



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

- Lifting

Lifting lever **21EZA198**

Lifting knob **21EZA105**

- SPC Cable:

905338 (1 m)

905409 (2 m)

- USB Input Tool Direct (2 m): **06AFM380F**

- Input Tool Series

IT-020U (USB Keyboard Signal Conversion Type):

264-020

IT-007R (RS-232C Communication Conversion Type):

264-007

- Connecting Cables for **U-WAVE-T** (160 mm):

02AZD790F

For foot switch: **02AZE140F**

- Digimatic Mini-Processor **DP-1VA** **LOGGER: 264-505**

- Parameter setup kit: **21EZA313**

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

ABSOLUTE Digimatic Indicator ID-C SERIES 543 — Calculation Type

- Calculation function operates on spindle displacement.
Entering the appropriate formula factors for a fixture dedicated to the application enables direct measurement readout, thereby eliminating any need for the conversion tables previously needed for those applications where fixtures are typically used.
- Five buttons, status icons, and clear button indications allow for easy operation of a wide variety of functions.
- Wide LCD and new analog bar graph are now standard on all models.

- 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.
- By using the parameter setup kit (optional) and the dedicated software, the functions and the parameters can be configured using a computer.
- Equipped with a data output port that enables incorporation into measurement networking and statistical process control systems. (Refer to page A-3)

* Refer to "Origin Setting of Digimatic Indicators" on page F-25.



543-342B-10

SPECIFICATIONS

Metric							ISO/JIS type			ASME/ANSI/AGD type		
Order No.	Range (mm)	Resolution (selectable)	Maximum permissible error*1 (mm)			Measuring force MPL (N)	Power supply	Battery life (normal use)*4	Net mass (g)			
			MPE _E *2	Hysteresis MPE _H	Repeatability MPE _R							
543-340B-10	12.7	12 steps*4	0.003	0.002	0.002	1.5 or less	CR2032x1 pc.	Approx. 1 year	170			
543-590B-10	25.4					1.8 or less*3						
543-595B-10	50.8		0.006			2.3 or less*3						

Inch/Metric							ISO/JIS type			ASME/ANSI/AGD type		
Order No.	Range	Resolution (selectable)	Maximum permissible error*1			Measuring force MPL (N)	Power supply	Battery life (normal use)*4	Net mass (g)			
			MPE _E *2	Hysteresis MPE _H	Repeatability MPE _R							
543-341B-10	0.5 in	12 steps*4	±0.0001 in / 0.003 mm	0.0001 in / 0.002 mm	0.0001 in / 0.002 mm	1.5 or less	CR2032x1 pc.	Approx. 1 year	170			
543-342B-10	12.7 mm					1.8 or less*3						
543-591B-10	1 in		±0.00025 in / 0.006 mm	0.0001 in / 0.002 mm	0.0001 in / 0.002 mm	1.8 or less*3						
543-592B-10	25.4 mm					2.3 or less*3						
543-596B-10	2 in					2.3 or less*3						
543-597B-10	50.8 mm					2.3 or less*3						

*1 Valid for resolution set to 0.001 mm/0.00005 in and coefficients A=1, B=0 and C=0.

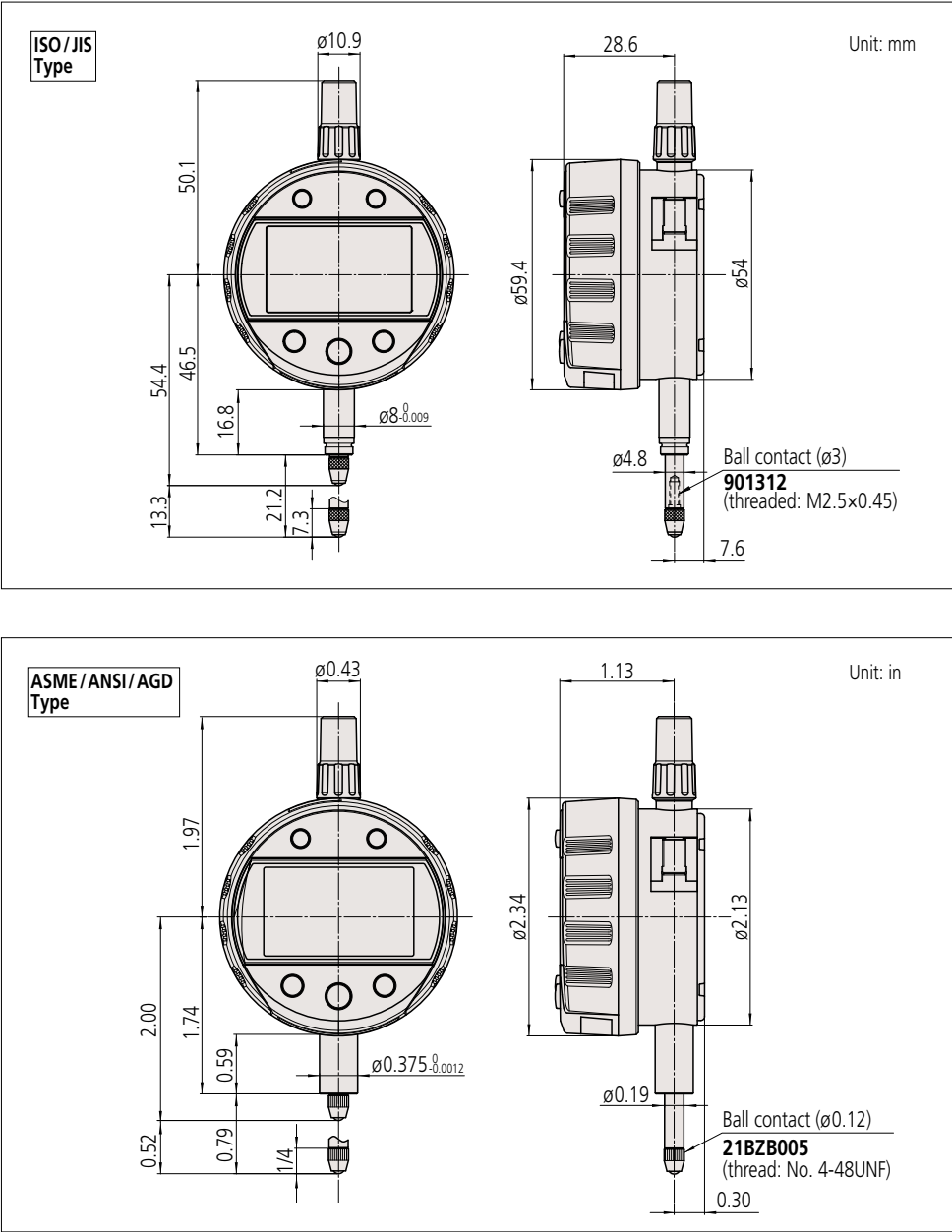
*2 Error of indication for the total measuring range.

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

*4 Applies only if not connected to a data processor. Battery life depends on use of the indicator. Use the above value as a guide only.

Note: Flat-back type only.

DIMENSIONS



Typical applications

Ball diameter



Outside diameter



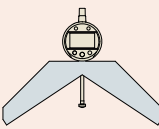
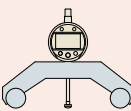
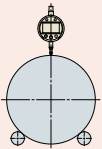
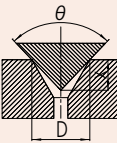
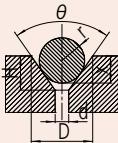
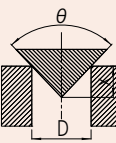
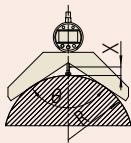
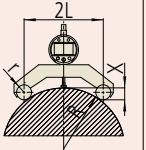
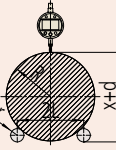
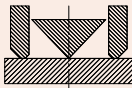
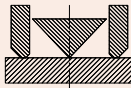
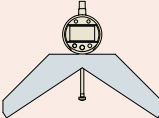
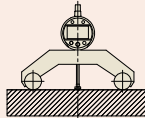
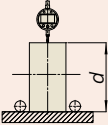
Outside radius



Countersink diameter



Examples of measuring various features

Item		D=Countersink diameter/Groove width; H=Countersink depth/Groove depth			R=Outside radius of round object		R=Inside radius of round object	R=Outside radius of round object
Fixture type*1								
Contact point		Cone	Ball		Cone	—		
Measuring method x: Spindle displacement								
Calculation		D=Ax	D=Ax+B	H=Ax+B	D=Ax	R=Ax	R=Ax+B+Cx ⁻¹	
Coefficient values	A	$-2\tan \frac{\theta}{2}$	$-2\tan \frac{\theta}{2}$	-1	$-2\tan \frac{\theta}{2}$	$-\frac{\sin \frac{\theta}{2}}{1-\sin \frac{\theta}{2}}$	$\frac{1}{2}$	$-\frac{1}{2}$
	B	0	$2r\left(\frac{1}{\cos \frac{\theta}{2}}-\tan \frac{\theta}{2}\right)$	$r\left(\frac{1}{\sin \frac{\theta}{2}}-1\right)-\frac{d}{2\tan \frac{\theta}{2}}$	0	0	-r	r
	C	0	0	0	0	0	$\frac{L^2}{2}$	$-\frac{L^2}{2}$
Origin offset value (function ON/OFF)		d (OFF)	0 (OFF)	0 (OFF)	0 (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	Value of coefficient B	0	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.