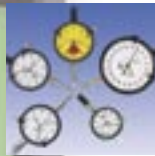


INDEX

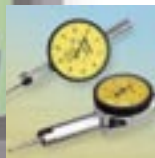
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Digimatic Indicator



Dial Indicator



Dial Test Indicator



Dial Indicator
Application and
Stand

New Products



ID-H



2046S



2109S-10



ID-N / ID-B



Caliper gage

ABSOLUTE Digimatic Indicator ID-S

SERIES 543 — with Economical Design

FEATURES

- As compact as standard Series 2 dial indicators.
- The ID-S indicates the absolute position of the spindle from the origin point at power-on, allowing to start measurements.
- After the initial zero-setting with the ORIGIN button, the repeated absolute positioning is no longer necessary over the entire battery life.
- Measurement error due to spindle over-speed is eliminated with the ABSOLUTE Encoder.
- SPC data output.



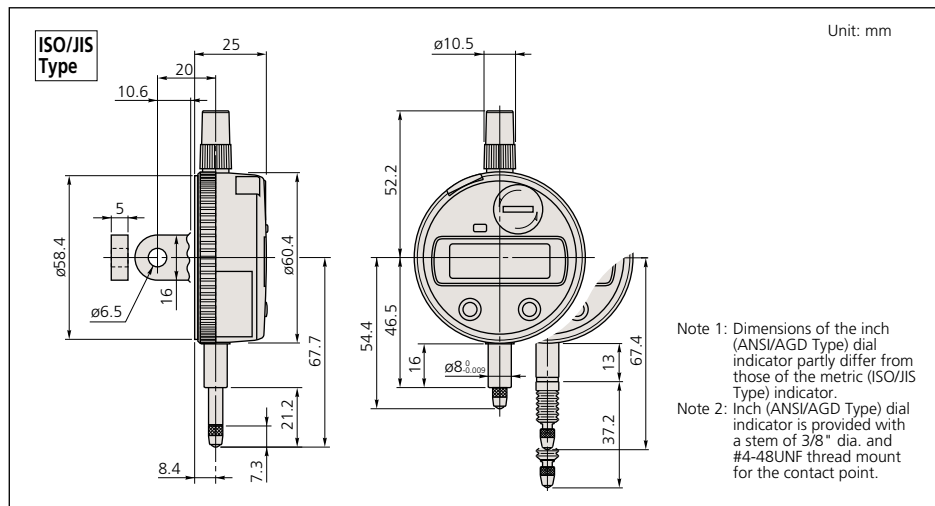
543-690
IP42

SPECIFICATIONS

Metric		ISO/JIS type	ANSI/AGD type			
Resolution	Order No. (w/ lug, flat-back)	Range	Accuracy	Measuring force	Remarks	
0.001mm	543-690	543-690B	12.7mm	0.003mm	2.0N or less	—
0.001mm	543-694	543-694B	12.7mm	0.003mm	2.5N or less	Dust-proof
0.01mm	543-681	543-681B	12.7mm	0.02mm	2.0N or less	—

Inch/Metric		ISO/JIS type	ANSI/AGD type			
Resolution	Order No. (w/ lug, flat-back)	Range	Accuracy	Measuring force	Remarks	
.00005"/0.001mm	543-691	543-691B	.5"	.00012"	2.0N or less	—
.00005"/0.001mm	543-695	543-695B	.5"	.00012"	2.5N or less	Dust-proof
.00005"/0.001mm	543-692	543-692B	.5"	.00012"	2.0N or less	—
.00005"/0.001mm	543-696	543-696B	.5"	.00012"	2.5N or less	Dust-proof
.0001"/0.001mm	543-693	543-693B	.5"	.00012"	2.0N or less	—
.0005"/0.01mm	543-682	543-682B	.5"	.0008"	2.0N or less	—
.0005"/0.01mm	543-683	543-683B	.5"	.0008"	2.0N or less	—

DIMENSION



(Refer to the page 9 for details.)

Technical Data

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

Resolution: 0.01mm, 0.001mm, .0005"/0.01mm, .0001"/0.001mm or .00005"/0.001mm

Display: LCD

Length standard: ABSOLUTE electrostatic capacitance type 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)

Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type) Carbide ball with #4-48UNF (ANSI/AGD type)

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

Battery life: Approx. 20,000 hours under normal use

Dust/Water protection level: IP42 (IP53: **543-694, 543-695, 543-696**)

Function

Origin-set, Zeroset, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)

Alarm: Low voltage, Counting value composition error, Over-flow error

Optional Accessory

905338: SPC cable (1m)

905409: SPC cable (2m)

903424: Spindle lifting lever (ISO/JIS type)

903425: Spindle lifting lever (ANSI/AGD type)

540774: Spindle lifting cable

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

02ACB610: Back with post

02ACB630: Adjustable back

02ACB640: Back with offset lug

02ACB650: Magnetic back

02ACB670: Back with screw mount

02ACB680: Back with adjustable bracket

—: Contact points (See page 264.)



Absolute System Patented by MITUTOYO

(Refer to the page 9 for details.)

Technical Data

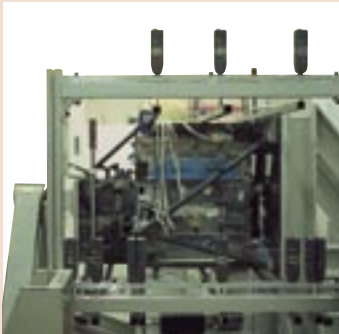
Accuracy: Refer to the list of specifications (excluding quantizing error)
 Resolution: 0.01mm or .0005"/0.01mm,
 Display: LCD
 Length standard: ABSOLUTE electrostatic capacitance type linear encoder
 Max. response speed: Unlimited
 Measuring force: Refer to the list of specifications
 Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
 Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type) Carbide ball with #4-48UNF (ANSI/AGD type)
 Battery: SR44 (1 pc.), **938882**
 Battery life: Approx. 20,000 hours under normal use
 Dust/Water protection level: IP42

Function

Origin-set, Zeroset, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)
 Alarm: Low voltage, Counting value composition error, Over-flow error

Optional Accessory

905338: SPC cable (1m)
905409: SPC cable (2m)
540774: Spindle lifting cable (stroke: 10mm)
 —: Contact points (See page 264.)



Application example

ABSOLUTE Digimatic Indicator ID-U

SERIES 575 — with Slime and Economical Design

FEATURES

- Slim type digital indicator with low price.
- Large LCD and simple key operation.
- The ID-U displays the absolute position of the spindle from the origin point at power-on.
- After the initial origin setting, the ID-U no longer needs absolute positioning over the entire battery life; the origin is remembered even after power-off.
- Ideal for installation into measuring devices because of its compact design and long battery life.
- The ABSOLUTE Encoder eliminates spindle over-speed error and prevents electrical noise interference errors.
- SPC data output.



575-121



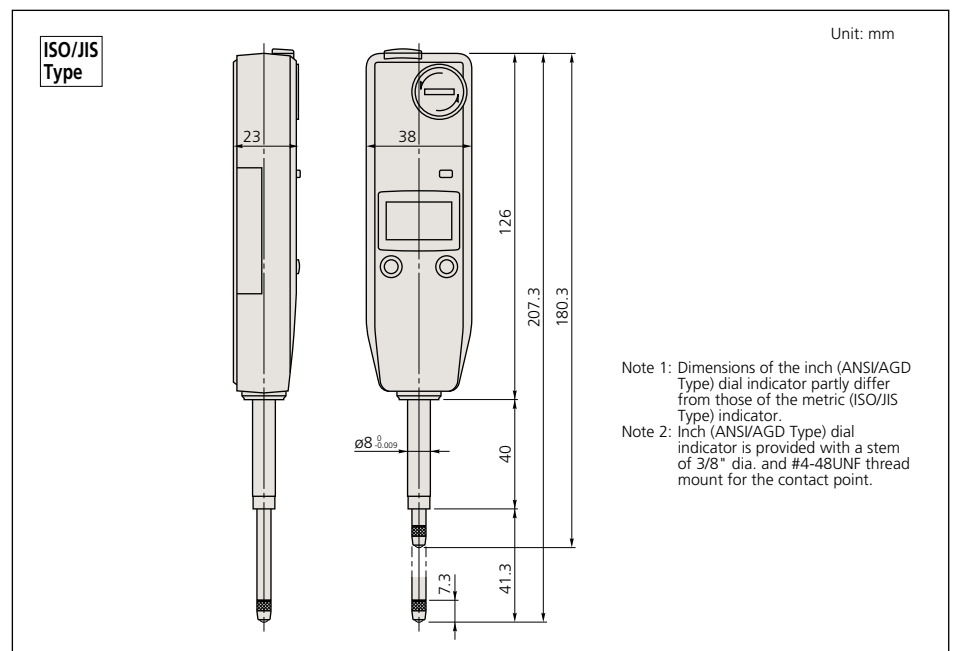
SPECIFICATIONS

Metric		ISO/JIS type	ANSI/AGD type
Resolution	Order No. (w/ lug, flat-back)	Range	Accuracy
0.01mm	—	575-121	25.4mm
			0.02mm
			Measuring force
			1.8N or less
			Remarks
			—

Inch/Metric

Resolution	Order No. (w/ lug, flat-back)	Range	Accuracy	Measuring force	Remarks
.0005"/0.01mm	—	575-122	1"	.0008"	1.8N or less
.0005"/0.01mm	—	575-123	1"	.0008"	1.8N or less

DIMENSION



ABSOLUTE Digimatic Indicator ID-C

SERIES 543 — Standard Type

FEATURES

- As compact as standard Series 2 dial indicators.
- Large, easy-to-read LCD.
- ZERO/ABS key: Allows the display to be Zero-Set at any spindle position for comparison measurements. This switch will also allow return to the absolute coordinate and display of the true position from the origin point.
- GO/±NG judgment can be performed by setting upper and lower tolerance limits. The judgment result (GO/±NG) can be displayed in full-size characters.
- The positive/negative count resulting from the spindle's up/down movement can be toggled.
- Unlimited response speed eliminates spindle over-speed errors.
- The ID-C indicator face can be rotated 330° to an appropriate angle for easy reading.
- With SPC data output.



SPC

ABSOLUTE[®]
Absolute System Patented by MITUTOYO

(Refer to the page 9 for details.)

Technical Data

Accuracy: Refer to the list of specifications (excluding quantizing error)
 Resolution: 0.01mm, 0.001mm, .0005"/0.01mm, .0001"/0.001mm or .00005"/0.001mm
 Display: LCD
 Length standard: ABSOLUTE electrostatic capacitance type 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)
 Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type) Carbide ball with #4-48UNF (ANSI/AGD type)
 Battery: SR44 (1 pc.), **938882**
 Battery life: Approx. 5,000 hours under normal use
 Dust/Water protection level: IP42 or IP53 (dust-proof type)

Function

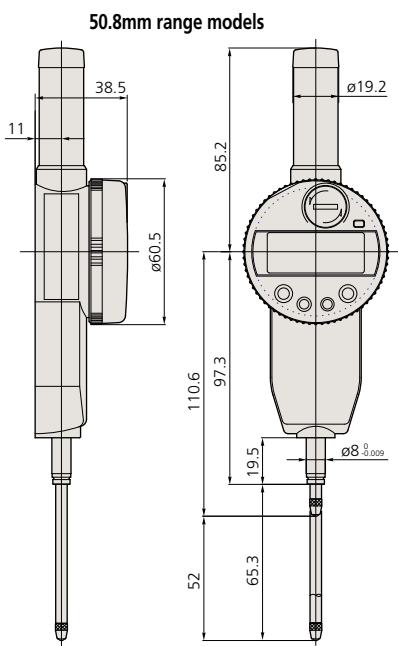
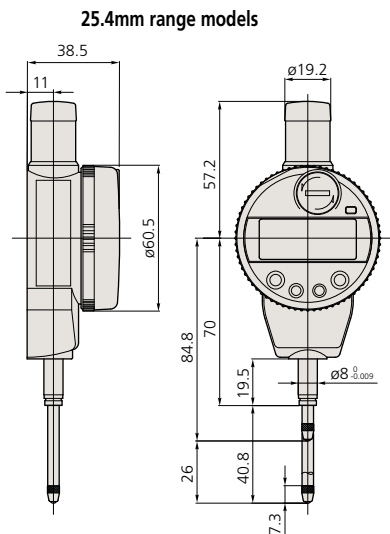
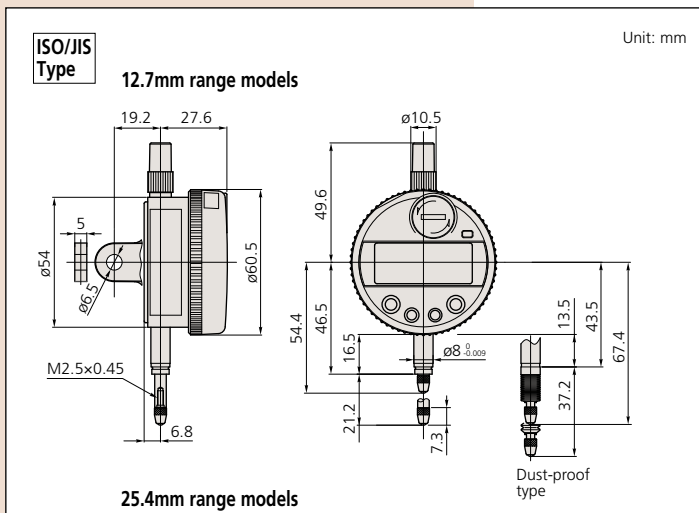
Origin-set/Preset, Zeroset, GO/±NG judgment, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)
 Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

905338: SPC cable (1m)
905409: SPC cable (2m)
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 266.)
 _____: Contact points (See page 264.)

*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.

DIMENSION



Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.
 Note 2: Inch (ANSI/AGD Type) dial indicator is provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.

SPECIFICATIONS

Metric

ISO/JIS type ANSI/AGD type

Resolution	Order No. (w/ lug, flat-back)	Range	Accuracy	Measuring force	Remarks
0.001mm	543-250 543-250B	12.7mm	0.003mm	1.5N or less	—
0.001mm	543-257 543-257B	12.7mm	0.003mm	2.0N or less	Dust-proof
0.001mm	543-254 543-254B	12.7mm	0.003mm	0.4N - 0.7N	Low measuring force
0.001mm	— 543-450B	25.4mm	0.003mm	1.8N or less	—
0.001mm	— 543-460B	50.8mm	0.006mm	2.3N or less	—
0.01mm	543-290 543-290B	12.7mm	0.005mm	1.5N or less	—
0.01mm	543-270 543-270B	12.7mm	0.02mm	0.9N or less	—
0.01mm	543-277 543-277B	12.7mm	0.002mm	2.0N or less	Dust-proof
0.01mm	543-274 543-274B	12.7mm	0.002mm	0.2N - 0.5N	Low measuring force
0.01mm	— 543-457B	25.4mm	0.005mm	1.8N or less	—
0.01mm	— 543-454B	25.4mm	0.03mm	1.8N or less	—

Inch/Metric

Resolution	Order No. (w/ lug, flat-back)	Range	Accuracy	Measuring force	Remarks
.00005"/0.001mm	543-251 543-251B	.5"	.00012"	1.5N or less	—
.00005"/0.001mm	543-252 543-252B	.5"	.00012"	1.5N or less	—
.00005"/0.001mm	543-258 543-258B	.5"	.00012"	2.0N or less	Dust-proof
.00005"/0.001mm	543-259 543-259B	.5"	.00012"	2.0N or less	Dust-proof
.00005"/0.001mm	543-255 543-255B	.5"	.00012"	0.4N - 0.7N	Low measuring force
.00005"/0.001mm	543-256 543-256B	.5"	.00012"	0.4N - 0.7N	Low measuring force
.00005"/0.001mm	— 543-451B	1"	.00012"	1.8N or less	—
.00005"/0.001mm	— 543-452B	1"	.00012"	1.8N or less	—
.00005"/0.001mm	— 543-461B	2"	.00025"	2.3N or less	—
.00005"/0.001mm	— 543-462B	2"	.00025"	2.3N or less	—
.0001"/0.001mm	543-253 543-253B	.5"	.00012"	1.5N or less	—
.0001"/0.001mm	— 543-453B	1"	.00012"	1.8N or less	—
.0001"/0.001mm	— 543-463B	2"	.00025"	2.3N or less	—
.0005"/0.01mm	543-291 543-291B	.5"	.0002"	1.5N or less	—
.0005"/0.01mm	543-292 543-292B	.5"	.0002"	1.5N or less	—
.0005"/0.01mm	543-271 543-271B	.5"	.0008"	0.9N or less	—
.0005"/0.01mm	543-272 543-272B	.5"	.0008"	0.9N or less	—
.0005"/0.01mm	543-278 543-278B	.5"	.0008"	2.0N or less	Dust-proof
.0005"/0.01mm	543-279 543-279B	.5"	.0008"	2.0N or less	Dust-proof
.0005"/0.01mm	543-275 543-275B	.5"	.0008"	0.2N - 0.5N	Low measuring force
.0005"/0.01mm	543-276 543-276B	.5"	.0008"	0.2N - 0.5N	Low measuring force
.0005"/0.01mm	— 543-458B	1"	.0002"	1.8N or less	—
.0005"/0.01mm	— 543-459B	1"	.0002"	1.8N or less	—
.0005"/0.01mm	— 543-455B	1"	.0012"	1.8N or less	—
.0005"/0.01mm	— 543-456B	1"	.0012"	1.8N or less	—
.0005"/0.01mm	— 543-465B	2"	.0016"	2.3N or less	—
.0005"/0.01mm	— 543-466B	2"	.0016"	2.3N or less	—

ABSOLUTE Digimatic Indicator ID-C

SERIES 543 — Calculation Type

FEATURES

A conventional Digimatic indicator simply displays a spindle displacement, but the Calculation-Type Digimatic indicator incorporates an internal calculation function in place of spindle displacement. With fixtures, measurements such as feeler, inside diameter and radius of curvature measurement can easily be obtained without the hassle of conversion tables or equivalents.

- The Absolute Digimatic indicator performs internal calculations using the formula $Ax+B+Cx^{-1}$ (assuming spindle displacement as x) while the specified coefficients A, B and, C can be set with respect to the purpose of measurement or dimensions of the fixtures. This unique features allows you to read your measurements directly, without fumbling for conversions.



SPECIFICATIONS

Metric			
Resolution	Order No.*	Range	Accuracy
0.0002 - 1mm (switchable)	543-285B	12.7mm	0.003mm
	543-480B	25.4mm	0.003mm
	543-485B	50.8mm	0.006mm

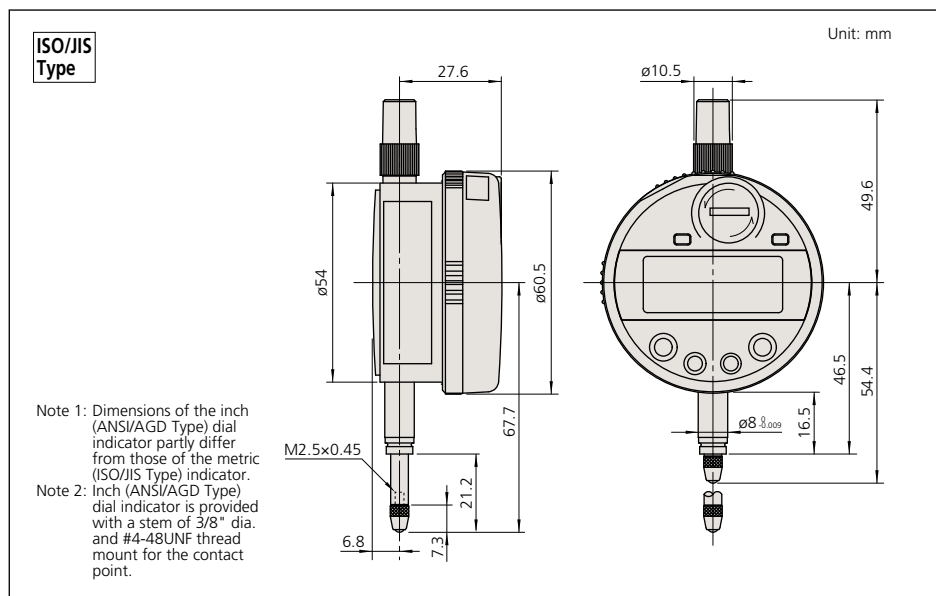
*Flat back

ISO/JIS type ANSI/AGD type

Inch/Metric			
Resolution	Order No.*	Range	Accuracy
.00001" - .05"/ 0.0002 - 1mm (switchable)	543-286B	.5"	.00012"
	543-287B	.5"	.00012"
	543-481B	1"	.00012"
	543-482B	1"	.00012"
	543-486B	2"	.00025"
	543-487B	2"	.00025"

*Flat back

DIMENSION



(Refer to the page 9 for details.)

Technical Data

- Accuracy: Refer to the list of specifications (excluding quantizing error)
- Resolution: 0.0002mm - 1mm or .00001" - .05"/0.0002mm - 1mm
- Display: LCD
- Length standard: ABSOLUTE electrostatic capacitance type linear encoder
- Max. response speed: Unlimited
- Measuring force: 1.5N or less
- Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
- Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type) Carbide ball with #4-48UNF (ANSI/AGD type)
- Battery: SR44 (1 pc.), 938882
- Battery life: Approx. 12 months under normal use

Function

- Origin-set/Presets, Zeroset, GO/±NG judgment, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)
- Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

- 905338: SPC cable (1m)
- 905409: SPC cable (2m)
- 902011: Spindle lifting lever (ISO/JIS type)
- 540774: Spindle lifting cable
- : Backs (See page 266.)
- : Contact points (See page 264.)

APPLICATIONS



- Various fixtures suited for individual workpieces can be prepared.
- Measuring accuracy is subject to fixture accuracy



(Refer to the page 9 for details.)



Absolute System Patented by MITUTOYO

(Refer to the page 9 for details.)

Technical Data

Accuracy: Refer to the list of specifications (excluding quantizing error)
 Resolution: 0.001mm, .00005"/0.001mm or .0001"/0.001mm
 Display: LCD
 Length standard: ABSOLUTE electrostatic capacitance type linear encoder
 Max. response speed: Unlimited
 Measuring force: 2.0N or less
 Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
 Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type) Carbide ball with #4-48UNF (ANSI/AGD type)
 Power supply: DC 12 - 24V±10%
 Dust/Water protection level: IP54

Function

Data output (-NG/OK/NG signal, NPN open collector), Remote control (hold-preset, preset-recall, zero-set), Origin-set/Preset, Zero-set, GO/±NG judgment, Max/Min/Runout value holding, Counting direction switching, Power ON/OFF, inch/mm conversion (inch/mm models)
 Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

902011: Spindle lifting lever* (ISO/JIS type)
 902794: Spindle lifting lever* (ANSI/AGD type)
 540774: Spindle lifting cable*
 125317: Rubber boot
 —: Backs (See page 266.)
 —: Contact points (See page 264.)

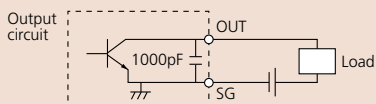
*When using the spindle lifting lever/cable, IP54 is not guaranteed.

Output pattern

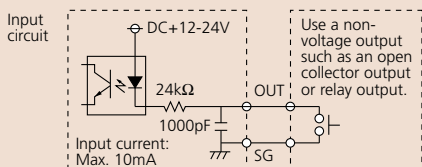
Wire	- NG	OK	+ NG	Composition error
Orange (- NG)	Low	High	High	High
Green (OK)	High	Low	High	High
Brown (+ NG)	High	High	Low	High
LED	Red	Green	Red	Red (blinking)
LCD	<	O	>	" x.xxE" indication

I/O Specifications

Wire	Signal	I/O	Description
Black	- V (GND)	—	Connected to minus (-) terminal
Red	+ V (GND)	I	Power supply (12 - 24VDC)
Orange	- NG	O	Tolerance judgment result output: Only the terminal corresponding to a judgment result is set to the below level.
Green	OK	O	
Brown	+ NG	O	
Yellow	PRESET_RECALL ZERO	I	External input terminal: If the relevant terminal is set to the low level, its signal becomes true.
Blue	HOLD_RESET	I	
Shield	FG	—	Connected to GND



Output voltage: Max. 24V
 Output current: Max. 30mA
 Output saturated voltage: Max. 0.3V



Use a non-voltage output such as an open collector output or relay output.
 Input current: Max. 10mA

ABSOLUTE Digimatic Indicator ID-C

SERIES 543 — with Green/Red LED and GO/NG Signal Output Function

FEATURES

- With the max./min. value holding function, the signal ID-C can output the signal of the GO/±NG judgment result against the peak values set. Substitute for the mechanical/electrical contact, the judgment is carried out by calculating the measurement data obtained. This provides high reliability with no deterioration of the contact point and volume adjustment.
- The signal can be output to an external device like a sequencer through the NPN open-collector.
- The GO/±NG judgment result is also indicated by the green/red LED and the "<, O, >" signs on LCD.
- Employing the ABSOLUTE linear encoder, the Signal ID-C always displays the spindle "Absolute Position" from the origin at power-on. Also unlimited response speed eliminates over-speed errors.
- The Signal ID-C achieves the IP54 protection level to resist dust and contaminants for safe operation in harsh machine shop environments.



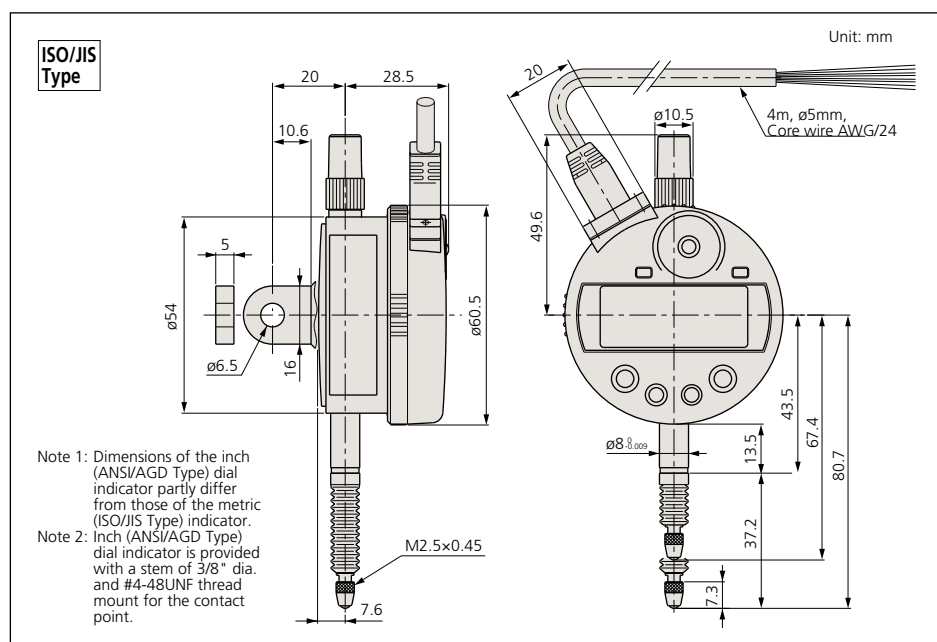
543-280

SPECIFICATIONS

Metric		ISO/JIS type		ANSI/AGD type		
Resolution	Order No. (w/ lug, flat-back)	Range	Accuracy	Measuring force	Remarks	
0.001mm	543-280	543-280B	12.7mm	0.003mm	2.0N or less	—

Inch/Metric		ISO/JIS type		ANSI/AGD type		
Resolution	Order No. (w/ lug, flat-back)	Range	Accuracy	Measuring force	Remarks	
.00005"/0.001mm	543-281	543-281B	.5"	.00012"	2.0N or less	—
.00005"/0.001mm	543-282	543-282B	.5"	.00012"	2.0N or less	—
.0005"/0.01mm	543-283	543-283B	.5"	.00012"	2.0N or less	—

DIMENSION



ABSOLUTE Digimatic Indicator ID-C

SERIES 543 — with Max./Min. Value Holding Function

With max./min. value holding function model of the ID-C Series Digimatic Indicators.

FEATURES

- The maximum, minimum, or runout value can be displayed during measurement.
- GO/±NG judgment is performed by setting the upper and lower tolerances for max., min. and runout values.
- High speed sampling ratio of 50 times/s.



543-262

SPECIFICATIONS

Metric			
Resolution	Order No.*	Range	Accuracy
0.001mm	543-260	12.7mm	0.003mm

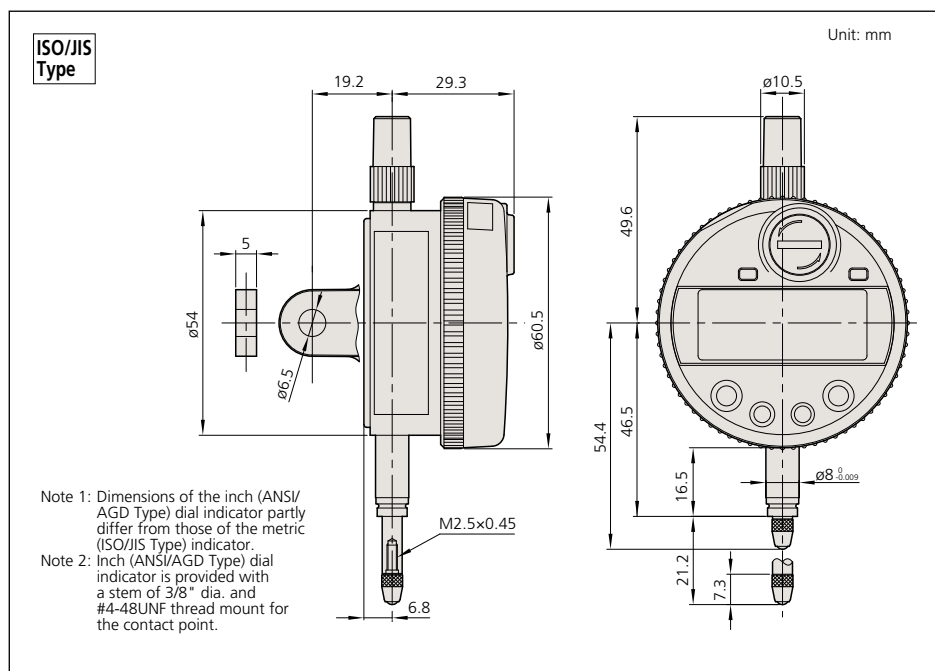
*Back with lug

ISO/JIS type ANSI/AGD type

Inch/Metric			
Resolution	Order No.*	Range	Accuracy
.00005"/0.001mm	543-261	.5"	.00012"
.00005"/0.001mm	543-262	.5"	.00012"
.00005"/0.001mm	543-263	.5"	.00012"

*Back with lug

DIMENSION



(Refer to the page 9 for details.)

Technical Data

Accuracy: Refer to the list of specifications (excluding quantizing error)
 Resolution: 0.001mm, .00005"/0.001mm or .0001"/0.001mm
 Display: LCD
 Length standard: ABSOLUTE electrostatic capacitance type linear encoder
 Max. response speed: Unlimited
 Measuring force: 1.5N or less
 Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
 Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type) Carbide ball with #4-48UNF (ANSI/AGD type)
 Battery: SR44 (2 pcs.), 938882
 Battery life: Approx. 800 - 1300 hours under normal use
 Dust/Water protection level: IP42

Function

Origin-set/Preset, Zeroset, GO/±NG judgment, Max/Min/Runout value holding, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)
 Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

- 905338: SPC cable (1m)
- 905409: SPC cable (2m)
- 902011: Spindle lifting lever (ISO/JIS type)
- 902794: Spindle lifting lever (ANSI/AGD type)
- 540774: Spindle lifting cable
- Backs (See page 266.)
- Contact points (See page 264.)



Absolute System Patented by MITUTOYO

(Refer to the page 9 for details.)

Technical Data

Accuracy: Refer to the list of specifications (excluding quantizing error)
 Resolution: 0.001mm or .00005"/0.001mm
 Display: LCD
 Length standard: ABSOLUTE electrostatic capacitance type linear encoder
 Max. response speed: Unlimited
 Measuring force: 1.5N or less
 Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
 Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type)
 Carbide ball with #4-48UNF (ANSI/AGD type)
 Battery: SR44 (2 pcs.), **938882**
 Battery life: Approx. 2000 hours under normal use
 Dust/Water protection level: IP42

Function

Origin-set/Preset, Zeroset, GO/±NG judgment, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)
 Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

905338: SPC cable (1m)
905409: SPC cable (2m)
526-170: Bore gage probe (0.95 - 1.55mm)
526-160: Bore gage probe (1.5 - 4.0mm)
526-150: Bore gage probe (3.7 - 7.3mm)
526-101: Bore gage probe (7.0 - 10.0mm)
526-102: Bore gage probe (10 - 18mm)
526-126: Bore gage probe (18 - 35mm)
526-127: Bore gage probe (35 - 60mm)
526-132: Bore gage probe (50 - 150mm)



Installed on bore gage probe (511-127)

ABSOLUTE Digimatic Indicator ID-C

SERIES 543 — Specially Designed for Bore Gage Application

This ID-C Series Digimatic Indicators are exclusively designed for ID measurement.

FEATURES

- The minimum value holding function provides the easy of detection of hole diameter.
- An analog bar indicator is integrated to enhance the intuition in reading.
- GO/±NG judgment is performed by setting the upper and lower tolerances.
- Up to three sets of master value and upper/lower tolerance value can be memorized.



543-264B

SPECIFICATIONS

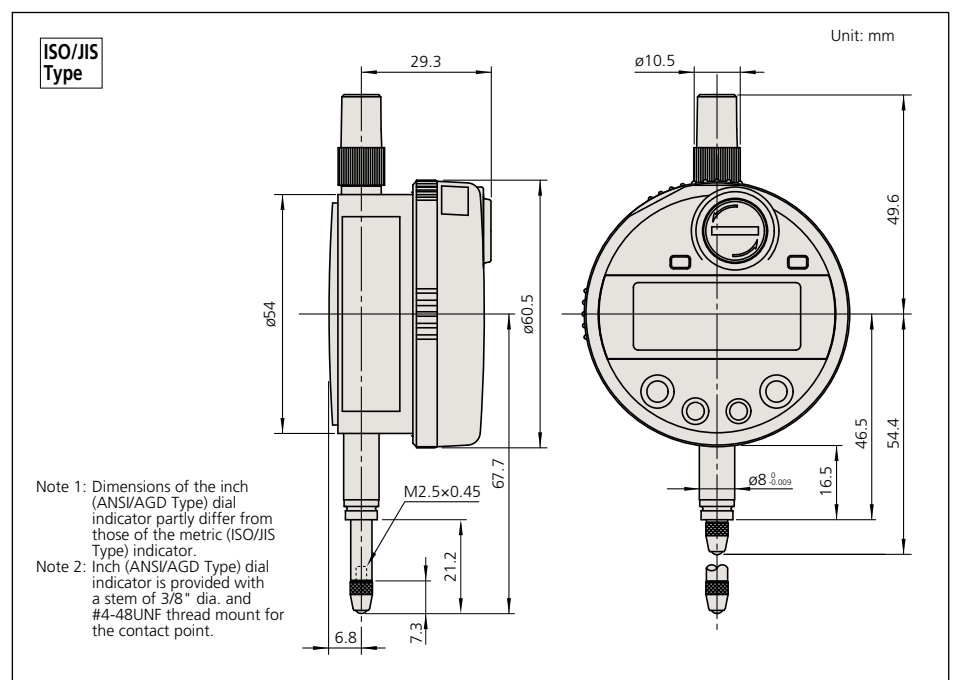
Metric			
Resolution	Order No.*	Range	Accuracy
0.001mm	543-264B	12.7mm	0.003mm

*Back with lug

Inch/Metric			
Resolution	Order No.*	Range	Accuracy
.00005"/0.001mm	543-266B	.5"	.00012"

*Back with lug

DIMENSION



ABSOLUTE Digimatic Indicator ID-H

SERIES 543 — High Accuracy and High Functional Type

FEATURES

- This new-generation digital indicator offers the excellent accuracy and functionality expected from this class of indicator. Take advantage of its high accuracy backed up by 0.5μm / .00002" resolution, remote control functionality via a handheld controller (or an RS-232C interface) and easy runout measurements with the well-established analog bar display.
- The maximum, minimum, or runout value can be displayed during measurement.
- GO/±NG judgment is performed by setting the upper and lower tolerances. If a judgment result is out of tolerance, the display backlighting changes from green to red, so tolerance judgment can be made at a glance.
- With SPC data output.
- With RS-232C input/output



Remote controller (optional)



543-561

543-563

SPECIFICATIONS

Metric			
Resolution	Order No.*	Range	Accuracy
0.0005mm, 0.001mm	543-561	30.4mm	0.0015mm
	543-563	60.9mm	0.0025mm

* To denote your AC line voltage add the following suffixes to the order No.
A for 120V **K** for 100V **D** for 220V **E** for 240/220V **DC** for China
No suffix is required for 100V

Inch/Metric			
Resolution	Order No.*	Range	Accuracy
.00005", .0001", 0.0005mm, 0.001mm	543-562	1.2"	0.0015mm
	543-564	2.4"	0.0025mm

* To denote your AC line voltage add the following suffixes to the order No.
A for 120V **K** for 100V **D** for 220V **E** for 240/220V **DC** for China
No suffix is required for 100V

Tolerance judgment



Analog bar display



Max/Min value measurement



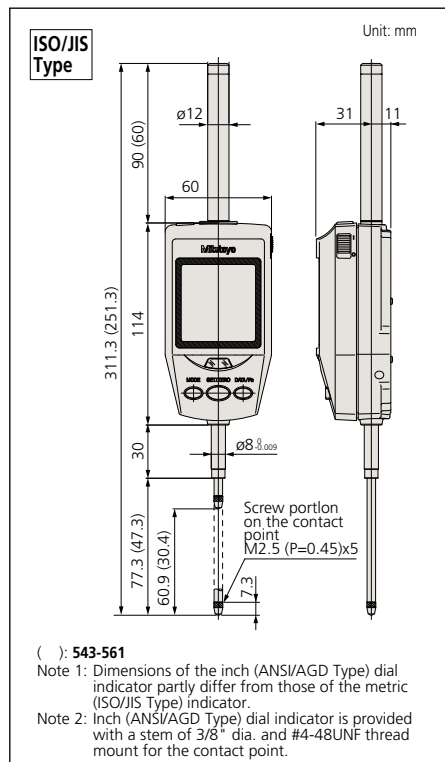
Runout measurement



Resolution switching



DIMENSION



(Refer to the page 9 for details.)

Technical Data

- Accuracy: Refer to the list of specifications (excluding quantizing error)
- Resolution: 0.0005mm/0.001mm or .00002"/.00005"/.0001"/0.0005mm/0.001mm
- Display: LCD
- Length standard: Linear encoder
- Max. response speed: 1000mm/s
- Measuring force: 2.0N/2.5N* or less (*60mm range models)
- Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
- Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type) Carbide ball with #4-48UNF (ANSI/AGD type)
- Power supply: 6V DC (via AC adaptor)

Function

- Origin-set/Preset, Zerose, GO/±NG judgment, Max/Min value hold, Runout measurement, Resolution switching, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)
- Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

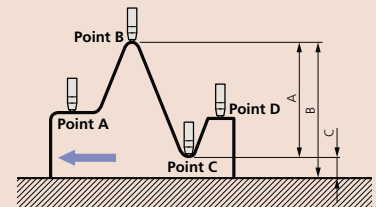
- 936937: SPC cable (1m)
- 965014: SPC cable (2m)
- 21EAA131: RS-232C cable (2m)
- 21EZA099: Remote controller
- 540774: Spindle lifting cable (stroke: 30mm)
- 21EZA101: Spindle lifting knob
- 264-504: Digimatic Min-processor DP-1VR
- 543-004: Digimatic presetter
- 215-154: Granite comparator stand
- 215-504: Comparator stand
- 215-821: Comparator stand
- Backs (See page 266.)
- Contact points (See page 264.)

*Required when orienting the indicator upside down.

Application

Difference/Runout measurement

Example: Indicator travel from points A to D
 Difference (or Total Runout) is displayed as A. Dimensions B (maximum value) and C (minimum value) can be recalled from memory with a simple key sequence.





(Refer to the page 9 for details.)

Technical Data

Accuracy: Refer to the list of specifications (excluding quantizing error)
 Resolution: 0.01mm/0.001mm or .00005"/.0001"/.0005"/.001"/0.001mm/0.01mm
 Display: LCD
 Length standard: ABSOLUTE electrostatic capacitance type linear encoder
 Max. response speed: Unlimited
 Measuring force: 1.8N/2.3N* or less (*50mm range models)
 Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
 Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type) Carbide ball with #4-48UNF (ANSI/AGD type)
 Power supply: 9V DC (via AC adaptor)

Function

Origin-set/Preset, Zeroset, GO/±NG judgment, Max/Min value hold, Runout measurement, Resolution switching, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)
 Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

- 936937: SPC cable (1m)
- 965014: SPC cable (2m)
- 21EAA131: RS-232C cable (2m)
- 540774: Spindle lifting cable (stroke: 10mm)
- 02ACA571: Auxiliary spindle spring for 25mm/1" models*
- 02ACA773: Auxiliary spindle spring for 50mm/2" models*
- 264-504: Digimatic Min-processor DP-1VR
- 543-004: Digimatic presetter
- 215-154: Granite comparator stand
- 215-504: Comparator stand
- 215-821: Comparator stand
- : Backs (See page 266.)
- : Contact points (See page 264.)

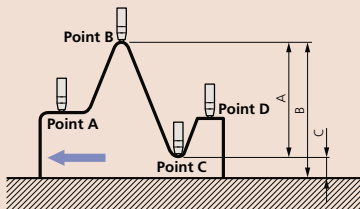
*Required when orienting the indicator upside down.

Application

Difference/Runout measurement

Example: Indicator travel from points A to D

Difference (or Total Runout) is displayed as A. Dimensions B (maximum value) and C (minimum value) can be recalled from memory with a simple key sequence.



ABSOLUTE Digimatic Indicator ID-F

SERIES 543 — with Back-lit LCD Screen

FEATURES

- With the ABSOLUTE Linear Encoder technology, once the measurement reference point has been preset it will not be lost when the power is turned on.
- GO/±NG judgment is performed by setting the upper and lower tolerances. If a judgment result is out of tolerance, the display backlighting changes from green to red, so tolerance judgment can be made at a glance.



- The maximum, minimum, or runout value can be displayed during measurement.

- An analog bar indicator has been integrated to handle upper/lower limit approaching and zero approaching. It enhances the ease of operation in the same manner as a dial indicator. The display range of the analog bar can be changed.
- With SPC data output.



SPECIFICATIONS

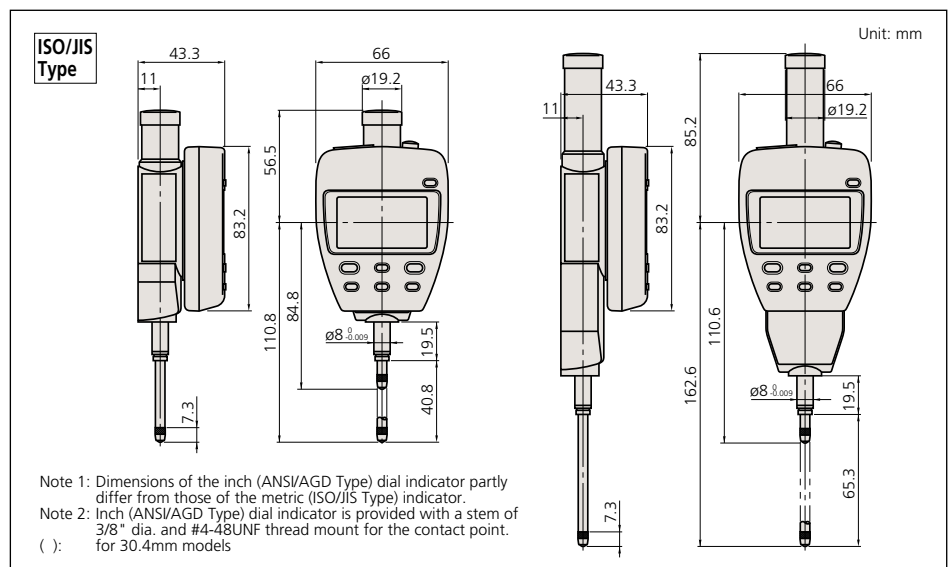
Metric			
Resolution	Order No.*	Range	Accuracy
0.001mm, 0.01mm	543-551	25mm	0.003mm
	543-557	50mm	0.003mm
	543-553	50mm	0.006mm

* To denote your AC line voltage add the following suffixes to the order No.
 A for 120V K for 100V D for 220V E for 240/220V DC for China
 No suffix is required for 100V

Inch/Metric			
Resolution	Order No.*	Range	Accuracy
.00002", .00005", .0001", .0005", .001", 0.001mm, 0.01mm	543-552	1"	.00012"
	543-558	2"	.00012"
	543-554	2"	.00024"

* To denote your AC line voltage add the following suffixes to the order No.
 A for 120V K for 100V D for 220V E for 240/220V DC for China
 No suffix is required for 100V

DIMENSION



ABSOLUTE Digimatic Indicator ID-N / B

SERIES 543 — with Dust/Water Protection Conforming to IP66

FEATURES

- Proven ABSOLUTE sensor.
- Rated to IP66 water- and dust-proofing standard and oil resistance improved.
- Slim body design is advantageous for multi-point measurements.
- Improvement in workability with the LCD readout-rotation function.
- Back plunger design (ID-B).
- Built-in tolerance judgment function.
- Switchable resolution.
- Waterproof data output connector.
- Built-in hold/preset function



Slim type ID-N
543-552

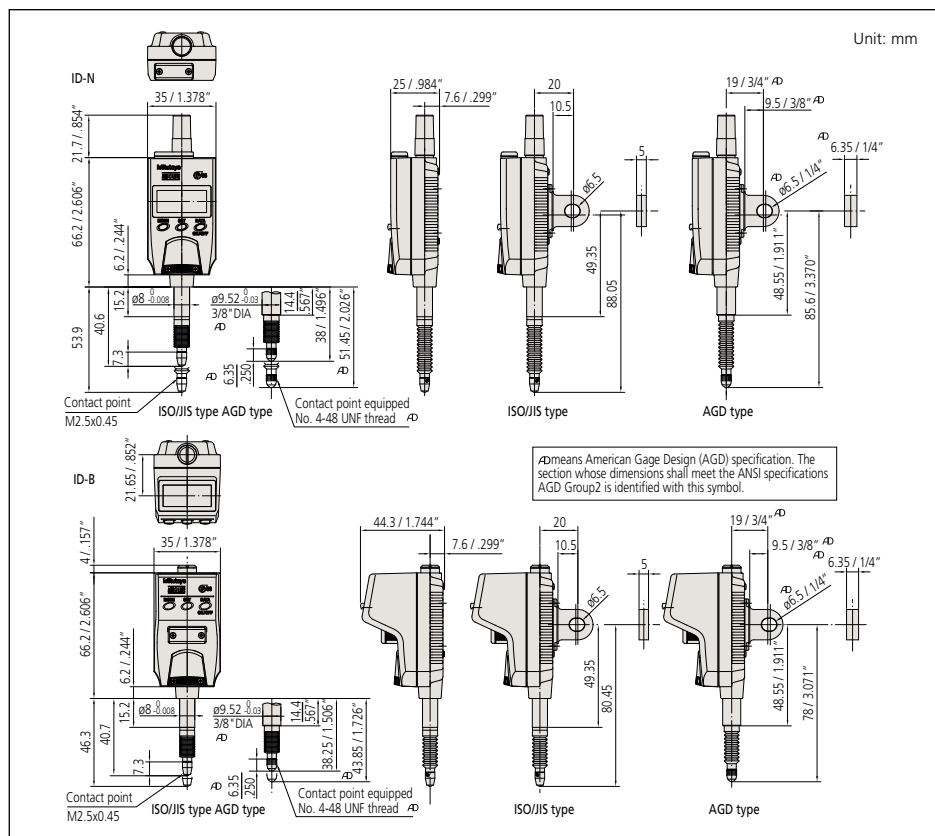
Back plunger type ID-B
543-552

SPECIFICATIONS

Metric				
Resolution	Order No.	Range	Accuracy	Remarks
0.01mm	543-570	12.7mm	0.02mm	Slim type ID-N
0.01mm	543-580	5.0mm	0.02mm	Back plunger type ID-B
0.01mm / 0.001mm	543-575	12.7mm	0.01mm / 0.003mm	Slim type ID-N
0.01mm / 0.001mm	543-585	5.0mm	0.01mm / 0.003mm	Back plunger type ID-B

Inch/Metric				
Resolution	Order No.	Range	Accuracy	Remarks
.0005", 0.01mm	543-570	.5"	.0008"	Slim type ID-N
	543-580	.2"	.0008"	Back plunger type ID-B
0.01mm / 0.001mm	543-575	.5"	.0004" / .00012"	Slim type ID-N
.0005" / .00005"	543-585	.2"	.0004" / .00012"	Back plunger type ID-B

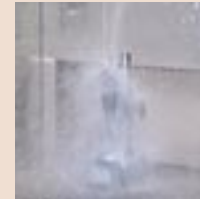
DIMENSION



(Refer to the page 9 for details.)



(Refer to the page 9 for details.)



Technical Data

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

Resolution: 0.01mm, 0.01mm/0.001mm, .0005"/0.01mm or .0005"/.00005"/0.01mm/0.001mm

Display: LCD

Length standard: ABSOLUTE electrostatic capacitance type linear encoder

Max. response speed: Unlimited

Measuring force: 2.5N (2.0N: Back plunger type)

Stem dia.: 8mm (3/8": inch/metric models)

Contact point: Carbide ball with M2.5x0.45 (#4-48UNF: inch/metric models)

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

Battery life: Approx. 7000 hours under normal use

Dust/Water protection level: IP66

Function

Zero-setting, Presetting, Direction switching, Tolerance judgment, Display hold, Data output, inch/mm conversion (inch/mm models)

Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

- 21EZA105: Lifting knob (for ISO/JIS model)
 - 21EZA150: Lifting knob (for AGD model)
 - 21EZA145: Lug (for JIS/ISO model)
 - 21EZA146: Lug (for AGD model)
 - 02ACA376: Rubber boot (for ID-N, NBR)
 - 238774: Rubber boot (for ID-N, silicon)
 - 125317: Rubber boot (for ID-B, NBR)
 - 21EAA212: Rubber boot (for ID-B, silicon)
 - 21EAA194: Connecting cable (1m)
 - 21EAA190: Connecting cable (2m)
 - 21EAA210: Bifurcated connecting cable with zero-setting terminal (1m)
 - 21EAA211: Bifurcated connecting cable with zero-setting terminal (2m)
- : Contact points (See page 264.)



EC Counter

SERIES 543 — Low-cost, Assembly, Type Display Unit

FEATURES

- Employed the DIN size (96 X 48mm) and mount-on-panel configuration, which greatly facilitates the incorporation into a system.
- Possible to produce either tolerance judgment output or Digimatic output.

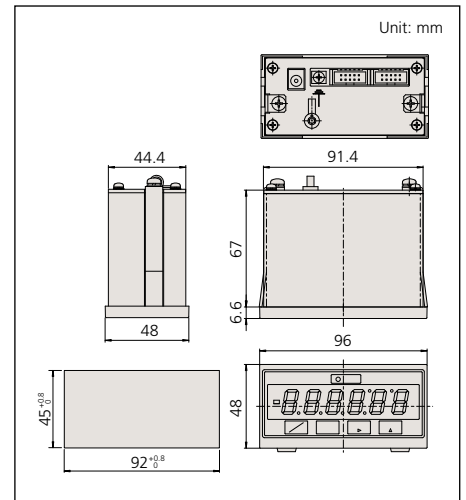


EC Counter

Order No.: 542-007

Function: Preset, GO/±NG judgment

DIMENSION



Multi-Unit, Difference/Sum Unit

SERIES 572 — For Multi-gage Measurements



Multi-Unit

Order No. 572-052*

* To denote your AC line voltage add the following suffixes to the order No. (e.g.: **519-351A**):
A for UL/CSA, **D** for CEE, **E** for BS, **DC** for China, **K** for EK, **No suffix** is required for JIS/100V

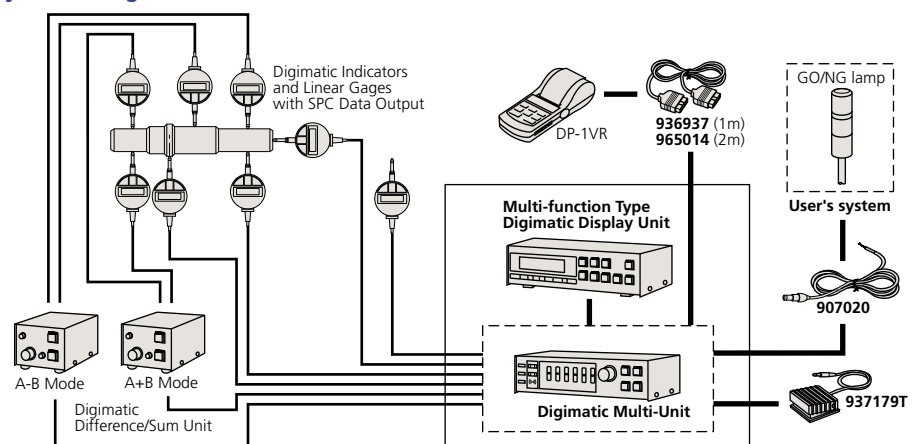


Difference/Sum Unit

Order No. 572-041*

* To denote your AC line voltage add the following suffixes to the order No. (e.g.: **519-351A**):
A for UL/CSA, **D** for CEE, **E** for BS, **DC** for China, **K** for EK, **No suffix** is required for JIS/100V

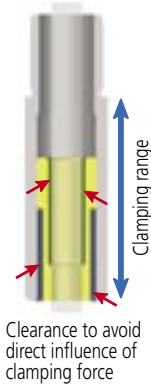
System Diagram



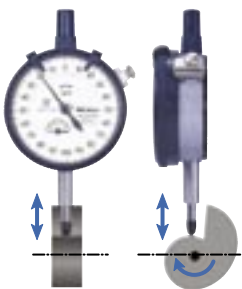
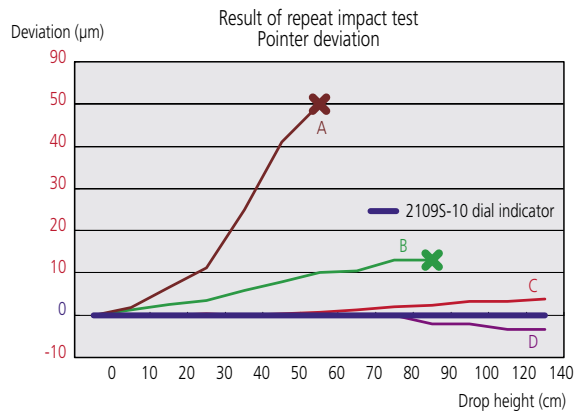
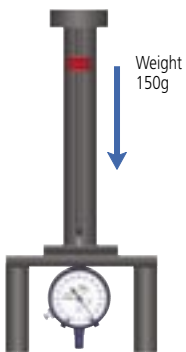
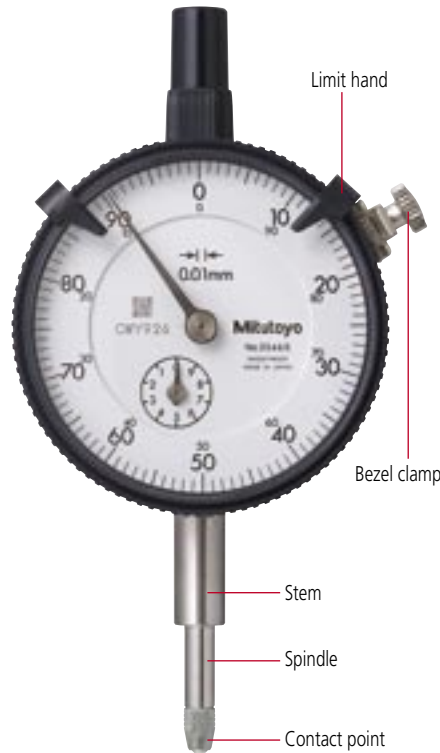
Dial Indicator

FEATURES: S Series

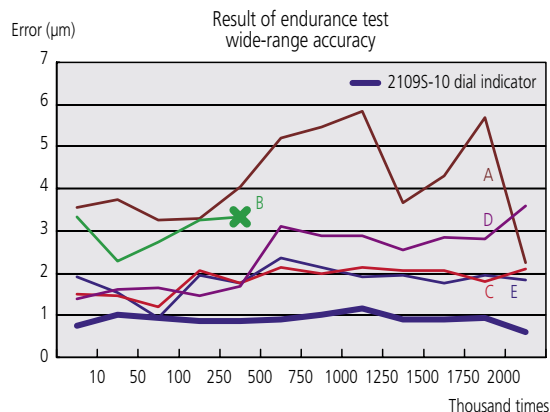
- Revolutionary stem-bush design for trouble free stem clamping (longer clamping range).
- No through screw-hole on the frame for high dust-resistance.



- Involute curved lifting lever for smooth movement of spindle and dovetail joint for tool-less connection.
- Grater rigidity in the bearing plate for reducing the retracing error (20%) and 4-screw mounting for increasing impact resistance.



Endurance testing with cam
Rotation speed: 120rpm



Description of Icon

Icon	Description
	Reverse reading type suitable for depth and step measurement.
	One revolution type for easy and error-free reading
	Double scale spacing type, easy-on-the-eyes
	Shockproof type
	Waterproof type
	With damper at lowest rest point
	Jeweled bearing type
	Peak retaining type
	Long stem type
	Dustproof type
	With coaxial revolution counter
	Back plunger type
	Adjustable hand type
	Double-face type



(Refer to the page 9 for details.)



1929F
1929F-60
1929F-62



1900F
1900F-60
1900F-62

Optional Accessory

- : Backs (See page 266.)
- : Contact points (See page 264.)

Dial Indicator

SERIES 1 — Compact One Revolution Type for Error-free Reading



One revolution type



1929F-62



Shockproof type



Dustproof type



Waterproof type



Jeweled bearing type

Unlike many other dial indicators, the one-revolution dial indicator literally shows the entire spindle travel or range as one sweep of the hand, eliminating the possibility of reading errors due to miscounting the multiple revolutions. With one-revolution dial indicators, "within tolerance" and "out-of-tolerance" can never be misinterpreted. An unique shock-proof mechanism is incorporated, providing improved immunity to shock due to sudden spindle retraction caused by high impact.

SPECIFICATIONS

Graduation	Order No.		Range (range/full stroke)	Accuracy	Dial reading	Measuring force	ISO/JIS type				
	w/ lug	Flat-back					Shockproof	Dustproof	Waterproof	Jeweled bearing	—
0.01mm	1929F	1929FB	1mm / 1.4mm	±11µm	50-0-50	1.4N or less	✓	—	—	—	—
0.01mm	1929F-60	1929FB-60	1mm / 1.4mm	±11µm	50-0-50	1.4N or less	✓	—	✓	—	—
0.01mm	1929F-62	1929FB-62	1mm / 1.4mm	±11µm	50-0-50	1.4N or less	✓	✓	—	—	—
0.001mm	1900F	1900FB	0.1mm / 0.14mm	±6µm	50-0-50	1.5N or less	✓	—	—	✓	—
0.001mm	1900F-60	1900FB-60	0.1mm / 0.14mm	±6µm	50-0-50	1.5N or less	✓	—	✓	✓	—
0.001mm	1900F-62	1900FB-62	0.1mm / 0.14mm	±6µm	50-0-50	1.5N or less	✓	✓	—	✓	—
0.01mm	1960*	—	1mm / 1.27mm	±14µm	50-0-50	1.4N or less	✓	—	—	—	—

Graduation	Order No.		Range (range/full stroke)	Accuracy	Dial reading	Measuring force	ANSI/AGD type				
	w/ lug	Flat-back					Shockproof	Dustproof	Waterproof	Jeweled bearing	—
.0005"	1909F-62	1909FB-62	.04" / .055"	±.0005"	20-0-20	1.4N or less	✓	✓	—	—	—
.0001"	1910F-72	1910FB-72	.006" / .0079"	±.0001"	3-0-3	1.4N or less	✓	✓	—	—	—
.001"	1961*	—	.04" / .05"	±.001"	20-0-20	1.4N or less	✓	—	—	—	—

*Back plunger type (see page 262.)

DIMENSION

ISO/JIS Type

Unit: mm

Note 1: Dimensions of the inch (ANSI/AGD Type) dial indicator partly differ from those of the metric (ISO/JIS Type) indicator.

Note 2: Inch (ANSI/AGD Type) dial indicator is provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.

Order No.	A	B	C
1929F	47.5	13	14
1929F	55.5	11.5	23.5
1929F-62	47.5	13	14
1900F	53.5	16	17
1900F-60	54.5	11.5	22.5
1900F-62	53.5	16	17

Dial Indicator

SERIES 1 — Compact Type

Mitutoyo's Series 1 dial indicators offer the accuracy and durability for shop applications demanding highly accurate measurements where space is limited. The spindle is made of hardened stainless steel for durability, while the rack gear is machine ground for a tighter fit and increased accuracy.



1911



1911



1003



1040F



1913-10



1044F-60



1013F



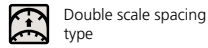
1003



(Refer to the page 9 for details.)

Optional Accessory

- : Backs (See page 266.)
- : Contact points (See page 264.)



Double scale spacing type



Jeweled bearing type



Waterproof type

SPECIFICATIONS

Metric

ISO/JIS type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force				—	—	—
	w/ lug	Flat-back										
0.01mm	1911	1911B	2.5mm (1mm)	±12μm	0-50-0	1.4N or less	—	—	—	—	—	—
0.002mm	1913-10	1913B-10	0.5mm (0.2mm)	±8μm	0-100-0	1.5N or less	—	✓	—	—	—	—
0.01mm	1040F	1040FB	3.5mm (0.5mm)	±13μm	0-50	1.4N or less	✓	—	—	—	—	—
0.01mm	1041F	1041FB	3.5mm (0.5mm)	±13μm	0-25-0	1.4N or less	✓	—	—	—	—	—
0.01mm	1003	1003B	4mm (1mm)	±13μm	0-50-0	1.4N or less	—	—	—	—	—	—
0.01mm	1044F	1044FB	5mm (1mm)	±13μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	1044F-10	1044FB-10	5mm (1mm)	±13μm	0-100	0.4N or less*	—	✓	—	—	—	—
0.01mm	1044F-60	1044FB-60	5mm (1mm)	±13μm	0-100	2.0N or less	—	—	✓	—	—	—
0.01mm	1045F	1045FB	5mm (1mm)	±13μm	0-50-0	1.4N or less	—	—	—	—	—	—
0.005mm	1124F	1124FB	3.5mm (0.5mm)	±13μm	0-50	1.4N or less	—	✓	—	—	—	—
0.002mm	1013F	1013FB	1mm (0.2mm)	±10μm	0-100-0	1.5N or less	—	✓	—	—	—	—
0.001mm	1109F	1109FB	1mm (0.2mm)	±7μm	0-100-0	1.5N or less	—	✓	—	—	—	—

*Use in a vertical position only (contact point downward).

Inch

ANSI/AGD type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force				—	—	—
	w/ lug	Flat-back										
.001"	1921	1921B	.1" (.04")	±.001"	0-20-0	1.8N or less	—	—	—	—	—	—
.0005"	1923	1923B	.05" (.02")	±.0005"	0-10-0	1.8N or less	—	✓	—	—	—	—
.0001"	1927-10	1927B-10	.01" (.004")	±.0002"	0-2-0	1.8N or less	—	✓	—	—	—	—
.0001"	1925-10	1925B-10	.025" (.01")	±.0002"	0-5-0	1.8N or less	—	✓	—	—	—	—
.001"	1580F-10	1580FB-10	.075" (.03")	±.0005"	0-30	1.4N or less	—	✓	—	—	—	—
.001"	1581F-10	1581FB-10	.075" (.03")	±.0005"	0-15-0	1.4N or less	—	✓	—	—	—	—
.001"	1780F	1780FB	.125" (.05")	±.001"	0-50	1.4N or less	—	—	—	—	—	—
.001"	1781F	1781FB	.125" (.05")	±.001"	0-25-0	1.4N or less	—	—	—	—	—	—
.001"	1410F	1410FB	.25" (.1")	±.001"	0-100	1.4N or less	—	—	—	—	—	—
.001"	1410F-10	1410FB-10	.25" (.1")	±.001"	0-100	1.4N or less	—	✓	—	—	—	—
.001"	1411F	1411FB	.25" (.1")	±.001"	0-50-0	1.4N or less	—	—	—	—	—	—
.0005"	1570F-10	1570FB-10	.075" (.03")	±.0005"	0-30	1.4N or less	—	✓	—	—	—	—
.0005"	1571F-10	1571FB-10	.075" (.03")	±.0005"	0-15-0	1.4N or less	—	✓	—	—	—	—
.0005"	1670F	1670FB	.1" (.04")	±.0005"	0-40	1.4N or less	—	—	—	—	—	—
.0005"	1671F	1671FB	.1" (.04")	±.0005"	0-20-0	1.4N or less	—	—	—	—	—	—
.0005"	1506F	1506FB	.125" (.05")	±.0005"	0-50	1.4N or less	—	—	—	—	—	—
.0005"	1507F	1507FB	.125" (.05")	±.0005"	0-25-0	1.4N or less	—	—	—	—	—	—
.00025"	1470F	1470FB	.05" (.02")	±.00025"	0-20	1.4N or less	—	—	—	—	—	—
.00025"	1471F	1471FB	.05" (.02")	±.00025"	0-10-0	1.4N or less	—	—	—	—	—	—
.00025"	1476F	1476FB	.2" (.02")	±.00025"	0-20	1.4N or less	—	—	—	—	—	—
.0001"	1802F-10	1802FB-10	.025" (.01")	±.0001"	0-10	1.4N or less	—	✓	—	—	—	—
.0001"	1803F-10	1803FB-10	.025" (.01")	±.0001"	0-5-0	1.4N or less	—	✓	—	—	—	—



1040F



1041F



1044F
1044F-10
1044F-60



1045F



1124F

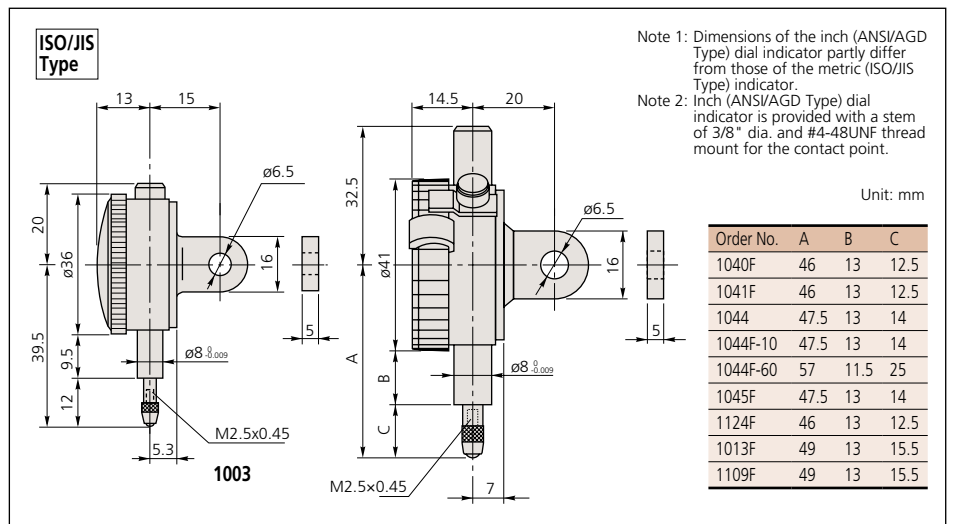


1013F



1109F

DIMENSION



Dial Indicator

SERIES 2 — Standard Type, 0.01mm Resolution

Series 2 dial indicators are Mitutoyo's most popular, and have the widest application.

FEATURES

- Standard 0.01mm graduation dial gauges having an outer frame with an outside diameter of 57mm. All types come with limit pins and an outer frame clamp as standard.
- The outer clamp and lifting lever (optional) can be attached to either the right or left side. These parts can be easily installed and removed without tools.
- Secured adhesion between the outer frame and crystal as well as the use of an O-ring ensure countermeasures against water and oil permeation via the front face.
- The stem spindle is made of high-strength quench-hardened stainless steel which resists strenuous use.
- A carbide contact point is used.
- The grand gear uses stainless steel that is resistant to wear and deformation.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.



(Refer to the page 9 for details.)



20465



20465-60



20465
20465H
20465-09
20465-15
20465-80
20465LB



20465Y



20465-60
20465-69



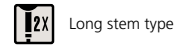
20475



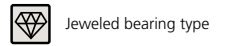
Shockproof type



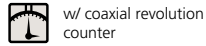
Waterproof type



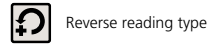
Long stem type



Jeweled bearing type



w/ coaxial revolution counter



Reverse reading type

SPECIFICATIONS

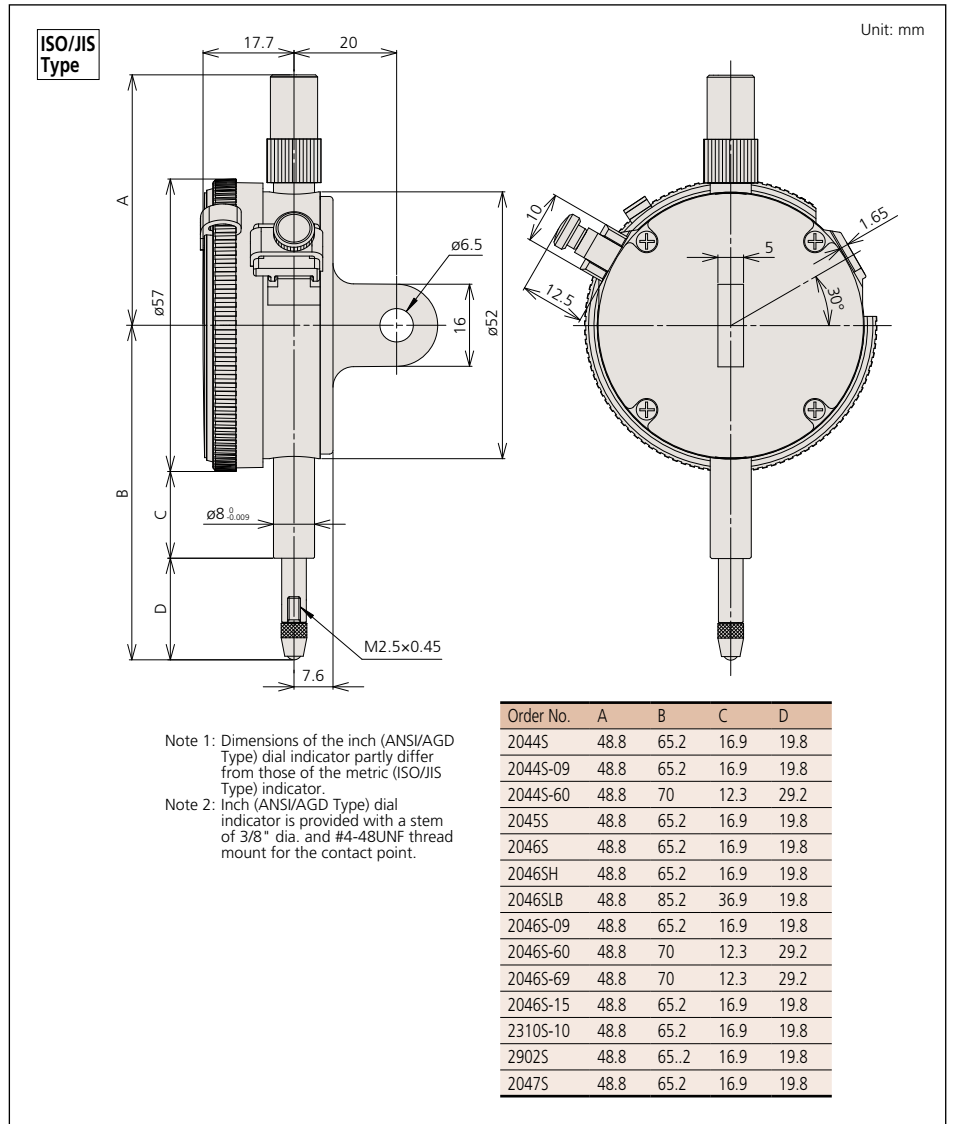
Metric

ISO/JIS type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force						
	w/ lug	Flat-back										
0.01mm	2044S	2044SB	5mm (1mm)	±12μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	2044S-09	2044SB-09	5mm (1mm)	±13μm	0-100	1.4N or less	✓	—	—	—	—	—
0.01mm	2044S-60	2044SB-60	5mm (1mm)	±12μm	0-100	2.5N or less	—	✓	—	—	—	—
0.01mm	2045S	2045SB	5mm (1mm)	±12μm	0-50-0	1.4N or less	—	—	—	—	—	—
0.01mm	2046S	2046SB	10mm (1mm)	±13μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	2046SY	2046SYB	10mm (1mm)	±13μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	2046SH	2046SHB	10mm (1mm)	±8μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	—	2046SLB	10mm (1mm)	±13μm	0-100	1.4N or less	—	—	✓	—	—	—
0.01mm	2046S-09	2046SB-09	10mm (1mm)	±15μm	0-100	1.4N or less	✓	—	—	—	—	—
0.01mm	2046S-60	2046SB-60	10mm (1mm)	±13μm	0-100	2.5N or less	—	✓	—	—	—	—
0.01mm	2046S-69	2046SB-69	10mm (1mm)	±15μm	0-100	2.5N or less	✓	✓	—	—	—	—
0.01mm	2046S-15	2046SB-15	10mm (1mm)	±13μm	0-100	0.8N or less*	—	—	—	✓	—	—
0.01mm	2310S-10	2310SB-10	10mm (1mm)	±15μm	0-100	1.4N or less	—	—	—	✓	✓	—
0.01mm	2902S	2902SB	10mm (1mm)	±13μm	100-0	1.4N or less	—	—	—	—	—	✓
0.01mm	2047S	2047SB	10mm (1mm)	±13μm	0-50-0	1.4N or less	—	—	—	—	—	—

*Use in a vertical position only (contact point downward).

DIMENSION



2902S



2310S-10



2044S
2044S-60
2044S-09



2045S

Optional Accessory

- : Backs (See page 266.)
- : Contact points (See page 264.)

Dial Indicator

SERIES 2 — Standard Type, 0.001mm Resolution

FEATURES

- Standard 0.01mm graduation dial gauges having an outer frame with an outside diameter of $\varnothing 57\text{mm}$. All types come with limit pins and an outer frame clamp.
- The outer clamp and lifting lever (optional) can be attached to either the right or left side. These parts can be easily installed and removed without tools.
- Secured adhesion between the outer frame and crystal as well as the use of an O-ring ensure countermeasures against water and oil permeation via the front face.
- The stem spindle is made of high-strength quench-hardened stainless steel which resists strenuous use.
- A carbide contact point is used.
- The grand gear uses stainless steel that is resistant to wear and deformation.
- Application of a hard coating on the surface of the crystal makes the gauge highly scratch- and chemical-resistant.
- A special alloy is used for the sector gears to provide improved wear resistance.
- The bearing part uses jeweled bearings, providing excellent indication sensitivity and durability.



2109S-10



2110S-10



2119S-10



(Refer to the page 9 for details.)



2109S-10
2109SH-10
2109S-70
2109SLB-10



2110S-10
2110S-70



2113S-10



Shockproof type



Waterproof type



Long stem type



Jeweled bearing type



Double scale spacing type

SPECIFICATIONS

Metric

ISO/JIS type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force					
	w/ lug	Flat-back									
0.005mm	2124S-10	2124SB-10	5mm (0.5mm)	±12μm	0-50	1.5N or less	—	—	—	✓	—
0.001mm	2110S-10	2110SB-10	1mm (0.1mm)	±5μm	0-100	1.5N or less	✓	—	—	✓	✓
0.001mm	2110S-70	2110SB-70	1mm (0.1mm)	±5μm	0-100	2.0N or less	✓	✓	—	✓	✓
0.001mm	2109S-10	2109SB-10	1mm (0.2mm)	±5μm	0-100-0	1.5N or less	✓	—	—	✓	—
0.001mm	2109SH-10	2109SHB-10	1mm (0.2mm)	±3μm	0-100-0	1.5N or less	✓	—	—	✓	—
0.001mm	—	2109SLB-10	1mm (0.2mm)	±5μm	0-100-0	1.5N or less	✓	—	✓	✓	—
0.001mm	2109S-70	2109SB-70	1mm (0.2mm)	±5μm	0-100-0	2.0N or less	✓	✓	—	✓	—
0.001mm	2113S-10	2113SB-10	2mm (0.2mm)	±7μm	0-100-0	1.5N or less	✓	—	—	✓	—
0.001mm	2118S-10	2118SB-10	5mm (0.2mm)	±10μm	0-100-100	1.5N or less	—	—	—	✓	—
0.001mm	2119S-10	2119SB-10	5mm (0.2mm)	±10μm	0-100-0	1.5N or less	—	—	—	✓	—



2118S-10

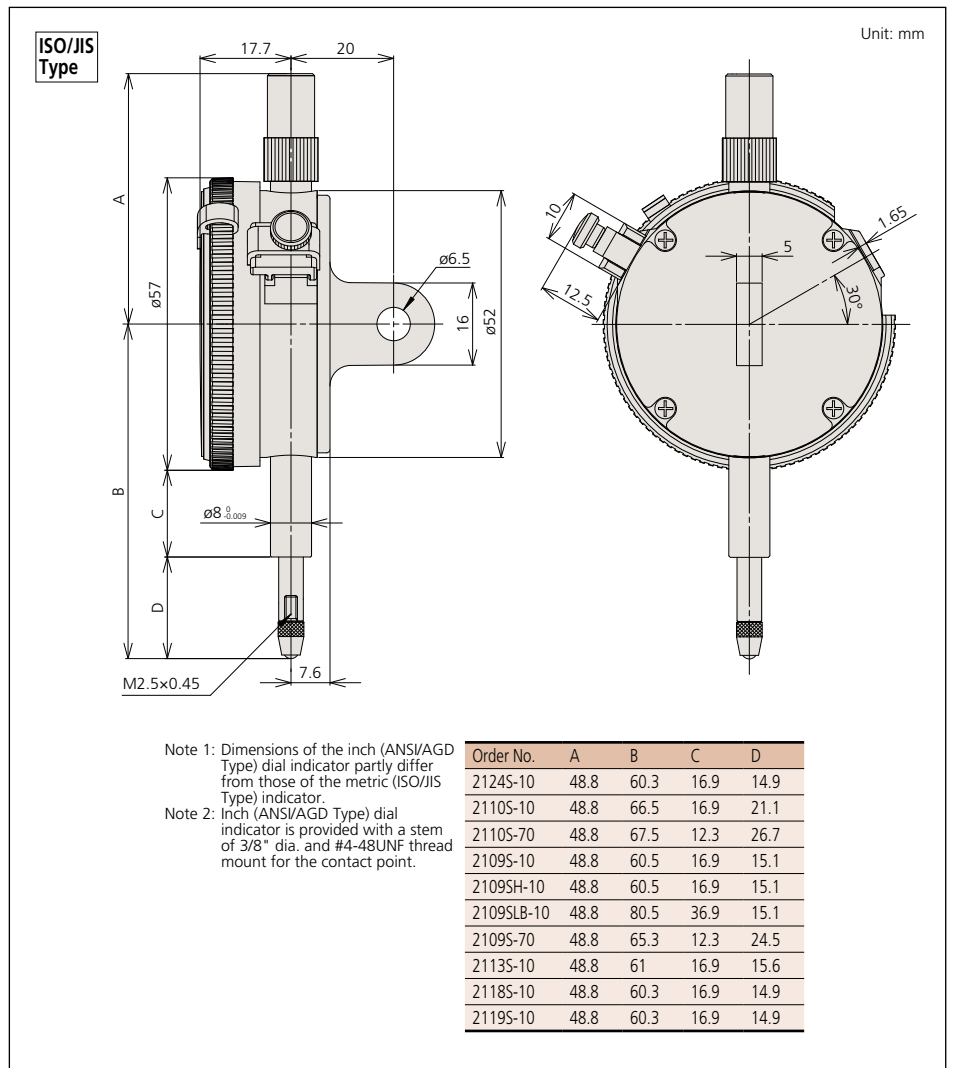


2119S-10



2124S-10

DIMENSION







Optional Accessory

- : Backs (See page 266.)
- : Contact points (See page 264.)

Dial Indicator

SERIES 2 — Standard Type, Inch Reading

SPECIFICATIONS

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force	ANSI/AGD type					
	w/ lug	Flat-back									—	—
.001"	2780S	2780SB	.125" (.05")	±.001"	0-50	1.8N or less	—	—	—	—	—	—
.001"	2781S	2781SB	.125" (.05")	±.001"	0-25-0	1.8N or less	—	—	—	—	—	—
.001"	2410S	2410SB	.25" (.1")	±.001"	0-100	1.8N or less	—	—	—	—	—	—
.001"	2410S-06	2410SB-06	.25" (.1")	±.001"	0-100	1.8N or less	—	—	—	—	—	—
.001"	2410S-10	2410SB-10	.25" (.1")	±.001"	0-100	1.8N or less	—	—	—	✓	—	—
.001"	2410S-60	2410SB-60	.25" (.1")	±.001"	0-100	2.5N or less	—	✓	—	—	—	—
.001"	2411S	2411SB	.25" (.1")	±.001"	0-50-0	1.8N or less	—	—	—	—	—	—
.001"	2411S-10	2411SB-10	.25" (.1")	±.001"	0-50-0	1.8N or less	—	—	—	✓	—	—
.001"	2411S-60	2411SB-60	.25" (.1")	±.001"	0-50-0	2.5N or less	—	✓	—	—	—	—
.001"	2414S	2414SB	.5" (.1")	±.001"	0-100	1.8N or less	—	—	—	—	—	—
.001"	2414S-06	2414SB-06	.5" (.1")	±.001"	0-100	1.8N or less	—	—	—	—	—	—
.001"	2414S-10	2414SB-10	.5" (.1")	±.001"	0-100	1.8N or less	—	—	—	✓	—	—
.001"	2414S-60	2414SB-60	.5" (.1")	±.001"	0-100	2.5N or less	—	✓	—	—	—	—
.001"	2415S	2415SB	.5" (.1")	±.001"	0-50-0	1.8N or less	—	—	—	—	—	—
.001"	2415S-10	2415SB-10	.5" (.1")	±.001"	0-50-0	1.8N or less	—	—	—	✓	—	—
.001"	2415S-60	2415SB-60	.5" (.1")	±.001"	0-50-0	2.5N or less	—	✓	—	—	—	—
.001"	2914S	2914SB	.5" (.1")	±.001"	100-0	1.8N or less	—	—	✓	—	—	—
.0005"	2506S	2506SB	.125" (.05")	±.0005"	0-50	1.8N or less	—	—	—	—	—	—
.0005"	2506S-10	2506SB-10	.125" (.05")	±.0005"	0-50	1.8N or less	—	—	—	✓	—	—
.0005"	2507S	2507SB	.125" (.05")	±.0005"	0-25-0	1.8N or less	—	—	—	—	—	—
.0005"	2507S-10	2507SB-10	.125" (.05")	±.0005"	0-25-0	1.8N or less	—	—	—	✓	—	—
.0005"	2514S	2514SB	.5" (.05")	±.0015"	0-50	1.8N or less	—	—	—	—	—	—
.0005"	2514S-10	2514SB-10	.5" (.05")	±.0015"	0-50	1.8N or less	—	—	—	✓	—	—
.0005"	2514S-60	2514SB-60	.5" (.05")	±.0015"	0-50	2.5N or less	—	✓	—	—	—	—
.0005"	2570S-10	2570SB-10	.075" (.03")	±.0005"	0-30	1.8N or less	—	—	—	✓	—	—
.0005"	2570S-70	2570SB-70	.075" (.03")	±.0005"	0-30	2.5N or less	—	✓	—	✓	—	—
.0005"	2571S-10	2571SB-10	.075" (.03")	±.0005"	0-15-0	1.8N or less	—	—	—	✓	—	—
.0005"	2571S-70	2571SB-70	.075" (.03")	±.0005"	0-15-0	2.5N or less	—	✓	—	✓	—	—
.0005"	2576S-70	2576SB-70	.3" (.03")	±.001"	0-30	2.5N or less	—	✓	—	✓	—	—
.0005"	2670S	2670SB	.1" (.04")	±.0005"	0-40	1.8N or less	—	—	—	—	—	—
.0005"	2671S	2671SB	.1" (.04")	±.0005"	0-20-0	1.8N or less	—	—	—	—	—	—
.0005"	2675S	2675SB	.4" (.04")	±.0015"	0-20-0	1.8N or less	—	—	—	—	—	—
.0005"	2906S	2906SB	.125" (.05")	±.0005"	50-0	1.8N or less	—	—	✓	—	—	—
.0005"	2922S	2922SB	.125" (.05")	±.0005"	0-25-0	1.8N or less	—	—	—	—	—	—
.00025"	2470S-10	2470SB-10	.05" (.02")	±.00025"	0-20	1.8N or less	—	—	—	✓	—	—
.00025"	2471S-10	2471SB-10	.05" (.02")	±.0005"	0-10-0	1.8N or less	—	—	—	✓	—	—
.00025"	2476S-10	2476SB-10	.2" (.02")	±.0005"	0-20	1.8N or less	—	—	—	✓	—	—
.00025"	2476S-70	2476SB-70	.2" (.02")	±.0005"	0-20	2.5N or less	—	✓	—	✓	—	—
.0001"	2356S-10	2356SB-10	.25" (.01")	±.0008"	0-10	2.0N or less	—	—	—	✓	—	—
.0001"	2358S-10	2358SB-10	.5" (.01")	±.0002"	0-10	2.0N or less	—	—	—	✓	—	—
.0001"	2802S-10	2802SB-10	.025" (.01")	±.0001"	0-10	2.0N or less	✓	—	—	✓	—	—
.0001"	2802S-70	2802SB-70	.025" (.01")	±.0001"	0-10	2.5N or less	✓	✓	—	✓	—	—
.0001"	2803S-10	2803SB-10	.025" (.01")	±.0001"	0-5-0	2.0N or less	✓	—	—	✓	—	—
.0001"	2803S-70	2803SB-70	.025" (.01")	±.0001"	0-5-0	2.5N or less	✓	✓	—	✓	—	—
.0001"	2804S-10	2804SB-10	.05" (.01")	±.0002"	0-10	2.0N or less	✓	—	—	✓	—	—
.0001"	2805S-10	2805SB-10	.05" (.01")	±.0002"	0-5-0	2.0N or less	✓	—	—	✓	—	—
.0001"	2806S-10	2806SB-10	.1" (.01")	±.0003"	0-10	2.0N or less	✓	—	—	✓	—	—
.0001"	2806S-70	2806SB-70	.1" (.01")	±.0003"	0-10	2.5N or less	✓	✓	—	✓	—	—
.0001"	2905S-10	2905SB-10	.05" (.01")	±.0002"	10-0	2.0N or less	✓	—	✓	✓	—	—
.0001"	2923S-10	2923SB-10	.05" (.01")	±.0002"	0-5-0	2.0N or less	✓	—	—	✓	—	—
.0001"	2937S-10	2937SB-10	.02" (.008")	±.0001"	0-4-0	2.0N or less	✓	—	—	✓	—	—
.0001"	2938S-10	2938SB-10	.02" (.008")	±.0001"	0-8	2.0N or less	✓	—	—	✓	—	—



(Refer to the page 9 for details.)

Optional Accessory

- : Backs (See page 266.)
- : Contact points (See page 264.)



Schockproof type



Waterproof type



Reverse reading type



Jeweled bearing type

Special Dial Indicator

SERIES 2



(Refer to the page 9 for details.)



Adjustable hand



Peak hold



Double-face type



20485-10

Adjustable hand dial gauge

The hand position can be adjusted independently of the vertical movement of the spindle by rotating the top knob.



20465-80

Peak hold type dial gauge

A mechanism that stops the pointer and the spindle at the depressed position where the spindle is depressed makes the pointer stop and display the maximum value.



29405

Double-face type dial gauge

The displacement of the spindle can be read from either the front or rear face.

Optional Accessory

- : Backs (See page 266.)
- : Contact points (See page 264.)

SPECIFICATIONS

Metric

ISO/JIS type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force	Measuring force
	w/ lug	Flat-back					
0.01mm	20485-10	2048SB-10	10mm (1mm)	±15μm	0-100	1.4N or less	Adjustable hand
0.01mm	20465-80	2046SB-80	10mm (1mm)	±15μm	0-100	5.0N or less	Peak hold
0.01mm	29405	—	10mm (1mm)	±15μm	0-100	3.0N or less	Double-face

Inch

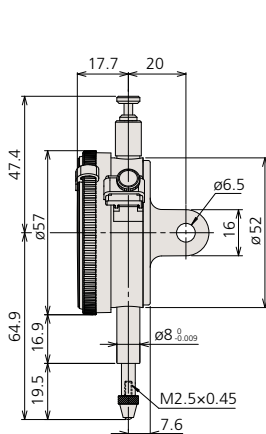
ANSI/AGD type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force	Remarks
	w/ lug	Flat-back					
.001"	29155-10	2915SB-10	.5" (.1")	±.001"	0-100	1.8N or less	Jeweled bearing, adjustable hand
.001"	29185-10	2918SB-10	.5" (.1")	±.001"	0-50-0	1.8N or less	Jeweled bearing, adjustable hand
.001"	29195-10	2919SB-10	.25" (.1")	±.001"	0-100	1.8N or less	Jeweled bearing, adjustable hand
.001"	29205-10	2920SB-10	.25" (.1")	±.001"	0-50-0	1.8N or less	Jeweled bearing, adjustable hand

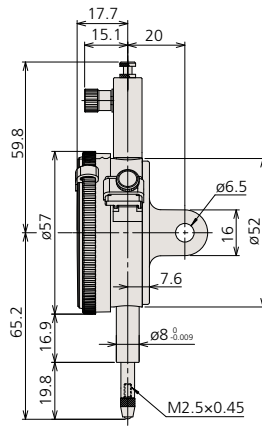
DIMENSION

ISO/JIS Type

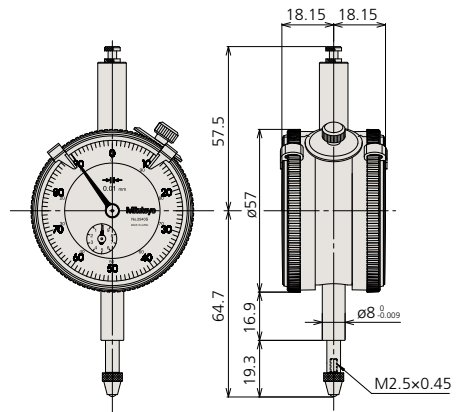
Unit: mm



20485-10



20465-80



29405

Dial Indicator

SERIES 2 — Standard One Revolution Type for Error-free Reading

Unlike many other dial indicators, the one-revolution dial indicator literally shows the entire spindle travel or range as one sweep of the hand, eliminating the possibility of reading errors due to miscounting the multiple revolutions. With one-revolution dial indicators, "within tolerance" and "out-of-tolerance" can never be misinterpreted.

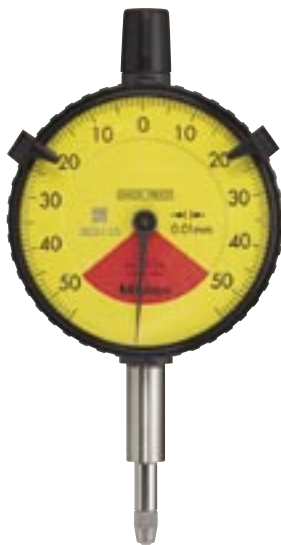
FEATURES

- An unique shock-proof mechanism is incorporated, providing improved immunity to shock due to sudden spindle retraction caused by high impact.

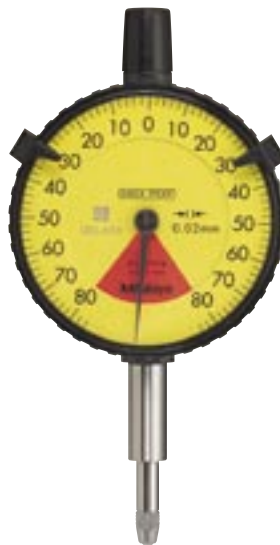
- The crystal is hard coated for durability and scratch resistance.
- Approximately 40% lighter than the conventional dial indicator.
- Provided with an improved resistance to shop floor contaminants such as water and dust.
- Due to the spindle bushing being offset from the stem, spindle movement will not be hindered or jammed when clamping along the stem.
- A pair of limit hands are provided for quick and easy tolerance judgment (GO/±NG).



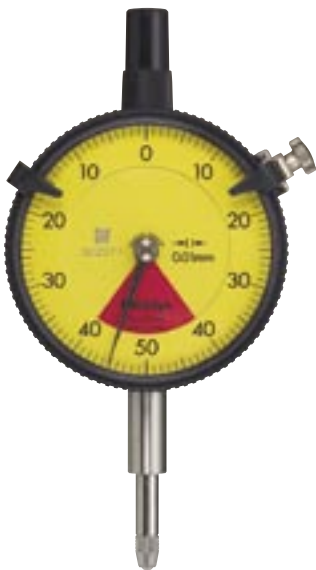
2971



2972



2973



29295



29005-10



2990



(Refer to the page 9 for details.)



2971



2972



2973



29285



Shockproof type



Waterproof type



Dustproof type



Jeweled bearing type

SPECIFICATIONS

Metric

ISO/JIS type

Graduation	Order No.		Range (range/full stroke)	Accuracy	Dial reading	Measuring force					—
	w/ lug	Flat-back									
0.1mm	2928S	2928SB	4mm / 10mm	±40µm	2-0-2	1.4N or less	✓	—	—	—	—
0.01mm	2929S	2929SB	0.8mm / 1mm	±9µm	40-0-40	1.4N or less	✓	—	—	—	—
0.01mm	2929S-60	2929SB-60	0.8mm / 1mm	±9µm	40-0-40	2.0N or less	✓	✓	—	—	—
0.01mm	2929S-62	2929SB-62	0.8mm / 1mm	±9µm	40-0-40	2.0N or less	✓	—	✓	—	—
0.01mm	2959S	2959SB	1.6mm / 2mm	±13µm	80-0-80	1.4N or less	✓	—	—	—	—
0.001mm	2900S-10	2900SB-10	0.08mm / 0.1mm	±3µm	40-0-40	1.4N or less	✓	—	—	✓	—
0.001mm	2900S-70	2900SB-70	0.08mm / 0.1mm	±3µm	40-0-40	2.0N or less	✓	✓	—	✓	—
0.001mm	2900S-72	2900SB-72	0.08mm / 0.1mm	±3µm	40-0-40	2.0N or less	✓	—	✓	✓	—
0.001mm	2901S-10	2901SB-10	0.16mm / 0.2mm	±4µm	80-0-80	1.4N or less	✓	—	—	✓	—
0.02mm	—	2973	1.6mm / 2mm	±16µm	80-0-80	1.4N or less	✓	—	✓	—	—
0.01mm	—	2971	0.5mm / 0.7mm	±10µm	25-0-25	1.4N or less	✓	—	✓	—	—
0.01mm	—	2972	1mm / 1.4mm	±12µm	50-0-50	1.4N or less	✓	—	✓	—	—
0.01mm	2990*	—	0.1mm / 0.14mm	±6.5µm	50-0-50	1.5N or less	✓	—	—	✓	—
0.001mm	—	2960F*	1mm / 1.27mm	±14µm	50-0-50	1.4N or less	✓	—	—	—	—

*Back plunger type (see page 262.)

Inch

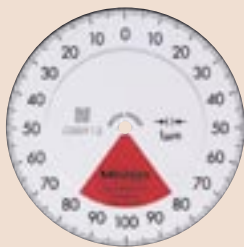
ANSI/AGD type

Graduation	Order No.		Range (range/full stroke)	Accuracy	Dial reading	Measuring force					—	—
	w/ lug	Flat-back										
.001"	2908S	2908SB	.08" / .1"	±.001"	40-0-40	1.8N or less	✓	—	—	—	—	—
.001"	2908S-62	2908SB-62	.08" / .1"	±.001"	40-0-40	2.5N or less	✓	✓	—	—	—	—
.0005"	2909S-62	2909SB-62	.04" / .05"	±.0005"	20-0--20	2.5N or less	✓	✓	—	—	—	—
.0001"	2910S-10	2910SB-10	.008" / .01"	±.0001"	4-0-4	1.8N or less	✓	—	✓	—	—	—
.0001"	2910S-72	2910SB-72	.008" / .01"	±.0001"	4-0-4	2.5N or less	✓	—	✓	✓	—	—
.001"	—	2978	.06" / .079"	±.001"	30-0-30	1.4N or less	✓	✓	—	—	—	—
.0005"	—	2976	.02" / .028"	±.0005"	10-0-10	1.4N or less	✓	✓	—	—	—	—
.0005"	—	2977	.04" / .055"	±.0005"	20-0-20	1.4N or less	✓	✓	—	—	—	—
.0001"	—	2991*	.008" / .01"	±.0002"	4-0-4	1.5N or less	✓	—	✓	—	—	—

*Back plunger type (see page 262.)

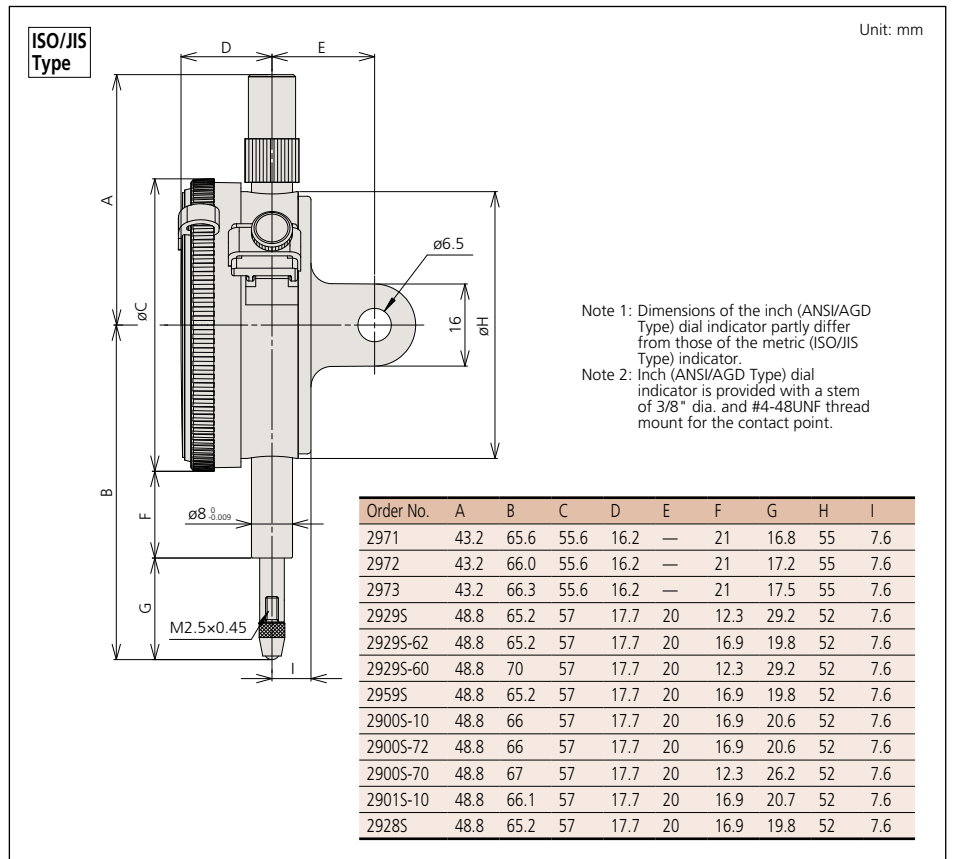
2929S
2929S-60
2929S-62

2959S

2900S-10
2900S-70
2900S-72

2901S-10

DIMENSION



Optional Accessory

- : Backs (See page 266.)
- : Contact points (See page 264.)

Dial Indicator

SERIES 2 — Long Stroke Type



2050S



2052S



2330S-10



(Refer to the page 9 for details.)



2050S-60
2050S
2050S-19



2052S
2052S-19



2330S-10



2320S-10



2952S



Shockproof type



Waterproof type



w/ damper at lowest rest point



Jeweled bearing type



w/ coaxial revolution counter



Reverse reading type

SPECIFICATIONS

Metric

ISO/JIS type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force						
	w/ lug	Flat-back										
0.01mm	2050S	2050SB	20mm (1mm)	±20μm	0-100	2.0N or less	—	—	✓	—	—	—
0.01mm	2050S-60	2050SB-60	20mm (1mm)	±20μm	0-100	2.5N or less	—	✓	—	—	—	—
0.01mm	2050S-19	2050SB-19	20mm (1mm)	±20μm	0-100	2.0N or less	✓	—	✓	✓	—	—
0.01mm	2320S-10	2320SB-10	20mm (1mm)	±20μm	0-100	2.0N or less	—	—	✓	✓	✓	—
0.01mm	2052S	2052SB	30mm (1mm)	±25μm	0-100	2.5N or less	—	—	✓	—	—	—
0.01mm	2052S-19	2052SB-19	30mm (1mm)	±25μm	0-100	2.5N or less	✓	—	✓	✓	—	—
0.01mm	2330S-10	2330SB-10	30mm (1mm)	±25μm	0-100	2.5N or less	—	—	✓	✓	✓	—
0.01mm	2952S	2952SB	30mm (1mm)	±25μm	100-0	2.5N or less	—	—	✓	—	—	✓

Inch

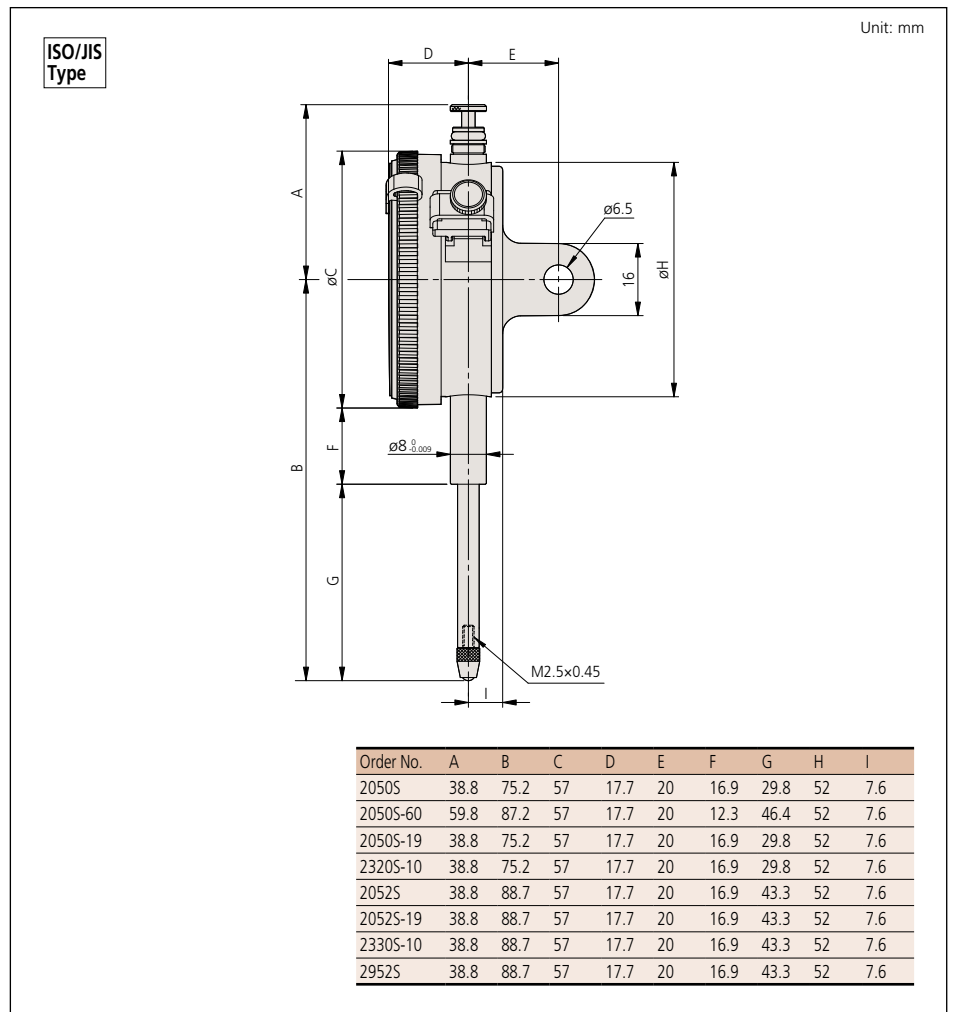
ANSI/AGD type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force						
	w/ lug	Flat-back										
.01"	2204S	2204SB	1" (1")	±.005"	0-1000	1.8N or less	—	—	—	—	—	—
.001"	2416S	2416SB	1" (.1")	±.001"	0-100	1.8N or less	—	—	—	—	—	—
.001"	2416S-06	2416SB-06	1" (.1")	±.001"	0-100	1.8N or less	—	—	—	—	—	—
.001"	2416S-10	2416SB-10	1" (.1")	±.001"	0-100	1.8N or less	—	—	—	✓	—	—
.001"	2416S-60	2416SB-60	1" (.1")	±.001"	0-100	2.5N or less	—	✓	—	—	—	—
.001"	2417S	2417SB	1" (.1")	±.001"	0-50-0	1.8N or less	—	—	—	—	—	—
.001"	2424S-19	2424SB-19	2" (.1")	±.003"	0-100	2.5N or less	✓	—	—	✓	—	✓
.0005"	2776S	2776SB	1" (.05")	±.002"	0-50	1.8N or less	—	—	—	—	—	—
.0005"	2776S-60	2776SB-60	1" (.05")	±.002"	0-50	2.5N or less	—	✓	—	—	—	—
.001"	2904S	2904SB	1" (.1")	±.002"	100-0	2.0N or less	—	—	✓	—	—	—

Optional Accessory

- : Backs (See page 266.)
- : Contact points (See page 264.)

DIMENSION



Dial Indicator

SERIES 3, 4 — Large Dial Face and Long Stroke Type

- Dial gauges with a large-diameter graduation face to ease reading.
- All types come with limit pins and an outer frame clamp as standard.



3109S-10

3058S-19

4046S



(Refer to the page 9 for details.)



3046S



3047S

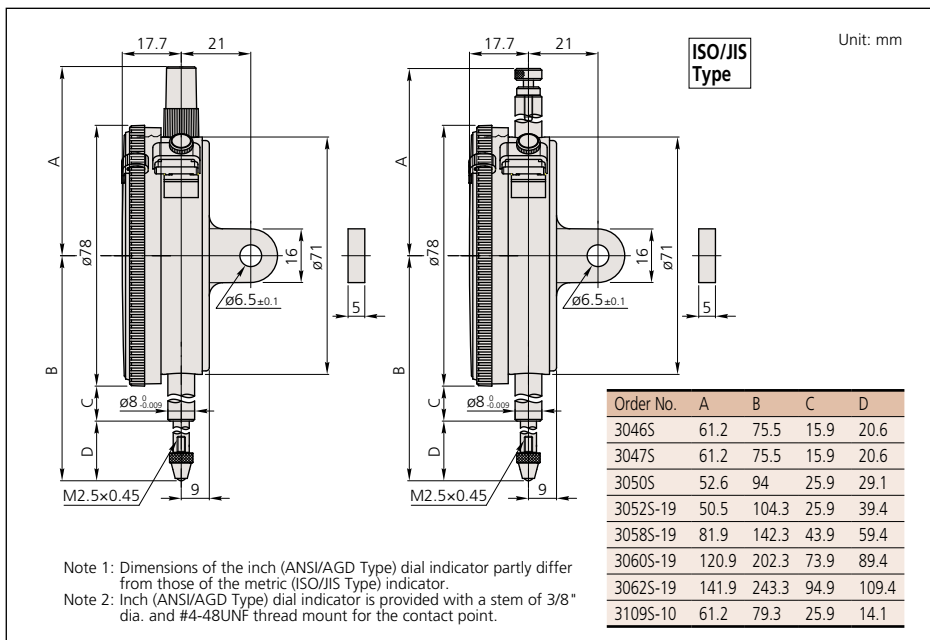


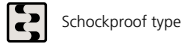
3050S



3052S-19

DIMENSION





Schockproof type



w/ damper at lowest rest point



Jeweled bearing type



w/ coaxial revolution counter

SPECIFICATIONS

Metric

ISO/JIS type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force					—	—
	w/ lug	Flat-back										
0.01mm	3046S	3046SB	10mm (1mm)	±15μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	3047S	3047SB	10mm (1mm)	±15μm	0-50-0	1.4N or less	—	—	—	—	—	—
0.01mm	3050S	3050SB	20mm (1mm)	±20μm	0-100	2.0N or less	—	✓	—	—	—	—
0.01mm	3052S-19	3052SB-19	30mm (1mm)	±25μm	0-100	2.5N or less	✓	—	✓	✓	—	—
0.01mm	3058S-19	3058SB-19	50mm (1mm)	±35μm	0-100	3.0N or less	✓	—	✓	✓	—	—
0.01mm	3060S-19*	3060SB-19*	80mm (1mm)	±45μm	0-100	3.0N or less	✓	—	✓	✓	—	—
0.01mm	3062S-19*	3062SB-19*	100mm (1mm)	±50μm	0-100	3.2N or less	✓	—	✓	✓	—	—
0.001mm	3109S-10	3109SB-10	1mm (0.2mm)	±6μm	0-100-0	1.5N or less	✓	—	✓	—	—	—
0.01mm	4046S	4046SB	10mm (1mm)	±15μm	0-100	1.4N or less	—	—	—	—	—	—

*Use in a vertical position only.

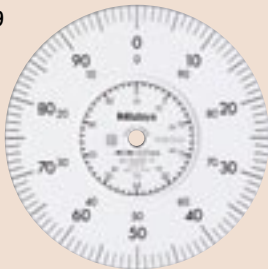
Inch

ANSI/AGD type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force				—	—	—
	w/ lug	Flat-back										
.001"	3410S	3410SB	.25" (.1")	±.001"	0-100	1.8N or less	—	—	—	—	—	—
.001"	3411S	3411SB	.25" (.1")	±.001"	0-50-0	1.8N or less	—	—	—	—	—	—
.001"	3414S	3414SB	.5" (.1")	±.001"	0-100	1.8N or less	—	—	—	—	—	—
.001"	3415S	3415SB	.5" (.1")	±.001"	0-50-0	1.8N or less	—	—	—	—	—	—
.001"	3416S	3416SB	1" (.1")	±.002"	0-100	1.8N or less	—	—	—	—	—	—
.001"	3417S	3417SB	1" (.1")	±.002"	0-50-0	1.8N or less	—	—	—	—	—	—
.001"	3424S-19	3424SB-19	2" (.1")	±.003"	0-100	3.0N or less	✓	✓	✓	—	—	—
.001"	3426S-19	3426SB-19	3" (.1")	±.005"	0-100	3.0N or less	✓	✓	✓	—	—	—
.001"	3428S-19	3428SB-19	4" (.1")	±.005"	0-100	3.2N or less	✓	✓	✓	—	—	—
.001"	3780S	3780SB	.125" (.05")	±.001"	0-50	1.8N or less	—	—	—	—	—	—
.001"	3781S	3781SB	.125" (.05")	±.001"	0-25-0	1.8N or less	—	—	—	—	—	—
.0005"	3570S-10	3570SB-10	.075" (.03")	±.0005"	0-30	1.8N or less	—	✓	—	—	—	—
.0005"	3571S-10	3571SB-10	.075" (.03")	±.0005"	0-15-0	1.8N or less	—	✓	—	—	—	—
.0001"	3802S-10	3802SB-10	.025" (.01")	±.0001"	0-10	2.0N or less	✓	✓	—	—	—	—
.0001"	3803S-10	3803SB-10	.025" (.01")	±.0001"	0-5-0	2.0N or less	✓	✓	—	—	—	—
.001"	4410S	4410SB	.25" (.1")	±.001"	0-100	1.8N or less	—	—	—	—	—	—
.001"	4411S	4411SB	.25" (.1")	±.001"	0-50-0	1.8N or less	—	—	—	—	—	—
.001"	4887S-19	4887SB-19	3" (.1")	±.005"	0-100	3.0N or less	✓	✓	✓	—	—	—
.0005"	4570S-10	4570SB-10	.075" (.03")	±.0005"	0-30	1.8N or less	—	✓	—	—	—	—
.0005"	4571S-10	4571SB-10	.075" (.03")	±.0005"	0-15-0	1.8N or less	—	✓	—	—	—	—
.0001"	4802S-10	4802SB-10	.025" (.01")	±.0001"	0-10	2.0N or less	✓	✓	—	—	—	—
.0001"	4803S-10	4803SB-10	.025" (.01")	±.0001"	0-5-0	2.0N or less	✓	✓	—	—	—	—
.0001"	4818S-10	4818SB-10	.05" (.02")	±.0003"	0-20	2.0N or less	✓	✓	—	—	—	—



3058S-19



3060S-19



3062S-19



3109S-10

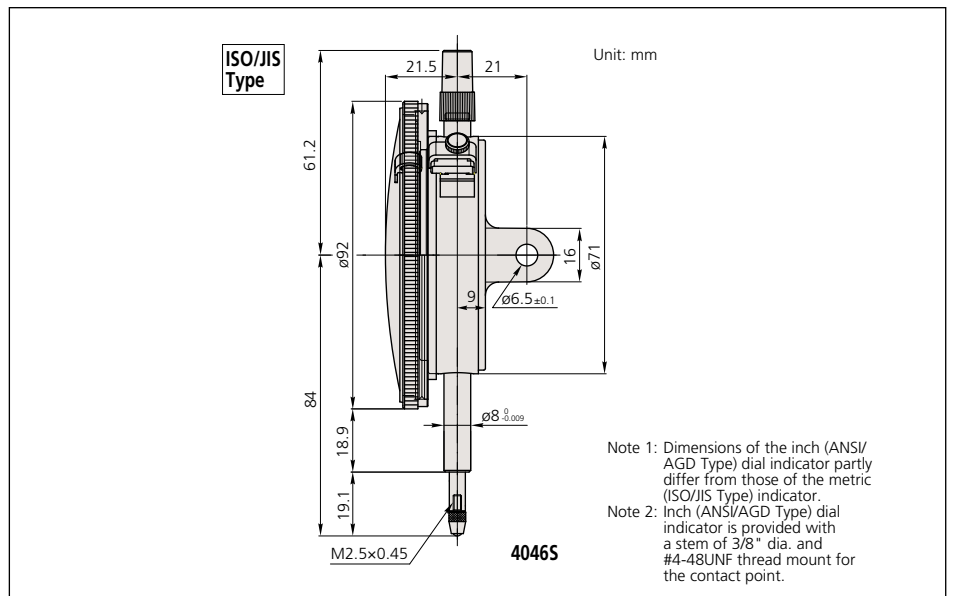


4046S

Optional Accessory

—: Contact points (See page 262.)

DIMENSION




ANSI/AGD Type Metric Dial Indicator

with 3/8" DIA. Stem and #4-48UNF-Thread Contact Point Compatible Type

SPECIFICATIONS






Metric Series 1 ANSI/AGD type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force		—	—	—	—	—
	w/ lug	Flat-back										
0.01mm	1230F-01	1230FB-01	2.5mm (1mm)	±10µm	0-100	1.5N or less	—	—	—	—	—	—
0.01mm	1231F-01	1231FB-01	2.5mm (1mm)	±10µm	0-50-0	1.5N or less	—	—	—	—	—	—
0.01mm	1044F-01	1044FB-01	5mm (1mm)	±10µm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	1045F-01	1045FB-01	5mm (1mm)	±10µm	0-50-0	1.4N or less	—	—	—	—	—	—
0.002mm	1010F-11	1010FB-11	0.5mm (0.2mm)	±2µm	0-20	1.5N or less	✓	—	—	—	—	—
0.002mm	1011F-11	1011FB-11	0.5mm (0.2mm)	±2µm	0-10-0	1.5N or less	✓	—	—	—	—	—






(Refer to the page 9 for details.)

Metric Series 2 ANSI/AGD type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force						—	—	—
	w/ lug	Flat-back												
0.02mm	2032S-11	2032SB-11	5mm (2mm)	±20µm	0-200	1.4N or less	—	✓	—	—	—	—	—	—
0.02mm	2033S-11	2033SB-11	5mm (2mm)	±20µm	0-100-0	1.4N or less	—	✓	—	—	—	—	—	—
0.01mm	2230S-01	2230SB-01	2.5mm (1mm)	±10µm	0-100	1.4N or less	—	—	—	—	—	—	—	—
0.01mm	2231S-01	2231SB-01	2.5mm (1mm)	±10µm	0-100	1.4N or less	—	—	—	—	—	—	—	—
0.01mm	2231S-11	2231SB-11	2.5mm (1mm)	±10µm	0-50-0	1.4N or less	—	✓	—	—	—	—	—	—
0.01mm	2044S-01	2044SB-01	5mm (1mm)	±10µm	0-100	1.4N or less	—	—	—	—	—	—	—	—
0.01mm	2044S-61	2044SB-61	5mm (1mm)	±10µm	0-100	2.5N or less	✓	—	—	—	—	—	—	—
0.01mm	2045S-01	2045SB-01	5mm (1mm)	±10µm	0-50-0	1.4N or less	—	—	—	—	—	—	—	—
0.01mm	2046S-01	2046SB-01	10mm (1mm)	±13µm	0-100	1.4N or less	—	—	—	—	—	—	—	—
0.01mm	2046S-11	2046SB-11	10mm (1mm)	±13µm	0-100	1.4N or less	—	✓	—	—	—	—	—	—
0.01mm	2046S-61	2046SB-61	10mm (1mm)	±13µm	0-100	2.5N or less	✓	—	—	—	—	—	—	—
0.01mm	2048S-11	2048SB-11	10mm (1mm)	±13µm	0-100	1.4N or less	—	✓	✓	✓	—	—	—	—
0.01mm	2047S-01	2047SB-01	10mm (1mm)	±13µm	0-50-0	1.4N or less	—	—	—	—	—	—	—	—
0.01mm	2047S-11	2047SB-11	10mm (1mm)	±13µm	0-50-0	1.4N or less	—	✓	—	—	—	—	—	—
0.01mm	2902S-01	2902SB-01	10mm (1mm)	±13µm	100-0	1.4N or less	—	—	—	—	—	—	—	—
0.01mm	2050S-01	2050SB-01	20mm (1mm)	±20µm	0-100	2.0N or less	—	—	—	—	—	—	—	—
0.01mm	2050S-11	2050SB-11	20mm (1mm)	±20µm	0-100	2.0N or less	—	✓	—	—	—	—	—	—
0.01mm	2056S-01	2056SB-01	25mm (1mm)	±25µm	0-100	2.5N or less	—	—	—	—	—	—	—	—
0.005mm	2124S-11	2124SB-11	5mm (0.5mm)	±12µm	0-50	1.5N or less	—	✓	—	—	—	—	—	—
0.005mm	2124S-71	2124SB-71	5mm (0.5mm)	±12µm	0-50	2.5N or less	✓	✓	—	—	—	—	—	—
0.005mm	2125S-11	2125SB-11	5mm (0.5mm)	±12µm	0-25-0	1.5N or less	—	✓	—	—	—	—	—	—
0.005mm	2125S-71	2125SB-71	5mm (0.5mm)	±12µm	0-25-0	2.5N or less	✓	✓	—	—	—	—	—	—
0.002mm	2010S-11	2010SB-11	0.5mm (0.2mm)	±3µm	0-20	1.5N or less	—	✓	—	—	✓	—	—	—
0.002mm	2010S-71	2010SB-71	0.5mm (0.2mm)	±3µm	0-20	2.5N or less	✓	✓	—	—	—	—	—	—
0.002mm	2011S-11	2011SB-11	0.5mm (0.2mm)	±3µm	0-10-0	1.5N or less	—	✓	—	—	✓	—	—	—
0.002mm	2011S-71	2011SB-71	0.5mm (0.2mm)	±3µm	0-10-0	2.5N or less	✓	✓	—	—	—	—	—	—
0.001mm	2900S-73*	2900SB-73*	0.08mm (0.1mm)	±2µm	40-0-40	1.4N or less	—	✓	—	—	✓	✓	—	—
0.001mm	2109S-11	2109SB-11	1mm (0.2mm)	±4µm	0-10-0	1.5N or less	—	✓	—	—	✓	—	—	—
0.001mm	2119S-11	2119SB-11	5mm (0.2mm)	±10µm	0-10-0	1.5N or less	—	✓	—	—	—	—	—	—

*One revolution type

Metric Series 3 ANSI/AGD type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force				—	—	—
	w/ lug	Flat-back										
0.01mm	3230S-01	3230SB-01	2.5mm (1mm)	±10µm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	3231S-01	3231SB-01	2.5mm (1mm)	±10µm	0-50-0	1.4N or less	—	—	—	—	—	—
0.01mm	3052S-11	3052SB-11	30mm (1mm)	±30µm	0-100	2.5N or less	✓	✓	✓	—	—	—
0.01mm	3058S-11	3058SB-11	50mm (1mm)	±40µm	0-100	3.0N or less	✓	✓	✓	—	—	—
0.002mm	3010S-11	3010SB-11	0.5mm (0.2mm)	±2µm	0-20	1.5N or less	✓	—	✓	—	—	—
0.002mm	3011S-11	3011SB-11	0.5mm (0.2mm)	±2µm	0-10-0	1.5N or less	✓	—	✓	—	—	—

Metric Series 4 ANSI/AGD type

Graduation	Order No.		Range (range/rev)	Accuracy	Dial reading	Measuring force	—	—	—	—	—
	w/ lug	Flat-back									
0.01mm	4230S-01	4230SB-01	2.5mm (1mm)	±10µm	0-100	1.4N or less	—	—	—	—	—
0.01mm	4231S-01	4231SB-01	2.5mm (1mm)	±10µm	0-50-0	1.4N or less	—	—	—	—	—



Waterproof type



Jeweled bearing type



Adjustable hand type



w/ coaxial revolution counter



Schockproof type



Dustproof type

Hicator, Signal Hicator

SERIES 524 — High Accuracy One-Revolution Dial Indicator

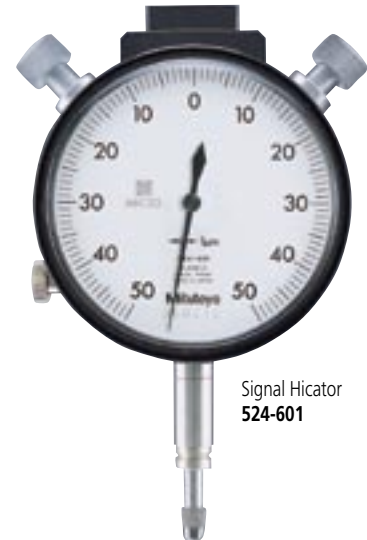
FEATURES

The Hicator is Mitutoyo's ultra-sensitive, one-revolution dial indicator. The spindle is made of highly durable stainless steel, and this device features jeweled bearings for extreme sensitivity as well as a shock-proof and dust-proof structure.

- The maximum, minimum, or runout value can be displayed during measurement.
- The Hicator is capable of probing measurements up to 0.0005mm.
- Connected to an optional Signal Box, the Signal Hicator can output limit signals to perform GO/±NO-GO judgment.
- Splash-proof structure.
- Lug-on-center back is optional.



Hicator
524-501



Signal Hicator
524-601

Optional Accessory

- 524-001: Signal box (100V AC)
- 524-001A: Signal box (120V AC)
- : Backs (See page 266.)
- : Contact points (See page 264.)

SPECIFICATIONS

Metric		Hicator		ISO/JIS type			
Graduation	Order No.*	Range	Dial reading	Spindle travel	Accuracy	Measuring force	Remarks
0.001mm	524-501	±0.05mm	50-0-50	3mm	±1μm	1.2N or less	w/ spindle lifting cable
0.0005mm	524-500	±0.03mm	30-0-30	3mm	±0.5μm	1.2N or less	w/ spindle lifting cable

*Flat back

Metric		Signal Hicator		ISO/JIS type			
Graduation	Order No.*	Range	Dial reading	Spindle stroke	Accuracy	Measuring force	Remarks
0.01mm	524-603	±0.5mm	50-0-50	3mm	±5μm	1.2N or less	w/ 2m signal cable
0.002mm	524-602	±0.1mm	100-0-100	3mm	±1.5μm	1.2N or less	w/ 2m signal cable
0.001mm	524-601	±0.05mm	50-0-50	3mm	±1μm	1.2N or less	w/ 2m signal cable

*Flat back

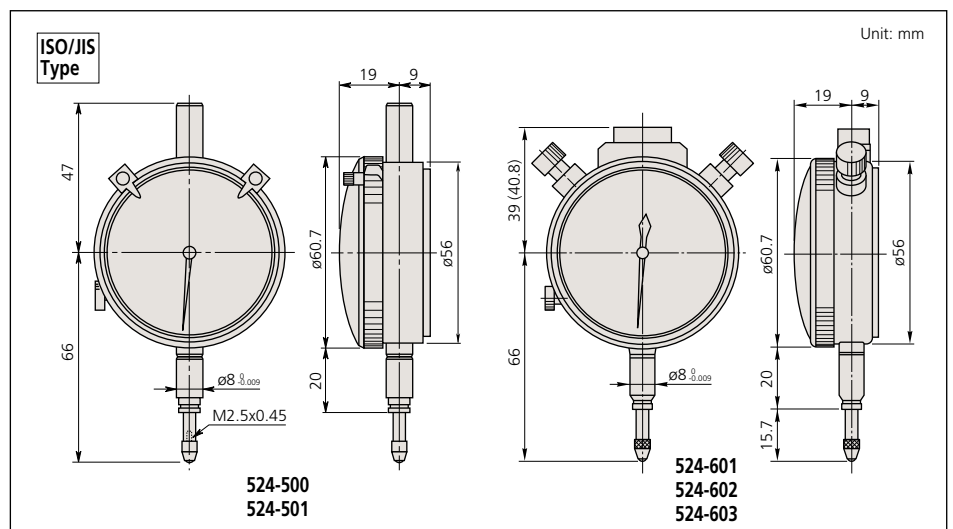
ABSOLUTE Digimatic Indicator ID-C SERIES 543 — with Green/Red LED and GO/NG Signal Output Function



FEATURES (See page 237.)

- With the max./min. value holding function, the signal ID-C can output the signal of the GO/±NG judgment result against the peak values set. Substitute for the mechanical/electrical contact, the judgment is carried out by calculating the measurement data obtained. This provides high reliability with no deterioration of the contact point and volume adjustment.

DIMENSION



Back Plunger Type Dial Indicator

SERIES 1 and 2

Mitutoyo's back plunger type dial indicators are built with the measuring spindles on the back of the units. This type of indicator offers the same precision and durability as all other Mitutoyo dial indicators, and operates very effectively with optional holding bars.

- Back plunger type dial gauges are suitable for mounting onto leveling machine tool tables or inspection jigs, and for use in small spaces where the graduations of standard dial gauges are difficult to see.
- Model No. 1960, which uses Mitutoyo's proprietary shock-proofing mechanism, has excellent durability and shock resistance.
- Model No. 2990 is back plunger type and allows 0.001mm readings.



(Refer to the page 9 for details.)



1160



1960



1180-6

Holding bar (optional)



2960F



2990



One revolution type



Shockproof type



Jeweled bearing type

SPECIFICATIONS

Metric Series 1

ISO/JIS type

Graduation	Order No.	Range (range/rev)	Accuracy	Dial reading	Measuring force						
0.01mm	1960	1mm / 1.27mm*	±14μm	50-0-50	1.4N or less	✓	✓	—	—	—	—
0.01mm	1160	5mm (1mm)	±16μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	1162	5mm (1mm)	±16μm	100-0	1.4N or less	—	—	✓	—	—	—
0.01mm	1180-6	5mm (1mm)	±16μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	1180-7	5mm (1mm)	±16μm	0-100	1.4N or less	—	—	—	—	—	—
0.01mm	1180-8	5mm (1mm)	±16μm	0-100	1.4N or less	—	—	—	—	—	—

Inch Series 1

ANSI/AGD type

Graduation	Order No.	Range (range/rev)	Accuracy	Dial reading	Measuring force						
.001"	1961	.04" / .05"*	±.001"	20-0-20	1.4N or less	✓	✓	—	—	—	—
.001"	1156	.1" (.1")	±.001"	0-100	2.1N or less	—	—	—	—	—	—
.001"	1157	.1" (.1")	±.001"	0-50-0	2.1N or less	—	—	—	—	—	—
.001"	1166	.2" (.05")	±.001"	0-50	1.4N or less	—	—	—	—	—	—
.001"	1167	.2" (.05")	±.001"	0-25-0	1.4N or less	—	—	—	—	—	—
.001"	1168	.2" (.05")	±.001"	50-0	1.4N or less	—	—	✓	—	—	—

*Full stroke

Metric Series 2

ISO/JIS type

Graduation	Order No.	Range (range/full stroke)	Accuracy	Dial reading	Measuring force						
0.01mm	2960F	1mm / 1.27"	±14μm	50-0-50	1.4N or less	✓	✓	—	—	—	—
0.001mm	2990	0.1mm / 0.14"	±6.5μm	50-0-50	1.5N or less	✓	✓	✓	—	—	—

Inch Series 2

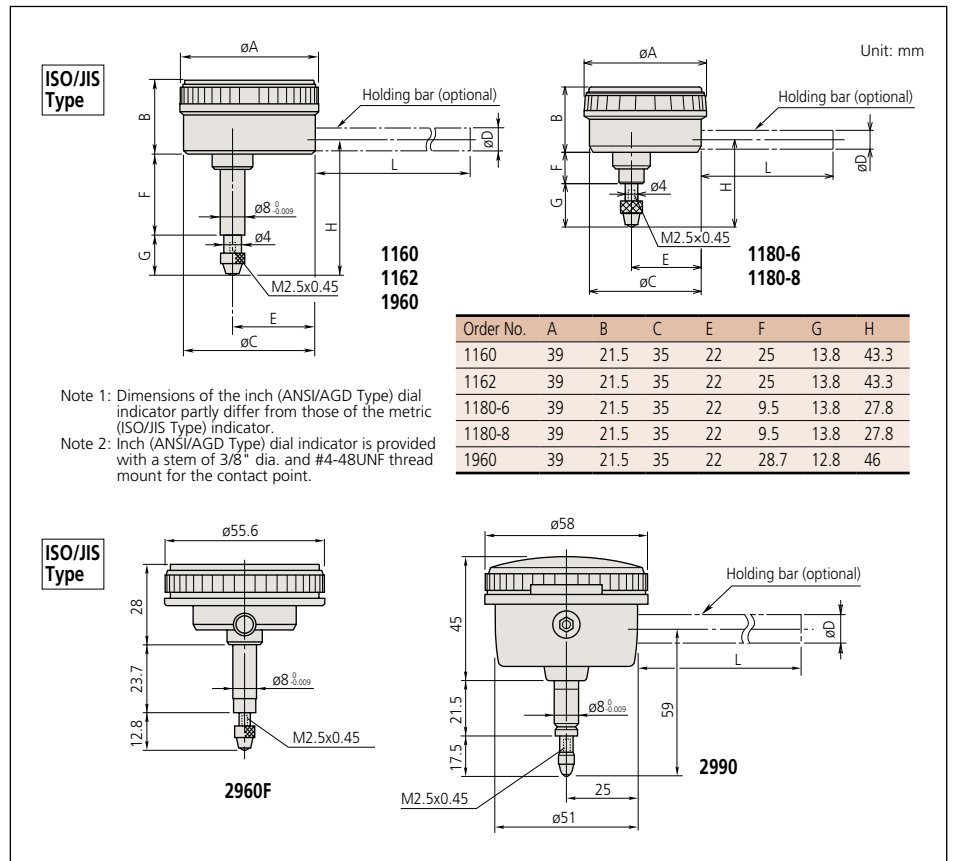
ANSI/AGD type

Graduation	Order No.	Range (range/full stroke)	Accuracy	Dial reading	Measuring force						
.0005"	2961	.04" / .05"	±.0005"	20-0-20	1.8N or less	✓	✓	—	—	—	—
.0001"	2991	.008" / .01"	±.0002"	4-0-4	1.5N or less	✓	✓	✓	—	—	—

Optional Accessory

- 136567: Holding bar (ø6mm, L=81mm)
- 21AAA166: Holding bar (ø6mm, L=42mm)
- 136568: Holding bar (ø8mm, L=81mm)
- 21AAA168: Holding bar (ø8mm, L=42mm)
- 124625: Holding bar (.25" DIA, L=3.19")
- 21AAA167: Holding bar (.25" DIA, L=1.65")
- : Backs (See page 266.)
- : Contact points (See page 264.)

DIMENSION



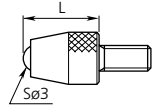
Contact Point

Optional Accessory for Digimatic and Dial Indicators and Linear Gages

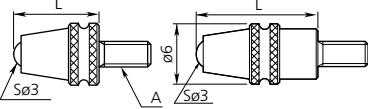
SPECIFICATIONS

Ball Points

Unit: mm



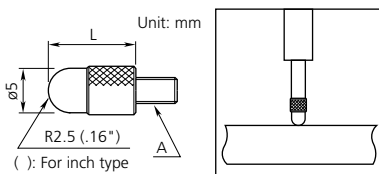
For waterproof model (w/ groove for rubber booth)



L	Material	Order No.	A
7.3	Carbide	901312	M2.5x0.45
		901454	#4-48UNF
	Plastic	901994	M2.5x0.45
		902018	#4-48UNF
	Ruby	120047	M2.5x0.45
8.3	Carbide	21AZA319	M2.5x0.45
8.3*	Carbide	902119	M2.5x0.45
12.1*	Carbide	21AZA320	M2.5x0.45
14	Carbide	21JAA225	M2.5x0.45
15	Carbide	120049	M2.5x0.45
	Ruby	120051	M2.5x0.45
17	Carbide	21JAA224	M2.5x0.45
19.3*	Carbide	21AZA321	M2.5x0.45
20	Carbide	137391	M2.5x0.45
	Ruby	137392	M2.5x0.45
22	Carbide	21JAA226	M2.5x0.45
25	Carbide	120053	M2.5x0.45
	Ruby	120055	M2.5x0.45
30	Carbide	21AAA252	M2.5x0.45
	Ruby	21AAA253	M2.5x0.45

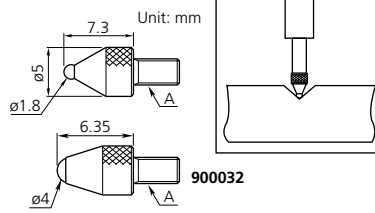
*For waterproof dial indicators

Shell Type Points



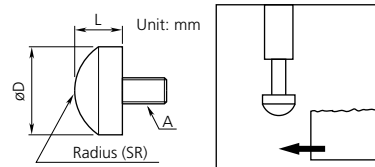
L	Order No.	A
3.97	101184	#4-48UNF
5	101386	M2.5x0.45
10	101118	M2.5x0.45
12.7	101185	#4-48UNF
15	137393	M2.5x0.45
19.05	101186	#4-48UNF
20	101387	M2.5x0.45
25	101388	M2.5x0.45
25.4	101187	#4-48UNF
30	21AAA254	M2.5x0.45

Ball Point



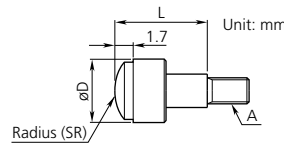
SφD	φd	Order No.	A
1mm, carbide	5mm	21AAA349	M2.5x0.45
1.5mm, carbide	5mm	21AAA350	M2.5x0.45
1.8mm, steel	5mm	101122	M2.5x0.45
2.5mm, carbide	5mm	21AAA351	M2.5x0.45
4mm, carbide	5mm	21AAA352	M2.5x0.45
4mm, carbide	5mm	900032	#4-48UNF

Spherical Points



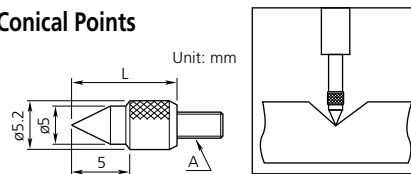
D	L	SR	Order No.	A
10	5	7	101119	M2.5x0.45
12.7	3.18	7	101205	#4-48UNF
9.53	2.38	9	101204	#4-48UNF

Spherical Points (Carbide)

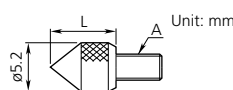


D	L	SR	Order No.	A
5.2	5	5	120058	M2.5x0.45
7.5	10	7	120059	M2.5x0.45
10.5	10	10	120060	M2.5x0.45

Conical Points

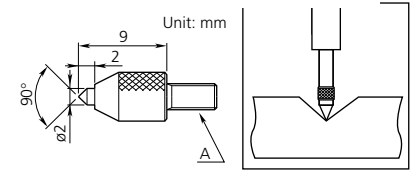


Tip angle	L	Order No.	A
60°	10	101120	M2.5x0.45
60°	12.7	101190	#4-48UNF

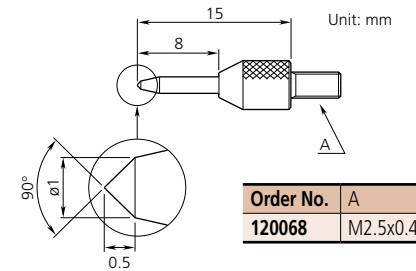


Tip angle	L	Order No.	A
90°	5	101385	M2.5x0.45
90°	7.14	101191	#4-48UNF

Conical Points (Carbide)

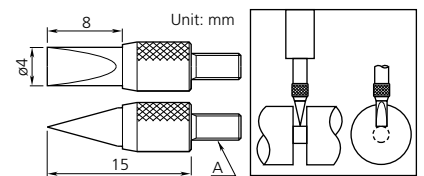


Order No.	A
120057	M2.5x0.45



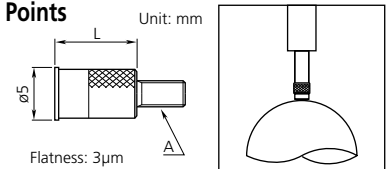
Order No.	A
120068	M2.5x0.45

Knife Edge Point (Carbide)

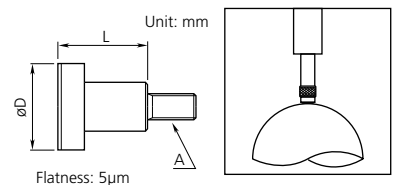


Order No.	A
120067	M2.5x0.45

Flat Points

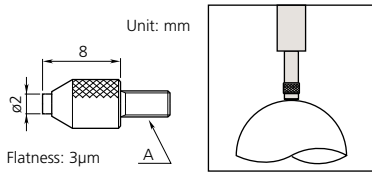


L	Order No.	A
8	131365	M2.5x0.45
10	21AAA340	M2.5x0.45
8	133017	#4-48UNF

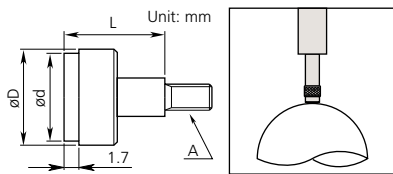


D	L	Order No.	A
10	10	101117	M2.5x0.45
15	10	21AAA341	M2.5x0.45
20	10	21AAA342	M2.5x0.45
25	10	21AAA343	M2.5x0.45
20	10	21AAA344	M2.5x0.45
12.7	9.53	101188	#4-48UNF
9.53	9.53	101189	#4-48UNF

Flat Points (Carbide)

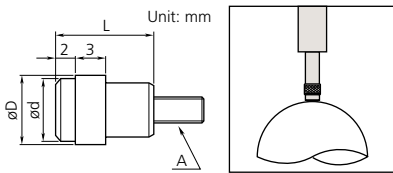


Order No.	A
120056	M2.5x0.45



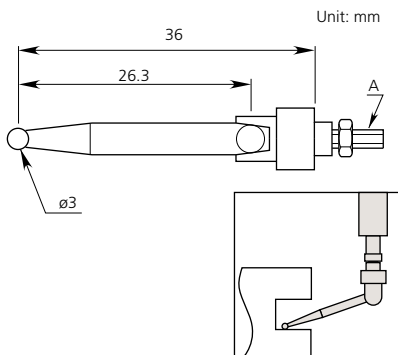
D	d	L	Order No.	A
5.2	4.3*	5	120041	M2.5x0.45
7	6.5*	10	120042	M2.5x0.45
10.5	9.5*	10	120043	M2.5x0.45
17	15**	10	21AAA345	M2.5x0.45
22	20**	10	21AAA346	M2.5x0.45
27	25**	10	21AAA347	M2.5x0.45
32	30**	10	21AAA348	M2.5x0.45

Flatness: *3µm, **5µm



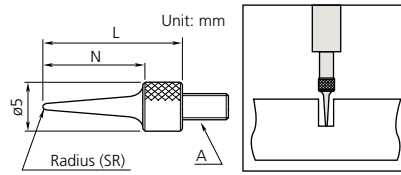
D	d	L	Order No.	A
7	6.4	10	137255	M2.5x0.45
9	8	10	137399	M2.5x0.45

Lever Points



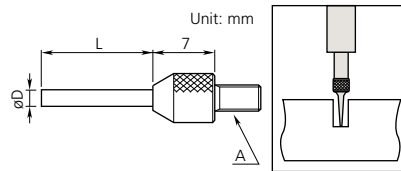
Order No.	A
900391	M2.5x0.45
900393	#4-48UNF

Lever Points



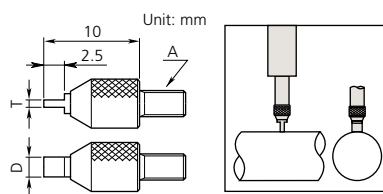
N	L	SR	Order No.	A
11	15	0.4	101121	M2.5x0.45
13	17	0.2	137413	M2.5x0.45
21	25	0.4	21AAA255	M2.5x0.45
31	35	0.4	21AAA256	M2.5x0.45

Needle Points (Carbide)



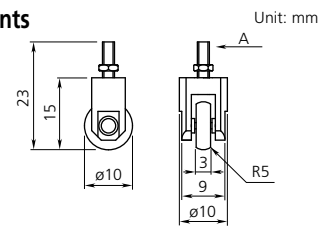
D	L	Order No.	A
0.45	3	120066	M2.5x0.45
0.45	5	21AAA329	M2.5x0.45
1	3	120065	M2.5x0.45
1	5	21AAA330	M2.5x0.45
1	8	21AAA331	M2.5x0.45
1	10	21AAA332	M2.5x0.45
1	20	21AAA333	M2.5x0.45
1	40	21AAA334	M2.5x0.45
1.5	5	21AAA335	M2.5x0.45
1.5	10	21AAA336	M2.5x0.45
1.5	13	120064	M2.5x0.45
1.5	20	21AAA337	M2.5x0.45
1.5	40	21AAA338	M2.5x0.45
2	8	137257	M2.5x0.45
2	18	21AAA257	M2.5x0.45
2	28	21AAA258	M2.5x0.45
2	40	21AAA339	M2.5x0.45

Blade Points (Carbide)



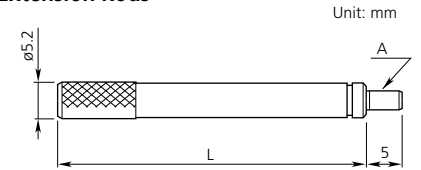
T	W	Order No.	A
0.4	2	120061	M2.5x0.45
0.6	2	120062	M2.5x0.45
1	4	120063	M2.5x0.45

Roller Points



Order No.	A
901954	M2.5x0.45
901991	#4-48UNF

Extension Rods



L	Order No.	A
10	303611	M2.5x0.45
15	21AAA259A	M2.5x0.45
20	303612	M2.5x0.45
25	21AAA259B	M2.5x0.45
30	303613	M2.5x0.45
35	21AAA259C	M2.5x0.45
40	21AAA259D	M2.5x0.45
45	21AAA259E	M2.5x0.45
50	21AAA259F	M2.5x0.45
55	21AAA259G	M2.5x0.45
60	304146	M2.5x0.45
65	21AAA259H	M2.5x0.45
70	21AAA259J	M2.5x0.45
75	21AAA259L	M2.5x0.45
80	21AAA259M	M2.5x0.45
90	304147	M2.5x0.45
100	303614	M2.5x0.45
1"	301655	#4-48UNF
2"	301657	#4-48UNF
4"	301659	#4-48UNF

Interchangeable Contact Point Set (M2.5x0.45)




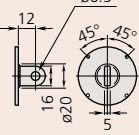

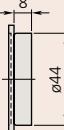

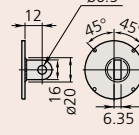

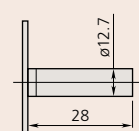

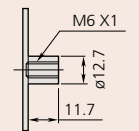

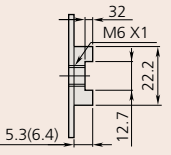

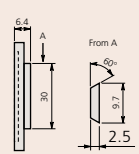

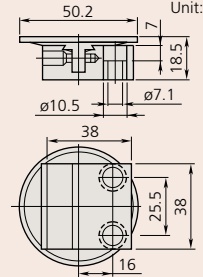


Order No.	Components
7822	Flat Point (131365, ø5mm)
	Flat Point (101117, ø10mm)
	Needle Point (101121)
	Spherical Point (101119)
	Shell Type Point (101118)
	Shell Type Point (101387)

Back

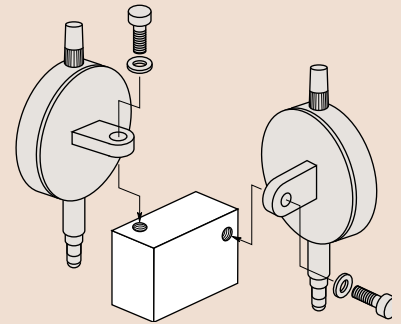
Optional Accessory for Digimatic and Dial Indicators

SPECIFICATIONS

Description	Unit: mm	Order No.		
		Series 1 (ø41mm)	Series 2 (ø57mm)	Series 3, 4 (ø77, 91mm)
Flat Back 		101211: a=2.2 136872: for water-proof type 191559: for 1911, 1913-10 137906: for 1003	101039: a=2.5 21AZB231: for water-proof of S type	100836: a=3.0
Lug-on-Center Back 		101210: metric type 101307: inch type 190561: for 1911, 1913-10 137905: for 1003	101040: metric type 101306: inch type 21AZB230: for water-proof of S type	100691: metric type 100797: inch type
Magnetic Back 		Special order	900928	900929
Back with Offset Lug 		Special order	101167	100837
Back with Post 		193172 Order-to-made	101169	100839
Back with Screw Mount 		193173: M6x1, Order-to-made 193174: #1/4-28UNF, Order-to-made	136023: M6x1 193174: #1/4-28UNF	136024: M6x1 100840: #1/4-28UNF
Adjustable Back 		136025: M6x1 129721: #1/4-28UNF	136026: M6x1 101168: #1/4-28UNF	136027: M6x1 100838: #1/4-28UNF
Back with Dovetail 		—	900008	Special order
Back with Adjustable Bracket 		—	901963	—

There are two ways to support Digimatic and dial indicators; by either holding the stem or the lug on the back of the indicator. The back of the indicator may need to be replaced for special applications. A wide variety of backs are available for Mitutoyo Digimatic and dial indicators.

Application



Spindle Lifting Lever and Cable

Optional Accessory for Digimatic and Dial Indicators

Spindle Lifting Lever

- The Spindle Lifting Lever is attached to the top end of the spindle for improved inspection efficiency when using a dial indicator mounted on a stand.

21BZA205

Use for Series 1 dial indicators.



21AZB149

Use for S type Series 2, 3, and 4 dial indicators (up to 10mm/.4").



21AZB150

Use for S type Series 2 and 3 dial indicators (from 10mm/.4" up to 20mm/.8").



Spindle Lifting Cable

901975: with auto-stop function

540774: without auto-stop function

Lifting range: 10mm

Cable length: 300mm



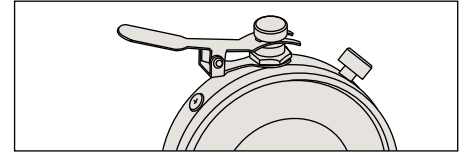
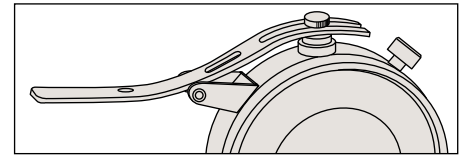
Spindle Lifting Knob

137693

Applicable spindle diameter; 4.8mm



Application



902011

Use for Series 2 dial indicators (up to 10mm/.4" range).



902100

Use for Series 2 dial indicators (up to 10mm/.4" range).

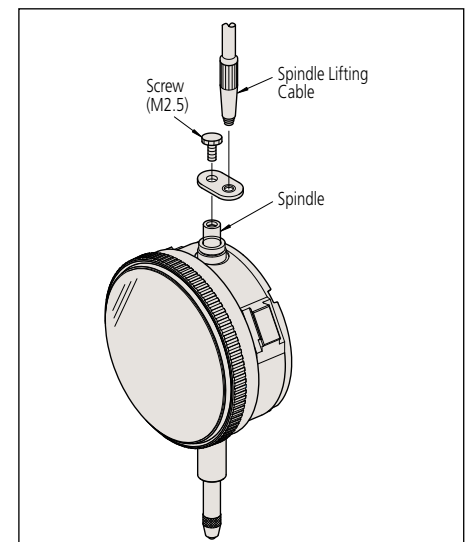


903424

Use for Series 2 dial indicators (up to 20mm/.8" range) and Series 3 and 4 dial indicators (up to 10mm/.4" range).



Application



Color Spindle Cap

Optional Accessory for Digimatic and Dial Indicators

8 colors of spindle caps are available for dial indicators with a range of 10mm or less.



SPECIFICATIONS

Color	Order No. (normal)	Order No. (water-resistant)
Black	193051	193595
White	193051W	193595W
Red	193051R	193595R
Green	193051G	193595G
Blue	193051B	193595B
Yellow	193051Y	193595Y
Orange	193051D	193595D
Pink	193051P	193595P
Dark blue	193051S	193595S

Limit Sticker

Optional Accessory for Digimatic and Dial Indicators

FEATURES

- Stuck on the dial face or crystal of a Series 2 dial indicator (55.6mm or 57mm bezel dia.) to indicate tolerance limits.



136420: Red (10-sheet/set)



136421: Green (10-sheet/set)



136422: Yellow (10-sheet/set)

Dial Indicator Repair Tool Kit

Optional Accessory for Digimatic and Dial Indicators

Set Configuration

- 901171: Molykote (lubricant)
- 901172: Lubricating oil
- 901173: Screwdriver (Phillips)
- 901174: Screwdriver (Phillips/flat blade)
- 129729: Tweezers
- 901175: Pin-vise
- 901176: Brush
- 901177: Brush
- 901177: Brush
- 901178: Hammer
- 129730: Spindle rest
- 129731: Pin rest
- 901179: Nippers
- 901180: Pliers
- 901181: Hand remover
- 129732: Pin remover
- 129733: Punch
- 129734: Bearing adjuster
- 129735: Pinion rest
- 129736: Reamer $\varnothing 1$
- 193702: Reamer $\varnothing 0.6$
- 901182: Case

Mitutoyo offers a tool set designed to let you perform simple repairs to your Mitutoyo dial indicator, and a device that lets you reset the indicator crystals.



7823

Dial Indicator Crystal Setter

Optional Accessory for Digimatic and Dial Indicators

FEATURES

- Used for fitting a crystal on dial indicators, dial test indicators, and dial calipers.



7000

With 8 sizes of crystal setting pads








Dial Test Indicator

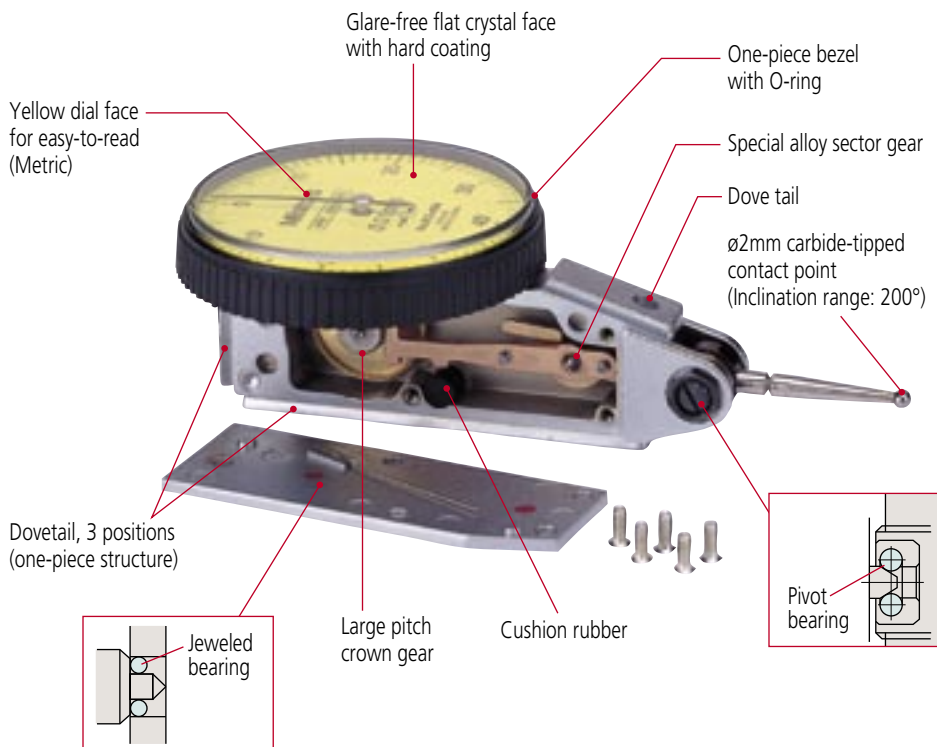
SERIES 513

FEATURES

- Narrow or deep places, which cannot be measured with a normal dial gauge, can be easily and accurately measured.
- Mitutoyo's proprietary new structure permits smooth pointer operation.
- Use of a hard frame body provides excellent rigidity and durability.
- Non-magnetic pointer and contact point permit secure operation even in environments with magnetism.
- Use of a clear and concise wide dial face allows excellent visibility.
- The surface of the crystal is hard-coated, to make it scratch-resistant.
- Flat crystal makes gradations easy to read. Moreover, the unified structure of the outer frame prevents oil and water from permeating via the front face.
- Six types are available: vertical, inclined, perpendicular, horizontal, universal, and pocketable, allowing users to select the model most suited to their needs.
- Vertical: Standard
- Inclined: Dial face inclined 20°, compared with the vertical type, allows easy reading.
- Perpendicular: Best suited for centering holes.
- Horizontal: The graduations can be read from the front, with the probe on the tip of the horizontal conical rod abutting the workpiece.
- Universal: The direction of the probe movement can be freely changed.
- Pocketable: Compact type

Description of Icon

Icon	Description
	With revolution counter type
	Long contact point type
	Jeweled bearing type
	Double scale spacing type, easy-on-the-eyes
	Compact type
	Dustproof type
	Anti-magnetic type

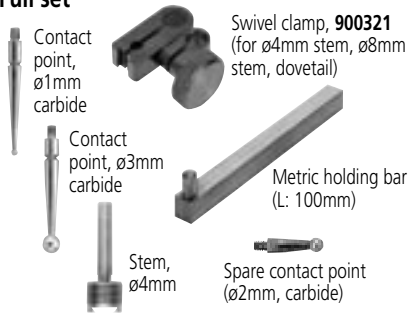


Dial Test Indicator

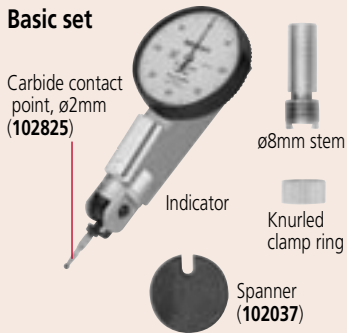
SERIES 513 — Universal Type

Set Configuration: Metric

Full set

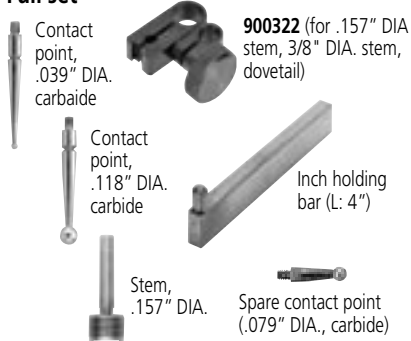


Basic set

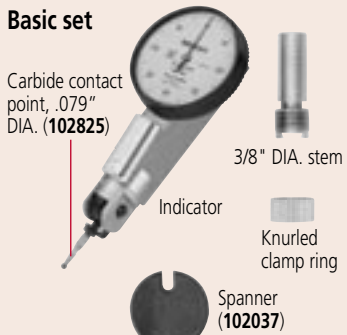


Set Configuration: Inch

Full set



Basic set

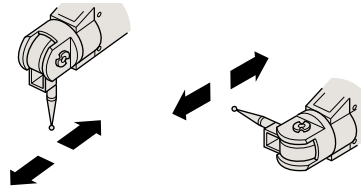


Optional Accessory

- : Swivel clamp (See page 278.)
- : Holding bar (See page 278.)
- : Stem (See page 278.)
- 102824: Contact point, ø1mm ball (carbide)
- 102825: Contact point, ø2mm ball (carbide)
- 102826: Contact point, ø3mm ball (carbide)

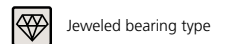
FEATURES

- Universal application to all directions. (Not only the direction of the measuring point, but also the direction of measurement itself can be adjusted 360 degrees without moving the indicator.)



513-304GE

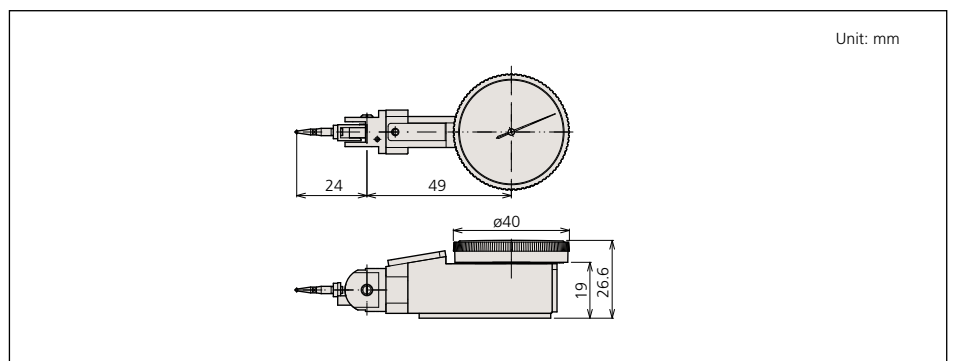
SPECIFICATIONS



Metric		Range	Accuracy	Dial reading	Measuring force	Jeweled bearing type				
Graduation	Order No.					✓	—	—	—	—
	Basic set	Full set								
0.01mm	513-304GE	513-304GT	0.8mm	8µm	0-40-0	0.3N or less	✓	—	—	—

Inch		Range	Accuracy	Dial reading	Measuring force	Jeweled bearing type				
Graduation	Order No.					✓	—	—	—	—
	Basic set	Full set								
.0005"	513-302G	513-302GT	.03"	.0005"	0-15-0	0.3N or less	✓	—	—	—

DIMENSION



Unit: mm

Dial Test Indicator

SERIES 513 — Horizontal Type

FEATURES

- Performs easy and accurate measurement of narrow or recessed areas, plus inside and outside diameters that dial indicators cannot access.
- No-clutch structure for automatic reversal of measuring direction.
- Resistant to water and dust thanks to the one-piece bezel and "crystal" design with O-ring.
- The glare-free flat crystal face has a scratch-resistant coating.
- High-sensitivity and quick-response because of jeweled bearings.
- A carbide contact point is provided as standard.



513-424E



513-404E



513-414E



513-415E



513-426E



513-405E



513-425E



513-401E



513-474E

Ruby contact point

Optional Accessory

- : Swivel clamp (See page 278.)
- : Holding bar (See page 278.)
- : Stem (See page 278.)
- : Contact points (See page 278.)

Special Set: No. 513-908 (mm)

- 513-404E: Dial test indicator
- 7014: Mini magnetic stand

No. 513-907 (inch)

- 513-402: Dial test indicator
- 7014: Mini magnetic stand

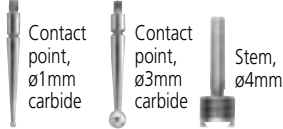


Set Configuration: Metric and Metric/Inch

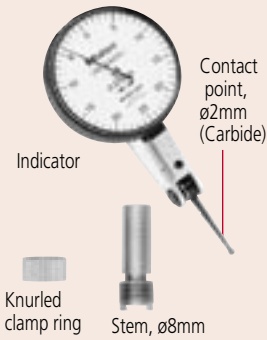
Full set

Swivel clamp (900321, for $\phi 4\text{mm}$, $\phi 8\text{mm}$, dovetail) Metric holding bar (L: 100mm)

Plus set



Basic set

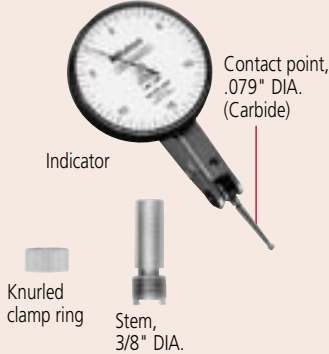


Set Configuration: Inch and Inch/Metric

Full set

Contact point, .039" DIA. carbide; Contact point, .118" DIA. carbide; Stem, .157" DIA.; Swivel clamp (900322, for .157" DIA., 3/8" DIA., dovetail); Inch holding bar (L: 4")

Basic set



Anti-magnet type



Double scale spacing type



Long contact point type



Jeweled bearing type



Compact type



With revolution counter type



513-466E



513-464E



513-465E

SPECIFICATIONS

Metric

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force						
	Basic set	Plus set	Full set										
0.01mm	513-424E	513-424A	513-424T	0.5mm	5 μm	0-25-0	0.3N or less	✓	✓	—	✓	—	—
0.01mm	513-414E	513-414A	513-414T	0.5mm	10 μm	0-25-0	0.2N or less	✓	✓	✓	✓	—	—
0.01mm	513-466E	—	—	0.5mm	5 μm	0-25-0	0.3N or less	✓	✓	—	✓	—	—
0.01mm	513-404E	513-404A	513-404T	0.8mm	8 μm	0-40-0	0.3N or less	✓	—	—	✓	—	—
0.01mm	513-474E*	—	—	0.8mm	8 μm	0-40-0	0.3N or less	✓	—	—	✓	—	—
0.01mm	513-464E	—	—	0.8mm	8 μm	0-40-0	0.3N or less	✓	—	—	✓	—	—
0.01mm	513-415E	513-415A	513-415T	1mm	10 μm	0-50-0	0.2N or less	✓	—	✓	✓	—	—
0.01mm	513-426E	513-426A	—	1.5mm	8 μm	0-25-0	0.4N or less	✓	✓	—	✓	—	✓
0.002mm	513-405E	513-405A	513-405T	0.2mm	3 μm	0-100-0	0.3N or less	✓	—	—	✓	—	—
0.002mm	513-465E	—	—	0.2mm	3 μm	0-100-0	0.3N or less	✓	—	—	✓	✓	—
0.002mm	513-425E	513-425A	—	0.6mm	6 μm	0-100-0	0.4N or less	✓	—	—	✓	—	✓
0.001mm	513-401E	—	—	0.14mm	3 μm	0-70-0	0.3N or less	✓	—	—	✓	—	—

*provided with a $\phi 2\text{mm}$ ruby contact point as a substitute for $\phi 2\text{mm}$ carbide contact point.

Inch

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force					
	Basic set	Plus set	Full set									
.0005"	513-402	—	513-402T	.03"	.0005"	0-15-0	0.3N or less	✓	—	✓	—	—
.0005"	513-412	—	513-412T	.03"	.0005"	0-15-0	0.2N or less	✓	✓	✓	—	—
.0005"	513-462	—	—	.03"	.0005"	0-15-0	0.3N or less	✓	—	✓	✓	—
.0001"	513-403	—	513-403T	.008"	.0001"	0-4-0	0.3N or less	✓	—	✓	—	—
.0001"	513-463	—	—	.008"	.0001"	0-4-0	0.3N or less	✓	—	✓	✓	—

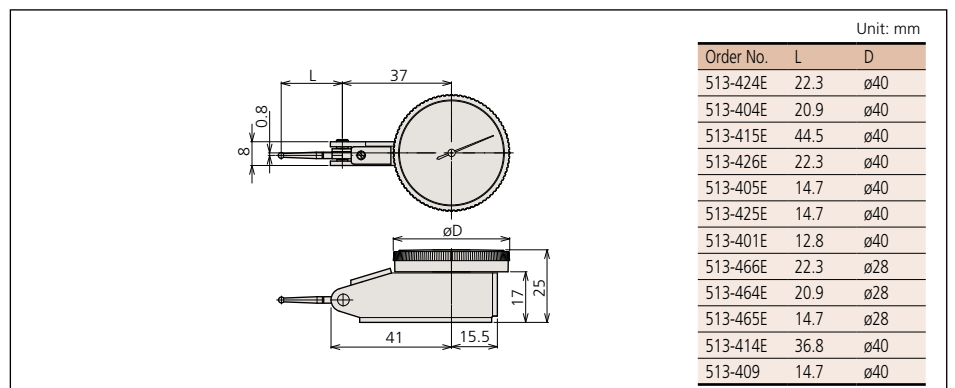
Metric/inch

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force				
	Basic set	Plus set	Full set								
0.002mm, .0001"	513-409	—	513-409T	0.2mm, .0075"	3 μm	0-10-0, 0-38-0	0.3N or less	✓	✓	—	—

Inch/Metric

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force				
	Basic set	Plus set	Full set								
.0005", 0.01mm	513-406	—	513-406T	.03", 0.7mm	.0005"	0-15-0, 0-35-0	0.3N or less	✓	✓	—	—

DIMENSION

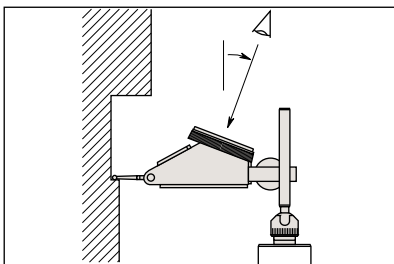


Dial Test Indicator

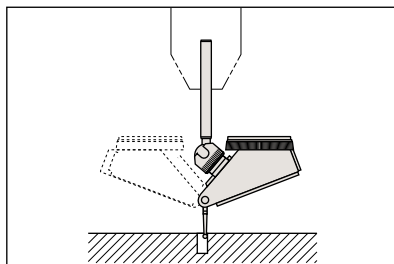
SERIES 513 — Horizontal (20 Tilted Face), Vertical, and Parallel Types

FEATURES

- Specially designed for easy viewing of measurements.



- The dial face obliquely faces upward, allowing users to read the graduations from the user's side. It is convenient when measuring on the side of a large workpiece and the workbench is high.



- Using the universal holder allows easy hole centering. The dial face always faces upward when the indicator is rotated, which makes reading easy.



(Refer to the page 9 for details.)



513-454E



513-455E



513-444E



513-445E



513-284G



513-444E



513-445E



513-454E
513-284GE



513-455E

Optional Accessory

- : Swivel clamp (See page 278.)
- : Holding bar (See page 278.)
- : Stem (See page 278.)
- : Contact points (See page 278.)



Anti-magnet type



With revolution counter type



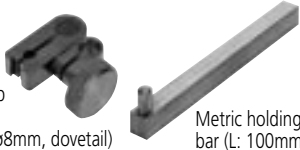
Jeweled bearing type



Long contact point type

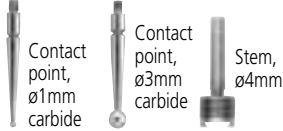
Set Configuration: Metric

Full set

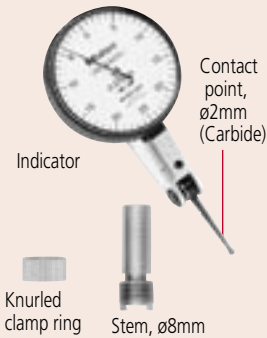
Swivel clamp
(900321,
for $\phi 4\text{mm}$, $\phi 8\text{mm}$, dovetail)

Metric holding bar (L: 100mm)

Plus set



Basic set



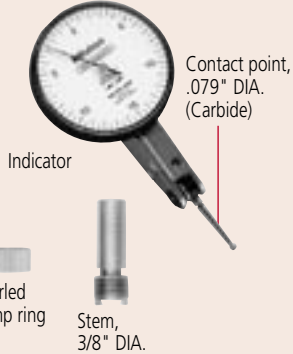
Set Configuration: Inch

Full set

Contact point,
.039" DIA.
carbideContact point,
.118" DIA.
carbideStem,
.157" DIA.Swivel clamp
(900322, for
.157" DIA., 3/8" DIA.,
dovetail)

Inch holding bar (L: 4")

Basic set



SPECIFICATIONS

Metric Horizontal (20° tilted face) type

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force					—	—	—
	Basic set	Plus set	Full set											
0.01mm	513-444E	513-444A	513-444T	1.6mm	10 μm	0-40-0	0.3N or less	✓	✓	✓	—	—	—	—
0.002mm	513-445E	513-445A	513-445T	0.4mm	5 μm	0-100-0	0.3N or less	✓	✓	✓	—	—	—	—

Inch Horizontal (20° tilted face) type

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force					Remarks
	Basic set	Plus set	Full set									
.0005"	513-442	—	513-442T	.06"	.0005"	0-15-0	0.3N or less	✓	✓	✓	—	—
.0005"	513-442-01	—	513-442T-01	.06"	.0005"	0-15-0	0.3N or less	✓	✓	✓	—	Blue dial
.0005"	513-442-06	—	513-442T-06	.06"	.0005"	0-15-0	0.3N or less	✓	✓	✓	—	Black dial
.0005"	513-446	—	513-446T	.06"	.0005"	0-15-0	0.2N or less	✓	✓	✓	✓	—
.0005"	513-446-06	—	513-446T-06	.06"	.0005"	0-15-0	0.2N or less	✓	✓	✓	✓	Black dial
.0001"	513-443	—	513-443T	.016"	.0002"	0-4-0	0.3N or less	✓	✓	✓	—	—
.0001"	513-443-06	—	513-443T-06	.016"	.0002"	0-4-0	0.3N or less	✓	✓	✓	—	Black dial

Metric Vertical type

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force			—	—	—	—
	Basic set	Plus set	Full set										
0.01mm	513-454E	513-454A	513-454T	0.8mm	8 μm	0-40-0	0.3N or less	✓	✓	—	—	—	—
0.002mm	513-455E	513-455A	513-455T	0.2mm	3 μm	0-100-0	0.3N or less	✓	✓	—	—	—	—

Inch Vertical type

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force			—	—	—	—
	Basic set	Plus set	Full set										
.0005"	513-452	—	513-452T	.03"	.0005"	0-15-0	0.3N or less	✓	✓	—	—	—	—
.0001"	513-453	—	513-453T	.008"	.0001"	0-4-0	0.3N or less	✓	✓	—	—	—	—

Metric Parallel type

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force			—	—	—	—
	Basic set	Plus set	Full set										
0.01mm	513-284GE	513-284GA	513-284GT	0.8mm	8 μm	0-40-0	0.3N or less	✓	—	—	—	—	—

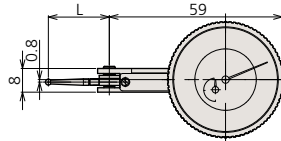
Inch Parallel type

Graduation	Order No.			Range	Accuracy	Dial reading	Measuring force			—	—	—	—
	Basic set	Plus set	Full set										
.0005"	513-282G	—	513-282GT	.03"	.0005"	0-15-0	0.3N or less	✓	—	—	—	—	—

DIMENSION

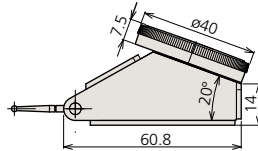
Horizontal (20° Tilted Face) Type

unit: mm

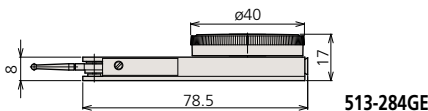
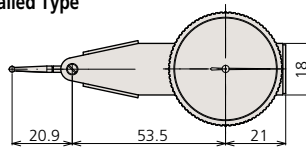


Order No.	L
513-444E	20.9
513-445E	14.7

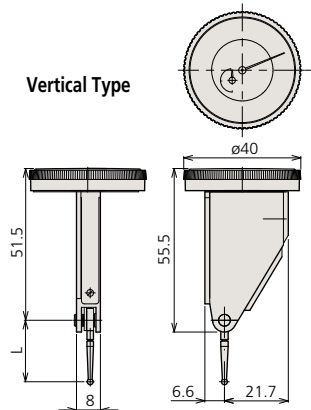
Order No.	L
513-454E	20.9
513-455E	14.7



Parallel Type



Vertical Type

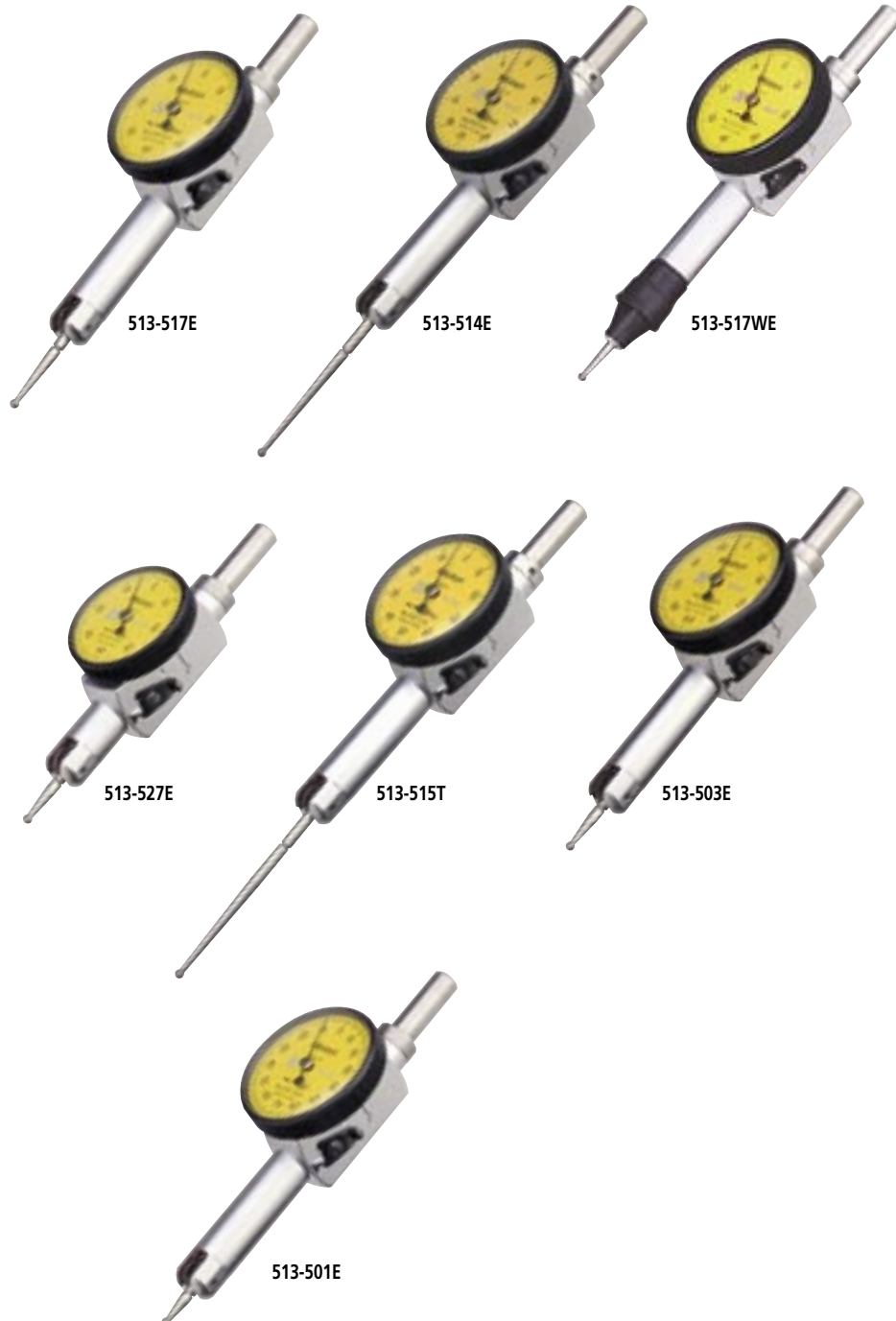


Pocket Type Dial Test Indicator

SERIES 513

FEATURES

- Jeweled bearings assure higher sensitivity and accuracy.
- Reversible measuring direction.
- Two holding bars are supplied. (Full sets only.)
- Fully adjustable bezel/dial face.
- Contact point is adjustable within 220°.
- Bezel is sealed with on O-ring to keep out water / oil.



513-514E



513-517E
513-517WE
513-527E



513-515T



513-503E



513-501E

Optional Accessory

- : Swivel clamp (See page 279.)
- : Holding bar (See page 279.)
- : Stem (See page 279.)
- : Contact points (See page 279.)



Long contact point type



Jeweled bearing type



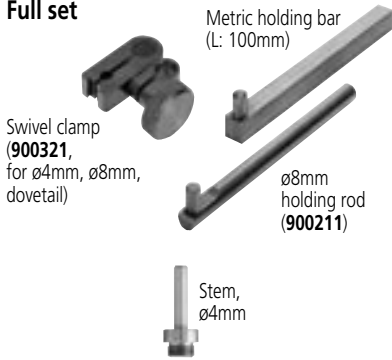
Dustproof type



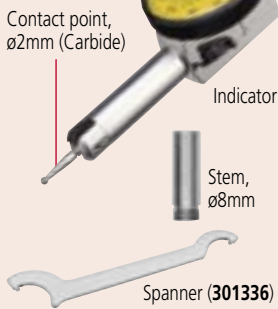
Compact type

Set Configuration: Metric

Full set

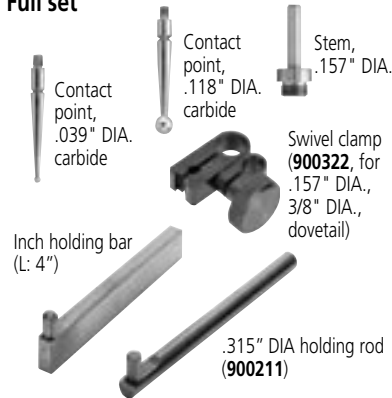


Basic set

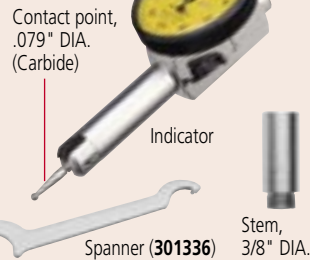


Set Configuration: Inch

Full set



Basic set



SPECIFICATIONS

Metric

Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force					—	—
	Basic set	Full set										
0.01mm	513-514E	513-514T	0.5mm	10µm	0-25-0	0.3N or less	✓	✓	—	—	—	—
0.01mm	514-517E	513-517T	0.8mm	8µm	0-40-0	0.3N or less	—	✓	—	—	—	—
0.01mm	513-517WE	513-517WT	0.8mm	8µm	0-40-0	0.3N or less	—	✓	✓	—	—	—
0.01mm	513-527E	513-527T	0.8mm	8µm	0-40-0	0.3N or less	—	✓	—	✓	—	—
0.01mm	—	513-515T	1mm	10µm	0-50-0	0.3N or less	✓	✓	—	—	—	—
0.002mm	513-503E	513-503T	0.2mm	3µm	0-100-0	0.3N or less	—	✓	—	—	—	—
0.001mm	513-501E	513-501T	0.14mm	3µm	0-70-0	0.4N or less	—	✓	—	—	—	—

Inch

Graduation	Order No.		Range	Accuracy	Dial reading	Measuring force					—	—
	Basic set	Full set										
.001"	513-518	513-518T	.04"	.001"	0-20-0	0.3N or less	—	✓	—	—	—	—
.001"	513-528	513-528T	.04"	.001"	0-20-0	0.3N or less	—	✓	✓	—	—	—
.0005"	513-512	513-512T	.02"	.0005"	0-10-0	0.3N or less	✓	✓	—	—	—	—
.0001"	513-504	513-504T	.01"	.0002"	0-5-0	0.3N or less	—	✓	—	—	—	—

DIMENSION

unit: mm

(): 513-527E

Order No.	L
513-514E	36.8
513-517E	20.9
513-515E	44.5
513-503E	14.7
513-501E	12
513-517WE	20.9
513-527E	14.7

For the model 513-517WE, use the indicator with measuring rang of ±30°

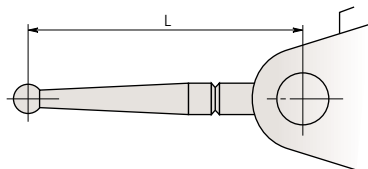
Contact Point, Stem and Clamp Holder

Optional Accessory for Dial Test Indicator

Contact Points (for Metric Model Only*)

*Except for universal type dial test indicator (513-304G).

- Use a contact point with the proper length for accurate measurement.



ø0.5mm ball



190547 (L=14.7mm)
190549 (L=20.9mm)
190654 (L=22.3mm)
190656 (L=44.5mm)

ø0.7mm ball



190548 (L=14.7mm)
190550 (L=20.9mm)
190653 (L=22.3mm)
190655 (L=44.5mm)

ø1mm ball (Carbide)



21CZA044 (L=12.8mm)
103017 (L=14.7mm)
103013 (L=20.9mm)
137558 (L=22.3mm)
137746 (L=36.8mm)
136235 (L=44.5mm)

ø2mm ball (Carbide)



21CZA036 (L=12.8mm)
103010 (L=14.7mm)
103006 (L=20.9mm)
137557 (L=22.3mm)
129949 (L=36.8mm)
136013 (L=44.5mm)

ø3mm ball (Carbide)



21CZA045 (L=12.8mm)
103018 (L=14.7mm)
103014 (L=20.9mm)
137559 (L=22.3mm)
137747 (L=36.8mm)
136236 (L=44.5mm)

Spanner



102037

Stems with Knurled Clamp Ring

ø4mm (.157" DIA.)



902802

ø8mm



902804

3/8" DIA.



902805

Swivel Clamps

- Can be used with Holding Bars.

For ø4mm stem, ø8mm stem, and dovetail



900321

For .157" DIA. stem, 3/8" DIA. stem, and dovetail



900322

Holding Bars



9 x 9mm

953638 (Length: 50mm)
900209 (Length: 100mm)



ø8mm

900211 (Length: 115mm)



.25" x .5"

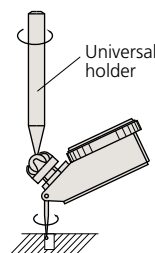
953639 (Length: 2")
900306 (Length: 4")

Universal Holder

- Allows the indicator to be set at a desired position.



901916 (ø8mm stem)
901459 (.25" DIA. stem)



Universal holder

Spanner

Stems with Knurled Clamp Ring

ø4mm (.157" DIA.)



902802

ø8mm



902804

3/8" DIA.



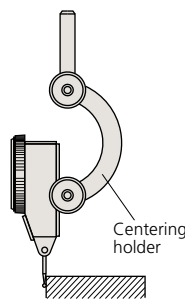
902805

Centering Holder

- Allows large diameter cylinders or holes to be centered.



901959 (ø8mm stem)
901997 (.25" DIA. stem)



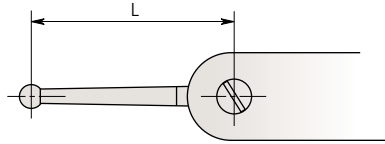
Centering holder

Contact Point, Stem and Clamp Holder

Optional Accessory for Pocket Type Dial Test Indicator

Contact Points (for Metric Model Only)

- Use a contact point with the proper length for accurate measurement.



ø0.5mm ball



190547 (L=14.7mm)
190549 (L=20.9mm)
190656 (L=44.5mm)

ø0.7mm ball



190548 (L=14.7mm)
190550 (L=20.9mm)
190655 (L=44.5mm)

ø1mm ball (Carbide)



136756 (L=12.1mm)
103017 (L=14.7mm)
103013 (L=20.9mm)
136235 (L=44.5mm)

ø2mm ball (Carbide)



136104 (L=12.1mm)
103010 (L=14.7mm)
103006 (L=20.9mm)
136013 (L=44.5mm)

ø3mm ball (Carbide)



136758 (L=12.1mm)
103018 (L=14.7mm)
103014 (L=20.9mm)
136236 (L=44.5mm)

Stems

ø4mm (.157" DIA.)



102389

ø8mm



102822

3/8" DIA.



102081

Swivel Clamps

- Can be used with Holding Bars.

For ø4mm stem and ø8mm stem, and dovetail



900321

For .157" DIA. stem and 3/8" DIA. stem, and dovetail



900322

Holding Bars



9 x 9mm

953638 (Length: 50mm)
900209 (Length: 100mm)



ø8mm

900211 (Length: 115mm)



.25" x .5"

953639 (Length: 2")
900306 (Length: 4")

Spanner



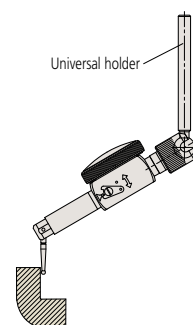
301336

Universal Holder

- Since the Dial Test Indicator can be swiveled to a desired angle, the holder is useful for centering workpieces and installing workpieces on a milling machine.



901917 (ø8mm stem)
901546 (.25" DIA. stem)



i-Checker

SERIES 170

FEATURES

The i-Checker is specially designed to calibrate measuring accuracy of dial indicators, dial test indicators, and other electronic comparison gage heads with a stroke of up to 100mm (4").

- $\pm(0.2+L/100)\mu\text{m}$ indication accuracy.
- Directly inspects an indicator with a stroke of up to 100mm (4"). The dial test indicator, bore gage and lever-type inductive head can be inspected with optional accessories.

- Adjustment of the measurement position is very easily accomplished because of semi-automatic measurement and full automatic measurement functions.
- Creates and prints out the simple inspection certificate.
- Saves inspection result as CSV file for reusable inspection result by any kind of software.

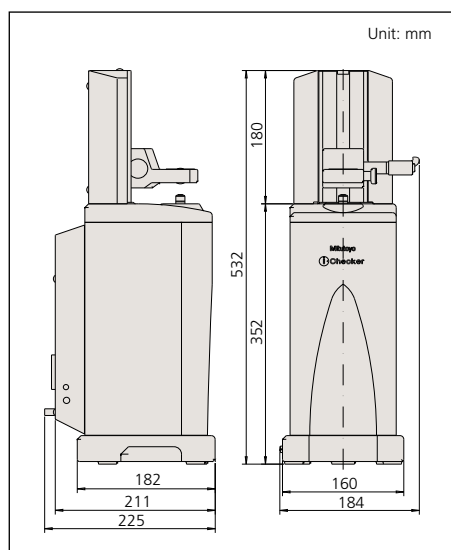


SPECIFICATIONS

Order No.*	Remarks
170-302	with $\varnothing 8\text{mm}$ bush
170-303	with $\varnothing 3/8"$ bush
170-302-01	with $\varnothing 8\text{mm}$ bush and calibration certificate
170-303-01	with $\varnothing 3/8"$ bush and calibration certificate

*To denote your power cable standard add the following suffixes to the order No. (e.g.: **170-302A-01**): **A** for UL/CSA, **D** for CEE, **E** for BS, **K** for EK, **No suffix** is required for JIS100V

DIMENSION



Applicable Indicators

- Dial indicator
 - Hicator
 - Digimatic indicator***
 - Test indicator*
 - Bore gage**
 - Linear gage
- * requires optional test indicator attachment set
 ** requires optional bore gage accessory
 *** requires optional SPC cable for full automatic measurement



Using test indicator attachment set (02ASK000)



Using bore gage accessory set (02ASK110)



(Refer to the page 9 for details.)

Technical Data

Measuring Range: 100mm/4"
 Resolution: 0.02 μm /1.24 μin
 Accuracy: $\pm(0.2+L/100)\mu\text{m}$ in vertical position
 $\pm(0.3+2L/100)\mu\text{m}$ in lateral position
 L = arbitrary length (mm)

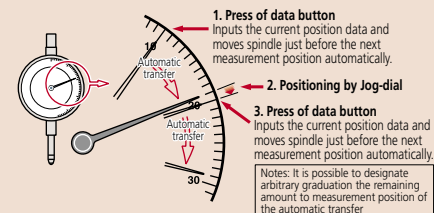
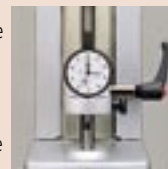
Drive method: Motor drive
 Measuring Unit: Reflective-type metal linear encoder
 Thermal expansion coefficient: $(8\pm 1)\times 10^{-6}/\text{K}$
 Measurement method: Semiautomatic measurement
 Fully automatic measurement*
 Dimensions: 184 x 225 x 532mm (W x D x H)
 Operating temperature range: 20°C \pm 3°C
 Power supply: 100VAC to 240VAC \pm 10%, 50/60Hz
 Mass: 20kg

* Full automatic measurement requires the SPC cable for indicator connection. Additionally some form of indicator, along with a connecting machine (the optional accessory for indicator as a Digimatic power-supply unit on EF counter) will be needed.

Function

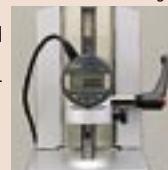
Inspect your analog indicator semi-automatically!

The pointer of the analog indicator is positioned just before the measuring point automatically via Mitutoyo's Semi-automatic Measurement function. After that, inspection begins simply by adjusting the pointer position with the jog-dial. Because of this function, measurement time is reduced and user fatigue is practically eliminated. Additionally all functions necessary for inspection are combined in the control box so that the operator need not rely on excessive eye movement to adjust the pointer.



Fully automatic inspection of digital indicator

The Automatic Measurement function, in tandem with a digital indicator makes the spindle move so that measurement data is acquired automatically. Therefore, manual adjustment to the measurement position is needless and the efficiency of every inspection is enhanced.



Create and printout a simplified inspection certificate

It is possible to create, edit and print out your own inspection certificate. Further more, that data can be saved as a CSV file.

Optional Accessory

- 02ASK000: Test indicator attachment set ($\varnothing 6\text{mm}$ stem)
- 02ASK180: Test indicator attachment set ($\varnothing 8\text{mm}$ stem)
- 02ASK370: Test indicator holder ($\varnothing 6\text{mm}$ stem)
- 02ASK380: Test indicator holder ($\varnothing 8\text{mm}$ stem)
- 02ASK110: Bore gage accessory set
- 902803: $\varnothing 6\text{mm}$ dovetail grooved stem
- 902804: $\varnothing 8\text{mm}$ dovetail grooved stem
- 02ASK040: Stem bush $\varnothing 6\text{mm}$
- 02ASJ856: Stem bush $\varnothing 8\text{mm}$
- 02ASK150: Stem bush $\varnothing 8\text{mm}$, short
- 02ASK050: Bush $\varnothing 9.5$ (Requires 02ASK070)
- 02ASK060: Stem bush $\varnothing 12\text{mm}$
- 02ASK070: Stem bush $\varnothing 15\text{mm}$
- 02ASK080: Stem bush $\varnothing 20\text{mm}$
- 02ASK090: Stem bush 3/8"
- 02ASK130: Stem bush case
- 02ASK730: Reflector
- 937179T: Foot switch



(Refer to the page 9 for details.)

Optional Accessory

951498: Stand for bore gage inspection



UDT-2 Dial Gage Tester

SERIES 170

The UDT-2 Dial Gage Tester consists of a specially designed 25mm micrometer head, with a large disc, and rigid holding fixtures. With graduations in 0.001mm on the micrometer head, the UDT-2 is highly recommended to calibrate 1mm, 5mm, 10mm, and 20mm range, 0.01mm reading, dial indicators and dial test indicators.

FEATURES

- Clamping stem diameter—
170-102M-2: 6mm and 8mm,
170-101E: .25" and .375"
- With the optional stand (**951498**), inspection of Dial Bore Gages becomes possible to perform.



170-102M-2

SPECIFICATIONS

Metric			
Range	Order No.	Graduation	Accuracy
0 - 25mm	170-102M-2	0.001mm	±1µm

Inch			
Range	Order No.	Graduation	Accuracy
0 - 1"	170-101E	.0001"	±.0001"

Calibration Tester

SERIES 521

The Calibration Tester is specially designed to calibrate measuring accuracy of short range dial indicators, dial test indicators, and other electronic comparison gage heads.

FEATURES

- Universal bracket accepts any dial indicator, dial test indicator, lever head of Mu-Checker without any additional accessory.
- Clamping capacity: ø4mm - ø10mm
- Dual color-indexed directional graduations to facilitate measurements.



(Refer to the page 9 for details.)



Calibrating test indicator



521-103

SPECIFICATIONS

Metric			
Range	Order No.	Graduation	Accuracy
0 - 1mm	521-103	0.0002mm	±0.2µm
0 - 5mm	521-105	0.0002mm	±0.8µm

Inch			
Range	Order No.	Graduation	Accuracy
0 - .05"	521-104	.00001"	±.00001"
0 - .2"	521-106	.00001"	±.00003"

Thickness Gage

SERIES 547, 7

The 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 (547-400)** 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



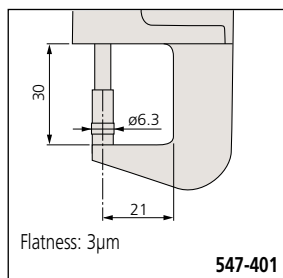
Deep Throat Type / Dial



High Accuracy Type / Digital



DIMENSION



SPC

ABSOLUTE[®]
Absolute System Patented by MITUTOYO

(Refer to the page 9 for details.)

Technical Data of Digital Models

Accuracy: Refer to the list of specifications (excluding quantizing error)
Resolution: 0.01mm, 0.001mm, .0005"/0.01mm, .0001"/0.001mm or .00005"/0.001mm
Display: LCD
Length standard: ABSOLUTE electrostatic capacitance type 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)
Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type) Carbide ball with #4-48UNF (ANSI/AGD type)
Battery: SR44 (1 pc.), **938882**
Battery life: Approx. 5,000 hours under normal use
Dust/Water protection level: IP42 or IP53 (dust-proof type)

Function of Digital Models

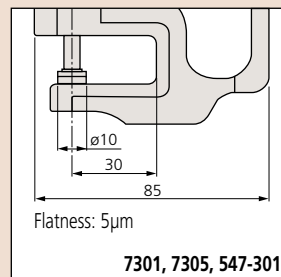
Origin-set/Preset, Zeroset, GO/±NG judgment, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)
Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

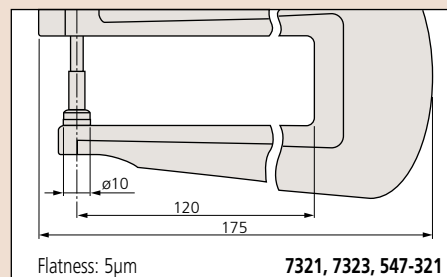
- 905338:** SPC cable (1m) for digital models
- 905409:** SPC cable (2m) for digital models
- 902011:** Spindle lifting lever (ISO/JIS type)*
- 902794:** Spindle lifting lever (ANSI/AGD type)*
- 137693:** Spindle lifting hook**
- 540774:** Spindle lifting cable
- 125317:** Spare rubber boot (for dust-proof type)
- 02ACA571:** Auxiliary spindle spring for 25mm/1" models***
- 02ACA773:** Auxiliary spindle spring for 50mm/2" models***
- : Backs (See page 266.)
- : Contact points (See page 264.)

*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.

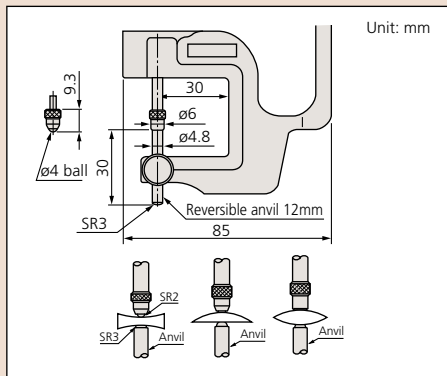
DIMENSION



Unit: mm



DIMENSION



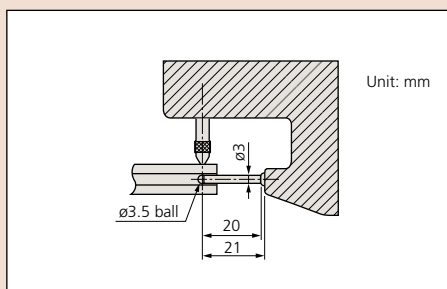
Lens thickness measurement



SPC
ABSOLUTE
Mitsubishi System Partnered by MITSUBISHI



DIMENSION



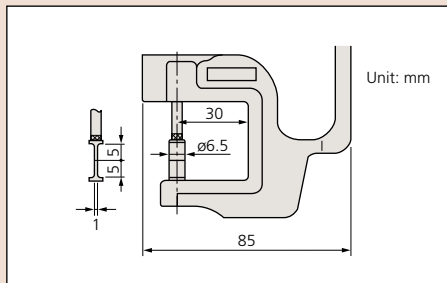
Tube thickness measurement



SPC
ABSOLUTE
Mitsubishi System Partnered by MITSUBISHI



DIMENSION



Groove thickness measurement



SPC
ABSOLUTE
Mitsubishi System Partnered by MITSUBISHI



SPECIFICATIONS

Metric Digital Type			Inch/Metric Digital Type			Accuracy	Measuring force	Remarks
Range	Order No.	Resolution	Range	Order No.	Resolution			
0 - 12mm	547-401	0.001mm	0 - .47"	547-400 /	.00005"/0.001mm	±3µm	3.5N or less	High accuracy, carbide spindle/anvil
0 - 10mm	547-301	0.01mm	0 - .4" / 0 - .47"*	547-300 / 547-500*	.0005"/0.01mm	±20µm	1.5N or less	Standard, ceramic spindle/anvil
0 - 10mm	547-321	0.01mm	0 - .4" / 0 - .47"*	547-320 / 547-520*	.0005"/0.01mm	±20µm	1.5N or less	Deep throat, ceramic spindle/anvil
0 - 10mm	547-313	0.01mm	0 - .4" / 0 - .47"*	547-312 / 547-512*	.0005"/0.01mm	±20µm	1.5N or less	Lens thickness
0 - 10mm	547-315	0.01mm	0 - .4" / 0 - .47"*	547-316 / 547-516*	.0005"/0.01mm	±20µm	1.5N or less	Groove thickness
0 - 10mm	547-360	0.01mm	0 - .4" / 0 - .47"*	547-361 / 547-561*	.0005"/0.01mm	±20µm	1.5N or less	Tube thickness

*using ID-S Digimatic indicator, Standard model with .0001"/0.001mm resolution ID-S is available (547-526).

Metric Dial Type			Inch Dial Type			Accuracy	Measuring force	Remarks
Range	Order No.	Dial reading	Range	Order No.	Dial reading			
0 - 1mm	7327	0.001mm	0 - .05"	7326S	.00005"	±5µm	1.4N or less	Fine dial reading, ceramic spindle/anvil
0 - 10mm	7301	0.01mm	0 - .5"	7300S	.001"	±15µm	1.4N or less	Standard, ceramic spindle/anvil
0 - 20mm	7305	0.01mm	0 - 1"	7304S	.001"	±20µm	2.0N or less	Standard, ceramic spindle/anvil
0 - 10mm	7321	0.01mm	—	—	—	±15µm	1.4N or less	Deep throat, ceramic spindle/anvil
0 - 20mm	7323	0.01mm	0 - 1"	7322S	.001"	±22µm	2.0N or less	Deep throat, ceramic spindle/anvil
0 - 10mm	7313	0.01mm	0 - .5"	7312S	.001"	±15µm	1.4N or less	Lens thickness
0 - 10mm	7315	0.01mm	0 - .5"	7316S	.001"	±15µm	1.4N or less	Groove thickness
0 - 10mm	7360	0.01mm	0 - .5"	7361S	.001"	±15µm	1.4N or less	Tube thickness

Light-Weight Dial Thickness Gage

SERIES 7



Ceramic spindle/anvil

7331

Application

Measuring paper thickness



Measuring thickness of a human hair

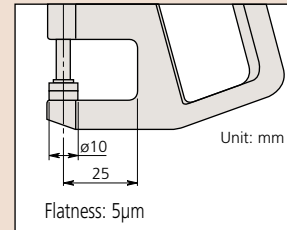


SPECIFICATIONS

Metric

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

DIMENSION



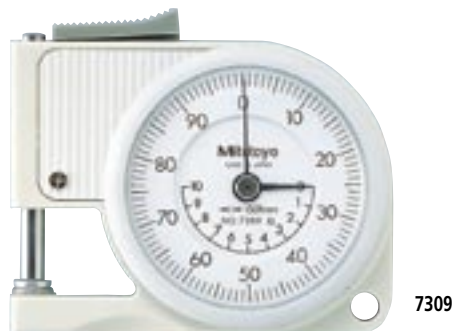
Pocket Thickness Gage

SERIES 7

A very compact thickness gage is designed for carrying convenience and is ideally suited for quick inspection of paper, leather, wire, plastic, sheet metal and similar materials. The spindle is pre-loaded to provide a constant measuring force (2N or less).

FEATURES

- Measuring faces are hardened, ground and lapped for accuracy.
- Easy adjustment for zero point.



7309

SPECIFICATIONS

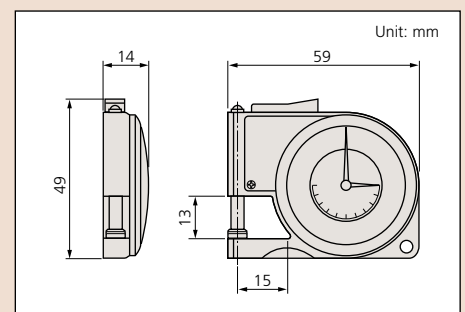
Metric

Range	Order No.	Dial reading	Accuracy
0 - 10mm	7309	0.01mm	±20µm

Inch

Range	Order No.	Dial reading	Accuracy
0 - .4"	7308	.001"	±.001"

DIMENSION





Digimatic Caliper Gage

SERIES 209 — Internal, External and Tube Thickness Measurement Type

Versatile ID or OD measuring gages for holes diameters, groove thickness, tube thickness, and hard-to-reach dimensions. The

Digimatic Caliper Gages provide error-free LCD readings as well as data output for SPC analysis.

Technical Data

Accuracy: Refer to the list of specifications (excluding quantizing error)
 Resolution: 0.01mm or 0.005mm
 Display: LCD
 Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
 Contact point: Carbide ball with M2.5x0.45 (ISO/JIS type)
 Steel ball with #4-48UNF (ANSI/AGD type)
 Battery: CR-123A or DL-123A (1 pc.)
 Battery life: Approx. 350 hours
 Dust/Water protection level: IP63

Function

Zeraset, Preset, Auto power OFF, Data hold, Max/Min value holding, Data output

Optional Accessory

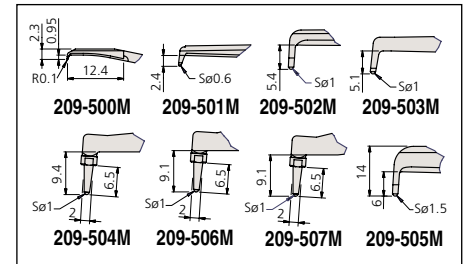
21JAA300: SPC cable (2m)

Internal measurement type



209-506M

Unit: mm

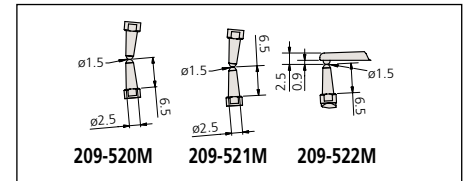


External measurement type



209-521M

Unit: mm

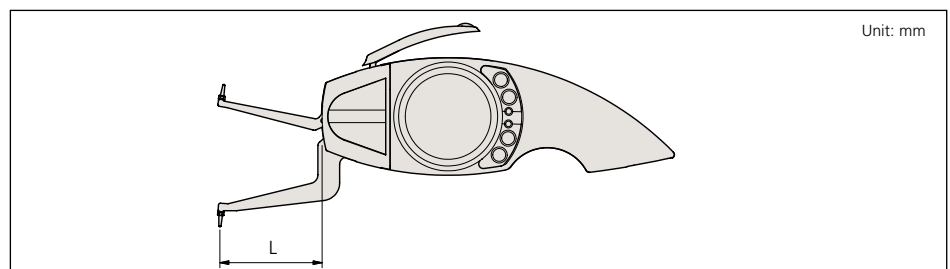


SPECIFICATIONS

Metric

Range	Order No.	Resolution	Accuracy	Measuring force	Dimension (L)	Remarks
2.5 - 12.5mm	209-500M	0.005mm	±15µm	0.7 - 1.2N	12mm	Internal measurement type
5 - 25mm	209-501M	0.01mm	±20µm	0.9 - 1.4N	22mm	Internal measurement type
10 - 30mm	209-502M	0.01mm	±20µm	0.9 - 1.4N	47mm	Internal measurement type
20 - 40mm	209-503M	0.01mm	±20µm	1.1 - 1.7N	50mm	Internal measurement type
30 - 50mm	209-504M	0.01mm	±20µm	1.1 - 1.7N	55mm	Internal measurement type
15 - 55mm	209-505M	0.02mm	±40µm	1.2 - 1.7N	120mm	Internal measurement type
50 - 70mm	209-506M	0.01mm	±20µm	1.1 - 1.7N	55mm	Internal measurement type
70 - 90mm	209-507M	0.01mm	±20µm	1.1 - 1.7N	55mm	Internal measurement type
0 - 10mm	209-520M	0.005mm	±10µm	0.6 - 1.2N	10mm	External measurement type
0 - 20mm	209-521M	0.01mm	±20µm	0.7 - 1.3N	46mm	External measurement type
0 - 20mm	209-522M	0.01mm	±20µm	0.7 - 1.3N	46mm	External measurement type

DIMENSION



Unit: mm

Dial Caliper Gage

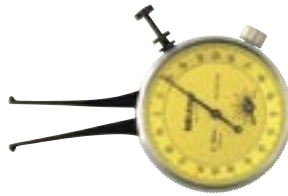
SERIES 209 — Internal Measurement Type

These Dial Caliper Gages are used only as comparison gages, and should be used along with a Setting Ring or a micrometer.

The caliper is spring loaded and makes point contact at constant measuring pressure.



209-122



209-152

SPECIFICATIONS

Metric

Range	Order No.	Graduation	Dial face	Accuracy	Measuring force	Dimension [L / A (max) / B (min)]		
6 - 18mm	209-122	0.01mm	0-100-100	±40µm	1.2N or less	40mm	1.0mm	2.5mm
10 - 22mm	209-123	0.01mm	0-100-100	±40µm	1.2N or less	40mm	2.0mm	2.5mm
20 - 32mm	209-124	0.01mm	0-100-100	±40µm	1.2N or less	40mm	4.2mm	2.5mm
5 - 15mm	209-152	0.01mm	0-100	±25µm	1.2N or less	30mm	2.0mm	0.7mm
10 - 20mm	209-153	0.01mm	0-100	±25µm	1.2N or less	30mm	5.0mm	0.7mm
10 - 30mm	209-171	0.01mm	0-100-100	±25µm	1.2N or less	65mm	5.2mm	0.7mm
20 - 40mm	209-172	0.01mm	0-100-100	±25µm	1.2N or less	65mm	9.5mm	0.7mm



209-650



209-608



209-609



209-884



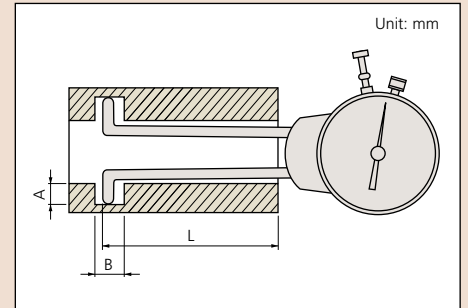
209-896

SPECIFICATIONS

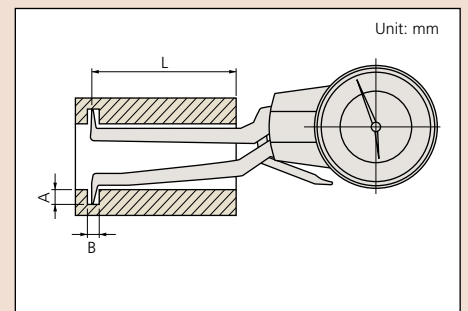
Metric

Range	Order No.	Graduation	Accuracy	Measuring force	Contact point	Dimension [L / A (max) / B (min)]		
2.5 - 7.5mm	209-650	0.005mm	±15µm	1.7N or less	R0.1mm	12.4mm	0.7mm	0.6mm
5 - 10mm	209-651	0.005mm	±15µm	1.7N or less	ø0.6mm	27mm	2.3mm	1.9mm
5 - 15mm	209-652	0.01mm	±20µm	1.7N or less	ø0.6mm	23mm	2.3mm	1.7mm
10 - 20mm	209-653	0.01mm	±20µm	1.7N or less	ø1.0mm	60.6mm	4.5mm	1.8mm
10 - 30mm	209-608	0.01mm	±30µm	1.5N or less	ø1.0mm	80mm	5.0mm	1.7mm
20 - 30mm	209-654	0.01mm	±20µm	1.7N or less	ø1.0mm	60.6mm	4.5mm	2.0mm
20 - 40mm	209-609	0.01mm	±30µm	1.5N or less	ø1.0mm	80mm	6.5mm	2.3mm
30 - 40mm	209-655	0.01mm	±20µm	1.7N or less	ø1.0mm	60.6mm	4.5mm	2.0mm
30 - 50mm	209-600	0.01mm	±30µm	1.5N or less	ø1.0mm	80mm	6.5mm	2.5mm
40 - 50mm	209-656	0.01mm	±20µm	1.7N or less	ø1.0mm	60.6mm	4.5mm	1.8mm
40 - 60mm	209-884	0.01mm	±30µm	1.5N or less	ø1.0mm	80mm	9.0mm	2.3mm
50 - 70mm	209-885	0.01mm	±30µm	1.5N or less	ø1.0mm	80mm	8.0mm	3.7mm
60 - 80mm	209-886	0.01mm	±30µm	1.5N or less	ø1.0mm	80mm	8.0mm	3.7mm
70 - 90mm	209-887	0.01mm	±30µm	1.5N or less	ø1.0mm	80mm	8.0mm	3.7mm
80 - 100mm	209-888	0.01mm	±30µm	1.5N or less	ø1.0mm	80mm	8.0mm	3.7mm
15 - 65mm	209-896	0.05mm	±50µm	2.0N or less	ø1.5mm	175mm	5.0mm	2.1mm
40 - 90mm	209-897	0.05mm	±50µm	2.0N or less	ø2.0mm	175mm	10.0mm	3.8mm
70 - 120mm	209-898	0.05mm	±50µm	2.0N or less	ø2.0mm	175mm	8.0mm	3.8mm

DIMENSION



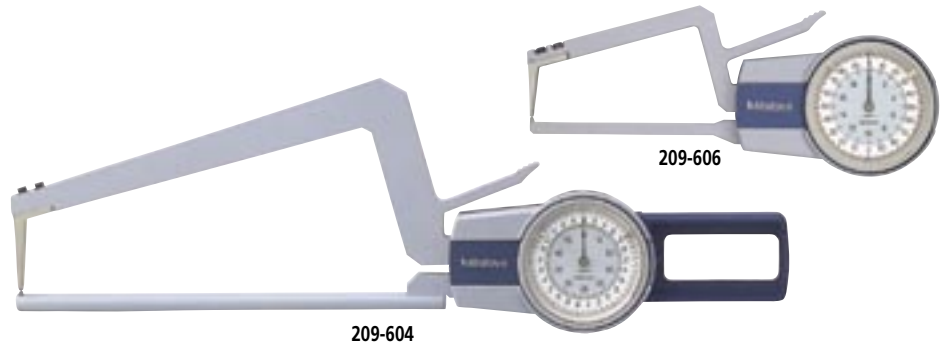
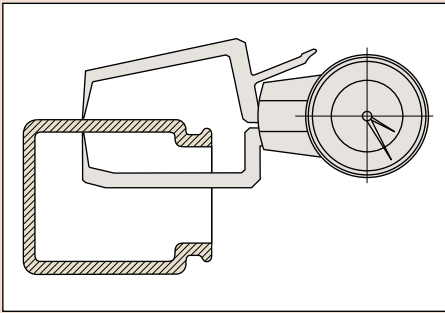
DIMENSION



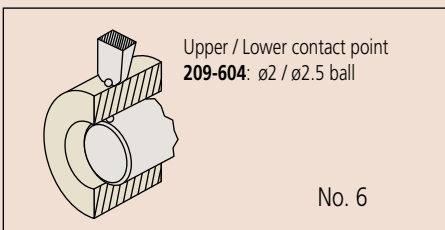
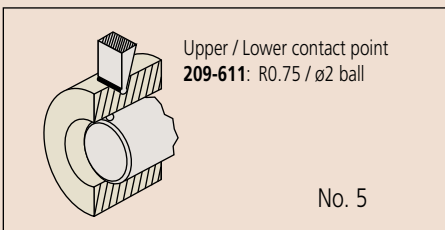
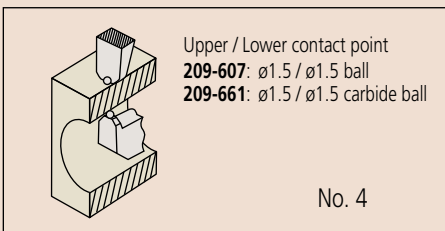
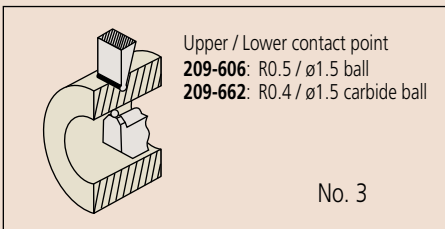
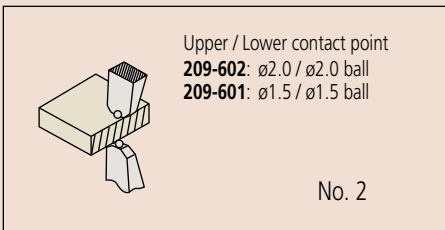
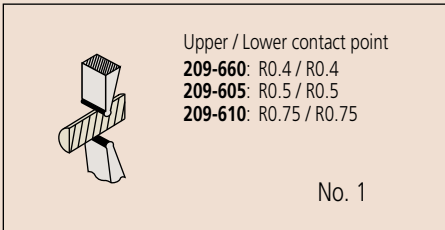
Dial Caliper Gage

SERIES 209 — External Measurement Type

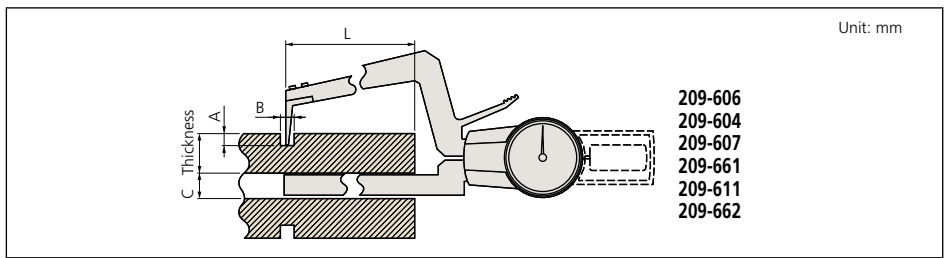
Application



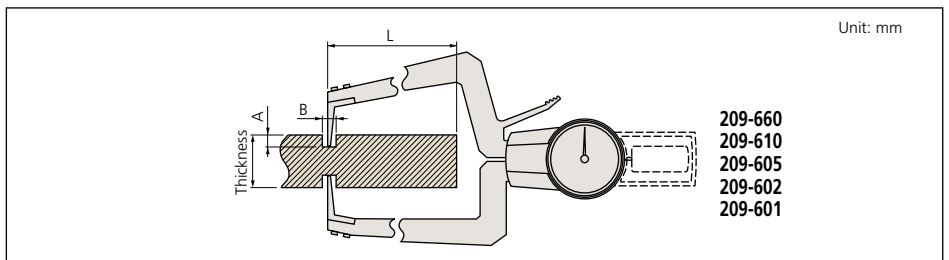
Type of Contact Points



DIMENSION



DIMENSION



SPECIFICATIONS

Metric

Range	Order No.	Graduation	Accuracy	Measuring force	Contact point	Dimension [L / A (max) / B (min) / C (min)]			
0 - 10mm	209-660	0.01mm	$\pm 20\mu\text{m}$	1.3N or less	No. 1	60.5mm	7mm	2mm	—
0 - 10mm	209-661	0.01mm	$\pm 20\mu\text{m}$	1.3N or less	No. 4	60.5mm	7mm	2mm	3mm
0 - 10mm	209-662	0.01mm	$\pm 20\mu\text{m}$	1.3N or less	No. 3	60.5mm	7mm	2mm	3mm
0 - 20mm	209-605	0.01mm	$\pm 30\mu\text{m}$	1.5N or less	No. 1	80mm	10mm	5mm	—
0 - 20mm	209-601	0.01mm	$\pm 30\mu\text{m}$	1.5N or less	No. 2	80mm	10mm	5mm	—
0 - 20mm	209-606	0.01mm	$\pm 30\mu\text{m}$	1.5N or less	No. 3	80mm	10mm	5mm	10mm
0 - 20mm	209-607	0.01mm	$\pm 30\mu\text{m}$	1.5N or less	No. 4	80mm	10mm	5mm	10mm
0 - 50mm	209-610	0.05mm	$\pm 50\mu\text{m}$	1.8N or less	No. 1	170mm	20mm	7mm	—
0 - 50mm	209-602	0.05mm	$\pm 50\mu\text{m}$	1.8N or less	No. 2	170mm	20mm	7mm	—
0 - 50mm	209-611	0.05mm	$\pm 50\mu\text{m}$	1.8N or less	No. 5	170mm	20mm	7mm	12mm
0 - 50mm	209-604	0.05mm	$\pm 50\mu\text{m}$	1.8N or less	No. 6	170mm	20mm	7mm	12mm

Bench Gage

SERIES 547, 7

FEATURES

- Compact and inexpensive gaging unit that consists of a dial indicator and a bench stand.
- Suitable for inspecting small parts on the shop floor.
- With $\varnothing 20\text{mm}$ workpiece rest.



7060

547-064

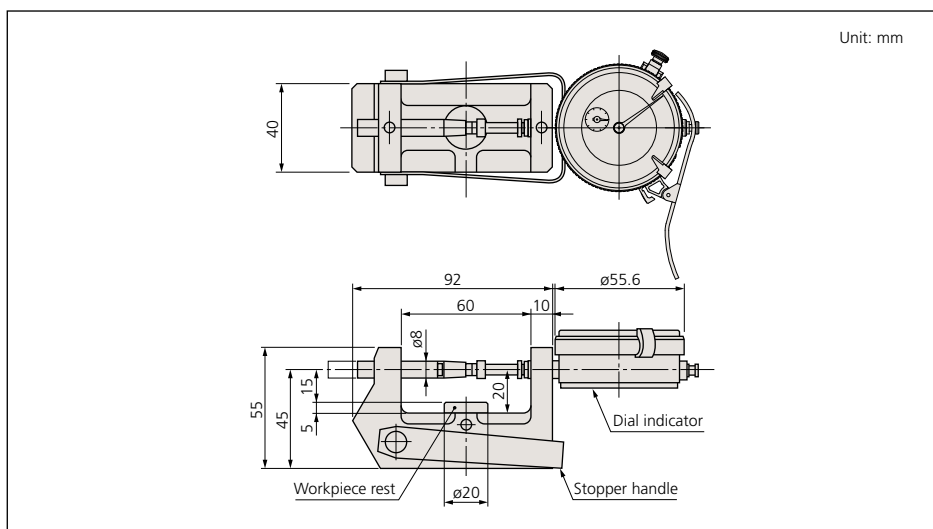
SPECIFICATIONS

Metric		Digital Type				
Range	Order No.	Resolution	Workpiece height	Accuracy	Measuring force	Remarks (contact point)
12mm	547-064	0.01mm	13mm	$\pm 0.02\text{mm}$	1.5N or less	$\varnothing 6.3\text{mm}$ flat type

Inch/Metric		Digital Type				
Range	Order No.	Resolution	Workpiece height	Accuracy	Measuring force	Remarks (contact point)
.5"	547-066	.0005"/0.01mm	1"	$\pm .001"$	1.5N or less	.248" DIA flat type

Metric		Dial Type				
Range	Order No.	Graduation	Workpiece height	Accuracy	Measuring force	Remarks (contact point)
10mm	7060	0.01mm	20mm	$\pm 0.02\text{mm}$	1.4N or less	$\varnothing 6.3\text{mm}$ flat type

DIMENSION



Unit: mm

SPC

ABSOLUTE
Absolute System Patented by MITUTOYO

(Refer to the page 9 for details.)



Digimatic indicator used

Technical Data of Digital Models

Accuracy: Refer to the list of specifications (excluding quantizing error)
 Resolution: 0.01mm or .0005"/0.01mm
 Display: LCD
 Length standard: ABSOLUTE electrostatic capacitance type linear encoder
 Max. response speed: Unlimited
 Contact point: $\varnothing 6.3\text{mm}$ flat type
 Measuring force: Refer to the list of specifications
 Battery: SR44 (1 pc.), **938882**
 Battery life: Approx. 5,000 hours under normal use

Function of Digital Models

Origin-set/Preset, Zeroset, GO/ \pm NG judgment, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (inch/mm models)
 Alarm: Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

Optional Accessory

- 905338:** SPC cable (1m) for digital models
- 905409:** SPC cable (2m) for digital models



ABSOLUTE
Absolute System Patented by MITUTOYO

(Refer to the page 9 for details.)



Digimatic indicator used
(0.001mm resolution)

Digimatic indicator used
(0.01mm resolution)

Technical Data of Digital Models

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

Resolution: 0.01mm, 0.001mm, .0005"/0.01mm or
.00005"/0.001mm

Display: LCD

Length standard: ABSOLUTE electrostatic capacitance type
linear encoder

Max. response speed: Unlimited

Contact point: $\phi 3$ mm carbide flat type
(7051: $\phi 6$ mm flat type)

Measuring force: Refer to the list of specifications

Battery: SR44 (1 pc.), 938882

Battery life: Approx. 5,000 hours under normal use

Function of Digital Models

Origin-set/Preset, Zerose, GO/ \pm NG judgment, Counting
direction switching, Power ON/OFF, Data output, inch/mm
conversion (inch/mm models)

Alarm: Low voltage, Counting value composition error,
Over-flow error, Tolerance limit setting error

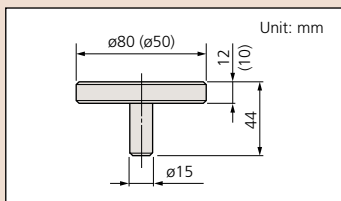
Optional Accessory

905338: SPC cable (1m) for digital models

905409: SPC cable (2m) for digital models

902190: $\phi 80$ mm large diameter anvil

903526: $\phi 50$ mm ceramic anvil



Upright Gage

SERIES 547, 7

FEATURES

- The Digimatic Upright Gage offers multiple functions including GO/ \pm NG judgment, and SPC data output.
- Compact and inexpensive gaging unit that consists of a dial indicator and a stand.
- Suitable for inspecting small parts on the shop floor.
- Anvil size: 40mm or 50mm in diameter.



SPECIFICATIONS

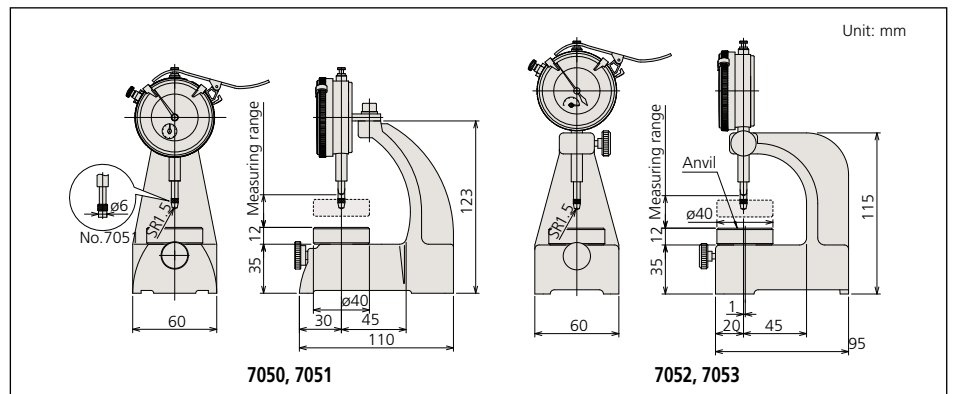
Metric		Digital Type				
Range	Order No.	Resolution	Workpiece height	Accuracy	Measuring force	Remarks (type of anvil)
12mm	547-054	0.01mm	30mm	± 0.02 m	1.5N or less	$\phi 40$ mm steel type
12mm	547-053	0.001mm	30mm	± 3 μ m	1.5N or less	$\phi 50$ mm ceramic type
12mm	547-055	0.001mm	30mm	± 3 μ m	1.5N or less	$\phi 40$ mm steel type

Inch/Metric		Digital Type				
Range	Order No.	Resolution	Workpiece height	Accuracy	Measuring force	Remarks (type of anvil)
.5"	547-034	.0005"/0.01mm	1.2"	$\pm .001$ "	1.5N or less	1.57" DIA steel type
.5"	547-033	.00005"/0.001mm	1.2"	$\pm .00015$ "	1.5N or less	1.97" DIA ceramic type
.5"	547-035	.00005"/0.001mm	1.2"	$\pm .00015$ "	1.5N or less	1.57" DIA steel type

Metric		Dial Type				
Range	Order No.	Graduation	Workpiece height	Accuracy	Measuring force	Remarks (type of anvil)
10mm	7050	0.01mm	20mm	± 0.02 m	1.4N or less	$\phi 40$ mm steel type
10mm	7051	0.01mm	20mm	± 0.02 m	1.4N or less	$\phi 40$ mm steel type
10mm	7052	0.01mm	35mm	± 0.02 m	1.4N or less	$\phi 40$ mm steel type
1mm	7053	0.001mm	30mm	± 3 μ m	1.5N or less	$\phi 40$ mm steel type

Inch		Dial Type				
Range	Order No.	Graduation	Workpiece height	Accuracy	Measuring force	Remarks (type of anvil)
1"	7056	.001"	1"	$\pm .002$ "	1.4N or less	1.57" DIA steel type

DIMENSION

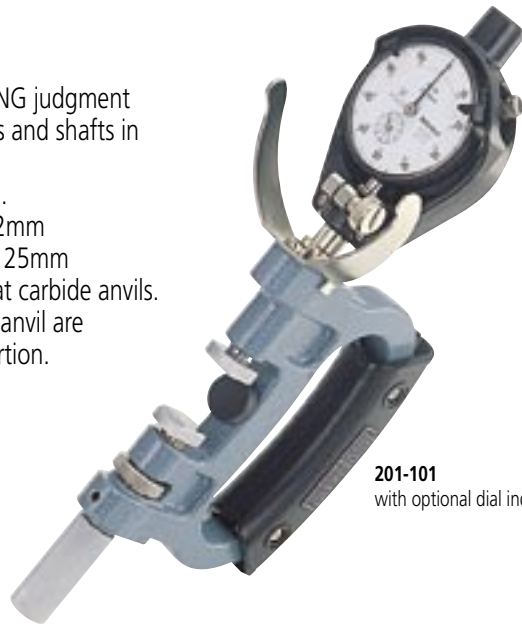


Dial Snap Gage

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
- Anvil positioning range: 25mm
- Wide (13.5 x 12mm), flat carbide anvils.
- Both front edges of the anvil are chamfered for easy insertion.



201-101
with optional dial indicator

Technical Data

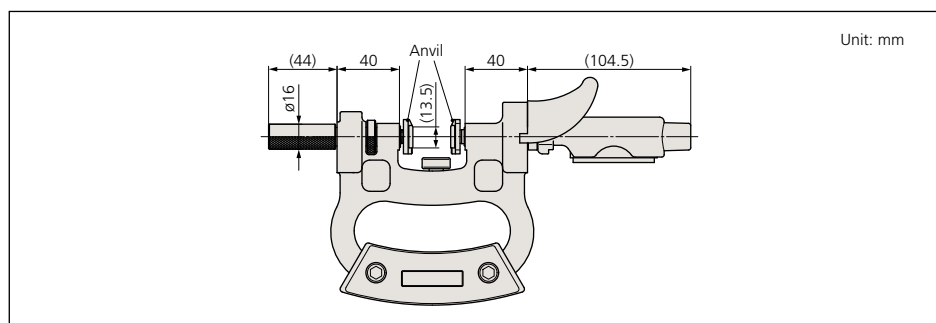
Accuracy: Refer to the list of specifications
 Anvil retracting stroke: 2mm
 Anvil positioning range: 25mm
 Anvil flatness: 1µm

SPECIFICATIONS

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

Inch				
Range	Order No.	Parallelism	Measuring force	Recommended dial indicator (optional)
0 - 1"	201-151	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
1 - 2"	201-152	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
2 - 3"	201-153	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
3 - 4"	201-154	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
4 - 5"	201-155	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
5 - 6"	201-156	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
6 - 7"	201-157	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
7 - 8"	201-158	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
8 - 9"	201-159	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
9 - 10"	201-160	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
10 - 11"	201-161	.00025" or less	15N±3N	2803SB-10 (.0001" reading)
11 - 12"	201-162	.00025" or less	15N±3N	2803SB-10 (.0001" reading)

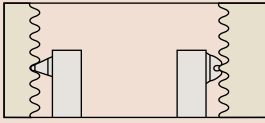
DIMENSION



Female Screw Thread Comparator

SERIES 243

Application



Optional Accessory

- 243-800:** Interchangeable inserts set for Metric and Unified screws
 0.4 - 0.5mm / 64 - 48TPI (**243-801**)
 0.6 - 0.9mm / 44 - 28TPI (**243-802**)
 1 - 1.75mm / 24 - 14TPI (**243-803**)
 2 - 3mm / 13 - 9TPI (**243-804**)
 3.5 - 5mm / 8 - 5TPI (**243-805**)
 5.5 - 7mm / 4.5 - 3.5TPI (**243-806**)
- 243-810:** Interchangeable inserts set for Whitworth screws
 60 - 48TPI (**243-811**)
 48 - 40TPI (**243-812**)
 40 - 32TPI (**243-813**)
 32 - 24TPI (**243-814**)
 24 - 18TPI (**243-815**)
 18 - 14TPI (**243-816**)
 14 - 10TPI (**243-817**)
 10 - 7TPI (**243-818**)
 7 - 4.5TPI (**243-819**)
 4.5 - 3.5TPI (**243-820**)

FEATURES

- Quick inspection of pitch diameters of female screw threads can be done by using interchangeable inserts (optional).
- Adjustable measuring jaws for a wide range of I.D. comparison measurements.



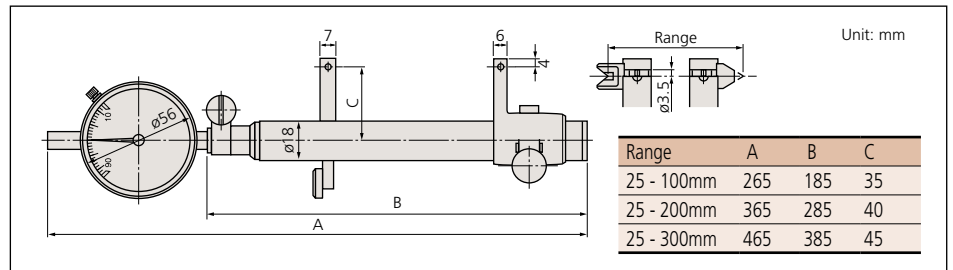
243-102
(including dial indicator)

SPECIFICATIONS

Metric

Range	Order No.	Graduation	Probe depth	Measuring force
25 - 100mm	243-101	0.01mm	20mm	7N±1N
25 - 200mm	243-102	0.01mm	25mm	7N±1N
25 - 300mm	243-103	0.01mm	30mm	7N±1N

DIMENSION



Roll Caliper

SERIES 310

FEATURES

- The Roll Calipers is the most widely used instrument for checking the diameter and crown of rollers which have a great influence on many products such as metal, rubber and paper.
- Performs fast and accurate comparison measurements of roller diameter with the roller mounted on the 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

SPECIFICATIONS

Metric

Range	Order No.
ø500 - ø1400mm	310-131
ø400 - ø1050mm	310-132
ø275 - ø825mm	310-133
ø200 - ø600mm	310-134
ø100 - ø450mm	310-135

Inch

Range	Order No.
ø20" - ø56"	310-141
ø16" - ø42"	310-142
ø11" - ø32"	310-143
ø8" - ø24"	310-144
ø4" - ø17"	310-145

Dial Tension Gage

SERIES 546

FEATURES

- Can measure dynamic tension in Newton (N) units.
- Dial Tension Gages are widely used to determine the contact force of other measuring instruments as well as that of electrical relays, micro-switches, valves and precision springs.
- Convenient peak-hold type gages are also available.



SPECIFICATIONS

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

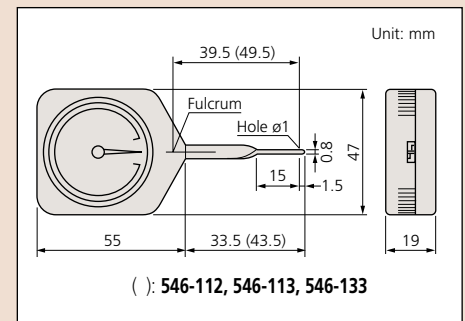
Peak hold		
Graduation	Order No.	Range
5mN	546-133	10mN - 100mN
10mN	546-134	30mN - 300mN
0.02N	546-135	0.06N - 0.5N
0.05N	546-136	0.1N - 1N
0.05N	546-137	0.15N - 1.5N
0.1N	546-138	0.3N - 3N
0.2N	546-139	0.6N - 5N

Application

Measuring contact force of relay



DIMENSION

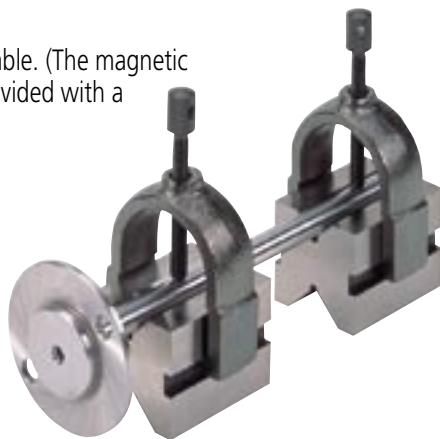


V-Block Set

SERIES 181

FEATURES

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

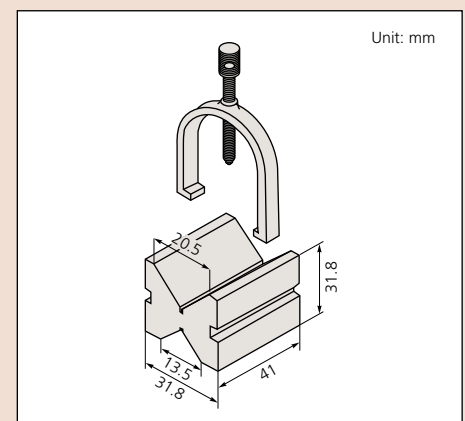


SPECIFICATIONS

Metric		
Max. workpiece dia.	Order No.	Remarks
25mm	181-902	With clamp

Inch		
Max. workpiece dia.	Order No.	Remarks
1"	181-901	With clamp

DIMENSION

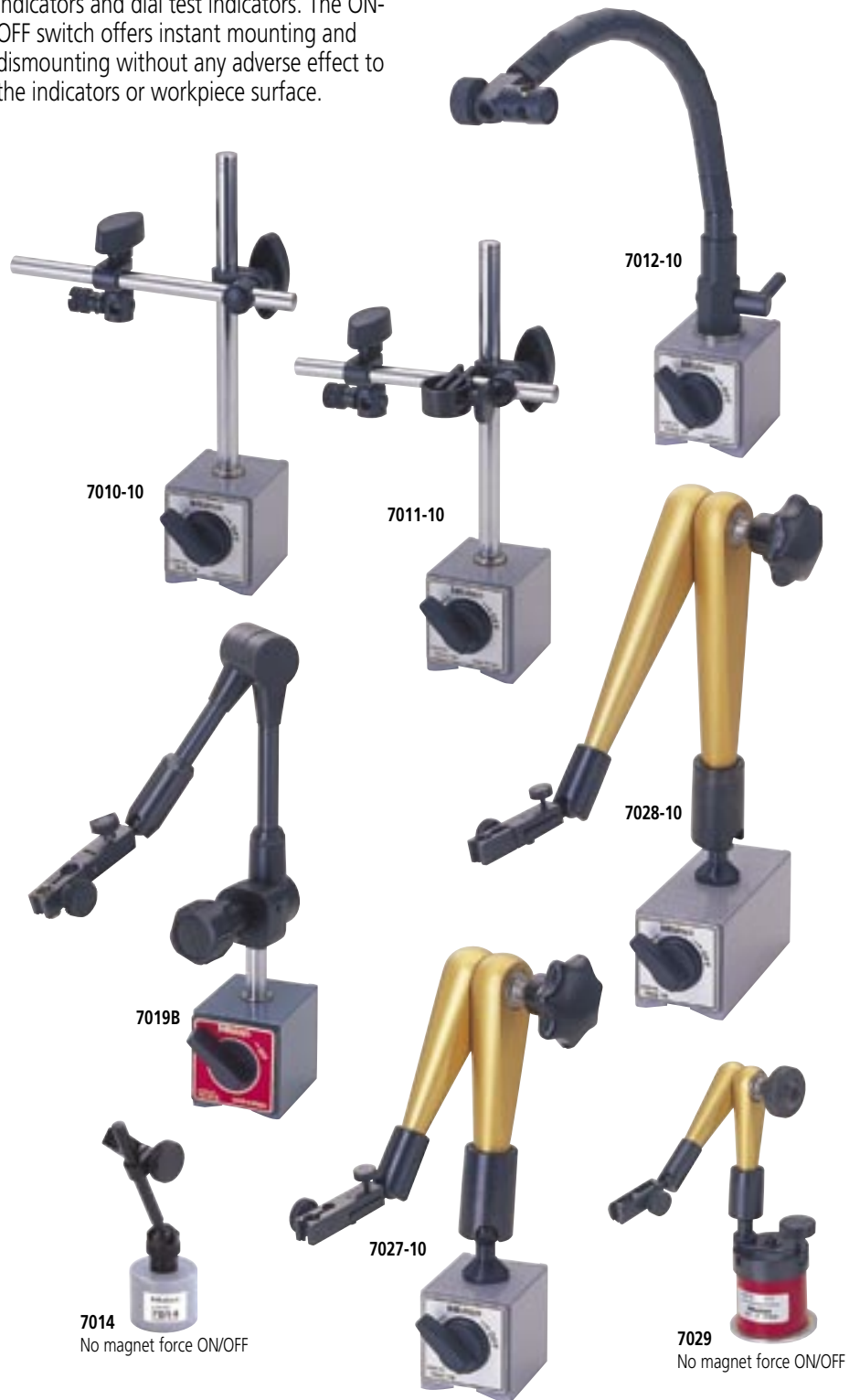
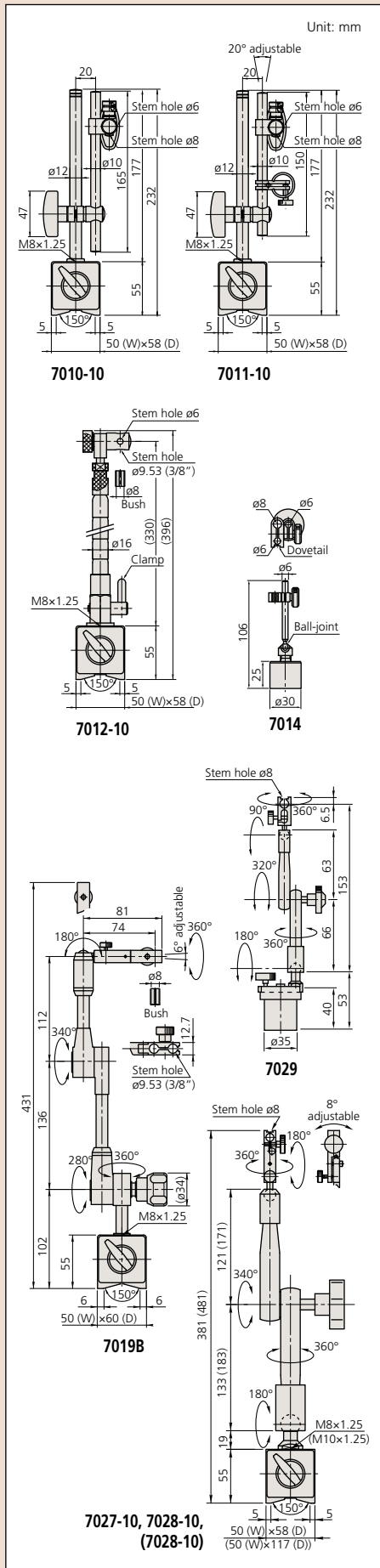


Magnetic Stand

SERIES 7

Mitutoyo's Magnetic Stands accept all dial indicators and dial test indicators. The ON-OFF switch offers instant mounting and dismounting without any adverse effect to the indicators or workpiece surface.

DIMENSION



SPECIFICATIONS

Order No.	Description	Applicable holding stem dia.	Dovetail groove	Remarks
7010-10	Magnetic stand	$\phi 6$ mm, $\phi 8$ mm	—	—
7011-10	Magnetic stand	$\phi 6$ mm, $\phi 8$ mm	—	With fine adjustment
7012-10	Magnetic flexi-stand	$\phi 6$ mm, $\phi 8$ mm, $\phi 9.53$ mm (3/8")	—	For dial test indicator
7014	Mini magnetic stand	$\phi 6$ mm, $\phi 8$ mm	Provided	Without magnet ON/OFF
7019B	Universal magnetic stand	$\phi 8$ mm, $\phi 9.53$ mm (3/8")	Provided	With hydraulic position lock
7027-10	Universal magnetic stand	$\phi 8$ mm	Provided	With hydraulic position lock
7028-10	Universal magnetic stand	$\phi 8$ mm	Provided	With hydraulic position lock
7029	Universal magnetic stand	$\phi 8$ mm	Provided	Without magnet ON/OFF

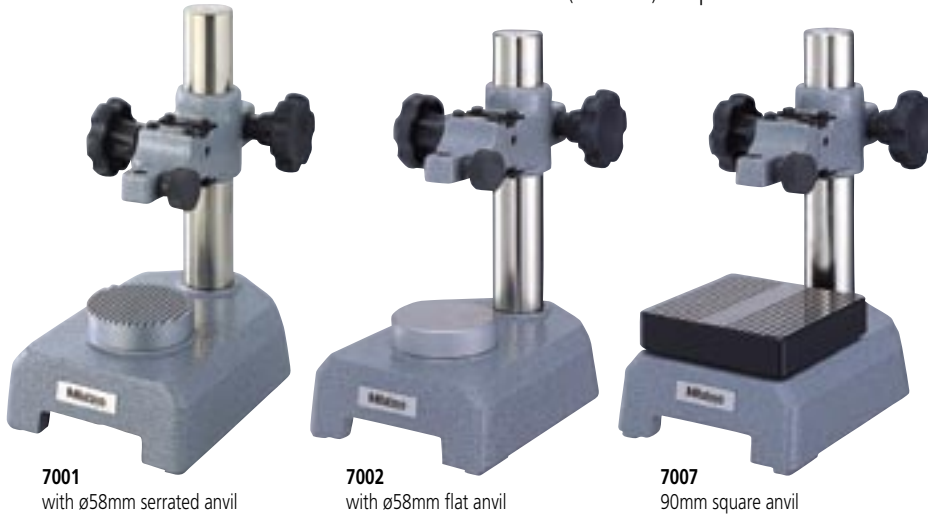
Dial Gage Stand

SERIES 7

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

FEATURES

- Vertical travel of the gage holder — Dial Gage Stand: 100mm, Transfer Stand: 335mm
- Fine-adjustment of 1mm available for zero-setting of the indicator.
- With an interchangeable anvil. Domed anvil (**101463**) is optional.

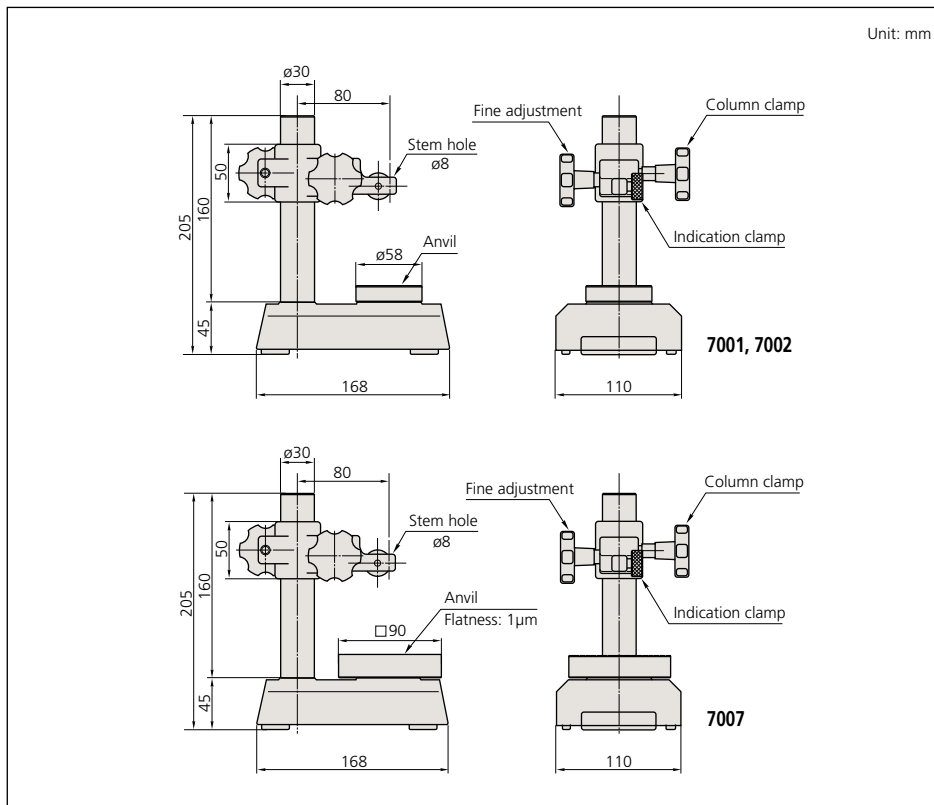


SPECIFICATIONS

Metric		
Order No.	Stem hole	Remarks
7001	ø8mm	with serrated anvil
7002	ø8mm	with flat anvil
7007	ø8mm	with square anvil

Inch		
Order No.	Stem hole	Remarks
7003	3/8" DIA	with serrated anvil
7004	3/8" DIA	with flat anvil
7008	3/8" DIA	with square anvil

DIMENSION



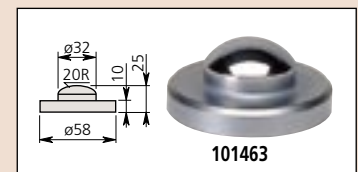
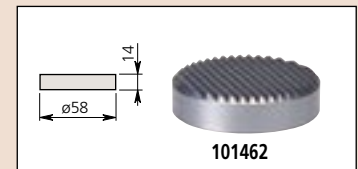
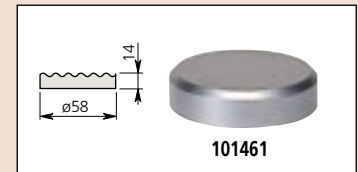
Optional Accessory

101462: Hardened steel serrated anvil (flatness: 1µm)*

101463: Hardened steel domed anvil*

101461: Hardened steel flat anvil (flatness: 1µm)*

*Not available for **7007** and **7008**



Transfer Stand

SERIES 519

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

FEATURES

- Vertical travel of the gage holder — Dial Gage Stand: 100mm, Transfer Stand: 335mm
- Fine-adjustment of 1mm available for zero-setting of the indicator.
- With an interchangeable anvil. Domed anvil (**101463**) is optional.

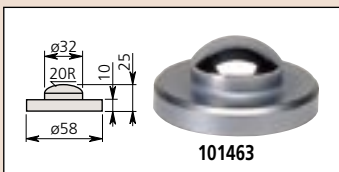
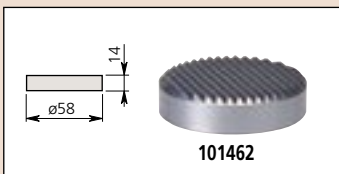


519-109M
with $\varnothing 58\text{mm}$ serrated anvil

Optional Accessory

101462: Hardened steel serrated anvil (flatness: $1\mu\text{m}$)

101463: Hardened steel domed anvil



SPECIFICATIONS

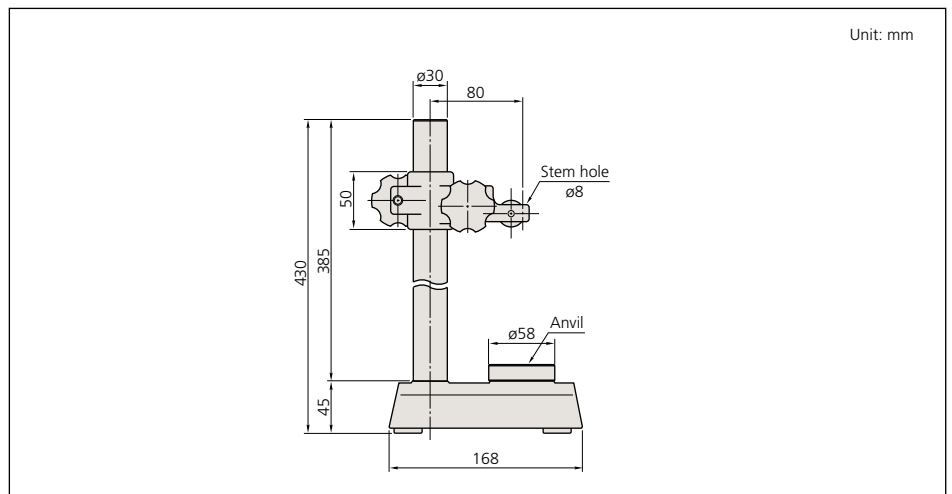
Metric

Order No.	Stem hole	Remarks
519-109M	$\varnothing 8\text{mm}$	with serrated anvil

Inch

Order No.	Stem hole	Remarks
519-109E	3/8" DIA	with serrated anvil

DIMENSION



Granite Comparator Stand

SERIES 215

Mitutoyo's Granite Comparator Stands are basic building-blocks for the assembly of special-purpose, precision measuring equipment. By mounting precision measuring in-

struments such as Digimatic indicators, Mu-Checker Cartridge Heads, and Linear Gages onto the stands, it is possible to satisfy all manner of measuring assignment. The rigid granite base is free from burrs, pileups, rust, and deterioration over time.



215-153

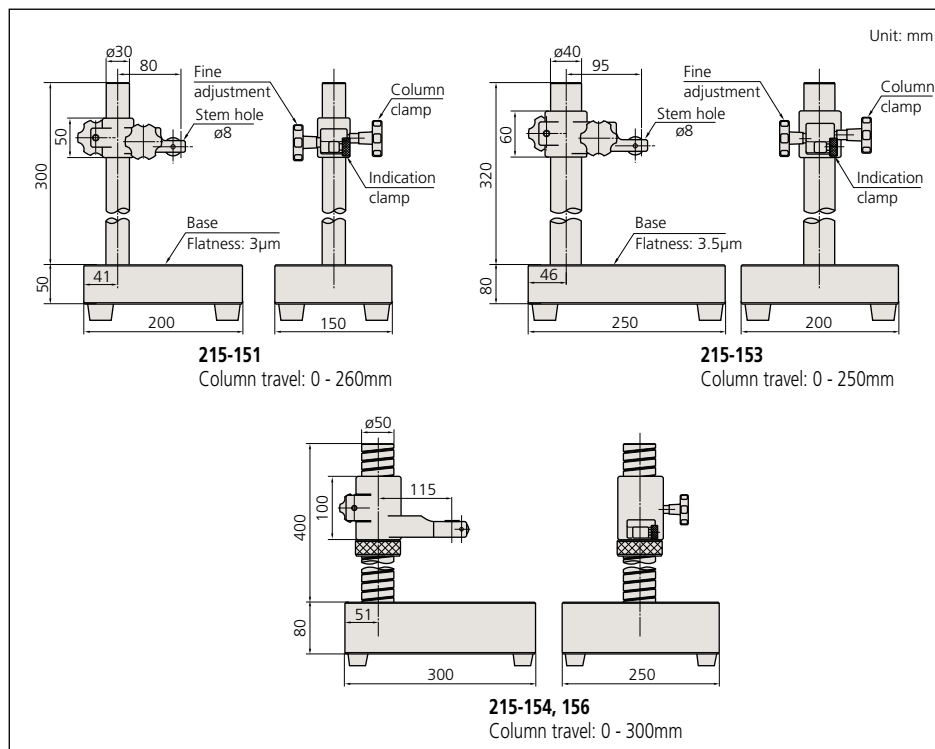


215-154

SPECIFICATIONS

Order No.	Granite base size (W x D x H)	Column travel	Stem hole	Remarks
215-151	150 x 200 x 50mm	260mm	ø8mm	With fine adjustment of 1mm range
215-153	200 x 250 x 80mm	250mm	ø8mm	With fine adjustment of 1mm range
215-154	300 x 250 x 80mm	300mm	ø8mm	With fine adjustment of 1mm range
215-156	300 x 250 x 80mm	300mm	ø8mm, ø20mm	With fine adjustment over the entire travel

DIMENSION



Optional Accessory

58AAA151: ø8mm bush*

58AAA273: ø9.53mm (3/8") bush*

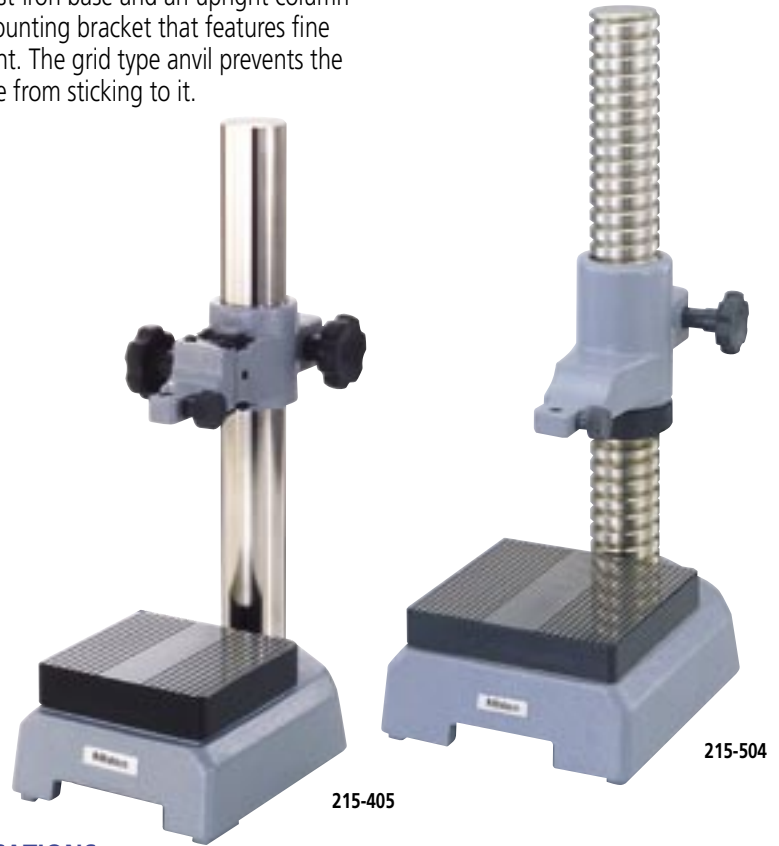
58AAA276: ø15mm bush*

*Only available for 215-156.

Comparator Stand

SERIES 215

The 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 the workpiece from sticking to it.



Optional Accessory

58AAA151: ø8mm bush*

58AAA273: ø9.53mm (3/8") bush*

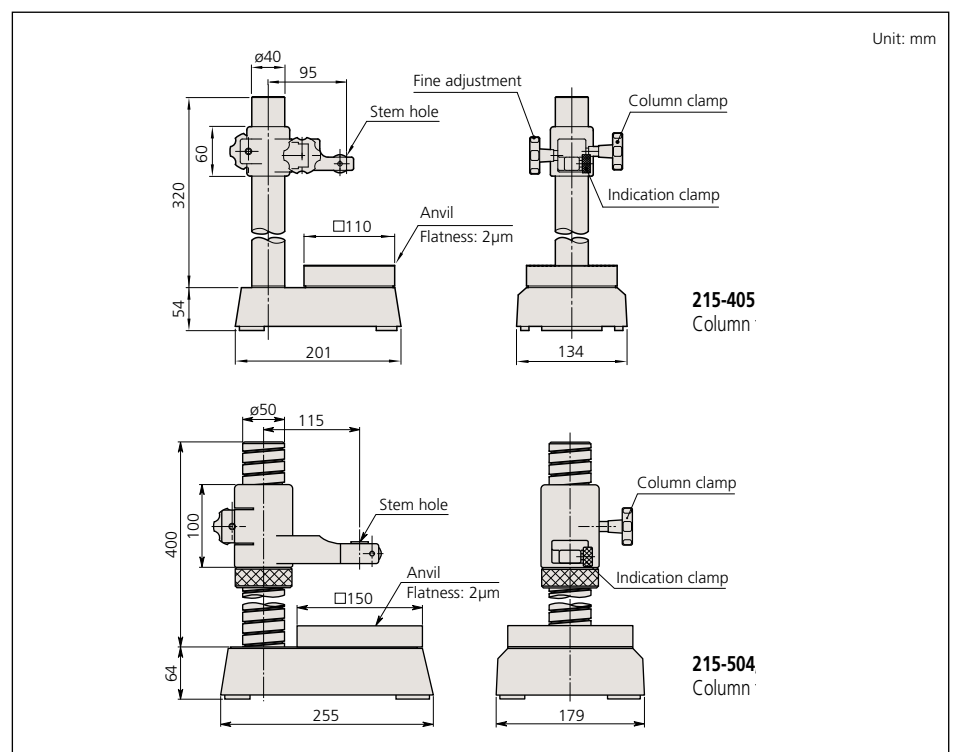
58AAA276: ø15mm bush*

*Only available for 215-505.

SPECIFICATIONS

Order No.	Square anvil size (W x D)	Column travel	Stem hole	Remarks
215-405	110 x 110mm	200mm	ø8mm	With fine adjustment of 1mm range
215-504	150 x 150mm	250mm	ø8mm	With fine adjustment over the entire travel
215-505	150 x 150mm	250mm	ø8mm, ø20mm	With fine adjustment over the entire travel

DIMENSION



Heavy Duty Comparator Stand

SERIES 215

The Heavy Duty Comparator Stand has rigid construction and fine adjustments, which makes the stand suitable as a gaging stand for dial indicators, Linear Gages, and probes of Mu-Checkers. Its serrated anvil (**070673**) prevents the workpiece from sticking to it.

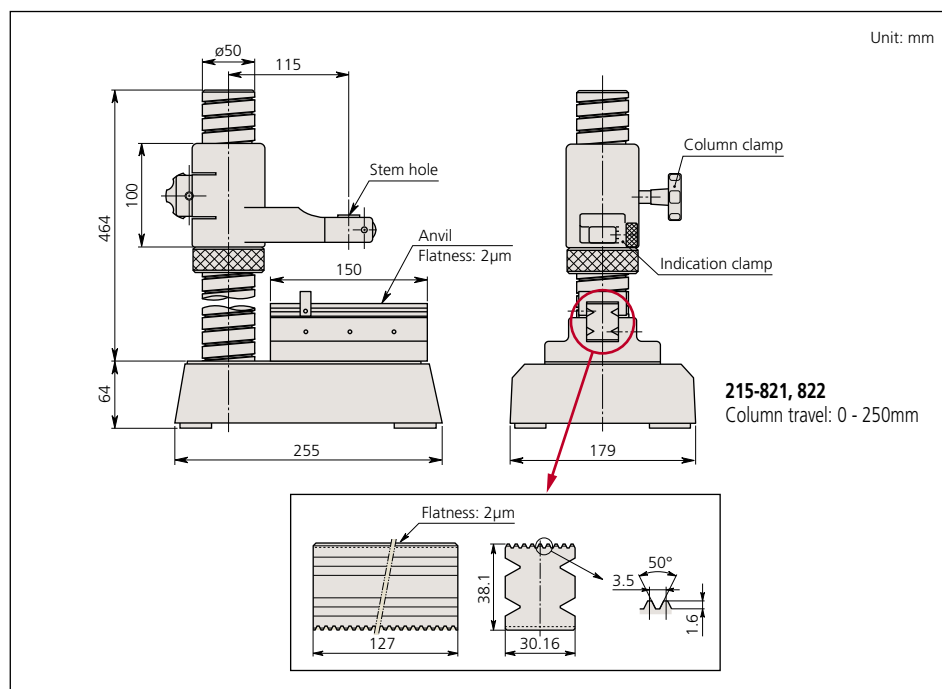


215-822

SPECIFICATIONS

Order No.	Base size (W x D x H)	Column travel	Stem hole	Remarks
215-821	255 x 179 x 64mm	250mm	ø8mm	With fine adjustment over the entire travel
215-822	255 x 179 x 64mm	250mm	ø8mm, ø20mm	With fine adjustment over the entire travel

DIMENSION



Optional Accessory

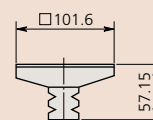
58AAA151: ø8mm bush*

58AAA273: ø9.53mm (3/8") bush*

58AAA276: ø15mm bush*

990015: 101.6 x 101.6mm large square anvil

*Only available for 215-822.



990015