

# Thickness Gages

## SERIES 547, 7

Thickness Gages offer a quick and efficient means of inspection with their convenient grip handle, thumb trigger and spring-loaded spindle. The various models cover a wide range of applications.

### FEATURES

- Wide range of applications with various types of measuring faces (on the spindle and anvil).

- The digital models incorporate Mitutoyo's popular ID-C and ID-S Series Digimatic Indicators to provide error-free LCD readings as well as data output for SPC analysis.
- **547-401 (547-400S)** is ideally suited for measuring thicknesses of paper, film, wire, sheet metal and similar materials.

### Standard Type / Digital



### Deep Throat Type / Digital



### Standard Type / Dial



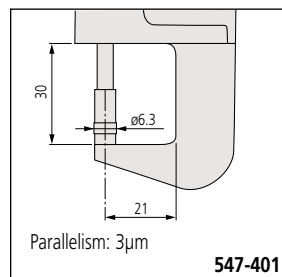
### Deep Throat Type / Dial



### High Accuracy Type / Digital



### DIMENSIONS



SPC

ABSOLUTE<sup>®</sup>  
Absolute System Patented by MITUTOYO

(Refer to page VIII for details.)

### Technical Data of Digital Models

Accuracy: Refer to the list of specifications (excluding quantizing error)

Resolution:

0.01mm type	0.01mm
0.001mm type	0.001mm/0.001mm
.0005"/0.01mm type	.0005"/0.01mm
.00005"/0.001mm type	.0005"/.0001"/.00005"/0.01mm/0.001mm

Display: LCD

Scale type: ABSOLUTE electrostatic linear encoder

Max. response speed: Unlimited

Measuring force: Refer to the list of specifications

Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)

Battery: SR44 (1 pc.), **938882**

Battery life: Approx. 7,000 hours under normal use

Dust/Water protection level: IP42 or IP53 (dust-proof type)

### Functions of Digital Models

Origin-set/Preset, Zeroset, GO/±NG judgment, Counting direction switching, Power ON/OFF, Simplified calculation, Function lock, Data hold, Data output, inch/mm conversion (inch/mm models)

Alarm: Low voltage, Counting value composition error, Overflow error, Tolerance limit setting error

### Optional Accessories

**905338:** SPC cable (1m) for digital models

**905409:** SPC cable (2m) for digital models

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

**902011:** Spindle lifting lever (ISO/JIS type)\*

**902794:** Spindle lifting lever (ANSI/AGD type)\*

**137693:** Spindle lifting hook\*\*

**540774:** Spindle lifting cable

**125317:** Spare rubber boot (for dust-proof type)

**02ACA571:** Auxiliary spindle spring for 25mm/1" models\*\*\*

**02ACA773:** Auxiliary spindle spring for 50mm/2" models\*\*\*

—: Backs (See page F-40.)

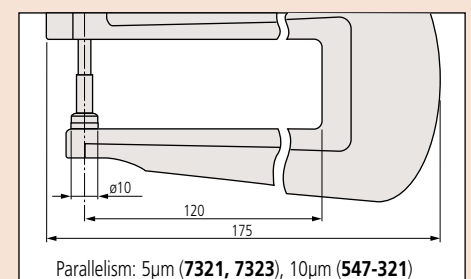
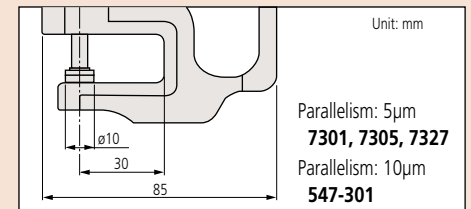
—: Contact points (See page F-36.)

\*Can be used on 12mm/5" models only.

\*\*Can be used on 25mm/1" or 50mm/2" models.

\*\*\*Required when orienting the indicator upside down.

### DIMENSIONS





# Lightweight Dial Thickness Gage

## SERIES 7



### Application

Measuring paper thickness



Measuring thickness of a human hair

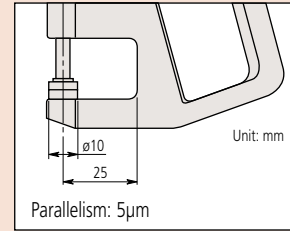


### SPECIFICATIONS

#### Metric

Range	Order No.	Dial reading	Accuracy	Measuring force
0 - 10mm	7331S	0.01mm	±20µm	1.4N or less

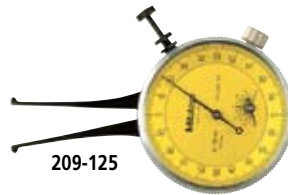
### DIMENSIONS



# Dial Caliper Gage

## SERIES 209 — Internal Measurement Type

These Dial Caliper Gages are comparison gages, and should be used in conjunction with a Setting Ring or a micrometer. The caliper is spring loaded and makes point contact at constant measuring force.



### SPECIFICATIONS

#### Metric

Range	Order No.	Graduation	Range of opening*1	Dial face	Accuracy	Measuring force
6 - 18mm	209-125	0.01mm	5.8 - 18.2mm	0-100-100	±40µm	2.0N or less
10 - 22mm	209-126	0.01mm	9.8 - 22.2mm	0-100-100	±40µm	2.0N or less
20 - 32mm	209-127	0.01mm	19.8 - 32.2mm	0-100-100	±40µm	2.0N or less
5 - 15mm	209-155	0.01mm	4.8 - 15.2mm	0-100	±30µm	2.0N or less
10 - 20mm	209-156	0.01mm	9.8 - 20.2mm	0-100	±30µm	2.0N or less
10 - 30mm	209-175	0.01mm	9.8 - 30.2mm	0-100-100	±40µm	2.0N or less
20 - 40mm	209-176	0.01mm	19.8 - 40.2mm	0-100-100	±40µm	2.0N or less

\*1: Range of opening is a value for reference. Accuracy is not guaranteed if the Dial Caliper Gage is used beyond the measuring range.

\* Please note that this Dial Caliper Gage is only provided with standard models. Special size and special specification models are not supported.

### DIMENSIONS

Unit: mm

Order No.	A	B
209-125	1.1	1.1
209-126	2.3	2.7
209-127	8.0	4.4

Order No.	A	B	L	T
209-155	2.2	2.2	26	1.2
209-156	5.5	5.5	28	1.5

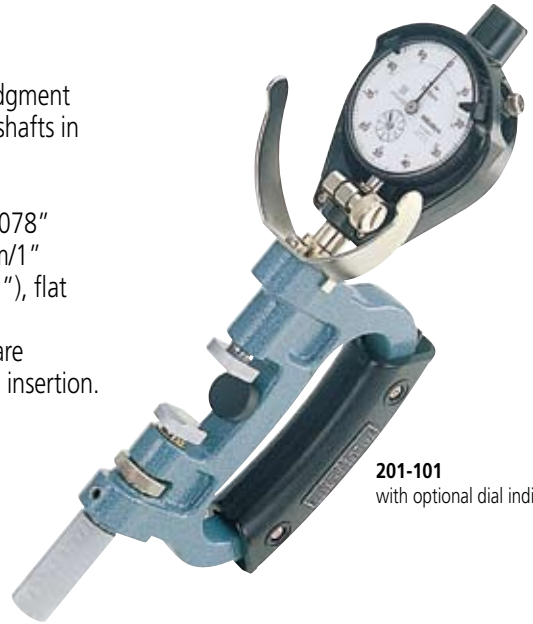
Order No.	A	B	T
209-175	5.5	5.5	1.5
209-176	10	10	2.0

# Dial Snap Gage

## SERIES 201

### FEATURES

- Designed for quick GO/NG judgment of diameters of cylinders and shafts in machining processes.
- Dial indicator is optional.
- Anvil retracting stroke: 2mm/.078"
- Anvil positioning range: 25mm/1"
- Wide (13.5 x 12mm/1.53 x .47"), flat carbide anvils.
- Both front edges of the anvil are chamfered for easy workpiece insertion.



**201-101**  
with optional dial indicator

### Technical Data

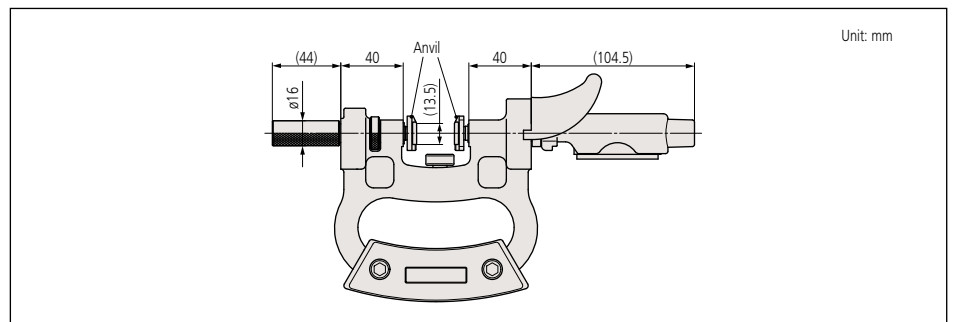
Accuracy: Refer to the list of specifications  
 Anvil retracting stroke: 2mm/.078"  
 Anvil positioning range: 25mm/1"  
 Anvil flatness: 1µm/.00004"

### SPECIFICATIONS

Metric				
Range	Order No.	Parallelism	Measuring force	Recommended dial indicator (optional)
0 - 25mm	<b>201-101</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
25 - 50mm	<b>201-102</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
50 - 75mm	<b>201-103</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
75 - 100mm	<b>201-104</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
100 - 125mm	<b>201-105</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
125 - 150mm	<b>201-106</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
150 - 175mm	<b>201-107</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
175 - 200mm	<b>201-108</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
200 - 225mm	<b>201-109</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
225 - 250mm	<b>201-110</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
250 - 275mm	<b>201-111</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)
275 - 300mm	<b>201-112</b>	5µm	15N±3N	<b>2046SB</b> (0.01mm reading), <b>2109SB-10</b> (0.001mm reading)

Inch				
Range	Order No.	Parallelism	Measuring force	Recommended dial indicator (optional)
0 - 1"	<b>201-151</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
1 - 2"	<b>201-152</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
2 - 3"	<b>201-153</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
3 - 4"	<b>201-154</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
4 - 5"	<b>201-155</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
5 - 6"	<b>201-156</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
6 - 7"	<b>201-157</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
7 - 8"	<b>201-158</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
8 - 9"	<b>201-159</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
9 - 10"	<b>201-160</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
10 - 11"	<b>201-161</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)
11 - 12"	<b>201-162</b>	.0002"	15N±3N	<b>2803SB-10</b> (.0001" reading)

### DIMENSIONS



# Roll Caliper

## SERIES 310

### FEATURES

- The Roll Caliper is the most widely used instrument for checking the diameter of rollers used in the manufacture of many products such as metal, rubber and paper.
- Performs fast and accurate comparison measurements of roller diameter with the roller still mounted on a machine tool.
- Various types of detectors (dial indicator, Digimatic indicator, Mu-Checker gage head, etc.) can be attached according to the required accuracy and workpiece size.



**310-132**  
with optional dial indicator

# Contact Force Gage

## SERIES 546

### FEATURES

- Measures small forces applied to the end of its measuring lever in units of newtons (N).
- Contact Force Gages are widely used to determine the measuring force applied by

an instrument to a workpiece, as well as contact forces of electrical relays, micro-switches, valves and precision springs.

- Convenient peak-hold type gages are also available.



**546-112**  
Standard type



**546-119**  
Standard type



**546-137**  
Peak hold type

### SPECIFICATIONS

Standard		
Minimum reading	Order No.	Range
2mN	<b>546-112</b>	6mN - 50mN
5mN	<b>546-113</b>	10mN - 100mN
10mN	<b>546-114</b>	30mN - 300mN
0.02N	<b>546-115</b>	0.06N - 0.5N
0.05N	<b>546-116</b>	0.1N - 1N
0.05N	<b>546-117</b>	0.15N - 1.5N
0.1N	<b>546-118</b>	0.3N - 3N
0.2N	<b>546-119</b>	0.6N - 5N

Peak hold		
Graduation	Order No.	Range
5mN	<b>546-133</b>	10mN - 100mN
10mN	<b>546-134</b>	30mN - 300mN
0.02N	<b>546-135</b>	0.06N - 0.5N
0.05N	<b>546-136</b>	0.1N - 1N
0.05N	<b>546-137</b>	0.15N - 1.5N
0.1N	<b>546-138</b>	0.3N - 3N
0.2N	<b>546-139</b>	0.6N - 5N

# V-Block Set

## SERIES 181

### FEATURES

- Two V-blocks per set.
- Magnetic type is available. (The magnetic type V-block is not provided with a workpiece clamp.)

### SPECIFICATIONS

Metric		
Max. workpiece dia.	Order No.	Remarks
25mm	<b>181-902</b>	With clamp

Inch		
Max. workpiece dia.	Order No.	Remarks
1"	<b>181-901</b>	With clamp



### SPECIFICATIONS

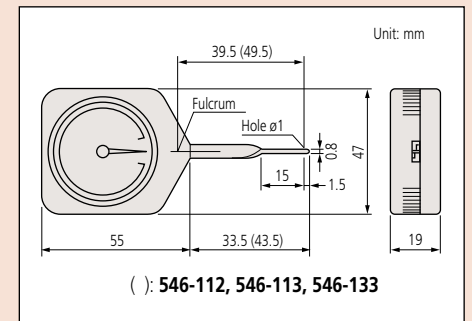
Metric		Inch	
Range	Order No.	Range	Order No.
ø500 - ø1400mm	<b>310-131</b>	ø20" - ø56"	<b>310-141</b>
ø400 - ø1050mm	<b>310-132</b>	ø16" - ø42"	<b>310-142</b>
ø275 - ø825mm	<b>310-133</b>	ø11" - ø32"	<b>310-143</b>
ø200 - ø600mm	<b>310-134</b>	ø8" - ø24"	<b>310-144</b>
ø100 - ø450mm	<b>310-135</b>	ø4" - ø17"	<b>310-145</b>

### Application

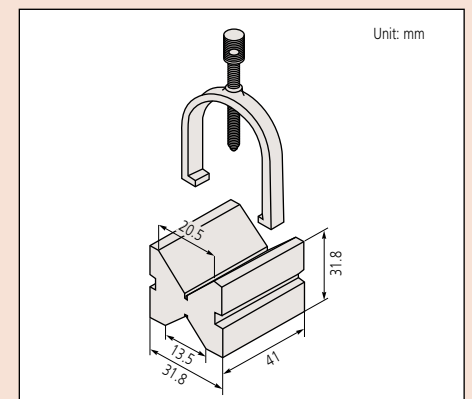
Measuring contact force of a relay



### DIMENSIONS



### DIMENSIONS





# Dial Gage Stands

## SERIES 7

Dial Gage Stands are designed for comparison measurements of size using a dial indicator or Digimatic Indicator.

### FEATURES

- Vertical travel of the gage holder — Dial Gage Stand: 95mm (7007-10: 90mm), Transfer Stand: 320mm
- Fine-adjustment of 1mm is provided for zero-setting the indicator.
- With interchangeable anvil. Domed anvil (**101463**) is optional.



**7001-10**  
with ø58mm serrated anvil



**7002-10**  
with ø58mm flat anvil



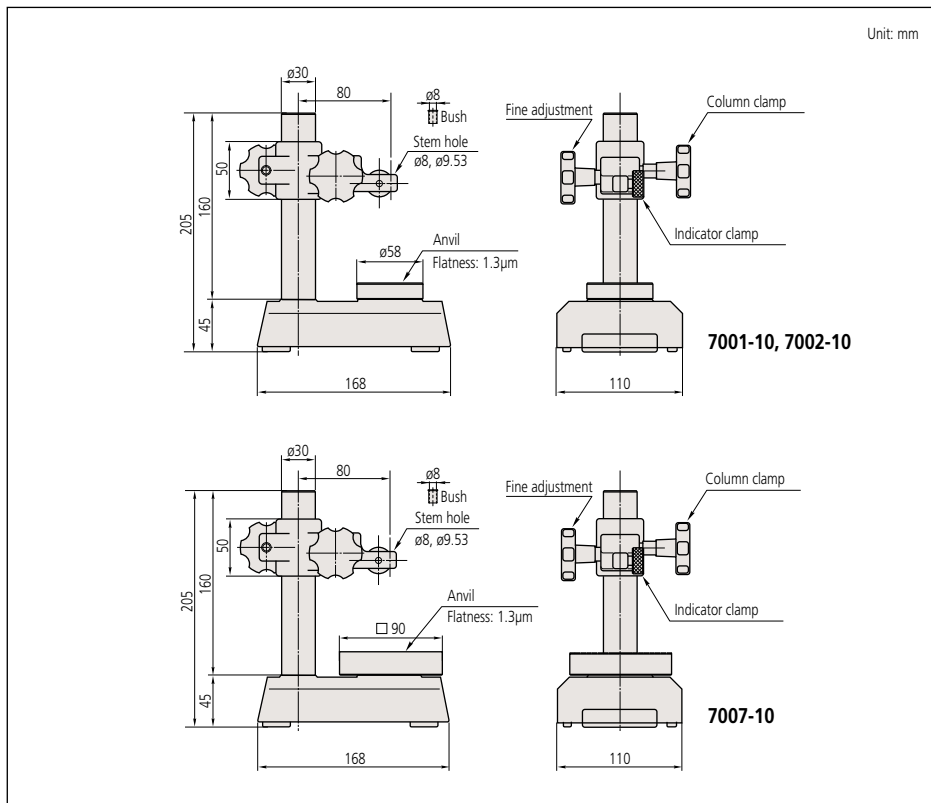
**7007-10**  
90mm square anvil

### SPECIFICATIONS

#### Metric

Order No.	Stem hole	Remarks
<b>7001-10</b>	ø8mm, ø9.53mm	With serrated anvil
<b>7002-10</b>	ø8mm, ø9.53mm	With flat anvil
<b>7007-10</b>	ø8mm, ø9.53mm	With square anvil

### DIMENSIONS



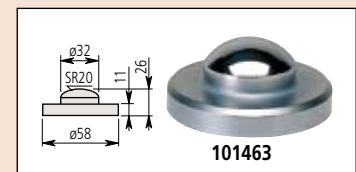
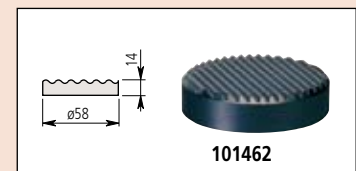
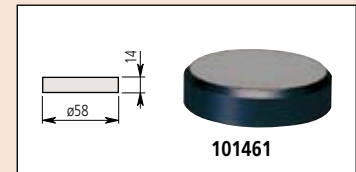
### Optional Accessories

**101461:** Hardened steel flat anvil

**101462:** Hardened steel serrated anvil

**101463:** Hardened steel domed anvil\*

\*Not available for 7007-10



# Transfer Stand

## SERIES 519

Transfer Stands are designed for comparison measurements of size using a dial indicator or Digimatic Indicator.

### FEATURES

- Vertical travel of the gage holder — Dial Gage Stand: 95mm (7007-10: 90mm), Transfer Stand: 320mm
- Fine-adjustment of 1mm is provided for zero-setting of the indicator.
- With interchangeable anvil. Domed anvil (**101463**) is optional.

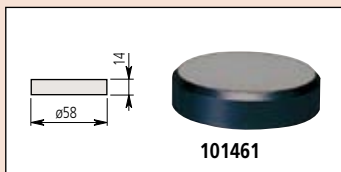


**519-109-10**  
with  $\varnothing 58$ mm serrated anvil

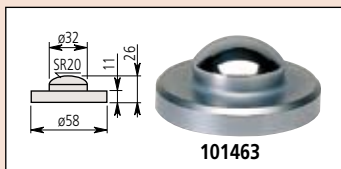
### Optional Accessories

**101461:** Hardened steel flat anvil

**101463:** Hardened steel domed anvil



**101461**



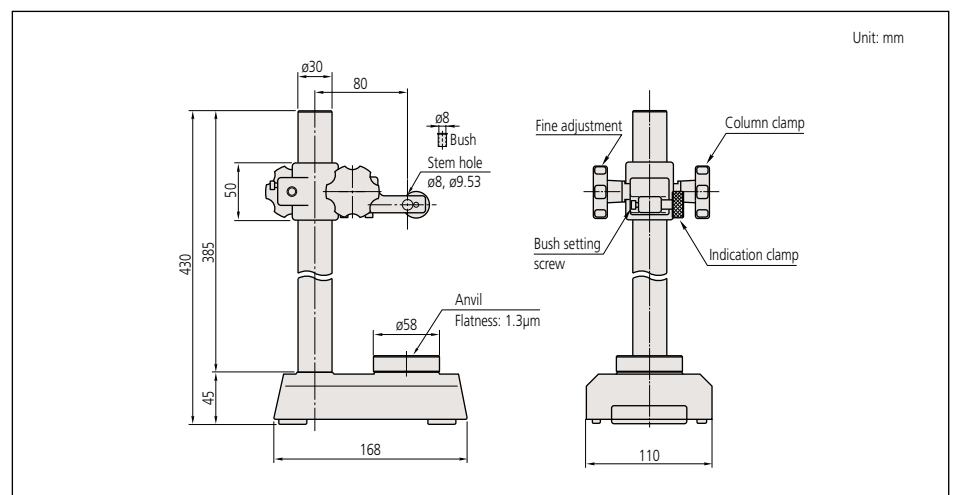
**101463**

### SPECIFICATIONS

#### Metric

Order No.	Stem hole	Remarks
519-109-10	$\varnothing 8$ mm, $\varnothing 9.53$ mm	With serrated anvil

### DIMENSIONS





# Granite Comparator Stands

## SERIES 215

Mitutoyo's Granite Comparator Stands are basic building-blocks for the assembly of special-purpose, precision measuring equipment. By mounting precision measuring instruments such as Digimatic indicators, Mu-

Checker Cartridge Heads, and Linear Gages onto the stands, it is possible to handle all manner of measuring applications. The rigid granite base is free from burrs, pileups, rust, and deterioration over time.



215-153-10

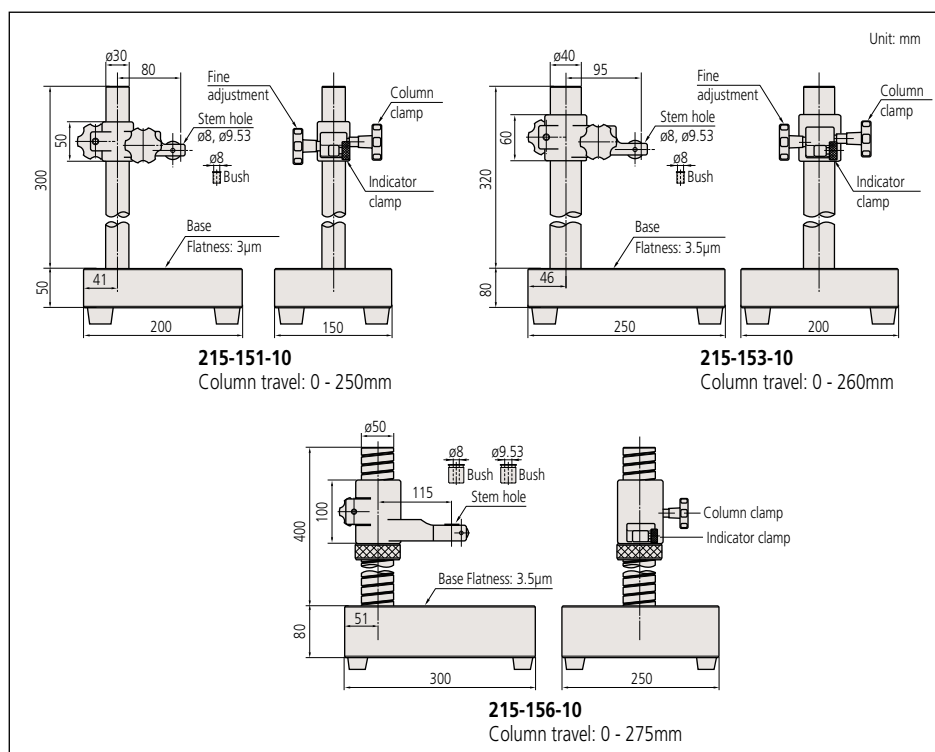
## SPECIFICATIONS

Order No.	Granite base size (W x D x H)	Column travel	Stem hole	Remarks
215-151-10	150 x 200 x 50mm	250mm	ø8mm, ø9.53mm	With fine adjustment of 1mm range
215-153-10	200 x 250 x 80mm	260mm	ø8mm, ø9.53mm	With fine adjustment of 1mm range
215-156-10	300 x 250 x 80mm	275mm	ø8mm, ø9.53mm, ø20mm	With fine adjustment over the entire travel

## Optional Accessories

21JAA329: ø8mm bush  
 21JAA330: ø9.53mm bush  
 21JAA331: ø15mm bush  
 only available for 215-156-10

## DIMENSIONS



# Comparator Stands

## SERIES 215

Comparator Stands consists of a very stable, cast-iron base and an upright column with a mounting bracket that features fine adjustment. The grid type anvil prevents very flat workpieces from wringing to it.



215-405-10

### Optional Accessories

- 21JAA329:  $\varnothing 8$ mm bush\*
- 21JAA330:  $\varnothing 9.53$ mm (3/8") bush\*
- 21JAA331:  $\varnothing 15$ mm bush\*

\*Only available for 215-505-10.

### SPECIFICATIONS

Order No.	Square anvil size (W x D)	Column travel	Stem hole	Remarks
215-405-10	110 x 110mm	235mm	$\varnothing 8$ mm, $\varnothing 9.53$ mm	With fine adjustment of 1mm range
215-505-10	150 x 150mm	275mm	$\varnothing 8$ mm, $\varnothing 9.53$ mm, $\varnothing 20$ mm	With fine adjustment over the entire travel

### DIMENSIONS

