Digimatic Indicators

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

ABLOLUTE Digimatic Indicator ID-CX
SERIES 543 — Standard Type

- Employing the ABSOLUTE Linear Encoder, the Signal ID-C always displays the spindle "Absolute Position" from the origin at power-on.
  *1 Regarding origin setting, refer to "Origin Setting of Digimatic Indicators" on page F-18.
- Thanks to the 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. Tolerance judgment result can be enlarged.
- Battery life of approx. 7,000 hours in continuous use has been achieved with only 1 pc of battery.
- Equipped with a data output port that enables incorporation into measurement networking and statistical process control systems.

Standard Type

Measuring range: 12.7mm
543-390B

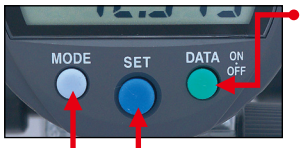
• Large LCD

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.



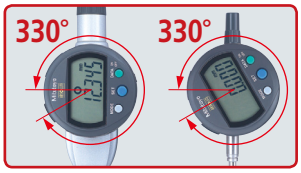
- Power switch
- Data output (when connected to an external device)
- Data hold (when no external device is connected)

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)

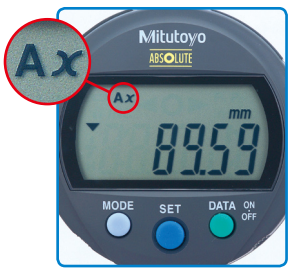
• 330° rotary display

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 calculation factor (to any value) allows direct measurement without using a conversion table and 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 VIII for details.)

PROPRIETARY INSPECTION CERTIFICATE

An inspection certificate is attached 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 can not 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**
Battery life: Approx. 7,000 hours under normal 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")
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)
* Not available for low measuring force models.
** Required when orienting the indicator upside down.
137693: Lifting lever (for measuring range: 25.4 and 50.8mm) (supplied with 25.4mm and 50.8mm models as standard.)
- SPC Cable:
  1m (**905338**)
  2m (**905409**)
- 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 pages F-50 for details.)
- Measuring stands
  Specifications are subject to change without notice.

Low measuring force type
543-394B

Measuring range 25.4mm
543-470B

Measuring range 50.8mm
543-490B

Setting measuring force on low measuring force models

- **543-404/404B/405/405B/406/406B**

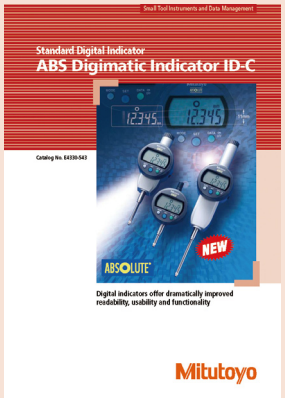
Spindle orientation	Spring	Weight (approximately 0.1N)	Maximum measuring force
Pointing vertically downward	Yes	Yes	0.5N or less
	Yes	No	0.4N or less
	No	Yes	0.3N or less
	No	No	0.2N or less
Horizontal	Yes	No	0.2N or less

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
	No	No	Not guaranteed
Horizontal	Not guaranteed		

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



Refer to **Catalog E4330-543** "ABS Digimatic Indicator ID-CX" for details.

SPECIFICATIONS

Metric

ISO/JIS type ANSI/AGD type

Order No. (w/ lug, flat-back)		Resolution	Range	Overall*	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*	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: .00010"/0.002mm
.0005"/0.01mm Resolution Type: .0010"/0.02mm

Repeatability*: .0005"/.0001"/.0005"/0.001mm/0.01mm
Resolution Type: .00010"/0.002mm
.0005"/0.01mm Resolution Type: .0005"/0.02mm

* Quantizing error of ±1 count is excluded
** Plunger direction is up to direction in which spindle is horizontal.

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Mitutoyo