

Indicators

High-performance ABS Digimatic Indicator ID-FNX (Digimatic S1 supported) SERIES 543 — with Back-lit LCD Screen

- ID-F Series is a next-generation indicator with various new functions, supporting bidirectional communication. With the addition of the appropriate data cable and software, remote zero setting and gage setting can all be implemented from a connected PC, thereby improving your work efficiency.
- This series adopts an external power supply to operate a bright backlit display. The display color helps you make tolerance judgment at a glance.

Green indication for GO judgment Red indication for $\pm$ NG judgment



- The next calibration due date can be set with an alarm to improve instrument management.
- The ABS (ABSOLUTE) scale restores the last origin position* automatically when the indicator is turned on, and realizes high reliability by eliminating over-speed errors.

* Refer to "Precautions for use" on page F-2.



SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD: Type Ø3/8" stem, #4-48UNF thread						
Order No.	Range	Resolution	Accuracy (in)*	Hysteresis	Repeatability	Measuring force (N)	Power source	Mass (g)
543-856-A	0.5 in/ 12.7 mm	0.00002/0.00005/ 0.0001/ 0.0005/ 0.001 in, 0.005/0.001/ 0.01 mm (selectable)	±0.00010	0.00008	0.00008	1.5 or less	AC adapter (5.9 V)	200
543-856B-A (flat back)								170
543-852A	1 in/ 25.4 mm		1.8 or less			240		
543-854A	2 in/ 50.8 mm		2.3 or less			330		
543-858A								

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread						
Order No.	Range (mm)	Resolution (mm)	Accuracy (mm)*	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Power source	Mass (g)
543-855-A	12.7	0.0005/ 0.001/0.01 (selectable)	0.0025	0.002	0.002	1.5 or less	AC adapter (5.9 V)	180
543-855B-A (flat back)	25.4					1.8 or less		170
543-851A	50.8		0.004			2.3 or less		240
543-853A			0.003					330
543-857A								

Included Power Adapter: 06AGZ369JA

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Data Management Software by Mitutoyo

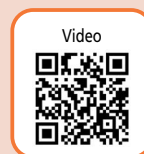
ABSOLUTETM



DIGIMATIC S1

Functions

- Peak detection (MAX/MIN)
 - Runout range measurement (MAX - MIN)
- Note: Peak detection
- 1) Sampling rate:
 - Resolution 0.0005 mm 50 readings/s
 - Resolution 0.001 mm, 0.01 mm 500 readings/s
 - 2) Capturing speed:
 - Resolution 0.0005 mm 50 μ m/s
 - Resolution 0.001 mm, 0.01 mm 500 μ m/s
- Zero-setting (INC system)
 - Presetting (ABS system)
 - Measuring direction switching
 - Tolerance judgment
 - Resolution switching
 - Simple calculation $f(x) = Ax$
 - Analog resolution selection
 - Data hold (when not connected to an external device)
 - Function Lock
 - Calibration schedule warning
 - Data output
 - Display rotation (330°)
 - Error alarm display



Refer to the Indicators Brochure (2340) for more details.

Find a Distributor

Indicators

ABSOLUTE Digimatic Indicator ID-CNX (Digimatic S1 supported) SERIES 543 — Standard Type

- **ID-C** Series is a next-generation indicator with many new functions, supporting bidirectional communication. With the addition of the appropriate data cable and software, remote zero setting and gage setting can all be implemented from a connected PC, thereby improving your work efficiency.
- The digital display and analog bar indications help you to intuitively read the approach to the origin and tolerance values.
- The ABS (ABSOLUTE) scale restores the last origin position* automatically when the indicator is turned on, and realizes high reliability by eliminating over-speed errors.



Measuring range
0.5 inch
543-702-02

Measuring range
1 inch
543-722B-02

- The next calibration due date can be set with an alarm to improve instrument management.
- Equipped with a data output port that enables incorporation into measurement networking and statistical process control systems. (Refer to the A section)

* Refer to "Precautions for use" on page F-2.

SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD: Type Ø3/8" stem, #4-48UNF thread							
Order No.		Range	Resolution	Accuracy (in)	Hysteresis	Repeatability	Measuring force (N)	Mass (g)	
w/lug	Flat back							w/lug	Flat back
543-702-02	543-702B-02	0.5 in/ 12.7 mm	0.00002/0.00005/ 0.0001/0.0005 in, 0.0005/0.001/ 0.01 mm (selectable)	±0.00012	0.00008	0.00008	1.5 or less	195	165
543-707-02*	543-707B-02*						0.4 to 0.7	190	160
—	543-722B-02	1 in/25.4 mm	1.8 or less	—			195		
—	543-732B-02	2 in/50.8 mm	±0.00020	2.3 or less			—	260	
543-712-02	543-712B-02	0.5 in/ 12.7 mm	0.0005 in/0.01 mm	±0.0010	0.0010	0.0005	0.9 or less	190	160
543-717-02*	543-717B-02*						0.2 to 0.5	185	155
—	543-727B-02	1 in/25.4 mm		1.8 or less			—	190	
—	543-737B-02	2 in/50.8 mm		±0.0015			2.3 or less	—	245

Inch / Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread							
Order No.		Range	Resolution	Accuracy (mm)	Hysteresis <i>H</i> _{MPE}	Repeatability <i>R</i> _{MPE}	Measuring force (N)	Mass (g)	
w/lug	Flat back							w/lug	Flat back
543-701-02	543-701B-02	0.5 in/12.7 mm	0.00002/0.00005/ 0.0001/0.0005 in, 0.0005/0.001/ 0.01 mm (selectable)	0.003	0.002	0.002	1.5 or less	175	165
543-706-02*	543-706B-02*						0.4 to 0.7	170	160
—	543-721B-02						1 in/25.4 mm	—	195
—	543-731B-02	2 in/50.8 mm		0.005			2.3 or less	—	260
543-711-02	543-711B-02	0.5 in/12.7 mm	0.0005 in/ 0.01 mm	0.02	0.02	0.01	0.9 or less	170	160
543-716-02*	543-716B-02*						0.2 to 0.5	165	155
—	543-726B-02						1 in/25.4 mm	1.8 or less	—
—	543-736B-02	2 in/50.8 mm		0.04			2.3 or less	—	245

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread							
Order No.		Range (mm)	Resolution (mm)	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)	
w/lug	Flat back							w/lug	Flat back
543-700-02	543-700B-02	12.7	0.0005 / 0.001 / 0.01 (selectable)	0.003	0.002	0.002	1.5 or less	175	165
543-705-02*	543-705B-02*						0.4 to 0.7	170	160
—	543-720B-02			25.4				1.8 or less	—
—	543-730B-02	50.8		0.005			2.3 or less	—	260
543-710-02	543-710B-02	12.7	0.01	0.02	0.02	0.01	0.9 or less	170	160
543-715-02*	543-715B-02*						0.2 to 0.5	165	155
—	543-725B-02			25.4				1.8 or less	—
—	543-735B-02	50.8		0.04			2.3 or less	—	245

- Power source: CR2032 battery (1 pc.), included as standard
- Battery life: Approx. 2,700 hours of continuous use. Approx. 2.5 years under normal use. (Depends on use of the indicator. The above values are reference values.)

* Low Measuring force.

MeasurLink¹ ENABLED
Data Management Software by Mitutoyo

ABSOLUTE™



DIGIMATIC S1

Functions

- Peak detection (MAX/MIN)
- Runout range measurement (MAX - MIN)
- Zero-setting (INC system)
- Presetting (ABS system)
- Measuring direction switching
- Tolerance judgment
- Resolution switching (For 0.0005 mm or 0.00002 inch resolution type)
- Simple calculation: $f(x) = Ax$
- Function Lock
- Calibration schedule warning
- Auto power OFF
- Data output
- Display value holding (when no external device is connected)
- 330° rotary display
- Low battery/voltage alarm display
- Error alarm display

Example of ID-CNX installed on optional bore gage



Note: Direction setting, etc. is necessary when **ID-CNX** is used with a bore gage. Refer to the operation manual for details.

Spindle orientation for measurement

- Standard models with measuring range 12.7 mm: Usable in all orientations.
- Models with measuring range 25.4 or 50.8 mm: Usable between the contact point pointing downward and spindle in horizontal orientation. To use the contact point pointing upward, the auxiliary spindle spring (optional) is required.
- Low measuring force model: See "Setting measuring force on low measuring force models" below.

Setting measuring force on low measuring force models

The measuring force of models with low measuring force can be set by combining standard accessory springs and weights.

• 543-715(B)/716(B)/717(B)

Spindle orientation	Spring	Weight (approximately 0.1 N)	Maximum measuring force (N)
Pointing vertically downward	Yes	Yes	0.5 or less
	Yes	No	0.4 or less
	No	Yes	0.3 or less
	No	No	0.2 or less
Horizontal	Yes	No	0.3 or less

Note: Operation using configurations other than shown above is not guaranteed.

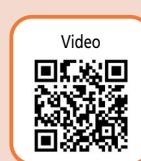
• 543-705(B)/706(B)/707(B)

Spindle orientation	Spring	Weight (approximately 0.1 N)	Maximum measuring force (N)
Pointing vertically downward	Yes	Yes	0.7 or less
	Yes	No	0.6 or less
	No	Yes	0.4 or less
	No	No	Not guaranteed

Note: Operation using configurations other than shown above is not guaranteed.



Refer to the Indicators Brochure (2340) for more details.



Optional Output Devices

Order No.	Description
Wired	
264-020	USB Input tool (IT-020U)
- 06AGL011	Connecting Cable (1m)
- 06AGL021	Connecting Cable (2m)
06AGQ001F	USB Input Tool Direct (2m)
Wireless	
264-622	Transmitter (IP67)
264-626	Transmitter (IP67, Bluetooth)
264-623	Transmitter (Buzzer)
264-627	Transmitter (Buzzer, Bluetooth)
- 02AZF700	Connecting Unit (Adapter)* ¹
- 02AZF670	Transmitter Mounting Bracket* ²
- 02AZG011	Connecting Cable
- 02AZG021	Connecting Cable (foot switch compatible)

Note: Model uses connector type "SF"

*¹ For 0.5" Models ONLY

*² For use on 1" and 2" Models

For additional accessories refer to pages F-63 to F-74

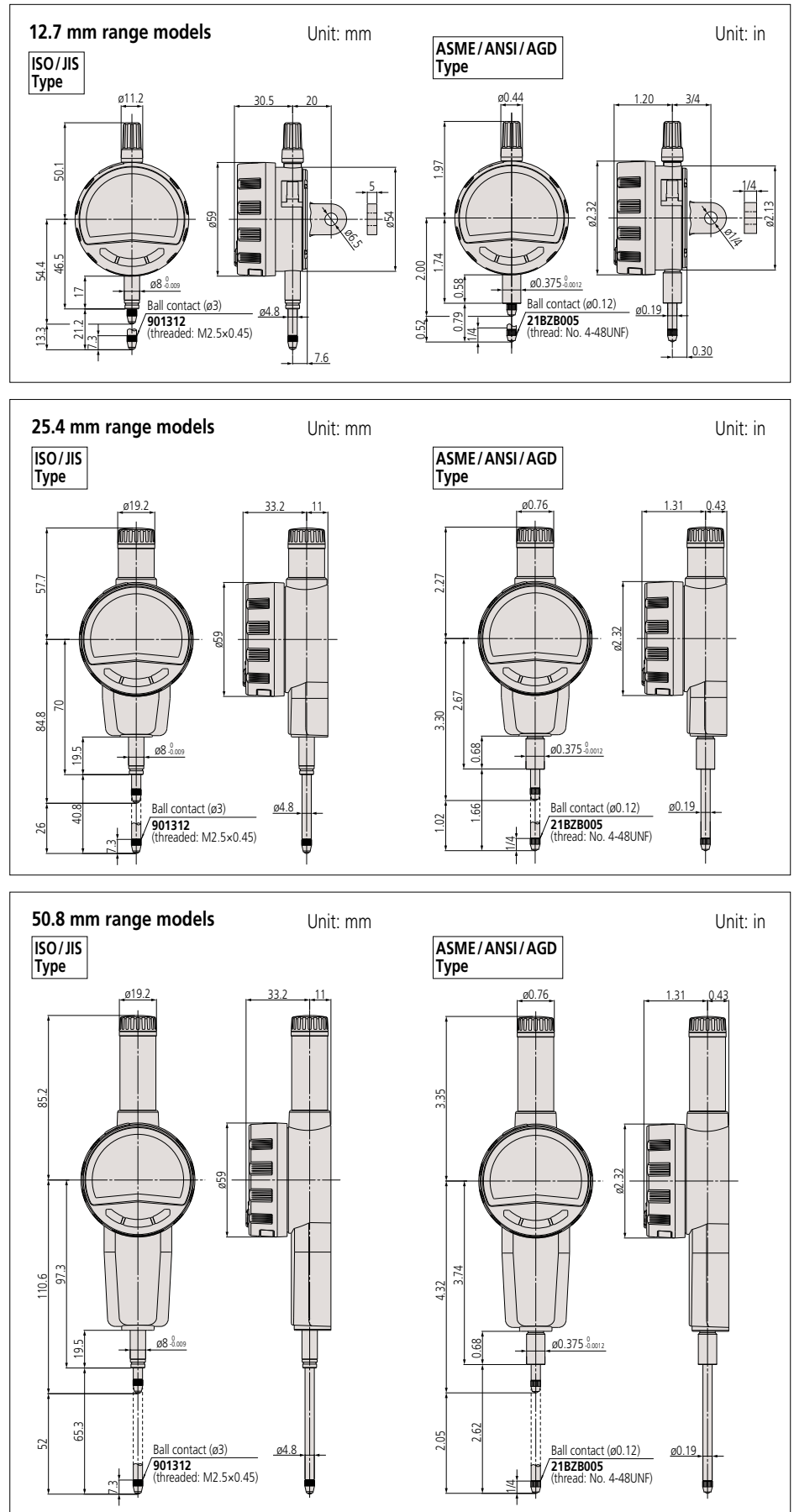
Connecting unit
fitted to an indicator
(12.7 mm type)

Typical application of
U-WAVE-TM/TMB mounting bracket
(with 543-725B)



- Lifting lever:
Lifting lever: **21EZA198** (0.5 inch /12.7 mm type)
Lifting cable: **21JZA295** Stroke 12.7 mm: 0.5 inch /12.7 mm type
(This cannot be used on low measuring force model.)
With auto-stop function: **21JZA301** (overall length 300 mm) 0.5 inch /12.7 mm type
(This cannot be used on low measuring force model.)
Lifting knob: **21EZA105** (0.5 inch /12.7 mm type)
(This cannot be used on low measuring force model.)
21EZA197 (1 inch /25.4 mm type)
21EZA200 (2 inch /50.8 mm type)
Lifting lever: **21EAA426**
(supplied with 25.4 mm and 50.8 mm models as standard.)
903594 Pneumatic Lifting Attachment (0.5"/12.7mm models only)
- Auxiliary spindle spring:
02ACA571 (1 inch /25.4 mm type*)
02ACA773 (2 inch /50.8 mm type*)
- *Required when orienting the indicator upside down.
- Measurement data collection software
USB-ITPAK V3.0: 06AGR543
- Contact points for Mitutoyo's Digimatic indicators (optional)
Refer to pages F-63 to F-68 for details.
- Interchangeable back covers (optional)
Refer to pages F-69 to F-70 for details.
- Measuring stands (optional)
Refer to pages F-97 to F-103 for details.

DIMENSIONS



Note: Products with a Order No. suffixed "B" have a plain back, and other models have a center-lug back. Refer to pages F-69 to F-70 for details of the backs.

Indicators

ABSOLUTE Digimatic Indicator ID-N/B SERIES 543 — with Dust/Water Protection Conforming to IP66

- Slim body design (body width: only 35 mm). Rated to IP66: Can be used confidently even in adverse environments.
- The ABS (ABSOLUTE) scale restores the last origin position* automatically when the indicator is turned on, and realizes high reliability by eliminating over-speed errors.
- Back plunger design (ID-B) is widely used for dial indicators. A 5 mm-stroke plunger with a higher degree of accuracy has been implemented by adopting a direct reading scale for plunger displacement.
- Tolerance judgment can be performed by setting upper and lower tolerance limits.
- Equipped with a data output port that enables incorporation into measurement networking and statistical process control systems. (Refer to the A section)

* Refer to "Precautions for use" on page F-2.



Slim type ID-N

Back Plunger type ID-B

SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD: Type Ø3/8" stem, #4-48UNF thread					
Order No.	Range (in)	Resolution	Accuracy (in)	Hysteresis	Repeatability	Measuring force (N)	Remarks
543-571	0.5	0.0005 in/ 0.01 mm	±0.0010	0.0010	0.0005	2.5 or less	Slim type
543-581	0.2					2.0 or less	Back Plunger type
543-576	0.5	0.00005/ 0.0005 in, 0.001/ 0.01 mm (selectable)	±0.00010	0.00010	0.00010	2.5 or less	Slim type
543-586	0.2					2.0 or less	Back Plunger type

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range (mm)	Resolution (mm)	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Remarks
543-570	12.7	0.01	0.02	0.02	0.01	2.5 or less	Slim type
543-580	5.08					2.0 or less	Back Plunger type
543-575	12.7	0.001/0.01 (selectable)	0.003/0.01	0.002	0.002	2.5 or less	Slim type
543-585	5.08					2.0 or less	Back Plunger type

• Power source: SR44 battery (1 pc.), **938882** included as standard

Bifurcated connection cable with zero-setting terminal (optional)

21EAA210 (1 m), **21EAA211** (2 m)

Two of the wires inside the cable are separated for zero setting without touching the SET switch on the main body. Use these wires in combination with commercially available switches. Zero setting is performed by briefly connecting these two wires together (less than a second), and ABS preset & recall by connecting for a second or more.



SPC cable



Bifurcated connection cable with zero-setting terminal

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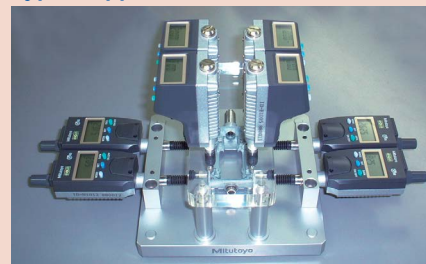
ABSOLUTETM



Applicable models:
543-57X

Applicable models:
543-58X

Typical application



Functions

- Zero-setting (INC system)
- Presetting (ABS system)
- Measuring direction switching
- Tolerance judgment
- Display readout reversal
- Resolution switching
(For 0.001 mm or 0.00005 in resolution type)
- Data output
- Display value holding
(when no external device is connected)
- Low battery voltage alarm display
- Error alarm display

Optional Output Devices

Order No.	Description
Wired	
264-020	USB Input tool (IT-020U)
- 21EAA194	Connecting Cable (1m)
- 21EAA190	Connecting Cable (2m)
06AFM380G	USB Input Tool Direct (2m)
Wireless	
264-622	Transmitter (IP67)
264-626	Transmitter (IP67, Bluetooth)
264-623	Transmitter (Buzzer)
264-627	Transmitter (Buzzer, Bluetooth)
- 02AZF675	Transmitter Mounting Bracket* ¹
- 02AZD790G	Connecting Cable
- 02AZE140G	Connecting Cable (foot switch compatible)

Note: Model uses connector type "G"

*¹ Compatible for ID-N Models ONLY

For additional accessories refer to pages F-63 to F-74

Typical application



Rated to IP66 water-and dust-proofing standard, and oil resistance improved.



Optional Accessories

- Lug
21EZA145 (ISO/JIS type)
21EZA146 (ASME/ANSI/AGD type)
- Contact points for Mitutoyo's Digimatic indicators (optional)
Refer to pages F-63 to F-68 for details.
- Lifting knob (only for **ID-N**)
21EZA105 (ISO/JIS type)
21EZA150 (ASME/ANSI/AGD type)
Spindle can be manually lifted. Remove the spindle cap for **ID-N** and attach the lifting knob to the spindle. Note that water resistance is not maintained in this configuration.

Typical application using the lifting knob



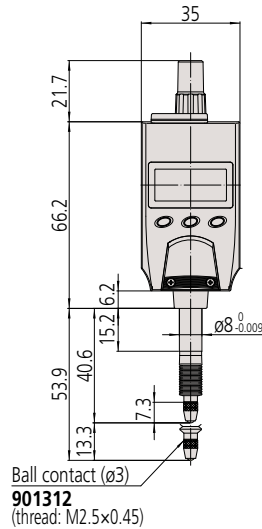
- Rubber boot
For oil resistance (NBR) **21EAA423** (for **ID-N**)
21AAB562 (for **ID-B**)
For durability (silicone) **238774** (for **ID-N**)
21EAA212 (for **ID-B**)

DIMENSIONS

Slim Type ID-N

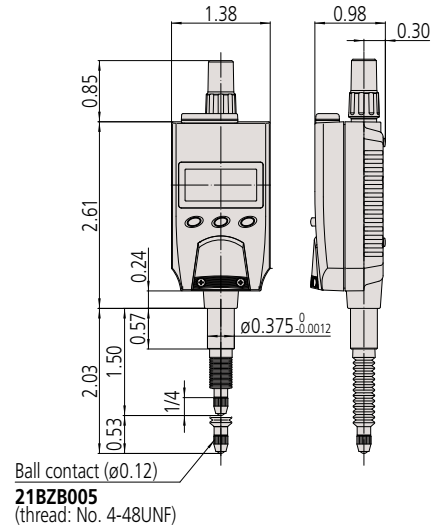
ISO/JIS
Type

Unit: mm



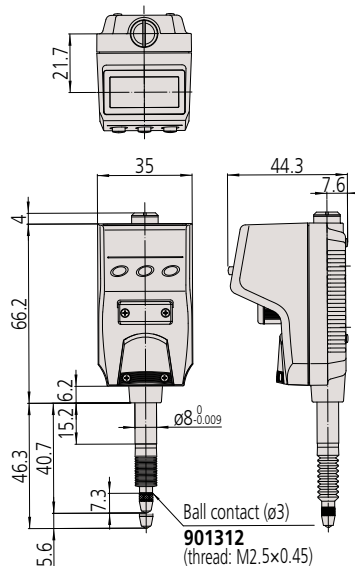
ASME/ANSI/AGD
Type

Unit: in

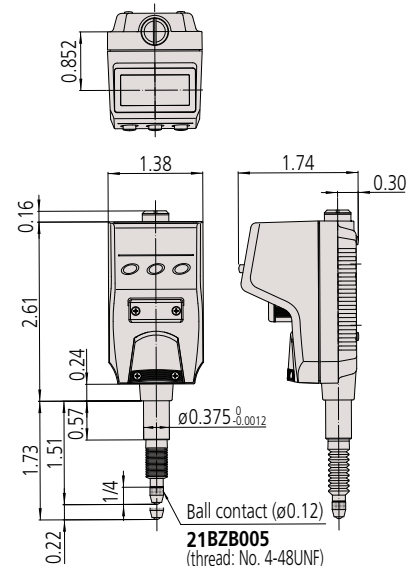


Back plunger Type ID-B

ISO/JIS
Type



ASME/ANSI/AGD
Type



Indicators

ABSOLUTE Digimatic Indicator ID-SX2 SERIES 543

- A standard model of indicator that is reliable and easy to use with basic functions.
- This model consumes less power than other advanced models and can operate longer without frequent battery replacement.
- The ABS (ABSOLUTE) scale restores the last origin position* automatically when the indicator is turned on, and realizes high reliability by eliminating over-speed errors.
- Equipped with a data output port that enables incorporation into measurement networking and statistical process control systems. (Refer to the A section)

* Refer to "Precautions for use" on page F-2.



SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD Type: Ø3/8" stem, #4-48UNF thread							
Order No.	Range	Resolution	Accuracy (in)	Hysteresis	Repeatability	Measuring force (N)	Back type	Mass (g)	Dust/Water protection level
543-792-12	0.5 in / 12.7 mm	0.00005 in / 0.001 mm	±0.00010	0.00010	0.00010	1.5 or less	With lug	165	IP42
543-792B-12		0.0001 in / 0.001 mm					Flat	140	
543-793-12		0.0001 in / 0.001 mm				2.5 or less	With lug	165	IP53
543-793B-12		0.0001 in / 0.001 mm					Flat	140	
543-796-12		0.00005 in / 0.001 mm	±0.00010	0.00010	0.00005	1.5 or less	With lug	155	IP42
543-796B-10		0.00005 in / 0.001 mm					Flat	155	
543-783-12	0.0005 in / 0.01 mm	0.0005 in / 0.01 mm	±0.0010	0.0010	0.0005	1.5 or less	With lug	165	IP42
543-783B-12		0.0005 in / 0.01 mm					Flat	140	

Inch / Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread							
Order No.	Range	Resolution	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Back type	Mass (g)	Dust/Water protection level
543-791-12	0.5 in / 12.7 mm	0.00005 in / 0.001 mm	0.003	0.002	0.002	1.5 or less	With lug	150	IP42
543-791B-12							Flat	140	
543-795-10						2.5 or less	With lug	155	IP53
543-795B-12							Flat	155	
543-782-12		0.0005 in / 0.01 mm	0.02	0.02	0.01	1.5 or less	With lug	150	IP42
543-782B-12							Flat	140	

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread							
Order No.	Range (mm)	Resolution (mm)	Accuracy (mm)*1	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Back type	Mass (g)	Dust/Water protection level
543-790-12	12.7	0.001	0.003	0.002	0.002	1.5 or less	With lug	150	IP42
543-790B-12							Flat	140	
543-794-12						2.5 or less	With lug	155	IP53
543-794B-12							Flat	155	
543-781-12		0.01	0.02	0.02	0.01	1.5 or less	With lug	150	IP42
543-781B-10							Flat	140	

- Power source: SR44 battery (1 pc.), **938882** included as standard
- Battery Life: Approx. 5 years under normal use

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IP53



Applicable models:
See SPECIFICATIONS

Functions

- Origin set (Zero-setting)
- Measuring direction switching
- Data output
- Low battery voltage alarm display
- Error alarm display

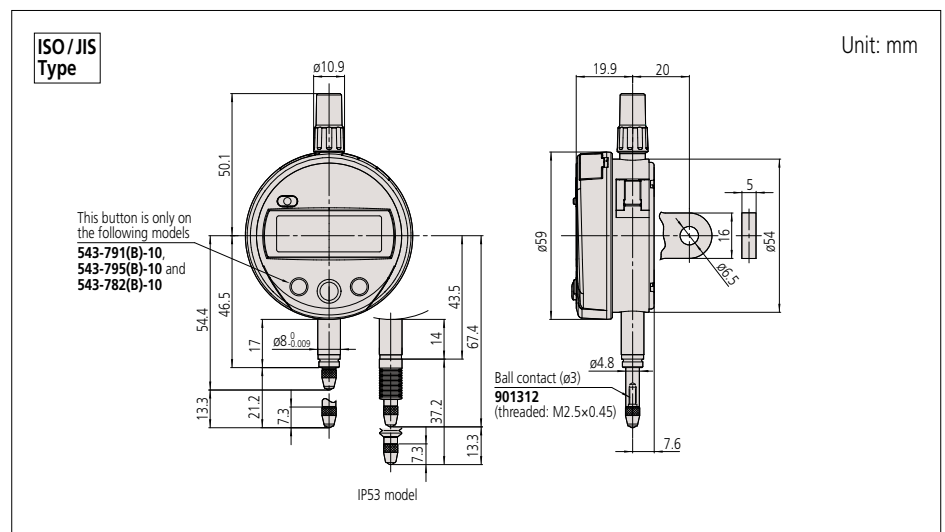
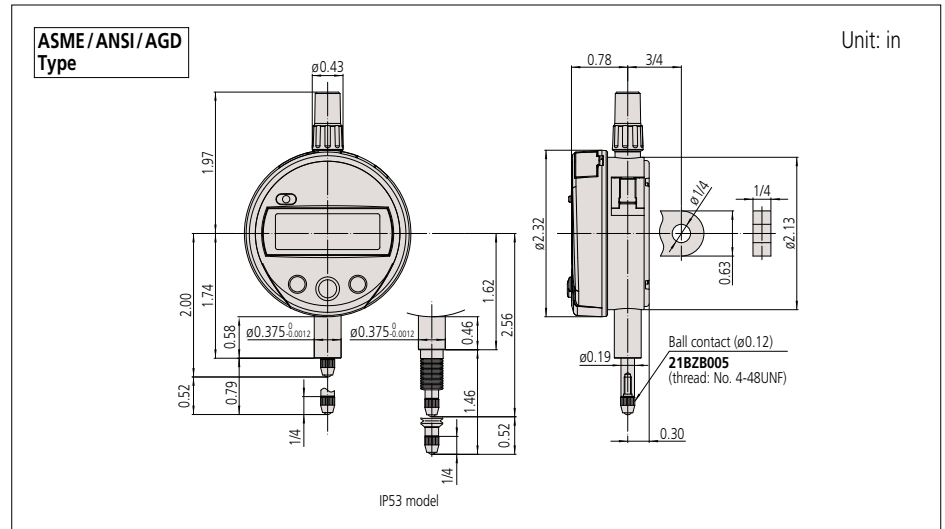
Optional Output Devices

Order No.	Description
Wired	
264-020	USB Input tool (IT-020U)
- 905338	Connecting Cable (1m)
- 905409	Connecting Cable (2m)
06AFM380F	USB Input Tool Direct (2m)
Wireless	
264-622	Transmitter (IP67)
264-626	Transmitter (IP67, Bluetooth)
264-623	Transmitter (Buzzer)
264-627	Transmitter (Buzzer, Bluetooth)
- 02AZF670	Transmitter Mounting Bracket
- 02AZD790F	Connecting Cable
- 02AZE140F	Connecting Cable (foot switch compatible)

Note: Model uses connector type "F"
For additional accessories refer to pages F-63 to F-74

- Lifting
 - Lifting lever **21EZA198**
 - Lifting knob **21EZA105**
 - Lifting cable **21JZA295**
 - With auto-stop function:
 - 21JZA301** (overall length 300 mm)
 - 903594** Pneumatic Lifting Attachment (0.5"/12.7mm models only)
- Contact points for Mitutoyo's Digimatic indicators (optional)
Refer to pages F-63 to F-68 for details.
- Interchangeable back covers (optional)
Refer to pages F-69 to F-70 for details.
- Measuring stands (optional)
Refer to Section A for details.

DIMENSIONS



Got Questions?

Indicators

ABSOLUTE Digimatic Indicator ID-U SERIES 575 — Slim and Economical Design

- Cost-effective and user-friendly type with basic functions.
- Battery life: Approx. 5 years under normal use.
- The ABS (ABSOLUTE) scale restores the last origin position* automatically when the indicator is turned on, and realizes high reliability by eliminating over-speed errors.
- Equipped with a data output port that enables incorporation into measurement networking and statistical process control systems. (Refer to the A section)

* Refer to "Precautions for use" on page F-2.



575-123

SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD: Type Ø3/8" stem, #4-48UNF thread				
Order No.	Range	Resolution	Accuracy (in)	Hysteresis	Repeatability	Measuring force (N)
575-123	1 in / 25.4 mm	0.0005 in / 0.01 mm	±0.0010	0.0010	0.0005	1.8 or less

Inch / Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread				
Order No.	Range	Resolution	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)
575-122	1 in / 25.4 mm	0.0005 in / 0.01 mm	0.02	0.02	0.01	1.8 or less

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread				
Order No.	Range (mm)	Resolution (mm)	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)
575-121	25.4	0.01	0.02	0.02	0.01	1.8 or less

- Power source: SR44 battery (1 pc.), **938882** included as standard
- Approx. 5 years under normal use

MeasurLink¹ ENABLED
Data Management Software by Mitutoyo



ABSOLUTETM

Function

- Origin set (Zero-setting)
- Measuring direction switching
- Data output
- Low battery voltage alarm display
- Error alarm display

Optional Output Devices

Order No.	Description
Wired	
264-020	USB Input tool (IT-020U)
- 905338	Connecting Cable (1m)
- 905409	Connecting Cable (2m)
06AFM380F	USB Input Tool Direct (2m)
Wireless	
264-620	Transmitter (IP67)
264-624	Transmitter (IP67, Bluetooth)
264-621	Transmitter (Buzzer)
264-625	Transmitter (Buzzer, Bluetooth)
- 02AZD790F	Connecting Cable
- 02AZE140F	Connecting Cable (foot switch compatible)

Note: Model uses connector type "F"

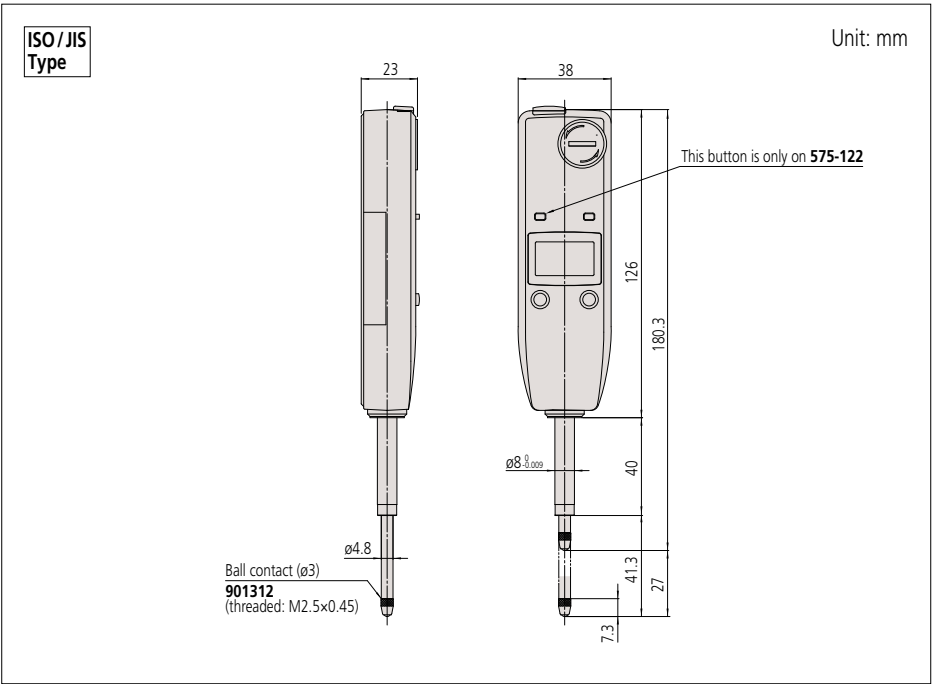
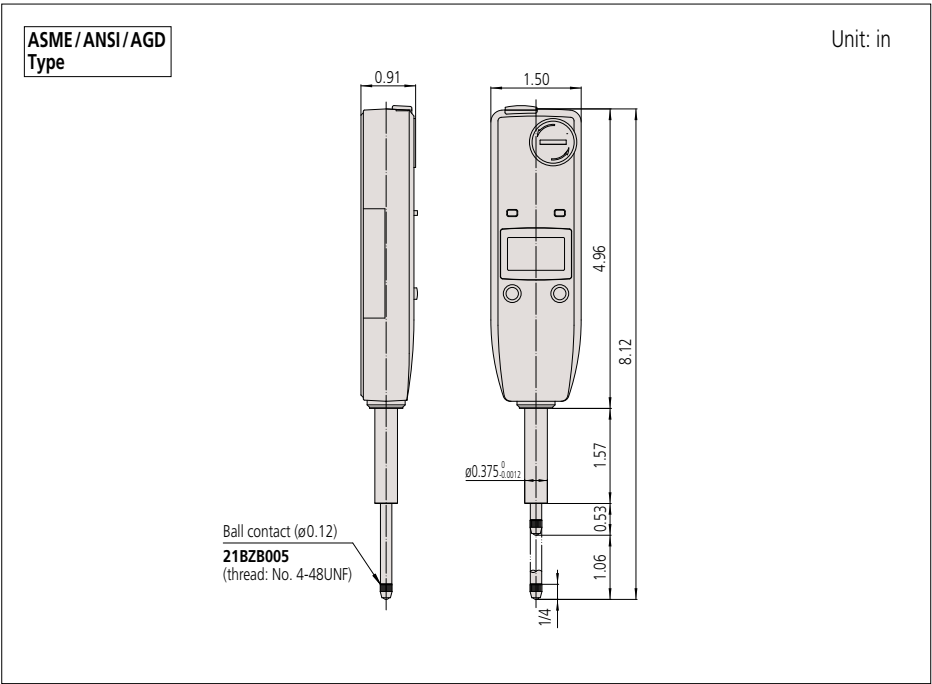
For additional accessories refer to pages F-63 to F-74

- Spindle lifting cable (stroke: 10 mm): **21JZA295**
- With auto-stop function:
21JZA301 (overall length 300 mm)
- Contact points for Mitutoyo's Digimatic indicators (optional)
Refer to pages F-63 to F-68 for details.
- Measuring stands (optional)
Refer to pages F-97 to F-103 for details.



Talk to Sales

DIMENSIONS



Indicators

ABSOLUTE Digimatic Indicator ID-CAX SERIES 543 — Peak-Value Hold Type

- The Peak Hold-Type Digimatic Indicator. GO/NG judgment is performed by setting the upper and lower tolerances for max., min. and runout values.*1
- Five buttons, status icons, and clear button indications allow easy operation and various functions.
- Wide display and new analog bar graph are standard on all models.
- The ABS (ABSOLUTE) scale restores the last origin position*2 automatically when the indicator is turned on, and realizes high reliability by eliminating over-speed errors.
- Equipped with a data output port that enables incorporation into measurement networking and statistical process control systems. (Refer to the A section)
- By using the parameter setup kit (optional) and the dedicated software, the functions and the parameters can be configured using a computer.

*1 Tolerance judgment results cannot be output.

*2 Refer to "Precautions for use" on page F-2.



543-302-10

SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD: Type Ø3/8" stem, #4-48UNF thread					
Order No.	Range	Resolution	Accuracy (in)	Hysteresis	Repeatability	Measuring force (N)	Mass (g)
543-302-10	0.5 in/ 12.7 mm	0.00005/ 0.0001/ 0.0005 in, 0.001/ 0.01 mm (selectable)	±0.00010	0.00010	0.00010	1.5 or less	195
543-302B-10 (flat back)							170

Inch / Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range	Resolution	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)
543-301-10	0.5 in/ 12.7 mm	0.00005/ 0.0001/ 0.0005 in, 0.001/ 0.01 mm (selectable)	0.003	0.003	0.002	1.5 or less	180
543-301B-10 (flat back)							170

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range (mm)	Resolution (mm)	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)
543-300-10	12.7	0.001/0.01 (selectable)	0.003	0.003	0.002	1.5 or less	180
543-300B-10 (flat back)							170

- Power source: CR2032 battery (1 pc.), included as standard
- Battery Life: Approx. 5 years under normal use

MeasurLink¹ ENABLED
Data Management Software by Mitutoyo

ABSOLUTETM



Functions

- Peak detection (MAX/MIN)
- Runout (MAX - MIN) Hold
- Note: Peak detection
 - 1) Sampling rate: 50 readings/s
 - 2) Capturing speed: 50 µm/s (max.)
- Zero set (INC system)
- Preset function (ABS system)
- Measuring direction switching
- Tolerance judgment (3 pairs of ABS, INC memory function)
- Resolution selection
- Simple calculation $f(x) = Ax$
- Analog bar resolution selection
- Key lock
- in/mm conversion (inch/mm type)
- Display hold (when no external device is connected)
- Data output
- External PC setting input
- Display rotation (330°)
- Low battery voltage alarm display
- Error alarm display

Optional Output Devices

Order No.	Description
Wired	
264-020	USB Input tool (IT-020U)
- 905338	Connecting Cable (1m)
- 905409	Connecting Cable (2m)
06AFM380D	USB Input Tool Direct (2m)
Wireless	
264-622	Transmitter (IP67)
264-626	Transmitter (IP67, Bluetooth)
264-623	Transmitter (Buzzer)
264-627	Transmitter (Buzzer, Bluetooth)
- 02AZF670	Transmitter Mounting Bracket
- 02AZD790F	Connecting Cable
- 02AZE140F	Connecting Cable (foot switch compatible)

Note: Model uses connector type "F"
For additional accessories refer to pages F-63 to F-74

- Lifting
 - Lifting lever **21EZA198**
 - Lifting knob **21EZA105**
 - 903594** Pneumatic Lifting Attachment (0.5"/12.7mm models only)
- Parameter setup kit: **21EZA313**

Note: Parameter setting software (can be downloaded for free from the Mitutoyo website) is also required.



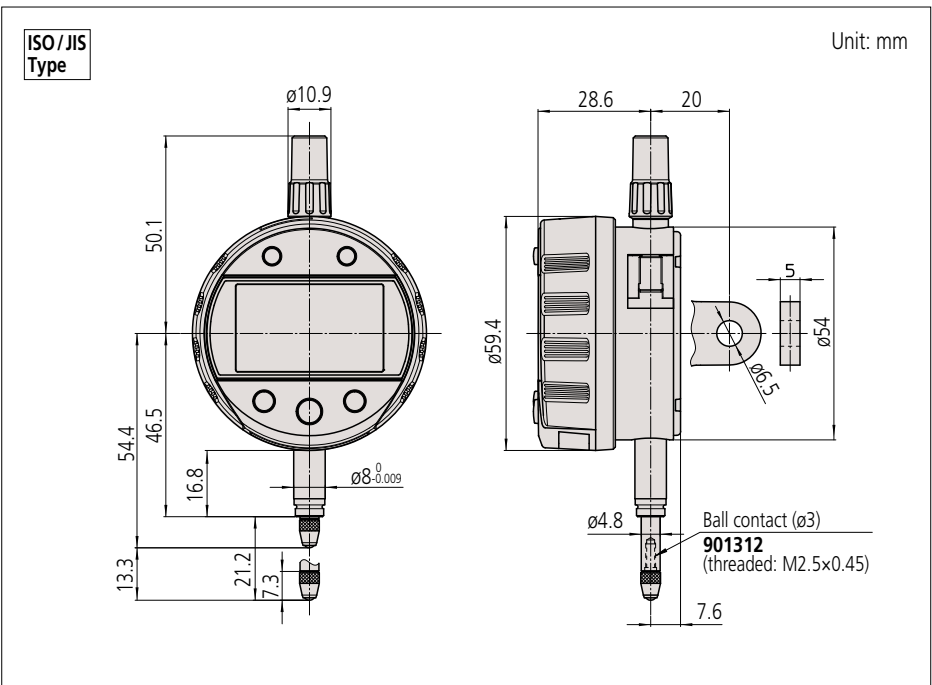
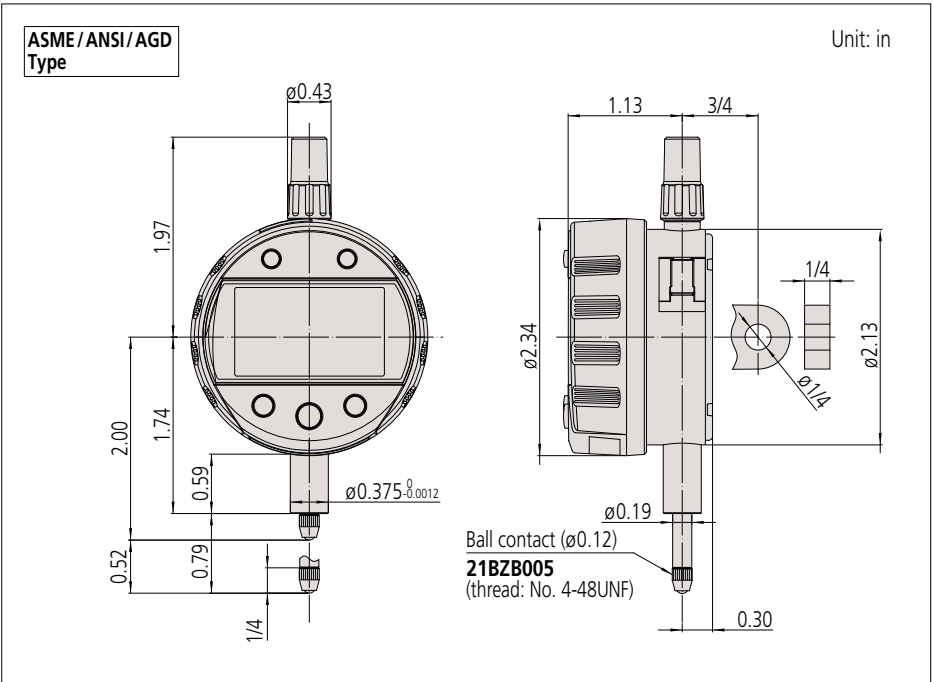
Parameter setup kit



Parameter setting software

- Contact points for Mitutoyo's Digimatic indicators (optional)
Refer to pages F-63 to F-68 for details.
- Interchangeable back covers (optional)
Refer to pages F-69 to F-70 for details.
- Measuring stands (optional)
Refer to pages F-97 to F-103 for details.

DIMENSIONS



Need Repair?

Indicators

ABSOLUTE Digimatic Indicator ID-CGX SERIES 543 — Bore Gage Type

- Dedicated to inside diameter measurement with minimum-value holding and tolerance judgment functions*.
Use together with a Mitutoyo bore gage (refer to pages C-31 to C-48 for details).
- Five buttons, status icons, and clear button indications allow easy operation and various functions.
- Wide display and analog bar graph are standard on all models.
- Up to three sets of master values and upper/lower tolerance values can be stored to simplify the master setting.
- By using the parameter setup kit (optional) and the dedicated software, the functions and the parameters can be configured using a computer.
* Tolerance judgment results cannot be output.



543-312B-10

SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD: Type Ø3/8" stem, #4-48UNF thread					
Order No.	Range	Resolution	Accuracy (in)	Hysteresis	Repeatability	Measuring force (N)	Mass (g)
543-312B-10	0.5 in / 12.7 mm	0.00005 / 0.0001 / 0.0005 in, 0.001 / 0.01 mm (selectable)	±0.00010	0.00010	0.00010	1.5 or less	170

Inch / Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range	Resolution	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)
543-311B-10	0.5 in / 12.7 mm	0.00005 / 0.0001 / 0.0005 in, 0.001 / 0.01 mm (selectable)	0.003	0.003	0.002	1.5 or less	170

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range (mm)	Resolution (mm)	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)
543-310B-10	12.7	0.001 / 0.01 (selectable)	0.003	0.003	0.002	1.5 or less	170

- Power source: CR2032 battery (1 pc.), included as standard
- Battery Life: Approx. 5 years under normal use

MeasurLink¹ ENABLED
Data Management Software by Mitutoyo

ABSOLUTETM



Example of use with a bore gage (sold separately)



Functions

- Minimum value detection
Note: Peak detection
1) Sampling rate: 50 readings/s
2) Capturing speed: 50 μ m/s (max.)
- Preset (3 Preset values can be stored)
- Tolerance judgment
(3 sets of upper and lower limits can be stored)
- Resolution selection
- Analog bar resolution selection
- Key lock
- Display hold (when no external device is connected)
- Data saving/calling
(when no external device is connected)
- Data output
- External PC setting input
- Display rotation (330°)
- Low battery voltage alarm display
- Error alarm display

Optional Accessories

Refer to page F-13.

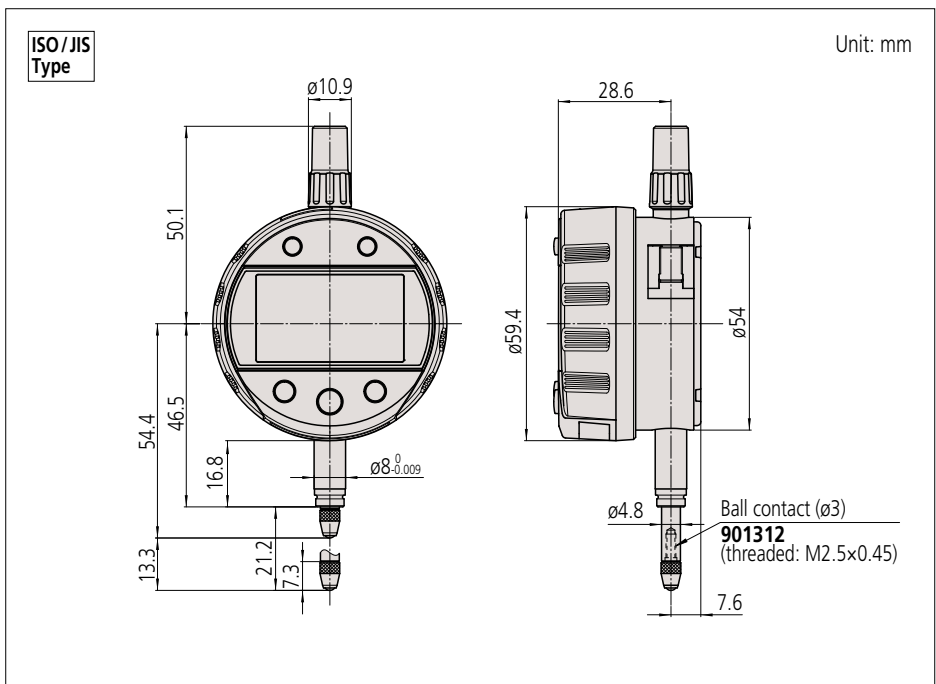
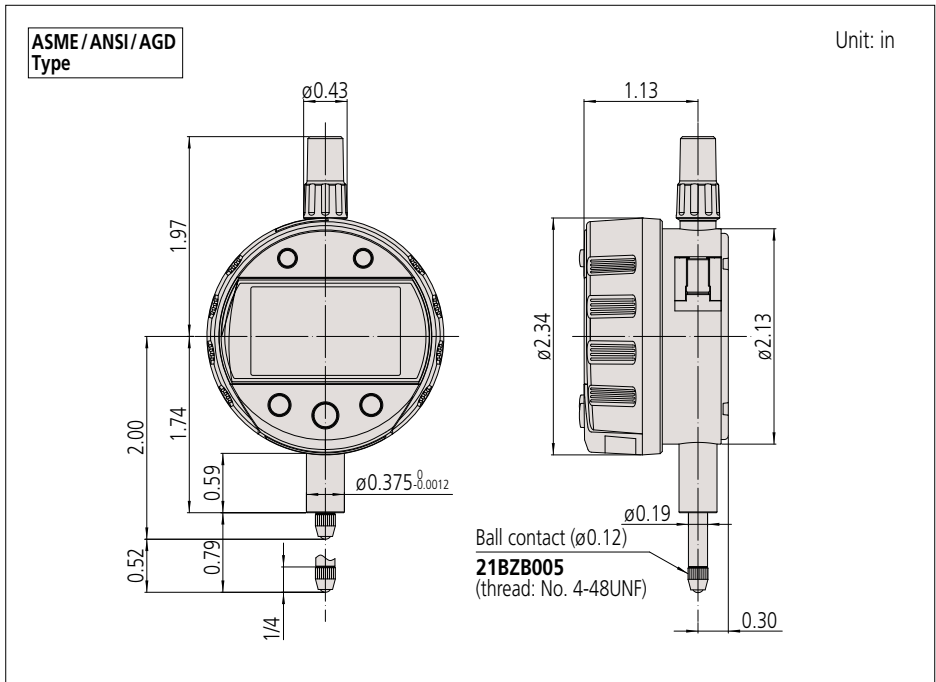
- Parameter setup kit (optional)
Refer to page F-13 for details.

The ABSOLUTE Digimatic Bore Gage



ABSOLUTE Digimatic Bore Gages, which integrate the display with a bore gage measuring unit, are also available. Refer to pages C-49 and C-50 for details.

DIMENSIONS



Where to Buy

Indicators

ABSOLUTE Digimatic Indicator ID-CRX SERIES 543 — Calculation Type

- This expandable indicator incorporates an internal calculation function that operates from plunger displacement. Using dedicated fixtures and setting the calculation coefficients, you can read your measurements directly without the need for conversions.
- By using the parameter setup kit (optional) and the dedicated software, the functions and the parameters can be configured using a computer.
- Five buttons, status icons, and clear button indications allow easy operation and various functions.



543-342B-10

SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD: Type Ø3/8" stem, #4-48UNF thread					
Order No.	Range	Resolution (selectable)	Accuracy (in)	Hysteresis	Repeatability	Measuring force (N)	Mass (g)
543-342B-10	0.5 in / 12.7 mm	12 steps	±0.00010	0.00010	0.00010	1.5 or less	170
543-592B-10	1 in / 25.4 mm					1.8 or less	190
543-597B-10	2 in / 50.8 mm		±0.00025			2.3 or less	260

Inch / Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range	Resolution (selectable)	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)
543-341B-10	0.5 in / 12.7 mm	12 steps	0.003	0.003	0.002	1.5 or less	170
543-591B-10	1 in / 25.4 mm					1.8 or less	190
543-596B-10	2 in / 50.8 mm		0.006			2.3 or less	260

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range (mm)	Resolution (selectable)	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)
543-340B-10	12.7	12 steps	0.003	0.003	0.002	1.5 or less	170
543-590B-10	25.4					1.8 or less	190
543-595B-10	50.8		0.006			2.3 or less	260

- Power source: CR2032 battery (1 pc.), included as standard
- Battery Life: Approx. 5 years under normal use

MeasurLink¹ ENABLED
Data Management Software by Mitutoyo

ABSOLUTETM



Typical application



Functions

- Calculation $f(x') = Ax' + B + Cx'^{-1}$
($x' = x + \text{offset}$)
- Peak detection (MAX/MIN)
- Runout (MAX - MIN) Hold
- Note: Peak detection
 - 1) Sampling rate: 10 readings/s
 - 2) Capturing speed: 10 $\mu\text{m/s}$ (max.)
- Settings can be changed to:
 - 1) Sampling rate: 50 readings/s
 - 2) Capturing speed: 50 $\mu\text{m/s}$ (max.)
- Zero-setting (INC system)
- Preset (ABS system)
- Tolerance judgment
(3 pairs of ABS, INC memory function)
- Analog bar resolution selectable
- Key lock
- Display hold (when no external device is connected)
- Data output
- External PC setting input
- Display rotation (330°)
- Low battery voltage alarm display
- Error alarm display
- Resolution switching*

Resolution (mm)			Resolution (in)		
0.0002	0.005	0.1	0.00001	0.0002	0.005
0.0005	0.01	0.2	0.00002	0.0005	0.01
0.001	0.02	0.5	0.00005	0.001	0.02
0.002	0.05	1	0.0001	0.002	0.05

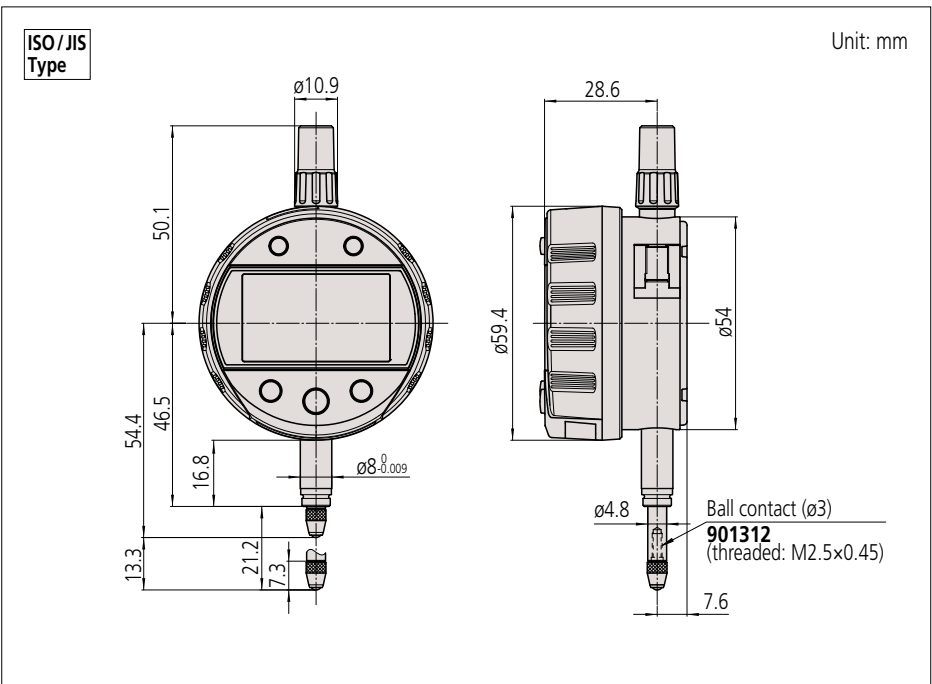
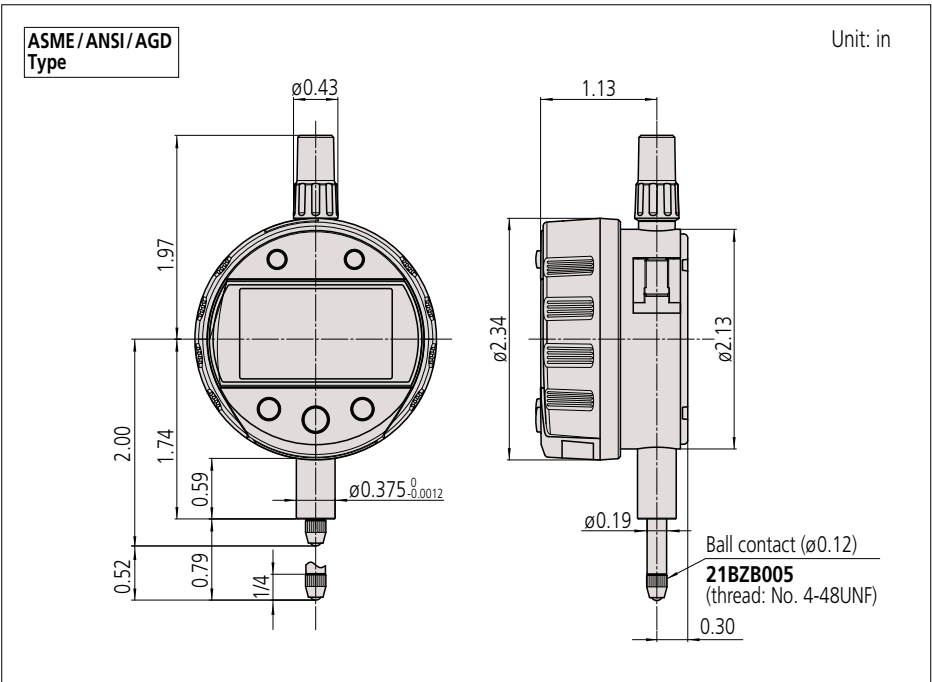
* Since the calculation resolution is one micrometer (0.001 mm), using sub-micrometer resolution settings may result in the 4th-place digit being unreliable, particularly when B is set to a very low value and C=0. It does not change at all with certain combinations of calculation coefficient (for example, A=1, B=C=0). The 3rd-place digit representing micrometers (if displayed) is always reliable.

Optional Accessories

Refer to page F-13.

- Lifting
 - Lifting lever **21EZA198** (0.5 inch / 12.7 mm type)
 - Lifting knob **21EZA105** (0.5 inch / 12.7 mm type)
 - 21EZA197** (1 inch / 25.4 mm type)
 - 21EZA200** (2 inch / 50.8 mm type)
 - 903594** Pneumatic Lifting Attachment (0.5"/12.7mm models only)
- Parameter setup kit (optional)
Refer to page F-13 for details.

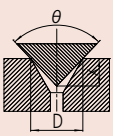
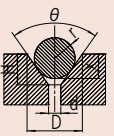
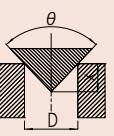
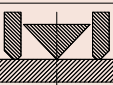
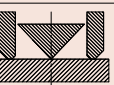
DIMENSIONS

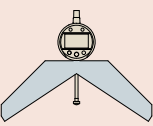
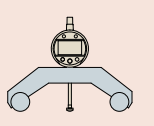
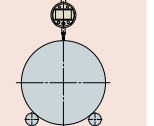
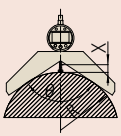
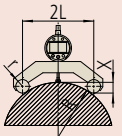
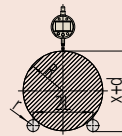
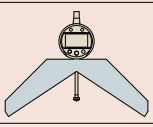
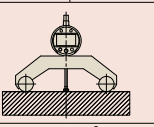
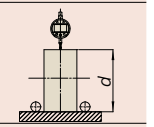


Get a Quote

Indicators

Examples of measuring various features

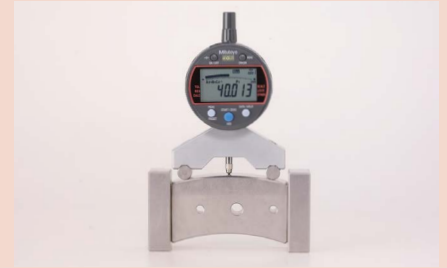
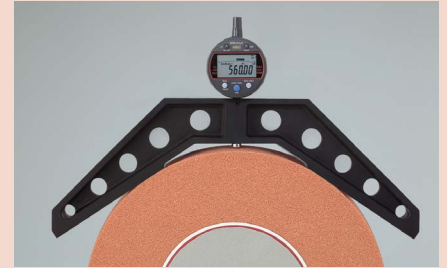
Item		D=Countersink diameter/Groove width; H=Countersink depth/Groove depth		
Fixture type*1				
Contact point		Cone	Ball	Cone
Measuring method x: Spindle displacement				
Calculation		$D = Ax$	$D = Ax + B$	$H = Ax + B$
Coefficient values	A	$-2 \tan \frac{\theta}{2}$	$-2 \tan \frac{\theta}{2}$	-1
	B	0	$2r \left(\frac{1}{\cos \frac{\theta}{2}} - \tan \frac{\theta}{2} \right)$	$r \left(\frac{1}{\sin \frac{\theta}{2}} - \frac{d}{2 \tan \frac{\theta}{2}} \right)$
	C	0	0	0
Origin offset value (function ON/OFF)		0 (OFF)	0 (OFF)	0 (OFF)
ORIGIN-set position (x=0 position)				
Displayed measurement value at ORIGIN-set position (Value displayed when x=0)		0	Value of coefficient B	0

Item		R=Outside radius of round object	R=Inside radius of round object	R=Outside radius of round object
Fixture type*1				
Contact point			—	
Measuring method x: Spindle displacement				
Calculation		$R = Ax$	$R = Ax + B + Cx^{-1}$	$R = A(x+d) + B + C(x+d)^{-1}$
Coefficient values	A	$-\frac{\sin \frac{\theta}{2}}{1 - \sin \frac{\theta}{2}}$	$\frac{1}{2}$	$-\frac{1}{2}$
	B	0	$-r$	r
	C	0	$\frac{L^2}{2}$	$-\frac{L^2}{2}$
Origin offset value (function ON/OFF)		0 (OFF)	0 (OFF)	d (ON)
ORIGIN-set position (x=0 position)				
Displayed measurement value at ORIGIN-set position (Value displayed when x=0)		0	Err 30*2 (Overflow error of Display value)	Depends on value of d

*1 A dedicated fixture for a workpiece can be made to order.

*2 The error is cleared when the measured value returns to the displayable range as a result of moving the spindle.

Custom fixture examples



Need Support?

Functions

- Signal output
(-NG/OK/+NG, N-ch open drain, logical invert is available)
- Remote control (peak start preset/zero-set)
- Peak detection (MAX/MIN)
- Runout range measurement (MAX - MIN)
- Zero-setting (INC system)
- Presetting (ABS system)
- Measuring direction switching
- Tolerance judgment (3 pairs of ABS, INC memory function)
- Resolution switching
- Simple calculation: $f(x) = Ax$
- Key lock
- Calibration mode (Signal output in Digimatic code format)
- Error alarm display

Optional Accessories

- Lifting*
Lifting lever **21EZA198**
Lifting knob **21EZA105**
- **903594** Pneumatic Lifting Attachment (0.5"/12.7mm models only)
- * Dust-water protection is not guaranteed.
- Digimatic power supply unit: **21EZA345A**
Used in the calibration mode when executing automatic inspection using i-Checker **IC2000**.
In such a case, purchase connection cable **21EAA194** (1 m), or **21EAA190** (2 m).

Note: It can't be used as a power source when using in the normal mode.

- Contact points for Mitutoyo's Digimatic indicators (optional)
Refer to pages F-63 to F-68 for details.
- Interchangeable back covers (optional)
Refer to pages F-69 to F-70 for details.

Output signals and display

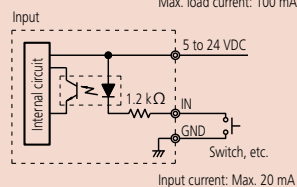
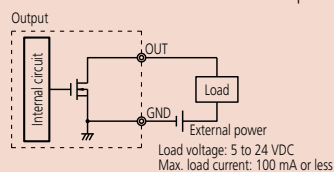
Wire	- NG	OK	+ NG	ABS data composition error
Orange (- NG)	Low	High	High	High
Green (OK)	High	Low	High	High
Brown (+ NG)	High	High	Low	High
LED	Red	Green	Red	Red flashing
Display	◀	○	▶	"x.xx" indication

Note: Logical invert is available.

I/O Specifications

Wire	Signal	I/O	Description
Black	- V (GND)	—	Connected to minus (-) terminal
Red	+ V	—	Power supply (5 to 24 VDC)
Orange	- NG	O	Tolerance judgment result output: Only the terminal corresponding to a judgment result is set to the low 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	PEAK_START	I	
Shield	FG	—	Connected to GND (Earth)

Note: Measurement data cannot be output.



Indicators

ABSOLUTE Digimatic Indicator ID-CJX SERIES 543 — Signal Output Function Type

- Powered by external devices / machines.
See optional accessories for Mitutoyo power supply options.
- Enables the Go/No-go judgment result to be output to external equipment. Output is enabled by directly connecting to an external device such as a sequencer, contributing to automation of measurement processes. It also supports logical invert of signal output.
- The Go/No-go judgment result is also indicated by the green/red LED and the signs on display.
- A peak detection function is equipped for measuring and judging peak values such as MAX, MIN, or Runout.
- The ABS (ABSOLUTE) scale restores the last origin position* automatically when the indicator is turned on, and realizes high reliability by eliminating over-speed errors.

* Refer to "Precautions for use" on page F-2.



543-350-10

SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD: Type Ø3/8" stem, #4-48UNF thread					
Order No.	Range	Resolution	Accuracy (in)	Hysteresis	Repeatability	Measuring force (N)	Mass (g)
543-352-10	0.5 in / 12.7 mm	0.00005 / 0.0001 / 0.0005 in, 0.001 / 0.01 mm (selectable)	±0.00010	0.00010	0.00010	2.5 or less	295
543-352B-10 (flat back)							285

Inch / Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range	Resolution	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)
543-351-10	0.5 in / 12.7 mm	0.00005 / 0.0001 / 0.0005 in, 0.001 / 0.01 mm (selectable)	0.003	0.003	0.002	2.5 or less	295
543-351B-10 (flat back)							285

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range (mm)	Resolution (mm)	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)
543-350-10	12.7	0.001 / 0.01 (selectable)	0.003	0.003	0.002	2.5 or less	295
543-350B-10 (flat back)							285

Note 1: Display readout does not rotate.

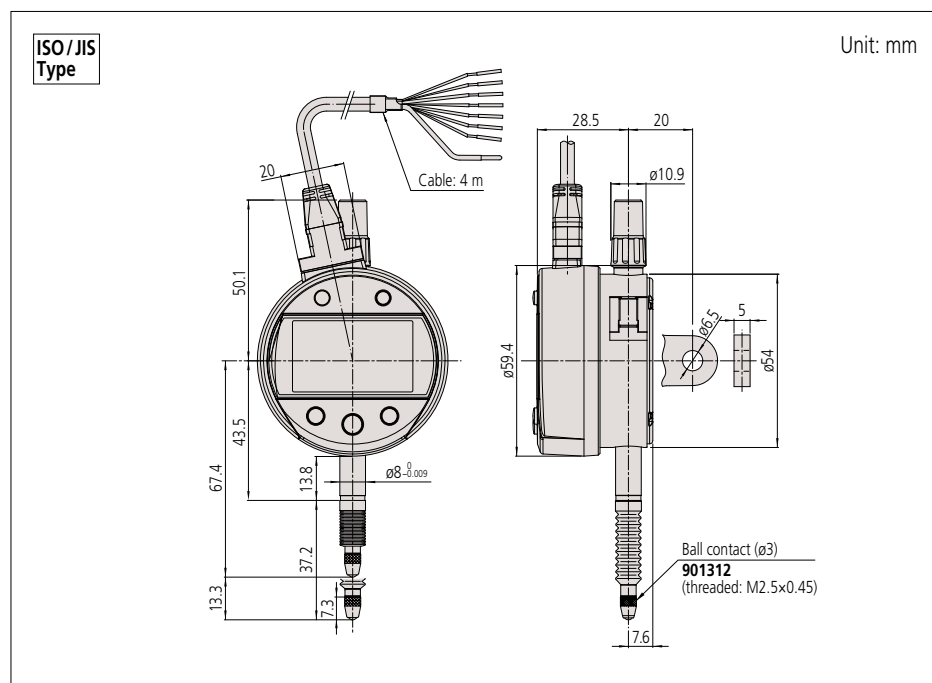
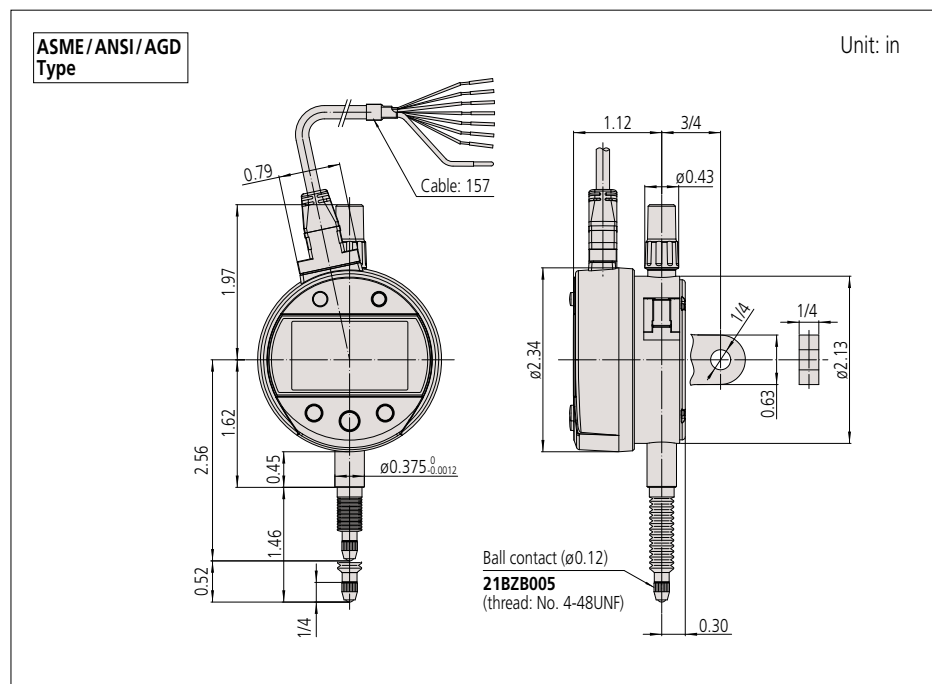
Note 2: MAX/MIN holding: sample rate is 100 readings/s; max. rate of change of reading is 100 μ m/s or less.

Note 3: Standard contact point: **901312** (ISO/JIS type), **21BZB005** (ANSI/AGD type)

Indicators

ABSOLUTE Digimatic Indicator ID-CJX SERIES 543 — Signal Output Function Type

DIMENSIONS



Need Service?

Application example using comparator stand



Comparator stand
215-505-10

Optional Output Devices

Order No.	Description
Wired	
264-020	USB Input tool (IT-020U)
- 936937	Connecting Cable (1m)
- 965014	Connecting Cable (2m)
06AFM380D	USB Input Tool Direct (2m)
Wireless	
264-620	Transmitter (IP67)
264-624	Transmitter (IP67, Bluetooth)
264-621	Transmitter (Buzzer)
264-625	Transmitter (Buzzer, Bluetooth)
- 02AZD790D	Connecting Cable
- 02AZE140D	Connecting Cable (foot switch compatible)

Note: Model uses connector type "D"
For additional accessories refer to pages F-63 to F-74

- Remote controller: **21EZA099**
- Lifting cable: **21JZA295** (stroke 30 mm)
- With auto-stop function:
21JZA301 (overall length 300 mm)
- Lifting knob: **21EZA101**



Lifting knob

- RS-232C Connection cable (2 m): **21EAA131**
- Lug-on-center back:
101040 (ISO/JIS type)
101306 (ASME/ANSI/AGD type)
- Contact points for Mitutoyo's Digimatic indicators (optional)
Refer to pages F-63 to F-68 for details.
- Granite comparator stands (optional)
Refer to page F-101 for details.
- Comparator stands (optional)
Refer to page F-102 for details.

Digimatic Indicator ID-H SERIES 543 — High Accuracy and High Functionality Type

- This digital indicator offers the excellent accuracy, functionality and high resolution expected with top-of-the-line indicators.
- Take advantage of its high accuracy backed up by 20 μ inch / 0.5 μ m 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 (MAX - MIN) can be measured.
- An advanced, remote control system can be implemented with the built-in RS-232C interface and a PC.
- With the optional remote controller, operations such as zero-setting and presetting can be made without touching the indicator body, thereby enabling more stable and high accuracy measurement.



Remote controller (optional)



543-564

SPECIFICATIONS

Inch / Metric		ASME/ANSI/AGD: Type Ø3/8" stem, #4-48UNF thread					
Order No.	Range	Resolution	Accuracy (in)	Hysteresis	Repeatability	Measuring force (N)	Mass (g)
543-562	1.2 in / 30.48 mm	0.00002 / 0.00005 / 0.0001 in, 0.0005 / 0.001 mm (selectable)	±0.00006	0.00006	0.00004	2.0 or less	300
543-564	2.4 in / 60.96 mm		±0.00010	0.00010		2.5 or less	

Metric		ISO/JIS Type: Ø8mm stem, M2.5x0.45 thread					
Order No.	Range (mm)	Resolution (mm)	Accuracy (mm)	Hysteresis H_{MPE}	Repeatability R_{MPE}	Measuring force (N)	Mass (g)
543-561	30.48	0.0005 / 0.001 (selectable)	0.0015	0.0015	0.001	2.0 or less	290
543-563	60.96		0.0025	0.0025		2.5 or less	

- Power source: 5.9 V DC (via AC adapter) **06AGZ369JA**

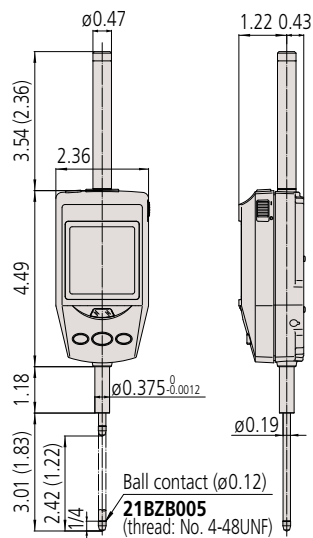
Indicators

Digimatic Indicator ID-H SERIES 543 — High Accuracy and High Functionality Type

DIMENSIONS

ASME/ANSI/AGD
Type

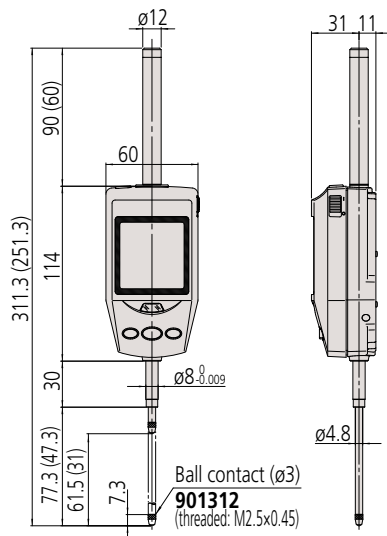
Unit: in



Note: () = 543-562

ISO/JIS
Type

Unit: mm



Note: () = 543-561



Need Calibration?