

Depth Gage

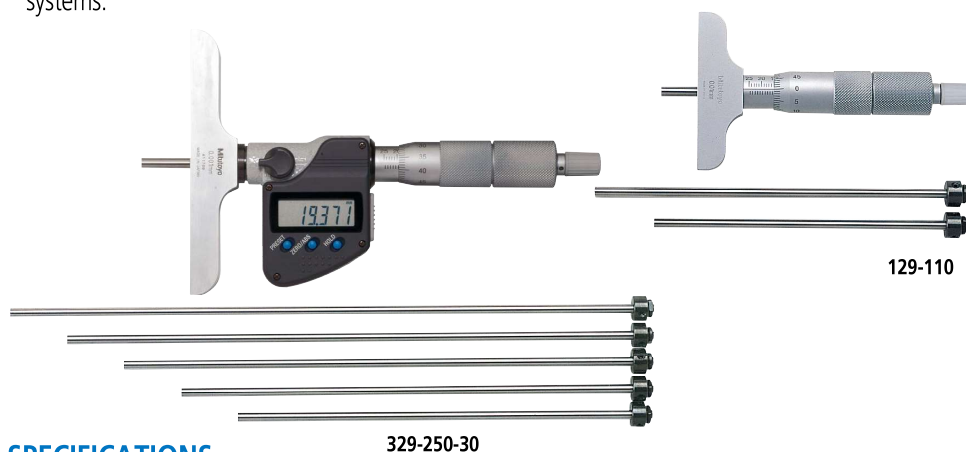
A standard measuring tool of industry

Depth Micrometer SERIES 329, 129 — Interchangeable Rod Type

MeasurLink ENABLED

Data Management Software by Mitutoyo

- This type uses interchangeable rods to enable wide-range measurement.
- **Order No. 329-250-30, 329-251-30, 329-350-30, and 329-351-30** allow integration into statistical process control and measurement systems.
- Measuring rod diameter: 4 mm
- Measuring rod lock.
- Ratchet stop provides constant measuring force.



SPECIFICATIONS

Metric							
Order No.	Range (mm)	Resolution (mm)	Base (mm)	Spindle feed error (µm)	Flatness of reference face	Flatness of measuring rod face (µm)	No. of rods
Digimatic (LCD)							
329-250-30	0 - 150	0.001	101.6×16	3	1.3 µm for 63.5 mm length base, 2 µm for 101.6 mm length base	0.3	6
329-251-30	0 - 300						12

Inch / Metric							
Order No.	Range (in)	Resolution	Base (in)	Spindle feed error	Flatness of reference face	Flatness of measuring rod face	No. of rods
Digimatic (LCD)							
329-350-30	0 - 6	0.00005 in/0.001 mm	4×0.63	0.00015 in/ 3 µm	0.00005 in/1.3 µm for 63.5 mm (2.5 in) length base, 0.00008 in/2 µm for 101.6 mm (4 in) length base	0.000012 in/ 0.3 µm	6
329-351-30	0 - 12						12

Metric							
Order No.	Range (mm)	Graduation (mm)	Base (mm)	Spindle feed error (µm)	Flatness of reference face	Flatness of measuring rod face (µm)	No. of rods
Analog							
129-154	0 - 25	0.01	63.5×16	3	1.3 µm for 63.5 mm length base, 2 µm for 101.6 mm length base	0.3	1
129-155			101.6×16				2
129-109	0 - 50	0.01	63.5×16	3	1.3 µm for 63.5 mm length base, 2 µm for 101.6 mm length base	0.3	2
129-113			101.6×16				3
129-110	0 - 75	0.01	63.5×16	3	1.3 µm for 63.5 mm length base, 2 µm for 101.6 mm length base	0.3	3
129-114	0 - 100	101.6×16	4				
129-111	0 - 100	0.01	63.5×16	3	1.3 µm for 63.5 mm length base, 2 µm for 101.6 mm length base	0.3	4
129-115	0 - 150	101.6×16	6				
129-112	0 - 150	0.01	63.5×16	3	1.3 µm for 63.5 mm length base, 2 µm for 101.6 mm length base	0.3	6
129-116	0 - 300	101.6×16	12				
129-152	0 - 300	0.01	63.5×16	3	1.3 µm for 63.5 mm length base, 2 µm for 101.6 mm length base	0.3	12
129-153	0 - 300	101.6×16	12				

Inch							
Order No.	Range (in)	Graduation (in)	Base (in)	Spindle feed error (in)	Flatness of reference face	Flatness of measuring rod face (in)	No. of rods
Analog							
129-129	0 - 2	0.001	4×0.63	0.00015	0.00005 in for 2.5 in length base, 0.00008 in for 4 in length base	0.000012	2
129-126	0 - 3		2.5×0.63				3
129-130	0 - 4	0.001	4×0.63	0.00015	0.00005 in for 2.5 in length base, 0.00008 in for 4 in length base	0.000012	4
129-127			2.5×0.63				4
129-131	0 - 4	0.001	4×0.63	0.00015	0.00005 in for 2.5 in length base, 0.00008 in for 4 in length base	0.000012	4
129-128	0 - 6	2.5×0.63	6				
129-132	0 - 6	0.001	4×0.63	0.00015	0.00005 in for 2.5 in length base, 0.00008 in for 4 in length base	0.000012	6
129-149	0 - 12	2.5×0.63	12				
129-150	0 - 12	0.001	4×0.63	0.00015	0.00005 in for 2.5 in length base, 0.00008 in for 4 in length base	0.000012	12

Note: For the function of Digimatic models **329-250-30, 329-251-30, 329-350-30, and 329-351-30**, refer to page D-60. These models are not waterproof.

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-5 for details).

Technical Data

- Parallelism between reference face and measuring rod face: $(4+R/50) \mu\text{m}$, $R=\text{Max. measuring length (mm)}$ $[0.0002+0.00005(R/2)]$ in
Fraction rounded up
 $\pm(2+R/75) \mu\text{m}$ for interchangeable rod, $[0.0001+0.00005(R/3)]$ in
 $R=\text{Max. range (mm)}$
Fraction rounded up
- Battery*: SR44 (1 pc), **938882**, for initial operational checks (standard accessory)
- Battery life*: Approx. 2.4 years under normal use
* Digimatic models
- Scale type: Electromagnetic induction absolute encoder
- Standard Accessories: **301336** Spanner
04GAA274 Spanner
202863 Hex-Spanner

Optional Accessories for 329-250-30, 329-251-30, 329-350-30, and 329-351-30.

For details, refer to page A-27.

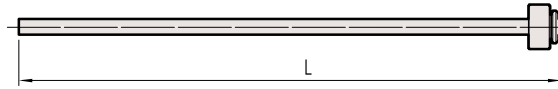
- Connection cable
05CZA662: SPC cable with data button (1 m)
05CZA663: SPC cable with data button (2 m)
- USB Input Tool Direct
06AFM380B: SPC cable for **USB-ITN-B** (2 m)
- Connecting cables for **U-WAVE-T**
02AZD790B: SPC cable with data button (160 mm)
02AZE140B: SPC cable for foot switch

Wireless Data Output **U-WAVE**™

- **U-WAVE-TM**: **264-622** (IP67 type)
264-623 (Buzzer type)
- **U-WAVE-TMB** Transmitter
(Mitutoyo **Bluetooth**® **U-WAVE**)
264-626 (IP type)
264-627 (Buzzer type)
Refer to page A-15 for details.
- Connecting unit for **U-WAVE-TM / TMB**
02AZF310 (IP67 type/buzzer type common specification)
Refer to pages A-16 and A-18 for details.

Interchangeable rod (Optional Accessories)

(Check and adjust the origin point before measurement)



Range (mm)		0 - 25	25 - 50	50 - 75	75 - 100	100 - 125	125 - 150	150 - 175	175 - 200	200 - 225	225 - 250	250 - 275	275 - 300
Analog models	Order No.	983501	983503	983505	983507	983509	983511	983525	983527	983529	983531	983533	983535
	L (mm)	104	129	154	179	204	229	254	279	304	329	354	379
Digimatic models	Order No.	983505	983507	983509	983511	983525	983527	983529	983531	983533	983535	981781	981782
	L (mm)	154	179	204	229	254	279	304	329	354	379	404	429

Range (in)		0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12
Analog models	Order No.	983502	983504	983506	983508	983510	983512	983526	983528	983530	983532	983534	983536
	L (mm)	104.3	129.7	155.1	180.5	205.9	231.3	256.7	282.1	307.5	332.9	358.3	383.7
Digimatic models	Order No.	983506	983508	983510	983512	983526	983528	983530	983532	983534	983536	981783	981784
	L (mm)	155.1	180.5	205.9	231.3	256.7	282.1	307.5	332.9	358.3	383.7	409.1	434.5

Functions of 329-250-30, 329-251-30, 329-350-30, and 329-351-30

Origin point setting (ABS measurement system):

Resets the ABS origin at the current spindle position to the minimum value of the measuring range and switches to ABS mode.

Zero-setting (INC measurement system):

A brief press on the ZERO/ABS button sets display to zero at the current spindle position and switches to the incremental (INC) measuring mode. A longer press resets to the ABS measuring mode.

Hold:

Pressing the HOLD button freezes the current value in the display. This function is useful for preserving a measurement in situations of poor visibility where the instrument must be moved away from the workpiece before the reading can be recorded.

Data output:

Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system.

Auto power ON/OFF:

The reading on the LCD disappears after this instrument is idle for about 20 minutes, but the reading and measurement mode are retained. Turning the spindle causes the reading to reappear.

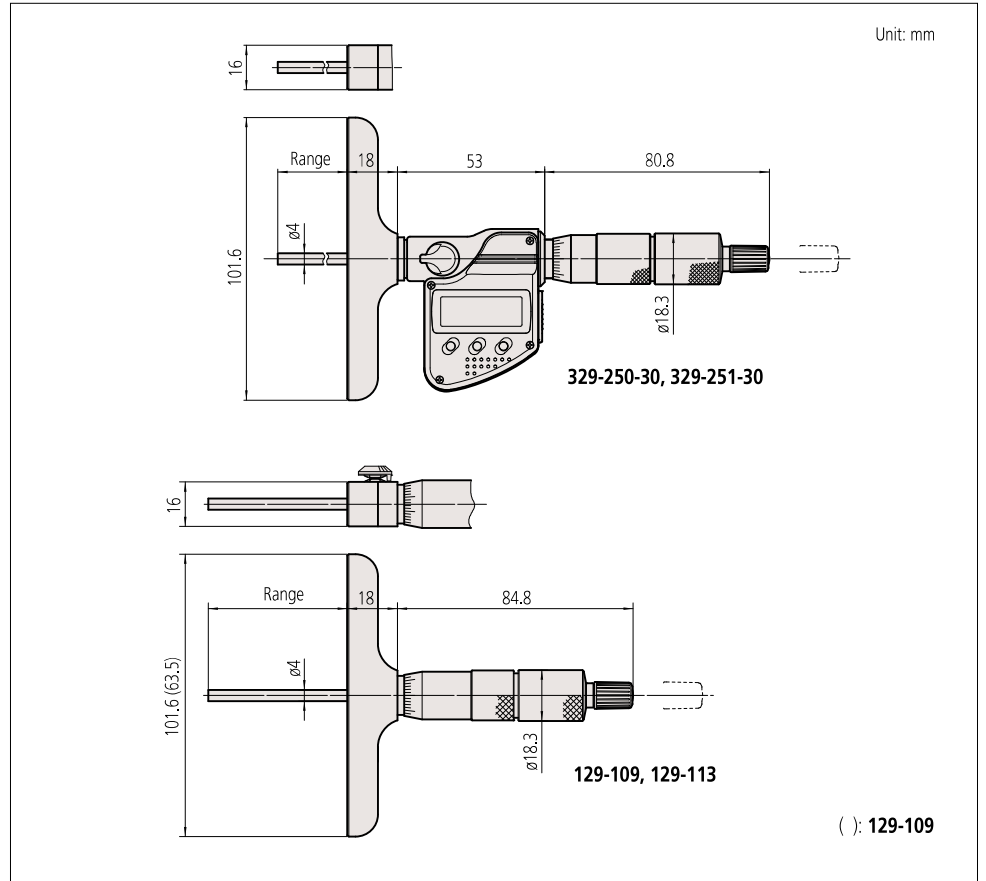
Error alarm:

In case of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents an instrument from giving an erroneous reading. Also, when the battery voltage drops to a certain level, the low-battery-voltage alarm annunciator appears well before the micrometer becomes unusable.

Function lock:

This function allows the PRESET (origin point setting) function and the ZERO (zero-setting) function to be locked to prevent these points being reset accidentally.

DIMENSIONS

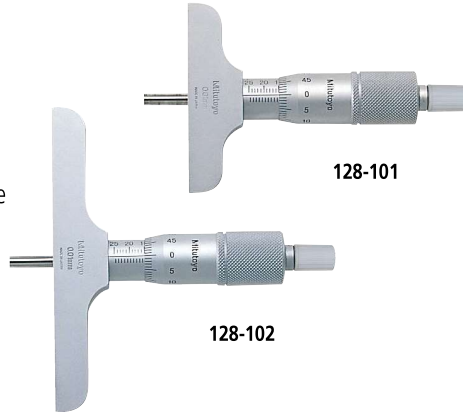


Depth Gage

A standard measuring tool of industry

Depth Micrometer SERIES 128

- Measuring rod diameter: 4 mm
- Measuring rod lock is attached.
Note: Measuring rod is attached on the rear side of the micrometer.
- Carbide-tipped measuring rod model is available.
- Ratchet stop provides constant measuring force.



SPECIFICATIONS

Metric

Order No.	Range (mm)	Graduation (mm)	Maximum permissible error J_{MPE} (μm)	Flatness of reference face	Flatness of measuring spindle face (μm)	Base (mm)
128-101	0 - 25	0.01	± 3	1.3 μm for 63.5 mm length base, 2 μm for 101.6 mm length base	0.3	63.5x16
128-103*						101.6x16
128-102						
128-104*						

* With carbide-tipped measuring rod

Inch

Order No.	Range (in)	Graduation (in)	Maximum permissible error J_{MPE} (in)	Flatness of reference face	Flatness of measuring spindle face (in)	Base (in)
128-105	0 - 1	0.001	± 0.00015	0.00005 in for 2.5 in length base, 0.00008 in for 4 in length base	0.000012	2.5x0.63
128-106						4x0.63

Depth Micro Checker SERIES 515

- The Depth Micro Checker is designed to check and help set the range-end points of a depth micrometer.



SPECIFICATIONS

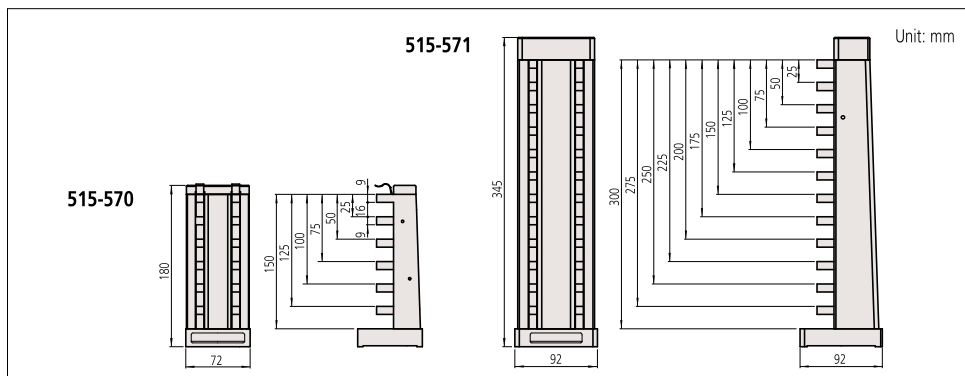
Metric

Order No.	Range (mm)	Block pitch accuracy	Anvil block accuracy (μm)
515-570	0 - 150	$\pm(1 + L/150) \mu\text{m}$, L=Length to check (mm)	± 0.5
515-571	0 - 300		

Inch

Order No.	Range (in)	Block pitch accuracy	Anvil block accuracy (μin)
515-575	0 - 6	$\pm(40 + L/0.15) \mu\text{in}$, L=Length to check (in)	± 20

DIMENSIONS

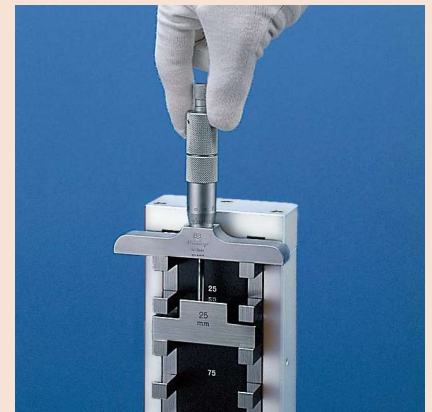


Standard Accessories

- 301336: Spanner



An inspection certificate is supplied as standard. Refer to page U-11 for details.



Optional Accessories for IP67 coolant proof models

For details, refer to page A-25.

- Connecting cables
 - **05CZA624**: SPC cable with data button (1 m)
 - **05CZA625**: SPC cable with data button (2 m)
- Note: Optional connecting cable is available only for water-proof type.
- USB Input Tool Direct
- **06AFM380A**: SPC cable for **USB-ITN-A** (2 m)

Optional Accessories for other than IP67 coolant proof models

For details, refer to page A-27.

- **959143**: Data hold unit
- Connecting cables for **IT/DP/MUX**
 - **959149**: SPC cable with data button (1 m)
 - **959150**: SPC cable with data button (2 m)
- USB Input Tool Direct
- **06AFM380C**: SPC cable for **USB-ITN-C** (2 m)
- Connecting cables for **U-WAVE-T**
 - **02AZD790A**: SPC cable with data button (160 mm)
 - **02AZE140A**: SPC cable for foot switch

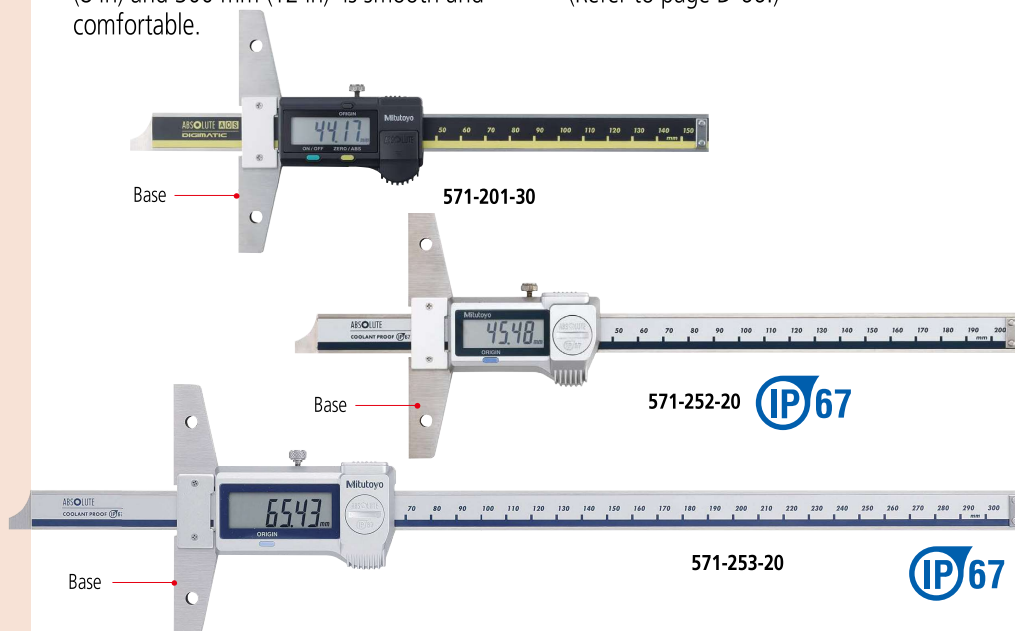
Wireless Data Output

U-WAVE^{fit}

- **U-WAVE-TC**: **264-620** (IP67 type)
264-621 (Buzzer type)
 - **U-WAVE-TCB Transmitter (Mitutoyo Bluetooth® U-WAVE)**
264-624 (IP type)
264-625 (Buzzer type)
- Refer to page A-15 for details.
- Connecting unit for **U-WAVE-TC/TCB**
02AZF310 (IP67 type)
- Note: IP67 model is water/dust-proofed suitable for the factory floor.
Buzzer type is not water/dust-proofed.
Refer to pages A-16 and A-18 for details.

ABSOLUTE Digimatic Depth Gauge SERIES 571

- Coolant proof models achieve IP67 protection level.
- Enables stable depth measurement with a resolution of 0.01 mm.
- ABSOLUTE Digital Caliper (Refer to page D-6 for ABSOLUTE function).
- Sliding operation of models with the measuring ranges 150 mm (6 in), 200 mm (8 in) and 300 mm (12 in) is smooth and comfortable.
- Allows integration into statistical process control and measurement systems for models with measurement data output connector. (Refer to page A-3.)
- Battery: SR44 (1 pc), **938882**. For initial operational checks (standard accessory).
- Optional longer extension bases are available. (Refer to page D-66.)



SPECIFICATIONS

Metric					
Order No.	Range (mm)	Resolution (mm)	Battery life	Base (W×T) (mm)	Maximum Permissible Error*1 (mm)/EMPE
571-201-30	0 - 150	0.01	5 years	100×6	±0.02
571-202-30	0 - 200				
571-203-30	0 - 300				
571-251-20 *2	0 - 150				±0.02
571-252-20 *2	0 - 200				
571-253-20 *2	0 - 300				
571-204-10 *3	0 - 450	0.01	3 years	250×10	±0.05
571-205-10 *3	0 - 600				
571-206-10 *3	0 - 750				
571-207-10 *3	0 - 1000				±0.06

Inch/Metric					
Order No.	Range (in)	Battery life	Base (W×T) (in)	Maximum Permissible Error*1 (mm)/EMPE	
571-211-30	0 - 6	5 years	3.93×0.23	±0.001 in/±0.02 mm	
571-212-30	0 - 8			±0.001 in/±0.02 mm	
571-213-30	0 - 12			±0.0015 in/±0.03 mm	
571-261-20 *2	0 - 6			±0.001 in/±0.02 mm	
571-262-20 *2	0 - 8			±0.001 in/±0.02 mm	
571-263-20 *2	0 - 12			±0.0015 in/±0.03 mm	
571-214-10 *3	0 - 18	3 years	9.8×0.39	±0.002 in/±0.05 mm	
571-215-10 *3	0 - 24			±0.002 in/±0.05 mm	
571-216-10 *3	0 - 30			±0.0025 in/±0.06 mm	
571-217-10 *3	0 - 40			±0.0025 in/±0.07 mm	

*1 Maximum Permissible Error, E_{MPE} , is the term (notation) used in JIS B 7517: 2018, revised based on ISO/TR 14253-6: 2012.

*2 IP67 Coolant Proof model

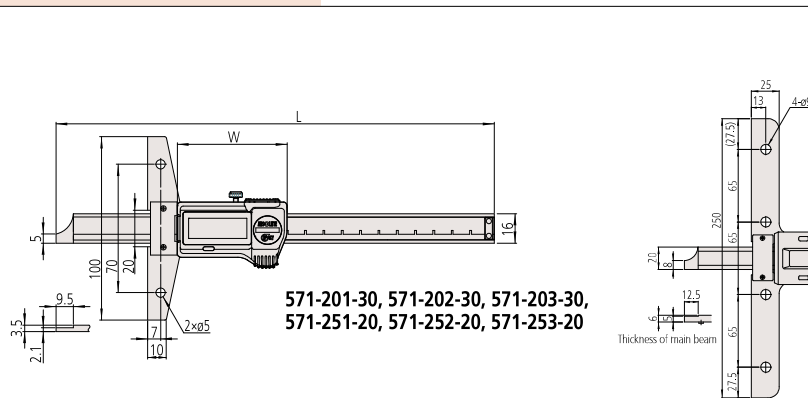
*3 Cannot be used with **U-WAVE-TC**

*1 Maximum Permissible Error, E_{MPE} , is the term (notation) used in JIS B 7517: 2018, revised based on ISO/TR 14253-6: 2012.

*2 IP67 Coolant Proof model

*3 Cannot be used with **U-WAVE-TC**

DIMENSIONS



**571-201-30, 571-202-30, 571-203-30,
571-251-20, 571-252-20, 571-253-20**

Unit: mm

Range (mm)	L	W	Base thickness
0 - 150	239	59.2	6
0 - 200	289		6
0 - 300	403 (404)	94	6 (6.3)
0 - 450	635		10
0 - 600	785		10
0 - 750	935		10
0 - 1000	1200		10

(): Coolant Proof models

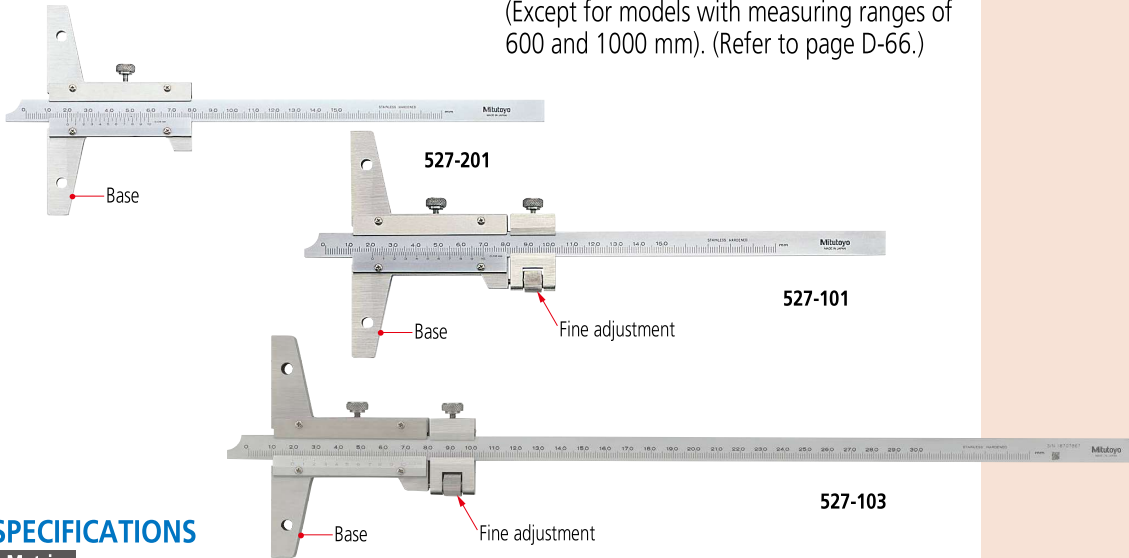
**571-204-10, 571-205-10,
571-206-10, 571-207-10**

Depth Gage

A standard measuring tool of industry

Vernier Depth Gage SERIES 527

- Standard gage for depth measurement.
- Optional longer extension bases are available. (Except for models with measuring ranges of 600 and 1000 mm). (Refer to page D-66.)



SPECIFICATIONS

Metric					
Order No.	Range (mm)	Minimum reading (mm)	Base (W×T) (mm)	Maximum Permissible Error* (mm)/E _{MPE}	Remarks
527-201	0 - 150	0.05	100×6.5	±0.05	—
527-202	0 - 200			—	
527-203	0 - 300			±0.08	
527-204	0 - 600		250×10	±0.10	—
527-205	0 - 1000		±0.15	—	

* Maximum Permissible Error, E_{MPE}, is the term (notation) used in JIS B 7517: 2018, revised based on ISO/TR 14253-6: 2012.

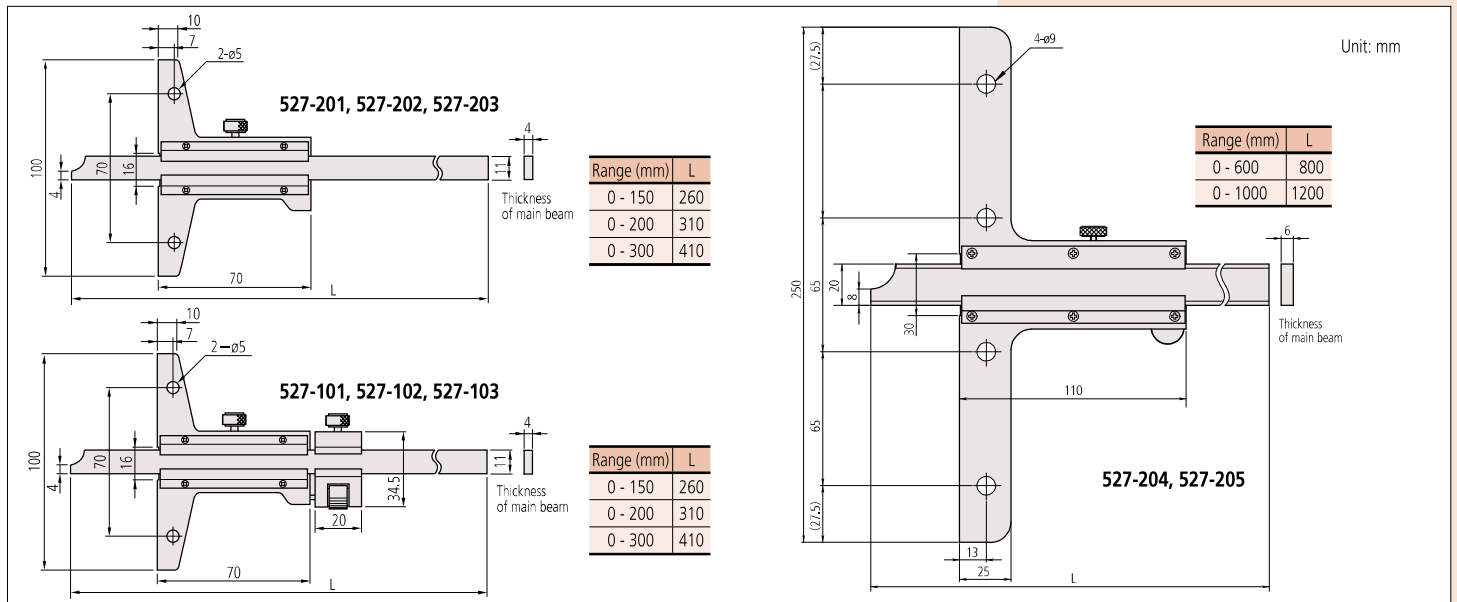
Metric					
Order No.	Range (mm)	Minimum reading (mm)	Base (W×T) (mm)	Maximum Permissible Error* (mm)/E _{MPE}	Remarks
527-101	0 - 150	0.02	100×6.5	±0.03	with fine adjustment
527-102	0 - 200				
527-103	0 - 300				

* Maximum Permissible Error, E_{MPE}, is the term (notation) used in JIS B 7517: 2018, revised based on ISO/TR 14253-6: 2012.

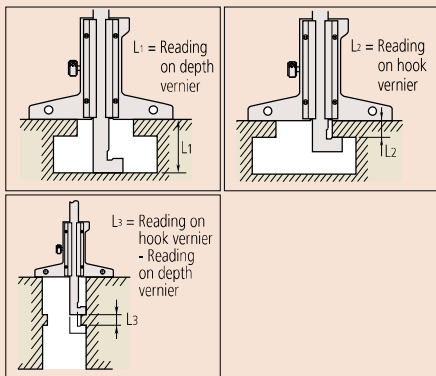
Inch					
Order No.	Range (in)	Minimum reading (in)	Base (W×T) (in)	Maximum Permissible Error* (in)/E _{MPE}	Remarks
527-111	0 - 6	0.001	3.93×0.25	±0.001	with fine adjustment
527-112	0 - 8			—	
527-113	0 - 12			±0.0015	
527-114	0 - 24		9.8×0.39	±0.002	
527-115	0 - 40		±0.003	—	

* Maximum Permissible Error, E_{MPE}, is the term (notation) used in JIS B 7517: 2018, revised based on ISO/TR 14253-6: 2012.

DIMENSIONS



Typical applications



Optional Accessories for Digimatic Models

For details, refer to page A-27.

• Connection cables for **IT/DP/MUX**

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

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

Note: Optional connecting cable is available only for water-proof type.

• 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

Wireless Data Output U-WAVE™

• **U-WAVE-TC**: **264-620** (IP67 type)

264-621 (Buzzer type)

• **U-WAVE-TCB Transmitter**

(Mitutoyo Bluetooth® U-WAVE)

264-624 (IP type)

264-625 (Buzzer type)

Refer to page A-15 for details.

• Connecting unit for **U-WAVE-TC/TCB**

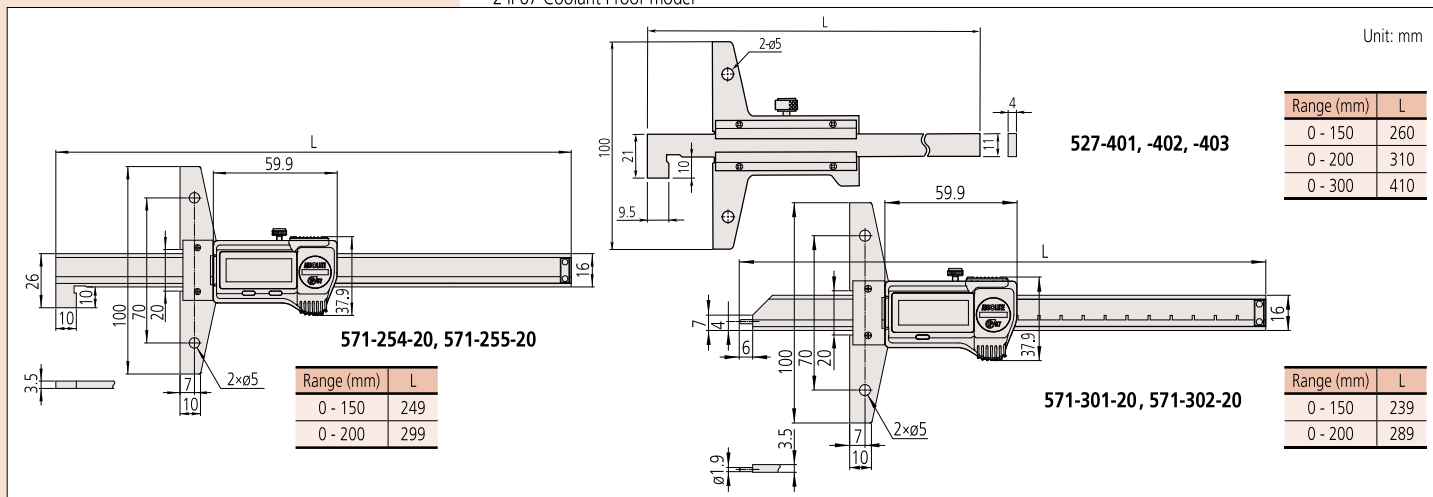
02AZF310 (IP67 type)

Note: IP67 model is water/dust-proofed suitable for the factory floor.

Buzzer type is not water/dust-proofed.

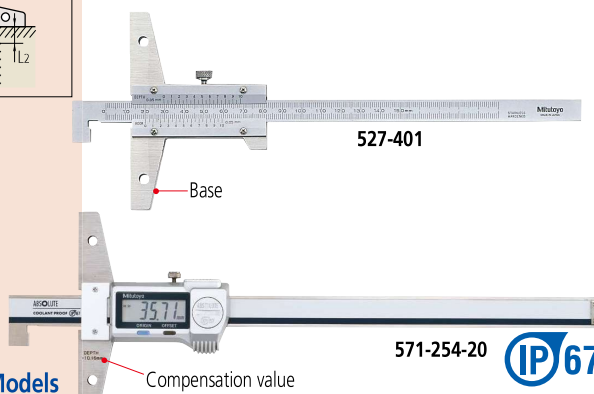
Refer to pages A-16 and A-18 for details.

DIMENSIONS



Depth Gauge
SERIES 527, 571 — Hook End Type
Pin End Type

- The end of the main beam is hook-shaped to allow depth and thickness measurements of a projected portion or lip in a hole, in addition to standard depth measurement.
- Coolant proof models achieve IP67 protection level.
- Enables stable depth measurement with a resolution of 0.01 mm.
- ABSOLUTE Digital Caliper (Refer to page D-6 for ABSOLUTE function.)
- Digimatic models **571-254-20** and **571-255-20** need the compensation value (engraved on the base) added to the displayed value for correct depth measurement. However, the featured Offset function enables this to be done easily just by pressing the OFFSET button after the hook jaw is brought in contact with the base and the ORIGIN button is pressed.
- Slider operation of the Digimatic models is smooth and comfortable.
- Allows integration into statistical process control and measurement systems for models with measurement data output connector. (Refer to page A-3.)
- Battery: SR44 (1 pc), **938882**. For initial operational checks (standard accessory)
- Battery life: Approx. 5 years under normal use (for Digimatic models)
- Optional longer extension bases are available. (Refer to page D-66.)



SPECIFICATIONS

Metric				
Order No.	Range (mm): L1 (L2 and L3)	Resolution/Graduation (mm)	Base (WxT) (mm)	Maximum Permissible Error*1 (mm)/EMPE
Digimatic (LCD)				
571-254-20 *2	10.1 - 160 (0 - 150)	0.01	100x6	±0.03
571-255-20 *2	10.1 - 210 (0 - 200)			
571-301-20 *2	0 - 150			
571-302-20 *2	0 - 200			±0.02
Analog				
527-401	10 - 150 (0 - 150)	0.05	100x6.5	±0.05
527-402	10 - 200 (0 - 200)			
527-403	10 - 300 (0 - 300)			
527-411	10 - 150 (0 - 150)	0.02		±0.03
527-412	10 - 200 (0 - 200)			
527-413	10 - 300 (0 - 300)			

*1 Maximum Permissible Error, EMPE, is the term (notation) used in JIS B 7517: 2018, revised based on ISO/TR 14253-6: 2012.

*2 IP67 Coolant Proof model

Inch/Metric				
Order No.	Range: L1 (L2 and L3)	Resolution	Base (WxT) (mm)	Maximum Permissible Error*1/EMPE
Digimatic (LCD)				
571-264-20 *2	0.4 in - 6.4 in (0 - 6 in)	0.0005 in/0.01 mm	100x6	±0.0015 in/±0.03 mm
571-265-20 *2	0.4 in - 8.4 in (0 - 8 in)			
571-311-20 *2	0 - 150 mm/0 - 6 in			
571-312-20 *2	0 - 200 mm/0 - 8 in	0.0005 in/0.01 mm		±0.001 in/±0.02 mm

*1 Maximum Permissible Error, EMPE, is the term (notation) used in JIS B 7517: 2018, revised based on ISO/TR 14253-6: 2012.

*2 IP67 Coolant Proof model

Depth Gage

A standard measuring tool of industry

Mini Depth Gage SERIES 571

- This is a compact depth gage.
- Enables measurement of depth of tire groove.
- Digital display with 0.01 mm resolution enables measurement without misreading.
- ABSOLUTE Digital Depth Gage.
- Allows integration into statistical process control and measurement systems for models with measurement data output connector. (Refer to page A-3.)
- Battery: SR44 (1 pc), **938882**. For initial operational checks (standard accessory)
- Battery life: Approx. 5 years under normal use.



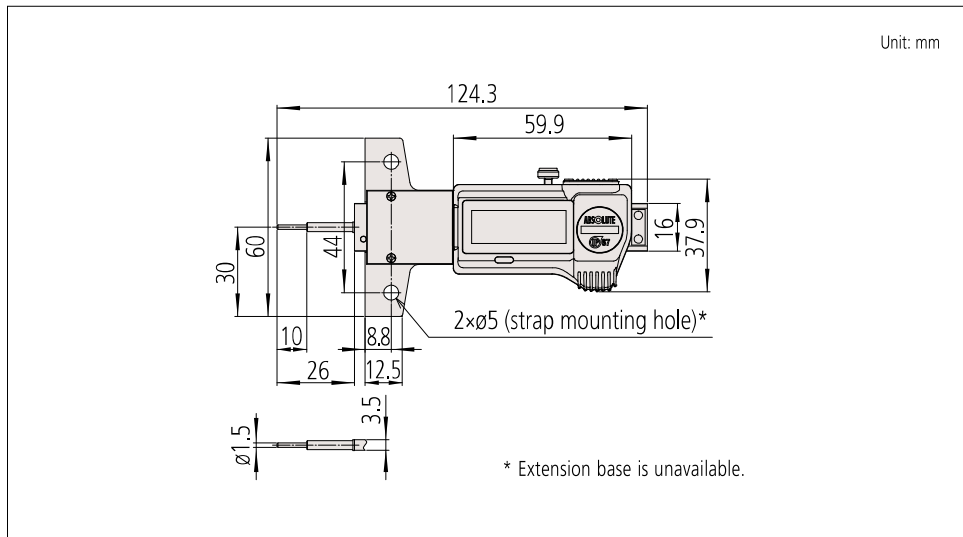
571-100-20

SPECIFICATIONS

Order No.	Range (mm)	Resolution (mm)	Base (mm)	Maximum Permissible Error* (mm)/ <i>E_{MPE}</i>
571-100-20	0 - 25	0.01	60	±0.02

* Maximum Permissible Error, *E_{MPE}*, is the term (notation) used in JIS B 7517: 2018, revised based on ISO/TR 14253-6: 2012.

DIMENSIONS



Unit: mm

* Extension base is unavailable.

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-5 for details).

ABSOLUTE[™]

IP67



Optional Accessories

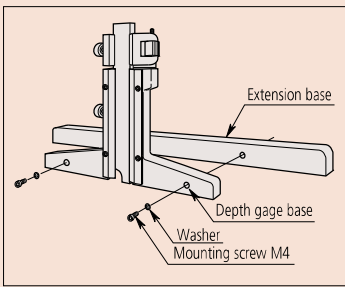
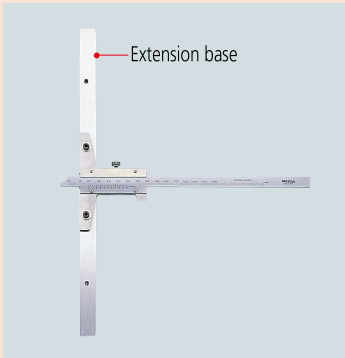
For details, refer to page A-27.

- Connection cables for **IT/DP/MUX**
- **05CZA624**: SPC cable with data button (1 m)
- **05CZA625**: SPC cable with data button (2 m)
- Note: Optional connecting cable is available only for water-proof type.
- 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

Wireless Data Output U-WAVE[™]

- **U-WAVE-TC: 264-620** (IP67 type)
- **264-621** (Buzzer type)
- **U-WAVE-TCB Transmitter (Mitutoyo Bluetooth[®] U-WAVE)**
- **264-624** (IP type)
- **264-625** (Buzzer type)
- Refer to page A-15 for details.
- Connecting unit for **U-WAVE-TC/TCB**
- **02AZF310** (IP67 type)
- Note: IP67 model is water/dust-proofed suitable for the factory floor.
- Buzzer type is not water/dust-proofed.
- Refer to pages A-16 and A-18 for details.

Example of attaching the extension base



Note: Align reference planes of the depth gage base and extension base using a surface plate and then tighten mounting screws.

Extension Bases Optional accessory for Depth Gage

- Attaches to the base (reference face) plate of a depth gage to extend its span.
- Refer to the illustrations at left for attachment details.
- Extension base is three times the length of the base for models of less than 300 mm range.
- These extension bases cannot be attached to 0 to 600 mm, 0 to 1,000 mm, 0 to 24 inch and 0 to 40 inch range models.



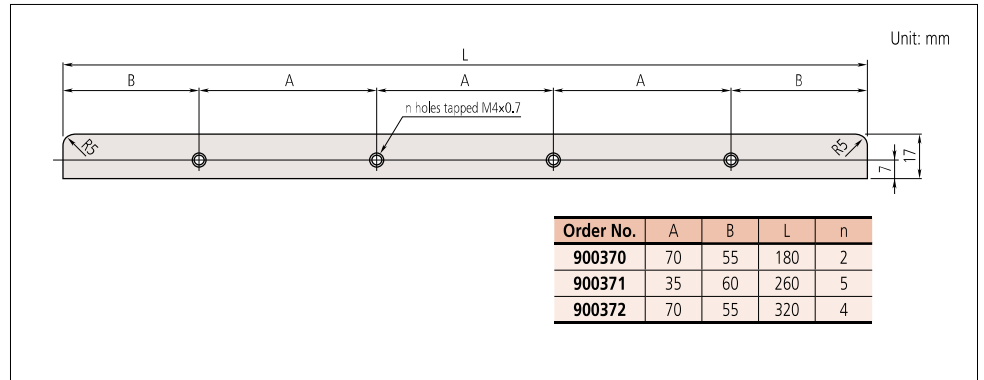
900372

SPECIFICATIONS

Metric		
Order No.	Size L (mm)	n
900370	180	2
900371	260	5
900372	320	4

Inch		
Order No.	Size L (in)	n
900367	7	2
900368	10	5
900369	12	4

DIMENSIONS



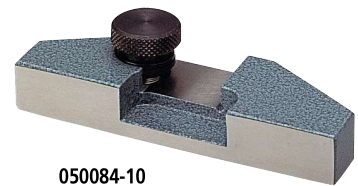
Example of attaching the depth gage attachment



Note: Align reference planes of the depth gage base and extension base using a surface plate and then tighten mounting screws.

Depth Gage Attachment Optional Accessory for Calipers

- Attaching this depth gage attachment to the depth measurement face of the caliper makes depth measurement accurate and secure.

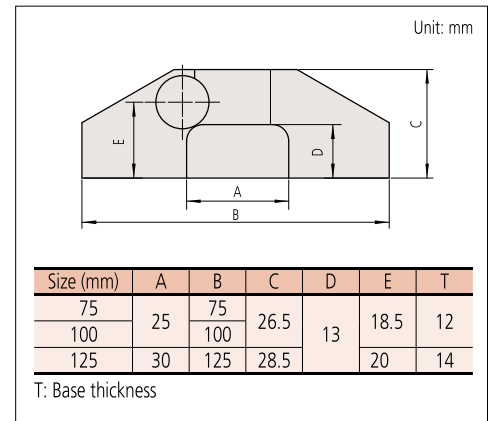


050084-10

SPECIFICATIONS

Metric		
Order No.	Size (mm)	Applicable measuring range of caliper
050083-10	75	100 mm, 150 mm, 200 mm, 4 in, 6 in and 8 in
050084-10	100	100 mm, 150 mm, 200 mm, 4 in, 6 in and 8 in
050085-10	125	300 mm (12 in)

DIMENSIONS

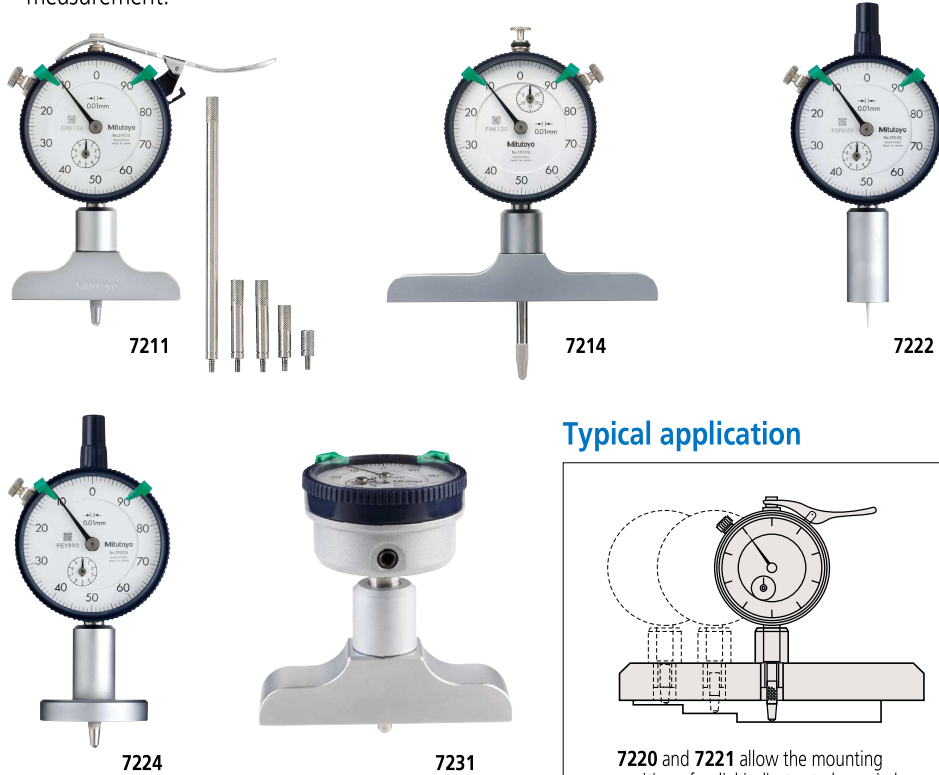


Depth Gage

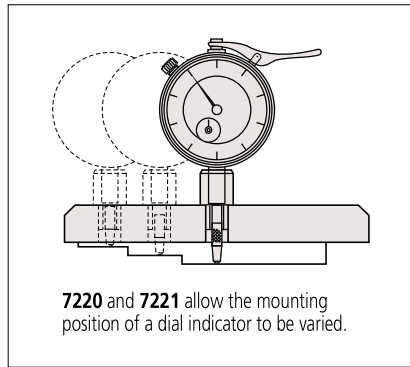
A standard measuring tool of industry

Dial Depth Gage SERIES 7

- Optimal for hole, narrow groove and step measurement.



Typical application



7220 and 7221 allow the mounting position of a dial indicator to be varied.

Precautions

Note 1

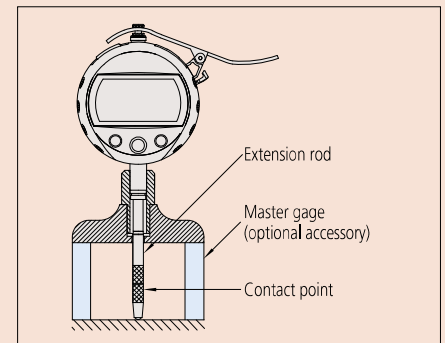
Caution should be exercised when exchanging a contact point of a Depth Gage (Dial/Digimatic Indicator):

- If a different size contact point is mounted, displacement of the contact point from the base contact surface will be changed and as a result, measurement range may not be maintained.
- A contact point cannot be mounted to a Depth Gage if its diameter is too large for the hole diameter of the base.
- Parallelism adjustment with the bottom face of the base is required when mounting a flat contact point such as the flat/needle or carbide-tipped contact point.

Note 2

Caution should be exercised when using an extension rod:

- If the total length of the extension rod exceeds 110 mm (4.5 in) use the instrument in a vertical position (contact point downward).
- Use a master gage (such as gauge blocks) to perform zero-setting when the extension rod is mounted. (Master gage is an optional accessory.)



Note 3

Caution should be exercised when indicators are used on a Depth Gage:

- When the indicator is exchanged and a longer extension rod is connected, the contact-point may deflect significantly with an adverse effect on measuring accuracy.
- Order No.543-400B/543-402B for Depth Gage has a measuring force less than 1.5 N.

SPECIFICATIONS

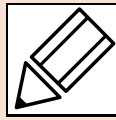
Metric

Order No.	Range (mm)	Graduation (mm)	Stroke (mm)	Accuracy (μm)	Measuring force (N)	Base				Contact point ^{Note 1}	Extension rod ^{Note 2}	Indicator ^{Note 3} (dial indicator)							
						W (mm)	T (mm)	Flatness (μm)	Mounting position of a dial indicator										
7210	0 - 10	0.01	10	±15	1.4	40	16	5	1	Provided with a needle point (137413)	5 pcs. (10, 20, 30, 30, 100 mm)	2902SB for Depth Gage							
7211	63.5					Provided with a carbide-tipped ball point (21JAA224)													
7212	101.6					Provided with a carbide-tipped ball point (21JAA225)													
7213	63.5					30				±30			2.5	101.6	18	2	Provided with a carbide-tipped ball point (21JAA224)	3 pcs. (30, 60, 90 mm)	2952SB for Depth Gage
7214	0 - 210																		
7220	0 - 200		10	10	±15	1.4	100	1	3	Provided with a carbide-tipped ball point (21JAA224)	5 pcs. (10, 20, 30, 30, 100 mm)	2902SB for Depth Gage							
7221	150																		
7222	0 - 10						∅16						Provided with a needle point (137413)						
7223	∅25																		
7224	∅40																		
7231	0 - 200	5	63.5	16	63.5	16	1	Provided with a carbide-tipped ball point (21JAA224: 17 mm)	5 pcs. (10, 20, 30, 30, 100 mm) Interchangeable contact point (21JAA226: 22 mm)	1162T for Depth Gage (Back plunger type)									

Inch

Order No.	Range (in)	Graduation (in)	Stroke (in)	Accuracy (in)	Measuring force (N)	Base				Contact point ^{Note 1}	Extension rod ^{Note 2}	Indicator ^{Note 3} (dial indicator)	
						W (in)	T (in)	Flatness (in)	Mounting position of a dial indicator				
7217S	0 - 8	0.001	1	±0.002	2.5	2.5	0.63	0.0002	1	Carbide ball point (21JZA242)	3 pcs. (1 in, 2 in, 4 in)	2904SB for Depth Gage	
7218S						4							
7237T			0.2		1.4	2.5				4	Provided with a carbide-tipped ball point (21JZA242: 0.7 in)	4 pcs. (0.5 in, 1 in, 2 in, 4 in) Interchangeable contact point (21JZA243: 0.9 in)	1168T for Depth Gage (Back plunger type)
7238T													

Quick Guide to Precision Measuring Instruments



Depth Gages

Depth Gauge Performance Evaluation Method

JIS B 7518 was revised and issued in 2018 as the Japanese Industrial Standards of the depth gage, and the “Instrumental error” indicating the indication error of the depth gage has been changed to “Maximum Permissible Error (MPE) of indication”.

The “Instrumental error” of the old JIS adopts acceptance criteria that the specification range (precision specification) equals acceptance range, and the OK/NG judgment does not include measurement uncertainty (Fig. 1).

The “Maximum Permissible Error (MPE) of indication” of the new JIS employs the basic concept of the OK/NG judgment taking into account the uncertainty adopted in the ISO standard (ISO 14253-1).

The verification of conformity and nonconformity to the specifications is clearly stipulated to use the internationally recognized acceptance criteria (simple acceptance) when the specification range equals the acceptance range, and it is accepted that the specification range equals the acceptance range if a given condition considering uncertainty is met.

The above said internationally recognized acceptance criterion is ISO/TR 14253-6: 2012 (Fig. 2).

The following describes the standard inspection method including the revised content of JIS 2018.

Fig. 1 Old JIS Instrumental error
JIS B 7518-1993

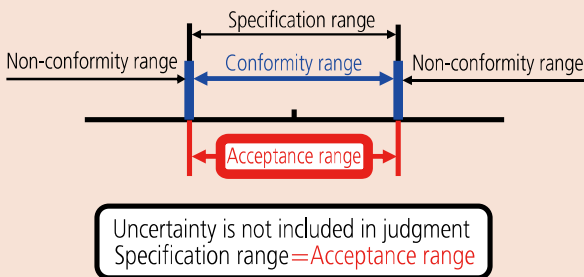
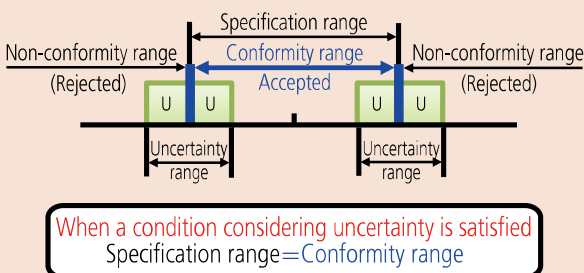


Fig. 2 New JIS Maximum Permissible Error (MPE)
JIS B 7518: 2018 (ISO/TR 14253-6: 2012)



Maximum Permissible Error of depth measurement E_{MPE} [JIS B 7518: 2018]

The Maximum Permissible Error E_{MPE} of a depth gage is an indication error applied to depth measurement.

Table 1 shows the Maximum Permissible Error E_{MPE} of the indication value of the partial measuring surface contact error.

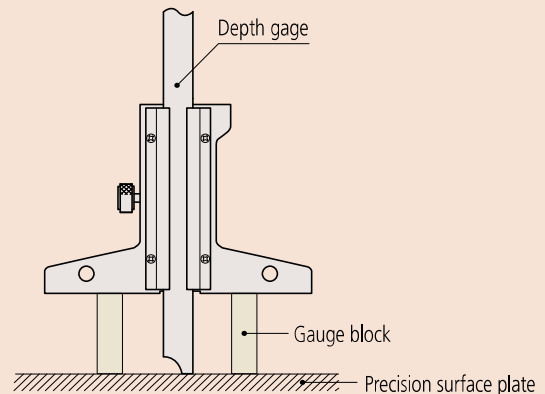
E_{MPE} for any desired height is obtained by measuring the height of two equal length gauge blocks, or equivalent, with a height gage on a precision surface plate (Fig. 3) and then subtracting the gauge block size from the measured size.

Table 1: Maximum Permissible Error E_{MPE} of a conventional depth gage

Measurement depth	Scale interval, graduation or resolution	
	0.05	0.02 or 0.01
50 or less	±0.05	±0.02
Over 50, 100 or less	±0.06	±0.03
Over 100, 200 or less	±0.07	
Over 200, 300 or less	±0.08	±0.04
Over 300, 400 or less	±0.09	
Over 400, 500 or less	±0.10	±0.05
Over 500, 600 or less	±0.11	

Note: E_{MPE} includes the measurement error arising from straightness, flatness of the measuring surface and parallelism with the reference surface.

Fig. 3: Determination of depth measurement error



The “Instrumental error” indicating the indication error of JIS has been changed to “Maximum Permissible Error (MPE) of indication” for the following models:

- **571 Series ABSOLUTE Digimatic Depth Gage** described on page D-62 (All models)
- **527 Series Vernier Depth Gage** described on page D-63 (All models)
- **527, 571 Series Hook End Type** described on page D-64 (All models)
- **571 Series Mini Depth Gage** described on page D-65 (All models)