

#### **Technical Data**

Refer to the list of specifications Accuracy: Resolution: 0.01mm type

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

\* Switchable resolution LCD Display:

Length standard: ABSOLUTE electrostatic capacitance type linear encoder

Max. response speed: Unlimited

Measuring force: Refer to the list of specifications

Battery: SR44 (1 pc.), **938882**Battery life: Approx. 5,000 hours under normal use Dust/Water protection level: IP42 or IP53 (dust-proof type)

#### **Function**

Origin-set/Preset, Zeroset, GO/±NG judgment, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (on inch/metric models only) Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error Internal calculations using the simple formula of [F(x) = Ax)] are available

### **Optional Accessories**

SPC cable (40" / 1m) SPC cable (80" / 2m) 905338: 905409: 21EZA198: Spindle lifting lever (ISO/JIS type)\*

21EZA199: Spindle lifting lever (ANSI/AGD type)\* Spindle lifting knob (12.7mm/.5"ISO/JIS type)\*\* 21EZA105: Spindle lifting knob(12.7mm/.5"ANSI/AGD type)\*\* 21EZA150:

Spindle lifting knob (25.4mm/1", 50.8mm/2" 21EZA197: models)

Spindle lifting knob (50.8mm/2") 21EZA200: Spindle lifting cable (stroke: (1"/ 25.4mm) 540774: 02ACA571: Auxiliary spindle spring for 25mm/1" models\*\*\* 02ACA773: Auxiliary spindle spring for 50mm/2" models\*\*\*

Backs (See page F-33.) Contact points (See page F-34.)
\*Can be used on 12mm/.5" models only.
\*Not available for low measuring force models.
\*\*Required when orienting gage upside down.

## **SERIES 543 — Standard Type**

#### **FEATURES**

- As compact as standard Series 2 dial indicators.
- Large, easy-to-read LCD.
- GO/±NG judgment can be performed by setting upper and lower tolerance limits. The judgment result (GO/±NG) can be displayed in full-size characters.
- The positive/negative count resulting from the spindle's up/down movement can be toggled.
- Internal calculations using the simple formula of [F(x) = Ax) are available.
- Employing the ABSOLUTE linear encoder, the ID-C always displays the spindle "Absolute Position from the origin at power-on. Also unlimited response speed eliminates over-speed errors.
- The ID-C indicator face can be rotated 330° to an appropriate angle for easy reading.
- With SPC data output.



**ABSOLUTE Digimatic Indicator ID-C** 

#### **SPECIFICATIONS**

Inch/Metric Stem dia. 3/8", #4-48 UNF Thread						ISO/JIS type	ANSI/AGD type
Resolution	Range	Order No.	Order No. (w/lug, flat-back)		Accuracy	Measuring force	Remarks
.00005"/0.001mm*	.5" / 12.7mm	, J.		ID-C112EXB	.0001"	1.5N or less	
	,						
.00005"/0.001mm*	.5" / 12./mm	543-396	543-396B	ID-C112CEX	.0001"	0.4N - 0.7N	Low measuring force
.00005"/0.001mm*	1" / 25.4mm	_	543-472B	ID-C125EXB	.0001"	1.8N or less	_
.00005"/0.001mm*	2" / 50.8mm	_	543-492B	ID-C150EXB	.0002"	2.3N or less	_
.0005"/0.01mm	.5" / 12.7mm	543-402	543-402B	ID-C1012EX	.001"	0.9N or less	_
.0005"/0.01mm	.5" / 12.7mm	543-406	543-406B	ID-C1012CEX	.001"	0.2N - 0.5N	Low measuring force
.0005"/0.01mm	1" / 25.4mm	_	543-476B	ID-C1025EXB	.001"	1.8N or less	_
.0005"/0.01mm	2" / 50.8mm	_	543-496B	ID-C112CEXB	.0016"	2.3N or less	_

<sup>\*</sup> Switchable Resolution Type

Inch/Metric	Stem ø 8mm	, M2.5 x 0.45 Thread
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Resolution	Range	Order No. (w/lug, flat-back)		Model	Accuracy	Measuring force	Remarks
.00005"/0.001mm*	.5" / 12.7mm	543-391	543-391B	ID-C112MX	.0001"	1.5N or less	_
.00005"/0.001mm*	.5" / 12.7mm	543-395	543-395B	ID-C112CMX	.0001"	0.4N - 0.7N	Low measuring force
.00005"/0.001mm*	1" / 25.4mm	_	543-471B	ID-C125MXB	.0001"	1.8N or less	_
.00005"/0.001mm*	2" / 50.8mm	_	543-491B	ID-C150MXB	.0002"	2.3N or less	_
.0005"/0.01mm	.5" / 12.7mm	543-401	543-401B	ID-C1012MX	.001"	0.9N or less	_
.0005"/0.01mm	.5" / 12.7mm	543-405	543-405B	ID-C1012CMX	.001"	0.2N - 0.5N	Low measuring force
.0005"/0.01mm	1" / 25.4mm	_	543-475B	ID-C1025MXB	.001"	1.8N or less	_
.0005"/0.01mm	2" / 50.8mm	_	543-495B	ID-C1050MXB	.0016"	2.3N or less	_

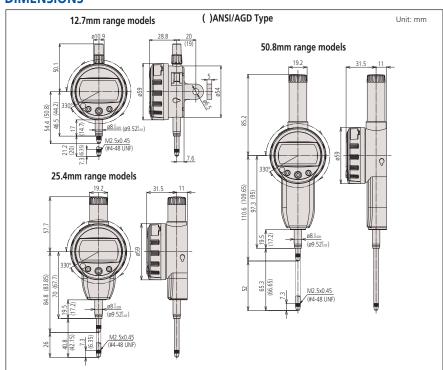
<sup>\*</sup> Switchable Resolution Type

#### Metric Stem ø 8mm, M2.5 x 0.45 Thread

Resolution	Range	Order No. (w/lug, flat-	Order No. (w/lug, flat-back)		Accuracy	Measuring force	Remarks
0.001mm*	12.7mm	543-390	543-390B	ID-C112X	0.003mm	1.5N or less	_
0.001mm*	12.7mm	543-394	543-394B	ID-C112CX	0.003mm	0.4N - 0.7N	Low measuring force
0.001mm*	25.4mm	_	543-470B	ID-C125XB	0.003mm	1.8N or less	_
0.001mm*	50.8mm	_	543-490B	ID-C150XB	0.006mm	2.3N or less	_
0.01mm	12.7mm	543-400	543-400B	ID-C1012X	0.02mm	0.9N or less	_
0.01mm	12.7mm	543-404	543-404B	ID-C1012CX	0.02mm	0.2N - 0.5N	Low measuring force
0.01mm	25.4mm	_	543-474B	ID-C1025XB	0.03mm	1.8N or less	_

<sup>\*</sup> Switchable Resolution Type

#### **DIMENSIONS**



#### 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-C** on a measuring jig and setting the multiplying factor 'A' (to any value) allows direct measurement without using a conversion table and improves measurement efficiency.





Application example

## **Function locking**

Ensures reliability of measurement by locking the settings to prevent preset function settings from being changed by





#### 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
	Yes	Yes	0.5N
Pointing vertically	Yes	No	0.4N
downward	No	Yes	0.3N
	No	No	0.2N
Horizontal	Yes	No	0.2N

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
	Yes	Yes	0.7N
Pointing vertically	Yes	No	0.6N
downward	No	Yes	0.4N
	No	No	Not guaranteed
Horizontal	Not gua	ranteed	

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





#### **Technical Data**

Refer to the list of specifications Accuracy:

Resolution: 0.0002mm - 1mm or

.00001" - .05"/0.0002mm - 1mm

Display:

Length standard: ABSOLUTE electrostatic capacitance type

linear encoder Max. response speed: Unlimited Measuring force: 1.5N or less SR44 (1 pc.), 938882

Battery life: Approx. 12 months under normal use

#### **Function**

Origin-set/Preset, Zeroset, GO/±NG judgment, Counting direction switching, Power ON/OFF, Data output, inch/mm conversion (on inch/metric models only) Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

#### **Optional Accessories**

SPC cable (40" / 1m) 905338: SPC cable (80" / 2m) 905409:

Spindle lifting lever (ISO/JIS type) Spindle lifting cable (Stroke: .4" / 10mm) 902011: 540774:

Backs (See page F-33.)

Contact points (See page F-34.)

### **APPLICATIONS**





- · Various fixtures suited for individual workpieces can be prepared
- · Measuring accuracy is subject to fixture accuracy

## **ABSOLUTE Digimatic Indicator ID-C**

**SERIES 543 — Calculation Type** 

#### **FEATURES**

A conventional Digimatic indicator simply displays a spindle displacement, but the Calculation-Type Digimatic indicator incorporates an internal calculation function in place of spindle displacement. With fixtures, measurements such as feeler, inside diameter and radius of curvature measurement can easily be obtained without the hassle of conversion tables or equivalents.

• The Absolute Digimatic indicator performs internal calculations using the formula Ax+B+Cx<sup>-1</sup> (assuming spindle displacement as x) while the specified coefficients A, B and, C can be set with respect to the purpose of measurement or dimensions of the fixtures. This unique features allows you to read your measurements directly, without fumbling for conversions.



## **SPECIFICATIONS**

ISO/JIS type

Inch/Metric

Stem dia. 3/8" #4-48 UNF Thread

Resolution	Range	Order No.*	Model	Accuracy	Measuring Force
.00001"05"/	.5" / 12.7mm	543-287B	ID-C112REB	.00012"	1.5N or less
0.0002 - 1mm	1" / 25.4mm	543-482B	ID-C125REB	.00012"	2.0N or less
(switchable)	2" / 50.8mm	543-487B	ID-C150REB	.00025"	2.3N or less

#### Inch/Metric Stem ø 8mm, M2.5 x 0.45 Thread

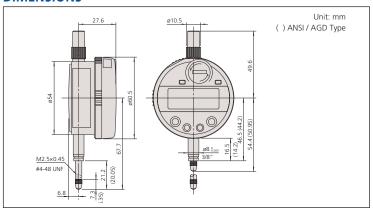
	Resolution	Range	Order No.*	Model	Accuracy	Measuring Force
.0	.00001"05"/	.5" / 12.7mm	543-286B	ID-C112RMB	.00012"	1.5N or less
	0.0002 - 1mm	1" / 25.4mm	543-481B	ID-C125RMB	.00012"	2.0N or less
(:	(switchable)	2" / 50.8mm	543-486B	ID-C150RMB	.00025"	2.3N or less

Metric	Ctam a Onom	M2 5 x 0 45 Thread
Metric	STAM & XMM	IVIZ 5 X U 45 I nread

Resolution	Range	Order No.*	Model	Accuracy	Measuring Force
0.0002 - 1mm	12.7mm	543-285B	ID-C112RB	0.003mm	1.5N or less
(switchable)	25.4mm	543-480B	ID-C125RB	0.003mm	2.0N or less
	50.8mm	543-485B	ID-C150RB	0.006mm	2.3N or less

<sup>\*</sup>Flat back

## **DIMENSIONS**





## **ABSOLUTE Digimatic Indicator ID-C**

SERIES 543 — with Green/Red LED and GO/NG Signal Output Function

#### **FEATURES**

- With the max./min. value holding function, the signal ID-C can output the signal of the GO/±NG judgment result against the peak values set. Substitute for the mechanical/ electrical contact, the judgment is carried out by calculating the measurement data obtained. This provides high reliability with no deterioration of the contact point and volume adjustment.
- The signal can be output to an external device like a sequencer through the NPN open-collector.
- The GO/±NG judgment result is also indicated by the green/red LED and the "<, O, >" signs on LCD.
- Employing the ABSOLUTE linear encoder, the Signal ID-C always displays the spindle "Absolute Position" from the origin at power-on.

• The Signal ID-C achieves the IP54 protection level to resist dust and contaminants for safe operation in harsh machine shop environments.



#### **SPECIFICATIONS**

Inch/Metric Stem dia			. 3/8" #4-48 UN	NF Thread	IS0	O/JIS type	ANSI/AGD type
	Resolution	Range	Order No. (w/	lug, flat-back)	Model	Accuracy	Measuring force
	.00005"/0.001mm	.5" / 12.7mm	543-282	543-282B	ID-C112JE	.00012"	2.0N or less
	.0005"/0.01mm	.5" / 12.7mm	543-283	543-283B	ID-C112JT	.00012"	2.0N or less

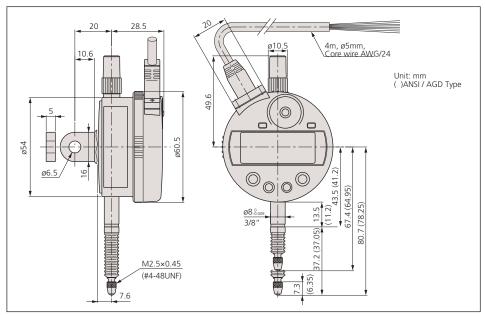
.00005"/0.001mm	.5" / 12.7mm	543-282	543-282B	ID-C112JE	.00012"	2.0N or less		
.0005"/0.01mm	.5" / 12.7mm	543-283	543-283B	ID-C112JT	.00012"	2.0N or less		
Inch/Metric Stem @ 8mm M2.5 v. 0.45 Thread								

Steili	Ollilli, IVIZ.5 X	7.45 THICUU			
Resolution Range	Order No. (w	Order No. (w/ lug, flat-back)		Accuracy	Measuring force
.00005"/0.001mm .5" / 12.7mr	543-281	543-281B	ID-C112JM	.00012"	2.0N or less

Ctom a Omm M2 v 0 1E Throad

Metric	Sterii Ø 8	illili, IVIZ. X U.43	o mreau			
Resolution	Range	Order No. (w/	lug, flat-back)	Model	Accuracy	Measuring force
0.001mm	12.7mm	543-280	543-280B	ID-C112J	0.003mm	2.0N or less

### **DIMENSIONS**







#### **Technical Data**

Accuracy: Refer to the list of specifications 0.001mm, .00005"/0.001mm or Resolution:

.0001"/0.001mm

Display:

Length standard: ABSOLUTE electrostatic capacitance type

linear encoder

Max. response speed: Unlimited Measuring force: 2.0N or less Power supply: DC 12 - 24V±10% Dust/Water protection level: IP54

#### **Function**

Data output (-NG/OK/NG signal, NPN open collector), Remote control (hold-preset, preset-recall, zero-set), Origin-set/Preset, Zeroset, GO/±NG judgment, Max/Min/ Runout value holding, Counting direction switching, Power ON/OFF, inch/mm conversion (on inch/metric models only) Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

#### **Optional Accessories**

Spindle lifting lever\* (ISO/JIS type) 902011: Spindle lifting lever\* (ANSI/AGD type) 902794 540774: Spindle lifting cable\* (Stroke: .4" / 10mm)

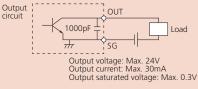
125317: Rubber boot Backs (See page F-33.) Contact points (See page F-34.)

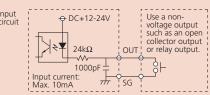
#### **Output pattern**

Wire	– NG	OK	+ NG	Composition error
Orange (– NG)	Low	High	High	High
Green (OK)	High	Low	High	High
Brown (+ NG)	High	High	Low	High
LED	Red	Green	Red	Red (blinking)
LCD	<	0	>	"x.xxE" indication

## **I/O Specifications**

Wire	Signal	1/0	Description
Black	- V (GND)	_	Connected to minus (-) terminal
Red	+ V (GND)	- 1	Power supply (12 - 24VDC)
Orange	– NG	0	Tolerance judgment result output: Only the terminal
Green	OK	0	output: Only the terminal
Brown	+ NG	0	corresponding to a judgment result is set to the below level.
Yellow	PRESET_RECALL ZERO	-1	External input terminal: If the relevant terminal is set to the low
Blue	HOLD_RESET	I	level, its signal becomes true.
Shield	FG	_	Connected to GND







<sup>\*</sup>When using the spindle lifting lever/cable, IP54 is not guaranteed.





#### **Technical Data**

Refer to the list of specifications 0.001mm, .00005"/0.001mm or

.0001"/0.001mm

Display:

Length standard: ABSOLUTE electrostatic capacitance type

linear encoder Max. response speed: Unlimited

Measuring force: 1.5N or less SR44 (2 pcs.), **938882** 

Battery life: Approx. 800 - 1300 hours under normal use

Dust/Water protection level: IP42

#### Function

Origin-set/Preset, Zeroset, GO/±NG judgment, Max/Min/ Runout value holding, Counting direction switching, Power ON/OFF, Data output,

inch/mm conversion (on inch/metric models only)

Low voltage, Counting value composition error,

Over-flow error, Tolerance limit setting error

## **Optional Accessories**

SPC cable (40" / 1m) 905338: SPC cable (80" / 2m) 905409:

902011: Spindle lifting lever (ISO/JIS type) 902794: Spindle lifting lever (ANSI/AGD type) Spindle lifting cable (stroke: .4" / 10mm) 540774:

Backs (See page F-33.) Contact points (See page F-34.)

# **ABSOLUTE Digimatic Indicator ID-C**

SERIES 543 — with Max./Min. Value Holding Function

With max./min. value holding function model of the ID-C Series Digimatic Indicators.

## **FEATURES**

- The maximum, minimum, or runout value can be displayed during measurement.
- GO/±NG judgment is performed by setting the upper and lower tolerances for max., min. and runout values.
- High speed sampling ratio of 50 times/s.
- Employing the ABSOLUTE linear encoder, the Signal ID-C always displays the spindle "Absolute Position" from the origin at power-on.



## **SPECIFICATIONS**

Inch/Metric -	Stem dia. 3/8"	#4-48 UNF Thre	ead	
Resolution	Range	Order No.*	Model	Accuracy
.00005"/0.001mm	.5" / 12.7mm	543-262	ID-C112AE	.00012"

ISO/JIS type

Resolution	Range	Order No.*	Model	Accuracy
.00005"/0.001mm	.5" / 12.7mm	543-262	ID-C112AE	.00012"
.0001"/0.001mm	.5" / 12.7mm	543-263	ID-C112AT	.00012"

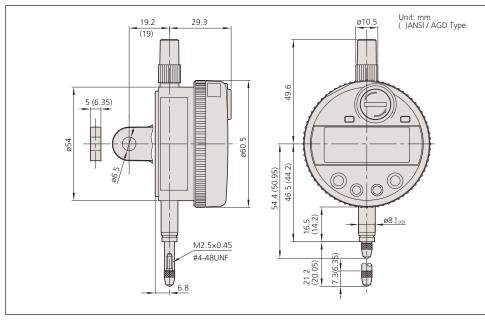
Inch/Metric -	Stem ø 8mm,	M2.5 x 0.45 Thr	ead	
Resolution	Range	Order No.*	Model	Accuracy
.00005"/0.001mm	.5" / 12.7mm	543-261	ID-C112AM	.00012"

<sup>\*</sup>Back with lug

Metric	Stem ø 8mm, 1	M2.5 x 0.45 Thr	ead	
Resolution	Range	Order No.*	Model	Accuracy
0.001mm	12.7mm	543-260	ID-C112A	0.003mm

<sup>\*</sup>Back with lug

## **DIMENSIONS**





## **ABSOLUTE Digimatic Indicator ID-C**

**SERIES 543 — Specially Designed for Bore Gage Application** 

This ID-C Series Digimatic Indicators are exclusively designed for ID measurement.

## **FEATURES**

- The minimum value holding function provides the easy of detection of hole diameter.
- An analog bar indicator is integrated to enhance the intuition in reading.
- GO/±NG judgment is performed by setting the upper and lower tolerances.
- Up to three sets of master value and upper/lower tolerance value can be memorized.
- Employing the ABSOLUTE linear encoder, the Signal ID-C always displays the spindle "Absolute Position" from the origin at power-on.



PECIFICATIONS ISO/JIS type ANSI/AGD typ

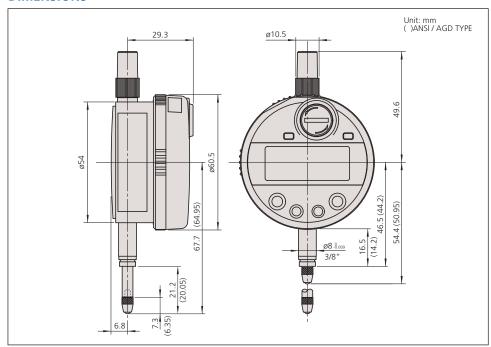
inch/Metric	Stem dia.	3/8" #4-48 UN	IF Thread	
Resolution	Range	Order No.*	Model	Accuracy
.00005"/0.001mm	.5" / 12.7mm	543-266B	ID-C112GE	.00012"
.0001"/0.001mm	.5" / 12.7mm	543-267B	ID-C112G	.00012"

<sup>\*</sup>Back with lug

Metric	Stem ø 8	mm, M2.5 x 0.4	5 Thread	
Resolution	Range	Order No.*	Model	Accuracy
0.001mm	12.7mm	543-264B	ID-C112G	0.003mm

<sup>\*</sup>Back with lug

#### **DIMENSIONS**





#### **Technical Data**

Refer to the list of specifications 0.001mm or .00005"/0.001mm

LCD

Length standard: ABSOLUTE electrostatic capacitance type

linear encoder Max. response speed: Unlimited Measuring force: 1.5N or less SR44 (2 pcs.), 938882

Battery: SR44 (2 pcs.), **938882**Battery life: Approx. 2000 hours under normal use

Dust/Water protection level: IP42

#### **Function**

Origin-set/Preset, Zeroset, GO/±NG judgment, Power ON/OFF, Data output, inch/mm conversion (on inch/metric models only) Low voltage, Counting value composition error, Over-flow error, Tolerance limit setting error

#### **Optional Accessories**

905338: SPC cable (40" / 1m) 905409: SPC cable (80" / 2m) Applicable Gages Series 511 and 526



