is shown on the dial indicator.

FEATURES

- Optional stand (215-120M) is available for efficient measurement of multiple small holes.

Inch				
Graduation	Range	Order No.	Probe depth	Mass
.0001"	.037" - .061"	526-176*	.45"	.72 lbs.
	.06" - .155"	526-166*	.68", .88"	.85 lbs.
	.145" - .29"	526-156*	1.25"	.74 lbs.
	.3" - .4"	526-122	2.2"	.69 lbs.
	.4" - .7"	526-123	2.4"	.84 lbs.
.0005"	.3" - .4"	526-119	2.2"	.69 lbs.
	.4" - .7"	526-120	2.4"	.84 lbs.

*Provided with Setting Rings for each probe size.

Bore Gages

SERIES 511 — for Small Holes



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FEATURES

- Its interchangeable anvils are made of alloyed steel.
- The dial indicator is fully protected by a rugged cover.

SPECIFICATIONS

Metric				
Graduation	Range	Order No.	Probe depth	Mass
0.001mm	6 - 10mm	511-210	47mm	255g
	10 - 18.5mm	511-203	100mm	268g
0.01mm	6 - 10mm	511-211	47mm	255g
	10 - 18.5mm	511-204	100mm	268g

Inch				
Graduation	Range	Order No.	Probe depth	Mass
.0001"	.24" - .4"	511-212	2"	.57 lbs.
	.4" - .74"	511-206	4"	.61 lbs.
.0005"	.24" - .4"	511-213	2"	.57 lbs.
	.4" - .74"	511-207	4"	.61 lbs.

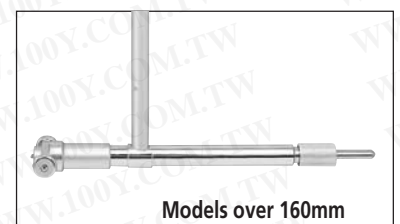
DIAL INDICATORS

Bore Gages

SERIES 511



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Mitutoyo offers a complete selection of Bore Gages, all of them with interchangeable anvils and necessary accessories to perform close tolerance I.D. measurements. Some of larger Bore Gages are equipped with a unique self-centering device which facilitates accurate measurement of the bore.

FEATURES

- Most popular Bore Gages.
- Carbide-tipped contact points for durability.
- The dial indicator is fully protected by a rugged cover.
- Optional extension rods can be attached for measuring deep holes.
- Economy Bore Gage Sets are also available.

SPECIFICATIONS

Metric		Bore Gages with Standard Dial Indicator		
Graduation	Range	Order No.	Probe depth	Mass
0.001mm	18 - 35mm	511-167	100mm	332g
	35 - 60mm	511-168	150mm	426g
	50 - 100mm	511-169	150mm	509g
	50 - 150mm	511-170	150mm	544g
	100 - 160mm	511-178	150mm	610g
	160 - 250mm	511-179	250mm	1060g
	250 - 400mm	511-180	250mm	1330g
0.01mm	18 - 35mm	511-171	100mm	332g
	35 - 60mm	511-172	150mm	426g
	50 - 100mm	511-173	150mm	509g
	50 - 150mm	511-174	150mm	544g
	100 - 160mm	511-175	150mm	610g
	160 - 250mm	511-176	250mm	1060g
	250 - 400mm	511-177	250mm	1330g

Inch		Bore Gages with Standard Dial Indicator		
Graduation	Range	Order No.	Probe depth	Mass
.0001"	.7" - 1.4"	511-163	4"	.76 lbs.
	1.4" - 2.5"	511-184	6"	.91 lbs.
	2" - 4"	511-185	6"	1.10 lbs.
	2" - 6"	511-186	6"	1.17 lbs.
	4" - 6.5"	511-187	6"	1.38 lbs.
	6.5" - 10"	511-188	10"	2.38 lbs.
	10" - 16"	511-189	10"	3.04 lbs.
.0005"	.7" - 1.4"	511-159	4"	.76 lbs.
	1.4" - 2.5"	511-160	6"	.91 lbs.
	2" - 4"	511-161	6"	1.10 lbs.
	2" - 6"	511-162	6"	1.17 lbs.
	4" - 6.5"	511-164	6"	1.38 lbs.
	6.5" - 10"	511-165	10"	2.38 lbs.
	10" - 16"	511-166	10"	3.04 lbs.

Metric		Bore Gage Sets with Standard Dial Indicator		
Graduation	Range	Order No.	Number of probes	Mass
0.001mm	18 - 150mm	511-902	3	954g
0.01mm	18 - 150mm	511-901	3	954g

Inch		Bore Gage Sets with Standard Dial Indicator		
Graduation	Range	Order No.	Number of probes	Mass
.0001"	.7" - 6"	511-912	3	2.10 lbs.
.0005"	.7" - 6"	511-911	3	2.10 lbs.

OPTIONAL ACCESSORIES

Order No.	Description
953549	125mm Extension Rod for 18-35mm (.7"-1.4") models
953552	125mm Extension Rod for 35-160mm (1.4"-6.5") models
953557	125mm Extension Rod for 160-400mm (6.5"-16") models
953550	250mm Extension Rod for 18-35mm (.7"-1.4") models
953553	250mm Extension Rod for 35-160mm (1.4"-6.5") models
952361	250mm Extension Rod for 160-400mm (6.5"-16") models
953551	500mm Extension Rod for 18-35mm (.7"-1.4") models
953554	500mm Extension Rod for 35-160mm (1.4"-6.5") models
953558	500mm Extension Rod for 160-400mm (6.5"-16") models
953555	750mm Extension Rod for 35-160mm (1.4"-6.5") models
953559	750mm Extension Rod for 160-400mm (6.5"-16") models
953556	1000mm Extension Rod for 35-160mm (1.4"-6.5") models
953560	1000mm Extension Rod for 160-400mm (6.5"-16") models



Extension Rod

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 勝特力电子(深圳) 86-755-83298787
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Bore Gages

SERIES 511 — Short Leg Type

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 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



SPECIFICATIONS

Metric				
Graduation	Range	Order No.	Probe depth	Mass
0.001mm	18 - 35mm	511-471	50mm	315g
	35 - 60mm	511-472	50mm	386g
	50 - 100mm	511-473	50mm	469g
	50 - 150mm	511-474	50mm	504g
0.01mm	18 - 35mm	511-461	50mm	315g
	35 - 60mm	511-462	50mm	386g
	50 - 100mm	511-463	50mm	469g
	50 - 150mm	511-464	50mm	504g

Inch				
Graduation	Range	Order No.	Probe depth	Mass
.0001"	.7" - 1.4"	511-491	2"	.67 lbs.
	1.4" - 2.5"	511-492	2"	.82 lbs.
	2" - 4"	511-493	2"	1.02 lbs.
	2" - 6"	511-494	2"	1.08 lbs.
.0005"	.7" - 1.4"	511-481	2"	.67 lbs.
	1.4" - 2.5"	511-482	2"	.82 lbs.
	2" - 4"	511-483	2"	1.02 lbs.
	2" - 6"	511-484	2"	1.08 lbs.
.001"	4" - 6.5"	511-485	2"	1.29 lbs.

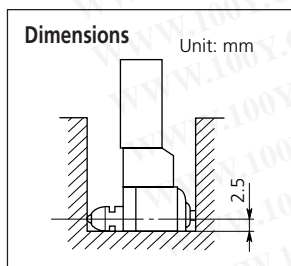
DIAL INDICATORS

FEATURES

- Compact and lightweight because of the short length below the grip.
- Carbide-tipped contact point for durability.

Bore Gages

SERIES 511 — for Blind Holes



SPECIFICATIONS

Metric				
Graduation	Range	Order No.	Probe depth	Mass
0.001mm	15 - 35mm	511-421	150mm	740g
	35 - 60mm	511-422	150mm	765g
	50 - 100mm	511-423	150mm	800g
	50 - 150mm	511-424	150mm	820g
0.01mm	15 - 35mm	511-411	150mm	740g
	35 - 60mm	511-412	150mm	765g
	50 - 100mm	511-413	150mm	800g
	50 - 150mm	511-414	150mm	820g

Inch				
Graduation	Range	Order No.	Probe depth	Mass
.0001"	.6" - 1.4"	511-441	6"	1.63 lbs.
	1.4" - 2.4"	511-442	6"	1.68 lbs.
	2" - 4"	511-443	6"	1.76 lbs.
	2" - 6"	511-444	6"	1.80 lbs.
.0005"	.6" - 1.4"	511-431	6"	1.63 lbs.
	1.4" - 2.4"	511-432	6"	1.68 lbs.
	2" - 4"	511-433	6"	1.76 lbs.
	2" - 6"	511-434	6"	1.80 lbs.

FEATURES

- Can measure ID at position close to the bottom of blind holes.

Bore Gages

SERIES 511 — with Micrometer Head

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



FEATURES

- Interchangeable anvil is attached to a micrometer head for accurate dimensional setting.
- Wide measuring range with sub-anvils.
- Carbide ball contact point for durability.
- Extension rods (optional) can be attached for measuring deep holes.
- Optional Setting Rings offer the best method of zero-setting Bore Gages.



Setting Ring
(See page 225.)

SPECIFICATIONS

Metric

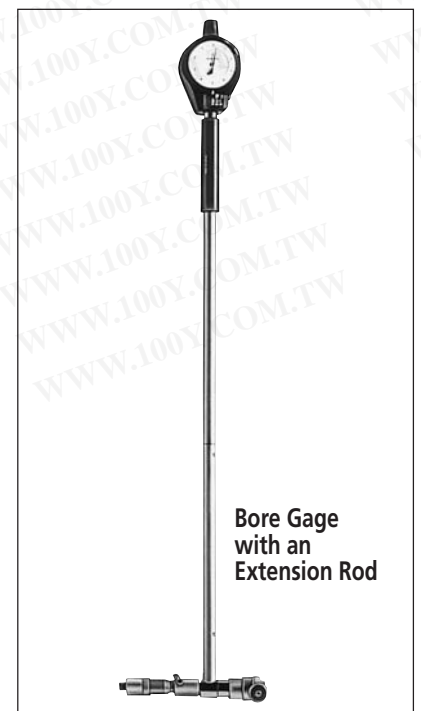
Graduation	Range	Order No.	Probe depth	Mass
0.001mm	35 - 60mm	511-343	150mm	400g
	60 - 100mm	511-333	150mm	455g
	100 - 160mm	511-311	150mm	575g
	150 - 250mm	511-313	250mm	930g
	250 - 400mm	511-315	250mm	1200g
	400 - 600mm	511-317	250mm	1500g
	600 - 800mm	511-327	250mm	1900g
0.01mm	35 - 60mm	511-344	150mm	400g
	60 - 100mm	511-334	150mm	455g
	100 - 160mm	511-312	150mm	575g
	150 - 250mm	511-314	250mm	930g
	250 - 400mm	511-316	250mm	1200g
	400 - 600mm	511-318	250mm	1500g
	600 - 800mm	511-328	250mm	1900g

Inch

Graduation	Range	Order No.	Probe depth	Mass
.0001"	1.4" - 2.5"	511-346	6"	.91 lbs.
	2.4" - 4"	511-336	6"	.98 lbs.
	4" - 6.4"	511-326	6"	1.54 lbs.
	6" - 10"	511-320	10"	2.05 lbs.
	10" - 16"	511-322	10"	2.31 lbs.
	16" - 24"	511-324	10"	3.30 lbs.
	24" - 32"	511-330	10"	4.18 lbs.
.0005"	1.4" - 2.5"	511-345	6"	.91 lbs.
	2.4" - 4"	511-335	6"	.98 lbs.
	4" - 6.4"	511-325	6"	1.54 lbs.
	6" - 10"	511-319	10"	2.05 lbs.
	10" - 16"	511-321	10"	2.31 lbs.
	16" - 24"	511-323	10"	3.30 lbs.
	24" - 32"	511-329	10"	4.18 lbs.

OPTIONAL ACCESSORIES

Order No.	Description
953549	125mm Extension Rod for 35-60mm (1.4"-2.5") models
953552	125mm Extension Rod for 60-160mm (2.4"-6.4") models
953557	125mm Extension Rod for 150-800mm (6"-32") models
953550	250mm Extension Rod for 35-60mm (1.4"-2.5") models
953553	250mm Extension Rod for 60-160mm (2.4"-6.4") models
952361	250mm Extension Rod for 150-800mm (6"-32") models
953551	500mm Extension Rod for 35-60mm (1.4"-2.5") models
953554	500mm Extension Rod for 60-160mm (2.4"-6.4") models
953558	500mm Extension Rod for 150-800mm (6"-32") models
953555	750mm Extension Rod for 60-160mm (2.4"-6.4") models
953559	750mm Extension Rod for 150-800mm (6"-32") models
953556	1000mm Extension Rod for 60-160mm (2.4"-6.4") models
953560	1000mm Extension Rod for 150-800mm (6"-32") models



Bore Gage with an Extension Rod

DIAL INDICATORS



Dial Bore Gages

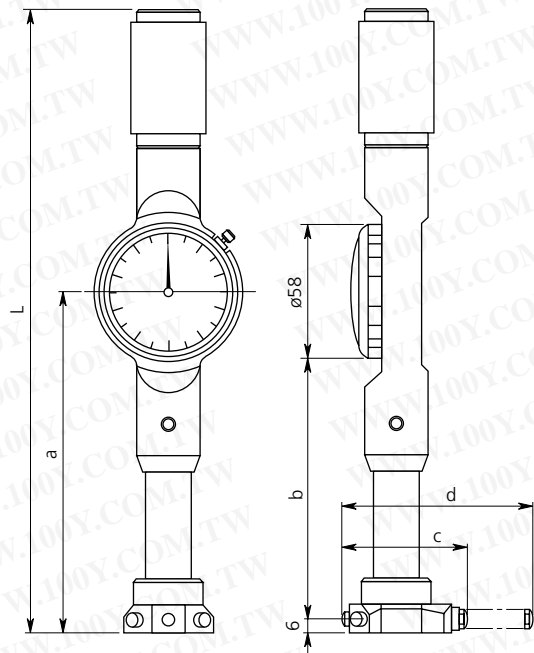
SERIES 545 — Rugged, Production-Line Tools

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 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



Dimensions

Unit: mm



Range	L	a	b	c	d
35 - 50mm	240	123	88	35	50
50 - 75mm	265	148	113	50	75
75 - 150mm	305	188	153	75	150

FEATURES

- Carbide-tipped contact point for excellent durability.
- Wide range of measurements with interchangeable Anvil Extensions (screw-in type).
- Carbide-tipped anvil is optional (901484).
- Two guide pins ensure high repeatability of measurements.
- Easy zero adjustment because the Dial Bore Gage can stand upright.
- Optional interchangeable rods provide a variety of probe depths.

SPECIFICATIONS

Metric

Graduation	Range	Order No.	Probe depth	Mass
0.001mm	35 - 50mm	545-114	85mm	480g
	50 - 75mm	545-115	115mm	540g
	75 - 150mm	545-116	150mm	650g
0.01mm	35 - 50mm	545-104	85mm	480g
	50 - 75mm	545-105	115mm	540g
	75 - 150mm	545-106	150mm	650g

Inch

Graduation	Range	Order No.	Probe depth	Mass
.0001"	1.475" - 2.075"	545-134	3.5"	1.06 lbs.
	1.975" - 3.075"	545-135	4.5"	1.19 lbs.
	2.975" - 6.075"	545-136	6"	1.43 lbs.
.0005"	1.475" - 2.075"	545-124	3.5"	1.06 lbs.
	1.975" - 3.075"	545-125	4.5"	1.19 lbs.
	2.975" - 6.075"	545-126	6"	1.43 lbs.

OPTIONAL ACCESSORIES

Order No.	Description
901484	Carbide-tipped Anvil
901529	Interchangeable Rod (Probe depth: 85mm)
901530	Interchangeable Rod (Probe depth: 115mm)
901940	Interchangeable Rod (Probe depth: 150mm)
901531	Interchangeable Rod (Probe depth: 265mm)
901532	Interchangeable Rod (Probe depth: 315mm)
901533	Interchangeable Rod (Probe depth: 390mm)



Setting Rings

SERIES 177

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
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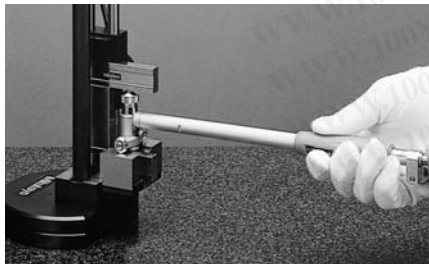
SPECIFICATION



177-146

FEATURES

- Used for quick zero adjustment of dial bore gages.
- See page 149 for smaller sizes of Setting Rings than 6mm (.24").
- Ceramic Setting Rings are also available.



Metric			
Size	Order No.	Accuracy	Mass
6mm	177-267	±1.5µm	30g
6.5mm	177-271	±1.5µm	30g
7mm	177-275	±1.5µm	30g
8mm	177-125	±1.5µm	60g
10mm	177-126	±1.5µm	58g
12mm	177-284	±1.5µm	62g
14mm	177-132	±1.5µm	110g
16mm	177-177	±1.5µm	110g
17mm	177-133	±1.5µm	190g
20mm	177-286	±1.5µm	110g
25mm	177-139	±1.5µm	204g
30mm	177-288	±1.5µm	400g
35mm	177-140	±1.5µm	364g
40mm	177-290	±1.5µm	330g
45mm	177-178	±1.5µm	490g
50mm	177-146	±1.5µm	580g
60mm	177-292	±1.5µm	1.14kg
62mm	177-314	±1.5µm	1.05kg
70mm	177-147	±1.5µm	0.93kg
75mm	177-316	±1.5µm	1.54kg
80mm	177-294	±1.5µm	1.42kg
87mm	177-318	±1.5µm	1.85kg
90mm	177-148	±1.5µm	1.75kg
100mm	177-296	±1.5µm	2.38kg
125mm	177-298	±2.5µm	5.5kg
150mm	177-300	±2.5µm	6.1kg
175mm	177-302	±2.5µm	6.7kg
200mm	177-304	±2.5µm	10.4kg
225mm	177-306	±2.5µm	11.4kg
250mm	177-308	±2.5µm	12.1kg
275mm	177-310	±2.5µm	17kg
300mm	177-312	±2.5µm	17.8kg

Inch			
Size	Order No.	Accuracy	Mass
.24"	177-207	±.00006"	.055lbs.
.275"	177-281	±.00006"	.055lbs.
.35"	177-179	±.00006"	.127lbs.
.425"	177-283	±.00006"	.123lbs.
.50"	177-180	±.00006"	.116lbs.
.60"	177-181	±.00006"	.162lbs.
.65"	177-182	±.00006"	.242lbs.
.70"	177-183	±.00006"	.242lbs.
.80"	177-287	±.00006"	.220lbs.
1.0"	177-184	±.00006"	.440lbs.
1.2"	177-289	±.00006"	.836lbs.
1.4"	177-185	±.00006"	.770lbs.
1.6"	177-291	±.00006"	.682lbs.
1.8"	177-186	±.00006"	1.034lbs.
2.0"	177-187	±.00006"	1.254lbs.
2.4"	177-293	±.00006"	2.420lbs.
2.5"	177-315	±.00006"	2.200lbs.
2.8"	177-188	±.00006"	2.024lbs.
3.0"	177-317	±.00006"	3.300lbs.
3.2"	177-295	±.00006"	3.080lbs.
3.5"	177-319	±.00006"	3.960lbs.
3.6"	177-189	±.00006"	3.740lbs.
4.0"	177-297	±.00006"	5.060lbs.
5.0"	177-299	±.00010"	11.660lbs.
6.0"	177-301	±.00010"	12.980lbs.
7.0"	177-303	±.00010"	14.740lbs.
8.0"	177-305	±.00010"	22.000lbs.
9.0"	177-307	±.00010"	23.980lbs.
10.0"	177-309	±.00010"	26.180lbs.
11.0"	177-311	±.00010"	35.860lbs.
12.0"	177-313	±.00010"	37.840lbs.

Technical Data

Tolerance between the nominal size and the actual diameter:

- ±0.01mm for ø6 - 45mm setting rings
- ±0.02mm for ø50 - 300mm setting rings
- ±.0004" for .24" - 1.8" DIA. setting rings
- ±.0008" for 2" - 12" DIA. setting rings

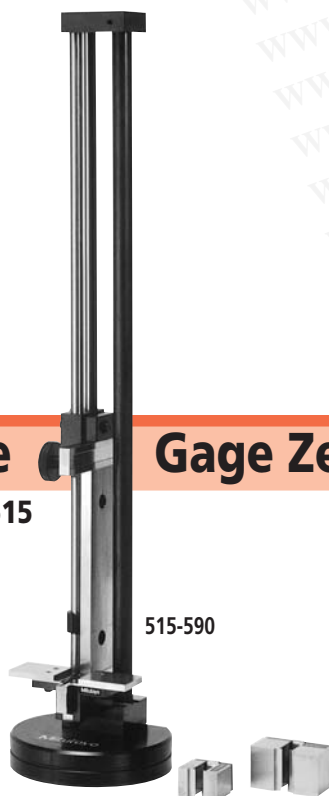
Cylindricity:

- 1.0µm for ø6 - 60mm setting rings
- 1.5µm for ø62 - 90mm setting rings

- 2.0µm for ø100 - 150mm setting rings
- 2.5µm for ø175 - 225mm setting rings
- 3.0µm for ø250 - 300mm setting rings
- .00004" for .24" - 2.4" DIA. setting rings
- .00006" for 2.5" - 3.6" DIA. setting rings
- .00008" for 4" - 6" DIA. setting rings
- .00010" for 7" - 9" DIA. setting rings
- .00012" for 10" - 12" DIA. setting rings

Bore Gage Zero Checker

SERIES 515



515-590

The Bore Gage Zero Checker allows easy zero adjustment of dial bore gages with ranges of 18mm (.7") through 400mm (16") using gauge blocks.

SPECIFICATIONS

Order No.	Applicable range
515-590	18 - 400mm (.7" - 16")

DIAL INDICATORS

