HOLTEST SERIES 368, 468, & 568

Holtest/Digimatic Holtest/ABS Borematic

Bulletin No. 1815

New Holtest Series models for making three-point bore diameter measurements with excellent accuracy

Mitutoyo

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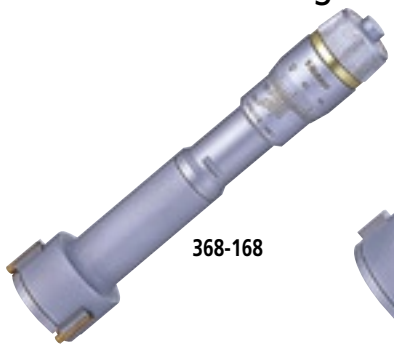
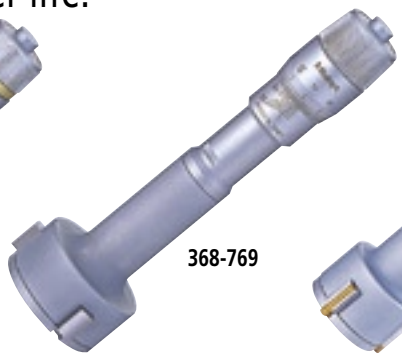
World Class, High Performance, High Accuracy Three-Point Internal Holtests

The performance of the well-established Mitutoyo Holtest series, well-known for their highly stable three-point self-centering action, has been enhanced by coating the contact surfaces with titanium nitride for longer life.



368-168



368-769

468-138-10

Screw-type bore micrometers assure stable measurement.

Holtest

- Titanium-coated measuring pins provide excellent durability and impact resistance and allow the instrument to measure right to the bottom of a blind hole.
- Three-point design assures self-centering action for stable measurements in ranges above 8mm bore diameter.
- Bore micrometers are fitted with constant-force ratchets which enable consistent measurements with minimum variation between operators.

Holtest Type II

- Affordably priced, popular Holtest
- The contact points and cone are made from an alloy tool steel with a hardness of HRC60.5 or more.
- Versions for measurement of special forms can be custom manufactured in tool steel.

Digimatic Holtest

- Titanium-coated measuring pins provide excellent durability and impact resistance and allow the instrument to measure right to the bottom of a blind hole.
- DIGIMATIC Holtest is equipped with a digital display for easy readability.
- ABS (absolute) and INC (incremental) measuring modes for better efficiency.
- DIGIMATIC Holtest is compatible with a statistical process control system and measurement support system.

ABSOLUTE™

Absolute System Patented by MITUTOYO

568-338-10

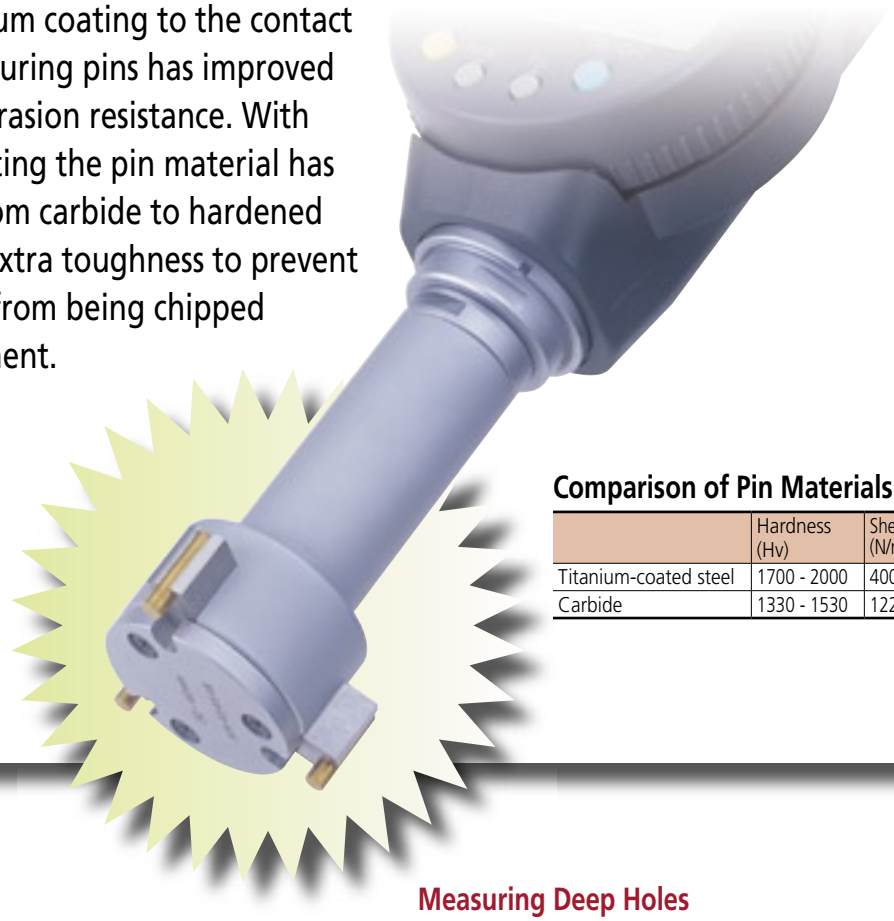
Snap-lever operation allows easy and speedy measurements.

Borematic (absolute digital bore micrometer)

- Titanium-coated measuring pins provide excellent durability and impact resistance and allow the instrument to measure near the bottom of a blind hole.
- Digital display with quick-action lever operation makes for easy and fast measurement.
- Built-in Absolute scale system with absolute origin eliminates the necessity to set the origin at every power-on. The system is also immune to over-speed errors, increasing the reliability of measurement.
- A tolerance judgment function is built in to allow GO/NG judgment based on user-defined upper and lower limit settings.

Mitutoyo

Applying a titanium coating to the contact faces of the measuring pins has improved durability and abrasion resistance. With this titanium coating the pin material has been changed from carbide to hardened steel to provide extra toughness to prevent the contact face from being chipped during measurement.



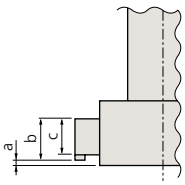
Comparison of Pin Materials

	Hardness (Hv)	Shear strength (N/mm^2)
Titanium-coated steel	1700 - 2000	4000
Carbide	1330 - 1530	1220 - 1800

Measuring a Blind Hole

The measuring pins held in the jaws permit measuring the diameter of a blind hole close to the bottom.

* The Holtest type II does not use measuring pins.

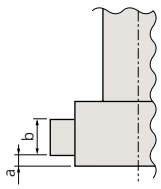


Holtest/Digimatic Holtest/ Borematic

inch (mm)

Measuring Range	a	b	c
.08"-.24"(2 - 6)	—	—	.08"(2)
.24"-.47"(6 - 12)	.08"(2)	—	.10"(2.5)
.47"-.79"(12 - 20)	.01"(0.3)	.22"(5.6)	.14"(3.5)
.79"-1.18"(20 - 30)	.01"(0.3)	.33"(8.3)	.20"(5.2)
1.18"-1.97"(30 - 50)	.01"(0.3)	.51"(13)	.39"(10)
1.97"-3.94"(50 - 100) 1.97"-4.92"(50 - 125*)	.01"(0.3)	.67"(17)	.55"(14)
3.94"-11.81"(100 - 300)	.49"(12.4)	.83"(21)	.54"(13.8)

* Dimensions apply to Borematic.



Holtest Type II

inch (mm)

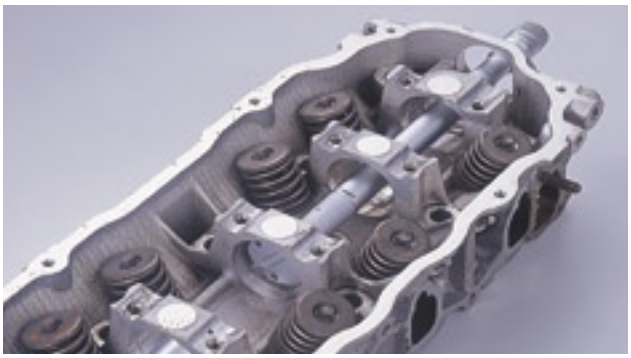
Measuring Range	a	c
.47"-.79"(12 - 20)	.10"(2.6)	.14"(3.5)
.79"-1.18"(20 - 30)	.13"(3.4)	.20"(5.2)
1.18"-1.97"(30 - 50)	.13"(3.4)	.39"(10)
1.97"-3.94"(50 - 100)	.13"(3.4)	.55"(14)
3.94"-11.81"(100 - 300)	.77"(19.6)	.54"(13.8)

Inspection Certificate included as standard accessory.

The Inspection Certificate supplied with each instrument, which assures product quality and safety, cannot be used for obtaining a Calibration Certificate since the purchase date is not stated. A Calibration Certificate certifies the accuracy of your measuring instrument on the date tested, the standard(s) used for calibrating it, and traceability. Mitutoyo will issue this calibration certificate, at a cost, on request.

Measuring Deep Holes

An extension rod (optional accessory) can be fitted to allow measurement of deep holes.



Measuring small diameters

inch (mm)

Measuring range	Stroke	Messuring method	Contact-point material	Remarks
.08"-.12" (2 - 3)	.02" (0.5)	Two-point method	Hardened steel (HRC60.5 or more)	No titanium coating
.12"-.24" (3 - 6)	.04" (1)	Two-point method	Hardened steel (HRC60.5 or more)	
.24"-.47" (6 - 12)	.08" (2)	Three-point method	Carbide	

For details, contact your local Mitutoyo office.

Improved Operability

The ratchet unit has been increased in diameter for easier operation.

Holtest

Individual micrometers

Order No.	Measuring Range (mm)	Graduation (mm)	Accuracy (mm)
368-101-10	6-8	0.001	±0.002
368-102-10	8-10		
368-103-10	10-12		
368-164	12-16	0.005	
368-165	16-20		
368-166	20-25		±0.003
368-167	25-30		
368-168	30-40		
368-169	40-50		
367-170	50-63		
368-171	62-75		
368-172	75-88		
368-173	87-100		
368-174	100-125		±0.005
368-175	125-150		
368-176	150-175		
368-177	175-200		
368-178	200-225		
368-179	225-250		
368-180	250-275		
368-181	275-300		

* Ring gages and extension rods are not supplied.
* The model with a measuring range of 6 to12mm is equipped with carbide-tipped contact points with no titanium coating.

Order No.	Measuring Range (inch)	Graduation (inch)	Accuracy (inch)
368-201-10	.275 - .35	.0001	±.0001
368-202-10	.35 - .425		
368-203-10	.425 - .5		
368-264	.5 - .65	.0002	
368-265	.65 - .8		
368-266	.8 - 1		±.00015
368-267	1 - 1.2		
368-268	1.2 - 1.6		
368-269	1.6 - 2		
367-270	2 - 2.5		
368-271	2.5 - 3		
368-272	3 - 3.5		
368-273	3.5 - 4		
368-274	4 - 5		±.00025
368-275	5 - 6		
368-276	6 - 7		
368-277	7 - 8		
368-278	8 - 9		
368-279	9 - 10		
368-280	10 - 11		
368-281	11 - 12		

Standard Sets

Order No.	Measuring Range (mm)	Graduation (mm)
368-901-10	6-12	.001
368-912	12-20	.005
368-913	20-50	
368-914	50-100	
368-915	100-200	

Order No.	Measuring Range (inch)	Graduation (inch)
568-988-10	.5 - 1	.001
568-989-10	1 - 2	.002
568-990-10	2 - 3	
568-991-10	3 - 4	
568-992-10	2 - 4	

* Each set includes the main measuring unit, ring gages, an extension rod and other standard accessories.
* **368-901-10**, **368-921-10** sets are equipped with carbide-tipped contact points with no titanium coating.

Holtest Type II

Individual micrometers

Order No.	Measuring Range (mm)	Graduation (mm)	Accuracy (mm)
368-764	12-16	0.005	±0.002
368-765	16-20		
368-766	20-25		±0.003
368-767	25-30		
368-768	30-40		
368-769	40-50		
368-770	50-63		
368-771	62-75		
368-772	75-88		
368-773	87-100		
368-774	100-125		±0.005
368-775	125-150		
368-776	150-175		
368-777	175-200		
368-778	200-225		
368-779	225-250		
368-780	250-275		
368-781	275-300		

* Ring gage and extension rod are not supplied.

Order No.	Measuring Rang (inch)	Graduation (inch)	Accuracy (inch)
368-864	.5 - .65	.0002	±.0001
368-865	.65 - .8		
368-866	.8 -1		±.00015
368-867	1 - 1.2		
368-868	1.2 - 1.6		
368-869	1.6 - 2		
368-870	2 - 2.5		
368-871	2.5 - 3		
368-872	3 - 3.5		
368-873	3.5 - 4		
368-874	4 - 5		±.00025
368-875	5 - 6		
368-876	6 - 7		
368-877	7 - 8		
368-878	8 - 9		
368-879	9 - 10		
368-880	10 - 11		
368-881	11 - 12		

Standard Sets

Order No.	Measuring Range (mm)	Graduation (mm)
368-991	12-20	.0005
368-992	20-50	
368-993	50-100	
368-994	100-200	

Order No.	Measuring Range (inch)	Graduation (inch)
368-995	.5 - .8	.0002
368-996	.8 - 2	
368-997	2 - 4	
368-998	4 - 8	

* Each set includes the main measuring unit, ring gages, an extension rod and other standard accessories.

Digimatic Holtest

Individual micrometers

Order No.	Measuring Range (mm)	Graduation (mm)	Accuracy (mm)
468-134-10	12-16	0.001	±0.002
468-135- 10	16-20		
468-1 36-10	20-25		±0.00 3
468-1 37-10	25-30		
468-1 38-10	30-40		
468-1 39-10	40-50		
468-1 40-10	50-63		
468-1 41-10	62-75		
468-1 42-10	75-88		
467-1 43-10	87-100		
468-1 44-10	100-125		±0.00 5
468-1 45-10	125-150		
468-1 46-10	150-175		
468-1 47-10	175-200		
468-1 48-10	200-225		
468-1 49-10	225-250		
468-1 50-10	250-275		
468-1 51-10	275-300		

Order No.	Measuring Range (inch)	Resolution (inch)	Accuracy (inch)
468-234-10	.5 - .65	.00005	±0.00 01
468-235- 10	.65 - .8		
468-236-10	.8 - 1		±0.00 015
468-237-10	1 - 1.2		
468-238-10	1.2 - 1.6		
468-239-10	1.6 - 2		
468-240-10	2 - 2.5		
468-241-10	2.5 - 3		
468-242-10	3 - 3.5		
467-243-10	3.5 - 4		
468-244-10	4 - 5		±0.0002 5
468-245-10	5 - 6		
468-246-10	6 - 7		
468-247-10	7 - 8		
468-248-10	8 - 9		
468-249-10	9 - 10		
468-250-10	10 - 11		
468-251-10	11 - 12		

* Ring gages and extension rods are not supplied.

Standard Sets

Order No.	Measuring Range (mm)	Resolution (mm)
568-962-10	12-2 5	0.00 1
568-96 3-10	25-50	
568-96 4-10	50- 75	
568-965 -10	50-100	

Order No.	Measuring Range (inch)	Resolution (inch)
568- 967 -10	.5 - 1	.00 005
568- 968 -10	1 - 2	
568- 969 -10	2 - 3	
568-970 -10	3 - 4	

* Each set includes the main measuring unit, ring gages, an extension rod and other standard accessories.

Economy sets

Order No.	Measuring Range (mm)	Resolution (mm)
568-952-10	12-2 0	0.00 1
568-95 3-10	25-50	
568-95 4-10	50- 100	
568-955 -10	100 -200	

Order No.	Measuring Range (inch)	Resolution (inch)
568- 957 -10	.5 - .8	0.0001
568- 958 -10	.8 - 2	
568- 959 -10	2 - 4	

* Each set includes the main measuring unit (with only one display unit), ring gages, an extension rod and other standard accessories.

Boremetic (absolute digital bore micrometer)

Individual micrometers

Order No.	Measuring Range (mm)	Resolution (mm)	Accuracy (mm)
568-334-10	12-16	0.00 1	±0.005 (Maximum difference: 0.005m m)
568-335 -10	16-20		
568-336 -10	20-25		±0.00 6 (Maximum difference: 0.00 6mm)
568-337 -10	25-30		
568-338 -10	30-40		
568-339 -10	40-50		
568-340 -10	50-63		
568-341 -10	62-75		
568-342 -10	75-88		
568-343 -10	87-100		
568-344 -10	100-1 13		
568-345 -10	112-1 25		
568-346 -10	50-75		
568-347 -10	75-100		
568-348 -10	100 -125		

Order No.	Measuring Range (inch)	Resolution (inch)	Accuracy (inch)
568-434-10	.5 - .65	.00 005	±0.00025 (Maximum difference: 0.00 025)
568-435 -10	.65 - .8		
568-436 -10	.8 - 1		±0.00 03 (Maximum difference: 0.00 03)
568-437 -10	1 - 1.2		
568-438 -10	1.2 - 1.6		
568-439 -10	1.6 - 2		
568-440 -10	2 - 2.5		
568-441 -10	2.5 - 3		
568-442 -10	3 - 3.5		
568-443 -10	3.5 - 4		
568-444 -10	4 - 4.5		
568-445 -10	4.5 - 5		
568-446 -10	2 - 3		
568-447 -10	2 - 3		
568-448-10	4 - 5		

* Ring gages and extension rods are not supplied.

Standard Sets

Order No.	Measuring Range (mm)	Resolution (mm)
568-982-10	12-2 5	0.00 1
568-9 83-10	25-50	
568-9 84-10	50- 75	
568-985-10	75-100	
568-9 86-10	50-100	

Order No.	Measuring Range (inch)	Resolution (inch)
568-988 -10	.5 - 1	.00 005
568- 989 -10	1 - 2	
568- 990 -10	2 - 3	
568- 991 -10	3 - 4	
568- 992 -10	2 - 4	

* Each set includes the main measuring unit, ring gages, an extension rod and other standard accessories.
* 568-986-10, 568-992-10 consist of two measuring units and 4 sets of interchangeable contact points as a combination.

Economy sets

Order No.	Measuring Range (mm)	Resolution (mm)
568-972-10	12-2 5	0.00 1
568-97 3-10	25-50	
568-97 4-10	50- 100	
568-975 -10	50-100	

Order No.	Measuring Range (inch)	Resolution (inch)
568- 977 -10	.5 - 1	.00 005
568- 978 -10	1 - 2	
568- 979 -10	2 - 4	
568- 980 -10	2 - 4	

* Each set includes the main measuring unit (with only one display unit), ring gages, an extension rod and other standard accessories.
* 568-975-10, 568-980-10 consist of one measurement display unit and 4 sets of interchangeable contact points as a combination.

- Coordinate Measuring Machines
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Mitutoyo

Precision is our Profession

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