

Digimatic Indicators

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

ABLOLUTE Digimatic Indicator ID-CX SERIES 543 — Standard Type

- The ABS (absolute) sensor restores the last origin position automatically when the indicator is turned on.
- Thanks to Mitutoyo's ABSOLUTE Linear Encoder, reliability has been increased due to elimination of over-speed errors.
- Tolerance-judging measurement is available by setting upper and lower limit values.
- 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.

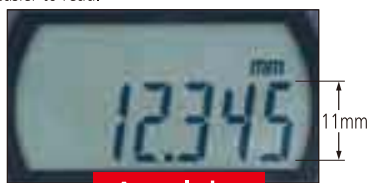
Note: Regarding origin setting, refer to "Origin Setting of Digimatic Indicators" on page F-18.

Standard Type



• Large LCD

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



Actual size

• 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)

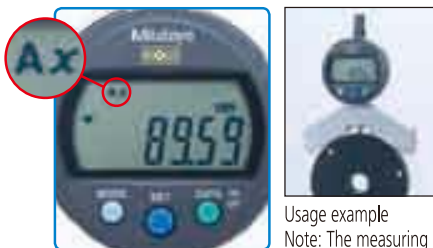
• 330° rotary display

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.



ABSOLUTE™ (Refer to page IX for details.)



An inspection certificate is supplied as standard. Refer to page IX for details.

Technical Data

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

Resolution:

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

Display: 6-digit LCD and sign
Scale type: ABSOLUTE electrostatic linear encoder
Max. response speed: Unlimited (Measurement by scanning cannot be performed)

Measuring force: Refer to the list of specifications
Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)
Standard contact point: **901312** (ISO/JIS type)
21BZB005 (ANSI/AGD type)

Battery: SR44 (1 pc.), **938882** for initial operational checks (standard accessory)
Battery life: Approx. 7,000 hours of continuous use
Dust/Water protection level: IP42

Functions

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

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

Optional Accessories

- 21EZA198**: Spindle lifting lever (12.7mm/.5" ISO/JIS type)
- 21EZA199**: Spindle lifting lever (12.7mm/.5" ANSI/AGD type)
- 21EZA105**: Spindle lifting knob (12.7mm/.5" ISO/JIS type)*
- 21EZA150**: Spindle lifting knob (12.7mm/.5" ANSI/AGD type)*
- 21EZA197**: Spindle lifting knob (25.4mm/1" models)
- 21EZA200**: Spindle lifting knob (50.8mm/2" models)
- 540774**: Spindle lifting cable 12.7mm and 25.4mm
- 02ACA571**: Auxiliary spindle spring (25.4mm/1" models)**
- 02ACA773**: Auxiliary spindle spring (50.8mm/2" models)**
- 101040**: Lug-on-center back (25.4mm/1" and 50.8mm/2", ISO/JIS type)
- 101306**: Lug-on-center back (25.4mm/1" and 50.8mm/2", ANSI/AGD type)

137693: Lifting lever (for measuring range: 25.4 and 50.8mm) (supplied with 25.4mm and 50.8mm models as standard.)

* Not available for low measuring force models.

** Required when orienting the indicator upside down.

- SPC Cable: 1m (**905338**), 2m (**905409**)
- USB Input Tool Direct (2m) : **06ADV380F**
- Connecting Cables for U-WAVE-T: 160mm (**02AZD790F**)
For footswitch (**02AZE140F**)
Refer to page A-15 for details.
- Digimatic Mini-Processor **DP-1VR**: **264-504**
- Contact points for Mitutoyo's dial indicators (Refer to pages F-46 to F-49 for details.)
Interchangeable backs for 2 series (Refer to page F-50 for details.)
- Measuring stands
Specifications are subject to change without notice.



Refer to the ABS Digimatic Indicator ID-CX brochure (**E4330-543**) for details.

Setting measuring force on low measuring force models

• 543-404/404B/405/405B/406/406B

Spindle orientation	Spring	Weight (approximately 0.1N)	Maximum measuring force
Pointing vertically downward	Yes	Yes	0.5N or less
	Yes	No	0.4N or less
	No	Yes	0.3N or less
Horizontal	No	No	0.2N or less
	Yes	No	0.3N 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 0.1N)	Maximum measuring force
Pointing vertically downward	Yes	Yes	0.7N or less
	Yes	No	0.6N or less
	No	Yes	0.4N or less
Horizontal	No	No	Not guaranteed
	Yes	No	Not guaranteed

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

SPECIFICATIONS

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

* Hysteresis: 0.001mm/0.01mm Resolution Type: 0.002mm
0.01mm Resolution Type: 0.02mm

* Repeatability: 0.001mm/0.01mm Resolution Type: 0.002mm
0.01mm Resolution Type: 0.02mm

Inch/Metric						
Order No. (w/ lug, flat-back)	Resolution	Range	Overall accuracy*	Measuring force	Remarks	
543-391	543-391B	.00005"/0.001mm	.5"	.0001"	1.5N or less	—
543-392	543-392B	.00005"/0.001mm	.5"	.0001"	1.5N or less	—
543-395	543-395B	.00005"/0.001mm	.5"	.0001"	0.4N - 0.7N	Low measuring force
543-396	543-396B	.00005"/0.001mm	.5"	.0001"	0.4N - 0.7N	Low measuring force
—	543-471B	.00005"/0.001mm	1"	.0001"	1.8N or less**	—
—	543-472B	.00005"/0.001mm	1"	.0001"	1.8N or less**	—
—	543-491B	.00005"/0.001mm	2"	.0002"	2.3N or less**	—
—	543-492B	.00005"/0.001mm	2"	.0002"	2.3N or less**	—
543-401	543-401B	.0005"/0.01mm	.5"	.001"	0.9N or less	—
543-402	543-402B	.0005"/0.01mm	.5"	.001"	0.9N or less	—
543-405	543-405B	.0005"/0.01mm	.5"	.001"	0.2N - 0.5N	Low measuring force
543-406	543-406B	.0005"/0.01mm	.5"	.001"	0.2N - 0.5N	Low measuring force
—	543-475B	.0005"/0.01mm	1"	.001"	1.8N or less**	—
—	543-476B	.0005"/0.01mm	1"	.001"	1.8N or less**	—
—	543-495B	.0005"/0.01mm	2"	.0015"	2.3N or less**	—
—	543-496B	.0005"/0.01mm	2"	.0015"	2.3N or less**	—

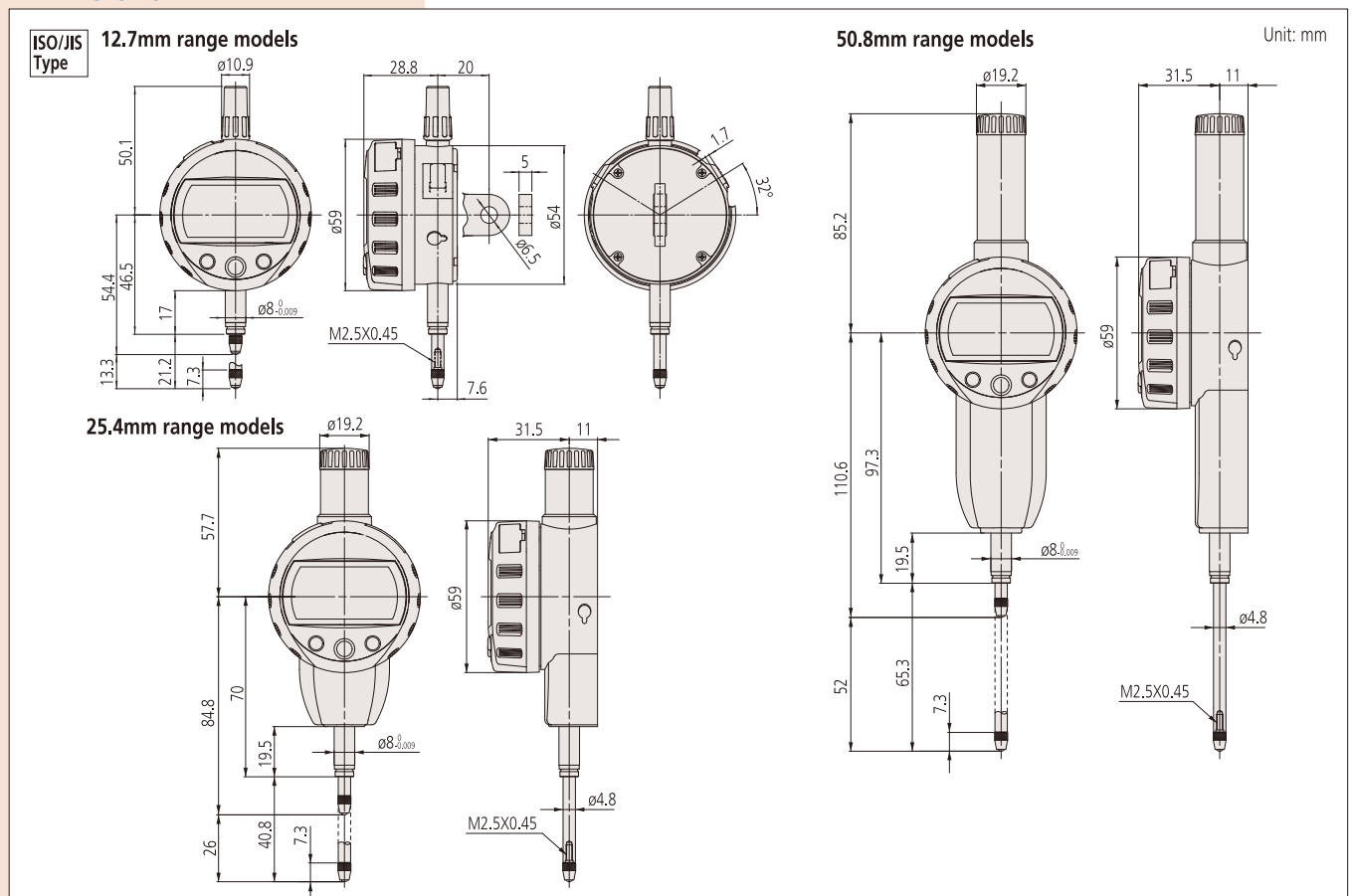
* Hysteresis: .0005"/.0001"/.0005"/0.001mm/0.01mm
Resolution Type: .0001"/0.002mm
.0005"/0.01mm Resolution Type: .0010"/0.02mm

* Repeatability: .0005"/.0001"/.0005"/0.001mm/0.01mm
Resolution Type: .0001"/0.002mm
.0005"/0.01mm Resolution Type: .0005"/0.02mm

* Quantizing error of ± 1 count is excluded

** Applies for a spindle orientation between the spindle pointing vertically downward to the spindle horizontal.

DIMENSIONS



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 indicators are provided with a stem of 3/8" dia. and #4-48UNF thread mount for the contact point.

Note 3: Products with an Order No. suffixed "B" have a plain back, and other models have a center lug back.

Refer to page F48 for details of the backs.