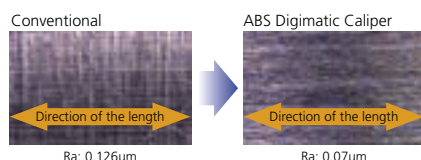


ABSOLUTE Digimatic Caliper

SERIES 500 — with Exclusive ABSOLUTE Encoder Technology

Mitutoyo's absolute Digimatic Caliper is the next generation of electronic calipers. It keeps track of its origin point once set. Whenever turned on, the large LCD screen displays the actual slider position ready to start measurement. No more repeated zero setting is necessary with the absolute encoder technology as well as no more care for overspeed errors.

High quality guide surface finish for smooth slider movement

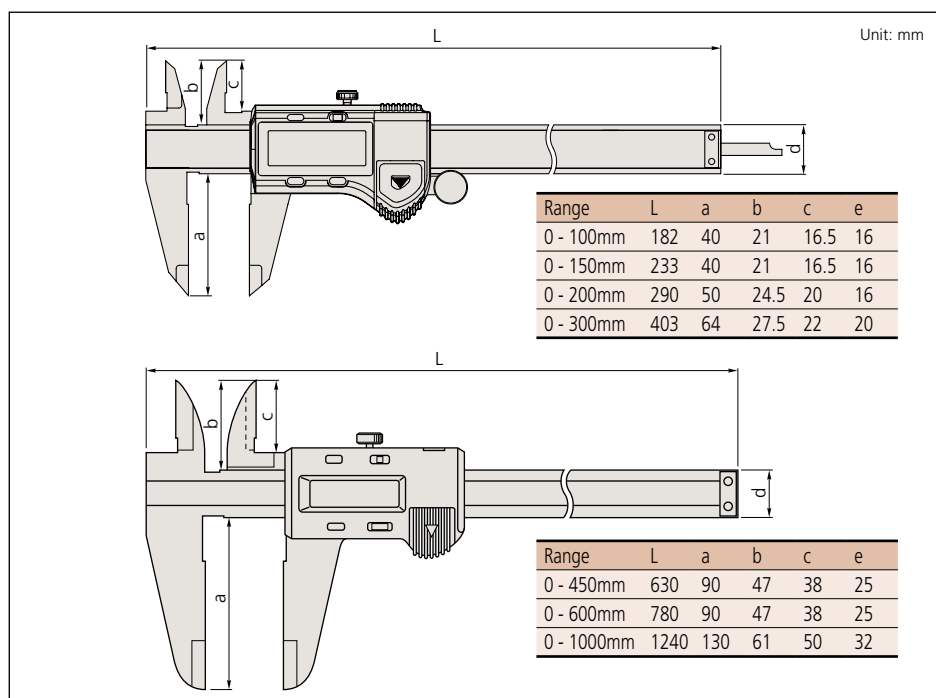


FEATURES

- Large and clear LCD readout.
- The ZERO/ABS key allows the display to be Zero-Set at any slider position along the scale for incremental comparison measurements. This switch will also allow return to the absolute (ABS) coordinate and display of the true position from the origin point (usually jaws-closed point).
- Data Hold Unit (959143) is optional.
- Carbide-tipped jaw type calipers are also available.



DIMENSION



SPC

ABSOLUTE®
Absolute System Patented by MITUTOYO

(Refer to the page 9 for details.)



(Refer to the page 9 for details.)

Technical Data

Accuracy: $\pm 0.02\text{mm}$ ($\leq 200\text{mm}$), $\pm 0.03\text{mm}$ ($\leq 300\text{mm}$)
 $\pm 0.05\text{mm}$ ($\leq 600\text{mm}$), $\pm 0.07\text{mm}$ ($\leq 1000\text{mm}$)
(excluding quantizing error)
Resolution: 0.01mm or .0005"/0.01mm
Repeatability: 0.01mm
Display: LCD
Length standard: ABSOLUTE electrostatic capacitance type linear encoder
Max. response speed: Unlimited
Battery: SR44 (1 pc.), **938882**
Battery life: Approx. 3.5 years under normal use

Function

Origin-set, Zero-setting, Data output, inch/mm conversion (inch/mm models)
Alarm: Low voltage, Counting value composition error

Optional Accessory

- 959143:** Data hold unit
959149: SPC cable with data switch (1m)
959150: SPC cable with data switch (2m)

959143



959149

SPECIFICATIONS

Metric

Range	Order No.	Remarks (depth measuring bar / thumb roller / others)		
0 - 100mm	500-150-20	ø1.9mm rod	with thumb roller	—
0 - 100mm	500-180-20*	ø1.9mm rod	—	—
0 - 150mm	500-151-20	Blade	with thumb roller	—
0 - 150mm	500-154-20	Blade	with thumb roller	Carbide-tipped jaws for OD measurement
0 - 150mm	500-155-20	Blade	with thumb roller	Carbide-tipped jaws for OD & ID measurement
0 - 150mm	500-158-20	ø1.9mm rod	with thumb roller	—
0 - 150mm	500-181-20*	Blade	—	—
0 - 200mm	500-152-20	Blade	with thumb roller	—
0 - 200mm	500-156-20	Blade	with thumb roller	Carbide-tipped jaws for OD measurement
0 - 200mm	500-157-20	Blade	with thumb roller	Carbide-tipped jaws for OD & ID measurement
0 - 200mm	500-182-20*	Blade	—	—
0 - 300mm	500-153	Blade	with thumb roller	—
0 - 450mm	500-500-10	—	—	—
0 - 600mm	500-501-10	—	—	—
0 - 1000mm	500-502-10	—	—	—

*without SPC data output

Inch/Metric

Range	Order No.	Remarks (depth measuring bar / thumb roller / others)		
0 - 4"	500-170-20	ø3/40" rod	with thumb roller	—
0 - 4"	500-195-20*	ø3/40" rod	with thumb roller	—
0 - 6"	500-171-20	Blade	with thumb roller	—
0 - 6"	500-174-20	Blade	with thumb roller	Carbide-tipped jaws for OD measurement
0 - 6"	500-175-20	Blade	with thumb roller	Carbide-tipped jaws for OD & ID measurement
0 - 6"	500-178-20	ø3/40" rod	with thumb roller	—
0 - 6"	500-196-20*	Blade	with thumb roller	—
0 - 6"	500-159-20*	Blade	with thumb roller	Carbide-tipped jaws for OD measurement
0 - 6"	500-160-20*	Blade	with thumb roller	Carbide-tipped jaws for OD & ID measurement
0 - 8"	500-172-20	Blade	with thumb roller	—
0 - 8"	500-176-20	Blade	with thumb roller	Carbide-tipped jaws for OD measurement
0 - 8"	500-177-20	Blade	with thumb roller	Carbide-tipped jaws for OD & ID measurement
0 - 8"	500-197-20*	Blade	with thumb roller	—
0 - 8"	500-163-20*	Blade	with thumb roller	Carbide-tipped jaws for OD measurement
0 - 8"	500-164-20*	Blade	with thumb roller	Carbide-tipped jaws for OD & ID measurement
0 - 12"	500-173	Blade	with thumb roller	—
0 - 12"	500-167	Blade	with thumb roller	Carbide-tipped jaws for OD measurement
0 - 12"	500-168	Blade	with thumb roller	Carbide-tipped jaws for OD & ID measurement
0 - 12"	500-193*	Blade	with thumb roller	—
0 - 12"	500-165*	Blade	—	Carbide-tipped jaws for OD measurement
0 - 12"	500-166*	Blade	—	Carbide-tipped jaws for OD & ID measurement
0 - 18"	500-505-10	—	with thumb roller	—
0 - 24"	500-506-10	—	with thumb roller	—
0 - 40"	500-507-10	—	with thumb roller	—

*without SPC data output

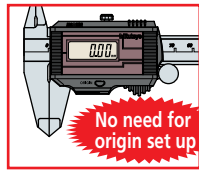
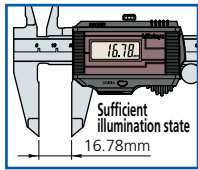
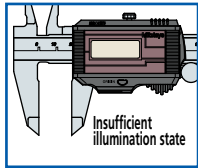


Super Caliper–Solar Powered

SERIES 500 — No battery or origin reset needed for IP67 Digital Caliper

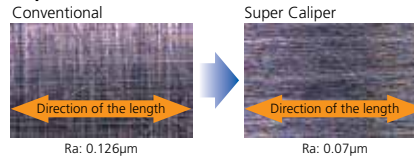
FEATURES

- With no annoying origin restoration necessary, a measurement can be started at any time and without restrictions on operating speed.



- This unique* eco-friendly solar-powered Super Caliper requires no battery.
*According to Mitutoyo investigation in January, 2005
- The impact resistance of the display unit has been increased for improved usability in workshop conditions.
- IP67 protection ensures waterproof reliability.
- This Super Caliper uses components that do not contain harmful substances and is compatible with RoHS Directives.
- Supplied in fitted plastic case.

Improvement in surface finish of beam



500-784

SPECIFICATIONS

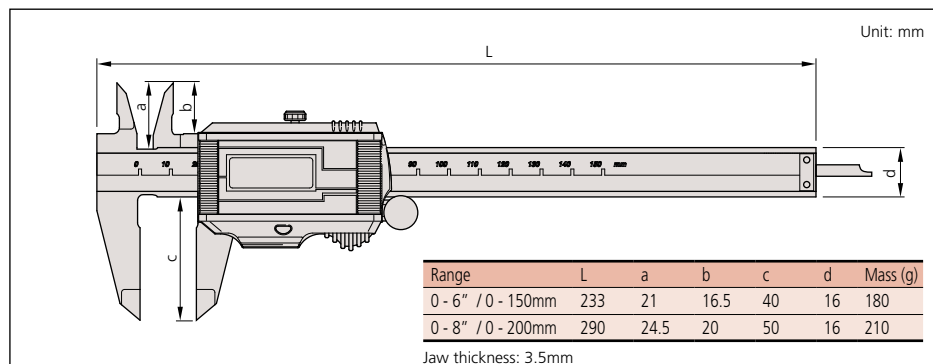
Metric			
Range	Order No.	Accuracy	Resolution
0 - 150mm	500-776	±0.02mm	0.01mm
0 - 150mm	500-774*	±0.02mm	0.01mm
0 - 200mm	500-777	±0.02mm	0.01mm
0 - 200mm	500-775*	±0.02mm	0.01mm

*Without SPC data output

Inch/Metric			
Range	Order No.	Accuracy	Resolution
0 - 6" / 0 - 150mm	500-786	±.001"	.0005" / 0.01mm
0 - 6" / 0 - 150mm	500-784*	±.001"	.0005" / 0.01mm
0 - 8" / 0 - 200mm	500-787	±.001"	.0005" / 0.01mm
0 - 8" / 0 - 200mm	500-785*	±.001"	.0005" / 0.01mm

*Without SPC data output

DIMENSIONS AND MASS



Technical Data

Accuracy: Refer to the list of specifications
 Resolution: .0005" / 0.01mm or 0.01mm
 Repeatability: .0005" / 0.01mm
 Display: LCD
 Length standard: ABSOLUTE electromagnetic induction linear encoder
 Max. response speed: Unlimited
 Battery: Solar cell*
 Dust/Water protection level: IP67
 *Can be used continuously above 60 lux ambient illumination.

Function

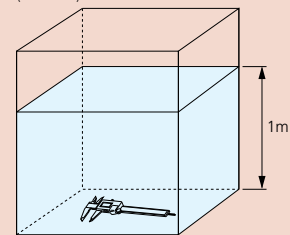
Origin-set, inch/mm conversion (on inch/metric models only)
 Alarm: Counting value composition error

Optional Accessories

05CZA624: SPC cable with data switch (40" / 1m)
05CZA625: SPC cable with data switch (80" / 2m)

IP67 protection level

Level 6: Dust-tight
 No ingress of dust.
 Level 7: Protected against the effects of temporary immersion in water.
 Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed 1 meter in water under standardized conditions of pressure and time (30 min.).



About the charge function (Super Caliper)

The minimum illumination required in the uncharged state is 60 lux. As shown in the table, JIS Z 9110 Artificial Illumination Intensity Standard, this Super Caliper can be used without problems in a normal work environment.

The charge function allows the operator to use this Super Caliper without interrupting work even if the ambient illumination is temporarily insufficient.

- In the fully charged state, this Super Caliper can operate for approximately an hour in an environment of 50lux illumination (less than the minimum necessary illumination intensity).
- The time necessary for full charge differs, depending on the charging conditions. If this Super Caliper is left unused in an illumination of 500 lux (usual for manufacturing environments), it takes approximately one hour to reach full charge.

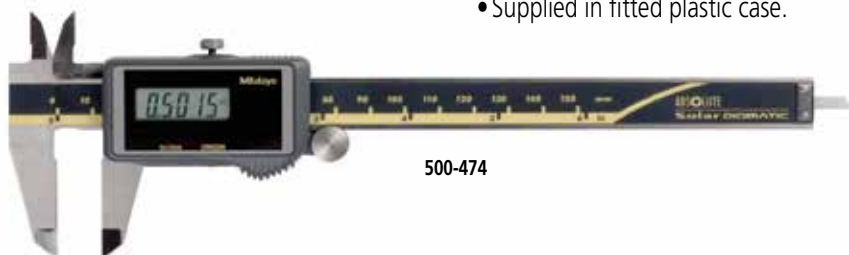
ABSOLUTE Solar Caliper

SERIES 500 — No battery or origin reset needed

Mitutoyo's Absolute Solar Digimatic Caliper retains its origin point for the entire life of the caliper, even the display turns off. At 60 Lux and higher, the ABSOLUTE solar caliper is turned on ready to start measurement.

FEATURES

- No more repeated zero setting caused by low-light intensity.
- Hard-coated solar panel for increased durability.
- No fear for overspeed errors.
- With thumb roller.
- Supplied in fitted plastic case.



500-474

Technical Data

Accuracy: Refer to the list of specifications
 Resolution: .0005"/0.01mm or 0.01mm
 Repeatability: .0005" / 0.01mm
 Display: LCD
 Length standard: ABSOLUTE electrostatic capacitance type linear encoder
 Max. response speed: Unlimited
 Battery: Solar cell*

Function

Origin-set, Data hold, Data output, inch/mm conversion (on inch/metric models only)
 Alarm: Counting value composition error

Optional Accessories

959143: Data hold unit (SPC output model only)
959149: SPC cable with data switch (40" / 1m)
959150: SPC cable with data switch (80" / 2m)

SPECIFICATIONS

Metric

Range	Order No.	Accuracy	Resolution	Remarks
0 - 100mm	500-443	±0.02mm	0.01mm	ø1.9mm round depth bar
0 - 100mm	500-453*	±0.02mm	0.01mm	ø1.9mm round depth bar
0 - 150mm	500-444	±0.02mm	0.01mm	
0 - 150mm	500-454*	±0.02mm	0.01mm	
0 - 200mm	500-445	±0.02mm	0.01mm	
0 - 200mm	500-455*	±0.02mm	0.01mm	

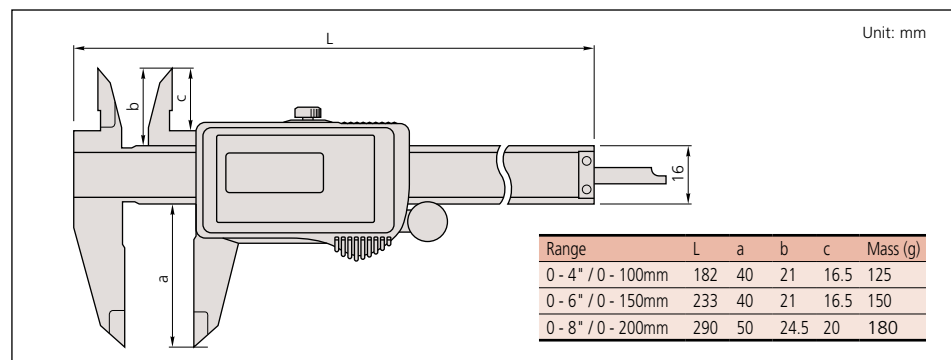
*without SPC data output

Inch/Metric

Range	Order No.	Accuracy	Resolution	Remarks
0 - 4" / 0 - 100mm	500-463	±.001"	.0005" / 0.01mm	.075" round depth bar
0 - 4" / 0 - 100mm	500-473*	±.001"	.0005" / 0.01mm	.075" round depth bar
0 - 6" / 0 - 150mm	500-464	±.001"	.0005" / 0.01mm	
0 - 6" / 0 - 150mm	500-474*	±.001"	.0005" / 0.01mm	
0 - 8" / 0 - 200mm	500-465	±.001"	.0005" / 0.01mm	
0 - 8" / 0 - 200mm	500-475*	±.001"	.0005" / 0.01mm	

*without SPC data output

DIMENSIONS AND MASS



SERIES 500 — with Dust/Water Protection Conforming to IP67 Level



- Can be used in workshop conditions exposed to coolant, water, dust or oil.
- Easy to use - no need to wipe or clean the scale.
- Advanced design.
- Character height increased from 7.4mm to 9.0mm for improved readability.

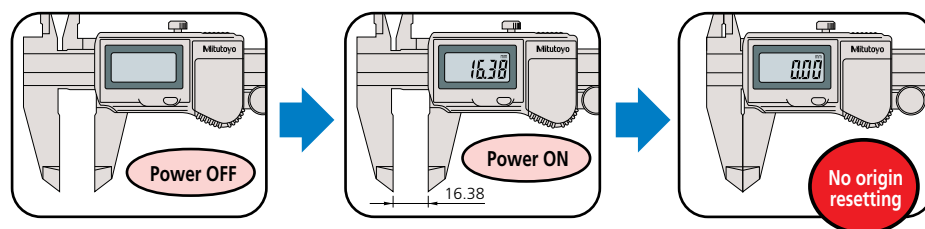
- Redesigned battery cover eliminates the need for a screwdriver.
- Incorporates absolute measurement system.
- Automatic power-on/off.
- Data output function.
- With thumb roller.
- Supplied in fitted plastic case.



COOLANT PROOF is the universal term of Mitutoyo Digimatic Small Tool Instruments that are free from measurement error and physical deterioration due to routine exposure to water, cutting oil or coolant. This high performance is achieved by using encoders that are inherently immune to contamination, where exposure is inevitable, combined with comprehensive sealing techniques and extremely oil-resistant materials to guarantee a long working life under normal operating conditions.



Built-in ABS (absolute) scale means that these calipers are ready to use immediately after power-on without origin resetting. It's as easy as vernier caliper measurements.



CERTIFICATE OF INSPECTION / CERTIFICAT DE CONTROLE		Inspection results/Rezultate		Permissible values		(GRIF)	
Product name/Designation Model No./Model		Dinamic Car/Pană si ouălele Dinamice CD-19PB		Measuring tool/Instrumentul de măsurare		Position of measure/	
Code No./Nomenclatura		850-027		Error admission/		External/Externă	
Serial No./No. de serie		0341611		±0.01		Internal/Internă	
Measuring range/Capacitate de măsurare		0-150mm		0.00		0.00	
Minimum resolution/Rezoluție		0.01mm		±0.02		0.01	
Standards/Standard		100		-0.01		0.00	
Temperature of Reference		20°C		-0.01		0.00	
QC Manager/Responsabil Quality Control		g. gatiță		100		Unit:mm	
Inspection standard / Nivouul standard		Multiple standard		±0.005		Unit:mm	
Based on / Pe baza		JISB0757 1993,GB682-1988		-0.019		Unit:mm	
Traceable to / Traseabil pe		NMI/JAST by JCRS No.0200/NIST by 1012-98634-03,		0		Unit:inch	
PTB by 3705-PTB 12,GAO/PTB 03		2		±0.0010		Unit:inch	
		4		6		Unit:mm	
		8					

Accuracy: Refer to the list of specifications
Resolution: .0005"/0.01mm or 0.01mm
Repeatability: .0005" / 0.01mm
Display: LCD
Length standard: ABSOLUTE electromagnetic induction
linear encoder
Max. response speed: Unlimited
Battery: SR44 (1 pc./2 pcs*), **938882**
Battery life: Approx. 5 years under normal use
(1 year: over 12" / 300mm models)
Dust/Water protection level: IP67
*0 - 300mm model

Origin-set, Zero-setting, Automatic power on/off, Data output, inch/mm conversion (on inch/metric models only)
Alarm: Low voltage, Counting value composition error

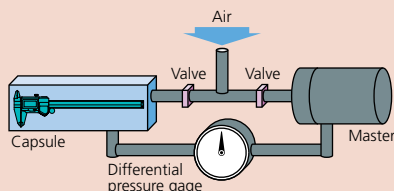
05CZA624: SPC cable with data switch (40" / 1m)
05CZA625: SPC cable with data switch (80" / 2m)



Measurement data output function is available with a water-resistant SPC cable.

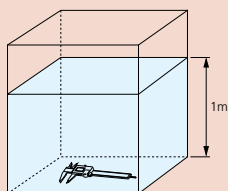
Air leakage detection system used for water-proof testing

Generally, air leakage tests are performed to evaluate water resistance. Testing begins by placing a measuring tool into the capsule. Next, air with equivalent pressure is supplied to the capsule and the master, then the valves are closed. If none of the air in the capsule seeps into the measuring tool, the capsule's air pressure will remain equal to that of the master, and the differential pressure gage will continue to point to the center. However, if some air seeps into the measuring tool, it will create an air pressure difference in the amount indicated by the differential pressure gage. Thus, detection of air pressure differences is used as a criterion for judging leakage. Every single unit of the ABS Coolant Proof calipers and Coolant Proof micrometer is tested this way for air leakage to help ensure product quality.



IP67 protection level

- Level 6: Dust-tight
No ingress of dust.
- Level 7: Protected against the effects of temporary immersion in water.
Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed 1 meter in water under standardized conditions of pressure and time (30 min.).



SPECIFICATIONS

Metric IP67 model

Range	Order No.	Accuracy	Resolution	Remarks
0-150mm	500-702-20*	+/-0.02mm	0.01mm	
0-150mm	500-712-20	+/-0.02mm	0.01mm	
0-150mm	500-719-20	+/-0.02mm	0.01mm	dia. 1.9mm rod depth bar
0-150mm	500-721-20	+/-0.02mm	0.01mm	carbide-tipped jaws for ID measurement
0-150mm	500-723-20	+/-0.02mm	0.01mm	carbide-tipped jaws for OD & ID measurement
0-200mm	500-703-20*	+/-0.02mm	0.01mm	
0-200mm	500-713-20	+/-0.02mm	0.01mm	
0-200mm	500-722-20	+/-0.02mm	0.01mm	carbide-tipped jaws for ID measurement
0-200mm	500-724-20	+/-0.02mm	0.01mm	carbide-tipped jaws for OD & ID measurement
0-300mm	500-704-10*	+/-0.03mm	0.01mm	
0-300mm	500-714-10	+/-0.03mm	0.01mm	

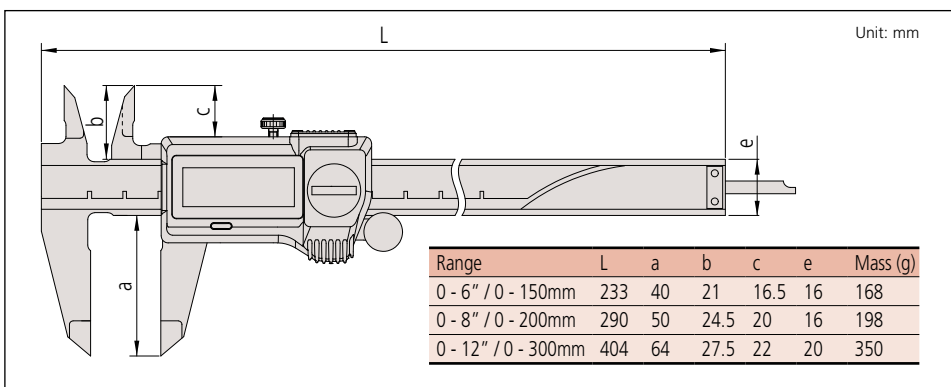
*without SPC data output

Inch/Metric IP67 model

Range	Order No.	Accuracy	Resolution	Remarks
0-6"/0-150mm	500-752-20*	+/- .001"	.0005"/0.01mm	
0-6"/0-150mm	500-762-20	+/- .001"	.0005"/0.01mm	
0-6"/0-150mm	500-768-20*	+/- .001"	.0005"/0.01mm	.075" rod depth bar
0-6"/0-150mm	500-769-20	+/- .001"	.0005"/0.01mm	.075" rod depth bar
0-6"/0-150mm	500-731-20*	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD measurement
0-6"/0-150mm	500-735-20	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD measurement
0-6"/0-150mm	500-733-20*	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD & ID measurement
0-6"/0-150mm	500-737-20	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD & ID measurement
0-8"/0-200mm	500-753-20*	+/- .001"	.0005"/0.01mm	
0-8"/0-200mm	500-763-20	+/- .001"	.0005"/0.01mm	
0-8"/0-200mm	500-732-20*	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD measurement
0-8"/0-200mm	500-736-20	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD measurement
0-8"/0-200mm	500-734-20*	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD & ID measurement
0-8"/0-200mm	500-738-20	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD & ID measurement
0-12"/0-300mm	500-754-10*	+/- .0015"	.0005"/0.01mm	
0-12"/0-300mm	500-764-10	+/- .0015"	.0005"/0.01mm	

*without SPC data output

DIMENSIONS AND MASS

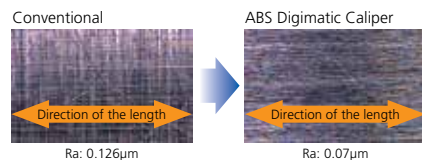


ABSOLUTE Digimatic Caliper

SERIES 500 — with Exclusive ABSOLUTE Encoder Technology

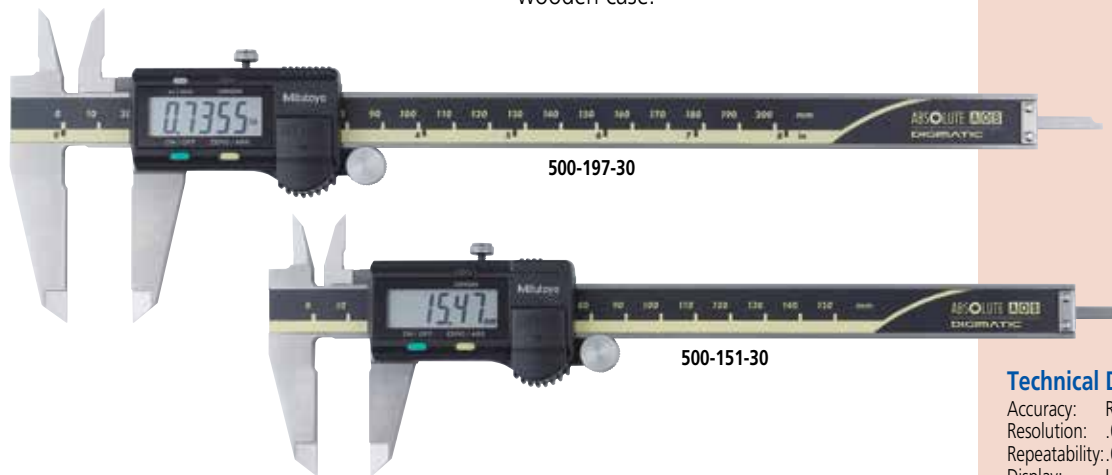
Mitutoyo's absolute Digimatic Caliper is the next generation of electronic calipers. It keeps track of its origin point once set. Whenever turned on, the large LCD displays the actual slider position ready to start measurement. No more repeated zero setting is necessary with the absolute encoder technology, as well as no more concern for overspeed errors.

High-quality guide surface finish for smooth slider movement.

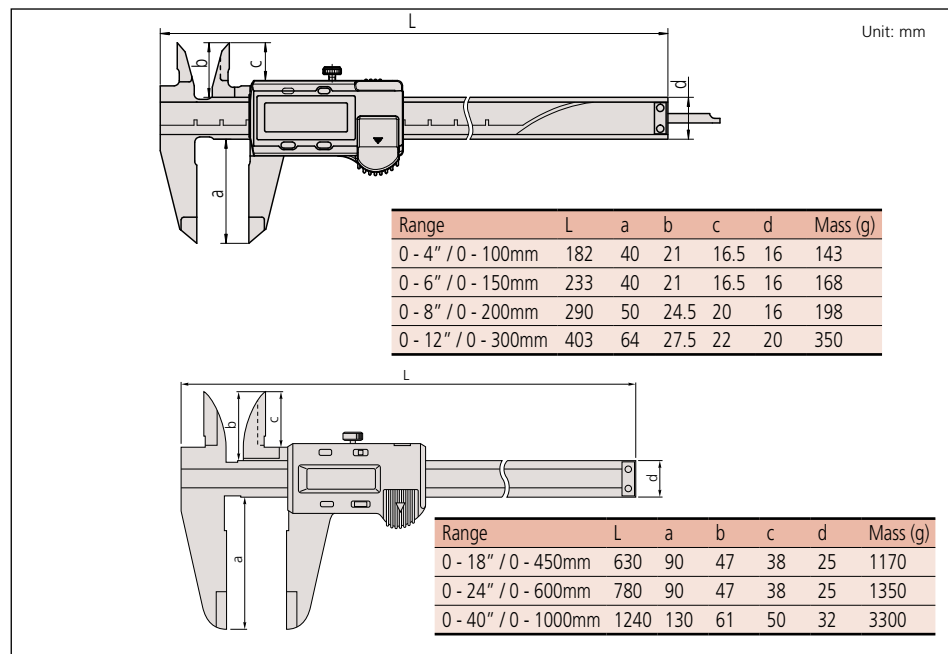


FEATURES

- Large and clear LCD readout.
- The ZERO/ABS key allows the display to be zero-set at any slider position along the scale for incremental comparison measurements. This switch also will allow return to the absolute (ABS) coordinate and display of the true position from the origin point (usually jaws-closed point).
- Data Hold Unit (959143) is optional.
- Carbide-tipped jaw-type calipers are also available.
- Thumb roller included only on calipers up to and including 12" or 300mm.
- Supplied in fitted plastic case. Except 40" / 1000mm supplied in wooden case.



DIMENSIONS AND MASS



SPC



The new Mitutoyo ABS Digimatic Caliper line with exclusive AOS sensor technology. The patented Advanced Onsite Sensor (AOS) offers improved measurement dependability by increasing resistance to harsh workshop conditions.

Technical Data

Accuracy: Refer to the list of specifications
 Resolution: .0005"/0.01mm or 0.01mm
 Repeatability: .0005"/0.01mm
 Display: LCD
 Length standard:
 ABSOLUTE electromagnetic induction type linear encoder (200mm and smaller models)
 ABSOLUTE electrostatic capacitance type linear encoder (300mm and larger models)
 Max. response speed: Unlimited
 Battery: SR44 (1 pc.), **938882**
 Battery life: Approx. 3.5 years under normal use

Function

Origin-set, Zero-setting, Data output, inch/mm conversion (on inch/metric models only)
 Alarm: Low voltage, Counting value composition error

Optional Accessories

- 959143:** Data hold unit
959149: SPC cable with data switch (40" / 1m)
959150: SPC cable with data switch (80" / 2m)

959143



959149



SPECIFICATIONS

Metric				
Range	Order No.	Accuracy	Resolution	Remarks
0 - 100mm	500-150-30	±0.02mm	0.01mm	ø1.9mm rod depth bar
0 - 150mm	500-151-30	±0.02mm	0.01mm	—
0 - 150mm	500-154-30	±0.02mm	0.01mm	Carbide-tipped jaws for OD measurement
0 - 150mm	500-155-30	±0.02mm	0.01mm	Carbide-tipped jaws for OD & ID measurement
0 - 150mm	500-158-30	±0.02mm	0.01mm	ø1.9mm rod depth bar
0 - 200mm	500-152-30	±0.02mm	0.01mm	—
0 - 200mm	500-156-30	±0.02mm	0.01mm	Carbide-tipped jaws for OD measurement
0 - 200mm	500-157-30	±0.02mm	0.01mm	Carbide-tipped jaws for OD & ID measurement
0 - 300mm	500-153	±0.03mm	0.01mm	—
0 - 450mm	500-500-10	±0.05mm	0.01mm	Without Thumb Roller
0 - 600mm	500-501-10	±0.05mm	0.01mm	Without Thumb Roller
0 - 1000mm	500-502-10	±0.07mm	0.01mm	Without Thumb Roller

Inch/Metric				
Range	Order No.	Accuracy	Resolution	Remarks
0 - 4" / 0 - 100mm	500-170-30	±.001"	.0005" / 0.01mm	.075" rod depth bar
0 - 4" / 0 - 100mm	500-195-30*	±.001"	.0005" / 0.01mm	.075" rod depth bar
0 - 6" / 0 - 150mm	500-171-30	±.001"	.0005" / 0.01mm	—
0 - 6" / 0 - 150mm	500-174-30	±.001"	.0005" / 0.01mm	Carbide-tipped jaws for OD measurement
0 - 6" / 0 - 150mm	500-175-30	±.001"	.0005" / 0.01mm	Carbide-tipped jaws for OD & ID measurement
0 - 6" / 0 - 150mm	500-178-30	±.001"	.0005" / 0.01mm	.075" rod depth bar
0 - 6" / 0 - 150mm	500-196-30*	±.001"	.0005" / 0.01mm	—
0 - 6" / 0 - 150mm	500-159-30*	±.001"	.0005" / 0.01mm	Carbide-tipped jaws for OD measurement
0 - 6" / 0 - 150mm	500-160-30*	±.001"	.0005" / 0.01mm	Carbide-tipped jaws for OD & ID measurement
0 - 8" / 0 - 200mm	500-172-30	±.001"	.0005" / 0.01mm	—
0 - 8" / 0 - 200mm	500-176-30	±.001"	.0005" / 0.01mm	Carbide-tipped jaws for OD measurement
0 - 8" / 0 - 200mm	500-177-30	±.001"	.0005" / 0.01mm	Carbide-tipped jaws for OD & ID measurement
0 - 8" / 0 - 200mm	500-197-30*	±.001"	.0005" / 0.01mm	—
0 - 8" / 0 - 200mm	500-163-30*	±.001"	.0005" / 0.01mm	Carbide-tipped jaws for OD measurement
0 - 8" / 0 - 200mm	500-164-30*	±.001"	.0005" / 0.01mm	Carbide-tipped jaws for OD & ID measurement
0 - 12" / 0 - 300mm	500-173	±.0015"	.0005" / 0.01mm	—
0 - 12" / 0 - 300mm	500-167	±.0015"	.0005" / 0.01mm	Carbide-tipped jaws for OD measurement
0 - 12" / 0 - 300mm	500-168	±.0015"	.0005" / 0.01mm	Carbide-tipped jaws for OD & ID measurement
0 - 12" / 0 - 300mm	500-193*	±.0015"	.0005" / 0.01mm	—
0 - 12" / 0 - 300mm	500-165*	±.0015"	.0005" / 0.01mm	Carbide-tipped jaws for OD measurement
0 - 12" / 0 - 300mm	500-166*	±.0015"	.0005" / 0.01mm	Carbide-tipped jaws for OD & ID measurement
0 - 18" / 0 - 450mm	500-505-10	±.002"	.0005" / 0.01mm	Without Thumb Roller
0 - 24" / 0 - 600mm	500-506-10	±.002"	.0005" / 0.01mm	Without Thumb Roller
0 - 40" / 0 - 1000mm	500-507-10	±.003"	.0005" / 0.01mm	Without Thumb Roller

*without SPC data output

SERIES 500 — with Dust/Water Protection Conforming to IP67 Level

- Can be used in workshop conditions exposed to coolant, water, dust or oil.
- Easy to use - no need to wipe or clean the scale.
- Advanced design styling.

- Incorporates absolute measurement system.
- Automatic power-on/off.
- Data output function.
- With thumb roller.
- Supplied in fitted plastic case.



The diagram illustrates the process of resetting the digital depth gauge. It consists of three sequential panels connected by blue arrows. The first panel shows the gauge with a blank display and a red oval labeled "Power OFF". The second panel shows the gauge with the display showing "16.38" and a red oval labeled "Power ON". The third panel shows the gauge with the display showing "0.00" and a red oval labeled "No origin resetting".

[illegible]

ABSOLUTE®
Absolute System Patented by MITUTOYO



Accuracy: Refer to the list of specifications
Resolution: .0005"/0.01mm or 0.01mm
Repeatability: .0005" / 0.01mm
Display: LCD
Length standard: ABSOLUTE electromagnetic induction
linear encoder
Max. response speed: Unlimited
Battery: SR44 (1 pc./2 pcs*), **938882**
Battery life: Approx. 3 years under normal use
(1 year: over 12" / 300mm models)
Dust/Water protection level: IP67
*0 - 300mm model

Origin-set, Zero-setting, Automatic power on/off, Data output, inch/mm conversion (on inch/metric models only)
Alarm: Low voltage, Counting value composition error

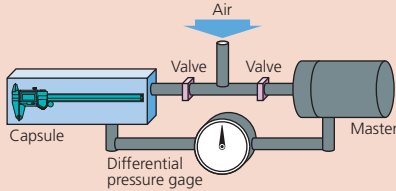
05CZA624: SPC cable with data switch (40" / 1m)
05CZA625: SPC cable with data switch (80" / 2m)



Measurement data output function is available with a water-resistant SPC cable.

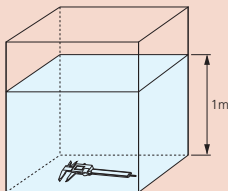
Air leakage detection system used for water-proof testing

Generally, air leakage tests are performed to evaluate water resistance. Testing begins by placing a measuring tool into the capsule. Next, air with equivalent pressure is supplied to the capsule and the master, then the valves are closed. If none of the air in the capsule seeps into the measuring tool, the capsule's air pressure will remain equal to that in the master, and the differential pressure gage will continue to point to the center. However, if some air does seep into the measuring tool, it will create an air pressure difference in the amount indicated by the differential pressure gage. Thus, detection of air pressure differences is used as a criterion for judging leakage. Every single unit of the ABS Coolant Proof calipers and Coolant Proof micrometer is tested this way for air leakage to help ensure product quality.



IP67 protection level

- Level 6: Dust-tight
No ingress of dust.
- Level 7: Protected against the effects of temporary immersion in water.
Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed 1 meter in water under standardized conditions of pressure and time (30 min.).



SPECIFICATIONS

Metric IP67 model

Range	Order No.	Accuracy	Resolution	Remarks
0-150mm	500-702-10*	+/-0.02mm	0.01mm	
0-150mm	500-712-10	+/-0.02mm	0.01mm	
0-150mm	500-719-10	+/-0.02mm	0.01mm	dia. 1.9mm rod depth bar
0-150mm	500-721-10	+/-0.02mm	0.01mm	carbide-tipped jaws for ID measurement
0-150mm	500-723-10	+/-0.02mm	0.01mm	carbide-tipped jaws for OD & ID measurement
0-200mm	500-703-10*	+/-0.02mm	0.01mm	
0-200mm	500-713-10	+/-0.02mm	0.01mm	
0-200mm	500-722-10	+/-0.02mm	0.01mm	carbide-tipped jaws for ID measurement
0-200mm	500-724-10	+/-0.02mm	0.01mm	carbide-tipped jaws for OD & ID measurement
0-300mm	500-704-10*	+/-0.03mm	0.01mm	
0-300mm	500-714-10	+/-0.03mm	0.01mm	

*without SPC data output

Inch/Metric IP67 model

Range	Order No.	Accuracy	Resolution	Remarks
0-6"/0-150mm	500-752-10*	+/- .001"	.0005"/0.01mm	
0-6"/0-150mm	500-762-10	+/- .001"	.0005"/0.01mm	
0-6"/0-150mm	500-768-10*	+/- .001"	.0005"/0.01mm	.075" rod depth bar
0-6"/0-150mm	500-769-10	+/- .001"	.0005"/0.01mm	.075" rod depth bar
0-6"/0-150mm	500-731-10*	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for ID measurement
0-6"/0-150mm	500-735-10	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for ID measurement
0-6"/0-150mm	500-733-10*	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD & ID measurement
0-6"/0-150mm	500-737-10	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD & ID measurement
0-8"/0-200mm	500-753-10*	+/- .001"	.0005"/0.01mm	
0-8"/0-200mm	500-763-10	+/- .001"	.0005"/0.01mm	
0-8"/0-200mm	500-732-10*	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD measurement
0-8"/0-200mm	500-736-10	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for ID measurement
0-8"/0-200mm	500-734-10*	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD & ID measurement
0-8"/0-200mm	500-738-10	+/- .001"	.0005"/0.01mm	carbide-tipped jaws for OD & ID measurement
0-12"/0-300mm	500-754-10*	+/- .0015"	.0005"/0.01mm	
0-12"/0-300mm	500-764-10	+/- .0015"	.0005"/0.01mm	

*without SPC data output

DIMENSIONS AND MASS

Unit: mm						
Range	L	a	b	c	e	Mass (g)
0 - 6" / 0 - 150mm	233	40	21	16.5	16	168
0 - 8" / 0 - 200mm	290	50	24.5	20	16	198
0 - 12" / 0 - 300mm	404	64	27.5	22	20	350

ABS Digimatic Caliper

IP67 ABS Coolant Proof Caliper

User's Manual

No. 99MAD030A

Date of publication: July 1, 2021 (1)

Safety Precautions

To ensure operator safety, use this product according to the directions, functions and specifications given in this User's Manual. Use under other conditions may compromise safety.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

- Always keep batteries out of reach of children, and if swallowed, consult a physician immediately.
- Batteries should never be short-circuited, disassembled, deformed or come in contact with extreme heat or flames.
- If alkaline liquid contained in the battery does come in contact with your eyes, flush them immediately with plenty of clean water and consult a physician. If the liquid adheres to the skin or clothes, immediately flush it with plenty of clean water.
- Do not measure the workpiece if it is rotating. There is a risk of injury due to being caught in the machine, etc.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

- The outside and inside measuring jaws of this caliper have sharp edges. Handle it with great care to avoid injury.

■ Conventions and wording indicating prohibited and mandatory actions



Indicates concrete information about prohibited actions.



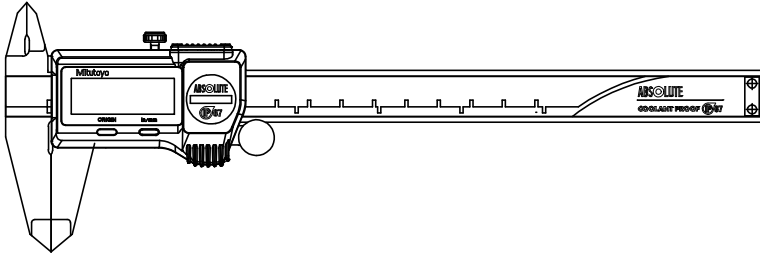
Indicates concrete information about mandatory actions.

Contents

1	Type and Code Number.....	2	10	Errors and Countermeasures.....	7
2	Names of Components.....	2	11	Precautions after Use.....	7
3	Precautions for Use.....	3	12	Specifications	7
4	Product Applications.....	3	13	Standard Accessories	8
5	Basic Usage.....	3	14	Optional Accessories	8
6	Confirmation before Measurement..	3	15	Output Specifications	8
7	Installing the Battery and Setting the Origin	4			
8	In/mm Conversion	4			
9	Measurement Method.....	5			

1. Type and Code Number

■ Standard type: with output function and thumb roller



Code No.	500-712-20	500-713-20	500-714-20	500-719-20*	500-762-20
	500-763-20	500-764-20	500-768-20	500-769-20*	

*Depth bar: $\varnothing 1.9$ mm rod

● Model with carbide-tipped jaws for outside measurement

Code No.	500-721-20	500-722-20	500-731-20*	500-732-20*	500-735-20
	500-736-20				

*without output function

● Model with carbide-tipped jaws for outside and inside measurement

Code No.	500-723-20	500-724-20	500-733-20*	500-734-20*	500-737-20
	500-738-20				

● Model without output function

Code No.	500-702-20	500-703-20	500-704-20	500-752-20	500-754-20
	500-768-20*				

*Depth bar: $\varnothing 1.9$ mm rod

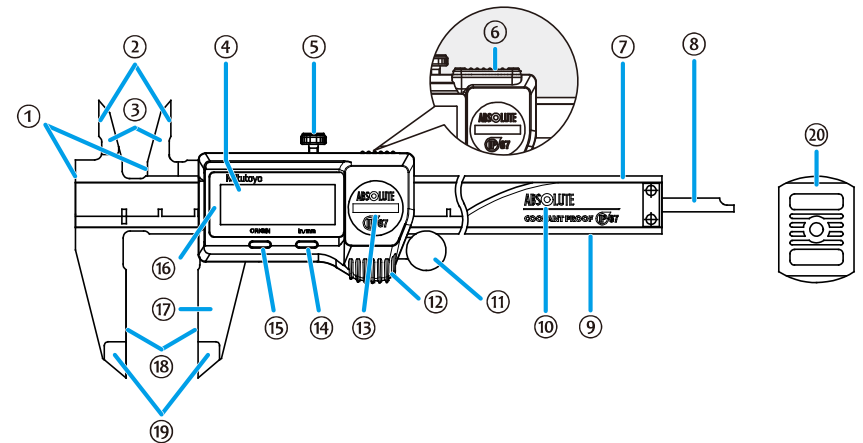
● Model without thumb roller

Code No.	500-716-20	500-717-20	500-718-20
----------	------------	------------	------------

● Model without output function and thumb roller

Code No.	500-706-20	500-707-20	500-708-20
----------	------------	------------	------------

2. Names of Components



- | | |
|---|--|
| ① Step measuring surface | ⑪ Thumb roller (only for the type with the thumb roller) |
| ② Inside measuring surface | ⑫ Thumb rest |
| ③ Inside measuring jaws | ⑬ Battery lid |
| ④ LCD part | ⑭ [in/mm] switch (only for the model using inches) |
| ⑤ Slider clamp screw | ⑮ [ORIGIN] switch |
| ⑥ Connector cap (only for the model with the output function) | ⑯ Module part |
| ⑦ Beam | ⑰ Slider |
| ⑧ Depth bar | ⑱ Outside measuring surface |
| ⑨ Sliding surface (reference surface) | ⑲ Outside measuring jaws |
| ⑩ Scale | ⑳ Battery lid key |

3. Precautions for Use

NOTICE

Indicates a potentially hazardous situation which, if not avoided, may result in property damage.



- Do not use an electric engraver to put marks on the product such as numbers.
- Do not drop the product or apply excessive force to it.
- Do not scratch the main scale surface.

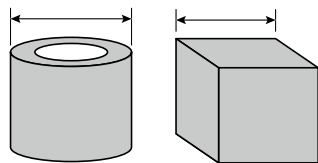


- Keep the operation temperature and storage temperature.
- After use, take corrosion prevention measures. Corrosion can cause the product to malfunction.
- If the product will not be used for more than three months, remove the battery from and store it properly. Otherwise, liquid may leak from the battery and damage the product.
- For protecting the detection/display module from dust and water sufficiently, tighten the setscrews to secure the battery compartment lid. Also do not remove the packing seal.

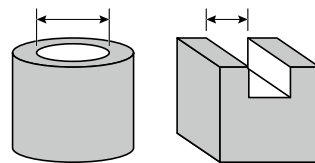
- - Before using this product for the first time, wipe the rust preventive oil from the product with a soft cloth soaked with cleaning oil, and install the supplied battery.
- - If rust preventive oil is dried, the product might not operate smoothly. Wipe a sliding surface with a cloth and then apply a little oil to use the product. This can make the product operate smoothly.

4. Product Applications

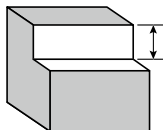
Outside measurement



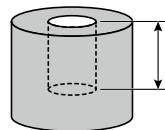
Inside measurement



Step measurement



Depth measurement



5. Basic Usage

■ Using the caliper

Grasp the beam lightly with your right hand, put your right thumb on the thumb rest, and move the slider horizontally to measure.

■ Fixing the slider

The measurement value readings are usually taken with the workpiece clamped (or in close contact). However, depending on the measuring location, the orientation during measurement and so on, it may be difficult to get a reading in this position. In this case, tighten the slider clamp screw, move the caliper carefully away from the workpiece, and read the display.

■ Using the thumb roller

The thumb roller is a fine feeding device, and not a constant-force device. Measuring force tends to be large when measuring with the thumb roller. Carefully apply an appropriate and even measuring force when using the thumb roller.

■ Using the switch (about Icons)



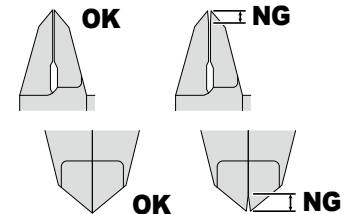
6. Confirmation before Measurement

■ Confirming Slider Movement

- Confirm that there is no irregular slider movement and that the slider moves smoothly throughout the measurement range.
- Confirm that there is no play of the slider in the vertical direction against the sliding surface.

■ Confirming Clearance (Wear) between Measuring surfaces

- When the outside measuring jaws are closed and held to the light, confirm that there is no slit observed between the jaws against the light, or that a faint light is uniformly visible. As well, confirm that the jaw tips are not deformed.
- When the inside measuring jaws are closed and held to the light, observing the jaws obliquely, confirm that a light is uniformly visible, and that the tips are not deformed.



7. 電池のセットと ORIGIN（原点）設定

注記

取り扱いを誤った場合、「物的損害の発生が想定される」内容を示します。

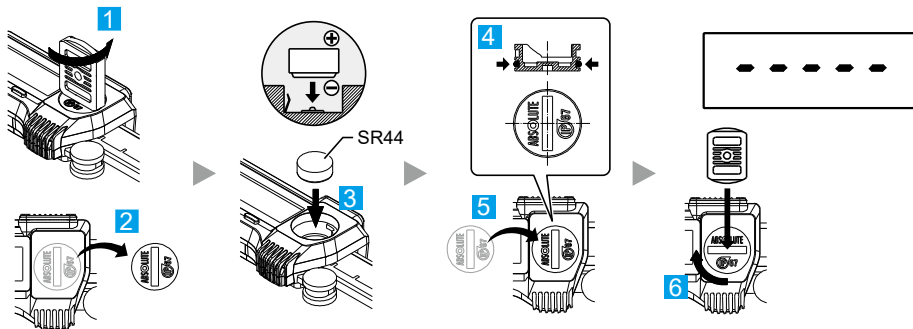
- 電池は必ず SR44（酸化銀ボタン電池）をご使用ください。付属の電池は、機能や性能を確認するためのものです。所定の寿命を満足しない場合があります。
- 電池をセットするときは、電池端子が破損しないようにご注意ください。



消耗した電池の廃棄にあたっては、条例、規制などに従ってください。

7.1 電池のセット

- 1 付属の電池蓋キーを電池蓋の溝に差し込み、溝が垂直になるまで押し込みながら反時計回りに回して電池蓋を緩める
- 2 緩んだ電池蓋を取り除く
- 3 電池（SR44）のプラス側を上にしてセットする
- 4 電池蓋のパッキンがよじれないで正しく取り付けられていることを確認する
- 5 電池蓋の溝が垂直（下図）になるようにして、電池蓋を乗せる
- 6 電池蓋キーを電池蓋の溝に差し込み、押し込みながら溝が水平になるまで時計回りに回して電池蓋を取り付ける
» 「----」の表示が点滅する。
引き続き ORIGIN（原点）設定を行ってください。

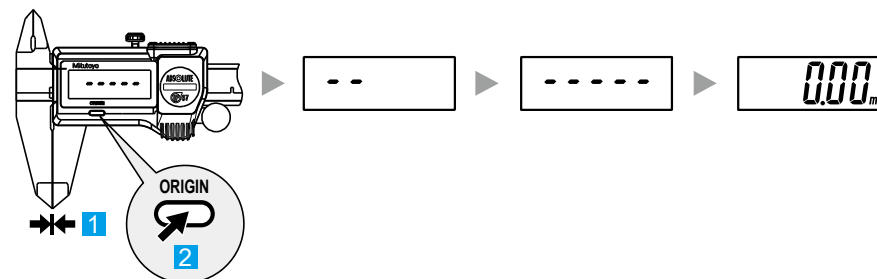


Tips

電池をセットした後は、必ず ORIGIN（原点）設定を行ってください。

7.2 ORIGIN（原点）設定

- 1 外側用測定面を閉じた状態にする
- 2 [ORIGIN] スイッチを長く押す
» 「0.00」と表示され、ORIGIN（原点）が設定される。



Tips

[ORIGIN] スイッチを押して ORIGIN（原点）が設定されるまでの間、スライダを移動しないでください。正常にカウントしない場合があります。

■ オートオフ、オートオン機能

約 20 分間スライダを動かさないと表示が消えます（原点位置は常に記憶されています）。再度表示させたいときは、スライダを動かしてください。

9. Measurement Method



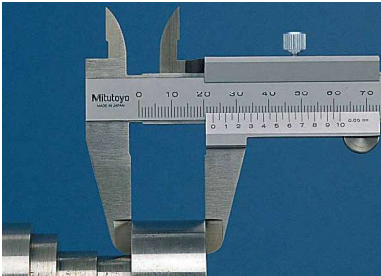
WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



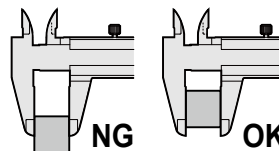
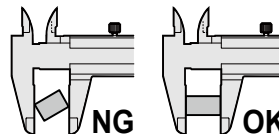
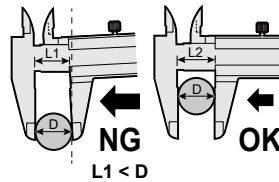
Do not measure the workpiece with the caliper if it is rotating, etc. Measuring surfaces will be worn out.

Outside measurement



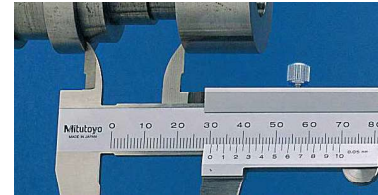
Picture: Vernier caliper

- Do not apply excessive force to the workpiece. Excessive measuring force will cause measurement error because of the positional deviations of the jaws.
- Do not clamp the workpiece diagonally. Measurement error will ensue if tilted.
- Clamp the workpiece as close to the sliding surface as possible. Measurement error is more likely to increase if clamped near the outside measuring jaw tips.



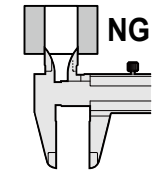
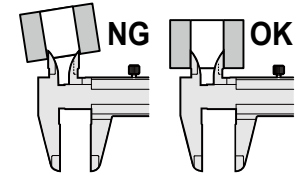
- 1 Insert the workpiece into the outside measuring jaws and bring jaws into close contact with the workpiece, using appropriate and uniform measuring force.
- 2 Read the display while keeping the outside measuring surfaces in close contact.

Inside measurement

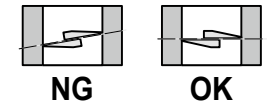
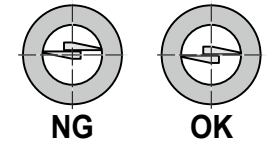


Picture: Vernier caliper

- Insert the inside measuring jaws as deeply as possible into the workpiece.

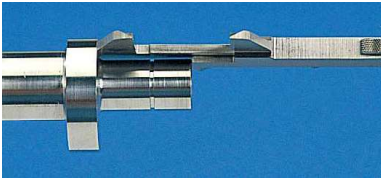


- For inner diameter measurement, bring the inside measuring surfaces into close contact, and read the display when it is maximum: a direct line between the measuring surfaces passes through the center of the cross-section.
- For groove width measurement, bring the inside measuring surfaces into close contact, and read the display when it is minimum: a direct line between the faces is perpendicular to the groove inner wall.



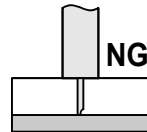
- 1 Insert the inside measuring jaws into the workpiece, and bring jaws into close contact with the workpiece interior using appropriate and uniform measuring force.
- 2 Read the display while keeping the inside measuring surfaces in close contact.

■ Step measurement

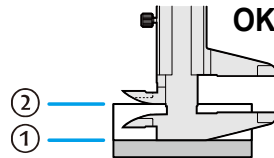


Picture: Vernier caliper

- Do not use a depth bar for step measurement, as the small contact area with the workpiece makes it difficult to retain a stable orientation.



- For a stepped workpiece, bring the entire step measuring surfaces (①, ②) into close contact with the workpiece.



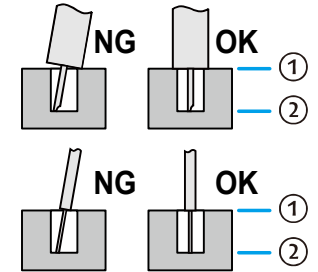
- 1 Bring the step measuring surface (①, beam side) into close contact with the workpiece.
- 2 Move the slider until the step measuring surface (②, slider side) strikes the workpiece (stepped surface).
- 3 Read the display while keeping the step measuring surfaces in close contact.

■ Depth measurement



Picture: Vernier caliper

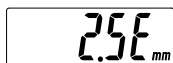
The depth measuring surface of the caliper is narrow and unstable. Bring it into contact perpendicular with the workpiece.



- 1 Bring the depth measuring surface (beam side) into close contact with the workpiece.
- 2 Move the slider until the depth measuring surface (depth bar side) makes contact.
- 3 Read the display while keeping the depth measuring surfaces in close contact.

10. Errors and Countermeasures

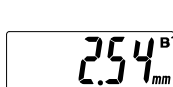
■ Minimum digit “E” display



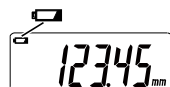
This digit appears if the surface of the scale is dirty to an immeasurable degree. Clean the surface of the scale cover.

If “E” still appears even after the surface of the scale cover is cleaned, reinstall the battery. Nevertheless, if it does not disappear, remove the battery, and then contact your distributor or sales office.

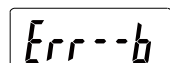
■ “B”, “” and “Err--b” display



B



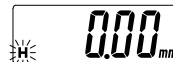
“B” indicates the voltage drop of the battery. Replace the battery immediately. (For instructions on replacing the battery, see “8.”).



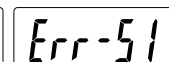
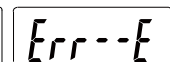
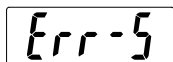
■ If all five digits have the same number, or if “H” blinks



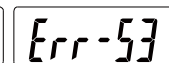
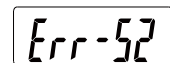
Remove the battery temporarily, and then reinstall it.



■ Other errors



If the error shown in the figure occurs, set the origin again.



11. Precautions after Use

- If there is dirt on the measuring surface, reference surfaces, sliding surface, etc., wipe it away with a dry cloth or a cloth slightly moistened with alcohol.
- For long-term disuse, wipe away any dirt carefully and apply a light coating of rust preventive oil before storage.
- Do not store in locations with high temperatures, low temperatures, high humidity, or exposure to direct sunlight.

12. Specifications

Resolution	0.01 mm
Maximum permissible error E_{MPE} (outside measurement) S_{MPE} (inside measurement)	 See “MPE (E_{MPE} , S_{MPE})”.
Protection level	IP67* *IP67 protection level (See IEC 60529 for details.) - Protection against foreign matter (level 6) : Foreign matter does not enter - Protection against water (level 7) : The module is protected against water damage to a depth of one meter for 30 minutes.
Maximum response speed	No limit (no miscount caused by speed)
Power supply	SR44 (silver oxide battery) 1 pc
Battery life	A continuous use of about 18,000 hours, A typical use of about 5 years The battery life depends on how many times and in which ways it is used. Remember that the above values are a guideline. The value of the typical use has been calculated assuming that the product is used for about five hours per day.
Operating temperature	0 °C to 40 °C
Storage temperature	-10 °C to 60 °C

The display of this product may flicker or turn off due to electromagnetic interference by electrostatic charge, but it returns to the normal state after the electromagnetic interference is cleared.

13. Standard Accessories

- SR44 silver oxide battery (No. 938882, 1 pc)
- Phillips screwdriver (No. 05CZA619, 1 pc)
- Warranty (1 copy)
- User's Manual (No. 99MAD030M, 1 copy)

14. Optional Accessories

***only for the type with the output function**

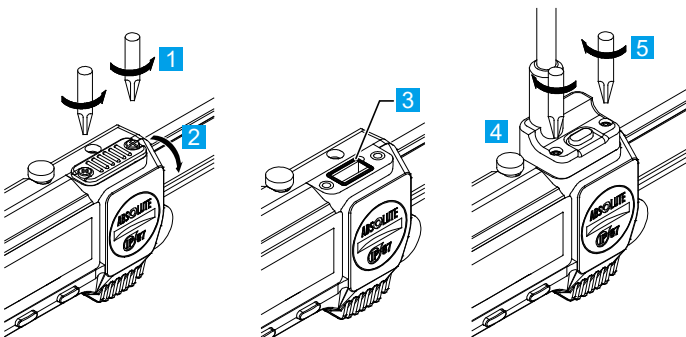
Connection cable (with the output switch)	No. 05CZA624 (1 m), No.05CZA625 (2 m)
---	---------------------------------------

● Setting the connection cable

Set the connection cable by following the procedure below.

To fasten or remove screws, use the supplied screwdriver (No. 05CZA619) (recommended) or a commercial No. 0 screwdriver with a 5 to 8 N•cm tightening torque. Excessive tightening may degrade performance.

- 1 Remove the connector cover mount screws (M1.7 x 0.35 x 2.5/No. 09GAA376) with the above screwdriver.**
- 2 Remove the connector cover.**
- 3 Make sure that the packing is attached in place (Do not remove it).**
- 4 Connect the connection cable.**
- 5 Tighten the plug of the connection cable with the mount screws by holding down it with your fingers.**

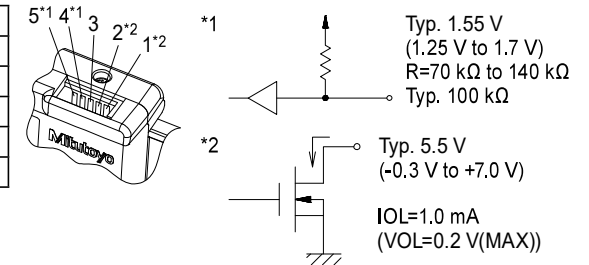


15. Output Specifications

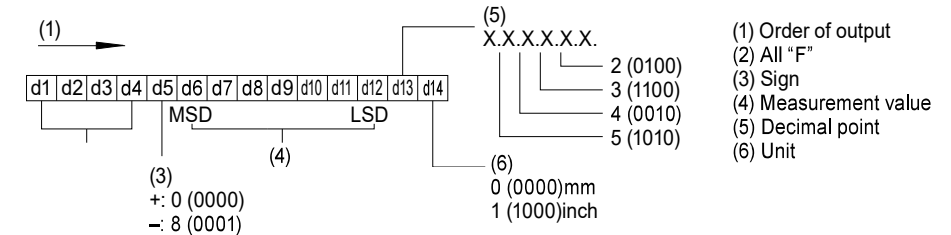
***only for the type with the output function**

■ Connector pin alignment

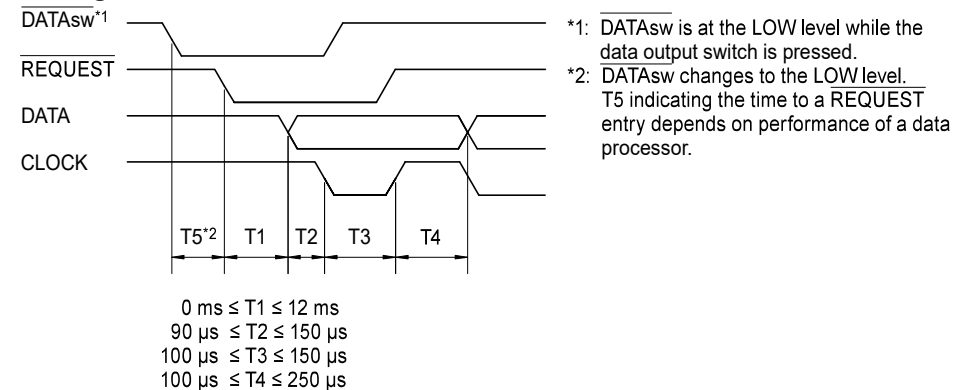
Pin No.	I/O	Signal
1	-----	GND
2 (*2)	O	DATA
3 (*2)	O	CLOCK
4	-----	-----
5 (*1)	I	REQUEST



■ Data format



■ Timing chart



©2020 Mitutoyo Corporation. All rights reserved.

Mitutoyo Corporation

20-1, Sakado 1-Chome, Takatsu-ku, Kawasaki-shi, Kanagawa 213-8533, Japan

URL: <https://www.mitutoyo.co.jp>

Printed in Japan

No. 99MAD030A

MPE ($EMPE$, $SMPE$)

500 Sereis

0.01 mm

*L (mm)	$EMPE$ (mm)	$SMPE$ (mm)
$0 \leq L \leq 200$	± 0.02	± 0.04
$200 < L \leq 300$	± 0.03	± 0.05

0.01 mm / 0.0005 in

*L (mm)	$EMPE$ (mm)	$SMPE$ (mm)	*L (inch)	$EMPE$ (inch)	$SMPE$ (inch)
$0 \leq L \leq 200$	± 0.02	± 0.04	$0 \leq L \leq 8$	± 0.0010	± 0.0020
$200 < L \leq 300$	± 0.03	± 0.05	$8 < L \leq 12$	± 0.0015	± 0.0025

*L

jp	測定長さ	sv	Måtlängd	zh-CN	测量长度
en	Measuring length	pt	Comprimento de medição	zh-TW	量測長度
de	Messlänge	cs	Měřná délka	th	ความยาวในการวัดสูงสุด
es	Longitud de medición	pl	Długość pomiaru	vi	Độ dài đo lường
fr	Longueur de mesure	ru	Длина измерения	ms	Panjang pengukuran
nl	Meetlengte	tr	Ölçme uzunluğu	id	Panjang pengukuran
it	Lunghezza di massima	ko	대 측정 길이		