Digimatic Indicators

Comparison measuring instruments which ensure high quality, high accuracy and reliability.

ABLOLUTE Digimatic Indicator ID-CX SERIES 543 — Standard Type

MeasurLink® ENABLED
Data Management Software by Mitutoyo

- The ABS (absolute) scale restores the last origin position* automatically when the indicator is turned on.
  * Regarding origin setting, refer to "Origin Setting of Digimatic Indicators" on page F-25.
- Thanks to Mitutoyo's ABSOLUTE Linear Encoder, reliability has been increased due to elimination of over-speed errors.
- Tolerance judgment can be performed by setting upper and lower tolerance limits. The judgment result (go/no-go) can be displayed in full-size characters.
- Battery life of approx. 7,000 hours in continuous use has been achieved with only one battery.
- Equipped with a data output port that enables incorporation into measurement networking and statistical process control systems (refer to page A-3).

Standard Type

Measuring range 12.7 mm **543-390B**

Low measuring force type **543-394B**

Measuring range 25.4 mm **543-470B**

Measuring range 50.8 mm **543-490B**

• Large LCD

The large LCD incorporates 11 mm characters giving 1.5 times the character area of conventional products (which display 8.5 mm characters) making measurement values much easier to read.

• Three large buttons

The popular three-large button design, which is used in products such as the ABS coolant proof Digimatic indicators ID-N/B, makes buttons easier to press and operations easier to perform.

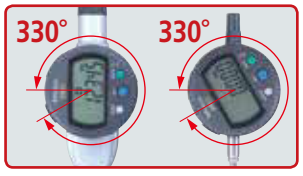
- Power switch
- Data output (when connected to an external device)
- Data hold (when no external device is connected)

Switches between the ABS (preset) and INC (zeroset) measurement modes

- Parameter setting mode
  Count direction switching, tolerance judgment setting, resolution switching, scale factor setting, and function lock setting
- inch/mm conversion (inch/mm models)

• 330° rotary display

The display can be rotated 330°, allowing use at a position where you can easily read the measurement value.



• Calculation: f (x) = Ax

Mounting the ID-CX on a measuring jig and setting the multiplying factor (to any practical value) allows direct indication of size (see example below) without using a conversion table and so improves measurement efficiency.

Usage example
Note: The measuring jig is not supplied with the ID-CX.

• Function locking

Ensures reliability of measurement by locking the settings to prevent preset function settings from being changed by mistake.

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Products equipped with the measurement data output function can be connected to the measurement data network system MeasurLink (refer to page A-5 for details).

ABSOLUTE™

PROPRIETARY INSPECTION CERTIFICATE
Mitutoyo guarantees the product quality. Mitutoyo guarantees the product quality.

An inspection certificate is supplied as standard. Refer to page U-11 for details.

Technical Data

- Display: 6-digit LCD, sign
- Battery: SR44 (1 pc.), **938882** for initial operational checks (standard accessory)
- Battery life: Approx. 7,000 hours of continuous use. Approx. 1.2 years under normal use.
  Note: Depends on use of the indicator. The above values are reference values.
- Maximum response speed: No limit (except for scanning measurement)

Functions

- Zero-setting (INC system)
- Presetting (ABS system)
- Direction switching
- Tolerance judgment
- Resolution switching
  (For 0.001 mm or 0.00005 inch resolution models)
- Calculation: f(x) = Ax
- Function locking
- Data output
- Display value holding
  (when no external device is connected)
- 330° rotary display
- Low battery/voltage alarm display
- Error alarm display

Optional Accessories

- Lifting
  Lifting lever:
  21EZA198 (12.7 mm/0.5 inch ISO/JIS type)
  21EZA199 (12.7 mm/0.5 inch ASME/ANSI/AGD type)
  Lifting cable: **540774**
  Lifting knob:
  21EZA105 (12.7 mm/0.5 inch ISO/JIS type)*1
  21EZA150 (12.7 mm/0.5 inch ASME/ANSI/AGD type)*1
  21EZA197 (25.4 mm/1 inch models)
  21EZA200 (50.8 mm/2 inch models)
  Lifting lever:**137693** (for measuring range: 25.4 and 50.8 mm)
  (supplied with 25.4 mm and 50.8 mm models as standard.)
  *1 Not available for low measuring force models.
- Auxiliary spindle spring:
  02ACA571 (25.4 mm/1 inch models)*2
  02ACA773 (50.8 mm/2 inch models)*2
  *2 Required when orienting the indicator upside down.
- Center-lug back:
  101040 (25.4 mm/1 inch and 50.8 mm/2 inch, ISO/JIS type)
  101306 (25.4 mm/1 inch and 50.8 mm/2 inch, ASME/ANSI/AGD type)
- SPC Cable:
  905338 (1 m)
  905409 (2 m)
- USB Input Tool Direct (2 m): **06AFM380F**
- Input Tool Series
  IT-016U (USB Keyboard Signal Conversion Type):
  264-016-10
  IT-007R (RS-232C Communication Conversion Type):
  264-007
  Refer to page F-66 for details.
- Connecting Cables for **U-WAVE-T** (160 mm): **02AZD790F**
  For foot switch: **02AZE140F**
  Refer to page F-66 for details.
- Digimatic Mini-Processor **DP-1VA LOGGER**: **264-505**
- Contact points for Mitutoyo's dial indicators
  (Refer to pages F-57 to F-60 for details.)
- Interchangeable backs for 2 series
  (Refer to page F-61 for details.)
- Measuring stands (Refer to pages F-84 to F-92 for details.)

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Setting measuring force on low measuring force models

• 543-404 / 404B / 405 / 405B / 406 / 406B

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.

• 543-394 / 394B / 395 / 395B / 396 / 396B

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
Horizontal	Not guaranteed		

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

SPECIFICATIONS

ISO/JIS type ASME/ANSI/AGD type

Metric

Order No. (w/lug, flat-back)		Range (mm)	Resolution (mm)	Overall accuracy*1*2*3 (mm)	Measuring force (N)	Remarks
543-390	**543-390B**	12.7	0.001/0.01	0.003	1.5 or less	—
543-394	**543-394B**				0.4 - 0.7	Low measuring force
—	**543-470B**	25.4			1.8 or less	—
—	**543-490B**	50.8		0.005	2.3 or less	—
543-400	**543-400B**	12.7	0.01	0.02	0.9 or less	—
543-404	**543-404B**				0.2 - 0.5	Low measuring force
—	**543-474B**	25.4			1.8 or less	—
—	**543-494B**	50.8		0.04	2.3 or less	—

*1 Hysteresis: 0.002 mm (0.001/0.01 mm resolution type), 0.02 mm (0.01 mm resolution type)
*2 Repeatability: 0.002 mm (0.001/0.01 mm resolution type), 0.02 mm (0.01 mm resolution type)
*3 These values apply at 20 °C, and quantizing error of ±1 count is excluded.

Inch / Metric

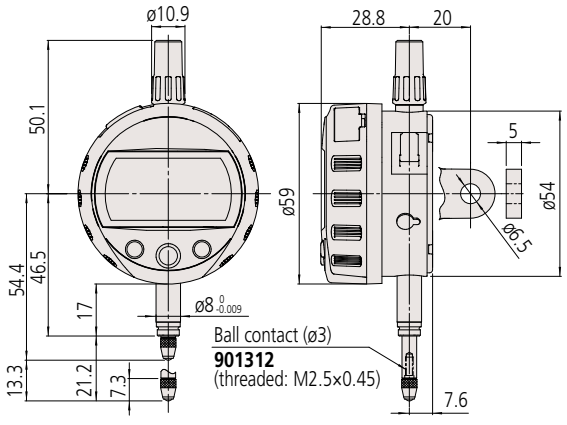
Order No. (w/lug, flat-back)		Range (in)	Resolution	Overall accuracy*1*2*3 (in)	Measuring force (N)	Remarks
543-391	**543-391B**	0.5	0.0005/0.0001/ 0.00005 in/ 0.01/0.001 mm	0.0001	1.5 or less	—
543-392	**543-392B**				1.5 or less	—
543-395	**543-395B**				0.4 - 0.7	Low measuring force
543-396	**543-396B**				0.4 - 0.7	Low measuring force
—	**543-471B**	1			1.8 or less*4	—
—	**543-472B**				1.8 or less*4	—
—	**543-491B**	2		0.0002	2.3 or less*4	—
—	**543-492B**				2.3 or less*4	—
543-401	**543-401B**	0.5	0.0005 in/0.01 mm	0.001	0.9 or less	—
543-402	**543-402B**				0.9 or less	—
543-405	**543-405B**				0.2 - 0.5	Low measuring force
543-406	**543-406B**				0.2 - 0.5	Low measuring force
—	**543-475B**	1			1.8 or less*4	—
—	**543-476B**				1.8 or less*4	—
—	**543-495B**	2		0.0015	2.3 or less*4	—
—	**543-496B**				2.3 or less*4	—

*1 Hysteresis: 0.0001 in/0.002 mm (0.0005/0.0001/0.00005 in/0.01/0.001 mm resolution type), 0.001 in/0.02 mm (0.0005 in/0.01 mm resolution type)
*2 Repeatability: 0.0001 in/0.002 mm (0.0005/0.0001/0.00005 in/0.01/0.001 mm resolution type), 0.001 in/0.02 mm (0.0005 in/0.01 mm resolution type)
*3 These values apply at 20 °C, and quantizing error of ±1 count is excluded.
*4 Applies for a spindle orientation between the spindle pointing vertically downward to the spindle horizontal.

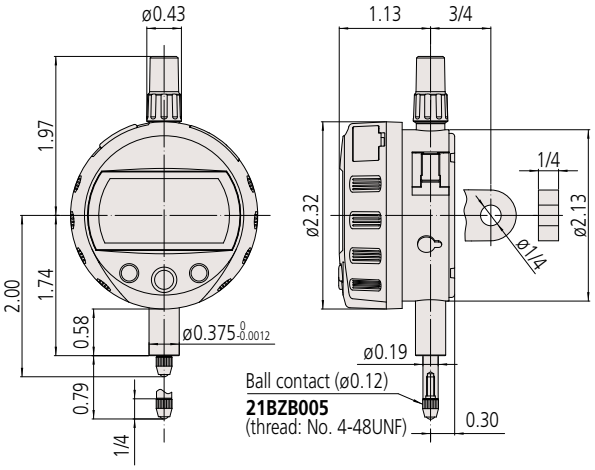
DIMENSIONS

12.7 mm range models

ISO / JIS Type Unit: mm



ASME / ANSI / AGD Type Unit: in



Note: Products with an Order No. suffixed "B" have a plain back, and other models have a center-lug back. Refer to page F-61 for details of the backs.

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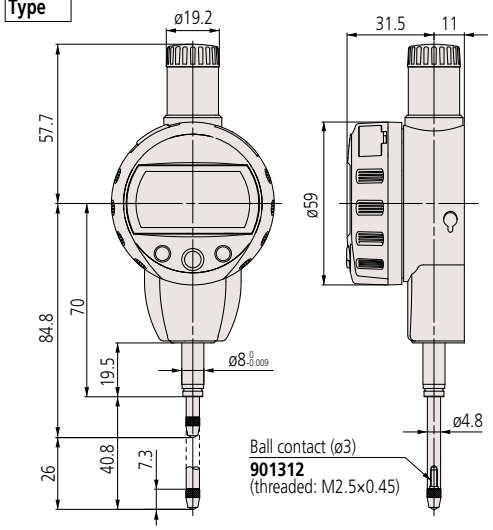
DIMENSIONS

25.4 mm range models

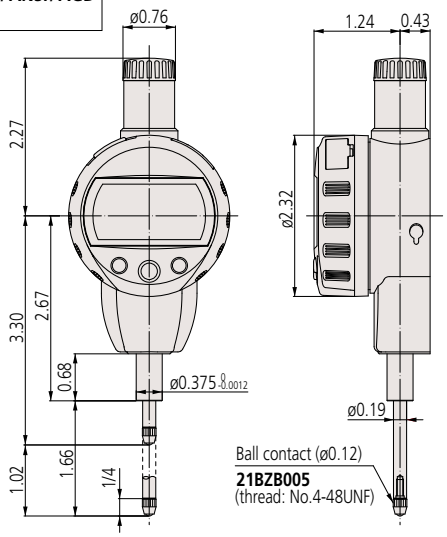
Unit: mm

ISO / JIS Type



Unit: in

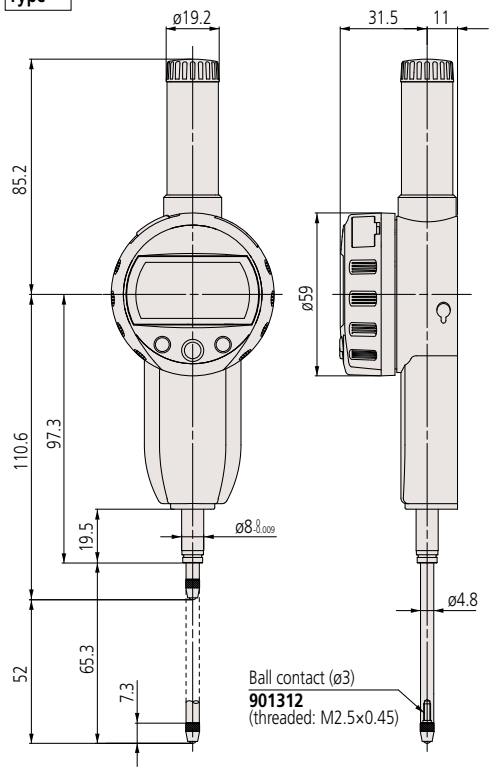
ASME / ANSI / AGD Type



50.8 mm range models

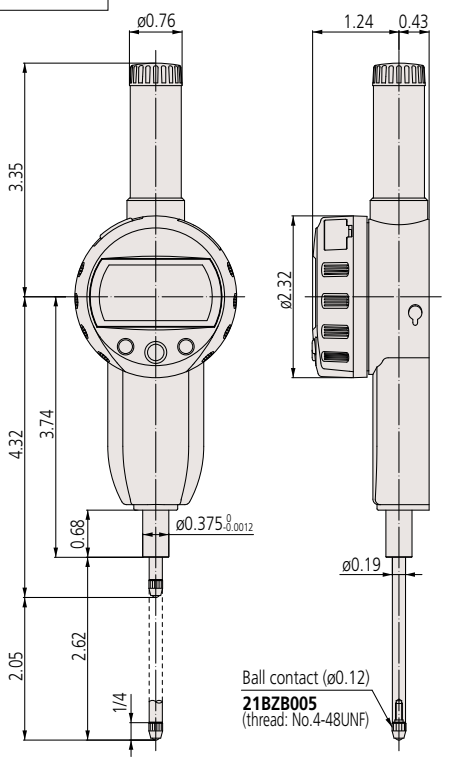
Unit: mm

ISO / JIS Type



Unit: in

ASME / ANSI / AGD Type



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