

# Calipers

An industry standard measuring tool

## ABSOLUTE Coolant Proof Carbon Fiber Caliper SERIES 552 — with Standard jaws

- IP66 Absolute Digital Caliper (Refer to page D-6 for details on the Absolute function.)
- Lightweight Digimatic Calipers that employ CFRP (Carbon Fiber Reinforced Plastics) in the beam.
- Allows integration into statistical process control and measurement systems for models with measurement data output connector. (Refer to page A-3.)



552-303-10

### SPECIFICATIONS

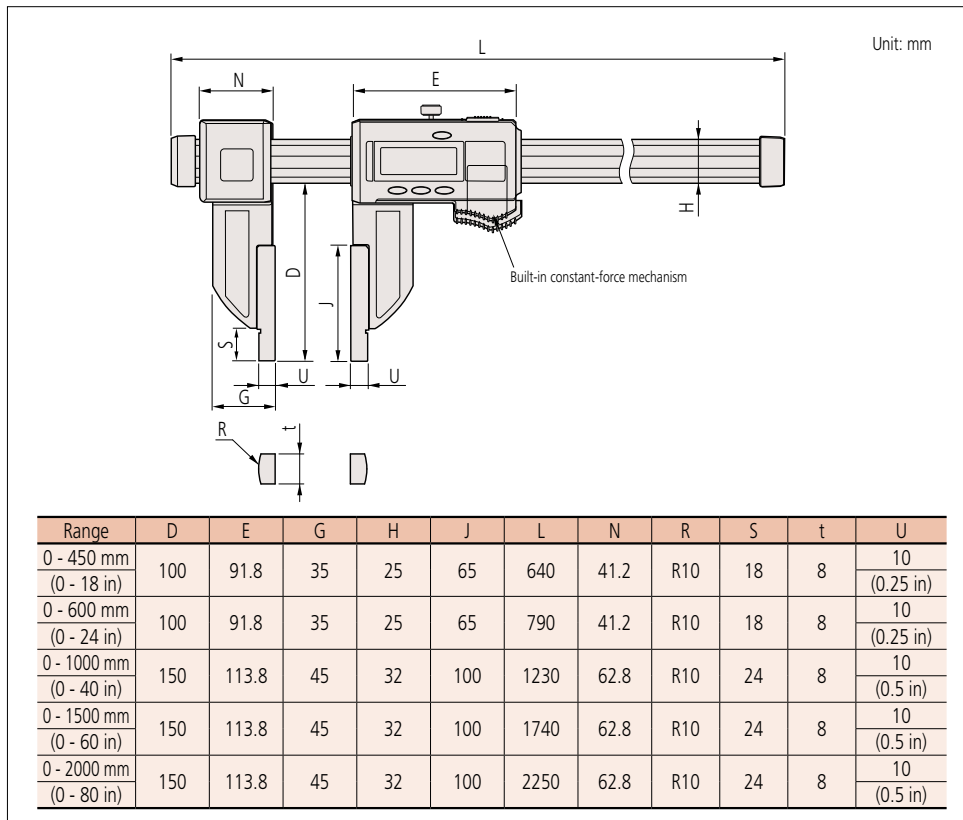
Metric				Inch/Metric			
Order No.	Range (mm)*1	Maximum permissible error (mm)*2		Order No.	Range (in)*1	Maximum permissible error (in)*2	
		EMPE	SMPE			EMPE	SMPE
552-302-10	0 - 450 (20.1 - 470)	±0.04	±0.04	552-312-10	0 - 18 (0.504 - 18.5)	±0.002	±0.002
552-303-10	0 - 600 (20.1 - 620)	±0.04	±0.04	552-313-10	0 - 24 (0.504 - 24.5)	±0.002	±0.002
552-304-10	0 - 1000 (20.1 - 1020)	±0.05	±0.05	552-314-10	0 - 40 (1.004 - 40.5)	±0.002	±0.002
552-305-10	0 - 1500 (20.1 - 1520)	±0.09	±0.09	552-315-10	0 - 60 (1.004 - 60.5)	±0.004	±0.004
552-306-10	0 - 2000 (20.1 - 2020)	±0.12	±0.12	552-316-10	0 - 80 (1.004 - 80.5)	±0.005	±0.005

\*1 ( ): Dimension in inside measurement

\*2 Partial Surface Contact Error, EMPE and Shift Error, SMPE are terms (notations) used in ISO 13385-1:2019.

Note: A constant-force mechanism is used in the finger rest; however, this is only an auxiliary mechanism to avoid measurement error caused by excessive measuring force. To measure with good accuracy, use the minimum necessary measuring force for the caliper measuring faces to make sufficient contact with the workpiece. Refer to page D-39 for details.

### DIMENSIONS



MeasurLink ENABLED  
Data Management Software by Mitutoyo

Products equipped with the measurement data output function can be connected to the measurement data network system MeasurLink® (refer to page A-25 for details).

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### Technical Data

- Resolution: 0.01 mm or 0.0005 in/0.01 mm
- Material of jaws: Stainless Steel Hardened
- Display: LCD
- Scale type: ABSOLUTE electromagnetic induction linear encoder
- Max. response speed: Unlimited
- Battery: SR44 (1 pc.), **938882**, for initial operational checks (standard accessory)
- Battery life: Approx. 5,000 hours in continuous use
- Dust/Water protection level: IP66 (IEC60529)\*
- Standard accessory: Jaw clamps (2 pcs.), 05GZA033
- \* Rustproofing shall be applied after use if caliper was in contact with coolant.

### Functions

- Zero-setting
  - Data hold
  - Offsetting
  - Presetting
  - Data output
  - Low-power and low-voltage alert
  - Counting value composition error
  - Automatic power on/off, inch/mm reading (inch/mm models)
- Note: LCD display turns off after 20 minutes inactivity but the ABS scale unit origin is stored. Moving the slider restores the display.

## Optional Accessories

For details, refer to page A-21.

- Connecting cables for **IT/DP/MUX**

**05CZA624:** SPC cable with data button (1 m)

**05CZA625:** SPC cable with data button (2 m)



- USB Input Tool Direct

**06AFM380A:** SPC cable for **USB-ITN-A** (2 m)

- Connecting cables for **U-WAVE-T**

**02AZD790A:** SPC cable with data button (160 mm)

**02AZE140A:** SPC cable for foot switch

## Optional accessories

Metric	552-302-10, 552-155-10, 552-303-10 and 552-156-10	552-304-10, 552-305-10 and 552-306-10
Clamp box (1 pair)	914053	914054
Distance measurement jaw (1 pair)	914055	
Point ID measurement jaw (1 pair)	914057	

Inch/Metric	552-312-10, 552-165-10, 552-313-10 and 552-166-10	552-314-10, 552-315-10 and 552-316-10
Clamp box (1 pair)	914053	914054
Distance measurement jaw (1 pair)	914056	
Point ID measurement jaw (1 pair)	914058	

<p>Distance measurement jaw</p>	<p>Clamp box</p>
<p>Point ID measurement jaw</p>	<p>Distance measurement jaw Accuracy: <math>\pm 0.03</math> mm*</p> <p>Point ID measurement jaw Accuracy: <math>\pm 0.02</math> mm*</p>

\* Accuracies shown in the diagrams are of each accessory and accuracy resulting in mounting them on the main body is not guaranteed.

# Calipers

An industry standard measuring tool

## ABSOLUTE Coolant Proof Carbon Fiber Caliper SERIES 552 - with Long Jaws

- IP66 Absolute Digital Caliper (Refer to page D-6 for details on the Absolute function.)
- Lightweight Digimatic Calipers that employ CFRP (Carbon Fiber Reinforced Plastics) in the beam.
- Allows integration into statistical process control and measurement systems for models with measurement data output connector. (Refer to page A-3.)



### SPECIFICATIONS

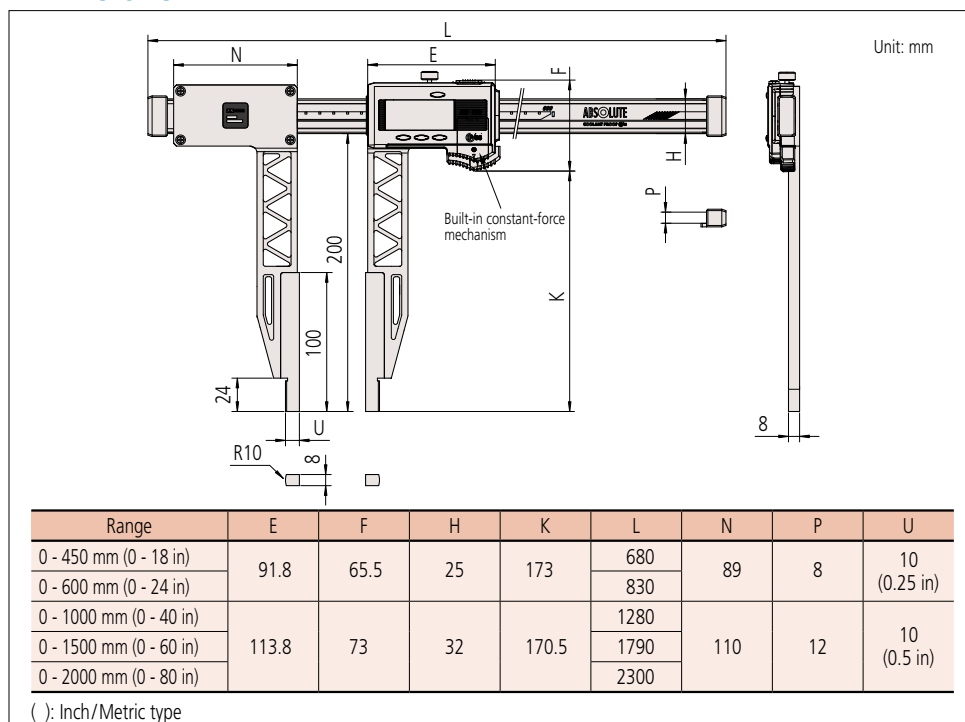
Metric				Inch / Metric			
Order No.	Range (mm)*1	Maximum permissible error (mm)*2		Order No.	Range (in)*1	Maximum permissible error (in)*2	
		EMPE	SMPE			EMPE	SMPE
552-150-10	0 - 450 (20.1 - 470)	±0.06	±0.06	552-160-10	0 - 18 (0.504 - 18.5)	±0.0025	±0.0025
552-151-10	0 - 600 (20.1 - 620)	±0.06	±0.06	552-161-10	0 - 24 (0.504 - 24.5)	±0.0025	±0.0025
552-152-10	0 - 1000 (20.1 - 1020)	±0.07	±0.07	552-162-10	0 - 40 (1.004 - 40.5)	±0.003	±0.003
552-153-10	0 - 1500 (20.1 - 1520)	±0.11	±0.11	552-163-10	0 - 60 (1.004 - 60.5)	±0.0045	±0.0045
552-154-10	0 - 2000 (20.1 - 2020)	±0.14	±0.14	552-164-10	0 - 80 (1.004 - 80.5)	±0.0055	±0.0055

\*1 ( ): Dimension in inside measurement

\*2 Partial Surface Contact Error,  $E_{MPE}$  and Shift Error,  $S_{MPE}$  are terms (notations) used in ISO 13385-1:2019.

Note: A constant-force mechanism is used in the finger rest; however, this is only an auxiliary mechanism to avoid measurement error caused by excessive measuring force. To measure with good accuracy, use the minimum necessary measuring force for the caliper measuring faces to make sufficient contact with the workpiece. Refer to page D-39 for details.

### DIMENSIONS



( ): Inch/Metric type

MeasurLink ENABLED  
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Products equipped with the measurement data output function can be connected to the measurement data network system MeasurLink® (refer to page A-25 for details).

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### Technical Data

- Resolution: 0.01 mm or 0.0005 in/0.01 mm
- Material of jaws: Stainless Steel Hardened
- Max. response speed: Unlimited
- Battery: SR44 (1 pc.), **938882**, for initial operational checks (standard accessory)
- Battery life: Approx. 5,000 hours in continuous use
- Dust/Water protection level: IP66 (IEC 60529)\*
- Standard accessory: Jaw clamps (2 pcs.), 05GZA033
- \* Rustproofing shall be applied after use if caliper was in contact with coolant.

### Functions

- Zero-setting
- Data hold
- Offsetting
- Presetting
- Data output
- Low-power and low-voltage alert
- Counting value composition error
- Automatic power on/off, inch/mm reading (inch/mm models)

### Optional Accessories

For details, refer to page A-21.

- Connecting cables for **IT/DP/MUX**
- 05CZA624**: SPC cable with data button (1 m)
- 05CZA625**: SPC cable with data button (2 m)



- USB Input Tool Direct
- 06AFM380A**: SPC cable for **USB-ITN-A** (2 m)
- Connecting cables for **U-WAVE-T**
- 02AZD790A**: SPC cable with data button (160 mm)
- 02AZE140A**: SPC cable for foot switch

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### Technical Data

- Resolution: 0.01 mm or 0.0005 in/0.01 mm
- Material of jaws: Ceramic
- Display: LCD
- Scale type: ABSOLUTE electromagnetic induction linear encoder
- Max. response speed: Unlimited
- Battery: SR44 (1 pc.), **938882**, for initial operational checks (standard accessory)
- Battery life: Approx. 5,000 hours in continuous use
- Dust/Water protection level: IP66 (IEC 60529)\*
- Standard accessory: Jaw clamps (2 pcs.), 05GZA033
- \* Rustproofing shall be applied after use if caliper was in contact with coolant.

### Functions

- Zero-setting
- Data hold
- Offsetting
- Presetting
- Data output
- Low-power and low-voltage alert
- Counting value composition error
- Automatic power on/off, inch/mm reading (inch/mm models)

### Optional Accessories

For details, refer to page A-21.

- Connecting cables for **IT / DP / MUX**
- 05CZA624**: SPC cable with data button (1 m)
- 05CZA625**: SPC cable with data button (2 m)

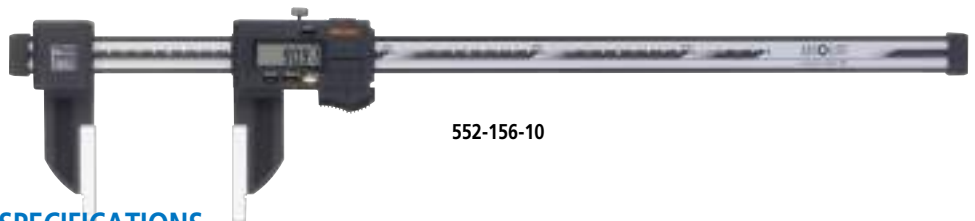


- USB Input Tool Direct
- 06AFM380A**: SPC cable for **USB-ITN-A** (2 m)
- Connecting cables for **U-WAVE-T**
- 02AZD790A**: SPC cable with data button (160 mm)
- 02AZE140A**: SPC cable for foot switch

## ABSOLUTE Coolant Proof Carbon Fiber Caliper SERIES 552 - with Ceramic Jaws

MeasurLink<sup>®</sup> ENABLED  
Data Management Software by Mitutoyo

- IP66 Absolute Digital Caliper (Refer to page D-6 for details on the Absolute function.)
- Lightweight Digimatic Calipers that employ CFRP (Carbon Fiber Reinforced Plastics) in the beam.
- Allows integration into statistical process control and measurement systems for models with measurement data output connector. (Refer to page A-3.)
- The zirconia-ceramic jaws make this caliper suitable for measuring moderately magnetic workpieces. However, since steel is used in the main unit, it may not be suitable for measuring strongly magnetic workpieces.



### SPECIFICATIONS

Order No.	Range (mm)* <sup>1</sup>	Maximum permissible error (mm)* <sup>2</sup>	
		<i>E</i> <sub>MPE</sub>	<i>S</i> <sub>MPE</sub>
<b>552-155-10</b>	0 - 450 (20.1 - 470)	±0.04	±0.04
<b>552-156-10</b>	0 - 600 (20.1 - 620)	±0.04	±0.04

\*1 ( ) : Dimension in inside measurement

\*2 Partial Surface Contact Error, *E*<sub>MPE</sub> and Shift Error, *S*<sub>MPE</sub> are terms (notations) used in ISO 13385-1:2019.

Note: A constant-force mechanism is used in the finger rest; however, this is only an auxiliary mechanism to avoid measurement error caused by excessive measuring force. To measure with good accuracy, use the minimum necessary measuring force for the caliper measuring faces to make sufficient contact with the workpiece. Refer to page D-39 for details.

Order No.	Range (in)* <sup>1</sup>	Maximum permissible error (in)* <sup>2</sup>	
		<i>E</i> <sub>MPE</sub>	<i>S</i> <sub>MPE</sub>
<b>552-165-10</b>	0 - 18 (0.504 - 18.5)	±0.002	±0.002
<b>552-166-10</b>	0 - 24 (0.504 - 24.5)	±0.002	±0.002

\*1 ( ) : Dimension in inside measurement

\*2 Partial Surface Contact Error, *E*<sub>MPE</sub> and Shift Error, *S*<sub>MPE</sub> are terms (notations) used in ISO 13385-1:2019.

Note: A constant-force mechanism is used in the finger rest; however, this is only an auxiliary mechanism to avoid measurement error caused by excessive measuring force. To measure with good accuracy, use the minimum necessary measuring force for the caliper measuring faces to make sufficient contact with the workpiece. Refer to page D-39 for details.

### DIMENSIONS

Unit: mm

Range	D	E	G	H	J	L	N	R	S	t
0 - 450 mm (0 - 18 in)	100	91.8	35	25	65	640	41.2	R10	18	8
0 - 600 mm (0 - 24 in)	100	91.8	35	25	65	790	41.2	R10	18	8

( ) : Inch/Metric type

# Calipers

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## ABSOLUTE Coolant Proof Carbon Fiber Caliper SERIES 552 — with Standard jaws

- IP66 Absolute Digital Caliper (Refer to page D-6 for details on the Absolute function.)
- Lightweight Digimatic Calipers that employ CFRP (Carbon Fiber Reinforced Plastics) in the beam.
- Allows integration into statistical process control and measurement systems for models with measurement data output connector. (Refer to page A-3.)



552-303-10

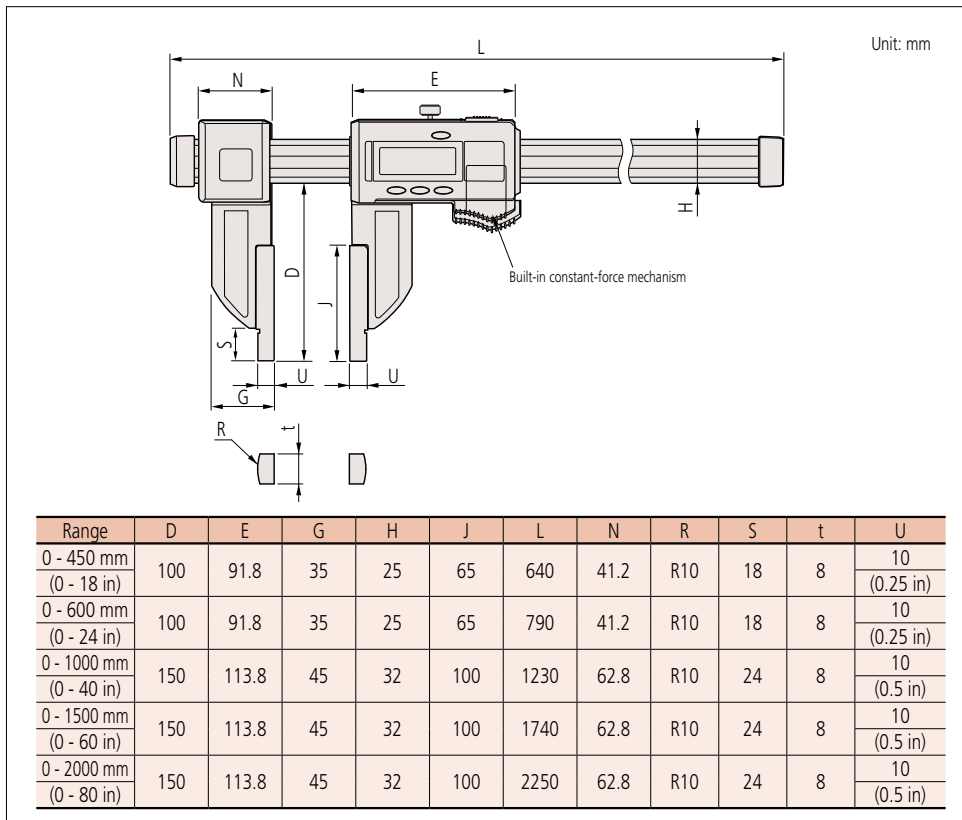
### SPECIFICATIONS

Metric			Inch / Metric		
Order No.	Range (mm)*	Accuracy (mm)	Order No.	Range (in)*	Accuracy (in)
552-302-10	0 - 450 (20.1 - 470)	±0.04	552-312-10	0 - 18 (0.504 - 18.5)	±0.002
552-303-10	0 - 600 (20.1 - 620)	±0.04	552-313-10	0 - 24 (0.504 - 24.5)	±0.002
552-304-10	0 - 1000 (20.1 - 1020)	±0.05	552-314-10	0 - 40 (1.004 - 40.5)	±0.002
552-305-10	0 - 1500 (20.1 - 1520)	±0.09	552-315-10	0 - 60 (1.004 - 60.5)	±0.004
552-306-10	0 - 2000 (20.1 - 2020)	±0.12	552-316-10	0 - 80 (1.004 - 80.5)	±0.005

\* ( ): Dimension in inside measurement

Note: A constant-force mechanism is used in the finger rest; however, this is only an auxiliary mechanism to avoid measurement error caused by excessive measuring force. To measure with good accuracy, use the minimum necessary measuring force for the caliper measuring faces to make sufficient contact with the workpiece. Refer to page D-40 for details.

### DIMENSIONS



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Products equipped with the measurement data output function can be connected to the measurement data network system MeasurLink (refer to page A-5 for details).

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### Technical Data

- Repeatability: 0.01 mm
  - Accuracy: Refer to the list of specifications. (excluding quantizing error)
  - Resolution: 0.01 mm or 0.0005 in/0.01 mm
  - Material of jaws: Stainless Steel Hardened
  - Display: LCD
  - Scale type: ABSOLUTE electromagnetic induction linear encoder
  - Max. response speed: Unlimited
  - Battery: SR44 (1 pc), **938882**, for initial operational checks (standard accessory)
  - Battery life: Approx. 5,000 hours in continuous use
  - Dust/Water protection level: IP66 (IEC60529)\*
  - Standard accessory: Jaw clamps (2 pcs.), 05GZA033
- \* Rustproofing shall be applied after use if caliper was in contact with coolant.

### Functions

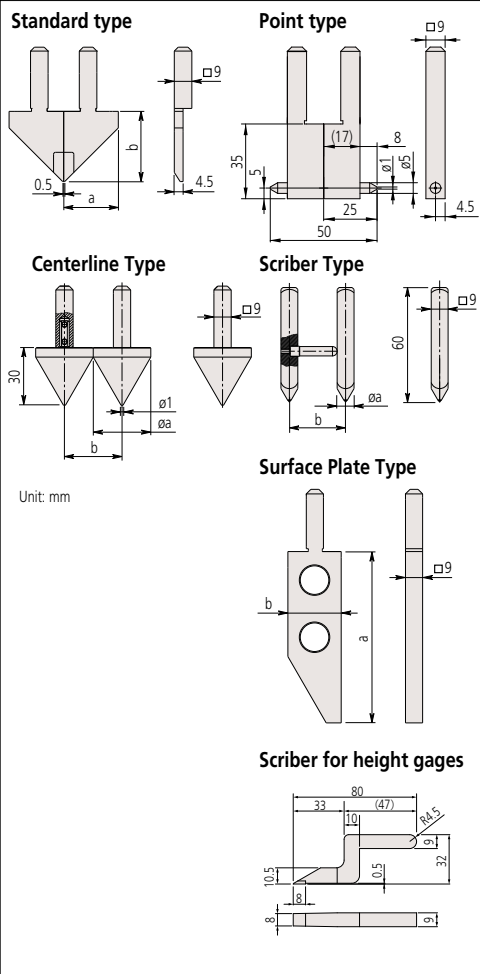
- Zero-setting
- Data hold
- Offsetting
- Presetting
- Data output
- Low-power and low-voltage alert
- Counting value composition error
- Automatic power on/off, inch/mm reading (inch/mm models)

Note: LCD display turns off after 20 minutes inactivity but the ABS scale unit origin is stored. Moving the slider restores the display.

## Optional accessories

### Interchangeable jaws

#### SPECIFICATIONS



#### Standard Type

Order No.	Components	a	b
<b>07CZA056</b>	Right ( <b>07CAA044</b> )	28 mm	36 mm
	Left ( <b>07CAA045</b> )	(1.1 in)	(1.2 in)

Note: 1 set

#### Point Type

Order No.	Components	a	b
<b>07CZA058</b>	<b>07CZA041</b> × 2 pcs.	25 mm	50 mm
	<b>07CZA059</b>	1 in	2 in

#### Centerline Type

Order No.	Components	a	b
<b>07CZA057</b>	<b>07CZA039</b> × 2 pcs.	30 mm	30 mm
	<b>07CZA060</b>	1.2 in	1.2 in

#### Scriber Type

Order No.	Components	a	b
<b>07CZA055</b>	Right ( <b>07CZA042</b> ), Left ( <b>07CZA043</b> )	8 mm	30 mm
	<b>07CZA061</b>	0.31 in	1.2 in

#### Surface Plate Type

Order No.	a	b
<b>07CZA044</b>	90 mm (3.5 in)	28 mm (1.1 in)

Note: Note that the error arising from the combination of surface plates is outside the scope of accuracy guarantee.

#### Scriber for height gages

Order No.
<b>07GZA000</b>

Type	Applicable calipers	Range	Maximum permissible error*	
			$E_{MPE}$	$S_{MPE}$
Standard type	<b>552-181-10 (552-191-10)</b>	0 - 450 mm (0 - 18 in)	±0.06 mm (±0.0025 in)	—
	<b>552-182-10 (552-192-10)</b>	0 - 600 mm (0 - 24 in)		
	<b>552-183-10 (552-193-10)</b>	0 - 1000 mm (0 - 40 in)		
	<b>552-184-10 (552-194-10)</b>	0 - 1500 mm (0 - 60 in)		
	<b>552-185-10 (552-195-10)</b>	0 - 2000 mm (0 - 80 in)		
Point type	<b>552-181-10 (552-191-10)</b>	Inside: 50.1 - 500 mm (2.004 - 20 in)	—	±0.09 mm (±0.0035 in)
		Outside: 0 - 450 mm (0 - 18 in)	±0.09 mm (±0.0035 in)	—
	<b>552-182-10 (552-192-10)</b>	Inside: 50.1 - 650 mm (2.004 - 26 in)	—	±0.09 mm (±0.0035 in)
		Outside: 0 - 600 mm (0 - 24 in)	±0.09 mm (±0.0035 in)	—
	<b>552-183-10 (552-193-10)</b>	Inside: 50.1 - 1050 mm (2.004 - 42 in)	—	±0.10 mm (±0.0040 in)
		Outside: 0 - 1000 mm (0 - 40 in)	±0.10 mm (±0.0040 in)	—
<b>552-184-10 (552-194-10)</b>	Inside: 50.1 - 1550 mm (2.004 - 62 in)	—	±0.14 mm (±0.0055 in)	
	Outside: 0 - 1500 mm (0 - 60 in)	±0.14 mm (±0.0055 in)	—	
<b>552-185-10 (552-195-10)</b>	Inside: 50.1 - 2050 mm (2.004 - 82 in)	—	±0.17 mm (±0.0070 in)	
	Outside: 0 - 2000 mm (0 - 80 in)	±0.17 mm (±0.0070 in)	—	
Centerline type	<b>552-181-10 (552-191-10)</b>	30.1 - 480 mm (1.204 - 19.2 in)	—	±0.08 mm (±0.0030 in)
	<b>552-182-10 (552-192-10)</b>	30.1 - 630 mm (1.204 - 25.2 in)		±0.10 mm (±0.0040 in)
	<b>552-183-10 (552-193-10)</b>	30.1 - 1030 mm (1.204 - 41.2 in)		±0.13 mm (±0.0055 in)
	<b>552-184-10 (552-194-10)</b>	30.1 - 1530 mm (1.204 - 61.2 in)		±0.16 mm (±0.0065 in)
	<b>552-185-10 (552-195-10)</b>	30.1 - 2030 mm (1.204 - 81.2 in)		±0.18 mm (±0.0070 in)
Scriber type	<b>552-181-10 (552-191-10)</b>	30.1 - 480 mm (1.204 - 19.2 in)	—	±0.11 mm (±0.0045 in)
	<b>552-182-10 (552-192-10)</b>	30.1 - 630 mm (1.204 - 25.2 in)		±0.15 mm (±0.0060 in)
	<b>552-183-10 (552-193-10)</b>	30.1 - 1030 mm (1.204 - 41.2 in)		±0.18 mm (±0.0070 in)
	<b>552-184-10 (552-194-10)</b>	30.1 - 1530 mm (1.204 - 61.2 in)		±0.18 mm (±0.0070 in)
	<b>552-185-10 (552-195-10)</b>	30.1 - 2030 mm (1.204 - 81.2 in)		±0.18 mm (±0.0070 in)
Surface plate type + Scriber type for height gages	<b>552-181-10 (552-191-10)</b>	0 - 450 mm (0 - 17.7 in)	±0.10 mm (±0.0040 in)	—
	<b>552-182-10 (552-192-10)</b>	0 - 600 mm (0 - 23.7 in)		
	<b>552-183-10 (552-193-10)</b>	0 - 1000 mm (0 - 39.4 in)		
	<b>552-184-10 (552-194-10)</b>	0 - 1500 mm (0 - 59.4 in)		
	<b>552-185-10 (552-195-10)</b>	0 - 2000 mm (0 - 79.4 in)		
Surface plate type + Point type	<b>552-181-10 (552-191-10)</b>	Outside: 0 - 450 mm (1 - 18 in)	±0.12 mm (±0.0050 in)	—
	<b>552-182-10 (552-192-10)</b>	Outside: 0 - 600 mm (1 - 24 in)		
	<b>552-183-10 (552-193-10)</b>	Outside: 0 - 1000 mm (1 - 40 in)		
	<b>552-184-10 (552-194-10)</b>	Outside: 0 - 1500 mm (1 - 60 in)		
	<b>552-185-10 (552-195-10)</b>	Outside: 0 - 2000 mm (1 - 80 in)		
Surface plate type + Centerline type	<b>552-181-10 (552-191-10)</b>	15.1 - 465 mm (0.6 - 18.6 in)	—	±0.11 mm (±0.0045 in)
	<b>552-182-10 (552-192-10)</b>	15.1 - 615 mm (0.6 - 24.6 in)		±0.12 mm (±0.0050 in)
	<b>552-183-10 (552-193-10)</b>	15.1 - 1015 mm (0.6 - 40.6 in)		±0.16 mm (±0.0065 in)
	<b>552-184-10 (552-194-10)</b>	15.1 - 1515 mm (0.6 - 60.6 in)		±0.19 mm (±0.0075 in)
	<b>552-185-10 (552-195-10)</b>	15.1 - 2015 mm (0.6 - 80.6 in)		±0.19 mm (±0.0075 in)

( ): Inch/Metric models

\* Partial Surface Contact Error,  $E_{MPE}$  and Shift Error,  $S_{MPE}$  are terms (notations) used in ISO 13385-1:2019.

Note: The values described in the above table are MPE values when attached to a caliper.

#### Typical applications

<p><b>Surface plate type + Standard type</b></p>	<p><b>Scriber type</b></p>
<p><b>Point type</b></p>	<p><b>Surface plate type + Scriber for height gages</b></p>
<p><b>Surface plate type + Centerline type</b></p>	<p>The above combinations are examples only. Contact us for advice on accuracy when using a contact point in a combination other than as shown above.</p>