Mitutoyo

Inspection Instrument for Indicators
i-Checker

Dial Indicators

For efficient in-house calibration

Digimatic Indicators

Bore Gages

Various types of indicators can be

Features

- Inspection can be performed 2.5 times faster compared to the previous model.
- This instrument achieves the highest accuracy in its class (Mitutoyo survey, February 2016) and, therefore, guarantees ultra-reliable inspection results.
- Digital indicators equipped with a data output function are efficiently checked due to spindle positioning at the inspection points and records fully automatic measurement results.
- Analog indicators are inspected in semi-automatic mode with the pointer of the indicator manually adjusted at each measuring point with automatic transfer of inspection results and movement to the next measuring point.

- The latest standard for dial test indicators, ASME and DIN, are applied.
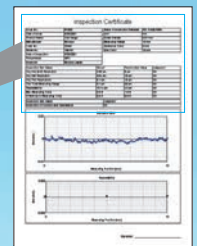- Operators can customize inspection standards and inspection certifications.

Inspection Certificate

Issue No.	M1002	Name of Inspection Standard	ISO R463(1965)
Date of Issue	5/25/2001	Unit	mm
Product Name	Dial Gauge	Scale Interval	0.01 mm
Manufacturer	Mitutoyo	Measuring Range	10 mm
Code No.	2046S	Reference Point	0 mm
Serial No.	100101	End Point	10 mm
Date of Inspection	5/25/2001		
Temperature	20°C		
Inspector	Mitutoyo Japan		

Inspection Item Name	Result	Permissible Value	Judgment
Any One-tenth Resolution	2.62 μm	5 μm	OO
Any Half Resolution	3.54 μm	10 μm	OO
Any Two Resolutions	5.1 μm	15 μm	OO
The Total Measuring Range	6.1 μm	20 μm	OO
Repeatability	+0.14 μm	±3 μm	OO
Max. Measuring Force	0.9 N	1.5 N	OO
Difference in Measuring Force	0.2 N	0.6 N	OO

Inspection Item Name	Judgment
Inspection of Function and Appearance	OO

Inspection using analog indicator   Inspection using digital indicator

Inspection Instrument for Indicators
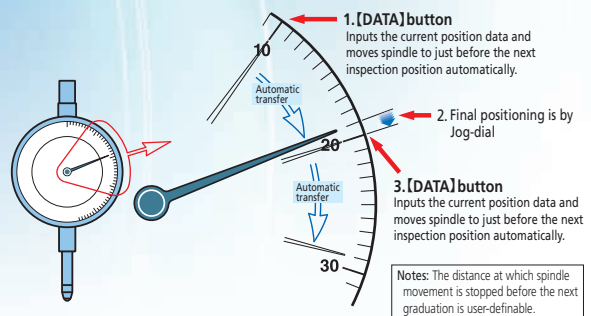# i-Checker
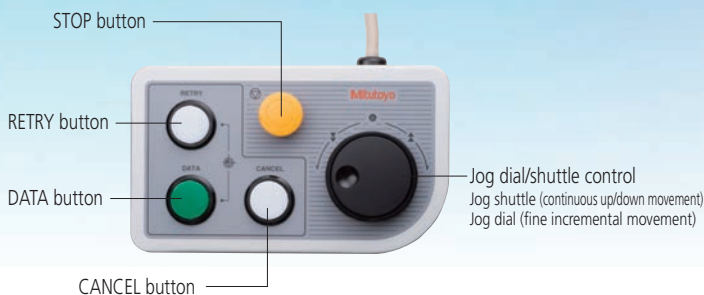
Linear Gages

Lever Probes

inspected with a single tester.

• A laptop can be connected using a USB cable.

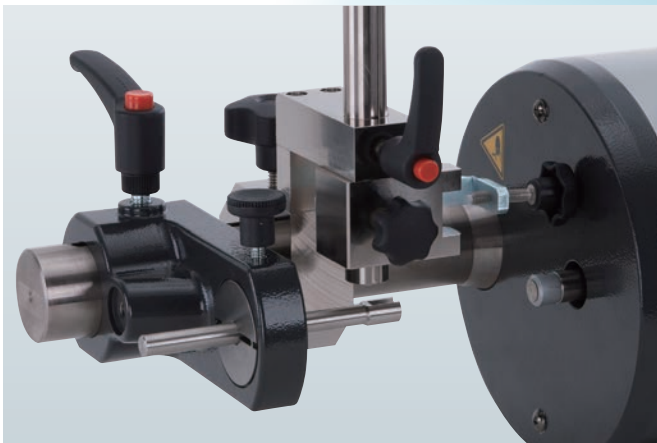• All functions necessary for inspection are combined in the control box, eliminating operator fatigue.

STOP button

RETRY button

DATA button

Jog dial/shuttle control
Jog shuttle (continuous up/down movement)
Jog dial (fine incremental movement)

CANCEL button

1.【DATA】button
Inputs the current position data and moves spindle to just before the next inspection position automatically.

10

Automatic transfer

2. Final positioning is by Jog-dial

20

Automatic transfer

3.【DATA】button
Inputs the current position data and moves spindle to just before the next inspection position automatically.

30

Notes: The distance at which spindle movement is stopped before the next graduation is user-definable.
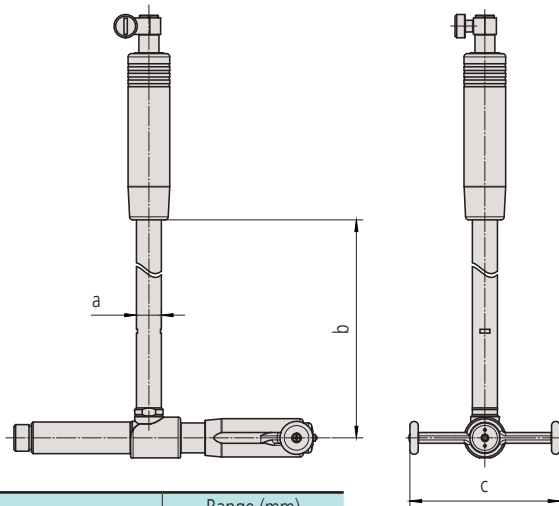
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Applications for Bore Gage Accessory Set

Applications for bore gage measurement accessory set (type C)

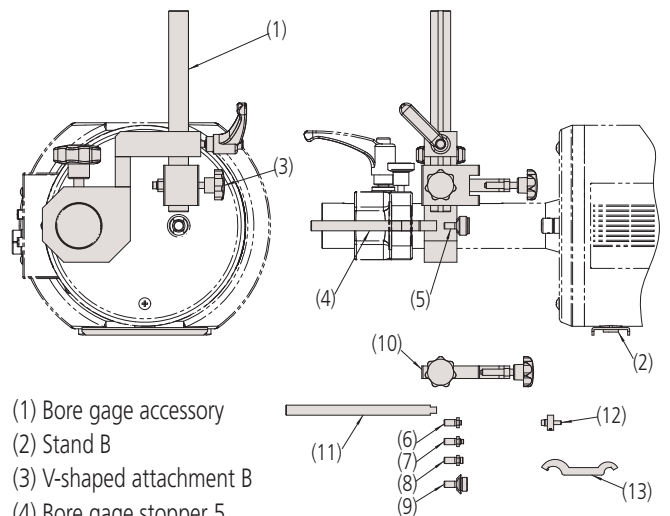Application for mounting bore gage accessory set (type C)
Order No. 02ASU161

i-Checker mountable bore gages

	Range (mm)
a	ø6 - ø18
b	50 or below
c	120 or below

List of components for bore gage accessory set (type C)   Order No.02ASU161

(1) Bore gage accessory
(2) Stand B
(3) V-shaped attachment B
(4) Bore gage stopper 5
(5) Anvil (for calibration, M11 female)
(6) Anvil (for calibration, M3.5 x 0.35 male)
(7) Anvil (for calibration, M3.5 x 0.5 male)
(8) Anvil (for calibration, M5 male)
(9) Anvil (for calibration, M11 male)
(10) V-shaped attachment C
(11) Bore gage stopper 3
(12) i-Checker's special contact point
(13) Key wrench
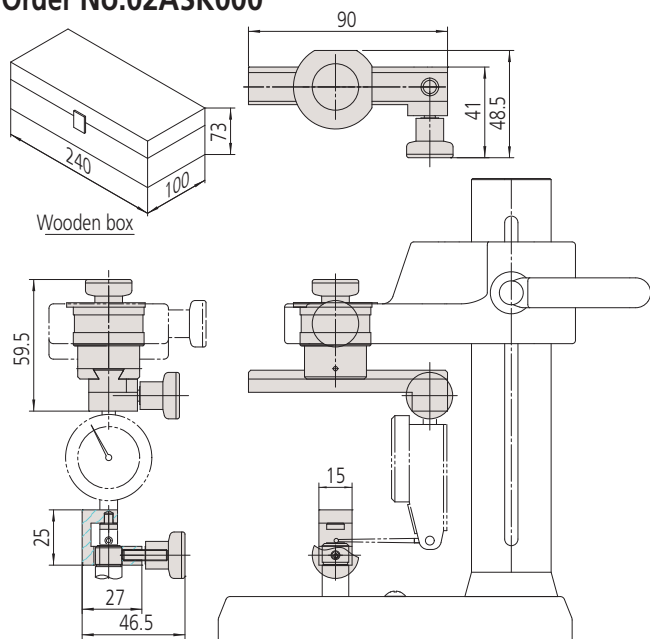
Applications for Dial Test Indicator Accessory Set

Applications for dial test indicator accessory set (for horizontal type)

Applications for dial test indicator accessory set (for vertical type)

Dial test Indicator accessory set (for ø6 stem)*
Order No.02ASK000*

90
73
41
48.5
240
100
Wooden box

59.5
15
25
27
46.5

* other set sizes available

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Optional accessories
Attachments/Stem bushing/Others/Connecting cables

Order No.	Item	Usage and remarks
Attachment		
02ASK000	Test indicator accessory set (for ø6mm stem)	For attachment of ø6 stem test indicator
02ASK180	Test indicator accessory set (for ø8mm stem)	For attachment of ø8 stem test indicator
02ASK370	Test indicator accessories set (for ø6 stem)	Holder to fix ø6 stem to 02ASK180
02ASK380	Test indicator accessories set (for ø8 stem)	Holder to fix ø8 stem to 02ASK000
902803	ø6 dovetail grooved stem	Stem to attach Mu-Checker with knurled clamp ring (lever head) to test indicator accessory set (02ASK000)
902804	ø8 dovetail grooved stem	Stem to attach Mu-Checker with knurled clamp ring (lever head) to test indicator accessory set (02ASK180)
02ASU162	Bore gage accessory set (type C)	Accessory set for holding grip bore gage
Stem bushing		
02ASK040	Stem bushing ø6	
02ASJ856	Stem bushing ø8	
02ASK150	Stem bushing ø8, short	For attachment of cartridge head MCHP-341
02ASL150	Stem bushing ø10	
02ASK050	Bushing ø9.5 - ø15	For attachment of LGB2 fixing nut with stem diameter ø9.5 Stem bushing (ø15mm) is required separately.
02ASK060	Stem bushing ø12	
02ASK070	Stem bushing ø15	
02ASK080	Stem bushing ø20	
02ASK710	Stem bushing ø28	
02ASK090	Stem bushing ø3/8 in	For attachment of indicator with stem diameter ø9.525mm
02ASK130	Wooden box for No. 02ASK130 stem bushings	Storage of 7 stem bushings and 1 bushing (ø9.5 - ø15mm)
Others		
937179T	Foot switch	Used instead of [DATA] button in the operation box.
02ASK730	Observation mirror	
Connecting cables		
905338	Connecting cable (1m)*1	Used for connecting with Digimatic Indicators (**ID-C**, **ID-S**, **ID-U**, and **IDU**)
905409	Connecting cable (2m)*1	
936937	Connecting cable (1m)*1	(**ID-F**, **IDF**, Digimatic power supply unit and between the testers)
965014	Connecting cable (2m)*1	
937387	Connecting cable (1m)*1	Used for connecting with Digimatic Indicators (**IDC** and **IDA**)
965013	Connecting cable (2m)*1	
965275	Digimatic power supply unit*2	Used for the Digimatic Indicators that require external power supply

*1 Use the cable described in the user's manual.
*2 Confirm the specification in the user's manual.

Dedicated software (i-Pak specification)

• Supported OS
Windows10 (64bit)

• Supported Industrial Standards
ISO, JIS, JMAS, ANSI/ASME, DIN, VDI/VDE/DGQ, BS

• Basic inspection functions
· Creation of inspection standard conformed to the industrial standard
· Creation and editing of original inspection standard by customizing the industrial standard
· Inspection of indicator using the inspection standard (inspection for accuracy and repeatability)
· Graphical display of measurement result
· Creation, editing and printing of simplified inspection certificate

• Function
· Retry "measurement positioning"
· Re-measurement
· Data cancellation
· Change of speed for jog shuttle

• Input/Output specifications
· Digimatic data connector (rear side of i-Checker main unit)[3]
· PC serial-data input port (RS-232C)
· Printing of simplified inspection certificates

*3 Automatic measurement requires the indicator's connecting cable.

Supported indicators

- Dial Indicator
- Dial Test Indicator
- Mitutoyo Hicator
- Bore Gage
- Digimatic Indicator
- Linear Gage
- Mu-Checker

* It cannot inspect the indicator with accuracy that is higher than the main unit accuracy of the tester.
* Resolution of Mu-checker is greater than 1µm (e.g. 1µm/5µm/10µm/50µm).

Supported Industrial Standards

	Dial Indicator	Dial Test Indicator	Hicator	Bore Gage	Digimatic Indicator	Linear Gage	Mu-Checker
ANSI/ASME	B89.1.10M-2001 B89.1.10M-1987	B89.1.10M-2001 B89.1.10M-1987	—	—	B89.1.10M-2001	—	—
ISO	463-2006 R463-1965	9493-2010	—	—	—	—	—
JIS	B7503-2011 B7503-1997 B7503-1992	B7533-2015 B7533-1990	B7519-1994	B7515-1982	—	—	B7536-1982
JMAS	2001-1998 2001-1994 2003-1994	—	—	5009-1988	—	—	5003-1962
DIN	878-2006 878-1983	2270-1985	879-1983	—	—	—	—
VDI/VDE/DGQ	2618 Blatt11-1991	2618 Blatt11.3-2002 2618 Blatt20-1991	2618 Blatt21-1991	—	—	—	2618 Blatt26-1991
BS	907-1965	2795-1981	—	—	—	—	—
Mitutoyo Standard	—	—	—	—	✔	✔	—

Specifications

Order No.	64PKA148 †
Measuring Range	100mm / 4"
Resolution	0.01µm / .1µin
Accuracy (20°C) — vertical position	(0.1+0.4L/100) µm L = Arbitrary length (mm)
Accuracy (20°C) — lateral position	(0.15+0.6L/100) µm L = Arbitrary length (mm)
Feed speed	Maximum 10mm/s
Drive method	Motor drive, semi-automatic, fully automatic (Fully automatic only for indicators with SPC data output)
Measuring Unit	Separate linear encoder
Thermal expansion coefficient of measurement mode	1.5×10^{-6} / K
Measurement method	Semi-automatic measurement
Measurement method	Fully automatic measurement (only when using an indicators equipped with data output function) [*1][*2]
Mass	20kg
Operating temperature range	20°C±0.5°C

*1 Automatic measurement requires the indicator's connecting cable.

*2 The indicator measured via RS-232C has the capability to receive data from the main unit and output the counter value.
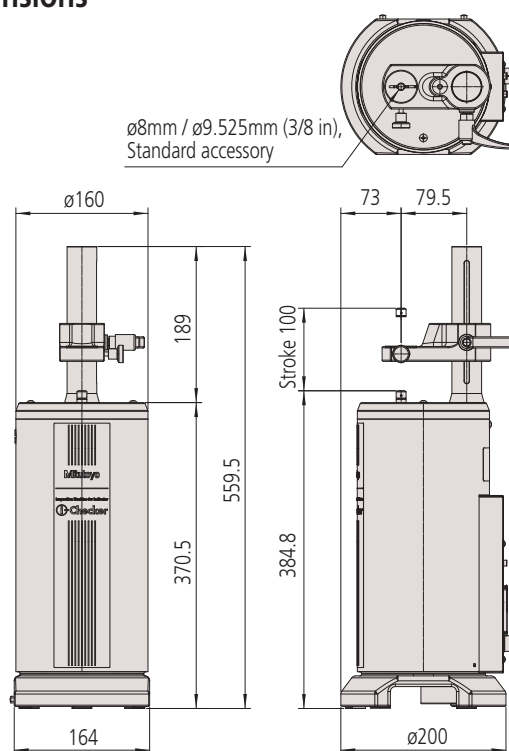
† Recommended PC package: 64PKA149D

Standard accessories supplied Order No.64PKA148

Order No.	Item	QTY.
02AST250	Tester main unit	1
02AST780	Controller ICMC-2	1
02NJA004	i-Pak 2.0	1
02ZAA010	AC Cable	1
02AST830	Control box	1
02ASU001	EXT. Signal Cable	1
02ASU002	EXT. Motor Cable	1
02ASU003A	EXT. USB2.0 Cable	1
02ASJ856	Stem bushing 8mm	1
02ASK091	Stem bushing 9.525mm (3/8 in)	1
601614-2	Dust cover	1
99MBD063A	User's Manual (English)	1
—	Inspection certificate, Certification of calibration and Traceability chart (English)	1

Dimensions

Unit: mm

ø8mm / ø9.525mm (3/8 in), Standard accessory

ø160
189
559.5
370.5
164

73   79.5
Stroke 100
384.8
ø200

Coordinate Measuring Machines

Vision Measuring Systems

Form Measurement

Optical Measuring

Sensor Systems

Test Equipment and Seismometers

Digital Scale and DRO Systems

Small Tool Instruments and Date Management

**Whatever your challenges are,
Mitutoyo supports you from start to finish.**

Mitutoyo is not only a manufacturer of top-quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

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