

# Inspection Instrument for Dial Indicator i-Checker

Catalog No. E12015



Specially designed to calibrate measuring accuracy of dial indicators, dial test indicators, and other electronic comparison gage heads with a stroke of up to 100mm.

**Mitutoyo**

# i-Checker



Easy operation reduces inspection time and virtually eliminates fatigue for improved efficiency.



## FEATURES

### **Absolute precision for every inspection**

Mitutoyo brings you  $\pm(0.2+L/100)\mu\text{m}^{*1}$  accuracy – the world's highest – for supremely reliable inspection and calibration.

\*1 With indicator or probe in the vertical posture (L equals the inspected stroke in mm).

### **Versatile tester accommodates practically any type of indicator or probe**

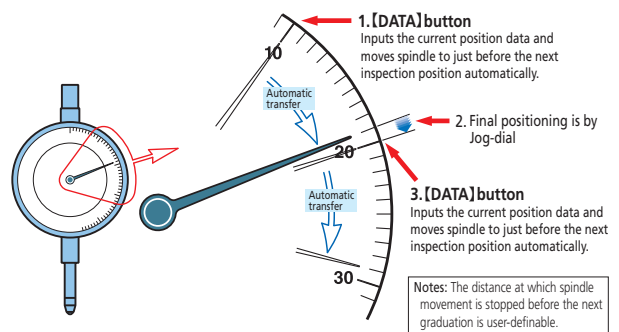
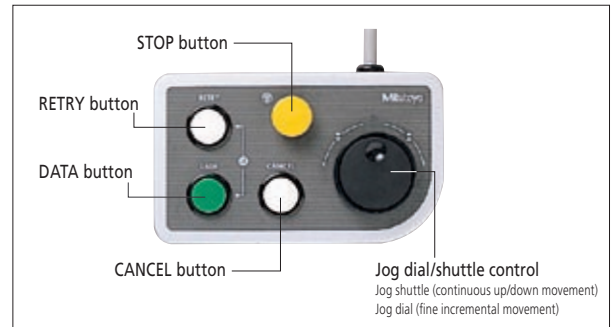
Now you can directly inspect almost any probe or indicator with a stroke of up to 100mm. What's more, optional accessories let you inspect dial test indicators, bore gages and lever type inductive heads.

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## Improve the efficiency of inspection with remarkable ease of operation

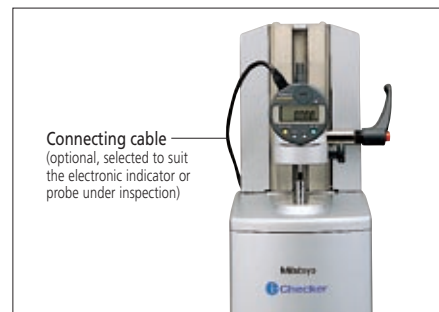
### •Inspect your analog indicator semi-automatically!

The pointer of the analog indicator is positioned just before the measuring point automatically via Mitutoyo's Semi-automatic Measurement function. After that, inspection begins simply by adjusting the pointer position with the jog-dial. This function reduces inspection time and practically eliminates operator fatigue. All functions necessary for inspection are combined in the control box so that the operator need not rely on excessive eye movement to adjust the pointer.



### •Fully automatic inspection of digital indicators

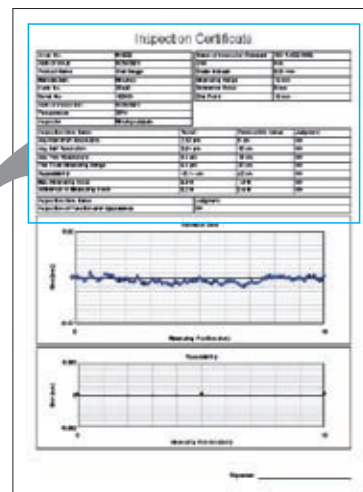
The Automatic Measurement function, in tandem with a digital indicator, makes the spindle move so that inspection data is acquired automatically. Manual adjustment to the inspection position is therefore eliminated and the efficiency of every inspection is enhanced.



## Create a simplified inspection certificate for external output

It is possible to create, edit and print out your own customized inspection certificate, which may then be saved as a CSV file for use with many types of commercial software as required.

Inspection Certificate			
Serial No.	01001	Name of Inspection Operator	Mr. Kudo/Tada
Date of Issue	2010/01/01	Unit	mm
Product Name	Steel Gauge	Scale Range	0.01 mm
Manufacturer	Mitutoyo	Measuring Range	10 mm
Scale No.	20001	Reference Point	0 mm
Serial No.	10001	Start Point	10 mm
Date of Inspection	2010/01/01		
Temperature	20°C		
Inspector	Mr. Kudo/Tada		
Inspection Item Name	Result	Permissible Value	Judgment
Max. Total Resolution	0.02 mm	0 mm	00
Max. Grad. Resolution	0.01 mm	0 mm	00
Max. Grad. Resolution	0.1 mm	0 mm	00
Max. Total Measuring Range	0.1 mm	0 mm	00
Measurability	-0.1 to 0 mm	0.5 mm	00
Max. Measuring Force	0.5 N	1.0 N	00
Reference Measuring Force	0.2 N	0.5 N	00
Inspection Date	2010/01/01		
Inspection of Functional Appearance	OK		



## Standard accessories supplied

### Order No.170-321 i-Checker

Item	Order No. (Parts No.)	Qty	
Tester main unit	—	1	
Stem bush (ø8mm)	02ASJ856	1	
Control box	02ASJ900	1	
Control board	02ASK160	1	
EXT. Signal cable	02ASK170	1	
AC adapter	02ASK126	1	
AC Cordset	PSE *1	02ASK106	1
	UL/CSA *1	02ASK103	1
	CEE *1	02ASK104	1
	BS *1	02ASK105	1
Software i-Pak V1.3	02ASR239	1	
User's Manual	Japanese	99MBD029J	1
	English	99MBD029A	1
Operation guide	Japanese	99MBD030J	1
	English	99MBD030A	1
Inspection certificate	—	✓	
Certification of calibration	—	✓	
Traceability chart	—	—	
Dust cover	601614-2	—	

\*1 Order numbers differ depending on the connector form.

## Inspectable devices

- Dial Indicator
- Dial Test Indicator
- Mitutoyo Hicator
- Bore Gage \*2
- Digimatic Indicator
- Linear Gage
- Electronic lever-type comparator (resolution 1μm or greater)

\*2 Some models are not supported. Contact us for details.

## Supported Industrial Standards

	DG	TI	Hicator	CG	ID	LG	EM
ISO	463 (2006) R463 ('65)	—	—	—	—	—	—
JIS	B7503 (2011) B7503 ('97) B7503 ('92)	B7533 ('90)	B7519 ('94)	B7515 ('82)	—	—	B7536 ('82)
JMAS	2001 ('98) 2001 ('94) 2003 ('94)	—	—	5009 ('88)	—	—	5003 ('62)
ANSI/ASME	B89.1.10M ('87)	B89.1.10M ('87)	—	—	—	—	—
DIN	878 ('83)	2270 ('85)	879 ('83)	—	—	—	—
VDI/VDE/DGQ	2618 Blatt11 ('91)	2618 Blatt11.3 (2002) Blatt20 ('91)	2618 Blatt21 ('91)	—	—	—	2618 Blatt26 ('91)
Mitutoyo Standard	—	—	—	—	✓	✓	—

## i-Pak Specifications

### Supported OS

Windows2000, XP, Vista, 7(32bit)

### Supported Industrial Standards\*3

ISO, JIS, JMAS, DIN, VDI/VDE/DGQ, ANSI/ASME, BS

\*3 For details, please contact your nearest Mitutoyo Sales office.

### Basic inspection functions

- Inspection in accordance with an industrial standard (as listed above).
- Creation and editing of an original inspection standard by customization of an industrial standard
- Inspection of an indicator using an inspection standard (inspection for accuracy and repeatability)
- Graphical display of measurement result
- Creation, editing and printing of simplified inspection certificates.

### Functions

- 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)\*4
- PC serial-data input port (RS-232C)
- Printing of simplified inspection certificates

\*4 Automatic measurement requires the indicator's connection cable. Additionally some form of indicator, along with the normally connected accessory (the optional accessory for the indicator such as a Digimatic power-supply unit in an EF counter) will be required.



## i-Checker main unit

Item	Contents
Measuring Range	100mm/4"
Resolution	0.02μm/0.8μin
Accuracy (at 20°C)	vertical position $\pm(0.2+L/100)\mu\text{m}$ L = Arbitrary length lateral position $\pm(0.3+2L/100)\mu\text{m}$ L = Arbitrary length
Feed speed	4mm/sec (max.)
Drive method	Electric motor
Measuring Unit	Reflective-type linear encoder
Thermal expansion coefficient of measurement mode	$(8\pm 1)\times 10^{-6}/\text{K}$
Measurement method	Semiautomatic Fully automatic *5 (When Indicator with data output is used)
Dimensions (WxDxH)	184 x 225 x 532mm/7.24" x 8.86" x 20.94"
Operating temperature range	20°C ±3°C
Operating humidity range	58%RH ±15%RH (non-condensing)
Storage temperature range	-10°C to 50°C
Storage humidity range	5%RH to 90%RH (non-condensing)
Power supply	100VAC to 240VAC ±10%, 50/60Hz
Mass	20kg/44.1lbs
Stem bush	Stem bush ø8

\*5 Automatic measurement requires the indicator's connection cable. Additionally some form of indicator, along with the normally connected accessory (the optional accessory for the indicator such as a Digimatic power-supply unit in an EF counter) will be required.

## Optional accessories

### • Attachment

- Test indicator accessories set (for ø6 stem) **No. 02ASK000**
- Test indicator holder (for ø8 stem) **No. 02ASK380**
- Accessory for bore gages (Holding the grip of a bore gage. UDT-2 method) **No. 02ASL310**
- Bore gage accessories (Interchangeable anvil clamp is used. For Mitutoyo's bore gages only.) **No. 02ASK110**
- ø6 dovetail grooved stem **No. 902803**
- ø8 dovetail grooved stem **No. 902804**

### • Stem bush

- Stem bush ø6 **No. 02ASK040**
- Stem bush ø8, short **No. 02ASK150**
- Bush ø9.5 - ø15 **No. 02ASK050**
- Stem bush ø10, short **No. 02ASL150**
- Stem bush ø12 **No. 02ASK060**
- Stem bush ø15 **No. 02ASK070**
- Stem bush ø20 **No. 02ASK080**
- Stem bush ø28 **No. 02ASK710**
- Stem bush 3/8" **No. 02ASK090**
- Wooden box for stem bushes (Storage of 7 stem bushes and 1 bush ø9.5 - ø15) **No. 02ASK130**

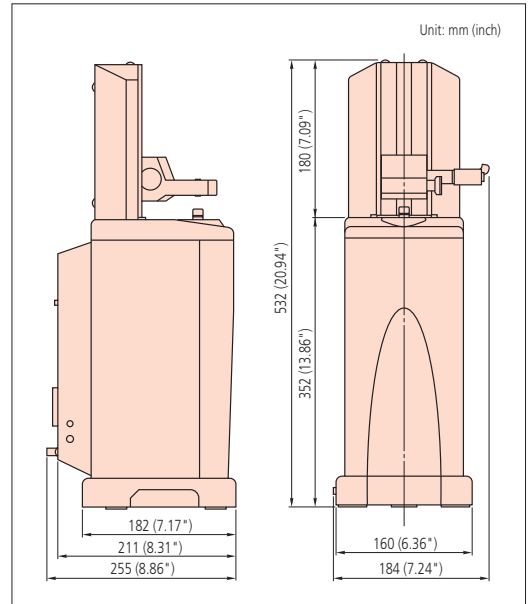
### • Others

- Observation mirror **No. 02ASK730**
- Foot switch **No. 937179T**



Optional accessories

## Dimensions



## Examples of using optional accessories



Using the Test Indicator accessories set



Using the interchangeable anvil clamp (part of Bore Gage Accessories, 02ASK110) (Applicable to Mitutoyo's bore gages only.)



# Manually Operated Calibration Testers

## UDT-2

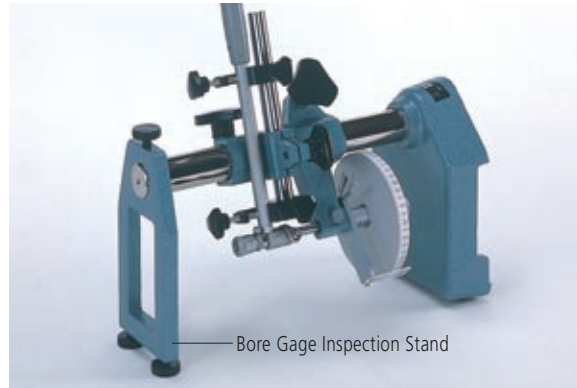


- This Calibration Tester is suitable for 0.01mm resolution/ graduation dial indicators, dial test indicators and bore gages.
- Stem mounting hole:  $\varnothing 6\text{mm}$  and  $\varnothing 8\text{mm}$  (Metric),  $\varnothing 1/4"$  and  $\varnothing 3/8"$  (Inch).

### • Optional accessories

#### Bore Gage Inspection Stand (No. 12AAK824)

Can be used for the inspection of standard type bore gages and bore gages with micrometer heads (For details, please contact the nearest Mitutoyo sales office).



Bore Gage Inspection Stand

### • UDT-2 Specifications

Order No.	Model	Micrometer head		Accuracy ( $\mu\text{m}$ )	
		Resolution (mm)	Range (mm)	Feed accuracy (25mm stroke)	Retrace error
170-102-10	UDT-2	0.001	0 - 25	$\pm 1$	0.5

## UDT-103/5



- This Calibration Testers is specially designed to calibrate 0.001mm-reading dial indicators, dial test indicators and electronic gage heads.
- Universal bracket accepts any dial indicator, dial test indicator or electronic gage without any additional accessory.
- Clamping capacity:  $\varnothing 4\text{mm}$  to  $\varnothing 10\text{mm}$



### • UDT-103/UDT-105 Specifications

Order No.	Model	Micrometer head		Accuracy ( $\mu\text{m}$ )	
		Resolution (mm)	Range (mm)	Feed accuracy (25mm stroke)	Retrace error
521-103	UDT-103	0.0002	0 - 1	$\pm 0.2$	0.2
521-105	UDT-105		0 - 5	$\pm 0.8$	0.8

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