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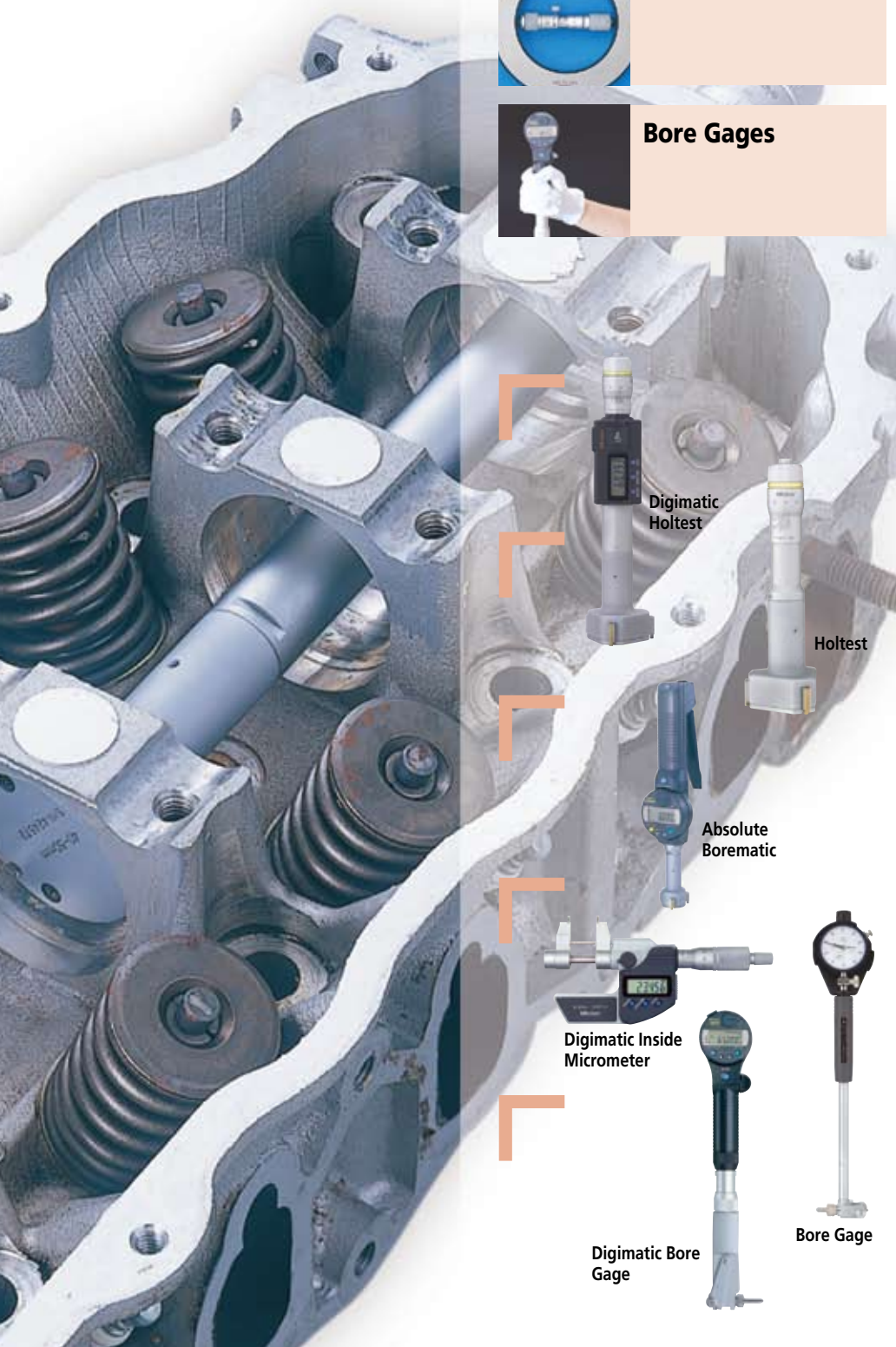
**Holtest
ABSOLUTE Borematic**



Inside Micrometers



Bore Gages



Digimatic Holtest



Holtest



ABSOLUTE Borematic



Digimatic Inside Micrometer



Digimatic Bore Gage



Bore Gage

Digimatic Holtest

SERIES 468 — Three-Point Internal Micrometers

FEATURES

- Three-point internal micrometer with a digital LCD display (text height = 7.4 mm).
- Titanium-coated measuring surfaces.
- Built-in memory can store two preset values for origin setting to enable storage of multiple actual measurements of setting rings with the object of aiding efficient measurement preparation.
- A single button-type battery lasts approximately 1.2 years under normal usage conditions.
- Support for ABS and INC measurement modes for maximum efficiency.
- IP65 protection rated; can be used in places where cutting fluid may splash.
- Measurement reach extends to the bottom of blind holes.
- Enables measurement of deep holes with an optional extension rod.
- Function Lock feature to prevent accidental modification of the origin.
- Setting Rings for accurately setting the instrument are optional.



468-161



468-168



468-174

DIMENSIONS AND MASS

Range	L
6 - 8mm	59
8 - 10mm	59
10 - 12mm	59
12 - 16mm	84
16 - 20mm	84
20 - 25mm	93
25 - 30mm	93
30 - 40mm	103.8
40 - 50mm	103.8
50 - 63mm	105.4
62 - 75mm	105.4
75 - 88mm	105.4
87 - 100mm	105.4
100 - 125mm	151.4
125 - 150mm	151.4
150 - 175mm	151.4
175 - 200mm	151.4
200 - 225mm	151.4
225 - 250mm	151.4
250 - 275mm	151.4
275 - 300mm	151.4

Unit: mm

Measuring a Blind Hole

The measuring pins fixed to the anvils permit measuring the diameter of a blind hole right down to the bottom.

Range	a	b	c
6 - 12mm	2	—	2.5
12 - 20mm	0.3	5.6	3.5
20 - 30mm	0.3	8.3	5.2
30 - 50mm	0.3	13	10
50 - 100mm	0.3	17	14
100 - 300mm	12.4	21	13.8



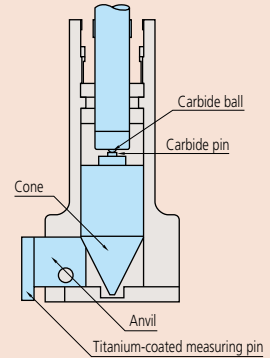
(Refer to page VIII for details.)



(Refer to page VIII for details.)

Technical Data

Accuracy: Refer to the list of specifications.
 Resolution: 0.001mm, .00005"/0.001mm (models up to 4")
 or .0001"/0.001mm (models over 5")
 Measuring pins: Titanium-coated tungsten carbide
 Measuring method: Three-point method
 Display: LCD
 Battery: SR44 (1 pcs.), **938882**
 Battery life: Approx. 1.2 years under normal use



Functions

Zero-setting, Data hold, Automatic power ON/OFF, Data output, 2-point Preset, Function lock, Automatic power on/off, inch/mm conversion (inch/mm models)
 Alarm: Low voltage, Counting value composition error

Optional Accessories

- 05CZA662:** SPC cable with data switch (1m)
- 05CZA663:** SPC cable with data switch (2m)
- 02AZD790B:** SPC cable for U-WAVE w/ data switch (160mm)
- 04AZB157:** Mounting plate for stand
- 156-101-10:** Stand
- : Extension rod (Refer to the list of specifications.)
- : Setting ring (See page C-28.)



Complete-Unit Sets



468-981



468-982



468-983



468-984



468-985

Interchangeable-Head Sets



468-971



468-972



468-973



468-974

SPECIFICATIONS

Metric Individual		Inch/Metric Individual		Accuracy*		Extension rod (optional)
Range	Order No.	Range	Order No.			
6 - 8mm	468-161	.275" - .35"	468-261	±2µm (within 2µm)	±.0001" (within .0001")	100mm (952322)
8 - 10mm	468-162	.35" - .425"	468-262	±2µm (within 2µm)	±.0001" (within .0001")	100mm (952322)
10 - 12mm	468-163	.425" - .5"	468-263	±2µm (within 2µm)	±.0001" (within .0001")	100mm (952322)
12 - 16mm	468-164	.5" - .65"	468-264	±2µm (within 2µm)	±.0001" (within .0001")	150mm (952621)
16 - 20mm	468-165	.65" - .8"	468-265	±2µm (within 2µm)	±.0001" (within .0001")	150mm (952621)
20 - 25mm	468-166	.8" - 1"	468-266	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
25 - 30mm	468-167	1" - 1.2"	468-267	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
30 - 40mm	468-168	1.2" - 1.6"	468-268	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
40 - 50mm	468-169	1.6" - 2"	468-269	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
50 - 63mm	468-170	2" - 2.5"	468-270	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
62 - 75mm	468-171	2.5" - 3"	468-271	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
75 - 88mm	468-172	3" - 3.5"	468-272	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
87 - 100mm	468-173	3.5" - 4"	468-273	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
100 - 125mm	468-174	4" - 5"	468-274	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
125 - 150mm	468-175	5" - 6"	468-275	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
150 - 175mm	468-176	6" - 7"	468-276	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
175 - 200mm	468-177	7" - 8"	468-277	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
200 - 225mm	468-178	8" - 9"	468-278	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
225 - 250mm	468-179	9" - 10"	468-279	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
250 - 275mm	468-180	10" - 11"	468-280	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
275 - 300mm	468-181	11" - 12"	468-281	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)

*Instrumental error excluding quantizing error (maximum error)

Complete-Unit Set

Each set includes complete gages (display units and measuring heads for each size).

Metric				
Range	Order No.	Individual ranges	Setting rings included	Remarks
6 - 12mm	468-981	6-8, 8-10, 10-12mm	ø8mm, ø10mm	—
12 - 25mm	468-982	12-16, 16-20, 20-25mm	ø16mm, ø20mm	—
25 - 50mm	468-983	25-30, 30-40, 40-50mm	ø30mm, ø40mm	—
50 - 75mm	468-984	50-63, 62-75mm	ø62mm	—
75 - 100mm	468-985	75-88, 87-100mm	ø87mm	—

Inch/Metric				
Range	Order No.	Individual ranges	Setting rings included	Remarks
.275" - .5"	468-986	.275-.35", .35-.425", .425-.5"	.35" DIA., .425" DIA.	—
.5" - 1"	468-987	.5-.65", .65-.8", .8-1"	.65" DIA., .8" DIA.	—
1" - 2"	468-988	1-1.2", 1.2-1.6", 1.6-2"	1.2" DIA., 1.6" DIA.	—
2" - 3"	468-989	2-2.5", 2.5-3"	2.5" DIA.	—
3" - 4"	468-990	3-3.5", 3.5-4"	3.5" DIA.	—

Interchangeable-Head Sets

Each set includes one display unit with interchangeable measuring heads of the sizes specified.

Metric				
Range	Order No.	Individual ranges	Setting rings included	Remarks
6 - 12mm	468-971	6-8, 8-10, 10-12mm	ø8mm, ø10mm	with extension rod
12 - 20mm	468-972	12-16, 16-20mm	ø16mm	with extension rod
20 - 50mm	468-973	20-25, 25-30, 30-40, 40-50mm	ø25mm, ø40mm	with extension rod
50 - 100mm	468-974	50-63, 62-75, 75-88, 87-100mm	ø62mm, ø87mm	with extension rod
100 - 200mm	468-975	100-125, 125-150, 150-175, 175-200mm	ø125mm, ø175mm	with extension rod

Inch/Metric				
Range	Order No.	Individual ranges	Setting rings included	Remarks
.275" - .5"	468-976	.275-.35", .35-.425", .425-.5"	.35" DIA., .425" DIA.	with extension rod
.5" - .8"	468-977	.5-.65", .65-.8"	.65" DIA.	with extension rod
.8" - 2"	468-978	.8-1", 1-1.2", 1.2-1.6", 1.6-2"	1" DIA., 1.6" DIA.	with extension rod
2" - 4"	468-979	2-2.5", 2.5-3", 3-3.5", 3.5-4"	2.5" DIA., 3.5" DIA.	with extension rod
4" - 8"	468-980	4-5", 5-6", 6-7", 7-8"	5" DIA., 7" DIA.	with extension rod

Holtest

SERIES 368 — Three-Point/Two-Point Internal Micrometers

These Holtests are versatile, self-centering three-point micrometers for the accurate and efficient direct-measurement of internal diameters. Three anvils, evenly spaced at 120° apart, contact the hole surface and find true alignment with the axis of a hole for accurate measurement.

FEATURES

- Titanium-coated measuring surfaces (on models with measurement range over 6 mm).
- Can measure deep holes using an Extension rod (optional) which is available on models over 6mm (.275") measuring range.
- With Ratchet Stop for constant force.
- Setting Rings for accurately setting the instrument are optional.



(Refer to page VIII for details.)

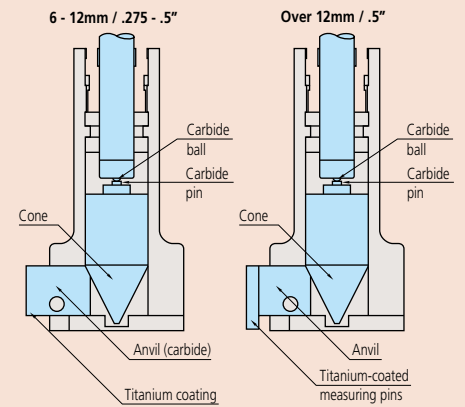
Technical Data

Accuracy: Refer to the list of specifications.
 Graduation: 0.001mm, 0.005mm (models over 12mm),
 .0001" or .0002" (models over .5")

Range	Measuring method
2 - 3mm / .08 - .12"	Two-point
3 - 6mm / .12 - .28"	Two-point
6 - 12mm / .275 - .5"	Three-point
over 12mm / over .5"	Three-point



Two-point contact type



Optional Accessories

- : Extension rod (Refer to the list of specifications.)
- : Setting ring (See page C-28.)

DIMENSIONS

Range	L	Range	L
2 - 2.5mm	12	40 - 50mm	102
2.5 - 3mm	12	50 - 63mm	105
3 - 4mm	22	62 - 75mm	105
4 - 5mm	22	75 - 88mm	105
5 - 6mm	22	87 - 100mm	105
6 - 8mm	59	100 - 125mm	161
8 - 10mm	59	125 - 150mm	161
10 - 12mm	59	150 - 175mm	161
12 - 16mm	82	175 - 200mm	161
16 - 20mm	82	200 - 225mm	161
20 - 25mm	94	225 - 250mm	161
25 - 30mm	94	250 - 275mm	161
30 - 40mm	102	275 - 300mm	161

Unit: mm

Measuring a Blind Hole

The measuring pins fixed to the anvils permit measuring the diameter of a blind hole right down to the bottom.

Range	a	b	c
2 - 6mm	—	—	2
6 - 12mm	2	—	2.5
12 - 20mm	0.3	5.6	3.5
20 - 30mm	0.3	8.3	5.2
30 - 50mm	0.3	13	10
50 - 100mm	0.3	17	14
100 - 300mm	12.4	21	13.8



Using the optional extension rod

Complete-Unit Sets



368-906

368-907



368-911

368-912

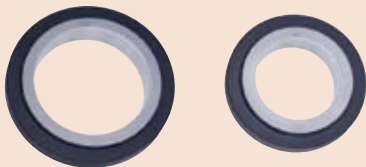


368-913

368-914



368-915



SPECIFICATIONS

Metric		Inch		Accuracy*		Extension Rod (optional)
Range	Order No.	Range	Order No.			
2 - 2.5mm	368-001	.08" - .1"	368-021	±2µm (within 2µm)	±.0001" (within .0001")	—
2.5 - 3mm	368-002	.1" - .12"	368-022	±2µm (within 2µm)	±.0001" (within .0001")	—
3 - 4mm	368-003	.12" - .16"	368-023	±2µm (within 2µm)	±.0001" (within .0001")	—
4 - 5mm	368-004	.16" - .2"	368-024	±2µm (within 2µm)	±.0001" (within .0001")	—
5 - 6mm	368-005	.2" - .24"	368-025	±2µm (within 2µm)	±.0001" (within .0001")	—
—	—	.24" - .28"	368-026	±2µm (within 2µm)	±.0001" (within .0001")	—
6 - 8mm	368-161	.275" - .35"	368-261	±2µm (within 2µm)	±.0001" (within .0001")	100mm (952322)
8 - 10mm	368-162	.35" - .425"	368-262	±2µm (within 2µm)	±.0001" (within .0001")	100mm (952322)
10 - 12mm	368-163	.425" - .5"	368-263	±2µm (within 2µm)	±.0001" (within .0001")	100mm (952322)
12 - 16mm	368-164	.5" - .65"	368-264	±2µm (within 2µm)	±.0001" (within .0001")	150mm (952621)
16 - 20mm	368-165	.65" - .8"	368-265	±2µm (within 2µm)	±.0001" (within .0001")	150mm (952621)
20 - 25mm	368-166	.8" - 1"	368-266	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
25 - 30mm	368-167	1" - 1.2"	368-267	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
30 - 40mm	368-168	1.2" - 1.6"	368-268	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
40 - 50mm	368-169	1.6" - 2"	368-269	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
50 - 63mm	368-170	2" - 2.5"	368-270	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
62 - 75mm	368-171	2.5" - 3"	368-271	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
75 - 88mm	368-172	3" - 3.5"	368-272	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
87 - 100mm	368-173	3.5" - 4"	368-273	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
100 - 125mm	368-174	4" - 5"	368-274	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
125 - 150mm	368-175	5" - 6"	368-275	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
150 - 175mm	368-176	6" - 7"	368-276	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
175 - 200mm	368-177	7" - 8"	368-277	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
200 - 225mm	368-178	8" - 9"	368-278	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
225 - 250mm	368-179	9" - 10"	368-279	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
250 - 275mm	368-180	10" - 11"	368-280	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
275 - 300mm	368-181	11" - 12"	368-281	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)

*Instrumental error (maximum error)

with titanium-coated contact surfaces

Complete-Unit Sets

Each set includes complete gages (micrometer head units and measuring heads for each size).

Metric				
Range	Order No.	Individual ranges	Setting rings included	Remarks
2 - 3mm	368-906	2-2.5, 2.5-3mm	ø2.5mm	—
3 - 6mm	368-907	3-4, 4-5, 5-6mm	ø4mm, ø5mm	—
6 - 12mm	368-911	6-8, 8-10, 10-12mm	ø8mm, ø10mm	with extension rod
12 - 20mm	368-912	12-16, 16-20mm	ø16mm	with extension rod
20 - 50mm	368-913	20-25, 25-30, 30-40, 40-50mm	ø25mm, ø40mm	with extension rod
50 - 100mm	368-914	50-63, 62-75, 75-88, 87-100mm	ø62mm, ø87mm	with extension rod
100 - 200mm	368-915	100-125, 125-150, 150-175, 175-200mm	ø125mm, ø175mm	with extension rod

with titanium-coated contact surfaces

Inch				
Range	Order No.	Individual ranges	Setting rings included	Remarks
.08" - .12"	368-926	.08-.1", .1-.12"	.1" DIA.	—
.12" - .28"	368-927	.12-.16", .16-.2", .2-.24", .24-.28"	.16" DIA., .24" DIA.	—
.275" - .5"	368-916	.275-.35", .35-.425", .425-.5"	.35" DIA., .5" DIA.	with extension rod
.5" - .8"	368-917	.5-.65", .65-.8"	.65" DIA.	with extension rod
.8" - 2"	368-918	.8-1", 1-1.2", 1.2-1.6", 1.6-2"	1" DIA., 1.6" DIA.	with extension rod
2" - 4"	368-919	2-2.5", 2.5-3", 3-3.5", 3.5-4"	2.5" DIA., 3.5" DIA.	with extension rod
4" - 8"	368-920	4-5", 5-6", 6-7", 7-8"	5" DIA., 7" DIA.	with extension rod

with titanium-coated contact surfaces

Holtest (Type II)

SERIES 368 — Three-Point Internal Micrometers

FEATURES

- The Holtests (type II) have three anvils made of high-grade tool steel.
- Economy price.
- Measurement can be taken close to the bottom of a blind hole.
- Can measure deep holes using an Extension Rod (optional).
- With Ratchet Stop for constant force.
- Setting Rings for accurately setting the instrument are optional.

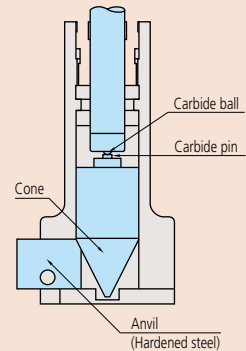


(Refer to page VIII for details.)



Technical Data

Accuracy: Refer to the list of specifications.
 Graduation: 0.005mm or .0002"
 Measuring method: Three-point
 Anvils: Hardened steel



Optional Accessories

- : Extension rod (Refer to the list of specifications.)
- : Setting ring (See page C-28.)

DIMENSIONS AND MASS

Unit: mm

Range	L
12 - 16mm	82
16 - 20mm	82
20 - 25mm	94
25 - 30mm	94
30 - 40mm	102
40 - 50mm	102
50 - 63mm	105
62 - 75mm	105
75 - 88mm	105
87 - 100mm	105
100 - 125mm	161
125 - 150mm	161
150 - 175mm	161
175 - 200mm	161
200 - 225mm	161
225 - 250mm	161
250 - 275mm	161
275 - 300mm	161

Measuring a Blind Hole

The measuring pins fixed to the anvils permit measuring the diameter of a blind hole right down to the bottom.

Range	a	b
12 - 20mm	2.6	3.5
20 - 30mm	3.4	5.2
30 - 50mm	3.4	10
50 - 100mm	3.4	14
100 - 300mm	19.6	13.8

SPECIFICATIONS

Metric		Inch		Accuracy		Extension Rod (optional)
Range	Order No.	Range	Order No.			
12 - 16mm	368-764	.5" - .65"	368-864	±2µm (within 2µm)	±.0001" (within .0001")	150mm (952621)
16 - 20mm	368-765	.65" - .8"	368-865	±2µm (within 2µm)	±.0001" (within .0001")	150mm (952621)
20 - 25mm	368-766	.8" - 1"	368-866	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
25 - 30mm	368-767	1" - 1.2"	368-867	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
30 - 40mm	368-768	1.2" - 1.6"	368-868	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
40 - 50mm	368-769	1.6" - 2"	368-869	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952622)
50 - 63mm	368-770	2" - 2.5"	368-870	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
62 - 75mm	368-771	2.5" - 3"	368-871	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
75 - 88mm	368-772	3" - 3.5"	368-872	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
87 - 100mm	368-773	3.5" - 4"	368-873	±3µm (within 3µm)	±.00015" (within .00015")	150mm (952623)
100 - 125mm	368-774	4" - 5"	368-874	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
125 - 150mm	368-775	5" - 6"	368-875	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
150 - 175mm	368-776	6" - 7"	368-876	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
175 - 200mm	368-777	7" - 8"	368-877	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
200 - 225mm	368-778	8" - 9"	368-878	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
225 - 250mm	368-779	9" - 10"	368-879	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
250 - 275mm	368-780	10" - 11"	368-880	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)
275 - 300mm	368-781	11" - 12"	368-881	±5µm (within 5µm)	±.00025" (within .00025")	150mm (952623)

Complete-Unit Sets

Each set includes complete gages (micrometer head units and measuring heads for each size).

Metric				
Range	Order No.	Individual ranges	Setting rings included	Remarks
12 - 20mm	368-991	12-16, 16-20mm	ø16mm	with extension rod
20 - 50mm	368-992	20-25, 25-30, 30-40, 40-50mm	ø25mm, ø40mm	with extension rod
50 - 100mm	368-993	50-63, 62-75, 75-88, 87-100mm	ø62mm, ø87mm	with extension rod
100 - 200mm	368-994	100-125, 125-150, 150-175, 175-200mm	ø125mm, ø175mm	with extension rod

Inch				
Range	Order No.	Individual ranges	Setting rings included	Remarks
.5" - .8"	368-995	.5-.65", .65-.8"	.65" DIA.	with extension rod
.8" - 2"	368-996	.8-1", 1-1.2", 1.2-1.6", 1.6-2"	1" DIA., 1.6" DIA.	with extension rod
2" - 4"	368-997	2-2.5", 2.5-3", 3-3.5", 3.5-4"	2.5" DIA., 3.5" DIA.	with extension rod
4" - 8"	368-998	4-5", 5-6", 6-7", 7-8"	5" DIA., 7" DIA.	with extension rod



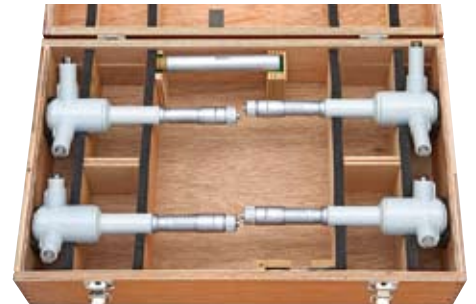
368-991



368-992



368-993



368-994

ABSOLUTE Borematic

SERIES 568 — ABSOLUTE Digimatic Snap-Open Bore Gages

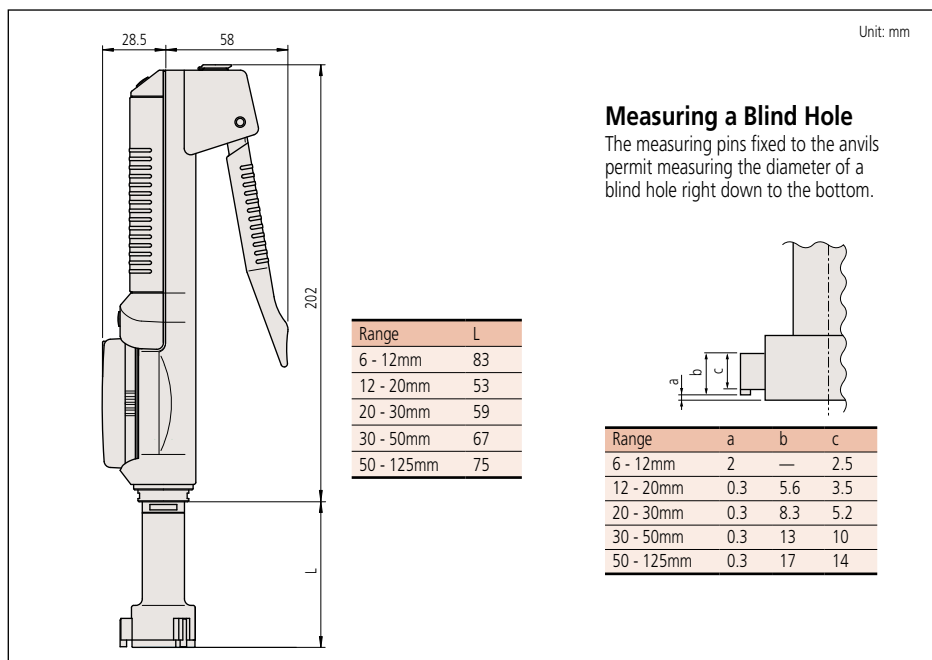
The Borematic enables the operator to take measurements more accurately and more quickly than ever before. The Borematic retains the setting for the life of the battery. Therefore no longer repeated setting (presetting) is no longer necessary.

FEATURES

- Titanium-coated measuring surfaces.
- Large LCD digits of 8.5mm height for error-free reading.
- 330-degree rotatable display unit for easy reading at any angle.
- GO/NO-GO judgment function.
- The ABSOLUTE linear encoder eliminates any concerns regarding over-speed errors.
- With SPC data output.
- Setting rings for accurately setting the instrument are optional.
- Can measure deep holes by attaching an optional extension rod.



DIMENSIONS



(Refer to page VIII for details.)



Absolute System Patented by MITUTOYO

(Refer to page VIII for details.)

Technical Data

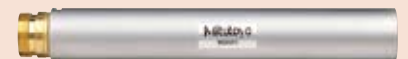
Accuracy: Refer to the list of specifications.
Resolution: 0.001mm or .00005"/0.001mm
Measuring pins: Titanium coated
Measuring method: Three-point method
Display: LCD
Battery: SR44 (1 pc.) (938882)
Battery life: Approx. 1 year

Functions

Preset, GO/NO-GO judgment, Data hold, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)

Optional Accessories

- 937387:** SPC cable (1m)
- 965013:** SPC cable (2m)
- 02AZD790E:** SPC cable for U-WAVE (160mm)
- 952322:** Extension rod for 6 - 12mm (.275" - .500") gages
- 952621:** Extension rod for 12 - 20mm (.50" - .80") gages
- 952622:** Extension rod for 20 - 50mm (.8" - 2.0") gages
- 952623:** Extension rod for 50 - 125mm (2.0" - 5.0") gages
- : Setting ring (See page C-28.)



SPECIFICATION

Metric Individual		
Range	Order No.	Accuracy*
6 - 8mm	568-331-10	±5µm (within 5µm)
8 - 10mm	568-332-10	±5µm (within 5µm)
10 - 12mm	568-333-10	±5µm (within 5µm)
12 - 16mm	568-334-10	±5µm (within 5µm)
16 - 20mm	568-335-10	±5µm (within 5µm)
20 - 25mm	568-336-10	±6µm (within 6µm)
25 - 30mm	568-337-10	±6µm (within 6µm)
30 - 40mm	568-338-10	±6µm (within 6µm)
40 - 50mm	568-339-10	±6µm (within 6µm)
50 - 63mm	568-340-10	±6µm (within 6µm)
62 - 75mm	568-341-10	±6µm (within 6µm)
75 - 88mm	568-342-10	±6µm (within 6µm)
87 - 100mm	568-343-10	±6µm (within 6µm)
100 - 113mm	568-344-10	±6µm (within 6µm)
112 - 125mm	568-345-10	±6µm (within 6µm)

Inch/Metric Individual		
Range	Order No.	Accuracy
.275" - .350"	568-431-10	±.00025" (within .00025")
.350" - .425"	568-432-10	±.00025" (within .00025")
.425" - .500"	568-433-10	±.00025" (within .00025")
.50" - .65"	568-434-10	±.00025" (within .00025")
.65" - .80"	568-435-10	±.00025" (within .00025")
.8" - 1.0"	568-436-10	±.0003" (within .0003")
1.0" - 1.2"	568-437-10	±.0003" (within .0003")
1.2" - 1.6"	568-438-10	±.0003" (within .0003")
1.6" - 2.0"	568-439-10	±.0003" (within .0003")
2.0" - 2.5"	568-440-10	±.0003" (within .0003")
2.5" - 3.0"	568-441-10	±.0003" (within .0003")
3.0" - 3.5"	568-442-10	±.0003" (within .0003")
3.5" - 4.0"	568-443-10	±.0003" (within .0003")
4.0" - 4.5"	568-444-10	±.0003" (within .0003")
4.5" - 5.0"	568-445-10	±.0003" (within .0003")

*Instrumental error excluding quantizing error (maximum error)

Complete-Unit Sets



568-981-10



568-983-10

Interchangeable-Head Set



568-971-10



568-973-10

Complete-Unit Set

Each set includes complete gages (display units and measuring heads for each size).

Metric				
Range	Order No.	Individual ranges	Setting rings included	Remarks
6 - 12mm	568-981-10	6-8, 8-10, 10-12mm	ø8mm, ø10mm	
12 - 25mm	568-982-10	12-16, 16-20, 20-25mm	ø16mm, ø20mm	
25 - 50mm	568-983-10	25-30, 30-40, 40-50mm	ø30mm, ø40mm	
50 - 75mm	568-984-10	50-63, 62-75mm	ø62mm	
75 - 100mm	568-985-10	75-88, 87-100mm	ø87mm	

Inch				
Range	Order No.	Individual ranges	Setting rings included	Remarks
.275" - .5"	568-987-10	.275-.35", .35-.425", .425-.5"	ø.35" DIA, ø.425" DIA	
.5" - 1"	568-988-10	.5-.65", .65-.8", .8-1"	ø.65" DIA, ø.8" DIA	
1" - 2"	568-989-10	1-1.2", 1.2-1.6", 1.6-2"	ø1.2" DIA, ø1.6" DIA	
2" - 3"	568-990-10	2-2.5", 2.5-3"	ø2.5" DIA	
3" - 4"	568-991-10	3-3.5", 3.5-4"	ø3.5" DIA	

Interchangeable-Head Set

Each set includes one display unit with interchangeable measuring heads of the sizes specified.

Metric				
Range	Order No.	Individual ranges	Setting rings included	Remarks
6 - 12mm	568-971-10	6-8, 8-10, 10-12mm	ø8mm, ø10mm	
12 - 25mm	568-972-10	12-16, 16-20, 20-25mm	ø16mm, ø20mm	
25 - 50mm	568-973-10	25-30, 30-40, 40-50mm	ø30mm, ø40mm	
50 - 100mm	568-974-10	50-63, 62-75, 75-88, 87-100mm	ø62mm, ø87mm	

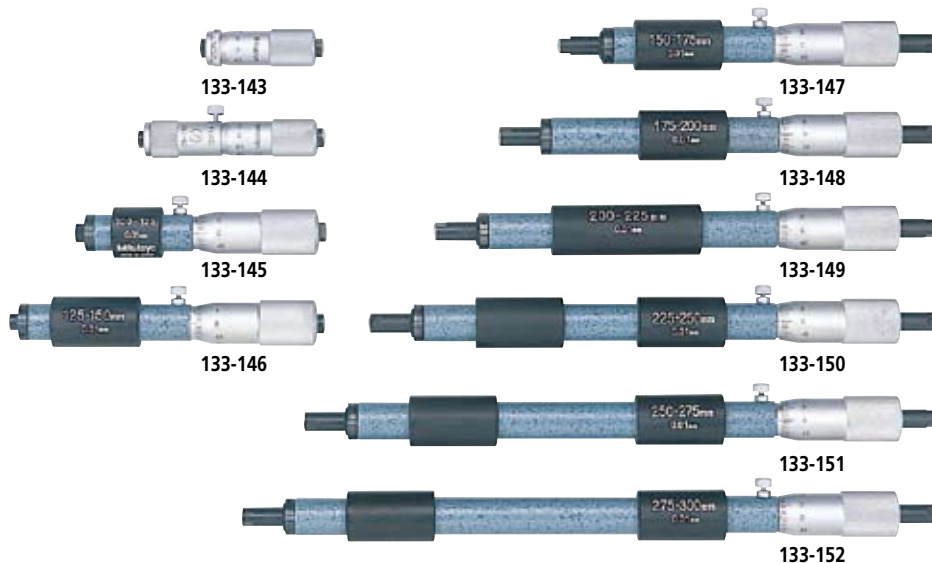
Inch				
Range	Order No.	Individual ranges	Setting rings included	Remarks
.275" - .5"	568-976-10	.275-.35", .35-.425", .425-.5"	ø.35" DIA, ø.425" DIA	
.5" - 1"	568-977-10	.5-.65", .65-.8", .8-1"	ø.65" DIA, ø.8" DIA	
1" - 2"	568-978-10	1-1.2", 1.2-1.6", 1.6-2"	ø1.2" DIA, ø1.6" DIA	
2" - 4"	568-979-10	2-2.5", 2.5-3", 3-3.5", 3.5-4"	ø2.5" DIA, ø3.5" DIA	

Tubular Inside Micrometers

SERIES 133 — Single Rod Type

FEATURES

- With locking screw.
- The micrometer head sleeve can be twisted to adjust the index line position when setting to a standard. A key wrench is supplied for this purpose.
- Clear, crisp graduations on the satin chrome finished micrometer head.
- Carbide measuring faces.



SPECIFICATIONS

Metric	Individual	
Range	Order No.	Accuracy
50 - 75mm	133-143	±3µm
75 - 100mm	133-144	±4µm
100 - 125mm	133-145	±5µm
125 - 150mm	133-146	±5µm
150 - 175mm	133-147	±5µm
175 - 200mm	133-148	±5µm
200 - 225mm	133-149	±5µm
225 - 250mm	133-150	±6µm
250 - 275mm	133-151	±6µm
275 - 300mm	133-152	±6µm
300 - 325mm	133-153	±7µm
325 - 350mm	133-154	±7µm
350 - 375mm	133-155	±7µm
375 - 400mm	133-156	±8µm
400 - 425mm	133-157	±8µm
425 - 450mm	133-158	±8µm
450 - 475mm	133-159	±9µm
475 - 500mm	133-160	±9µm
500 - 525mm	133-161	±9µm
525 - 550mm	133-162	±10µm
550 - 575mm	133-163	±10µm
575 - 600mm	133-164	±10µm
600 - 625mm	133-165	±11µm
625 - 650mm	133-166	±11µm
650 - 675mm	133-167	±11µm
675 - 700mm	133-168	±12µm

Metric	Individual	
Range	Order No.	Accuracy
700 - 725mm	133-169	±12µm
725 - 750mm	133-170	±12µm
750 - 775mm	133-171	±13µm
775 - 800mm	133-172	±13µm
800 - 825mm	133-173	±13µm
825 - 850mm	133-174	±14µm
850 - 875mm	133-175	±14µm
875 - 900mm	133-176	±14µm
900 - 925mm	133-177	±15µm
925 - 950mm	133-178	±15µm
950 - 975mm	133-179	±15µm
975 - 1000mm	133-180	±16µm

Inch	Individual	
Range	Order No.	Accuracy
2" - 3"	133-223	±.00015"
3" - 4"	133-224	±.0002"
4" - 5"	133-225	±.00025"
5" - 6"	133-226	±.00025"
6" - 7"	133-227	±.00025"
7" - 8"	133-228	±.00025"
8" - 9"	133-229	±.00025"
9" - 10"	133-230	±.0003"
10" - 11"	133-231	±.0003"
11" - 12"	133-232	±.0003"

Technical Data

Accuracy: Refer to the list of specifications.
Graduation: 0.01mm or .001"

Optional Accessory

Setting ring (See page C-28.)



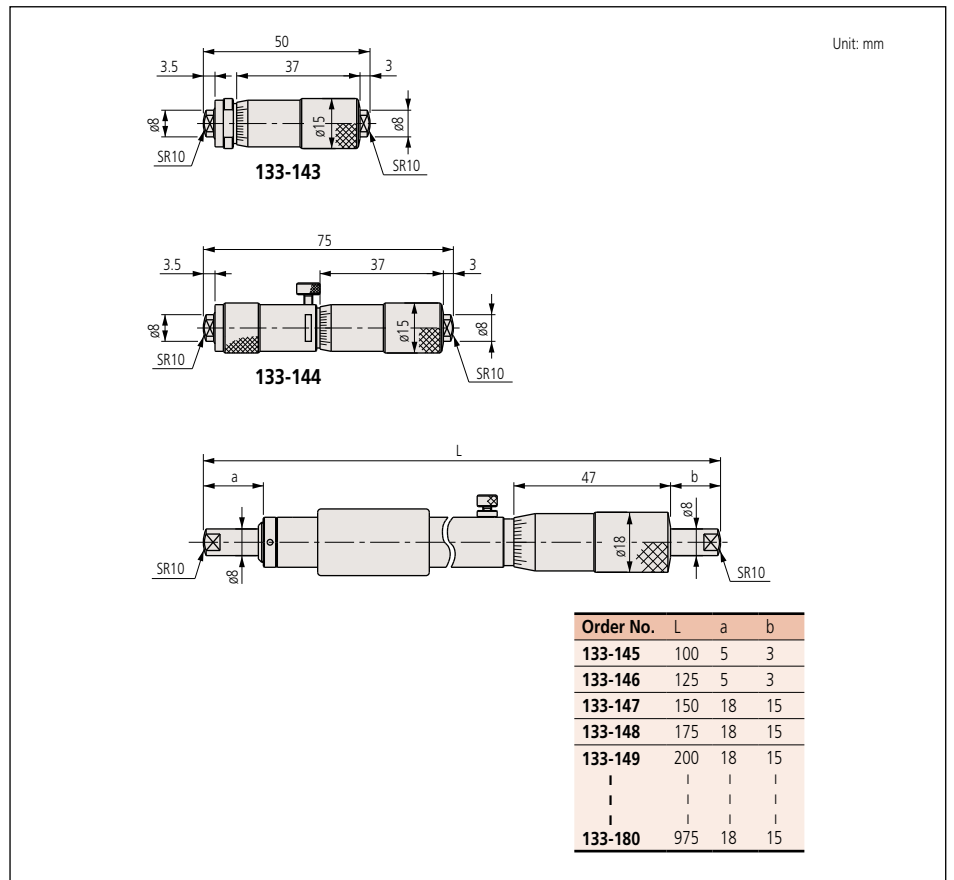


133-902

Metric Micrometer set		
Range	Order No.	Models included
50 - 150mm (4 mikes/set)	133-901	<ul style="list-style-type: none"> • 133-143, 133-144, 133-145, 133-146 • with fitted case
50 - 300mm (10 mikes/set)	133-902	<ul style="list-style-type: none"> • 133-143, 133-144, 133-145, 133-146, 133-147, 133-148, 133-149, 133-150, 133-151, 133-152 • with fitted case

Inch Micrometer set		
Range	Order No.	Models included
2" - 6" (4 mikes/set)	133-903	<ul style="list-style-type: none"> • 133-223, 133-224, 133-225, 133-226 • with fitted case
2" - 12" (10 mikes/set)	133-904	<ul style="list-style-type: none"> • 133-223, 133-224, 133-225, 133-226, 133-227, 133-228, 133-229, 133-230, 133-231, 133-232 • with fitted case

DIMENSIONS



Inside Micrometers

SERIES 141 — Interchangeable Rod Type

FEATURES

- Wide range of ID measurements by using one or more interchangeable rods.
- Each interchangeable rod is marked with its measuring range.
- For models supplied with more than one interchangeable rod, the full measuring range is achieved by combining spacing collars with the rods.
- Both micrometer head and rods are satin-chrome finished throughout.



141-101



When using one of the extension rods supplied



Technical Data

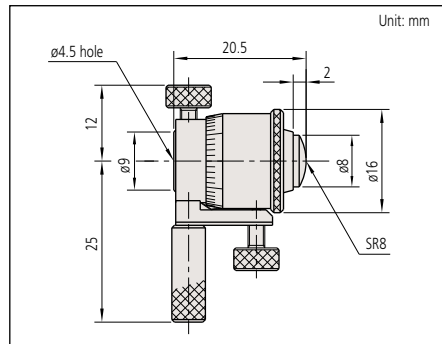
Accuracy: $\pm(6+L/50)\mu\text{m}^*$
 *L = Maximum measuring length (mm), Fraction rounded up
 $\pm[.0003+.00005(R/2)]''^*$
 *R = Maximum measuring length (inch), Fraction rounded up
 Graduation: 0.01mm or .001"

Optional Accessory

Setting ring (See page C-28.)



DIMENSIONS



SPECIFICATIONS

Metric			
Range	Order No.	Head adjustment range	Remarks
25 - 32mm	141-001 / 141-003*	7mm	—
25 - 50mm	141-101 / 141-103*	7mm	with 2 rods
50 - 63mm	141-025 / 141-027*	13mm	—
50 - 200mm	141-205 / 141-211*	13mm	with 3 rods
50 - 300mm	141-206 / 141-212*	13mm	with 5 rods
200 - 225mm	141-009 / 141-011*	25mm	—
200 - 500mm	141-117	25mm	with 3 rods
200 - 1000mm	141-118	25mm	with 8 rods

*with carbide measuring face

Inch			
Range	Order No.	Head adjustment range	Remarks
1" - 1.25"	141-002 / 141-004*	.25"	—
1" - 2"	141-102 / 141-104*	.25"	with 2 rods
2" - 2.5"	141-026 / 141-028*	.5"	—
2" - 8"	141-208 / 141-214*	.5"	with 3 rods
2" - 12"	141-233 / 141-215*	.5"	with 5 rods
8" - 9"	141-010 / 141-012*	1"	—
8" - 20"	141-121	1"	with 3 rods
8" - 40"	141-122	1"	with 8 rods

*with carbide measuring face

Tubular Inside Micrometers

SERIES 137 — Extension Rod Type, SERIES 139 — Extension Pipe Type, SERIES 140 — Extension Pipe Type

FEATURES

- Wide range of ID measurements by combining extension rods (pipes) and anvils with the micrometer head.
- Carbide measuring faces are available. (series 137)
- The 139 and 140 series use highly durable/ large-diameter extension pipes.



137-205



139-177

SPECIFICATIONS

Metric — Extension rod type

Range	Order No.	Head adjustment range	Extension rods
50 - 63mm	137-011 / 137-013*	13mm	—
50 - 150mm	137-201 / 137-206*	13mm	13mm, 25mm, 50mm
50 - 300mm	137-202 / 137-207*	13mm	13mm, 25mm, 50mm (2 pcs.), 100mm
50 - 500mm	137-203 / 137-208*	13mm	13mm, 25mm, 50mm (2 pcs.), 100mm, 200mm
50 - 1000mm	137-204 / 137-209*	13mm	13mm, 25mm, 50mm (2 pcs.), 100mm, 200mm (2 pcs.), 300mm
50 - 1500mm	137-205 / 137-210*	13mm	13mm, 25mm, 50mm (2 pcs.), 100mm, 200mm (3 pcs.), 300mm (2 pcs.)

*with carbide measuring face

Inch — Extension rod type

Range	Order No.	Head adjustment range	Extension rods
2" - 2.5"	137-012 / 137-014*	.5"	—
2" - 6"	137-211 / 137-216*	.5"	.5", 1", 2"
2" - 12"	137-212 / 137-217*	.5"	.5", 1", 2" (2 pcs.), 4"
2" - 20"	137-213 / 137-218*	.5"	.5", 1", 2" (2 pcs.), 4", 8"
2" - 40"	137-214 / 137-219*	.5"	.5", 1", 2" (2 pcs.), 4", 8" (2 pcs.), 12"
2" - 60"	137-215 / 137-220*	.5"	.5", 1", 2" (2 pcs.), 4", 8" (3 pcs.), 12" (2 pcs.)

*with carbide measuring face

Technical Data

Accuracy:

- Series 137, 139: $\pm(3+n+L/50)\mu\text{m}^*$
*n = Number of rod,
 *L = Maximum measuring length (mm),
 Fraction rounded up
 $\pm[.00015+.00005n+.00005 (R/2)]''^*$
*n = Number of rod,
 *R = Maximum measuring length (inch),
 Fraction rounded up
- Series 140: $\pm(7+n+L/50)\mu\text{m}^*$
*n = Number of rod,
 *L = Maximum measuring length (mm),
 Fraction rounded up
 $\pm[.00035+.00005n+.00005 (R/50)]''^*$
*n = Number of rod,
 *R = Maximum measuring length (inch),
 Fraction rounded up

Graduation: 0.01mm or .001"

Optional Accessory

— : Setting ring (See page C-28.)

Metric Extension pipe type

Range	Order No.	Head adjustment range	Extension pipes
100 - 125mm	139-001	25mm	—
100 - 500mm	139-173	25mm	25mm, 50mm, 100mm, 200mm
100 - 900mm	139-174	25mm	25mm, 50mm, 100mm, 200mm, 400mm
100 - 1300mm	139-175	25mm	25mm, 50mm, 100mm, 200mm, 400mm (2 pcs.)
100 - 1700mm	139-176	25mm	25mm, 50mm, 100mm, 200mm, 400mm (3 pcs.)
100 - 2100mm	139-177	25mm	25mm, 50mm, 100mm, 200mm, 400mm (4 pcs.)
1000 - 2000mm	140-157	50mm	50mm, 100mm (2 pcs.), 200mm, 500mm
1000 - 3000mm	140-158	50mm	50mm, 100mm (2 pcs.), 200mm, 500mm, 1000mm
1000 - 4000mm	140-159	50mm	50mm, 100mm (2 pcs.), 200mm, 500mm, 1000mm (2 pcs.)
1000 - 5000mm	140-160	50mm	50mm, 100mm (2 pcs.), 200mm, 500mm, 1000mm (3 pcs.)

Inch Extension pipe type

Range	Order No.	Head adjustment range	Extension pipes
4" - 5"	139-002	1"	—
4" - 20"	139-178	1"	1", 2", 4", 8"
4" - 36"	139-179	1"	1", 2", 4", 8", 16"
4" - 52"	139-180	1"	1", 2", 4", 8", 16" (2 pcs.)
4" - 68"	139-181	1"	1", 2", 4", 8", 16" (3 pcs.)
4" - 84"	139-182	1"	1", 2", 4", 8", 16" (4 pcs.)
40" - 80"	140-161	2"	2", 4" (2 pcs.), 8", 20"
40" - 120"	140-162	2"	2", 4" (2 pcs.), 8", 20", 40"
40" - 160"	140-163	2"	2", 4" (2 pcs.), 8", 20", 40" (2 pcs.)
40" - 200"	140-164	2"	2", 4" (2 pcs.), 8", 20", 40" (3 pcs.)

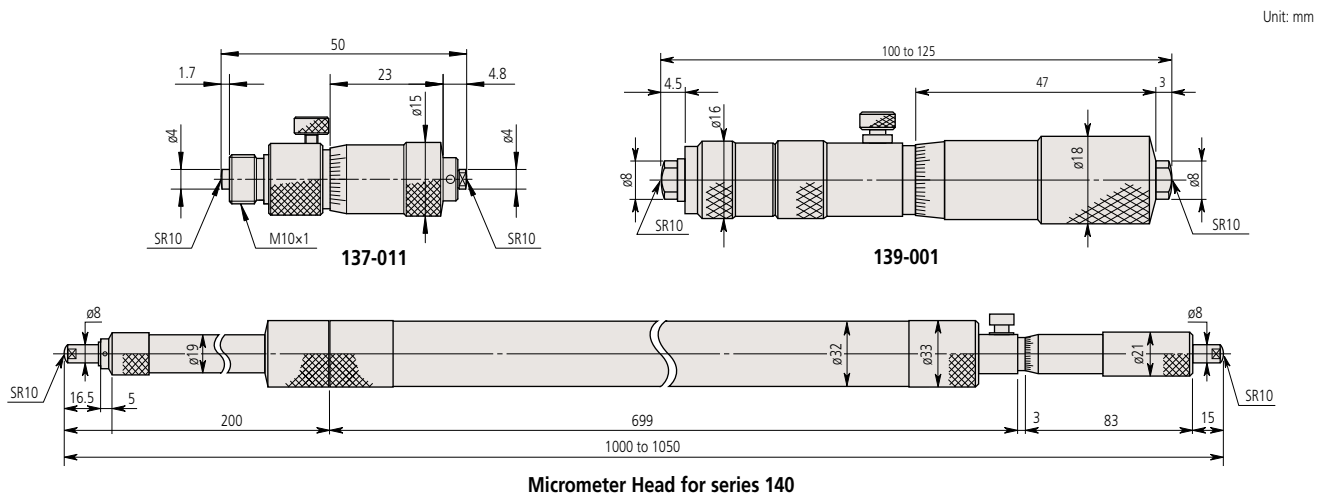


137-011



139-001

DIMENSIONS



Inside Micrometers

SERIES 345, 145 — Caliper Type

FEATURES

- Caliper type jaws are made of high-grade tool steel.
- Locking clamp for positive locking of spindle.
- Satin-chrome finished.
- A special holder is available to be used with the Mitutoyo Micrometer Stand.



SPECIFICATIONS

Metric	Order No.	Accuracy
5 - 30mm	345-250-10	±5µm
25 - 50mm	345-251-10	±6µm

Metric	Order No.	Accuracy
5 - 30mm	145-185	±5µm
25 - 50mm	145-186	±6µm
50 - 75mm	145-187	±7µm
75 - 100mm	145-188	±8µm
100 - 125mm	145-189	±9µm
125 - 150mm	145-190	±9µm
150 - 175mm	145-191	±10µm
175 - 200mm	145-192	±10µm
200 - 225mm	145-217	±11µm
225 - 250mm	145-218	±11µm
250 - 275mm	145-219	±12µm
275 - 300mm	145-220	±12µm

Inch/Metric	Order No.	Accuracy
.2" - 1.2"	345-350-10	±.00025"
1" - 2"	345-351-10	±.0003"

Inch	Order No.	Accuracy
.2" - 1.2"	145-193	±.00025"
1" - 2"	145-194	±.0003"
2" - 3"	145-195	±.00035"
3" - 4"	145-196	±.0004"

Technical Data

Accuracy: Refer to the list of specifications. (excluding quantizing error for digital models)
 Resolution*: 0.001mm or .00005"/0.001mm
 Graduation**: 0.01mm or .001"
 Measuring faces: Carbide
 Display*: LCD
 Battery*: SR44 (1 pc.), **938882**
 Battery life*: Approx. 1, 2 year under normal use
 *Digital models **Analog models

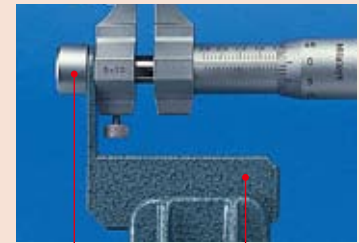
Functions of Digital Model

2-point Preset, Data hold, Automatic power ON/OFF, Data output, inch/mm conversion (inch/mm models)
 Function lock
 Alarm: Low voltage, Counting value composition error

Optional Accessories

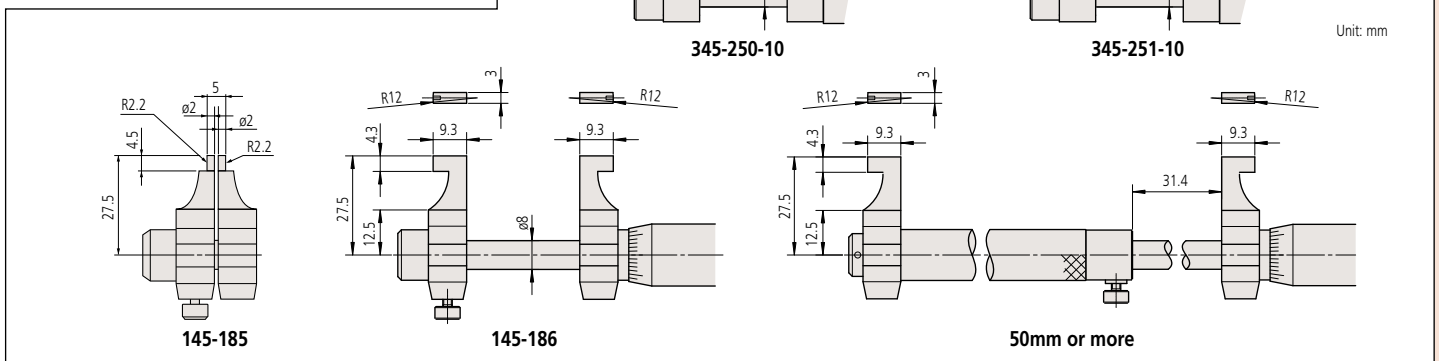
05CZA662: SPC cable with data switch (1m)
05CZA663: SPC cable with data switch (2m)
02AZD790B: SPC cable for U-WAVE w/ data switch (160mm)
 _____ : Setting ring (See page C-28.)

For **145-185, 145-186, 145-193, 145-194**



Cap (**300401**) Holder (**300400**)

DIMENSIONS





(Refer to page VIII for details.)

Inside Micro Checker

SERIES 515

FEATURES

- The Inside Micro Checker is designed to act as a setting standard for inside micrometers.
- Each measuring block is made of zirconia-based ceramic and it is free from deterioration and dimensional changes over time.



515-585



Standard accessory set

Technical Data

Block pitch accuracy: $\pm(0.001+L/150000)$ mm*
 *L = Length to check (mm)

Optional Accessories

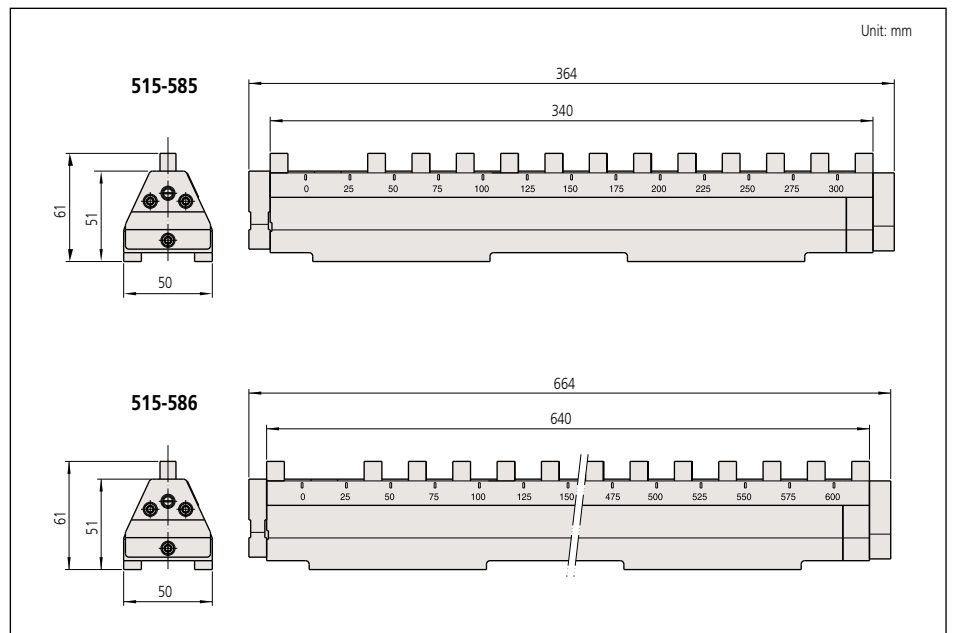
- 602160:** Wooden case for 300mm Inside Micro Checker
602163: Wooden case for 600mm Inside Micro Checker



SPECIFICATIONS

Range	Order No.	Length to check
300mm	515-585	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300mm
600mm	515-586	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, 350, 375, 400, 425, 450, 475, 500, 525, 550, 575, 600mm

DIMENSIONS



Bore Gages

SERIES 526 — for Extra Small Holes

These gages are designed to measure the diameters of small holes. The radial displacement of the split-ball anvil is converted to axial displacement of the measuring rod, which is shown on the dial indicator.

FEATURES

- Optional stand (215-120-10) is available for efficient measurement of multiple small holes.



526-172

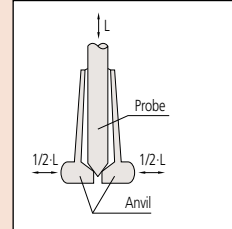


526-127

Technical Data

Accuracy: 4µm
6µm(10-18mm/.4-.7" range model)
Repeatability: 2µm
Graduation: 0.01mm, 0.001mm, .0005 or .0001"

Split-ball Anvil



Optional Accessories

Setting ring (See page C-28.)
215-120-10: Stand for small holes



SPECIFICATIONS

Metric				
Range	Order No.	Content of set		Probe depth (D)
		Bore gage	Dial indicator	
0.95 - 1.55mm	526-172*	526-170	2109SB-10	11.5mm
1.5 - 4mm	526-162*	526-160		17.5, 22.5mm
3.7 - 7.3mm	526-152*	526-150		32mm
7 - 10mm	526-124	526-101		56mm
10 - 18mm	526-125	526-102		62mm
0.95 - 1.55mm	526-173*	526-170	2046SB	11.5mm
1.5 - 4mm	526-163*	526-160		17.5, 22.5mm
3.7 - 7.3mm	526-153*	526-150		32mm
7 - 10mm	526-126	526-101		56mm
10 - 18mm	526-127	526-102		62mm

*Provided with setting rings

0.001mm graduation

0.01mm graduation

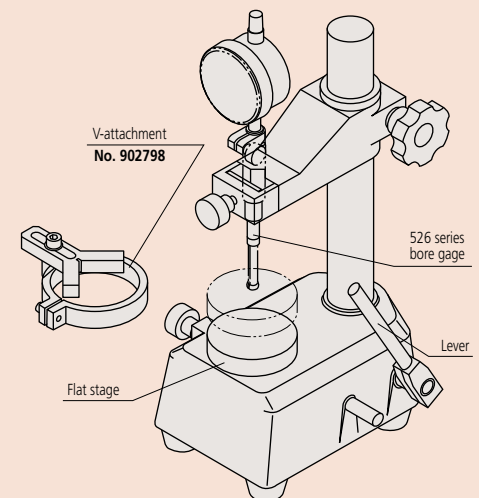
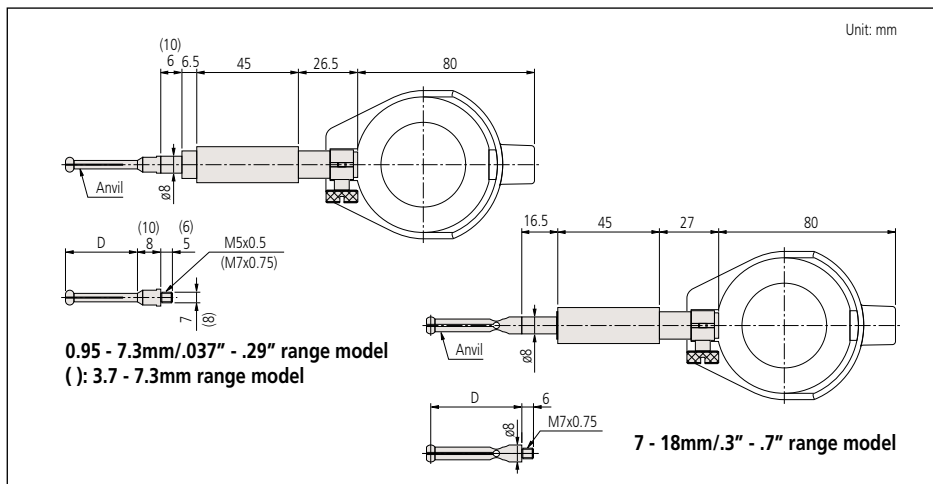
Inch				
Range	Order No.	Content of set		Probe depth (D)
		Bore gage	Dial indicator	
.037" - .061"	526-176*	526-175	2923SB-10	.45"
.06" - .155"	526-166*	526-165		.68", .88"
.145" - .29"	526-156*	526-155		1.25"
.3" - .4"	526-122	526-103		2.2"
.4" - .7"	526-123	526-104		2.4"
.3" - .4"	526-119	526-103	2922SB	2.2"
.4" - .7"	526-120	526-104		2.4"

*Provided with setting rings

.0001" graduation

.0005" graduation

DIMENSIONS



Bore Gages

SERIES 511 — for Small Holes

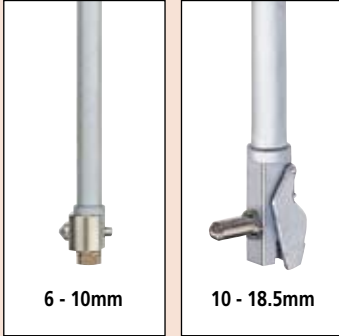
FEATURES

- The interchangeable anvils used on this gage are made of high-grade tool steel.
- The dial indicator is fully protected by a rugged cover.

Technical Data

Accuracy: 5µm
 Repeatability: 2µm
 Graduation: 0.01mm, 0.001mm, .0005 or .0001"

Contact Point



6 - 10mm

10 - 18.5mm

Optional Accessory

Setting ring (See page C-28.)



511-204

SPECIFICATIONS

Metric				
Range	Order No.	Content of set		Probe depth
		Bore gage	Dial indicator	
6 - 10mm	511-210	511-209	2109SB-10	50mm
10 - 18.5mm	511-203	511-201		100mm
6 - 10mm	511-211	511-209	2046SB	50mm
10 - 18.5mm	511-204	511-201		100mm

0.001mm graduation

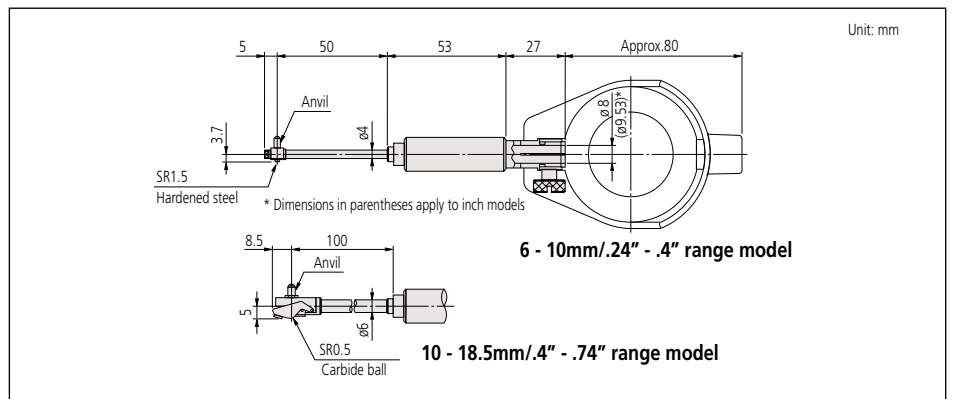
0.01mm graduation

Inch				
Range	Order No.	Content of set		Probe depth
		Bore gage	Dial indicator	
.24" - .4"	511-212	511-214	2923SB-10	2"
.4" - .74"	511-206	511-205		4"
.24" - .4"	511-213	511-214	2922SB	2"
.4" - .74"	511-207	511-205		4"

.0001" graduation

.0005" graduation

DIMENSIONS



Bore Gages

SERIES 511 — Standard Type

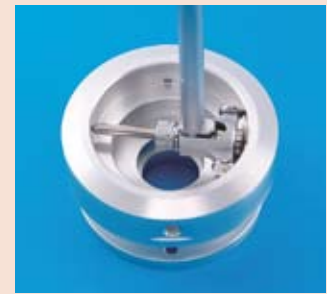
Mitutoyo offers a complete range of Bore Gages, all of them with interchangeable anvils and the necessary accessories to perform close-tolerance ID measurements.

FEATURES

- Allows inside diameter measurement with high accuracy.
- Longer effective stroke (compared with the conventional product)
- Carbide is used for the contact point ensuring high durability and wear resistance.
- High-accuracy measurement is aided by a large grip with a sponge-like structure that reduces heat transfer from the operator's hand by 50%.
- Interchangeable washers 0.5mm thick (standard accessories) are supplied as standard accessories to enable setting in small steps.
- Optional extension rods can be attached for measuring deep holes. (For details, refer to page C-27.)
- 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-28, C-29 and C-30.)



511-713



New grip improves accuracy during prolonged use

Technical Data

Wide-range accuracy: 2 μ m
 Repeatability: 0.5 μ m
 Adjacent error: 1 μ m

Optional Accessories

- : Setting ring (See page C-28.)
- : Extension rod (See page C-27.)

SPECIFICATIONS

Metric					
Range	Order No.	Content of set		Dial protection Cover Ass'y	Probe depth
		Bore gage	Dial indicator		
18 - 35mm	511-701	511-701	Not supplied	Not supplied	100mm
35 - 60mm	511-702	511-702			150mm
50 - 150mm	511-703	511-703			150mm
100 - 160mm	511-704	511-704			150mm
160 - 250mm	511-705	511-705			250mm
250 - 400mm	511-706	511-706			250mm
18 - 35mm	511-721	511-701	2109SB-10	21DZA000	100mm
35 - 60mm	511-722	511-702			150mm
50 - 150mm	511-723	511-703			150mm
100 - 160mm	511-724	511-704			150mm
160 - 250mm	511-725	511-705			250mm
250 - 400mm	511-726	511-706			250mm
18 - 35mm	511-711	511-701	2046SB	21DZA000	100mm
35 - 60mm	511-712	511-702			150mm
50 - 150mm	511-713	511-703			150mm
100 - 160mm	511-714	511-704			150mm
160 - 250mm	511-715	511-705			250mm
250 - 400mm	511-716	511-706			250mm

0.001mm graduation 0.01mm graduation



511-921

Metric					
Range	Order No.	Content of set		Dial protection Cover Ass'y	Probe depth
		Bore gage	Indicator		
18 - 150mm	511-921	511-701	2046SB	21DZA000	100mm (511-701)
	511-922	511-702	2109SB-10	21DZA000	150mm (511-702, 511-703)
	511-925	511-703	543-264B	21DZA000	

Inch					
Range	Order No.	Content of set		Dial protection Cover Ass'y	Probe depth
		Bore gage	Dial indicator		
.7"-1.4"	511-731	511-731	Not supplied	Not supplied	4"
1.4"-2.5"	511-732	511-732			6"
2"-6"	511-733	511-733			6"
4"-6.5"	511-734	511-734			6"
6.5"-10"	511-735	511-735			10"
10"-16"	511-736	511-736			10"
.7"-1.4"	511-751	511-731	2923SB-10	21DZA000	4"
1.4"-2.5"	511-752	511-732			6"
2"-6"	511-753	511-733			6"
4"-6.5"	511-754	511-734			6"
6.5"-10"	511-755	511-735			10"
10"-16"	511-756	511-736			10"
.7"-1.4"	511-741	511-731	2922SB	21DZA000	4"
1.4"-2.5"	511-742	511-732			6"
2"-6"	511-743	511-733			6"
4"-6.5"	511-744	511-734			6"
6.5"-10"	511-745	511-735			10"
10"-16"	511-746	511-736			10"

.0001" graduation .0005" graduation



511-931

Inch					
Range	Order No.	Content of set		Dial protection Cover Ass'y	Probe depth
		Bore gage	Indicator		
.7"-6"	511-931	511-731	2922SB	21DZA000	4" (511-731)
	511-932	511-732	2923SB-10	21DZA000	6" (511-732, 511-733)
	511-935	511-733	543-266B	21DZA000	

Bore Gages

SERIES 511 — with Micrometer Head

FEATURES

- Micrometer head is attached to the anvil for accurate dimensional setting.
- Allows inside diameter measurement with high accuracy.
- Longer effective stroke (compared with the conventional product)
- Carbide is used for the contact point ensuring high durability and wear resistance.
- High-accuracy measurement is aided by a large grip with a sponge-like structure that reduces heat transfer from the operator's hand by 50%.
- Wide measuring range with sub-anvils.
- Optional extension rods can be attached for measuring deep holes. (For details, refer to page C-27.)
- 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-28, C-29 and C-30.)



511-813

511-814

Technical Data

Wide-range accuracy: 2 μ m
 Repeatability: 0.5 μ m
 Adjacent error: 1 μ m

Optional Accessories

- : Setting ring (See page C-28.)
- : Extension rod (See page C-27.)

SPECIFICATIONS

Metric					
Range	Order No.	Content of set		Dial protection Cover Ass'y	Probe depth
		Bore gage	Dial indicator		
60 - 100mm	511-803	511-803	Not supplied	Not supplied	150mm
100 - 160mm	511-804	511-804			
150 - 250mm	511-805	511-805			
250 - 400mm	511-806	511-806			
400 - 600mm	511-807	511-807			
600 - 800mm	511-808	511-808			
60 - 100mm	511-823	511-803	2109SB-10	21DZA000	150mm
100 - 160mm	511-824	511-804			
150 - 250mm	511-825	511-805			
250 - 400mm	511-826	511-806			
400 - 600mm	511-827	511-807			
600 - 800mm	511-828	511-808			
60 - 100mm	511-813	511-803	2046SB	21DZA000	150mm
100 - 160mm	511-814	511-804			
150 - 250mm	511-815	511-805			
250 - 400mm	511-816	511-806			
400 - 600mm	511-817	511-807			
600 - 800mm	511-818	511-808			

0.001mm graduation

0.01mm graduation

Inch					
Range	Order No.	Content of set		Dial protection Cover Ass'y	Probe depth
		Bore gage	Dial indicator		
2.4"-4"	511-833	511-833	Not supplied	Not supplied	6"
4"-6.4"	511-834	511-834			
6"-10"	511-835	511-835			
10"-16"	511-836	511-836			
16"-24"	511-837	511-837			
24"-32"	511-838	511-838			
2.4"-4"	511-853	511-833	2923SB-10	21DZA000	6"
4"-6.4"	511-854	511-834			
6"-10"	511-855	511-835			
10"-16"	511-856	511-836			
16"-24"	511-857	511-837			
24"-32"	511-858	511-838			
2.4"-4"	511-843	511-833	2922SB	21DZA000	6"
4"-6.4"	511-844	511-834			
6"-10"	511-845	511-835			
10"-16"	511-846	511-836			
16"-24"	511-847	511-837			
24"-32"	511-848	511-838			

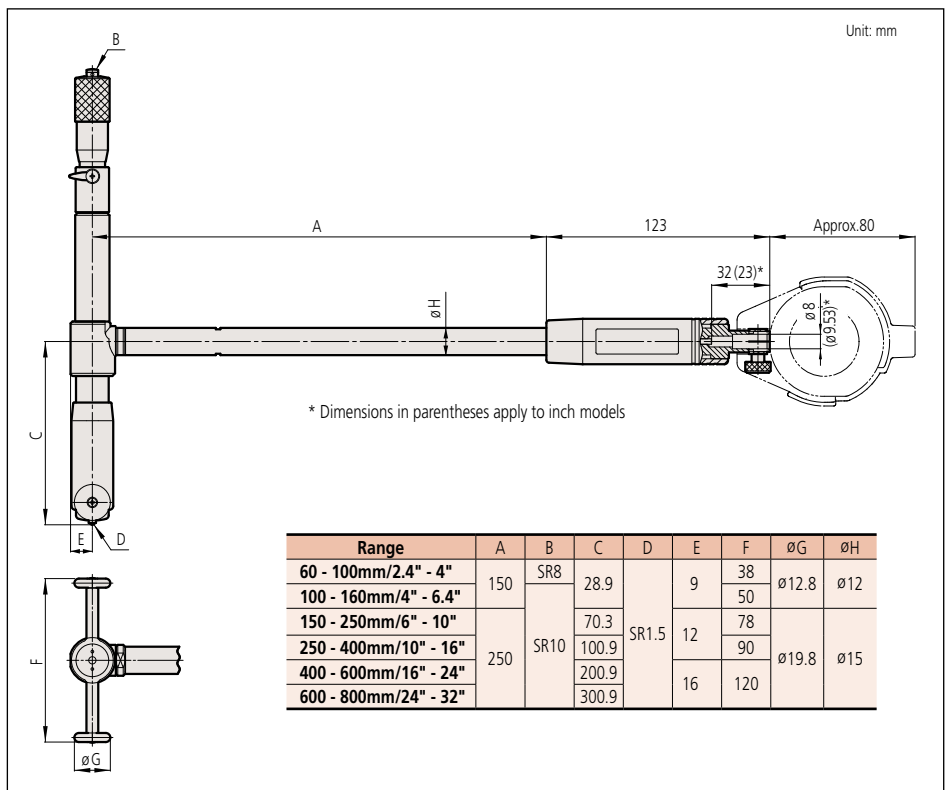
.0001" graduation

.0005" graduation

Contact Points



DIMENSIONS



Bore Gages

SERIES 511 — Short Leg Type

FEATURES

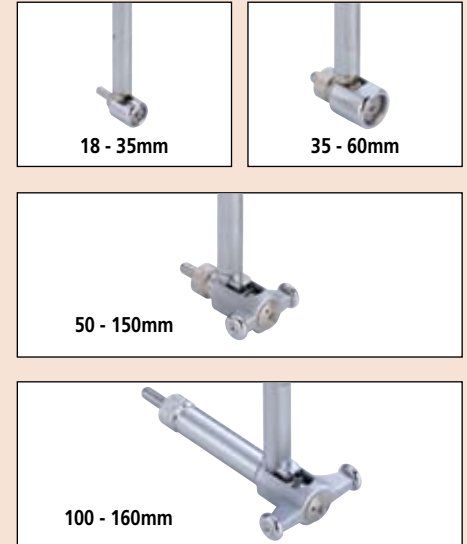
- Compact and lightweight due to the short length below the grip.
- Allows inside diameter measurement with high accuracy.
- Longer effective stroke (compared with the conventional product)
- Carbide is used for the contact point ensuring high durability and wear resistance.
- High-accuracy measurement is aided by a large grip with a sponge-like structure that reduces heat transfer from the operator's hand by 50%.
- Interchangeable washers 0.5mm thick (standard accessories) are supplied as standard accessories to enable setting in small steps.
- 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-28, C-29 and C-30.)



Technical Data

Wide-range accuracy: 2 μ m
 Repeatability: 0.5 μ m
 Adjacent error: 1 μ m

Contact Points



SPECIFICATIONS

Metric					
Range	Order No.	Content of set		Dial protection Cover Ass'y	Probe depth
		Bore gage	Dial indicator		
18 - 35mm	511-761	511-761	Not supplied	Not supplied	50mm
35 - 60mm	511-762	511-762			50mm
50 - 150mm	511-763	511-763			50mm
100 - 160mm	511-764	511-764			50mm
18 - 35mm	511-771	511-761	2109SB-10	21DZA000	50mm
35 - 60mm	511-772	511-762			50mm
50 - 150mm	511-773	511-763			50mm
100 - 160mm	511-774	511-764			50mm
18 - 35mm	511-766	511-761	2046SB	21DZA000	50mm
35 - 60mm	511-767	511-762			50mm
50 - 150mm	511-768	511-763			50mm
100 - 160mm	511-769	511-764			50mm

0.001mm graduation 0.01mm graduation

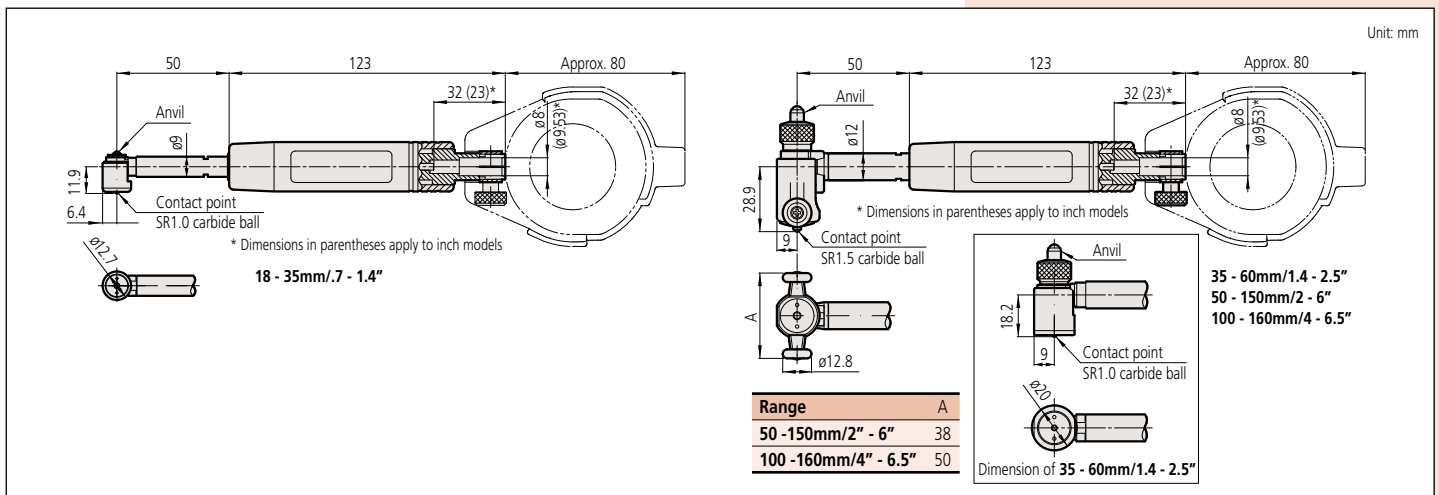
Inch					
Range	Order No.	Content of set		Dial protection Cover Ass'y	Probe depth
		Bore gage	Dial indicator		
.7"-1.4"	511-781	511-781	Not supplied	Not supplied	2"
1.4"-2.5"	511-782	511-782			2"
2"-6"	511-783	511-783			2"
4"-6.5"	511-784	511-784			2"
.7"-1.4"	511-791	511-781	2923SB-10	21DZA000	2"
1.4"-2.5"	511-792	511-782			2"
2"-6"	511-793	511-783			2"
4"-6.5"	511-794	511-784			2"
.7"-1.4"	511-786	511-781	2922SB	21DZA000	2"
1.4"-2.5"	511-787	511-782			2"
2"-6"	511-788	511-783			2"
4"-6.5"	511-789	511-784			2"

0.0001" graduation .0005" graduation

Optional Accessory

Setting ring (See page C-28.)

DIMENSIONS



Bore Gages

SERIES 511 — for Blind Holes

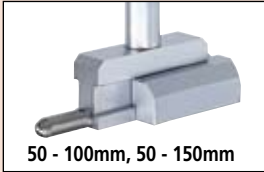
Technical Data

Accuracy: 5µm
 Repeatability: 2µm
 Graduation: 0.01mm, 0.001mm, .0005 or .0001"

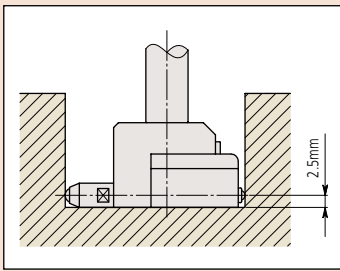
Contact Points



15 - 35mm



50 - 100mm, 50 - 150mm



Optional Accessory

Setting ring (See page C-28.)

FEATURES

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



511-412

SPECIFICATIONS

Metric				
Range	Order No.	Content of set		Probe depth
		Bore gage	Dial indicator	
15 - 35mm	511-421	511-401	2109SB-10	150mm
35 - 60mm	511-422	511-402		150mm
50 - 100mm	511-423	511-403		150mm
50 - 150mm	511-424	511-404		150mm
15 - 35mm	511-411	511-401	2046SB	150mm
35 - 60mm	511-412	511-402		150mm
50 - 100mm	511-413	511-403		150mm
50 - 150mm	511-414	511-404		150mm

0.001mm graduation (w/ 2109SB-10)

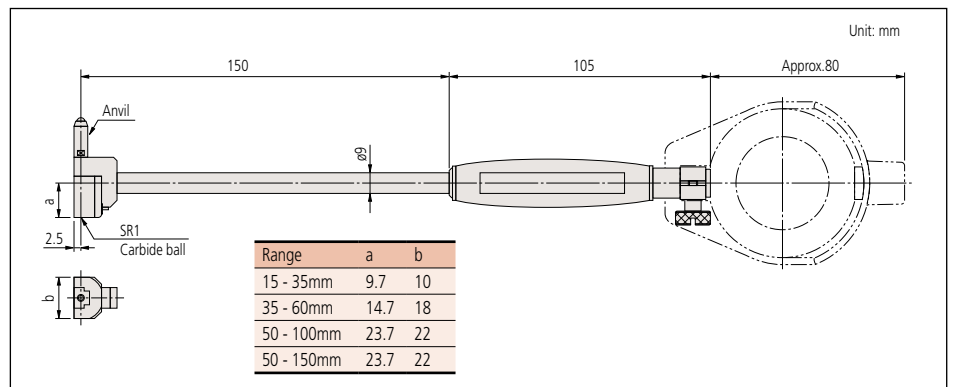
0.01mm graduation (w/ 2046SB)

Inch				
Range	Order No.	Content of set		Probe depth
		Bore gage	Dial indicator	
.6" - 1.4"	511-441	511-406	2923SB-10	6"
1.4" - 2.4"	511-442	511-407		6"
2" - 4"	511-443	511-408		6"
2" - 6"	511-444	511-409		6"
.6" - 1.4"	511-431	511-406	2922SB	6"
1.4" - 2.4"	511-432	511-407		6"
2" - 4"	511-433	511-408		6"
2" - 6"	511-434	511-409		6"

.0001" graduation (w/ 2923SB-10)

.0005" graduation (w/ 2922SB)

DIMENSIONS



ABSOLUTE Digimatic Bore Gages

SERIES 511

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



511-521

FEATURES

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



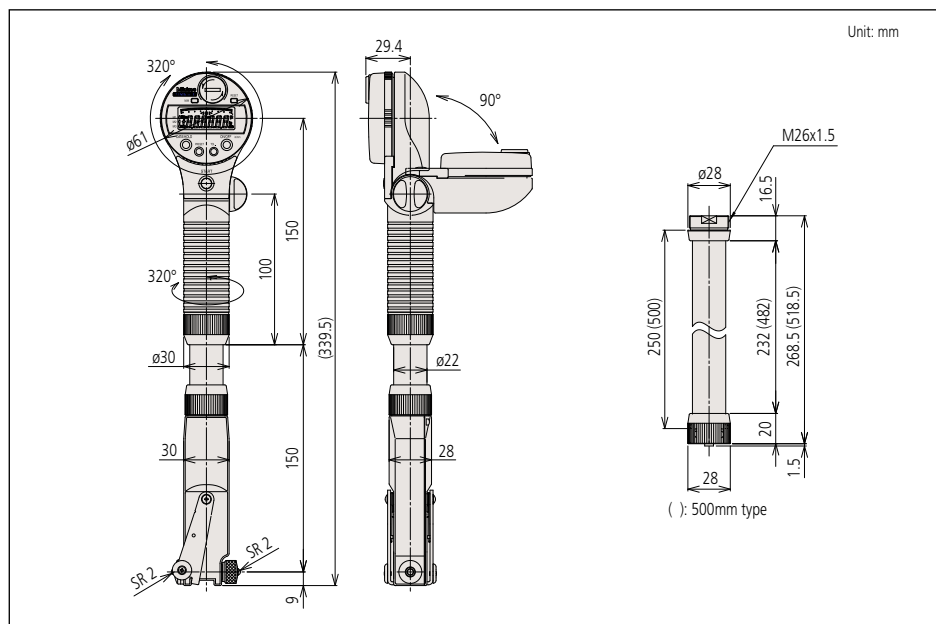
- Up to three sets of master value and upper/lower tolerance values can be memorized and recalled at the push of a button.
- An analog bar indicator is integrated to enhance ease of reading.
- GO/±NG judgment is performed by setting the upper and lower tolerances.
- Up to four rods (250mm or 500mm) can be used.

SPECIFICATIONS

Metric		
Range	Order No.	Probe depth
45 - 100mm	511-501	150mm
100 - 160mm	511-502	150mm

Inch/Metric		
Range	Order No.	Probe depth
1.8 - 4"	511-521	6"
4 - 6.5"	511-522	6"

DIMENSIONS



(Refer to page VIII for details.)

Technical Data

Resolution: 0.001mm or .0005"/0.001mm
 Display: LCD Character Height 8.5mm
 Battery: SR44 (2pc.) (938882)
 Battery life: Approx. 2000 hours under normal use

Function

Presetting, Preset, Power on/off, inch/mm conversion (inch/mm type only), Data output, GO/±NG tolerance judgment
 Min value holding, Data hold
 Alarm: Low battery voltage, scale contamination, overflow error, tolerance limit setting error

Optional Accessories

- 21DZA089: Extension rod 250 mm (10")
- 21DZA081: Extension rod 500 mm (20")
- 516-118-10: Setup metric rectangular gauge block set
- 516-119-10: Setup metric square gauge block set
- 905338: SPC cable (1m)
- 905409: SPC cable (2m)
- 02AZD790F: SPC cable for U-WAVE (160mm)
- Setting ring (See page C-28.)



Setting the Bore Gage to a master value using a gauge block set



Using four extension rods

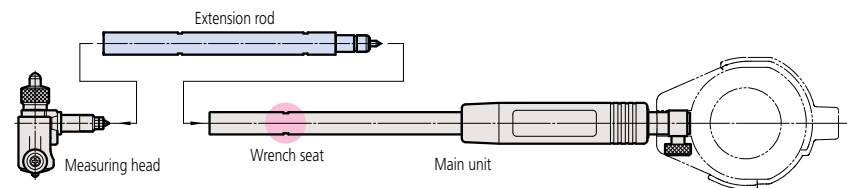
Extension Rods

Accessories for Bore Gages



FEATURES

- Extension rods (optional) are available to assist in deep-hole measurement.
- When several extension rods are joined together there is the possibility of small errors arising from the extra joints involved. Therefore it is good practice not to connect more than 2 rods to a bore gage at any one time. If possible use a single, longer, extension rod rather than several short ones.
- The extension rod can be used up to 1,000 mm.
- If using an extension rod longer than 500 mm, use the bore gage in the vertical orientation.
- Accuracy and satisfactory operation should be confirmed after connecting an extension rod.



*To separate an extension rod from the measuring head or main unit, use the dedicated wrench that engages with seats on the rod and main unit sleeve.

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/.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"-6.4"
							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"							

*The compatible models are the Standard Bore Gage (refer to page C-20) and Micrometer Head Bore Gage (refer to page C-22).

*Accuracy may be affected by unintended deflections, etc., when using an extension rod.

Setting Rings

SERIES 177 — Accessories for Inside Micrometers, Holtest and Dial Bore Gages

FEATURES

- Used for quick and accurate setting of dial bore gages, Holtest, and inside micrometers.
- Actual calibration value for the diameter is marked on each ring.
- No anticorrosion treatment is required when handling Ceramic Setting Rings normally, resulting in simple maintenance and storage.

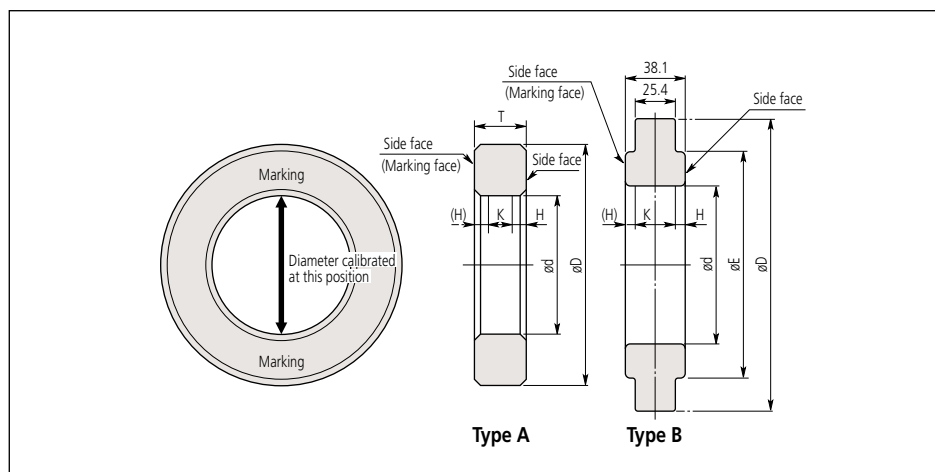
Steel Setting Rings



Ceramic Setting Rings



DIMENSIONS

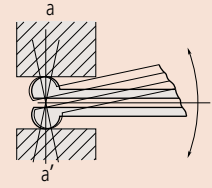


Suffix

- 177-***-12: With Inspection Certificate
- 177-***-62: With Inspection Certificate and Calibration Certificate
- 177-***-82: With Inspection Certificate, Calibration Certificate, and Traceability System Chart

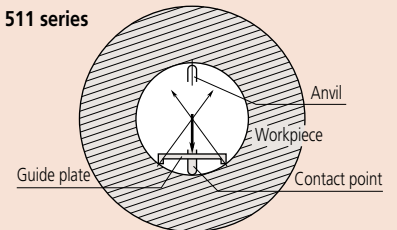
Reading the indicated value

526 series



- The 526 series has a gage head with high curvature. Alignment with the diameter (a-a') is achieved by rotating the gage head in the direction indicated by the arrow, and the reading is the minimum value read from the dial indicator.

511 series



- The 511 series provides a guide plate to align the setting ring diameter with the measurement axis of the bore gage.

SPECIFICATION

Steel Setting Rings

Metric

Nominal size ϕ D	Order No.	Dimensions (mm)			Type	Accuracy				
		ϕ D	ϕ E	T		Tolerance between the nominal size and the actual diameter (μ m)	Uncertainty of marked dimension value (μ m)	Roundness/ Cylindricity (μ m)	Distance from the side face H (mm)	Size of warranted calibration surface K (mm)
1mm	177-220	20	—	4	A	± 10	± 1.5	1	1.6	0.8
1.1mm	177-222	20	—	4	A	± 10	± 1.5	1	1.6	0.8
1.2mm	177-225	20	—	4	A	± 10	± 1.5	1	1.6	0.8
1.3mm	177-227	20	—	4	A	± 10	± 1.5	1	1.6	0.8
1.4mm	177-230	20	—	4	A	± 10	± 1.5	1	1.6	0.8
1.75mm	177-236	25	—	5	A	± 10	± 1.5	1	1.6	1.8
2mm	177-239	25	—	5	A	± 10	± 1.5	1	1.6	1.8
2.25mm	177-242	25	—	5	A	± 10	± 1.5	1	1.6	1.8
2.5mm	177-208	25	—	7	A	± 10	± 1.5	1	1.7	3.6
2.75mm	177-246	25	—	7	A	± 10	± 1.5	1	1.7	3.6
3mm	177-248	25	—	7	A	± 10	± 1.5	1	1.7	3.6
3.25mm	177-250	25	—	7	A	± 10	± 1.5	1	1.7	3.6
3.5mm	177-252	25	—	7	A	± 10	± 1.5	1	1.7	3.6
3.75mm	177-255	25	—	7	A	± 10	± 1.5	1	1.7	3.6
4mm	177-204	25	—	7	A	± 10	± 1.5	1	1.7	3.6
4.5mm	177-257	25	—	7	A	± 10	± 1.5	1	1.7	3.6
5mm	177-205	25	—	7	A	± 10	± 1.5	1	1.7	3.6
5.5mm	177-263	25	—	7	A	± 10	± 1.5	1	1.7	3.6
6mm	177-267	25	—	7	A	± 10	± 1.5	1	1.7	3.6
6.5mm	177-271	25	—	7	A	± 10	± 1.5	1	1.7	3.6
7mm	177-275	25	—	7	A	± 10	± 1.5	1	1.7	3.6
8mm	177-125	32	—	10	A	± 10	± 1.5	1	2.0	6.0
9mm	177-279	32	—	10	A	± 10	± 1.5	1	2.0	6.0
10mm	177-126	32	—	10	A	± 10	± 1.5	1	2.0	6.0
12mm	177-284	32	—	10	A	± 10	± 1.5	1	2.0	6.0
14mm	177-132	38	—	10	A	± 10	± 1.5	1	2.0	6.0

Nominal size ϕ D	Order No.	Dimensions (mm)			Type	Accuracy				
		ϕ D	ϕ E	T		Tolerance between the nominal size and the actual diameter (μ m)	Uncertainty of marked dimension value (μ m)	Roundness/ Cylindricity (μ m)	Distance from the side face H (mm)	Size of warranted calibration surface K (mm)
16mm	177-177	45	—	10	A	± 10	± 1.5	1	2.0	6.0
17mm	177-133	45	—	10	A	± 10	± 1.5	1	2.0	6.0
18mm	177-285	45	—	10	A	± 10	± 1.5	1	2.0	6.0
20mm	177-286	45	—	10	A	± 10	± 1.5	1	2.0	6.0
25mm	177-139	53	—	15	A	± 10	± 1.5	1	3.2	8.6
30mm	177-288	71	—	15	A	± 10	± 1.5	1	3.2	8.6
35mm	177-140	71	—	15	A	± 10	± 1.5	1	3.2	8.6
40mm	177-290	71	—	15	A	± 10	± 1.5	1	3.2	8.6
45mm	177-178	85	—	15	A	± 10	± 1.5	1	3.7	7.6
50mm	177-146	85	—	20	A	± 20	± 1.5	1	3.7	12.6
60mm	177-292	112	—	20	A	± 20	± 1.5	1	3.7	12.6
62mm	177-314	112	—	20	A	± 20	± 1.5	1.5	3.7	12.6
70mm	177-147	112	—	20	A	± 20	± 1.5	1.5	3.7	12.6
75mm	177-316	125	—	25	A	± 20	± 1.5	1.5	4.2	16.6
80mm	177-294	125	—	25	A	± 20	± 1.5	1.5	4.2	16.6
87mm	177-318	140	—	25	A	± 20	± 1.5	1.5	4.2	16.6
90mm	177-148	140	—	25	A	± 20	± 1.5	1.5	4.2	16.6
100mm	177-296	160	—	25	A	± 20	± 1.5	2	4.2	16.6
125mm	177-298	210	168		B	± 20	± 1.5	2	5.3	27.5
150mm	177-300	235	187		B	± 20	± 1.5	2	5.3	27.5
175mm	177-302	260	215		B	± 20	± 1.5	2.5	5.3	27.5
200mm	177-304	311	244	38.1 (25.4)	B	± 20	± 1.5	2.5	5.3	27.5
225mm	177-306	337	264		B	± 20	± 1.5	2.5	5.3	27.5
250mm	177-308	362	290		B	± 20	± 1.5	3	5.3	27.5
275mm	177-310	413	321		B	± 20	± 1.5	3	5.3	27.5
300mm	177-312	438	340		B	± 20	± 1.5	3	5.3	27.5

Inch

Nominal size ϕ D	Order No.	Dimensions (mm)			Type	Accuracy				
		ϕ D	ϕ E	T		Tolerance between the nominal size and the actual diameter (inch)	Uncertainty of marked dimension value (inch)	Roundness/ Cylindricity (inch)	Distance from the side face H (inch)	Size of warranted calibration surface K (inch)
.1"	177-209	25	—	7	A	± 0.004 "	± 0.0006 "	.00004"	.067"	.142"
.16"	177-206	25	—	7	A	± 0.004 "	± 0.0006 "	.00004"	.067"	.142"
.24"	177-207	25	—	7	A	± 0.004 "	± 0.0006 "	.00004"	.067"	.142"
.275"	177-281	25	—	7	A	± 0.004 "	± 0.0006 "	.00004"	.079"	.118"
.35"	177-179	32	—	10	A	± 0.004 "	± 0.0006 "	.00004"	.079"	.236"
.425"	177-283	32	—	10	A	± 0.004 "	± 0.0006 "	.00004"	.079"	.236"
.5"	177-180	32	—	10	A	± 0.004 "	± 0.0006 "	.00004"	.079"	.236"
.6"	177-181	38	—	10	A	± 0.004 "	± 0.0006 "	.00004"	.079"	.236"
.65"	177-182	45	—	10	A	± 0.004 "	± 0.0006 "	.00004"	.079"	.236"
.7"	177-183	45	—	10	A	± 0.004 "	± 0.0006 "	.00004"	.079"	.236"
.8"	177-287	45	—	10	A	± 0.004 "	± 0.0006 "	.00004"	.079"	.236"
1"	177-184	53	—	15	A	± 0.004 "	± 0.0006 "	.00004"	.126"	.339"
1.2"	177-289	71	—	15	A	± 0.004 "	± 0.0006 "	.00004"	.126"	.339"
1.4"	177-185	71	—	15	A	± 0.004 "	± 0.0006 "	.00004"	.126"	.339"
1.6"	177-291	71	—	15	A	± 0.004 "	± 0.0006 "	.00004"	.126"	.339"
1.8"	177-186	85	—	15	A	± 0.004 "	± 0.0006 "	.00004"	.146"	.299"

Nominal size ϕ D	Order No.	Dimensions (mm)			Type	Accuracy				
		ϕ D	ϕ E	T		Tolerance between the nominal size and the actual diameter (inch)	Uncertainty of marked dimension value (inch)	Roundness/ Cylindricity (inch)	Distance from the side face H (inch)	Size of warranted calibration surface K (inch)
2"	177-187	85	—	20	A	± 0.008 "	± 0.0006 "	.00004"	.146"	.496"
2.4"	177-293	112	—	20	A	± 0.008 "	± 0.0006 "	.00004"	.146"	.496"
2.5"	177-315	112	—	20	A	± 0.008 "	± 0.0006 "	.00006"	.165"	.457"
2.8"	177-188	112	—	20	A	± 0.008 "	± 0.0006 "	.00006"	.165"	.457"
3"	177-317	125	—	25	A	± 0.008 "	± 0.0006 "	.00006"	.165"	.654"
3.2"	177-295	125	—	25	A	± 0.008 "	± 0.0006 "	.00006"	.165"	.654"
3.5"	177-319	140	—	25	A	± 0.008 "	± 0.0006 "	.00006"	.165"	.654"
3.6"	177-189	140	—	25	A	± 0.008 "	± 0.0006 "	.00006"	.165"	.654"
4"	177-297	160	—	25	A	± 0.008 "	± 0.0006 "	.00008"	.165"	.654"
5"	177-299	210	168	38.1	B	± 0.008 "	± 0.0010 "	.00008"	.209"	1.083"
6"	177-301	235	187	38.1	B	± 0.008 "	± 0.0010 "	.00008"	.209"	1.083"
7"	177-303	260	215	38.1	B	± 0.008 "	± 0.0010 "	.00010"	.209"	1.083"
8"	177-305	311	244	38.1	B	± 0.008 "	± 0.0010 "	.00010"	.209"	1.083"
9"	177-307	337	264	38.1	B	± 0.008 "	± 0.0010 "	.00010"	.209"	1.083"
10"	177-309	362	290	38.1	B	± 0.008 "	± 0.0010 "	.00012"	.209"	1.083"
11"	177-311	413	321	38.1	B	± 0.008 "	± 0.0010 "	.00012"	.209"	1.083"
12"	177-313	438	340	38.1	B	± 0.008 "	± 0.0010 "	.00012"	.209"	1.083"

Cera Setting Rings

Metric

Nominal size ϕ D	Order No.	Dimensions (mm)			Type	Accuracy				
		ϕ D	ϕ E	T		Tolerance between the nominal size and the actual diameter (μ m)	Uncertainty of marked dimension value (μ m)	Roundness/ Cylindricity (μ m)	Distance from the side face H (mm)	Size of warranted calibration surface K (mm)
4mm	177-418	25	—	7	A	± 10	± 1.5	1	1.7	3.6
6mm	177-420	25	—	7	A	± 10	± 1.5	1	1.7	3.6
8mm	177-423	32	—	10	A	± 10	± 1.5	1	2.0	6.0
10mm	177-424	32	—	10	A	± 10	± 1.5	1	2.0	6.0
12mm	177-425	45	—	10	A	± 10	± 1.5	1	2.0	6.0
16mm	177-427	45	—	10	A	± 10	± 1.5	1	2.0	6.0
20mm	177-429	45	—	10	A	± 10	± 1.5	1	2.0	6.0
25mm	177-430	53	—	15	A	± 10	± 1.5	1	3.2	8.6
30mm	177-431	71	—	15	A	± 10	± 1.5	1	3.2	8.6
35mm	177-432	71	—	15	A	± 10	± 1.5	1	3.2	8.6
40mm	177-433	71	—	15	A	± 10	± 1.5	1	3.2	8.6
45mm	177-434	85	—	15	A	± 10	± 1.5	1	3.2	8.6

Inch

Nominal size ϕ D	Order No.	Dimensions (mm)			Type	Accuracy				
		ϕ D	ϕ E	T		Tolerance between the nominal size and the actual diameter (inch)	Uncertainty of marked dimension value (inch)	Roundness/ Cylindricity (inch)	Distance from the side face H (inch)	Size of warranted calibration surface K (inch)
.16"	177-518	25	—	7	A	± 0.004 "	± 0.0006 "	.00004"	.067"	.142"
.24"	177-520	25	—	7	A	± 0.004 "	± 0.0006 "	.00004"		

Bore Gage Checker

SERIES 515

The Bore Gage Checker allows easy setting 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")



RM-120 Ring Master

Ring Gage Measuring Machine

FEATURES

- The laser holoscale incorporated in the RM-120 eliminates the need for a reference gauge block set and reference ring gages.
- Probe changing is not required for the entire measuring range.
- Enhanced repeatability and lower measuring force achieved with the air bearing on the probe carriage guide.
- Workpiece alignment is easy to perform with the specially designed measuring table which is capable of moving, tilting, elevating, and rotating through 90 degrees.
- The model with an analog meter enables even easier workpiece positioning.

SPECIFICATIONS

Model No.	RM-120
Range	ID: 6mm - 120mm
Resolution	0.0001mm (0.1 μ m)
Accuracy (20°C)	$\pm(0.03+5D/1000)\mu$ m D = Measuring internal diameter (mm)
Repeatability ($\pm 2\sigma$)	$\pm 0.2\mu$ m
Measuring unit	Laser Holoscale
Measuring force	Approx. 0.2N
Workpiece size	OD: 20mm to 200mm Thickness: Up to 40mm
Ambient temperature	20°C $\pm 0.5^\circ$ C
Air requirement	400KPa
Air consumption	Approx. 30 liters per minute
Dimensions (W x D x H)	720 x 494 x 875mm

