MeasurLink ENABLED
Data Management Software by Mitutoyo

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™

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

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

Functions

- Calculation f (x') =Ax'+B+Cx'$^{-1}$ (x'=x+offset)
- Peak detection (MAX/MIN)
- Runout (MAX - MIN) Hold

Note: Peak detection
1) Sampling rate: 10 readings/sec
2) Capturing speed: 10 µm/sec (max.)

Settings can be changed to:
1) Sampling rate: 50 readings/sec
2) Capturing speed: 50 µm/sec (max.)

- Zero-setting (INC system)
- Preset (ABS system)
- Tolerance judgment (P1, P2, P3, and INC can be stored)
- 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)		
0.0002	0.005	0.1
0.0005	0.01	0.2
0.001	0.02	0.5
0.002	0.05	1

Resolution (in)		
0.00001	0.0002	0.005
0.00002	0.0005	0.01
0.00005	0.001	0.02
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** (ISO/JIS Type), **21EZA199** (ASME/ANSI/AGD Type)
  Lifting knob **21EZA105** (ISO/JIS Type), **21EZA150** (ASME/ANSI/AGD Type)
  Lifting cable **21JZA295**
- SPC Cable:
  905338 (1 m)
  905409 (2 m)
  (Refer to pages A-27 to A-29 for details.)
- 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 A-14 for details.)
- Connecting Cables for **U-WAVE-T** (160 mm): **02AZD790F**
  For foot switch: **02AZE140F**
  (Refer to pages A-19 to A-21 for details.)
- 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.

- Contact points for Mitutoyo's dial indicators
  (Refer to pages F-57 to F-60 for details.)
- Measuring stands
  (Refer to pages F-84 to F-91 for details.)

Digimatic Indicators

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

ABSOLUTE Digimatic Indicator ID-C SERIES 543 — Calculation Type

MeasurLink® ENABLED
Data Management Software by Mitutoyo

- 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*1 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)

*1 Regarding origin setting, refer to "Origin Setting of Digimatic Indicators" on page F-25.

543-342B

SPECIFICATIONS

ISO/JIS type ASME/ANSI/AGD type

Metric

Order No.	Range (mm)	Resolution (selectable)	Maximum permissible error*2 (mm) MPEE*3	Hysteresis MPEH	Repeatability MPER	Measuring force MPL (N)	Power supply	Battery life (normal use)*5	Net mass (g)
543-340B	12.7	12 steps*5	0.003	0.002	0.002	1.5 or less	CR2032x1 pc.	Approx. 1 year	170
543-590B	25.4					1.8 or less*4			190
543-595B	50.8		0.006			2.3 or less*4			260

Inch/Metric

Order No.	Range	Resolution (selectable)	Maximum permissible error*2 MPEE*3	Hysteresis MPEH	Repeatability MPER	Measuring force MPL (N)	Power supply	Battery life (normal use)*5	Net mass (g)
543-341B	0.5 in /12.7 mm	12 steps*5	±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									
543-591B	1 in /25.4 mm					1.8 or less*4			190
543-592B									
543-596B	2 in /50.8 mm		±0.00025 in /0.006 mm			2.3 or less*4			260
543-597B									

*2 Valid for resolution set to 0.001 mm/0.00005 in and coefficients A=1, B=0 and C=0.
*3 Error of indication for the total measuring range
*4 Applies for a spindle orientation between the spindle pointing vertically downward to the spindle horizontal.
*5 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.

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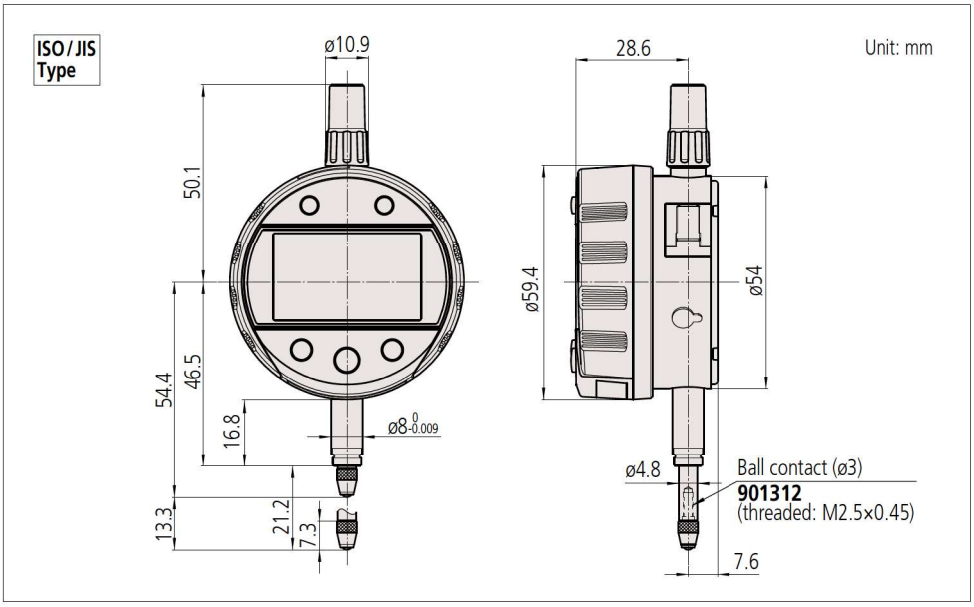
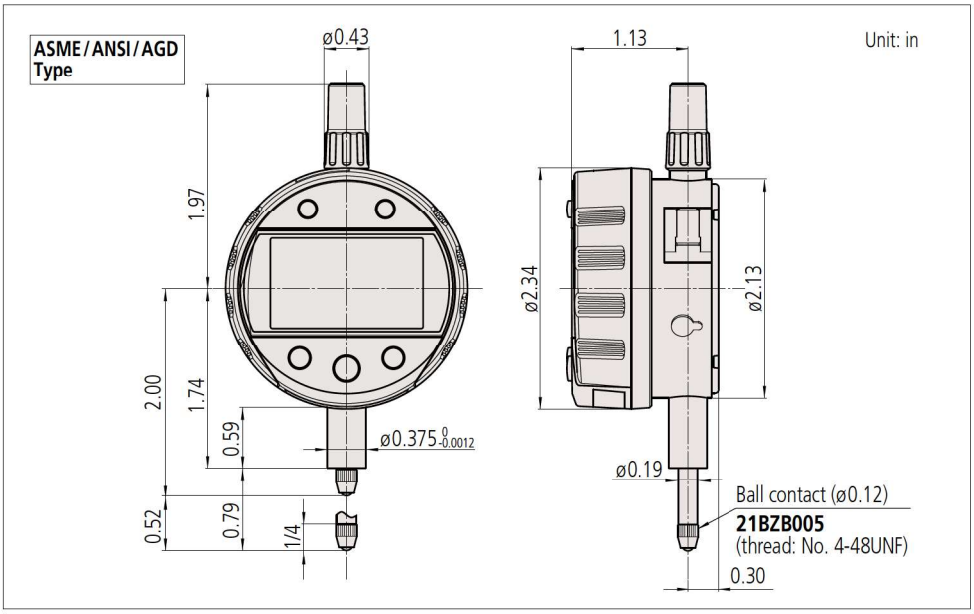
Mitutoyo

Digimatic Indicators

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

DIMENSIONS





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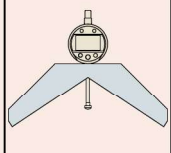
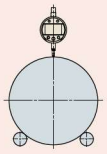
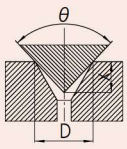
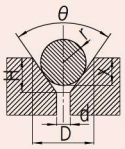
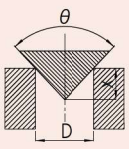
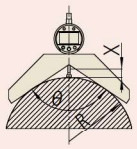
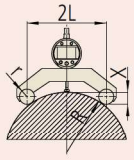
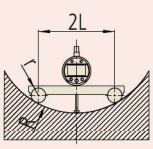
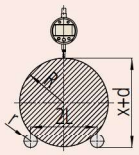
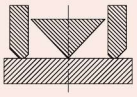
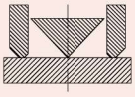
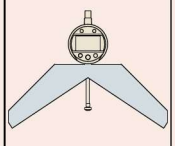
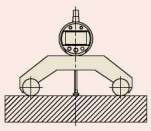
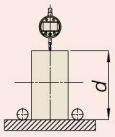
Typical applications

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}		R=A(x+d)+B+C(x+d)$^{-1}$
Coefficient values	A	$-2\tan\frac{\theta}{2}$	$-2\tan\frac{\theta}{2}$	-1	$-2\tan\frac{\theta}{2}$	$-\frac{\sin\frac{\theta}{2}}{1-\sin\frac{\theta}{2}}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$
	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	$-r$
	C	0	0	0	0	0	$\frac{L^2}{2}$	$-\frac{L^2}{2}$	$\frac{L^2}{2}$
Origin offset value (function ON/OFF)	d	0 (OFF)	0 (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.

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