

# 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.



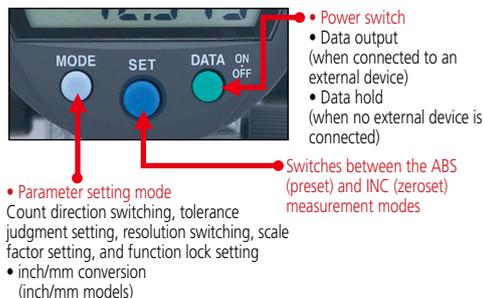
### • Large LCD

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.



### • Three large buttons

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



### • 330° rotary display

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



### • Calculation: $f(x) = Ax$

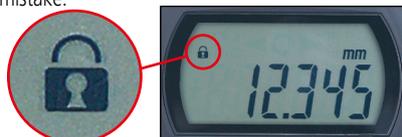
Mounting the ID-CX on a measuring jig and setting the multiplying factor (to any practical value) allows direct indication of size (see example below) without using a conversion table and so improves measurement efficiency.



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 X for details.)



An inspection certificate is supplied as standard. Refer to page X 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)

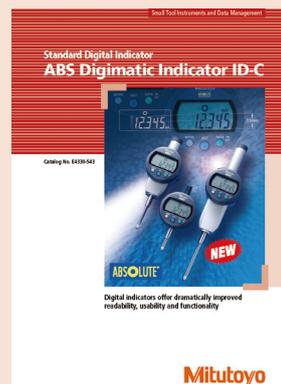
Measuring force: Refer to the list of specifications  
Stem dia.: 8mm (ISO/JIS type) or 3/8" (ANSI/AGD type)  
Battery: SR44 (1 pc.), **938882** for initial operational checks (standard accessory)  
Battery life: Approx. 7,000 hours of continuous use  
Dust/Water protection level: IP42

### 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

- Lifting  
Lifting lever:  
**No.21EZA198** (12.7mm/.5" ISO/JIS type)  
**No.21EZA199** (12.7mm/.5" ASME/ANSI/AGD type)  
Lifting knob:  
**No.21EZA105** (12.7mm/.5" ISO/JIS type)\*  
**No.21EZA150** (12.7mm/.5" ASME/ANSI/AGD type)\*  
**No.21EZA197** (25.4mm/1" models)  
**No.21EZA200** (50.8mm/2" models)  
Lifting cable: **No.540774**  
Lifting lever: **No.137693** (for measuring range: 25.4 and 50.8mm) (supplied with 25.4mm and 50.8mm models as standard.)
- Auxiliary spindle spring:  
**No.02ACA571** (25.4mm/1" models)\*\*  
**No.02ACA773** (50.8mm/2" models)\*\*
- Lug-on-senter back:  
**No.101040** (25.4mm/1" and 50.8mm/2", ISO/JIS type)  
**No.101306** (25.4mm/1" and 50.8mm/2", ASME/ANSI/AGD type)
- \* Not available for low measuring force models.  
\*\* Required when orienting the indicator upside down.
- SPC Cable:  
**No.905338** (1m)  
**No.905409** (2m)
- USB Input Tool Direct (2m): **06ADV380F**
- Connecting Cables for **U-WAVE-T** (160mm):  
**No.02AZD790F**  
For footswitch (**02AZE140F**)  
Refer to page F-60 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 (Refer to page F-80 for details.)



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
	No	No	0.2N or less
Horizontal	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
	No	No	Not guaranteed
Horizontal	Not guaranteed		

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

## SPECIFICATIONS

Metric						
Order No. (w/ lug, flat-back)	Range	Resolution	Overall accuracy*	Measuring force	Remarks	
543-390 543-390B	12.7mm	0.001mm	0.003mm	1.5N or less	—	
543-394 543-394B				0.4N - 0.7N	Low measuring force	
— 543-470B				1.8N or less	—	
— 543-490B	50.8mm	0.01mm	0.02mm	2.3N or less	—	
543-400 543-400B	12.7mm			0.9N or less	—	
543-404 543-404B	25.4mm			0.2N - 0.5N	Low measuring force	
— 543-474B	25.4mm	0.04mm	0.04mm	1.8N or less	—	
— 543-494B	50.8mm			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)	Range	Resolution	Overall accuracy*	Measuring force	Remarks	
543-391 543-391B	5"	.0005"/.0001"/.0005"/.001mm / 0.01mm	.0001"	1.5N or less	—	
543-392 543-392B				1.5N or less	—	
543-395 543-395B				0.4N - 0.7N	Low measuring force	
543-396 543-396B				0.4N - 0.7N	Low measuring force	
— 543-471B	1"	.0002"	.0002"	1.8N or less**	—	
— 543-472B	2"			1.8N or less**	—	
— 543-491B				2.3N or less**	—	
— 543-492B	2.3N or less**			—		
543-401 543-401B	5"	.0005"/0.01mm	.001"	0.9N or less	—	
543-402 543-402B				0.9N or less	—	
543-405 543-405B				0.2N - 0.5N	Low measuring force	
543-406 543-406B				0.2N - 0.5N	Low measuring force	
— 543-475B	1"	.0015"	.0015"	1.8N or less**	—	
— 543-476B				1.8N or less**	—	
— 543-495B				2.3N or less**	—	
— 543-496B				2.3N or less**	—	

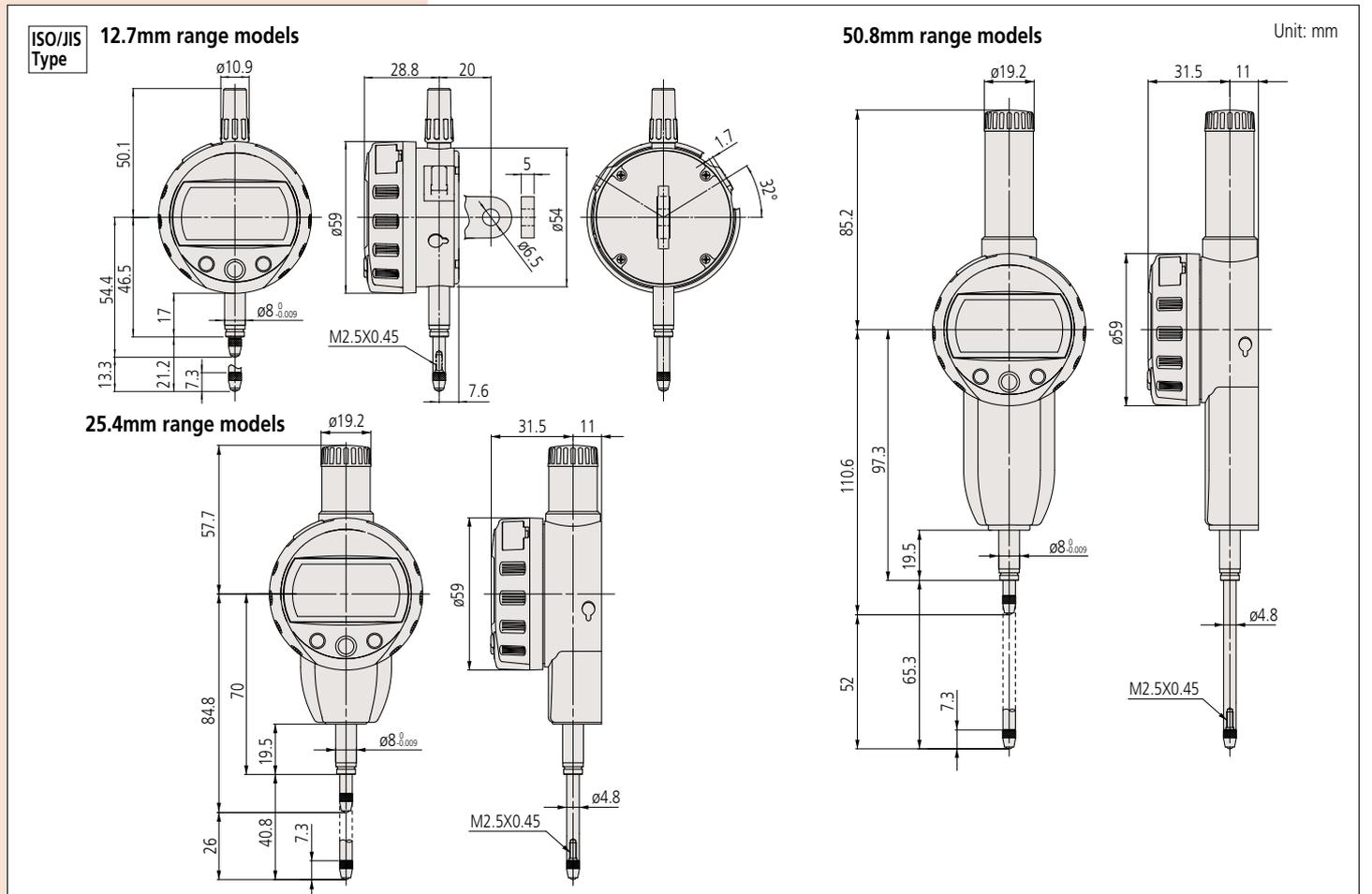
\* Hysteresis: .0005"/.0001"/.0005"/0.001mm/0.01mm  
Resolution Type: .00010"/0.002mm  
.0005"/0.01mm Resolution Type: .0010"/0.02mm

\* 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

\*\* Applies for a spindle orientation between the spindles

## 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 F-55 for details of the backs.