



**Inside Micrometers**  
**Page 128**



**Bore Gauges**  
**Page 146**



**Inside Measuring Instruments Accessories**  
**Page 158**

# Digimatic Holtests Individual Metric

## Series 468

These are three-point internal micrometers that offer you the following benefits:

- Individual micrometer.
- Titanium-coated measuring pins give you excellent durability and impact resistance.
- They also have excellent resistance against water and dust (IP65 protection level), allowing you to use this product in machining situations that include splashing coolant fluid.
- Large LCD display with character height of 7,5 mm enables you to read measurements easily.
- Without setting rings or extensions.



Titanium coated measuring surfaces for durability

### Metric

No.	Range [mm]	Digital step	Max. Permissible Error E MPE	Mass [g]
468-161	6-8	0,001 mm	±2 µm	370
468-162	8-10	0,001 mm	±2 µm	370
468-163	10-12	0,001 mm	±2 µm	370
468-164	12-16	0,001 mm	±3 µm	400
468-165	16-20	0,001 mm	±3 µm	400
468-166	20-25	0,001 mm	±3 µm	470
468-167	25-30	0,001 mm	±3 µm	480
468-168	30-40	0,001 mm	±3 µm	480
468-169	40-50	0,001 mm	±3 µm	500
468-170	50-63	0,001 mm	±3 µm	620
468-171	62-75	0,001 mm	±4 µm	630
468-172	75-88	0,001 mm	±4 µm	960
468-173	87-100	0,001 mm	±4 µm	970
468-174	100-125	0,001 mm	±5 µm	940
468-175	125-150	0,001 mm	±5 µm	1030
468-176	150-175	0,001 mm	±5 µm	1120
468-177	175-200	0,001 mm	±5 µm	1210
468-178	200-225	0,001 mm	±6 µm	1300
468-179	225-250	0,001 mm	±6 µm	1390
468-180	250-275	0,001 mm	±6 µm	1480
468-181	275-300	0,001 mm	±6 µm	1570

Functions	Series 468
ABS / INC (INC ZERO)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
HOLD	●
2 x PRESET	●
Data output	●

### Specifications

Power supply	1 battery SR-44
Battery life	Approx. 1,2 years
Measuring pins	Titanium coated tungsten carbide (6-12 mm) titanium coated hard-ened steel (12-300 mm) taper: tungsten carbide
Display	LCD, character height 7,5 mm
Delivered	Including box, key, 1 battery, certificate of inspection

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1 m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2 m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic to USB), 2m Cable, Digimatic/Digimatic 2, with Data Button IP Micrometer Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790B	Connection Cable B for U-WAVE, with Data Button for IP Micrometer Type
952322	Holtest, Borematic Extension 100mm, for 6-12mm Measuring Range
952621	Holtest, Borematic Extension 150mm, for 12-20mm Measuring Range
952622	Holtest, Borematic Extension 150mm, for 20-50mm Measuring Range
952623	Holtest, Borematic Extension 150mm, for 50-300mm Measuring Range
156-101-10	Micrometer Stand, Adjustable Angle Type, for Micrometer 0-100mm/0-4"
04AZB157	Holder for Micrometer Stand, for Series 468

### Consumable spares

No.	Description
63AAA800	Battery SR44 1,5 V

# Digimatic Holtests Individual Metric



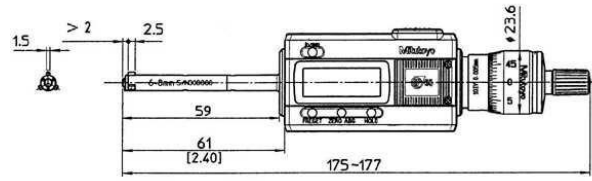
Holtest with optional accessories  
 Stand 156-101-10  
 Printer DP1-VA 264-505D  
 Holder 04AZB157  
 Cable 05CZA662



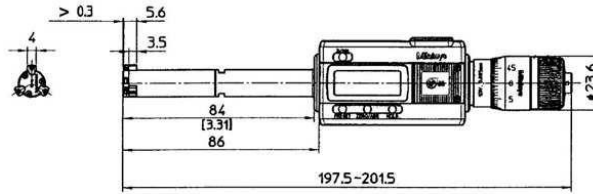
04AZB157



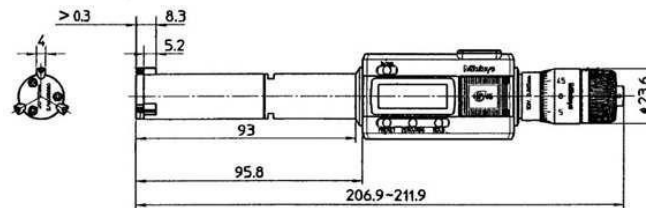
Extension rod for deep holes



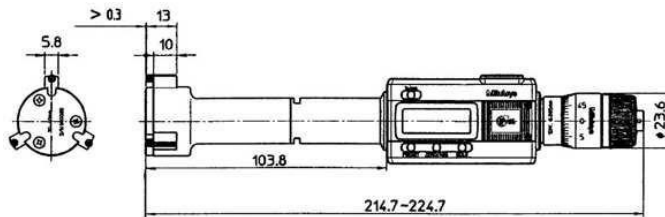
468-161, 468-162, 468-163



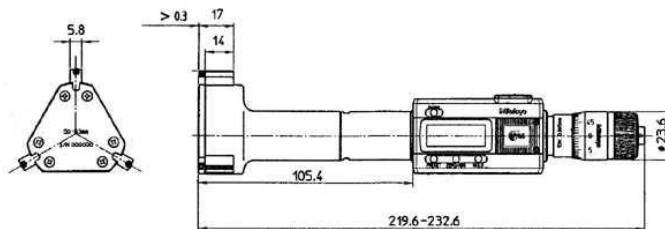
468-164, 468-165



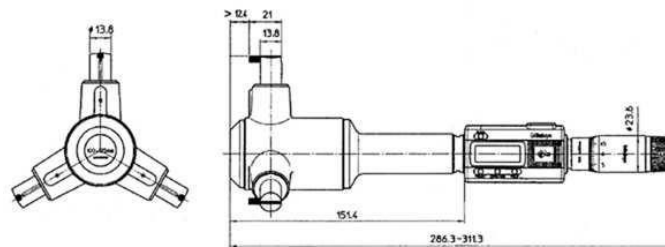
468-166, 468-167



468-168, 468-169



468-170, 468-171, 468-172, 468-173



468-174, 468-175, 468-176, 468-177, 468-178, 468-179, 468-180, 468-181

# Digimatic Holtest Interchangeable Head Sets

## Series 468

These are three-point internal micrometers that offer you the following benefits:

- Interchangeable head set.
- Titanium-coated measuring pins give you excellent durability and impact resistance.
- They also have excellent resistance against water and dust (IP65 protection level), allowing you to use this product in machining situations that include splashing coolant fluid.
- Large LCD display with character height of 7,5 mm enables you to read measurements easily.
- With setting rings and extensions.



468-973



468-975



### Metric

No.	Range [mm]	Digital step	Individual ranges [mm]	Setting rings included	Mass [g]
468-971	6-12	0,001 mm	6-8, 8-10, 10-12	ø8 mm (177-125) ø10 mm (177-126)	420
468-972	12-20	0,001 mm	12-16, 16-20	ø16 mm (177-177)	560
468-973	20-50	0,001 mm	20-25, 25-30, 30-40, 40-50	ø25 mm (177-139) ø40 mm (177-290)	1170
468-974	50-100	0,001 mm	50-63, 62-75, 75-88, 87-100	ø62 mm (177-314) ø87 mm (177-318)	2420
468-975	100-200	0,001 mm	100-125, 125-150, 150-175, 175-200	ø125 mm (177-298) ø175 mm (177-302)	3540



Extension



04AZB157

Functions	Series 468
ABS / INC (INC ZERO)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
HOLD	●
2 x PRESET	●
Data output	●

### Specifications

Power supply	1 battery SR-44
Battery life	Approx. 1,2 years
Measuring pins	Titanium coated tungsten carbide (6-12 mm) titanium coated hardened steel (12-200 mm) taper: tungsten carbide
Display	LCD, character height 7,5 mm
Delivered	Including box, key, 1 battery, setting ring, extension, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1 m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2 m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic to USB), 2m Cable, Digimatic/Digimatic 2, with Data Button IP Micrometer Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790B	Connection Cable B for U-WAVE, with Data Button for IP Micrometer Type
952322	Holtest, Borematic Extension 100mm, for 6-12mm Measuring Range
952621	Holtest, Borematic Extension 150mm, for 12-20mm Measuring Range
952622	Holtest, Borematic Extension 150mm, for 20-50mm Measuring Range
952623	Holtest, Borematic Extension 150mm, for 50-300mm Measuring Range
156-101-10	Micrometer Stand, Adjustable Angle Type, for Micrometer 0-100mm/0-4"
04AZB157	Holder for Micrometer Stand, for Series 468

### Consumable spares

No.	Description
63AAA800	Battery SR44 1,5 V

# Digimatic Holtest Complete Unit Sets

## Series 468

These are three-point internal micrometers that offer you the following benefits:

- Complete unit set.
- Titanium-coated measuring pins give you excellent durability and impact resistance.
- They also have excellent resistance against water and dust (IP65 protection level), allowing you to use this product in machining situations that include splashing coolant fluid.
- Large LCD display with character height of 7,5 mm enables you to read measurements easily.
- With setting rings but without extensions.



Functions	Series 468
ABS / INC (INC ZERO)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
HOLD	●
2 x PRESET	●
Data output	●

### Specifications

Power supply	1 battery SR-44
Battery life	Approx. 1,2 years
Measuring pins	Titanium coated tungsten carbide (6-12 mm) titanium coated hardened steel (12-100 mm) taper: tungsten carbide
Display	LCD, character height 7,5 mm
Delivered	Including box, key, 1 battery, setting ring, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1 m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2 m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic to USB), 2m Cable, Digimatic/Digimatic 2, with Data Button IP Micrometer Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790B	Connection Cable B for U-WAVE, with Data Button for IP Micrometer Type
952322	Holtest, Borematic Extension 100mm, for 6-12mm Measuring Range
952621	Holtest, Borematic Extension 150mm, for 12-20mm Measuring Range
952622	Holtest, Borematic Extension 150mm, for 20-50mm Measuring Range
952623	Holtest, Borematic Extension 150mm, for 50-300mm Measuring Range
156-101-10	Micrometer Stand, Adjustable Angle Type, for Micrometer 0-100mm/0-4"
04AZB157	Holder for Micrometer Stand, for Series 468

### Consumable spares

No.	Description
63AAA800	Battery SR44 1,5 V



468-981



468-983

### Metric

Measuring surfaces titanium coated. Carbide taper and contact points.

No.	Range [mm]	Digital step	Individual ranges	Models included	Setting rings included	Mass [g]
468-981	6-12	0,001 mm	6-8, 8-10, 10-12 mm	468-161 / 468-162 / 468-163	ø8 mm (177-125) ø10 mm (177-126)	1160
468-982	12-25	0,001 mm	12-16, 16-20, 20-25 mm	468-164 / 468-165 / 468-166	ø16 mm (177-177) ø20 mm (177-286)	1290
468-983	25-50	0,001 mm	25-30, 30-40, 40-50 mm	468-167 / 468-168 / 468-169	ø30 mm (177-288) ø40 mm (177-290)	1480
468-984	50-75	0,001 mm	50-63, 62-75 mm	468-170 / 468-171	ø62 mm (177-314)	1270
468-985	75-100	0,001 mm	75-88, 87-100 mm	468-172 / 468-173	ø87 mm (177-318)	1990



Extension



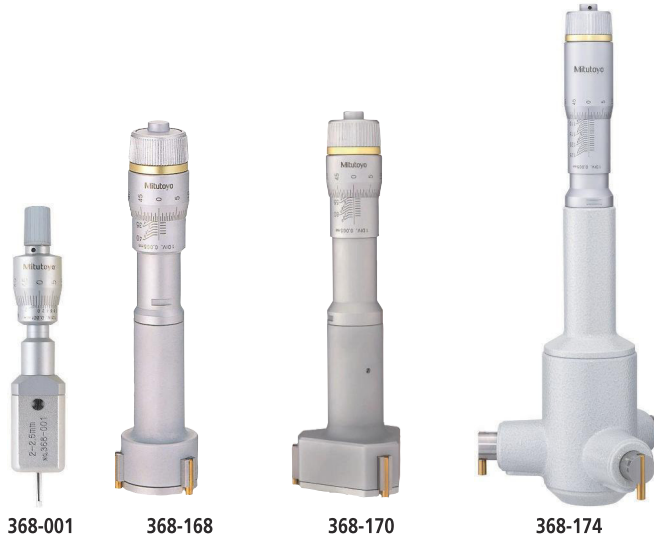
04AZB157

# Analog Holtest Individual Metric

## Series 368

These are three-point and two-point internal micrometers that offer you the following benefits:

- Titanium-coated measuring pins give you excellent durability and impact resistance (3-point type).
- Three-point micrometer allows stable measurement through automatic centering.
- It is delivered without setting rings or extensions.



## Specifications

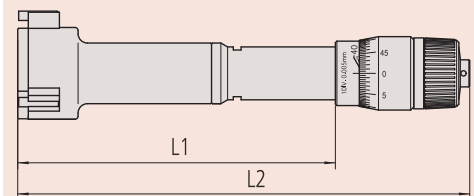
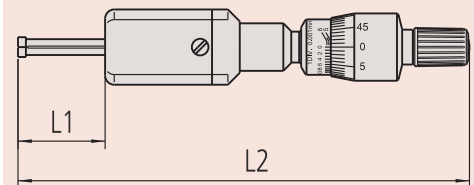
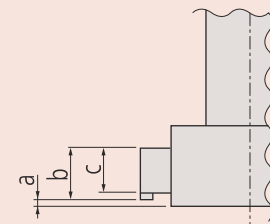
Scale	Thimble and sleeve satin chrome finish, Up to 12 mm : $\phi 17$ mm Over 12 mm : $\phi 23$ mm
Measuring Surface/Pins	2 - 6 mm: carbide 6 - 12 mm: titanium coated tungsten carbide 12 - 300 mm: titanium coated hardened steel taper: tungsten carbide
Measuring spindle	Spindle pitch 0,5 mm
Measuring method	2-6 mm : 2-point 6-300 mm : 3-point
Delivered	Including box, key, certificate of inspection

## Optional accessories

No.	Description
952322	Holtest, Borematic Extension 100mm, for 6-12mm Measuring Range
952621	Holtest, Borematic Extension 150mm, for 12-20mm Measuring Range
952622	Holtest, Borematic Extension 150mm, for 20-50mm Measuring Range
952623	Holtest, Borematic Extension 150mm, for 50-300mm Measuring Range

## Metric

No.	Range [mm]	Graduation	Max. Permissible Error E MPE	a [mm]	b [mm]	c [mm]	L1 [mm]	L2 [mm]	Mass [g]
368-001	2-2,5	0,001 mm	$\pm 2 \mu\text{m}$			2	12	103.5-104	88
368-002	2,5-3	0,001 mm	$\pm 2 \mu\text{m}$			2	12	103.5-104	88
368-003	3-4	0,001 mm	$\pm 2 \mu\text{m}$			2	22	113-114	91
368-004	4-5	0,001 mm	$\pm 2 \mu\text{m}$			2	22	113-114	91
368-005	5-6	0,001 mm	$\pm 2 \mu\text{m}$			2	22	113-114	91
368-161	6-8	0,001 mm	$\pm 2 \mu\text{m}$	2		2,5	59	102-104	60
368-162	8-10	0,001 mm	$\pm 2 \mu\text{m}$	2		2,5	59	102-104	60
368-163	10-12	0,001 mm	$\pm 2 \mu\text{m}$	2		2,5	59	102-104	60
368-164	12-16	0,005 mm	$\pm 3 \mu\text{m}$	0,3	5,6	3,5	82	126-130	150
368-165	16-20	0,005 mm	$\pm 3 \mu\text{m}$	0,3	5,6	3,5	82	126-130	160
368-166	20-25	0,005 mm	$\pm 3 \mu\text{m}$	0,3	8,3	5,2	94	126-130	260
368-167	25-30	0,005 mm	$\pm 3 \mu\text{m}$	0,3	8,3	5,2	94	137-142	280
368-168	30-40	0,005 mm	$\pm 3 \mu\text{m}$	0,3	13	10	102	145-155	290
368-169	40-50	0,005 mm	$\pm 3 \mu\text{m}$	0,3	13	10	102	145-155	330
368-170	50-63	0,005 mm	$\pm 3 \mu\text{m}$	0,3	17	14	105	150-163	440
368-171	62-75	0,005 mm	$\pm 4 \mu\text{m}$	0,3	17	14	105	150-163	450
368-172	75-88	0,005 mm	$\pm 4 \mu\text{m}$	0,3	17	14	105	150-165	570
368-173	87-100	0,005 mm	$\pm 4 \mu\text{m}$	0,3	17	14	105	150-165	580
368-174	100-125	0,005 mm	$\pm 5 \mu\text{m}$	12,4	21	13,8	161	227-252	1030
368-175	125-150	0,005 mm	$\pm 5 \mu\text{m}$	12,4	21	13,8	161	227-252	1120
368-176	150-175	0,005 mm	$\pm 5 \mu\text{m}$	12,4	21	13,8	161	227-252	1210
368-177	175-200	0,005 mm	$\pm 5 \mu\text{m}$	12,4	21	13,8	161	227-252	1320
368-178	200-225	0,005 mm	$\pm 6 \mu\text{m}$	12,4	21	13,8	161	227-252	1430
368-179	225-250	0,005 mm	$\pm 6 \mu\text{m}$	12,4	21	13,8	161	227-252	1550
368-180	250-275	0,005 mm	$\pm 6 \mu\text{m}$	12,4	21	13,8	161	227-252	1700
368-181	275-300	0,005 mm	$\pm 6 \mu\text{m}$	12,4	21	13,8	161	227-252	1870



# Analog Holtests Set

## Series 368

This is a set of three-point and two-point internal micrometers that offers you the following benefits:

- Complete unit set.
- Carbide measuring surface (2-6 mm range).
- Titanium-coated measuring pins (>6 mm range) give you excellent durability and impact resistance.
- Delivered with setting rings and extension rod (>6 mm range).



### Specifications

Scale	Thimble and sleeve satin chrome finish, Up to 12 mm : $\phi 17$ mm Over 12 mm : $\phi 23$ mm
Measuring Surface/Pins	2 - 6 mm: carbide 6 - 12 mm: titanium coated tungsten carbide 12 - 300 mm: titanium coated hardened steel taper: tungsten carbide
Measuring method	2-6 mm 2-point 6-200 mm 3-point
Delivered	Including box, key, setting ring, extension, certificate of inspection (instruments only - certificate of inspection for setting rings not included).



368-906



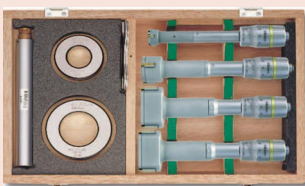
368-907



368-911



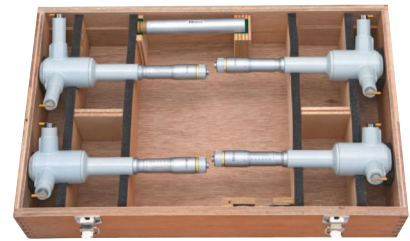
368-912



368-913



368-914



368-915

### Metric

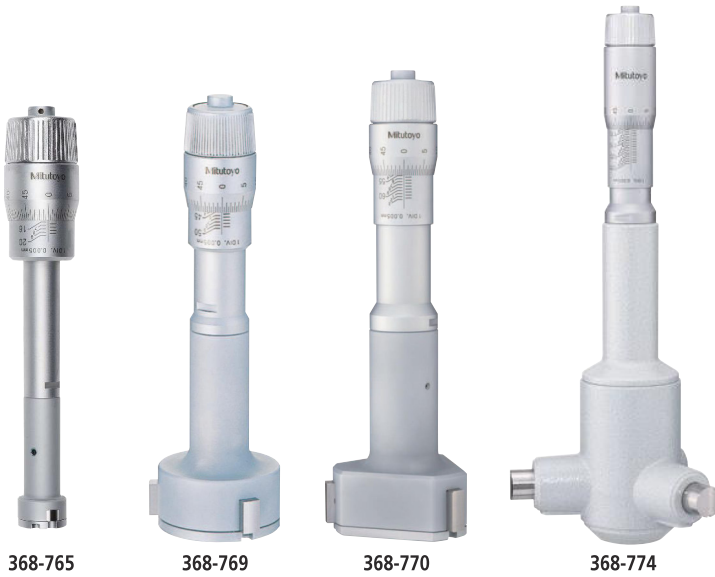
No.	Range [mm]	Graduation	Individual ranges	Models included	Setting rings included	Extension rod	Mass [g]
368-906	2-3	0,001 mm	2-2,5, 2,5-3 mm	368-001 / 368-002	$\phi 2,5$ mm (177-208)		310
368-907	3-6	0,001 mm	3-4, 4-5, 5-6 mm	368-003 / 368-004 / 368-005	$\phi 4$ mm (177-204) $\phi 5$ mm (177-205)		505
368-911	6-12	0,001 mm	6-8, 8-10, 10-12 mm	368-161 / 368-162 / 368-163	$\phi 8$ mm (177-125) $\phi 10$ mm (177-126)	952322	180
368-912	12-20	0,005 mm	12-16, 16-20 mm	368-164 / 368-165	$\phi 16$ mm (177-177)	952621	280
368-913	20-50	0,005 mm	20-25, 25-30, 30-40, 40-50 mm	368-166 / 368-167 / 368-168 / 368-169	$\phi 25$ mm (177-139) $\phi 40$ mm (177-290)	952622	960
368-914	50-100	0,005 mm	50-63, 62-75, 75-88, 87-100 mm	368-170 / 368-171 / 368-172 / 368-173	$\phi 62$ mm (177-314) $\phi 87$ mm (177-318)	952623	2030
368-915	100-200	0,005 mm	100-125, 125-150, 150-175, 175-200 mm	368-174 / 368-175 / 368-176 / 368-177	$\phi 125$ mm (177-298) $\phi 175$ mm (177-302)	952623	4680

# Economy Holtests Individual Metric

## Series 368

This is an economy version of a three-point internal micrometer, that offers you the following benefits:

- Hardened tool steel anvils and tapers allow a more economically priced and affordable tool.
- Individual types without setting rings or extensions.



## Specifications

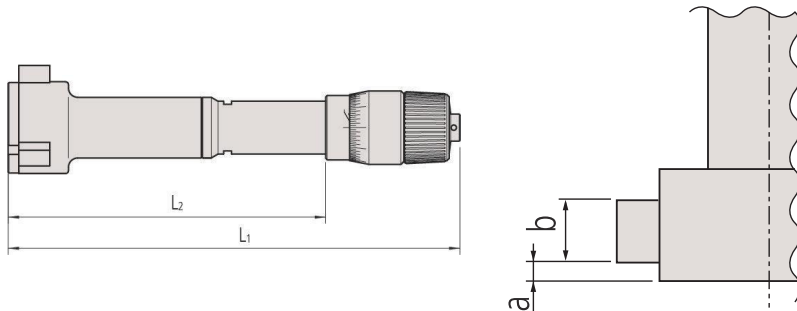
Scale	Thimble and sleeve satin chrome finish, Up to 12 mm : Ø17 mm Over 12 mm : Ø23 mm
Measuring spindle	Spindle pitch 0,5 mm
Measuring face	Hardened steel taper: hardened steel
Measuring method	3-point
Delivered	Including box, key, certificate of inspection

## Optional accessories

No.	Description
952621	Holtest, Borematic Extension 150mm, for 12-20mm Measuring Range
952622	Holtest, Borematic Extension 150mm, for 20-50mm Measuring Range
952623	Holtest, Borematic Extension 150mm, for 50-300mm Measuring Range

## Metric

No.	Range [mm]	Graduation	Max. Permissible Error E MPE	a [mm]	b [mm]	L1 [mm]	L2 [mm]	Mass [g]
368-764	12-16	0,005 mm	±3 µm	2,6	3,5	126 - 130	82	150
368-765	16-20	0,005 mm	±3 µm	2,6	3,5	126 - 130	82	150
368-766	20-25	0,005 mm	±3 µm	3,4	5,2	137 - 142	94	260
368-767	25-30	0,005 mm	±3 µm	3,4	5,2	137 - 142	94	280
368-768	30-40	0,005 mm	±3 µm	3,4	10	145 - 155	102	290
368-769	40-50	0,005 mm	±3 µm	3,4	10	145 - 155	102	330
368-770	50-63	0,005 mm	±3 µm	3,4	14	150 - 163	105	440
368-771	62-75	0,005 mm	±4 µm	3,4	14	150 - 163	105	450
368-772	75-88	0,005 mm	±4 µm	3,4	14	150 - 163	105	560
368-773	87-100	0,005 mm	±4 µm	3,4	14	150 - 163	105	570
368-774	100-125	0,005 mm	±5 µm	19,6	13,8	227 - 252	161	1020
368-775	125-150	0,005 mm	±5 µm	19,6	13,8	227 - 252	161	1110
368-776	150-175	0,005 mm	±5 µm	19,6	13,8	227 - 252	161	1200
368-777	175-200	0,005 mm	±5 µm	19,6	13,8	227 - 252	161	1300
368-778	200-225	0,005 mm	±6 µm	19,6	13,8	227 - 252	161	1420
368-779	225-250	0,005 mm	±6 µm	19,6	13,8	227 - 252	161	1540
368-780	250-275	0,005 mm	±6 µm	19,6	13,8	227 - 252	161	1690
368-781	275-300	0,005 mm	±6 µm	19,6	13,8	227 - 252	161	1860



# Economy Holtest Sets

## Specifications

Scale	Thimble and sleeve satin chrome finish, Up to 12 mm : Ø17 mm Over 12 mm : Ø23 mm
Measuring method	3-point
Delivered	Including box, key, setting ring, extension, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

## Optional accessories

No.	Description
952621	Holtest, Borematic Extension 150mm, for 12-20mm Measuring Range
952622	Holtest, Borematic Extension 150mm, for 20-50mm Measuring Range
952623	Holtest, Borematic Extension 150mm, for 50-300mm Measuring Range



Extension

## Series 368

This is an economy version of a three-point internal micrometer, that offers you the following benefits:

- Hardened tool steel anvils and tapers allow a more economically priced and affordable tool.
- Sets with setting rings and extensions.



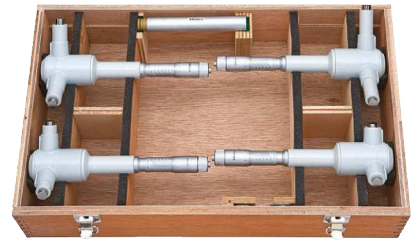
368-991



368-992



368-993



368-994

## Metric

No.	Range [mm]	Graduation	Individual ranges	Models included	Setting rings included	Extension rod	Mass [g]
368-991	12-20	0,005 mm	12-16, 16-20 mm	368-764 / 368-765	ø16 mm (177-177)	952621	310
368-992	20-50	0,005 mm	20-25, 25-30, 30-40, 40-50 mm	368-766 / 368-767 368-768 / 368-769	ø25 mm (177-139) ø40 mm (177-290)	952622	1160
368-993	50-100	0,005 mm	50-63, 62-75, 75-88, 87-100 mm	368-770 / 368-771 / 368-772 / 368-773	ø62 mm (177-314) ø87 mm (177-318)	952623	2020
368-994	100-200	0,005 mm	100-125, 125-150, 150-175, 175-200 mm	368-774 / 368-775 / 368-776 / 368-777	ø125 mm (177-298) ø175 mm (177-302)	952623	4630

# ABSOLUTE Borematic Individual Metric

## Series 568

This is a individual unit Three-Point Digimatic Snap Open Bore Gauge. It offers you the following benefits:

- It enables you to take measurements easily and quickly.
- Titanium-coated measuring pins gives you excellent durability and impact resistance.
- 330° rotatable display unit also gives you easy reading at any angle.
- GO/±NG judgement function.

**ABSOLUTE®**



568-361-10



568-364-10



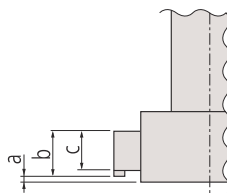
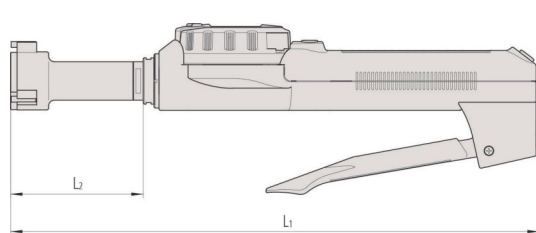
568-366-10



568-369-10

### Metric

No.	Range [mm]	Digital step	Max. Permissible Error E MPE	a [mm]	b [mm]	c [mm]	L1 [mm]	L2 [mm]	Mass [g]
568-361-10	6-8	0,001 mm	±5 µm	2		2,5	284	83	480
568-362-10	8-10	0,001 mm	±5 µm	2		2,5	284	83	485
568-363-10	10-12	0,001 mm	±5 µm	2		2,5	284	83	485
568-364-10	12-16	0,001 mm	±5 µm	0,3	5,6	3,5	255	53	475
568-365-10	16-20	0,001 mm	±5 µm	0,3	5,6	3,5	255	53	480
568-366-10	20-25	0,001 mm	±6 µm	0,3	8,3	5,2	261	59	540
568-367-10	25-30	0,001 mm	±6 µm	0,3	8,3	5,2	261	59	555
568-368-10	30-40	0,001 mm	±6 µm	0,3	13	10	269	67	565
568-369-10	40-50	0,001 mm	±6 µm	0,3	13	10	269	67	610
568-370-10	50-63	0,001 mm	±6 µm	0,3	17	14	277	75	730
568-371-10	62-75	0,001 mm	±6 µm	0,3	17	14	277	75	740
568-372-10	75-88	0,001 mm	±6 µm	0,3	17	14	277	75	790
568-373-10	87-100	0,001 mm	±6 µm	0,3	17	14	277	75	800
568-374-10	100-113	0,001 mm	±6 µm	0,3	17	14	277	75	900
568-375-10	112-125	0,001 mm	±6 µm	0,3	17	14	277	75	910



Functions	Series 568
ABS / INC (INC ZERO)	●
ON/OFF	●
Function lock	●
DATA (output with cable) / HOLD (display value)	●
2 x PRESET	●
GO/±NG judgement	●
Data output	●

### Specifications

Power supply	1 battery SR-44
Battery life	Approx. 5000 hours
Measuring pins	Titanium coated tungsten carbide (6 - 12 mm) Titanium coated hardened steel (12 - 125 mm)
Display	LCD, character height: 11 mm
Delivered	Including box, key, 1 battery, certificate of inspection

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1 m
905409	Digimatic Cable, Flat Straight Type, 2 m
06AFM380F	USB Input Tool Direct (Digimatic to USB), 2m Cable, Digimatic/Digimatic 2, Flat Straight Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790F	Connection Cable F for U-WAVE, Straight, without Data Button
952322	Holtest, Borematic Extension 100mm, for 6-12mm Measuring Range
952621	Holtest, Borematic Extension 150mm, for 12-20mm Measuring Range
952622	Holtest, Borematic Extension 150mm, for 20-50mm Measuring Range
952623	Holtest, Borematic Extension 150mm, for 50-300mm Measuring Range

### Consumable spares

No.	Description
63AAA800	Battery SR44 1,5 V



Titanium coated measuring surfaces for durability

# ABSOLUTE Borematic Interchangeable Head Sets

ABSOLUTE®



## Series 568

This is a Three-Point Digimatic Snap Open Bore Gauge Set with one display unit and interchangeable heads.

It offers you the following benefits:

- It enables you to take measurements easily and quickly.
- Titanium-coated measuring pins gives you excellent durability and impact resistance.
- 330° rotatable display unit also gives you easy reading at any angle.
- GO/NG tolerance judgement function.

Functions	Series 568
ABS / INC (INC ZERO)	●
ON/OFF	●
Function lock	●
DATA (output with cable) / HOLD (display value)	●
2 x PRESET	●
GO/NG judgement	●
Data output	●

### Specifications

Power supply	1 battery SR-44
Battery life	Approx. 5000 hours
Measuring pins	Titanium coated tungsten carbide (6 - 12 mm) Titanium coated hardened steel (12 - 125 mm)
Display	LCD, character height: 11 mm
Delivered	Including box, key, 1 battery, setting ring, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1 m
905409	Digimatic Cable, Flat Straight Type, 2 m
06AFM380F	USB Input Tool Direct (Digimatic to USB), 2m Cable, Digimatic/Digimatic 2, Flat Straight Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790F	Connection Cable F for U-WAVE, Straight, without Data Button
952322	Holtest, Borematic Extension 100mm, for 6-12mm Measuring Range
952621	Holtest, Borematic Extension 150mm, for 12-20mm Measuring Range
952622	Holtest, Borematic Extension 150mm, for 20-50mm Measuring Range
952623	Holtest, Borematic Extension 150mm, for 50-300mm Measuring Range

### Consumable spares

No.	Description
63AAA800	Battery SR44 1,5 V



Titanium coated measuring surfaces for durability



568-924-10



568-925-10



568-926-10



568-927-10

### Metric

No.	Range [mm]	Digital step	Individual ranges	Setting rings included	Mass [g]
568-924-10	6-12	0,001 mm	6-8 mm 8-10 mm 10-12 mm	Ø8 mm (177-125) Ø10 mm (177-126)	530
568-925-10	12-25	0,001 mm	12-16 mm 16-20 mm 20-25 mm	Ø16 mm (177-177) Ø20 mm (177-286)	690
568-926-10	25-50	0,001 mm	25-30 mm 30-40 mm 40-50 mm	Ø30 mm (177-288) Ø40 mm (177-290)	930
568-927-10	50-100	0,001 mm	50-63 mm 62-75 mm 75-88 mm 87-100 mm	Ø62 mm (177-314) Ø87 mm (177-318)	1850

# ABSOLUTE Borematic Complete Unit Sets

## ABSOLUTE Borematic Complete Unit Sets

This is a Three-Point Digimatic Snap Open Bore Gauge Set with a display unit for each measuring head.

It offers you the following benefits:

- It enables you to take measurements easily and quickly.
- Titanium-coated measuring pins gives you excellent durability and impact resistance.
- 330° rotatable display unit also gives you easy reading at any angle.
- GO/±NG judgement function.

ABSOLUTE®



Functions	ABSOLUTE Borematic Complete Unit Sets
ABS / INC (INC ZERO)	●
ON/OFF	●
Function lock	●
DATA (output with cable) / HOLD (display value)	●
2 x PRESET	●
GO/±NG judgement	●
Data output	●

### Specifications

Power supply	1 battery SR-44
Battery life	approx. 5000 hours
Measuring pins	Titanium coated tungsten carbide (6 - 12 mm) Titanium coated hardened steel (12 - 125 mm)
Display	LCD, character height: 11 mm
Delivered	Including box, key, battery, setting ring, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1 m
905409	Digimatic Cable, Flat Straight Type, 2 m
06AFM380F	USB Input Tool Direct (Digimatic to USB), 2m Cable, Digimatic/Digimatic 2, Flat Straight Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790F	Connection Cable F for U-WAVE, Straight, without Data Button
952322	Holtest, Borematic Extension 100mm, for 6-12mm Measuring Range
952621	Holtest, Borematic Extension 150mm, for 12-20mm Measuring Range
952622	Holtest, Borematic Extension 150mm, for 20-50mm Measuring Range
952623	Holtest, Borematic Extension 150mm, for 50-300mm Measuring Range

### Consumable spares

No.	Description
63AAA800	Battery SR44 1,5 V



568-955-10



568-958-10

### Metric

No.	Range [mm]	Digital step	Individual ranges	Setting rings included	Mass [g]
568-955-10	6-12	0,001 mm	6-8 mm 8-10 mm 10-12 mm	Ø8 mm (177-125) Ø10 mm (177-126)	1450
568-956-10	12-25	0,001 mm	12-16 mm 16-20 mm 20-25 mm	Ø16 mm (177-177) Ø20 mm (177-286)	1520
568-957-10	25-50	0,001 mm	25-30 mm 30-40 mm 40-50 mm	Ø30 mm (177-288) Ø40 mm (177-290)	1750
568-958-10	50-75	0,001 mm	50-63 mm 62-75 mm	Ø62 mm (177-314)	1490
568-959-10	75-100	0,001 mm	75-88 mm 87-100 mm	Ø87 mm (177-318)	1610



Titanium coated measuring surfaces for durability

# Digimatic Caliper Jaw Inside Micrometers

## Series 345

The Digimatic Caliper Jaw Inside Micrometer offers you the following benefits:

- Carbide measuring faces
- A setting standard (optional) is needed to accurately set the micrometer to the reference point.

Functions	Series 345
DATA/HOLD	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
2 x PRESET	●
Data output	●

### Specifications

Measuring force	1-6 N
Power supply	1 battery SR-44
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Battery life	2,4 years
Measuring spindle	With spindle lock, spindle pitch 0,5 mm
Measuring face	Carbide tipped
Delivered	Including box, key, 1 battery.

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1 m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2 m, Micrometer Type
06AFM380F	USB Input Tool Direct (Digimatic to USB), 2m Cable, Digimatic/Digimatic 2, Flat Straight Type
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer/Indicator
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer/Indicator
264-627	U-WAVE fit Bluetooth, Buzzer Type, Wireless Transmitter for Micrometer/Indicator
264-626	U-WAVE fit Bluetooth, IP67 Type, Wireless Transmitter for Micrometer/Indicator
02AZF310	Connection Unit for IP Caliper, Micrometer, with Data Button for U-WAVE fit, U-WAVE fit Bluetooth

### Consumable spares

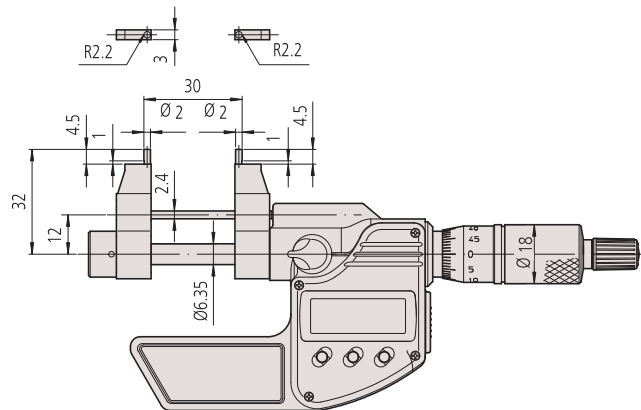
No.	Description
63AAA800	Battery SR44 1,5 V



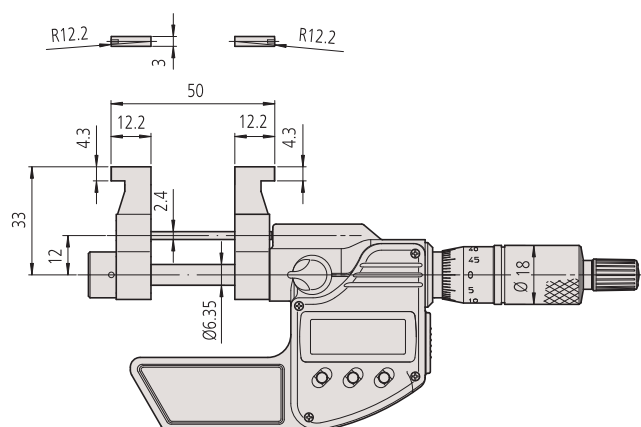
345-250-30

### Metric

No.	Range [mm]	Digital step	Max. Permissible Error E MPE	Mass [g]
345-250-30	5-30	0,001 mm	$\pm 5 \mu\text{m}$	305
345-251-30	25-50	0,001 mm	$\pm 6 \mu\text{m}$	310



345-250-30



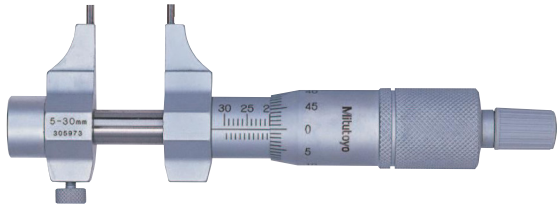
345-251-30

# Caliper Jaw Inside Micrometers

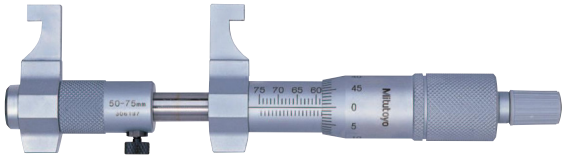
## Series 145

The Caliper Jaw Inside Micrometer offers you the following benefits:

- Carbide measuring faces
- A setting standard (optional) is needed to accurately set the micrometer to the reference point.



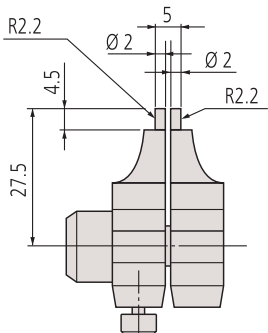
145-185



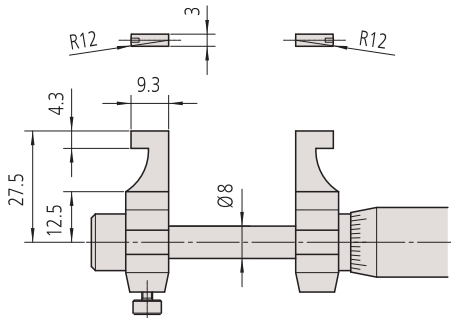
145-187

### Metric

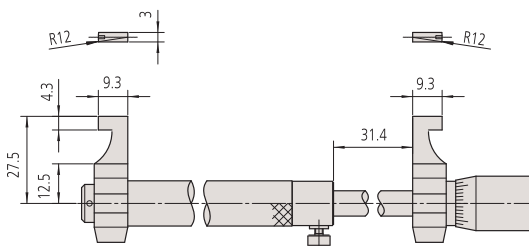
No.	Range [mm]	Graduation	Max. Permissible Error E MPE	Mass [g]
145-185	5-30	0,01 mm	±5 μm	130
145-186	25-50	0,01 mm	±6 μm	140
145-187	50-75	0,01 mm	±7 μm	160
145-188	75-100	0,01 mm	±8 μm	180
145-189	100-125	0,01 mm	±9 μm	210
145-190	125-150	0,01 mm	±9 μm	230
145-191	150-175	0,01 mm	±10 μm	250
145-192	175-200	0,01 mm	±10 μm	270
145-217	200-225	0,01 mm	±11 μm	310
145-218	225-250	0,01 mm	±11 μm	330
145-219	250-275	0,01 mm	±12 μm	350
145-220	275-300	0,01 mm	±12 μm	370



145-185



145-186



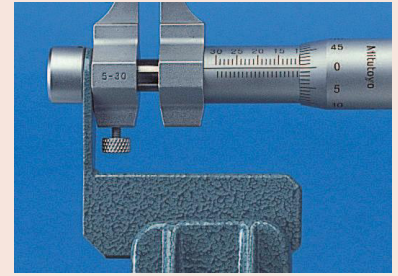
50-300 mm

### Specifications

Measuring force	1-6 N
Scale	Thimble and sleeve satin chrome finish, ø18 mm
Measuring spindle	With spindle lock, spindle pitch 0,5 mm
Measuring face	Carbide tipped
Delivered	Including box, key

### Optional accessories

No.	Description
300400	Holder for Series 145
300401	Cap for Series 145



Holder and cap for: 145-185, 145-186

# Tubular Inside Micrometers Individual

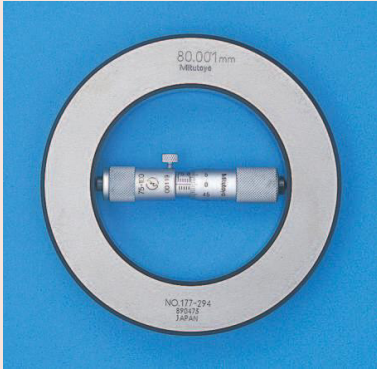
## Series 133

This is a standard single rod type inside micrometer (individual unit), with the following features:

- Standard single rod.
- Carbide measuring faces.

### Specifications

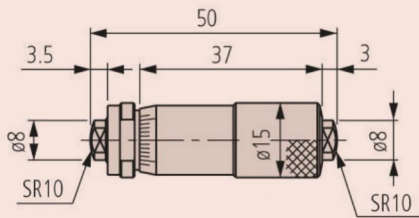
Scale	Thimble and sleeve satin chrome finish, Ø18 mm
Measuring spindle	With spindle lock (except 50-75 mm), spindle pitch 0,5 mm
Measuring face	Carbide tipped, crown lapped
Delivered	Including box, insulation (from 100 mm), key



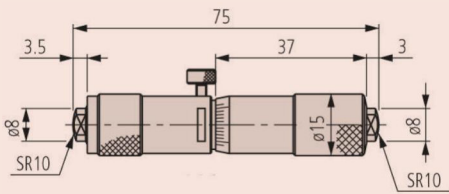
133-143 - 133-152

### Metric

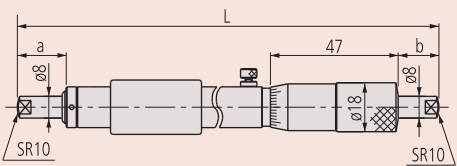
No.	Range [mm]	Graduation	Max. Permissible Error E MPE	a [mm]	b [mm]	L [mm]	Mass [g]
133-143	50-75	0,01mm	±3 µm				50
133-144	75-100	0,01mm	±4 µm				75
133-145	100-125	0,01mm	±5 µm	5	3	100	130
133-146	125-150	0,01mm	±5 µm	5	3	125	160
133-147	150-175	0,01mm	±5 µm	18	15	150	170
133-148	175-200	0,01mm	±5 µm	18	15	175	180
133-149	200-225	0,01mm	±5 µm	18	15	200	200
133-150	225-250	0,01mm	±6 µm	18	15	225	210
133-151	250-275	0,01mm	±6 µm	18	15	250	235
133-152	275-300	0,01mm	±6 µm	18	15	275	245
133-153	300-325	0,01mm	±7 µm	18	15	300	265
133-154	325-350	0,01mm	±7 µm	18	15	325	285
133-155	350-375	0,01mm	±7 µm	18	15	350	300
133-156	375-400	0,01mm	±8 µm	18	15	375	315
133-157	400-425	0,01mm	±8 µm	18	15	400	330
133-158	425-450	0,01mm	±8 µm	18	15	425	340
133-159	450-475	0,01mm	±9 µm	18	15	450	360
133-160	475-500	0,01mm	±9 µm	18	15	475	370
133-161	500-525	0,01mm	±9 µm	18	15	500	390
133-162	525-550	0,01mm	±10 µm	18	15	525	400
133-163	550-575	0,01mm	±10 µm	18	15	550	410
133-164	575-600	0,01mm	±10 µm	18	15	575	415
133-165	600-625	0,01mm	±11 µm	18	15	600	430
133-166	625-650	0,01mm	±11 µm	18	15	625	450
133-167	650-675	0,01mm	±11 µm	18	15	650	470
133-168	675-700	0,01mm	±12 µm	18	15	675	480
133-169	700-725	0,01mm	±12 µm	18	15	700	500
133-170	725-750	0,01mm	±12 µm	18	15	725	510
133-171	750-775	0,01mm	±13 µm	18	15	750	520
133-172	775-800	0,01mm	±13 µm	18	15	775	540
133-173	800-825	0,01mm	±13 µm	18	15	800	555
133-174	825-850	0,01mm	±14 µm	18	15	825	570
133-175	850-875	0,01mm	±14 µm	18	15	850	590
133-176	875-900	0,01mm	±14 µm	18	15	875	600
133-177	900-925	0,01mm	±15 µm	18	15	900	620
133-178	925-950	0,01mm	±15 µm	18	15	925	630
133-179	950-975	0,01mm	±15 µm	18	15	950	650
133-180	975-1000	0,01mm	±16 µm	18	15	975	670



133-143



133-144



100-1000 mm

# Tubular Inside Micrometer Sets

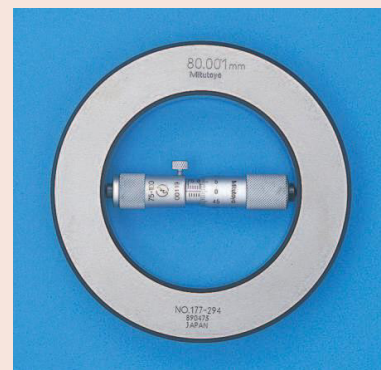
## Series 133

This is a standard single rod type inside micrometer (boxed set), with the following features:

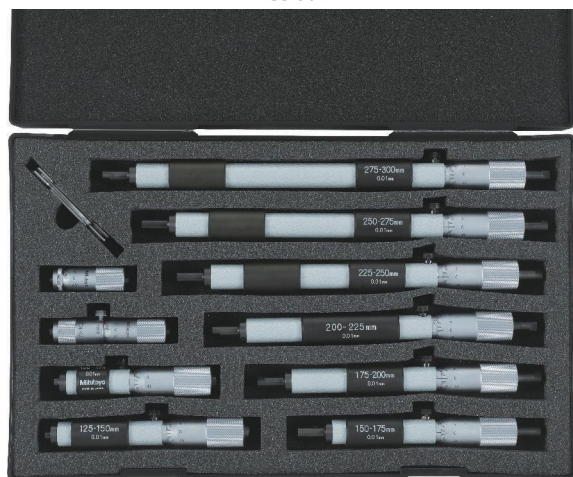
- Standard single rod.
- Carbide measuring faces.

## Specifications

Scale	Thimble and sleeve satin chrome finish, Ø18 mm
Measuring spindle	With spindle lock (except 50-75 mm), spindle pitch 0,5 mm
Measuring face	Carbide tipped, crown lapped
Delivered	Including box, insulation (from 100 mm), key



133-901



133-902

### Metric

### Micrometer set

No.	Range [mm]	Graduation	Models included	Mass [g]
133-901	50-150	0,01mm	133-143, 133-144, 133-145, 133-146	415
133-902	50-300	0,01mm	133-143, 133-144, 133-145, 133-146, 133-147, 133-148, 133-149, 133-150, 133-151, 133-152	1655

# Tubular Inside Micrometers with Extensions

## Series 137

This is an extension rod type inside micrometer that offers you the following benefits:

- Interchangeable extensions with cylindrical gage rods are spring-mounted in protective sleeves so you can extend the measuring range.
- Carbide measuring faces are available.

### Specifications

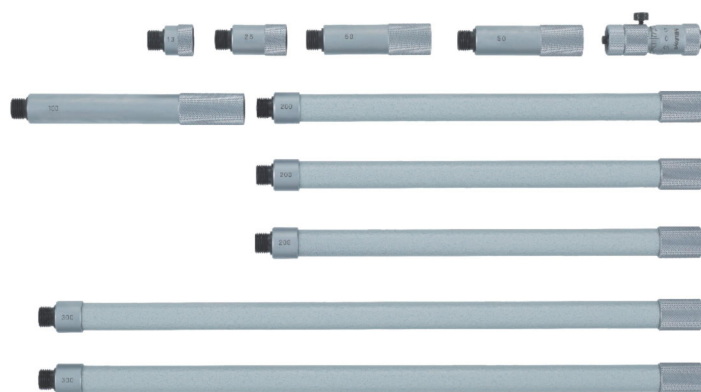
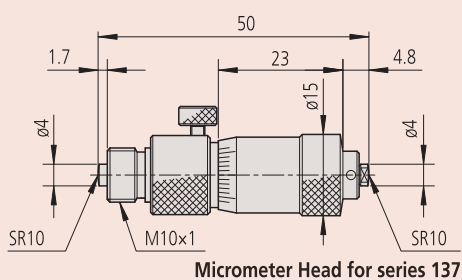
Scale	Thimble and sleeve satin chrome finish, $\phi 15$ mm
Measuring spindle	Spindle pitch 0,5 mm
Extension	$\phi 12,5$ mm
Delivered	Including box, key, extensions, micrometer head

### Optional accessories

No.	Description
137-011	Main Unit for Tubular Inside Micrometer, Hardened Face, 50-63mm
137-013	Main Unit for Tubular Inside Micrometer, Carbide Tipped, 50-63mm

### Consumable spares

No.	Description
980505	Extension Rod for Series 137, 13mm, Hardened Face
980507	Extension Rod for Series 137, 25mm, Hardened Face
980509	Extension Rod for Series 137, 50mm, Hardened Face
980511	Extension Rod for Series 137, 100mm, Hardened Face
980515	Extension Rod for Series 137, 200mm, Hardened Face
980517	Extension Rod for Series 137, 300mm, Hardened Face
980519	Extension Rod for Series 137, 337, 13mm, Carbide Tipped
980521	Extension Rod for Series 137, 337, 25mm, Carbide Tipped
980523	Extension Rod for Series 137, 337, 50mm, Carbide Tipped
980525	Extension Rod for Series 137, 337, 100mm, Carbide Tipped
980529	Extension Rod for Series 137, 337, 200mm, Carbide Tipped
980531	Extension Rod for Series 137, 337, 300mm, Carbide Tipped



137-205

### Metric With carbide measuring surface

No.	Range [mm]	Measuring span	Graduation	Spindle feed error [ $\mu$ m]	Limit of error	Extension rods	Mass [g]
137-206	50-150	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	3 (13, 25, 50 mm)	145
137-207	50-300	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	5 (13, 25, 50 (2 pcs.), 100 mm)	305
137-208	50-500	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	6 (13, 25, 50 (2 pcs.), 100, 200 mm)	460
137-209	50-1000	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	8 (13, 25, 50 (2 pcs.), 100, 200 (2 pcs.), 300 mm)	845
137-210	50-1500	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	10 (13, 25, 50 (2 pcs.), 100, 200 (3 pcs.), 300 mm (2 pcs.))	1225

### Metric With hardened measuring surface

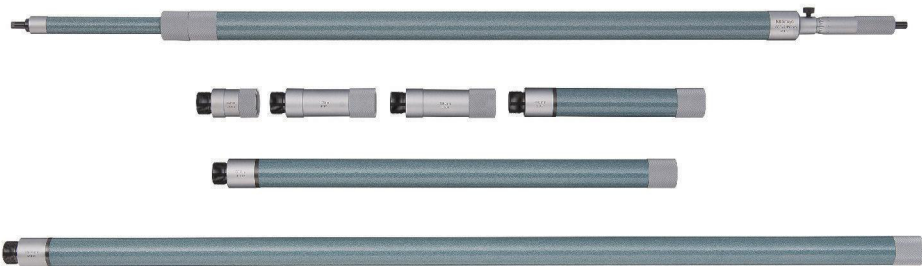
No.	Range [mm]	Measuring span	Graduation	Spindle feed error [ $\mu$ m]	Limit of error	Extension rods	Mass [g]
137-201	50-150	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	3 (13, 25, 50 mm)	145
137-202	50-300	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	5 (13, 25, 50 (2 pcs.), 100 mm)	305
137-203	50-500	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	6 (13, 25, 50 (2 pcs.), 100, 200 mm)	460
137-204	50-1000	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	8 (13, 25, 50 (2 pcs.), 100, 200 (2 pcs.), 300 mm)	845
137-205	50-1500	13 mm	0,01 mm	3	$\pm(3+\text{number of rods}+\text{max. measurement length}/50)$ $\mu$ m	10 (13, 25, 50 (2 pcs.), 100, 200 (3 pcs.), 300 mm (2 pcs.))	1225

# Tubular Inside Micrometers with Extensions

## Series 140

This is a long range inside micrometer that offers you the following benefits:

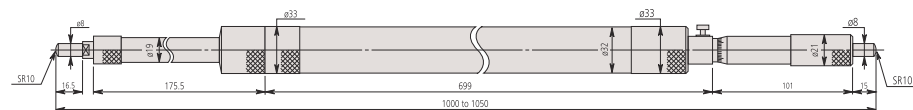
- It has a long measuring range of up to 5000 mm
- Extension tube type design.
- Measuring surfaces in carbide are available, micro-lap finish



140-158

## Metric

No.	Range [mm]	Measuring span	Graduation	Spindle feed error [ $\mu\text{m}$ ]	Limit of error	Extension rods	Mass [g]
140-157	1000–2000	50 mm	0,01 mm	6	$\pm(7+\text{number of rods}+\text{max. measurement length}/50) \mu\text{m}$	5 (50, 100 (2 pcs.) 200, 500 mm)	3700
140-158	1000–3000	50 mm	0,01 mm	6	$\pm(7+\text{number of rods}+\text{max. measurement length}/50) \mu\text{m}$	6 (50, 100 (2 pcs.), 200, 500, 1000 mm)	5200
140-159	1000–4000	50 mm	0,01 mm	6	$\pm(7+\text{number of rods}+\text{max. measurement length}/50) \mu\text{m}$	7 (50, 100 (2 pcs.), 200, 500, 1000 mm (2 pcs.))	6700
140-160	1000–5000	50 mm	0,01 mm	6	$\pm(7+\text{number of rods}+\text{max. measurement length}/50) \mu\text{m}$	8 (50, 100 (2 pcs.) 200, 500, 1000 mm (3 pcs.))	8260



Micrometer Head for series 140

## Specifications

Scale	Thimble and sleeve satin chrome finish, $\varnothing 21$ mm
Measuring spindle	Spindle pitch 0,5 mm
Measuring face	Carbide
Extension	$\varnothing 32$ mm
Delivered	Including box, key

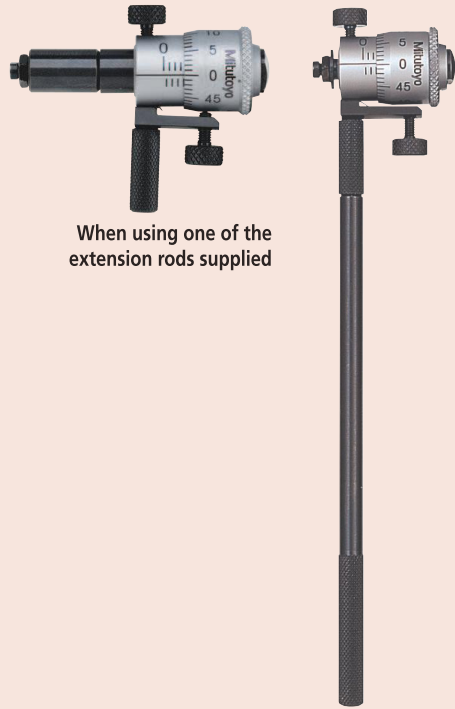
## Consumable spares

No.	Description
04GZA394	Extension Rod 50mm, for Series 140
04GZA396	Extension Rod 100mm, for Series 140
04GZA398	Extension Rod 200mm, for Series 140
04GZA400	Extension Rod 500mm, for Series 140
04GZA402	Extension Rod 1000mm, for Series 140

# Inside Micrometers with Interchangeable Rod

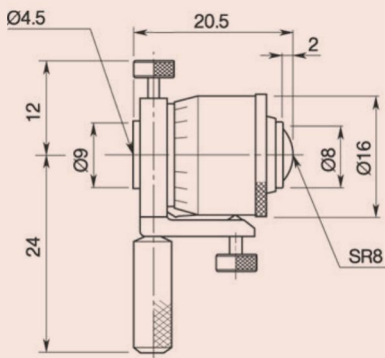
## Specifications

Scale	Thimble and sleeve satin chrome finish
Measuring spindle	With spindle lock, spindle pitch 0,5 mm
Measuring face	Hardened or carbide tipped
Delivered	Including box, key

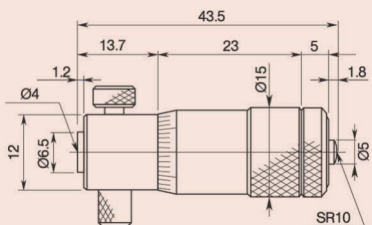


When using one of the extension rods supplied

141-101 with extension handle



141-001, 141-003



141-025, 141-027

## Series 141

This an interchangeable rod type inside micrometer that offers you the following benefits:

- Interchangeable measuring rods and spacers achieve the full specified measuring range.
- Each interchangeable rod is marked with its measuring range.
- An extension handle to help you measure deep bores is included in sets up to 300 mm range.



141-205

### Metric

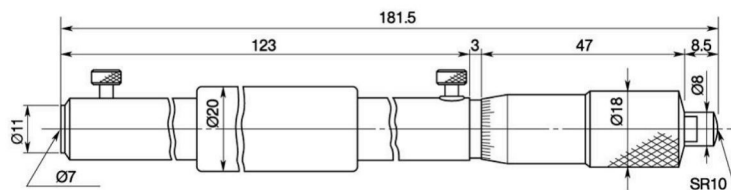
With carbide measuring surface

No.	Range [mm]	Measuring span	Graduation	Spindle feed error [μm]	Extension collar	Interchangeable rod	Accessories: inside micrometer (standard in the set) No.	Mass [g]
141-103	25-50	7 mm	0,01 mm	3	1 (6 mm)	2 (38, 50 mm)	141-003	60
141-211	50-200	13 mm	0,01 mm	3	1 (12 mm)	3 (100, 150, 200 mm)	141-027	125
141-212	50-300	13 mm	0,01 mm	3	1 (12 mm)	5 (100, 150, 200, 250, 300 mm)	141-027	275

### Metric

With hardened steel measuring surface

No.	Range [mm]	Measuring span	Graduation	Spindle feed error [μm]	Extension collar	Interchangeable rod	Accessories: inside micrometer (standard in the set) No.	Mass [g]
141-101	25-50	7 mm	0,01 mm	3	1 (6 mm)	2 (38, 50 mm)	141-001	60
141-205	50-200	13 mm	0,01 mm	3	1 (12 mm)	3 (100, 150, 200 mm)	141-025	125
141-206	50-300	13 mm	0,01 mm	3	1 (12 mm)	5 (100, 150, 200, 250, 300 mm)	141-025	275
141-117	200-500	25 mm	0,01 mm	3	2 (25/50 mm)	3 (300, 400, 500 mm)	141-009	520
141-118	200-1000	25 mm	0,01 mm	3	2 (25/50 mm)	8 (300, 400, 500, 600, 700, 800, 900, 1000 mm)	141-009	1940



141-009

# Bore Gauges for Extra Small Holes

## Series 526 Bore Gauge

This is a two point split contact point ideally suited to smaller bore measurements. It offers you the following benefits:

- A precision bore gauge so you can make quick and accurate measurements of small hole diameters (0,95-18 mm).
- You can replace the analogue indicator fitted to this instrument with a optional digital indicator (543-310B-10) if you need.
- The contact point is DLC coated (0,95-7,3 mm) or hard chrome coated (7-18 mm).



526-127-20

### Metric

No.	Range [mm]	No. Dial Indicator	Graduation	Accuracy [ $\mu\text{m}$ ]	Repeatability	Measuring depth	Number of anvils	Mass [g]
526-172-20	0,95-1,55	2109AB-10	0,001mm	4	2 $\mu\text{m}$	11,5 mm	5	240
526-173-20	0,95-1,55	2046AB	0,01mm	4	2 $\mu\text{m}$	11,5 mm	5	240
526-162-20	1,5-3,95	2109AB-10	0,001mm	4	2 $\mu\text{m}$	17,5-22,5 mm <sup>(1)</sup>	9	240
526-163-20	1,5-3,95	2046AB	0,01mm	4	2 $\mu\text{m}$	17,5-22,5 mm <sup>(1)</sup>	9	240
526-152-20	3,7-7,3	2109AB-10	0,001mm	4	2 $\mu\text{m}$	32 mm	7	240
526-153-20	3,7-7,3	2046AB	0,01mm	4	2 $\mu\text{m}$	32 mm	7	240
526-124-20	7-10	2109AB-10	0,001mm	4	2 $\mu\text{m}$	40-56 mm <sup>(2)</sup>	6	300
526-126-20	7-10	2046AB	0,01mm	4	2 $\mu\text{m}$	40-56 mm <sup>(2)</sup>	6	300
526-125-20	10-18	2109AB-10	0,001mm	6	2 $\mu\text{m}$	62 mm	8	366
526-127-20	10-18	2046AB	0,01mm	6	2 $\mu\text{m}$	62 mm	8	366

<sup>(1)</sup> Holes  $\varnothing \leq 2.25$  mm : measuring depth 17.5 mm / holes  $\varnothing > 2.25$  mm : measuring depth 22.5 mm

<sup>(2)</sup> Holes  $\varnothing \leq 8$  mm : measuring depth 40 mm / holes  $\varnothing > 8$  mm : measuring depth 56 mm

## Specifications

Delivered

In box including plastic cover for Dial Indicator

## Optional accessories

No.	Description
215-120-10	Stand for Bore Gauge Series 526, D=60mm Table, 38mm Table Stroke
543-310B-10	Digital Indicator, Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back Plate
21AZB195	Limit Hands (green) 2pcs, Dial Indicator Series 2/3/4

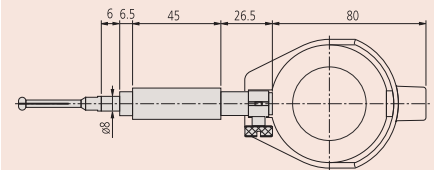
Setting rings are optional accessories. See Series 177 for details.



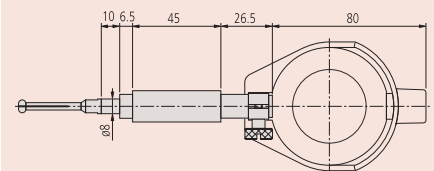
215-120-10



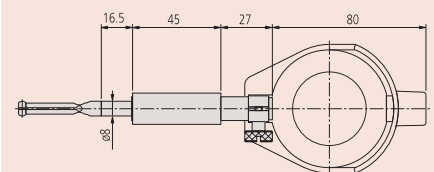
543-310B-10



0,95 - 4 mm



3,7 - 7,3 mm



7 - 18 mm

# Bore Gauges for Extra Small Holes

## Contact Point for Series 526

Split-ball probes 0,95-1,15 mm up to 6,7-7,3 mm range are protected by a diamond-like DLC coating.

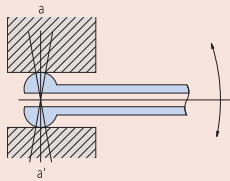
Split-ball probes 7-18 mm are hard chrome plated

DLC Black Diamond:

- Extremely high wear protection, due to low frictional resistance
- Safety due to high hardness and resistance
- Safety due to sustained accuracy and precision



526-153-20



### Positioning of Bore Gauges

The contact points have a large curvature, simplifying positioning for bore diameter measurement (in the direction a-a')



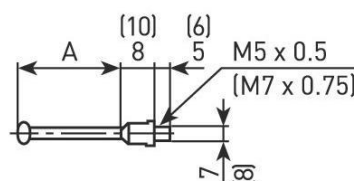
10AAP247A



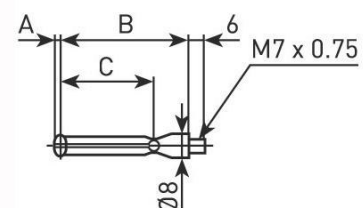
10AAP248B

### Replacement contact points

No.	Range [mm]	Marking on the measuring head (engraved)	A [mm]	B [mm]	C [mm]
10AAP247A	0,95-1,15	1	11,5		
10AAP247B	1,07-1,25	1,1	11,5		
10AAP247C	1,17-1,35	1,2	11,5		
10AAP247D	1,27-1,45	1,3	11,5		
10AAP247E	1,37-1,55	1,4	11,5		
10AAP248A	1,5-1,9	1,75	17,5		
10AAP248B	1,8-2,2	2	17,5		
10AAP248C	2,05-2,45	2,25	17,5		
10AAP248D	2,25-2,75	2,5	22,5		
10AAP248E	2,5-3	2,75	22,5		
10AAP248F	2,75-3,25	3	22,5		
10AAP248G	3-3,5	3,25	22,5		
10AAP248H	3,25-3,75	3,5	22,5		
10AAP248J	3,5-4	3,75	22,5		
10AAP249A	3,7-4,3	4	32		
10AAP249B	4,2-4,8	4,5	32		
10AAP249C	4,7-5,3	5	32		
10AAP249D	5,2-5,8	5,5	32		
10AAP249E	5,7-6,3	6	32		
10AAP249F	6,2-6,8	6,5	32		
10AAP249G	6,7-7,3	7	32		
102469	7-7,5	1	1,8	40	29,2
102470	7,5-8	2	1,8	40	29,2
102471	8-8,5	3	1,8	40	29,2
102472	8,5-9	4	1,8	40	29,2
102473	9-9,5	5	1,8	40	29,2
102474	9,5-10	6	1,8	40	29,2
102454	10-11	1	2,1	46	38
102455	11-12	2	2,7	46	38
102456	12-13	3	2,7	46	38
102457	13-14	4	2,7	46	38
102458	14-15	5	2,7	46	38
102459	15-16	6	2,7	46	38
102460	16-17	7	2,7	46	38
102461	17-18	8	2,7	46	38



526-162-20, 526-163-20, 526-172-20, 526-173-20  
( ) 526-152-20, 526-153-20



526-124-20, 526-125-20, 526-126-20, 526-127-20

# Bore Gauges for Small Holes

## Series 511

These are bore gauges that automatically self-centre via a centring bridge. They offer you the following benefits:

- A long plunger stroke gives you amazing accuracy.
- Interchangeable washers 0,5 mm thick are supplied as standard accessories, so you can enable setting in small steps.
- Contact points are carbide (>18 mm range), giving you high durability and wear resistance.
- A large grip reduces heat transfer from the operator by 50%.



511-204-20



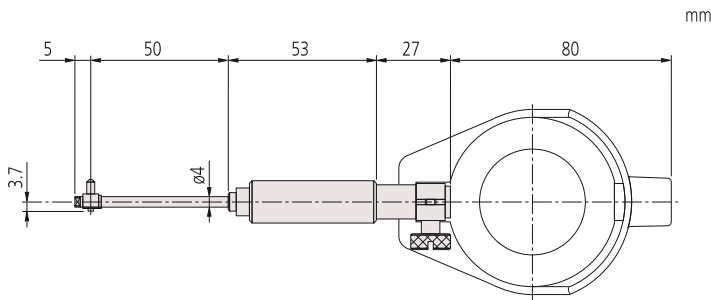
6 - 10mm



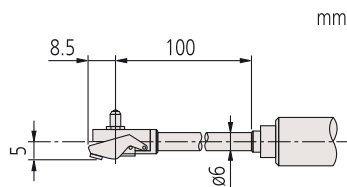
10 - 18.5mm

## Metric

No.	Range [mm]	No. Dial Indicator	Stroke of contact point	Graduation	Measuring depth	Number of anvils	Mass [g]
511-210-20	6-10	2109AB-10	0,5 mm	0,001 mm	50 mm	9	255
511-203-20	10-18,5	2109AB-10	0,6 mm	0,001 mm	100 mm	9	268
511-211-20	6-10	2046AB	0,5 mm	0,01 mm	50 mm	9	255
511-204-20	10-18,5	2046AB	0,6 mm	0,01 mm	100 mm	9	264



6-10 mm



10-18,5 mm

## Specifications

Accuracy	5 $\mu$ m
Repeatability	2 $\mu$ m
Delivered	Including box, dial indicator, plastic cover for indicator

## Optional accessories

No.	Description
21AZB195	Limit Hands (green) 2pcs, Dial Indicator Series 2/3/4
543-310B-10	Digital Indicator, Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back Plate



543-310B-10

For details on indicators suitable for use with this instrument, refer to the Dial Gauges section.

# Bore Gauges

## Series 511

This is a short range application Bore Gauge Set that automatically self-centres via a centring bridge and offers you the following benefits:

- It reduces the influence of heat from the operator's hand by 50% by making the grip hollow structured, thereby retaining high accuracy measurement.
- Interchangeable washers (0,5 mm thick) are supplied as standard accessories, so you can enable setting in small steps.
- Contact points are carbide (>18 mm range), giving you high durability and wear resistance.

### Specifications

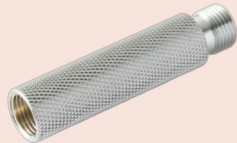
Accuracy	2 µm
Repeatability	0,5 µm
Delivered	Including box, dial indicator, plastic cover for indicator

### Optional accessories

No.	Description
953549	Extension Rod Serie 511, 125mm, 9mm Rod Diameter
953550	Extension Rod Serie 511, 250mm, 9mm Rod Diameter
953551	Extension Rod Serie 511, 500mm, 9mm Rod Diameter
953552	Extension Rod Serie 511, 125mm, 12mm Rod Diameter
953553	Extension Rod Serie 511, 250mm, 12mm Rod Diameter
953554	Extension Rod Serie 511, 500mm, 12mm Rod Diameter
953555	Extension Rod Serie 511, 750mm, 12mm Rod Diameter
953556	Extension Rod Serie 511, 1000mm, 12mm Rod Diameter
953557	Extension Rod Serie 511, 125mm, 15mm Rod Diameter
952361	Extension Rod Serie 511, 250mm, 15mm Rod Diameter
953558	Extension Rod Serie 511, 500mm, 15mm Rod Diameter
953559	Extension Rod Serie 511, 750mm, 15mm Rod Diameter
953560	Extension Rod Serie 511, 1000mm, 15mm Rod Diameter
21AZB195	Limit Hands (green) 2pcs, Dial Indicator Series 2/3/4
543-310B-10	Digital Indicator, Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back Plate



Extensions for deep-hole measurement (optional accessory)



Sub-anvil

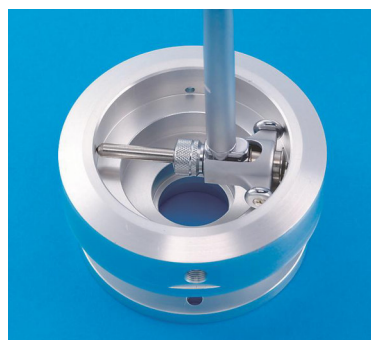
For details on indicators suitable for use with this instrument, refer to the Dial Gauges section.



511-712-20

### Metric

No.	Range [mm]	No. Dial Indicator	Stroke of contact point	Graduation	Measuring depth	Number of anvils	Sub anvils	A [mm]	B [mm]	Mass [g]
511-721-20	18-35	2109AB-10	1,2 mm	0,001 mm	100 mm	9				330
511-722-20	35-60	2109AB-10	1,2 mm	0,001 mm	150 mm	6				400
511-723-20	50-150	2109AB-10	1,6 mm	0,001 mm	150 mm	11	50 mm	38	16,5	420
511-724-20	100-160	2109AB-10	1,6 mm	0,001 mm	150 mm	13		50	66,5	480
511-725-20	160-250	2109AB-10	1,6 mm	0,001 mm	250 mm	6		50		850
511-726-20	250-400	2109AB-10	1,6 mm	0,001 mm	250 mm	5	75 mm		140	945
511-711-20	18-35	2046AB	1,2 mm	0,01 mm	100 mm	9				330
511-712-20	35-60	2046AB	1,2 mm	0,01 mm	150 mm	6				400
511-713-20	50-150	2046AB	1,6 mm	0,01 mm	150 mm	11	50 mm	38	16,5	420
511-714-20	100-160	2046AB	1,6 mm	0,01 mm	150 mm	13		50	66,5	480
511-715-20	160-250	2046AB	1,6 mm	0,01 mm	250 mm	6		50		850
511-716-20	250-400	2046AB	1,6 mm	0,01 mm	250 mm	5	75 mm		140	945



# Bore Gauges

Series 511

Example of measuring heads with different measuring ranges.



18 - 35 mm

35 - 60 mm

50 - 150 mm

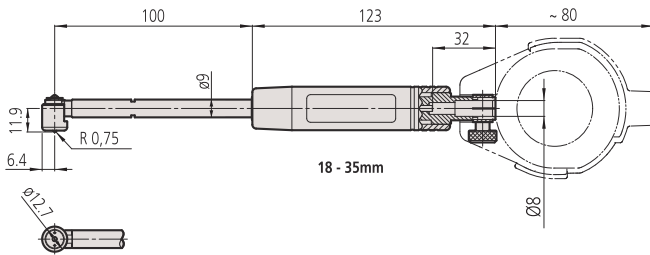
100 - 160 mm



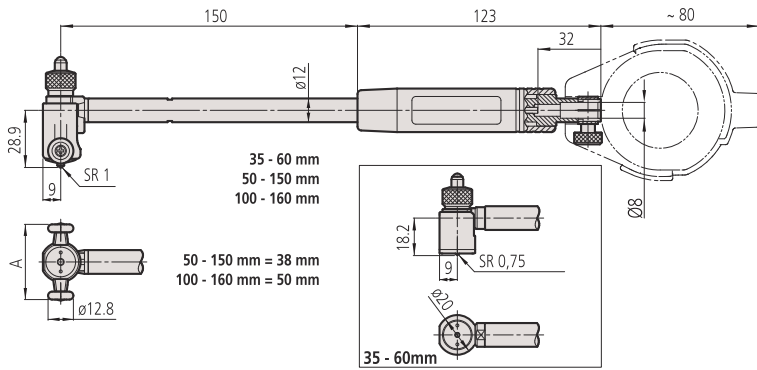
160 - 250 mm



250 - 400 mm



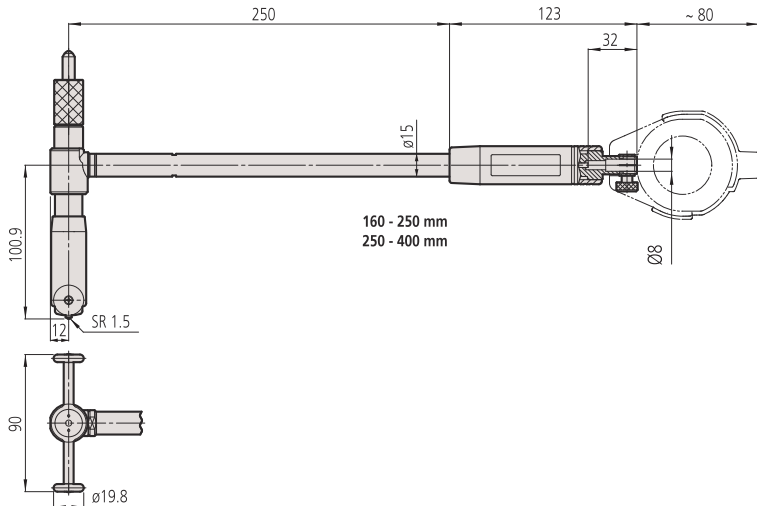
18 - 35mm



35 - 60 mm  
50 - 150 mm  
100 - 160 mm

50 - 150 mm = 38 mm  
100 - 160 mm = 50 mm

35 - 60mm



160 - 250 mm  
250 - 400 mm

# Bore Gauges

## Series 511

This is a wide range application set of Bore Gauges that automatically self-centres via a centring bridge and offers you the following benefits:

- Carbide for the contact point ensuring high durability and wear resistance
- It reduces the influence of heat from the operator's hand by 50% by making the grip hollow structured, thereby retaining high accuracy measurement.

### Specifications

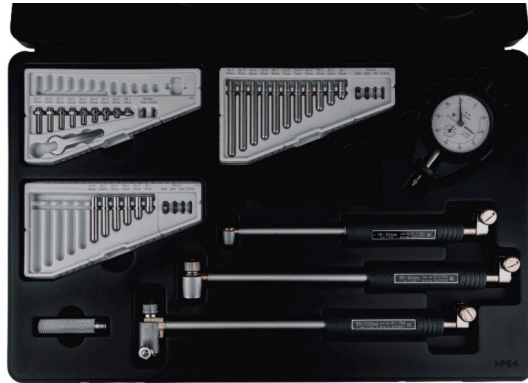
Accuracy	2 $\mu$ m
Repeatability	0,5 $\mu$ m
Delivered	Including box, dial indicator, plastic cover for indicator

### Standard accessories

No.	Description
205457	Washer Series 511, 0,5mm, Range 35-160mm
205458	Washer Series 511, 1 mm, Range 35-160mm
205459	Washer Series 511, 2 mm, Range 35-160mm
205460	Washer Series 511, 3 mm, Range 35-160mm
205623	Washer Series 511, 0,5mm, Range 18-35mm
205624	Washer Series 511, 1mm, Range 18-35mm

### Optional accessories

No.	Description
21AZB195	Limit Hands (green) 2pcs, Dial Indicator Series 2/3/4



511-921-20



Indicator 2046AB included in the set 511-921-20



511-922-20



Indicator 2109AB-10 included in the set 511-922-20



511-925-20



Indicator 543-310B-10 included in the set 511-925-20

### Metric

No.	Range [mm]	No. Dial Indicator	Stroke of contact point	Graduation	Measuring depth	Number of anvils	Sub anvils	Mass [g]
511-921-20	18-150	2046AB	18 - 60 mm: 1,2 mm 50 - 150 mm: 1,6 mm	0,01 mm	100/150 mm	26	1	810
511-922-20	18-150	2109AB-10	18 - 60 mm: 1,2 mm 50 - 150 mm: 1,6 mm	0,001 mm	100/150 mm	26	1	810
511-925-20	18-150	543-310B-10	18 - 60 mm: 1,2 mm 50 - 150 mm: 1,6 mm	0,001 mm	100/150 mm	26	1	830

# Bore Gauges with Micrometer Head

## Series 511

This is a micrometer head that enables measurements without interchangeable anvils. It offers you the following benefits:

- A long plunger stroke gives you amazing accuracy.
- Contact points are carbide (>18 mm range), giving you high durability and wear resistance.
- A large grip reduces heat transfer from the operator by 50%.
- Wide measuring range with sub-anvils.



511-826-20



### Metric

No.	Range [mm]	No. Dial Indicator	Stroke of contact point	Graduation	Measuring depth	Micrometer Head stroke	Sub anvils	Mass [g]
511-823-20	60-100	2109AB-10	1,6 mm	0,001 mm	150 mm	10 mm	10 mm, 20 mm	430
511-824-20	100-160	2109AB-10	1,6 mm	0,001 mm	150 mm	13 mm	10 mm, 20 mm, 20 mm	480
511-825-20	150-250	2109AB-10	1,6 mm	0,001 mm	250 mm	13 mm	10 mm, 20 mm, 20 mm, 50 mm	850
511-826-20	250-400	2109AB-10	1,6 mm	0,001 mm	250 mm	25 mm	25 mm, 50 mm, 50 mm	950
511-827-20	400-600	2109AB-10	1,6 mm	0,001 mm	250 mm	50 mm	50 mm, 100 mm	1270
511-828-20	600-800	2109AB-10	1,6 mm	0,001 mm	250 mm	50 mm	50 mm, 100 mm	1670
511-813-20	60-100	2046AB	1,6 mm	0,01 mm	150 mm	10 mm	10 mm, 20 mm	430
511-814-20	100-160	2046AB	1,6 mm	0,01 mm	150 mm	13 mm	10 mm, 20 mm, 20 mm	480
511-815-20	150-250	2046AB	1,6 mm	0,01 mm	250 mm	13 mm	10 mm, 20 mm, 20 mm, 50 mm	850
511-816-20	250-400	2046AB	1,6 mm	0,01 mm	250 mm	25 mm	25 mm, 50 mm, 50 mm	950
511-817-20	400-600	2046AB	1,6 mm	0,01 mm	250 mm	50 mm	50 mm, 100 mm	1270
511-818-20	600-800	2046AB	1,6 mm	0,01 mm	250 mm	50 mm	50 mm, 100 mm	1680



### Specifications

Accuracy	2 μm
Repeatability	0,5 μm
Delivered	Including box, dial indicator, plastic cover for indicator

### Optional accessories

No.	Description
953552	Extension Rod Serie 511, 125mm, 12mm Rod Diameter
953553	Extension Rod Serie 511, 250mm, 12mm Rod Diameter
953554	Extension Rod Serie 511, 500mm, 12mm Rod Diameter
953555	Extension Rod Serie 511, 750mm, 12mm Rod Diameter
953556	Extension Rod Serie 511, 1000mm, 12mm Rod Diameter
953557	Extension Rod Serie 511, 125mm, 15mm Rod Diameter
952361	Extension Rod Serie 511, 250mm, 15mm Rod Diameter
953558	Extension Rod Serie 511, 500mm, 15mm Rod Diameter
953559	Extension Rod Serie 511, 750mm, 15mm Rod Diameter
953560	Extension Rod Serie 511, 1000mm, 15mm Rod Diameter
21AZB195	Limit Hands (green) 2pcs, Dial Indicator Series 2/3/4
543-310B-10	Digital Indicator, Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back Plate



543-310B-10



Extensions for deep-hole measurement (optional accessory)

For details on indicators suitable for use with this instrument, refer to the Dial Gauges section.

# Bore Gauges with Micrometer Head

## Series 511

### Dimensions



60 - 100 mm



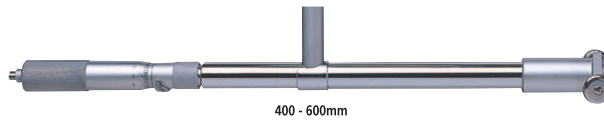
100 - 160 mm



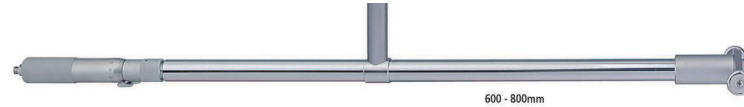
150 - 250 mm



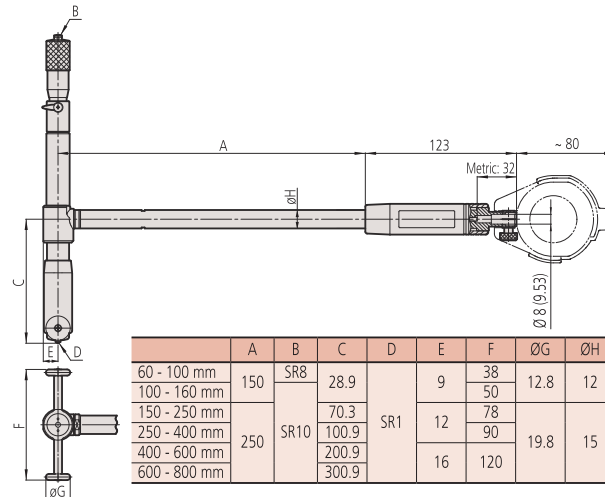
250 - 400 mm



400 - 600mm



600 - 800mm



## Extension Rods

### Accessories for Bore Gauges

These extension rods help you with deep-hole measurement, and offer you the following benefits:

- Using a single, longer extension rod rather than several short ones reduces error. 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 gauge at any one time.
- If you are using an extension rod longer than 500mm, use the bore gauge in the vertical orientation.



953549

953552

953557

No.	Applicable Range	Extension rod diameter	Length [mm]
953549	18-35 mm	9 mm	125
953550	18-35 mm	9 mm	250
953552	35-160 mm	12 mm	125
953553	35-160 mm	12 mm	250
953554	35-160 mm	12 mm	500
953555	35-160 mm	12 mm	750
953556	35-160 mm	12 mm	1,000
953557	150-800 mm	15 mm	125
952361	150-800 mm	15 mm	250
953558	150-800 mm	15 mm	500
953559	150-800 mm	15 mm	750
953560	150-800 mm	15 mm	1,000

# Bore Gauges Short Length Type

## Series 511

This is a compact and lightweight bore gauge due to the short length below the grip. It offers you the following benefits:

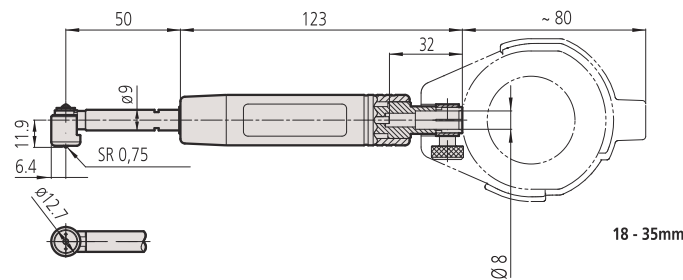
- A long plunger stroke gives you amazing accuracy.
- Contact points are carbide giving you high durability and wear resistance.
- A large grip reduces heat transfer from the operator by 50%.



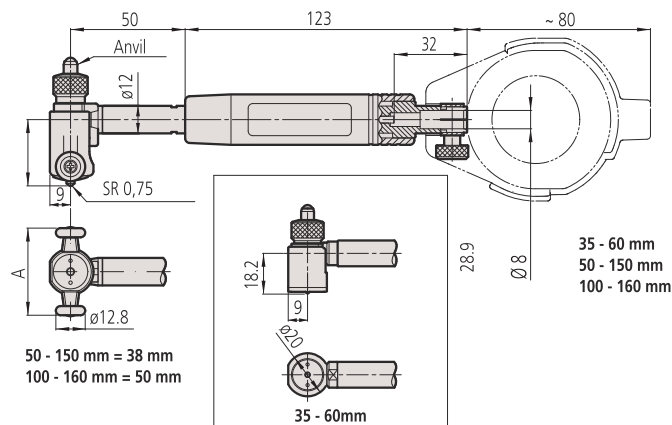
511-766-20

### Metric

No.	Range [mm]	No. Dial Indicator	Stroke of contact point	Graduation	Measuring depth	Number of anvils	Sub anvils	Mass [g]
511-771-20	18-35	2109AB-10	1,2 mm	0,001 mm	50 mm	9		320
511-772-20	35-60	2109AB-10	1,2 mm	0,001 mm	50 mm	6		380
511-773-20	50-150	2109AB-10	1,6 mm	0,001 mm	50 mm	11	50 mm	400
511-774-20	100-160	2109AB-10	1,6 mm	0,001 mm	50 mm	13		460
511-766-20	18-35	2046AB	1,2 mm	0,01 mm	50 mm	9		320
511-767-20	35-60	2046AB	1,2 mm	0,01 mm	50 mm	6		380
511-768-20	50-150	2046AB	1,6 mm	0,01 mm	50 mm	11	50 mm	400
511-769-20	100-160	2046AB	1,6 mm	0,01 mm	50 mm	13		460



18 - 35mm



35 - 60 mm  
50 - 150 mm  
100 - 160 mm

### Specifications

Accuracy	2 $\mu$ m
Repeatability	0,5 $\mu$ m
Delivered	Including box, dial indicator, plastic cover for indicator

### Optional accessories

No.	Description
21AZB195	Limit Hands (green) 2pcs, Dial Indicator Series 2/3/4
543-310B-10	Digital Indicator, Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back Plate



543-310B-10



For details of indicators suitable for use with this instrument, refer to the Dial Gauges section.



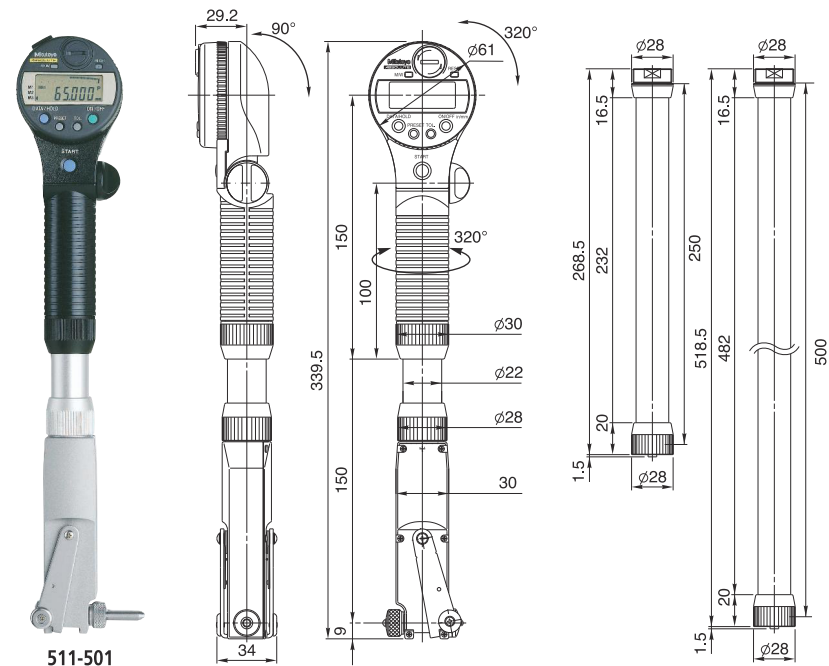
# ABSOLUTE Digimatic Bore Gauges

## Series 511

This is a Digimatic bore gauge that lets you take digital inside measurements with amazing accuracy even at the maximum 2 m depth.

The ABSOLUTE Digimatic Bore Gauge offers you the following benefits:

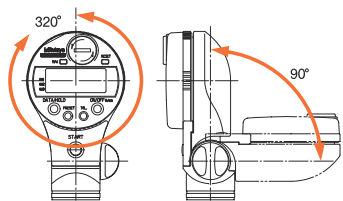
- Precision bore gauge lets you easily measure the diameter of deep bores without loss of accuracy.
- You can store and recall up to 3 sets of master values and upper/lower tolerance values at the push of a button.
- GO/±NG judgement can be set.
- Up to max. four extension rods (250 or 500 mm) can be used.



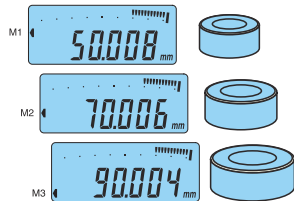
511-501

### Metric

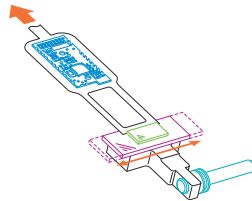
No.	Range [mm]	Stroke of contact point	Digital step	Number of anvils	Mass [g]
511-501	45-100	1,2 mm	0,001 mm	12	500
511-502	100-160	1,2 mm	0,001 mm	13	570



The display can be rotated 320° and turned 90°. The handle can also be rotated 320°.



Up to 3 sets of reference values can be preset, including top/bottom tolerance limits.



Even during measurement with a 2 m extension the accuracy is secured, as measured-value transmission is electronic.



Functions	Series 511
ON/OFF	●
DATA (output with cable) / HOLD (display value)	●
PRESET 3x	●
MIN Value Hold	●
GO/±NG judgement	●

### Specifications

Accuracy	0,003 mm (excluding quantizing error)
Repeatability	0,002 mm
Measuring force	≤5 N
Power supply	2 batteries SR-44
Battery life	2000 hours
Sampling Frequency	50 times/sec*
Display	LCD character height 7,5 mm

### Optional accessories

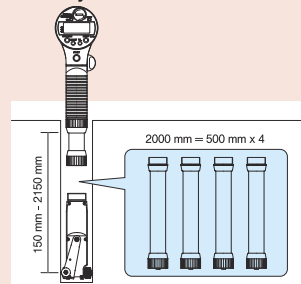
No.	Description
905338	Digimatic Cable, Flat Straight Type, 1 m
905409	Digimatic Cable, Flat Straight Type, 2 m
06AFM380F	USB Input Tool Direct (Digimatic to USB), 2m Cable, Digimatic/Digimatic 2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	Connection Cable F for U-WAVE, Straight, without Data Button
21DZA089	Extension Rod, Series 511, 250mm
21DZA081	Extension Rod, Series 511, 500mm

### Consumable spares

No.	Description
63AAA800	Battery SR44 1,5 V



The ABSOLUTE Digimatic Bore Gauge detects the minimum value (true diameter) and holds it automatically.



Four extension rods (500 mm each) connected together provide a 2 m extension.

\*if the detecting speed is >50 μm/s the peak value may not be displayed correctly

# Bore Gauge Checker

## Series 515

- For setting 2-point bore gauges series 511.
- The Bore Gauge Checker allows easy setting of dial bore gauges with ranges of 18 mm through 400 mm using gauge blocks.

### Specifications

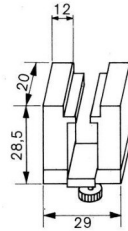
Delivered Delivery as complete set in soft box

### Standard accessories

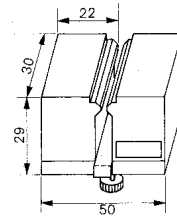
No.	Description
940088	Receiver for Bore Gauge Checker, 18-35mm/35-60mm
940089	Receiver for Bore Gauge Checker, 50-100mm/100-160mm
940090	Receiver for Bore Gauge Checker, 100-250mm/250-400mm
630030	Flat Jaws for Bore Gauge Checker, 2 pcs.



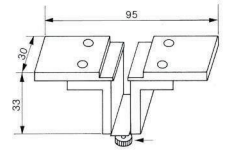
515-590  
+ gauge block (optional)



940088



940089



940090

### Metric

No.	Applicable Range	Mass [kg]
515-590	18-400 mm	4,51

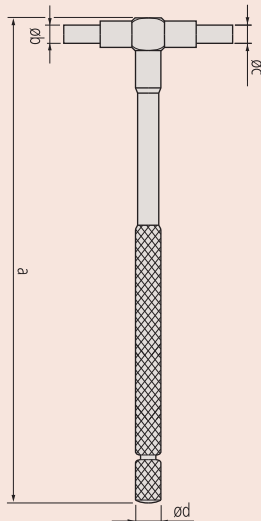
# Gauge Sets

## Series 155 - Telescopic Gauge Set

- Self-centering and satin chrome finish.
- Constant spring force on to the measuring surface. Locked in position by knurled lockscrew.

### Specifications

Delivered Including plastic wallet



155-905

### Metric

No.	Range	Gauges included	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
155-905	8-12,7 mm	155-127	110	4	3	5	15
	12,7-19 mm	155-128	110	5	3,5	5,5	25
	19-32 mm	155-129	110	5	3,5	5,5	35
	32-54 mm	155-130	150	7,5	6	8	75
	54-90 mm	155-131	150	7,5	6	8	80
	90-150 mm	155-132	150	7,5	6	8	100

# Setting Rings

## Series 177 - Metric Type

- Used for quick and accurate setting of 2-Point Inside Measuring Instruments and 2-Point/3-Point Inside Micrometers
- Nominal diameter is marked in 0,001 mm increments



177-424



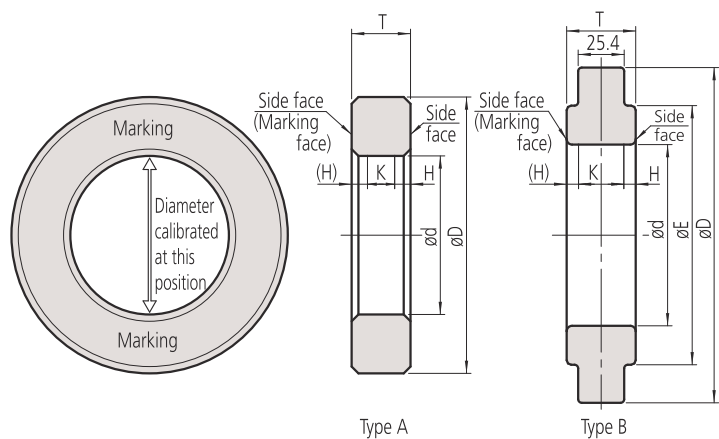
177-432



177-139



177-300



### Metric Ceramic

No.	Nominal size $\phi$ d metric [mm]	Type	D [mm]	H [mm]	T [mm]	Tolerance nominal size / marked diameter [ $\mu$ m]	Uncertainty of marked diameter [ $\mu$ m]	Roundness / Cylindricity [ $\mu$ m]	Warranted calibration surface K [mm]
177-418	4	A	25	1.7	7	$\pm 10$	1,5	1	3.6
177-420	6	A	25	1.7	7	$\pm 10$	1,5	1	3.6
177-423	8	A	32	2.0	10	$\pm 10$	1,5	1	6.0
177-424	10	A	32	2.0	10	$\pm 10$	1,5	1	6.0
177-425	12	A	32	2.0	10	$\pm 10$	1,5	1	6.0
177-427	16	A	45	2.0	10	$\pm 10$	1,5	1	6.0
177-429	20	A	45	2.0	10	$\pm 10$	1,5	1	6.0
177-430	25	A	53	3.2	15	$\pm 10$	1,5	1	8.6
177-431	30	A	71	3.2	15	$\pm 10$	1,5	1	8.6
177-432	35	A	71	3.2	15	$\pm 10$	1,5	1	8.6
177-433	40	A	71	3.2	15	$\pm 10$	1,5	1	8.6
177-434	45	A	85	3.7	15	$\pm 10$	1,5	1	7.6

### Specifications

Delivered

Without certificate of inspection

# Setting Rings

Metric Steel

No.	Nominal size $\varnothing$ metric [mm]	Type	D [mm]	E [mm]	H [mm]	T [mm]	Tolerance nominal size / marked diameter [ $\mu$ m]	Uncertainty of marked diameter [ $\mu$ m]	Roundness / Cylindricity [ $\mu$ m]	Warranted calibration surface K [mm]
177-220	1	A	20		1.6	4	$\pm 10$	1,5	1	0.8
177-222	1,1	A	20		1.6	4	$\pm 10$	1,5	1	0.8
177-225	1,2	A	20		1.6	4	$\pm 10$	1,5	1	0.8
177-227	1,3	A	20		1.6	4	$\pm 10$	1,5	1	0.8
177-230	1,4	A	20		1.6	4	$\pm 10$	1,5	1	0.8
177-236	1,75	A	25		1.6	5	$\pm 10$	1,5	1	1.8
177-239	2	A	25		1.6	5	$\pm 10$	1,5	1	1.8
177-242	2,25	A	25		1.6	5	$\pm 10$	1,5	1	1.8
177-208	2,5	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-246	2,75	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-248	3	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-250	3,25	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-252	3,5	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-255	3,75	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-204	4	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-257	4,5	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-205	5	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-263	5,5	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-267	6	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-271	6,5	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-275	7	A	25		1.7	7	$\pm 10$	1,5	1	3.6
177-125	8	A	32		2.0	10	$\pm 10$	1,5	1	6.0
177-279	9	A	32		2.0	10	$\pm 10$	1,5	1	6.0
177-126	10	A	32		2.0	10	$\pm 10$	1,5	1	6.0
177-284	12	A	32		2.0	10	$\pm 10$	1,5	1	6.0
177-132	14	A	38		2.0	10	$\pm 10$	1,5	1	6.0
177-177	16	A	45		2.0	10	$\pm 10$	1,5	1	6.0
177-133	17	A	45		2.0	10	$\pm 10$	1,5	1	6.0
177-285	18	A	45		2.0	10	$\pm 10$	1,5	1	6.0
177-286	20	A	45		2.0	10	$\pm 10$	1,5	1	6.0
177-139	25	A	53		3.2	15	$\pm 10$	1,5	1	8.6
177-288	30	A	71		3.2	15	$\pm 10$	1,5	1	8.6
177-140	35	A	71		3.2	15	$\pm 10$	1,5	1	8.6
177-290	40	A	71		3.2	15	$\pm 10$	1,5	1	8.6
177-178	45	A	85		3.7	15	$\pm 10$	1,5	1	7.6
177-146	50	A	85		3.7	20	$\pm 20$	1,5	1	12.6
177-292	60	A	112		3.7	20	$\pm 20$	1,5	1	12.6
177-314	62	A	112		3.7	20	$\pm 20$	1,5	1,5	12.6
177-147	70	A	112		3.7	20	$\pm 20$	1,5	1,5	12.6
177-316	75	A	125		4.2	25	$\pm 20$	1,5	1,5	16.6
177-294	80	A	125		4.2	25	$\pm 20$	1,5	1,5	16.6
177-318	87	A	140		4.2	25	$\pm 20$	1,5	1,5	16.6
177-148	90	A	140		4.2	25	$\pm 20$	1,5	1,5	16.6
177-296	100	A	160		4.2	25	$\pm 20$	1,5	2	16.6
177-298	125	B	210	168	5.3	38,1	$\pm 20$	2,5	2	27.5
177-300	150	B	235	187	5.3	38,1	$\pm 20$	2,5	2	27.5
177-302	175	B	260	215	5.3	38,1	$\pm 20$	2,5	2,5	27.5
177-304	200	B	311	244	5.3	38,1	$\pm 20$	2,5	2,5	27.5
177-306	225	B	337	264	5.3	38,1	$\pm 20$	2,5	2,5	27.5
177-308	250	B	362	290	5.3	38,1	$\pm 20$	2,5	3	27.5
177-310	275	B	413	321	5.3	38,1	$\pm 20$	2,5	3	27.5
177-312	300	B	438	340	5.3	38,1	$\pm 20$	2,5	3	27.5