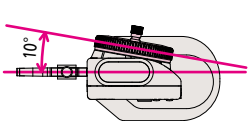


# Height Gage

A standard measuring tool of industry

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

- Double-column structure ensures high measuring accuracy.
- Ergonomic base fits comfortably in the hand.
- Bidirectional touch-trigger probe is available as an optional accessory.
- Character height of the LCD display has been increased (10mm to 11mm) and a high-contrast LCD display unit adopted, so that the readability is improved.
- 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 (No. **905200** with overall length of 150mm) is provided as a standard accessory. (Standard accessory: scribe clamp No. **05GZA033**)
- For precision Black Granite Surface Plates, refer to page E-51.



192-663-10

### SPECIFICATIONS

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

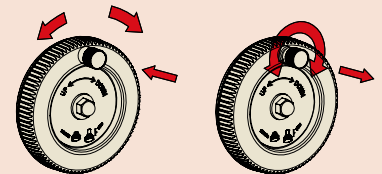
\* Excluding quantizing error

Inch/Metric							
Order No.	Range	Resolution	Accuracy*	Repeatability	Max. response speed	Height	Mass
192-670-10	0 - 12"	.0005"/0.01mm (.0002"/0.005mm)	±.001"	0.01mm	500mm/s	510mm	5.7kg
192-671-10	0 - 18"		±.0015"			649mm	7.5kg
192-672-10	0 - 24"		±.0015"			802mm	8.3kg
192-673-10	0 - 40"		±.0025"			1228mm	15.7kg

\* Excluding quantizing error

### 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 height adjustment through knob and wheel combination. Slider height adjustment wheel allows fine and coarse height adjustment.



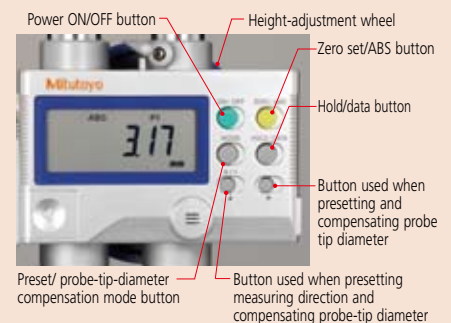
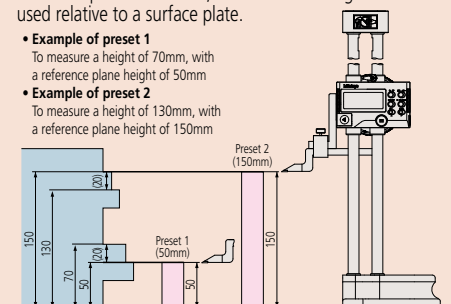
- Coarse adjustment: Push the small fine-adjustment knob in to disengage gearing and then turn the large wheel.
- Fine adjustment: Pull the fine-adjustment knob out to engage gearing and then turn this knob, which then slowly turns the wheel.

- 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)

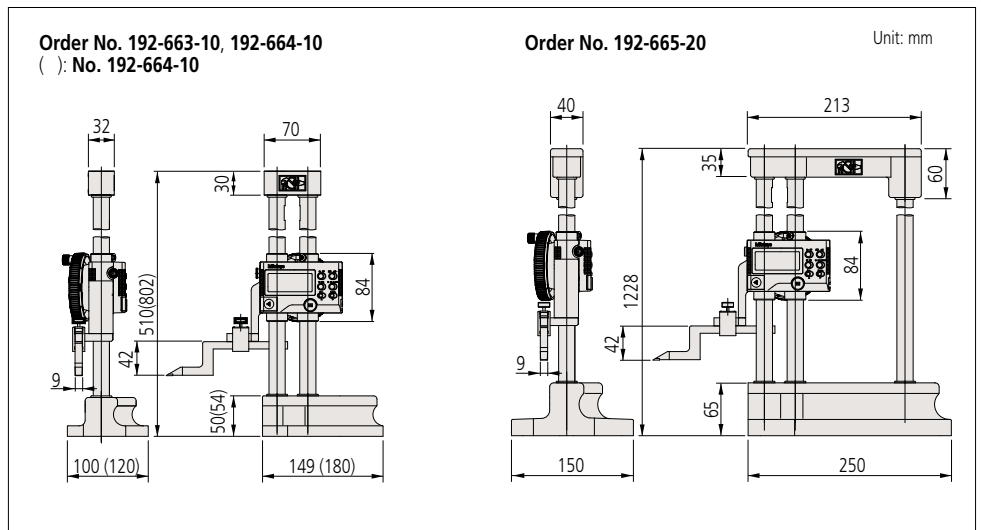
With two preset functions, two reference heights can be used relative to a surface plate.

- **Example of preset 1**  
To measure a height of 70mm, with a reference plane height of 50mm
- **Example of preset 2**  
To measure a height of 130mm, with a reference plane height of 150mm



\* Probe-tip-diameter compensation mode is a function provided for Order No. 192-663-10/192-664-10/192-665-10/192-670-10/192-671-10/192-672-10/192-673-10.

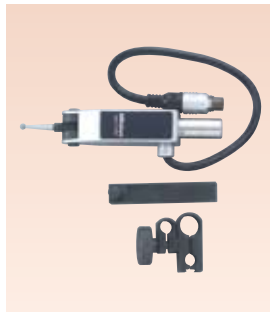
## DIMENSIONS



## Optional Accessory

### Bidirectional touch-trigger probe

Improves accuracy in step, internal thickness, and outside width measurement by minimizing reproducibility error.



## SPECIFICATIONS

Metric							
Order No.	Measuring direction	Relay contact type	Probe overtravel	Probe size	Repeatability	Measuring force	Standard accessories
192-007	Bidirectional	Normally Open	1.5mm	ø3mm	$\sigma$ : 2 $\mu$ m	0.4N	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	1.5mm	ø3mm	$\sigma$ : 2 $\mu$ m	0.4N	Holder arm, Clamp

For details of the connecting cable, refer to page D-39.

### Connecting cables for IT/DP/MUX

905338: SPC cable (1m)

905409: SPC cable (2m)



### USB Input Tool Direct

06ADV380F: SPC cable for USB-ITN-F (2m)

### Connecting cables for U-WAVE-T

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

02AZE140F: SPC cable for footswitch

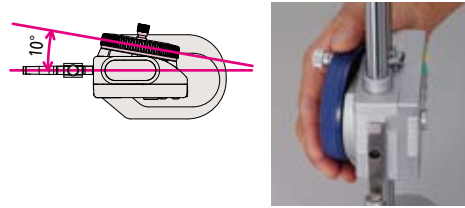
# Height Gage

A standard measuring tool of industry

## Digimatic Height Gage SERIES 192 — Standard Type with SPC Data Output

- Easy-to-use standard type.
- Double-column structure ensures high measuring accuracy.
- Ergonomic base fits comfortably in the hand.
- Character height of the LCD display has been increased (10mm to 11mm) and a high-contrast LCD display unit adopted, so that readability is improved.
- Allows integration into statistical process control and measurement systems. Refer to page A-3.

- Inclined handle improves slider ergonomics.



- Battery: **SR44** (1 pc), **938882**. For initial operational checks (standard accessory)
- Battery life is 3,500 hours in continuous use.
- Carbide-tipped long scriber No. 07GZA000 is provided as a standard accessory. (Standard accessory: scriber clamp No. 05GZA033)
- For precision Black Granite Surface Plates, refer to page E-51.



192-613-10

### SPECIFICATIONS

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

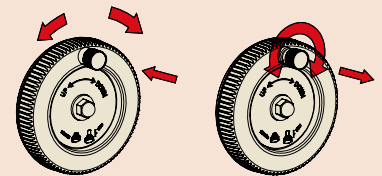
\* Excluding the quantizing error of ±1 count.

Inch/Metric							
Order No.	Range	Resolution	Accuracy*	Repeatability	Max. response speed	Height	Mass
192-630-10	0 - 12"	.0005"/0.01mm (.0002"/0.005mm)	±.001"	0.01mm	500mm/s	475mm	4.7kg
192-631-10	0 - 18"		±.002"			649mm	7.5kg
192-632-10	0 - 24"		±.002"			802mm	8.3kg
192-633-10	0 - 40"		±.003"			1228mm	15.7kg

\* Excluding the quantizing error of ±1 count.

### 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 height 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.

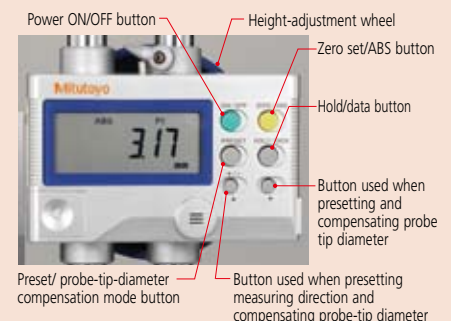
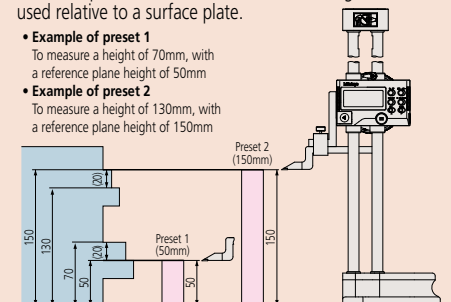
### Probe-tip diameter compensation:

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 70mm, with a reference plane height of 50mm
- **Example of preset 2**  
To measure a height of 130mm, with a reference plane height of 150mm

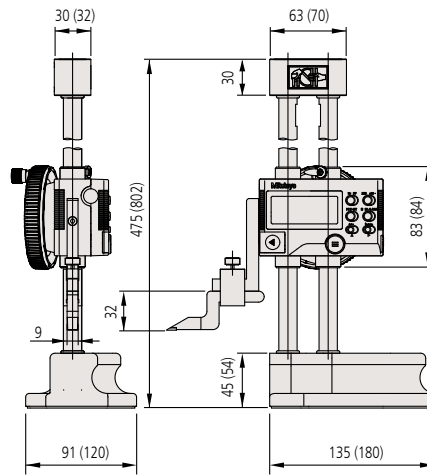


\* Probe-tip-diameter compensation mode is a function provided for Order No. 192-663-10/192-664-10/192-665-10/192-670-10/192-671-10/192-672-10/192-673-10.

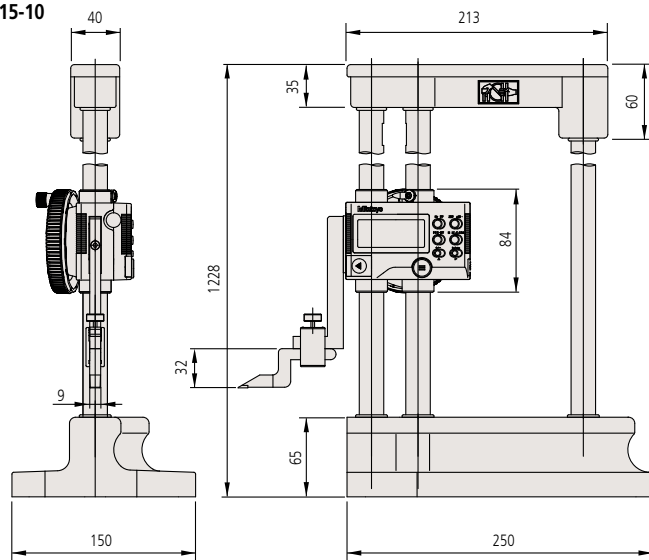
## DIMENSIONS

Unit: mm

Order No. 192-613-10, 192-614-10  
 ( ): No. 192-614-10



Order No. 192-615-10



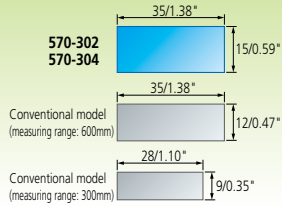
# Height Gage

A standard measuring tool of industry

## ABSOLUTE Digimatic Height Gage SERIES 570 — with ABSOLUTE Linear Encoder

- 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 (35x15mm).
- 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-51.

### Dimensions of column cross section



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



## SPECIFICATIONS

Metric						
Order No.	Range	Resolution	Accuracy*	Repeatability	Max. response speed	Mass
570-302	0 - 300mm	0.01mm	±0.03mm	0.01mm	Unlimited	4.6kg
570-304	0 - 600mm		±0.05mm			6.4kg

\* Excluding quantizing error

Inch/Metric						
Order No.	Range	Resolution	Accuracy*	Repeatability	Max. response speed	Mass
570-312	0 - 12"	.0005"/0.01mm	±.0015"	0.01mm	Unlimited	4.6kg
570-313	0 - 18"		±.002"			5.9kg
570-314	0 - 24"		±.002"			6.4kg

\* Excluding quantizing error

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 570-302, 304

No.07GZA000 Scriber

No.05GZA033 Scriber clamp

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

No.900258 Scriber

No.901385 Scriber clamp



## Optional accessories

For details, refer to page D-39.

Connecting cables for IT/DP/MUX

905338: SPC cable with data button (1m)

905409: SPC cable with data button (2m)

USB Input Tool Direct

06ADV380F: SPC cable for USB-ITN-F (2m)

Connecting cables for U-WAVE-T

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

02AZE140F: SPC cable for footswitch



Slider height adjustment wheel



Large clamp lever

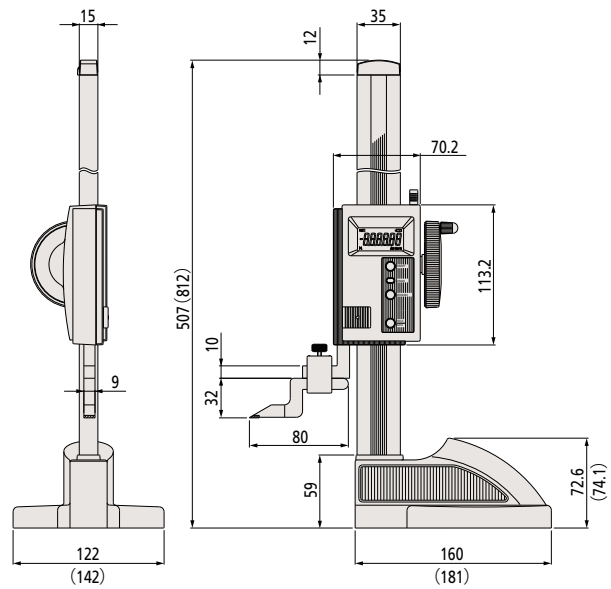


Base that fits the hand comfortably

## DIMENSIONS

( ) : No. 570-304

Unit: mm



# Height Gage

A standard measuring tool of industry

## ABSOLUTE Digimatic Height Gage SERIES 570 — with ABSOLUTE Linear Encoder

- 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 (No. **900173** for Nos. **570-227** and **244**, and No. **905200** for Nos. **570-230** and **248**) is provided as a standard accessory. (Standard accessory: scriber clamp No. **901338** for Nos. **570-227** and **244**, and No. **05GZA033** for Nos. **570-230** and **248**)
- When a dial indicator or test indicator is used with **570-227**, the dedicated holding bar (**953639**, overall length 50mm) 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-51.



570-227

## SPECIFICATIONS

### Metric

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

\* Excluding quantizing error

### Inch/Metric

Order No.	Range	Resolution	Fine feed	Accuracy*	Repeatability	Height	Mass
<b>570-244</b>	0 - 8"	.0005" / 0.01mm	.16"	±.002"	0.01mm	355mm	1.4kg
<b>570-248</b>	0 - 40"		.24"	±.003"		1260mm	16.8kg

\* Excluding quantizing error

ABSOLUTE™

(Refer to page X for details.)

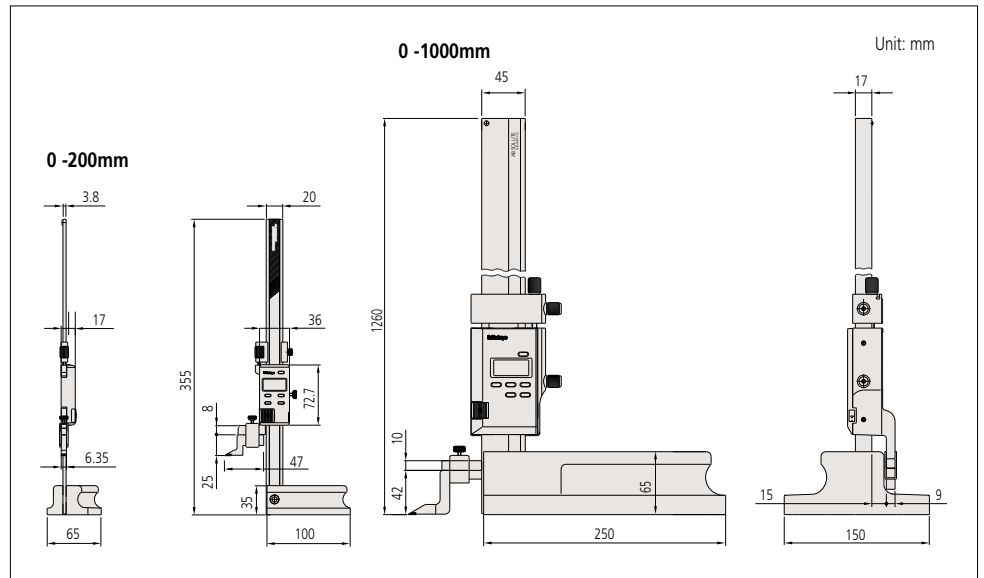
### Functions

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 (1m)  
**905409**: SPC cable with data button (2m)  
 USB Input Tool Direct  
**06ADV380F**: SPC cable for **USB-ITN-F** (2m)  
 Connecting cables for **U-WAVE-T**  
**02AZD790F**: SPC cable for **U-WAVE** with data button (160mm)  
**02AZE140F**: SPC cable for footswitch

## DIMENSIONS



D



# Height Gage

A standard measuring tool of industry

## Vernier Height Gage

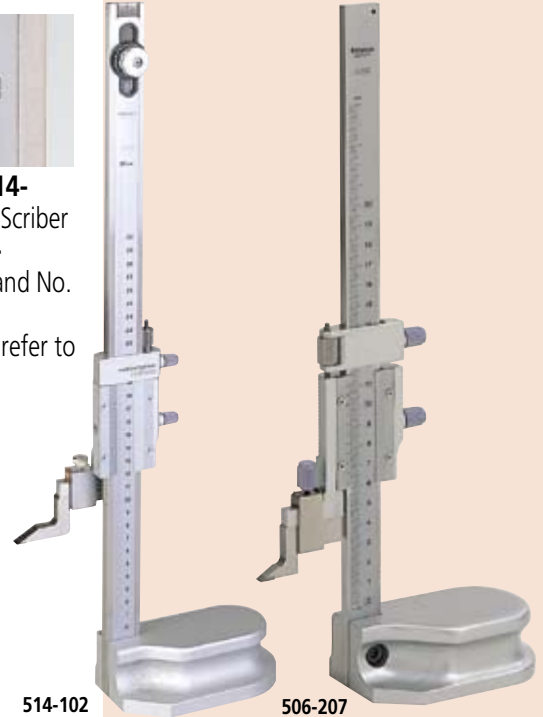
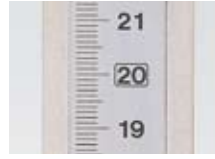
### SERIES 514, 506 — Standard Height Gage with Adjustable Main Scale

- 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 (No. **07GZA000** for Nos. **514-102/104/106/103/105/107**, No. **905200** for Nos. **514-108** and **109**, and No. **900390** for No. **514-170**) is provided as a standard accessory. (Scriber clamp No. **05GZA033** for Code No. **514-102/104/106/108/103/105/107/109**, and No. **905008** for No. **514-170**)
- For precision Black Granite Surface Plates, refer to page E-51.

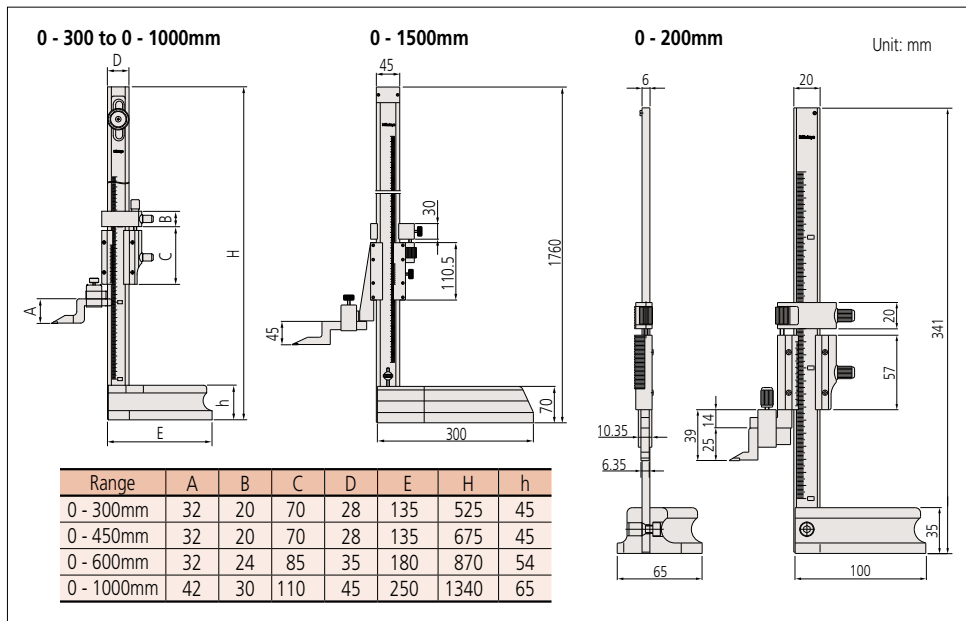


## SPECIFICATIONS

Metric								
Order No.	Range	Graduation	Accuracy	Scale adjustment	Fine feed	Height	Mass	Remarks
<b>506-207</b>	0 - 200mm	0.02mm	±0.03mm	—	4mm	341mm	1.4Kg	—
<b>514-102</b>	0 - 300mm		±0.04mm			525mm	3.1Kg	—
<b>514-104</b>	0 - 450mm		±0.05mm	15mm		675mm	3.4Kg	—
<b>514-106</b>	0 - 600mm		±0.05mm	7mm		870mm	7.4Kg	—
<b>514-108</b>	0 - 1000mm	±0.07mm	±0.18mm	25mm	6mm	1340mm	20Kg	—
<b>514-170</b>	0 - 1500mm	0.05mm			20mm	1760mm	26Kg	with magnifier

Inch/Metric								
Order No.	Range	Graduation	Accuracy	Scale adjustment	Fine feed	Height	Mass	Remarks
<b>506-208</b>	0 - 8"	.001"/0.02mm	±.001"	—	.16"	341mm	1.4Kg	—
<b>514-103</b>	0 - 12"		±.002"			.6"	525mm	3.1Kg
<b>514-105</b>	0 - 18"		±.002"	675mm		3.4Kg	—	
<b>514-107</b>	0 - 24"		±.003"	1"		.27"	870mm	7.4Kg
<b>514-109</b>	0 - 40"	±.003"	1"	.24"	1340mm	20.0 Kg	—	

## DIMENSIONS



### Optional accessories

- 07GZA000:** Scriber
  - 953638:** Holding bar for test indicator (length: 50mm)
  - 900209:** Holding bar for test indicator (length: 100mm)
  - 953639:** Holding bar for test indicator (length: 2")
  - 900306:** Holding bar for test indicator (length: 4")
  - 900321:** Swivel clamp used with holding bar (metric)
  - 900322:** Swivel clamp used with holding bar (inch)
  - 902053:** Clamp (with dovetail groove,  $\varnothing 6$  and  $\varnothing 8$  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

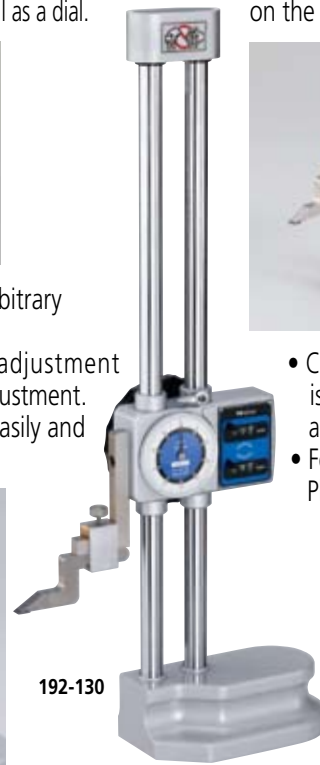
- Easy and error-free reading with both up and down digital counters as well as a dial.

- 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 (**No. 07GZA000**) is attached as standard. (Standard accessory: Scriber clamp **No.05GZA033**)
- For precision Black Granite Surface Plates, refer to page E-51.

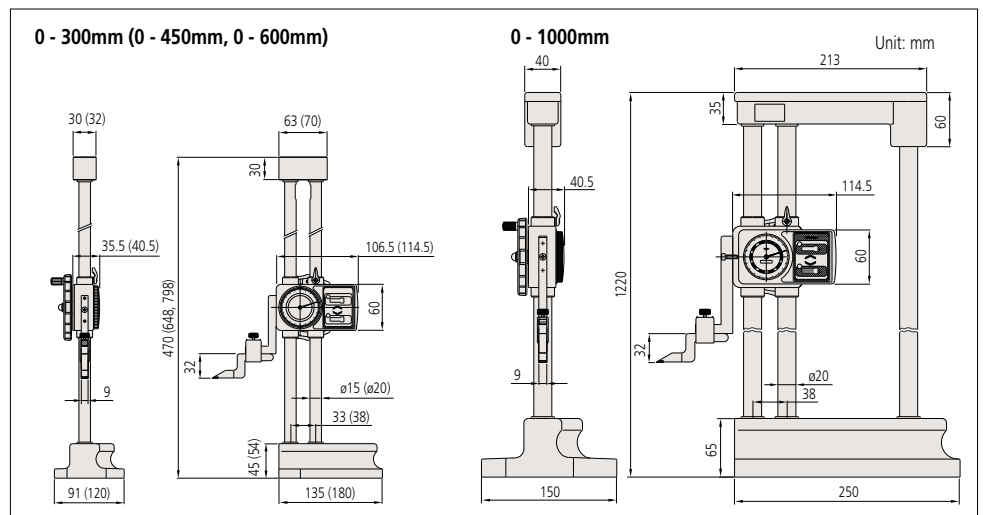


192-130

### SPECIFICATIONS

Metric					
Order No.	Range	Accuracy	Graduation	Height	Mass
192-130	0 - 300mm	$\pm 0.03\text{mm}$	0.01mm	470mm	4.2kg
192-131	0 - 450mm	$\pm 0.05\text{mm}$		648mm	9.2kg
192-132	0 - 600mm			798mm	9.8kg
192-133	0 - 1000mm	$\pm 0.07\text{mm}$		1220mm	17.0kg
Inch					
Order No.	Range	Accuracy	Graduation	Height	Mass
192-150	0 - 12"	$\pm 0.0015"$	.001"	470mm	4.2kg
192-151	0 - 18"	$\pm 0.002"$		648mm	9.2kg
192-152	0 - 24"			798mm	9.8kg
192-153	0 - 40"	$\pm 0.003"$		1220mm	17.0kg

### DIMENSIONS

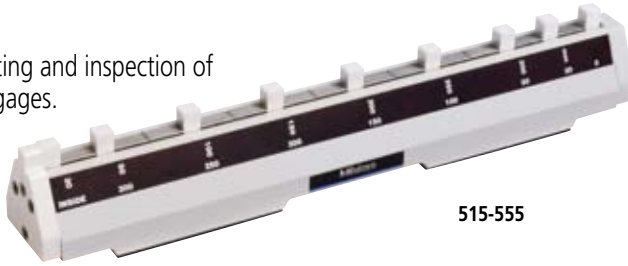


# Height Gage

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 - 300mm	350 - 600mm	20 - 300mm	350 - 600mm	
515-555	0 - 300mm	±5.0µm	—	2.0µm	—	4kg
515-556-2	0 - 600mm		±7.0µm	—	4.0µm	8.5kg

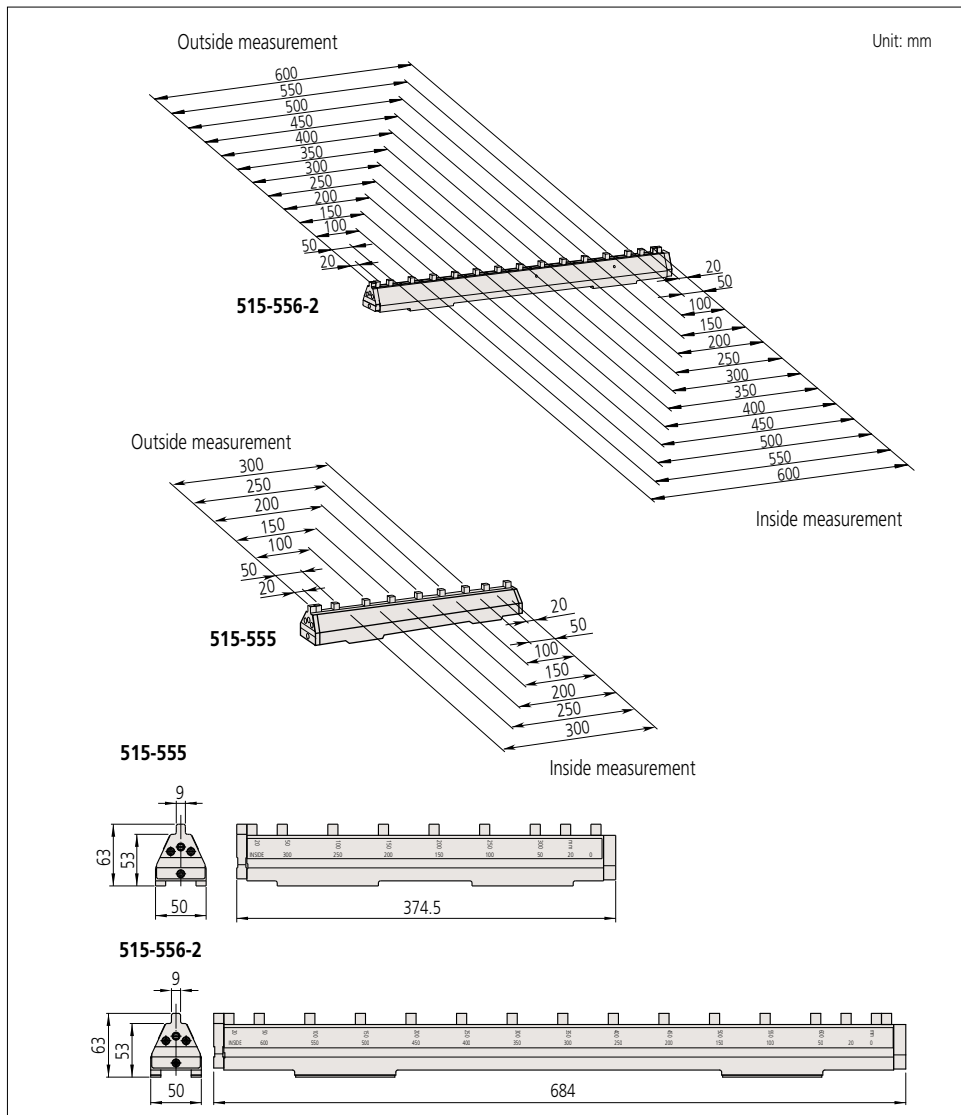
\* The block accuracy and the parallelism of blocks are based on the following:  
Outside caliper and height gage: lower end reference plane  
Inside caliper: inside reference plane

#### Inch

Order No.	Range	Block pitch accuracy*		Parallelism of blocks*		Mass
		1 - 12"	1 - 12"	1 - 12"	1 - 12"	
515-565	0 - 12"	±.0002"	—	.00008"	—	4kg

\* 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 300mm, 12inch model
- 602164: Wooden case for 600mm model

### Alternative solution using a Square Gauge Block Accessories Set

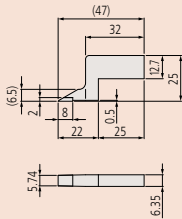
If such an accessories set is available, then an instrument equivalent to the CERA Calibration Checker may be assembled, as shown below, if additional elements are obtained (particularly plain jaws, 619072). For details, refer to pages E-25/26. Note that such an assembly will not have the corrosion resistance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



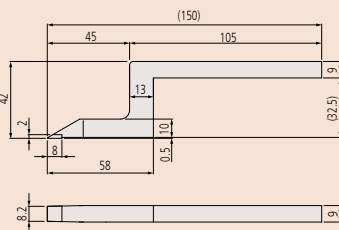
## Scriber DIMENSIONS

900173

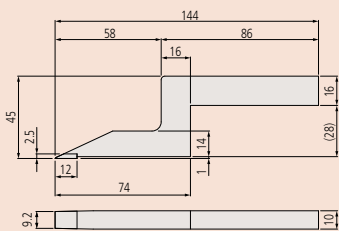
Unit: mm



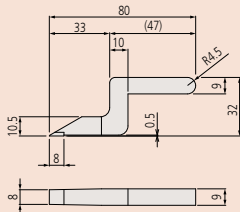
905200



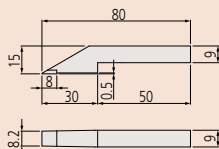
900390



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)
905200	574 Series Heightmatic (574-112-1, 574-111-1, 574-110-1)
	192 Series Digimatic Height Gages (192-663-10, 192-664-10, 192-665-10)
	570 Series Digimatic Height Gages (570-230)
900390	514 Series Vernier Height Gages (514-108, 514-109)
	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)

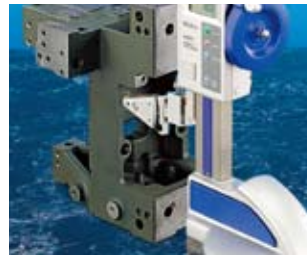
### Contact Sensor



#### No. 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-51.

### Center Probe



#### No. 951144

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

### Depth Gage Attachment



#### No. 900764

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