

Height Gage

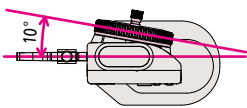
A standard measuring tool of industry

Digimatic Height Gage SERIES 192 — Multi-function Type with SPC Data Output

MeasurLink[®] ENABLED

Data Management Software by Mitutoyo

- Double-column structure ensures high measuring accuracy.
- Ergonomic base fits comfortably in the hand.
- A bidirectional touch-trigger probe is available as an optional accessory for **192-663-10, 192-664-10, 192-665-10, 192-670-10, 192-671-10, 192-672-10** and **192-673-10**.
- Better readability is provided thanks to display of measurement result with a large character height (11 mm) and high-contrast LCD.
- Inclined handle improves slider ergonomics.
- Allows integration into statistical process control and measurement systems. Refer to page A-3.
- Battery: **SR44** (1 pc), **938882**. For initial operational checks (standard accessory)
- Battery life is 3,500 hours in continuous use.
- Carbide-tipped long scribe (**905200** with overall length of 150 mm) is provided as a standard accessory for **192-663-10, 192-664-10** and **192-665-10**.
- For precision Black Granite Surface Plates, refer to page E-49.



SPECIFICATIONS

Metric							
Order No.	Range	Resolution	Accuracy*	Repeatability	Max. response speed	Height	Mass
192-663-10	0 - 300 mm	0.01 mm (0.005 mm)	±0.02 mm	0.01 mm	500 mm/s	510 mm	5.7 kg
192-664-10	0 - 600 mm		±0.04 mm			802 mm	8.3 kg
192-665-10	0 - 1000 mm		±0.06 mm			1228 mm	15.7 kg
192-613-10	0 - 300 mm		±0.02 mm			475 mm	4.7 kg
192-614-10	0 - 600 mm		±0.05 mm			802 mm	8.3 kg
192-615-10	0 - 1000 mm		±0.07 mm			1228 mm	15.7 kg

* Excluding quantizing error of ±1 count

Inch/Metric							
Order No.	Range	Resolution	Accuracy*	Repeatability	Max. response speed	Height	Mass
192-670-10	0 - 12 in	0.0005 in / 0.01 mm (0.0002 in / 0.005 mm)	±0.001 in	0.01 mm	500 mm/s	510 mm	5.7 kg
192-671-10	0 - 18 in		±0.0015 in			649 mm	7.5 kg
192-672-10	0 - 24 in		±0.0015 in			802 mm	8.3 kg
192-673-10	0 - 40 in		±0.0025 in			1228 mm	15.7 kg
192-630-10	0 - 12 in		±0.001 in			475 mm	4.7 kg
192-631-10	0 - 18 in		±0.002 in			649 mm	7.5 kg
192-632-10	0 - 24 in		±0.002 in			802 mm	8.3 kg
192-633-10	0 - 40 in		±0.003 in			1228 mm	15.7 kg

* Excluding quantizing error of ±1 count

Mitutoyo

D-45

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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).

Functions

Origin-setting (ABS measurement mode):

Any arbitrary value can be stored as the origin point.

Zero-setting (INC measurement mode):

Displayed value can be set to zero at any arbitrary position of the slider.

Origin restoration:

Previously set origin is restored when switching back to ABS mode.

Presetting (ABS INC measurement mode):

Displayed value can be set to any arbitrary value, including negative values.

Measuring direction

Measuring direction can be switched at the press of a button.

Data hold

Display value can be held. Reverts to ABS or INC mode when cancelled.

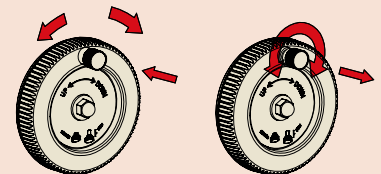
Alarm: Error message is displayed when overflow or overspeed of displayed value arises and measurement is stopped.

Data output:

Allows integration into statistical process control and measurement systems. (Refer to page A-3.)

Fine and coarse adjustment through knob and wheel combination.

Slider height adjustment wheel allows fine and coarse height adjustment.



Coarse adjustment

Fine adjustment

Push the small fine-adjustment knob in to disengage gearing and then turn the large wheel.

Pull the fine-adjustment knob out to engage gearing and then turn this knob, which then slowly turns the wheel.

Low-voltage alert:

When battery voltage becomes low, a warning appears in the display.

Probe-tip diameter compensation:

An adjustment is applied to the raw measurement data to compensate for the effect of the size of the spherical contact point used by the bidirectional touch-trigger probe.

Presetting (2 positions)

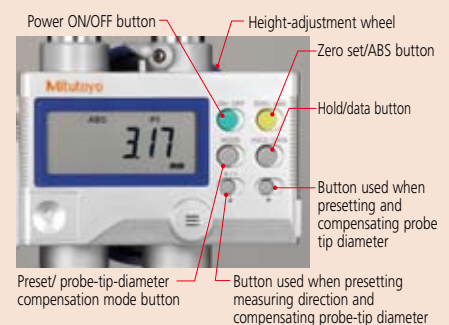
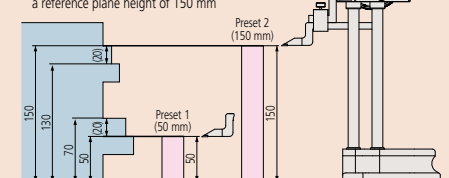
With two preset functions, two reference heights can be used relative to a surface plate.

• Example of preset 1

To measure a height of 70 mm, with a reference plane height of 50 mm

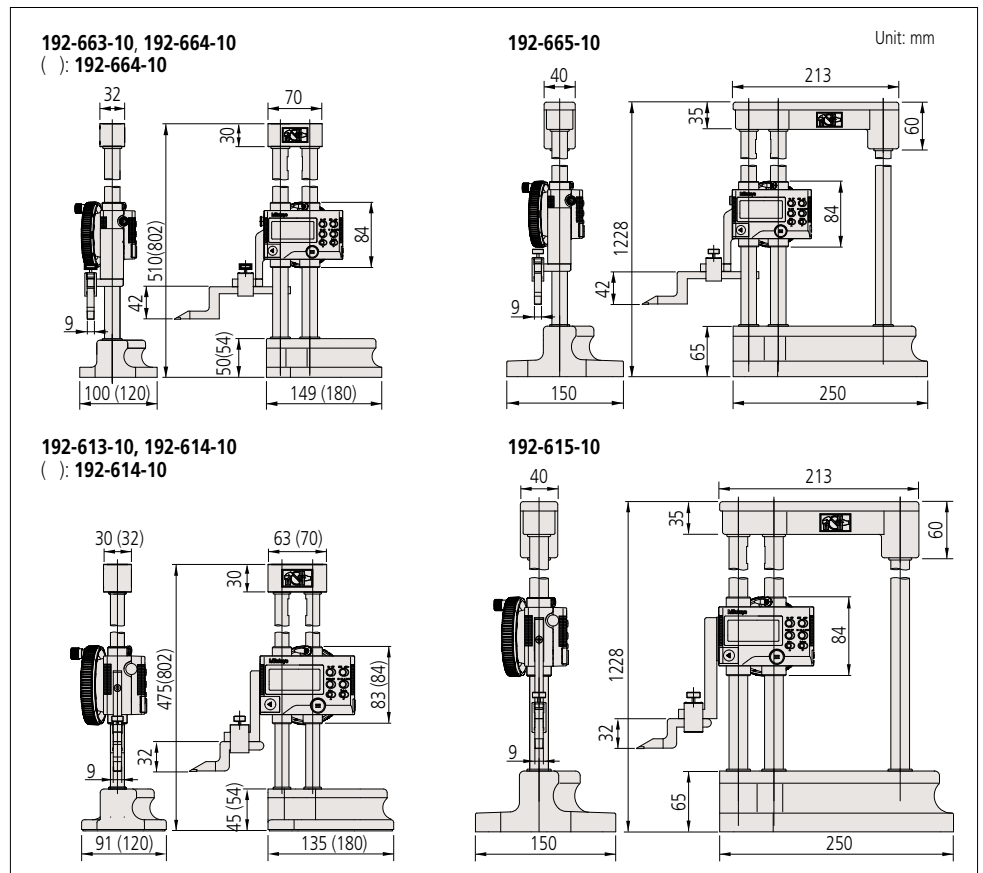
• Example of preset 2

To measure a height of 130 mm, with a reference plane height of 150 mm



* Probe-tip-diameter compensation mode is a function provided for **192-663-10/192-664-10/192-665-10/192-670-10/192-671-10/192-672-10/192-673-10**.

DIMENSIONS



Optional Accessory

Bidirectional touch-trigger probe

Improves accuracy in step, internal thickness, and outside width measurement by minimizing reproducibility error. A bidirectional touch-trigger probe is available as an optional accessory for **192-663-10, 192-664-10, 192-665-10, 192-670-10, 192-671-10, 192-672-10** and **192-673-10**.



SPECIFICATIONS

Metric							
Order No.	Measuring direction	Relay contact type	Probe overtravel	Probe size	Repeatability	Measuring force	Standard accessories
192-007	Bidirectional	Normally Open	1.5 mm	ø3 mm	σ: 2 μm	0.4 N	Holder arm, Clamp
Inch							
Order No.	Measuring direction	Relay contact type	Probe overtravel	Probe size	Repeatability	Measuring force	Standard accessories
192-008	Bidirectional	Normally Open	1.5 mm	ø3 mm	σ: 2 μm	0.4 N	Holder arm, Clamp

For details of the connecting cable, refer to page A-25, and for the holder arm and clamp, refer to page F-69.

Connecting cables for IT/DP/MUX

905338: SPC cable (1 m)
905409: SPC cable (2 m)



USB Input Tool Direct

06AFM380F: SPC cable for USB-ITN-F (2 m)

Connecting cables for U-WAVE-T

02AZD790F: SPC cable for U-WAVE (160 mm)

02AZE140F: SPC cable for footswitch

953638: Holding bar*

902053: Swivel clamp*

*A test indicator can be mounted on a height gage using a holding bar and clamp.

Height Gage

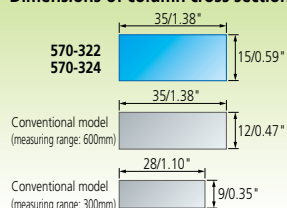
A standard measuring tool of industry

ABSOLUTE Digimatic Height Gage SERIES 570 — with Ergonomic Base

MeasurLink[®] ENABLED
Data Management Software by Mitutoyo

- Allows smooth elevation by the slider adjustment wheel, which is the same as the well-established double-column structure height gage.
- Large slider-clamp lever ensures positive and accurate clamping action.
- High durability and high accuracy are ensured by an improved column design (35x15 mm).

Dimensions of column cross section



- Character height of the LCD display is 10 mm.
- Ergonomic and stylish base fits comfortably in the hand.

- Due to the built-in ABSOLUTE scale function, origin setting is not required each time power is turned ON.
- Allows integration into statistical process control and measurement systems. Refer to page A-3.
- Battery: **SR44** (1 pc), **938882**. For initial operational checks (standard accessory)
- Battery life is 20,000 hours under normal use.
- For precision Black Granite Surface Plates, refer to page E-49.



570-322



570-324

SPECIFICATIONS

Metric						
Order No.	Range	Resolution	Accuracy*	Repeatability	Max. response speed	Mass
570-322	0 - 300 mm	0.01 mm	±0.03 mm	0.01 mm	Unlimited	4.6 kg
570-324	0 - 600 mm		±0.05 mm			6.4 kg

* Excluding quantizing error of ±1 count

Inch/Metric						
Order No.	Range	Resolution	Accuracy*	Repeatability	Max. response speed	Mass
570-312	0 - 12 in	0.0005 in / 0.01 mm	±0.0015 in	0.01 mm	Unlimited	4.6 kg
570-313	0 - 18 in		±0.002 in			5.9 kg
570-314	0 - 24 in		±0.002 in			6.4 kg

* Excluding quantizing error of ±1 count

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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).

ABSOLUTE[™]

(Refer to page X for details.)

Functions

Origin-setting:

Any convenient reference surface, such as a surface plate, etc., can be stored as the absolute origin point.

Absolute measurement:

After power is turned ON, measurement can be started without zero-setting if origin-setting was previously performed. Absolute origin position can be changed by ORIGIN button.

Incremental measurement: Allows origin setting at any arbitrary position. In this case, the origin point is not stored after turning off the power.

Data hold

Display value can be held.

Data output:

Allows integration into statistical process control and measurement systems. (Refer to page A-3.)

Low-voltage alert:

Low-voltage alert: If the battery voltage becomes low, a "B" appears in the display to alert the user before measurement is no longer possible so that the battery can be changed in good time.

Standard accessories

For 570-322, 324

07GZA000 Scriber

05GZA033 Scriber clamp

For 570-312 and 570-313, 570-314

900258 Scriber

901385 Scriber clamp

05GZA033



935638

902053

07GZA000

(Refer to page F-69 for details)



Optional accessories

For details, refer to page D-39.

Connecting cables for IT/DP/MUX

905338: SPC cable with data button (1 m)

905409: SPC cable with data button (2 m)

USB Input Tool Direct

06AFM380F: SPC cable for **USB-ITN-F** (2 m)

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

02AZD790F: SPC cable for **U-WAVE** with data button (160 mm)

02AZE140F: SPC cable for footswitch



Slider height adjustment wheel

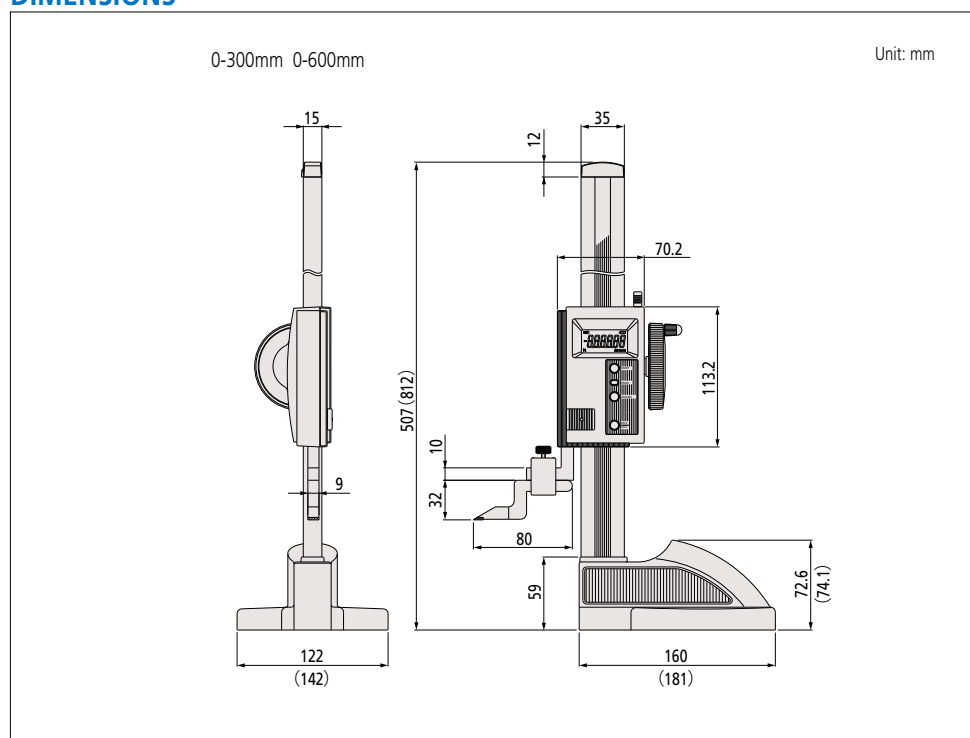


Large clamp lever



Base that fits the hand comfortably

DIMENSIONS



Height Gage

A standard measuring tool of industry

ABSOLUTE Digimatic Height Gage SERIES 570 — Standard model

- ABS and INC measurement modes allow efficient operation.
- Rigid structure makes instrument suitable for use in severe work environments.
- The +/- measurement function widens the application range.
- Allows integration into statistical process control and measurement systems. Refer to page A-3.
- Battery: **SR44** (1 pc), **938882**. For initial operational checks (standard accessory)
- Battery life is 5,000 hours under normal use.
- Carbide-tipped scriber (**900173** for **570-227** and **244**, and **905200** for **570-230** and **248**) is provided as a standard accessory. (Standard accessory: scriber clamp **901338** for **570-227** and **244**, and **05GZA033** for **570-230** and **248**)
- When a dial indicator or test indicator is used with **570-227**, the dedicated holding bar (**953639**, overall length 50 mm) is recommended for use. However, instrumental error may be larger because the measurement point is further from the beam.
- For precision Black Granite Surface Plates, refer to page E-49.



570-227

SPECIFICATIONS

Metric

Order No.	Range	Resolution	Fine feed	Accuracy*	Repeatability	Height	Mass
570-227	0 - 200 mm	0.01 mm	4 mm	±0.03 mm	0.01 mm	355 mm	1.4 kg
570-230	0 - 1000 mm		6 mm	±0.07 mm		1260 mm	16.8 kg

* Excluding quantizing error of ±1 count

Inch/Metric

Order No.	Range	Resolution	Fine feed	Accuracy*	Repeatability	Height	Mass
570-244	0 - 8 in	0.0005 in / 0.01 mm	0.16 in	±0.002 in	0.01 mm	355 mm	1.4 kg
570-248	0 - 40 in		0.24 in	±0.003 in		1260 mm	16.8 kg

* Excluding quantizing error of ±1 count

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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).

ABSOLUTE[™]

(Refer to page X for details.)

Functions

Zero-setting
+/- directional measurement
Data hold
Data output
Presetting
inch/mm reading (inch/mm models)
Preset value memory
Origin restoration
Low battery voltage alert
Counting value composition error alert

Optional accessories

For details, refer to page D-39.

Connecting cables for IT/DP/MUX

905338: SPC cable with data button (1 m)

905409: SPC cable with data button (2 m)

USB Input Tool Direct

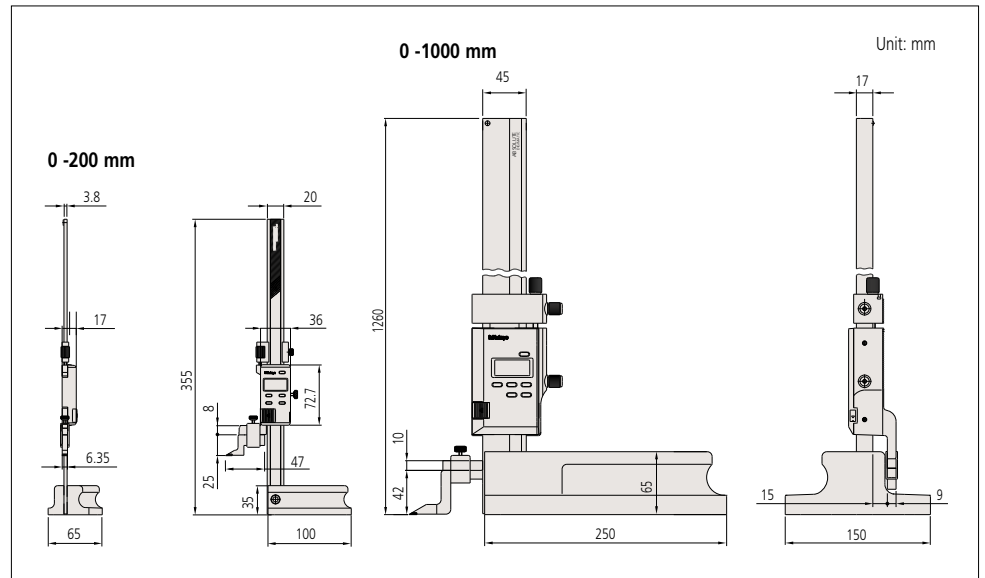
06AFM380F: SPC cable for **USB-ITN-F** (2 m)

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

02AZD790F: SPC cable for **U-WAVE** with data button (160 mm)

02AZE140F: SPC cable for footswitch

DIMENSIONS



Height Gage

A standard measuring tool of industry

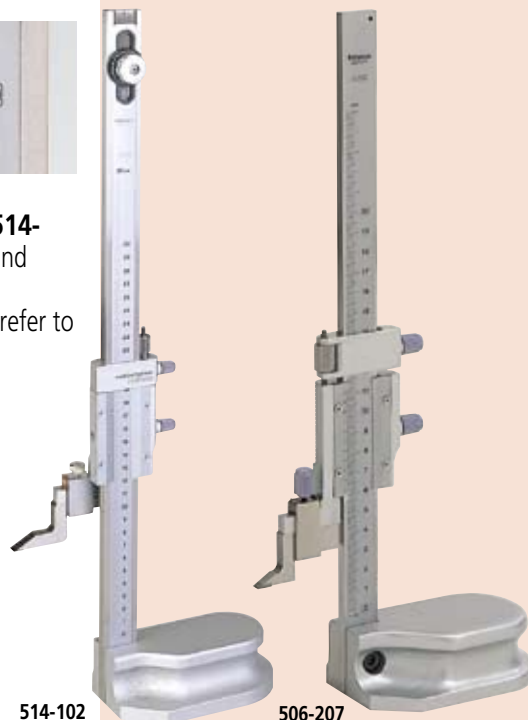
Vernier Height Gage

SERIES 514, 506 — Standard Height Gage with Adjustable Main Scale

- Fits comfortably in the hand and moves easily on the surface plate.
- The main scale slides and clamps within the column for quick and convenient zero-setting.
- Large locking knobs are used both for the slider and fine adjustment clamps to make clamping easy and secure.
- Operability of slider has been improved.
- Large main-scale engraving for fatigue-free working.



- Carbide-tipped scriber (**07GZA000** for **514-102/104/106/103/105/107, 905200** for **514-108** and **109**, and **900390** for **514-170**) is provided as a standard accessory. (Scriber clamp **05GZA033** for **514-102/104/106/108/103/105/107/109**, and **905008** for **514-170**)
- For precision Black Granite Surface Plates, refer to page E-49.



514-102

506-207

SPECIFICATIONS

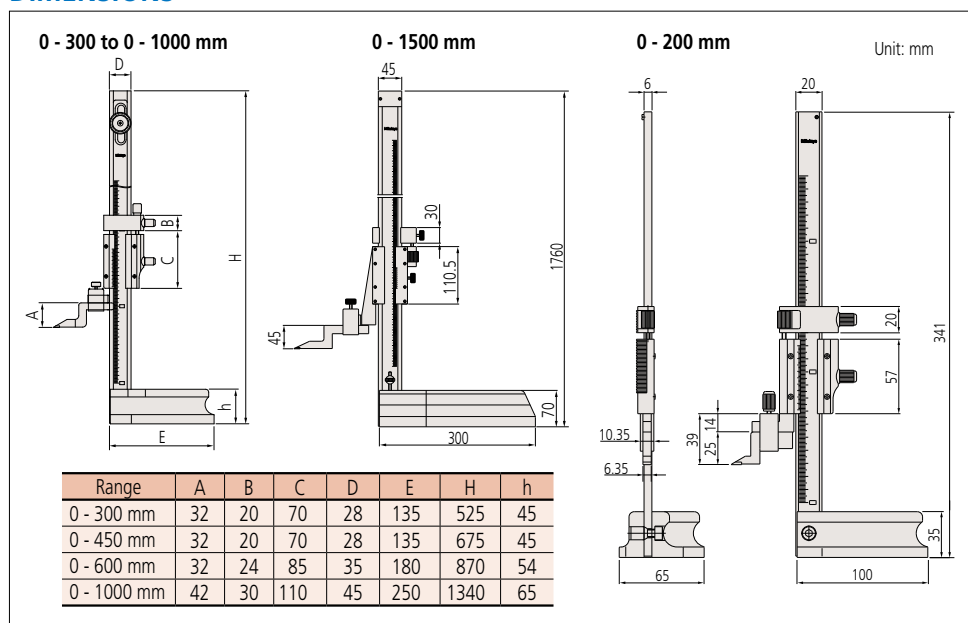
Metric

Order No.	Range	Minimum reading	Accuracy	Scale adjustment	Fine feed	Height	Mass	Remarks
506-207	0 - 200 mm	0.02 mm	±0.03 mm	15 mm	4 mm	341 mm	1.4 kg	—
514-102	0 - 300 mm		±0.04 mm			525 mm	3.1 kg	—
514-104	0 - 450 mm		±0.05 mm			675 mm	3.4 kg	—
514-106	0 - 600 mm		±0.07 mm			870 mm	7.4 kg	—
514-108	0 - 1000 mm	0.05 mm	±0.07 mm	25 mm	6 mm	1340 mm	20 kg	—
514-170	0 - 1500 mm		±0.18 mm		20 mm	1760 mm	26 kg	with magnifier

Inch/Metric

Order No.	Range	Minimum reading	Accuracy	Scale adjustment	Fine feed	Height	Mass	Remarks
506-208	0 - 8 in	0.001 in / 0.02 mm	±0.001 in	0.6 in	0.16 in	341 mm	1.4 kg	—
514-103	0 - 12 in		±0.002 in			525 mm	3.1 kg	—
514-105	0 - 18 in		±0.002 in			675 mm	3.4 kg	—
514-107	0 - 24 in		±0.003 in		0.27 in	870 mm	7.4 kg	—
514-109	0 - 40 in			1 in	0.24 in	1340 mm	20.0 kg	—

DIMENSIONS



Optional accessories

07GZA000: Scriber

953638: Holding bar for test indicator (length: 50 mm)

900209: Holding bar for test indicator (length: 100 mm)

953639: Holding bar for test indicator (length: 2 in)

900306: Holding bar for test indicator (length: 4 in)

900321: Swivel clamp used with holding bar (metric)

900322: Swivel clamp used with holding bar (inch)

902053: Clamp (with dovetail groove, $\phi 6$ and $\phi 8$ holes)

Note: A test indicator can be mounted on a height gage using a holding bar and clamp.

Dial Height Gage SERIES 192 — With digital counter

- Easy and error-free reading with both up and down digital counters as well as a dial.

- Fits comfortably in the hand and moves easily on the surface plate.



- Can be zero-set at any arbitrary position.
- Provided with a large adjustment wheel for easy height adjustment.
- Clamp can be operated easily and securely.



- Carbide tipped scriber (**07GZA000**) is attached as standard. (Standard accessory: Scriber clamp **05GZA033**)
- For precision Black Granite Surface Plates, refer to page E-49.

SPECIFICATIONS

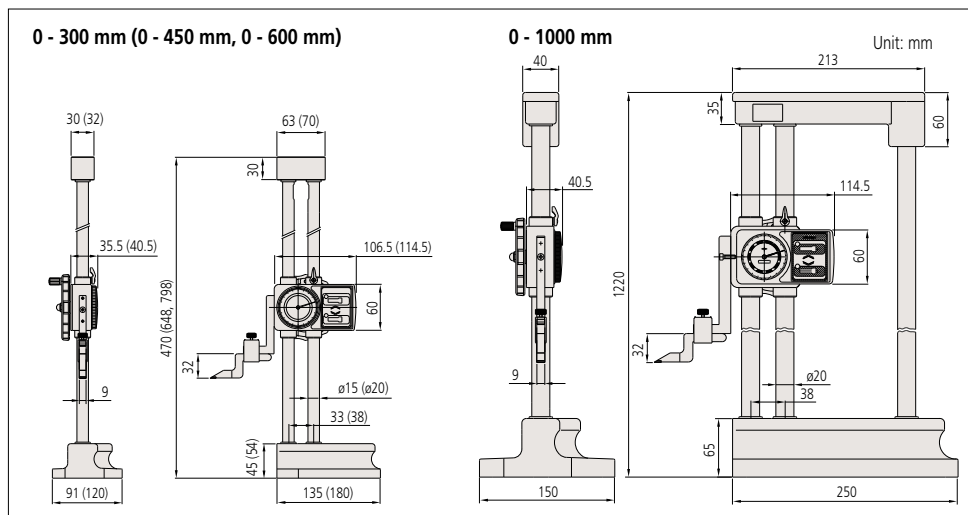
Metric

Order No.	Range	Accuracy	Graduation	Height	Mass
192-130	0 - 300 mm	±0.03 mm	0.01 mm	470 mm	4.2 kg
192-131	0 - 450 mm	±0.05 mm		648 mm	9.2 kg
192-132	0 - 600 mm			798 mm	9.8 kg
192-133	0 - 1000 mm	±0.07 mm		1220 mm	17.0 kg

Inch

Order No.	Range	Accuracy	Graduation	Height	Mass
192-150	0 - 12 in	±0.0015 in	0.001 in	470 mm	4.2 kg
192-151	0 - 18 in	±0.002 in		648 mm	9.2 kg
192-152	0 - 24 in			798 mm	9.8 kg
192-153	0 - 40 in	±0.003 in		1220 mm	17.0 kg

DIMENSIONS

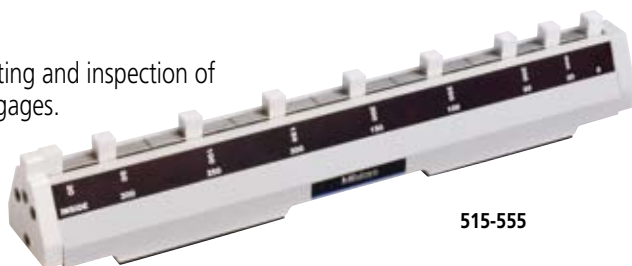


Height Gage

A standard measuring tool of industry

CERA Caliper Checker SERIES 515

- Enables efficient setting and inspection of calipers and height gages.



515-555

SPECIFICATIONS

Metric

Order No.	Range	Block pitch accuracy*		Parallelism of blocks*		Mass
		20 - 300 mm	350 - 600 mm	20 - 300 mm	350 - 600 mm	
515-555	0 - 300 mm	±5.0 μm	—	2.0 μm	—	4 kg
515-556-2	0 - 600 mm		±7.0 μm		4.0 μm	

* The block accuracy and the parallelism of blocks are based on the following:

Outside caliper and height gage: lower end reference plane

Inside caliper: inside reference plane

Inch

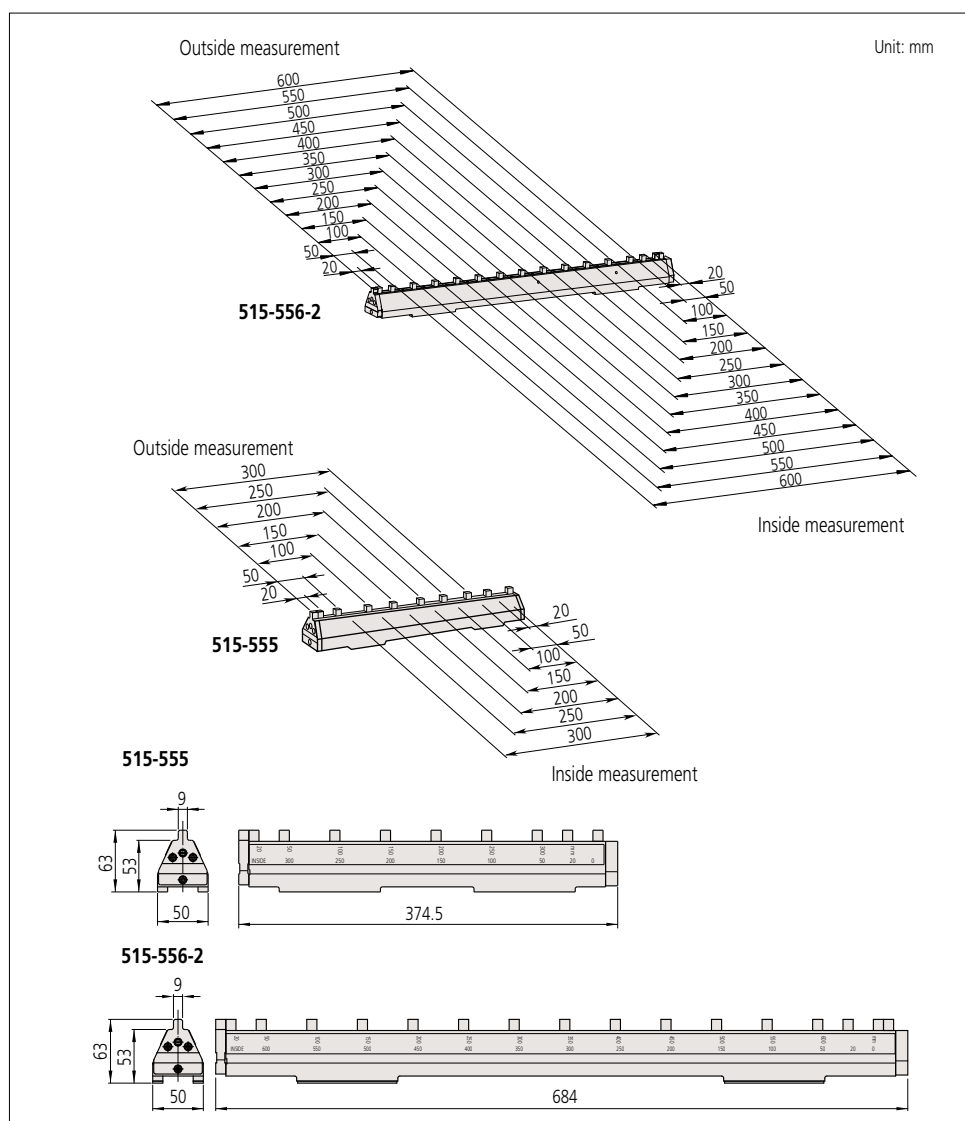
Order No.	Range	Block pitch accuracy*		Parallelism of blocks*		Mass
		1 - 12 in		1 - 12 in		
515-565	0 - 12 in	±0.0002 in		0.00008 in		4 kg

* The block accuracy and the parallelism of blocks are based on the following:

Outside caliper and height gage: lower end reference plane

Inside caliper: inside reference plane

DIMENSIONS



An inspection certificate is supplied as standard.
Refer to page X for details.

Applications



Checking accuracy of caliper (outside measurement)



Checking accuracy of caliper (inside measurement)



Checking accuracy of height gage

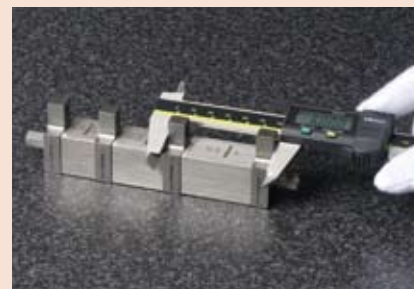
Optional accessories

602162: Wooden case for 300 mm, 12 inch model

602164: Wooden case for 600 mm model

Alternative solution using a Square Gauge Block Accessories Set

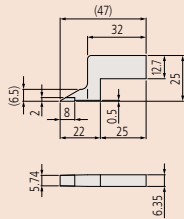
If such an accessories set is available, then an instrument equivalent to the CERA Calibration Checker may be assembled, as shown below, if additional elements are obtained (particularly plain jaws, **619072**). For details, refer to pages E-25/26. Note that such an assembly will not have the corrosion resistance of the CERA Calibration Checker and, therefore, more care will be required in use and storage.



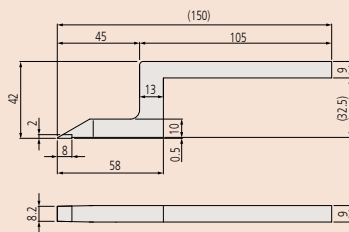
Scriber DIMENSIONS

900173

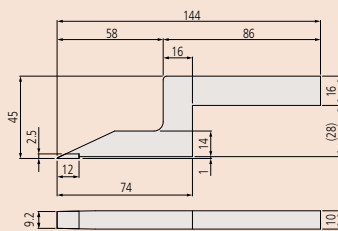
Unit: mm



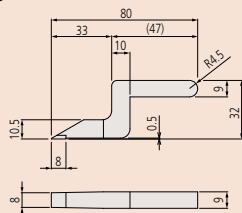
905200



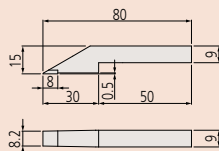
900390



07GZA000



900168



Height Gage Optional accessories for height gages

SPECIFICATIONS

Metric	
Order No.	Applicable Height Gages
07GZA000	192 Series Digimatic Height Gages (192-613-10, 192-614-10, 192-615-10)
	570 Series Digimatic Height Gages (570-302, 570-304)
	192 Series Dial Height Gages (192-130, 192-131, 192-132, 192-133)
	514 Series Vernier Height Gages (514-102, 514-104, 514-106, 514-103, 514-105, 514-107)
	574 Series Heightmatic (574-112-1, 574-111-1, 574-110-1)
905200	192 Series Digimatic Height Gages (192-663-10, 192-664-10, 192-665-10)
	570 Series Digimatic Height Gages (570-230)
	514 Series Vernier Height Gages (514-108, 514-109)
900390	514 Series Vernier Height Gage (514-170)

Inch	
Order No.	Applicable Height Gages
900173	570 Series Digimatic Height Gages (570-227, 570-244)
	506 Series Vernier Height Gages (506-207, 506-208)
900258	192 Series Digimatic Height Gages (192-630-10, 192-631-10, 192-632-10, 192-633-10)
	570 Series Digimatic Height Gages (570-312, 570-313, 570-314)
	574 Series Heightmatic (574-212-1, 574-211-1, 574-210-1)
905201	192 Series Digimatic Height Gages (192-670-10, 192-671-10, 192-672-10, 192-673-10)
	570 Series Digimatic Height Gages (570-248)

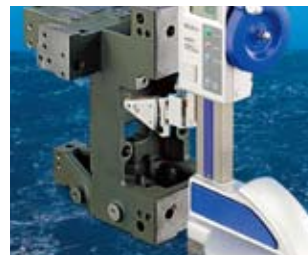
Contact Sensor



900872

- The contact sensor eliminates errors caused by non-contact of the slider with a workpiece while making measurements. When the scriber of a height gage touches a conductive workpiece, an indicator lights up to indicate that a measurement can be taken, which results in consistent results.
- Magnet is incorporated.
- Battery (PR44, 2 pcs required) is not included.
- For precision Black Granite Surface Plates, refer to page E-49.

Center Probe



951144

- Allows quick measurement of center-to-center distance between holes.
- Measurable hole diameters: 1 - 38 mm
- Mounting position dimension: 99 mm

Depth Gage Attachment



900764

- Attaches to a height gage for measuring groove and hole depth.
- Minimum hole diameter: 5.5 mm
- Maximum distance from the bottom of the holding bar to the contact point: 80 mm (metric type), 2.95 inch (inch type)
- Dial indicator contact points are usable. (Refer to pages F-51.)
- Mounting position dimension: 99 mm
- Holding bar length: 100 mm