

Mu-checker

To support building the system with automatic measuring unit or dedicated gages

Lever/Cartridge Probe Heads SERIES 519 — Electronic micrometer

SPECIFICATIONS

Lever heads

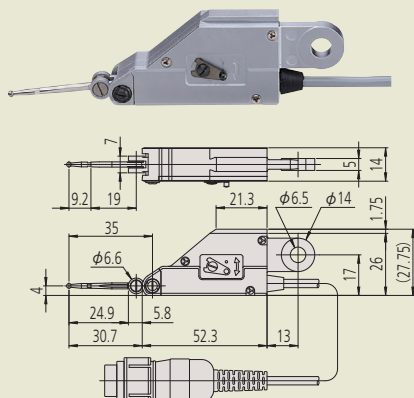
Order No.	519-521	519-522	519-326	519-327
Measuring range (mm)	±0.5			
Stroke (mm)	±0.6			±0.65
Measuring force (N)	Approx. 0.2	Approx. 0.02	Approx. 0.15	
Linearity (%)	±0.3			±0.5
Stylus support	Pivot bearing	Pivot bearing	Parallel-leaf spring	Pivot bearing

Note: A $\phi 2$ mm ball-ended stylus is supplied as standard with all probes.

Common specifications

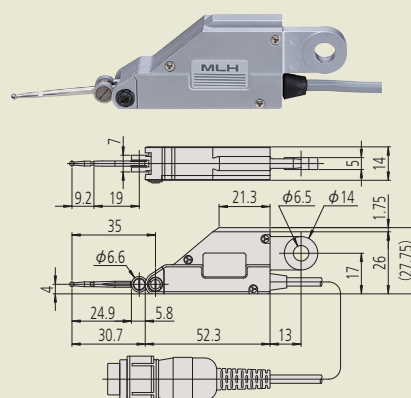
- Connection: Half-bridge
- Cable length: 2m
- Connector type: **MA5-5100** (DIN5P) or equivalent

519-521



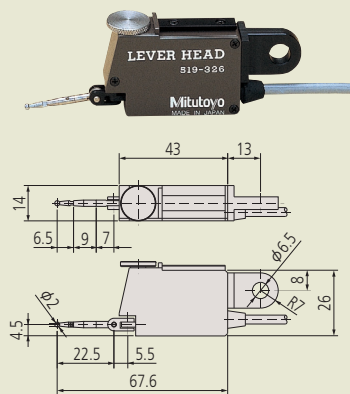
- Interchangeable styli:
 - ø1: **520940** (Standard accessory)
 - ø2: **520939** (Standard equipment)
 - ø3: **520938** (Standard accessory)

519-522



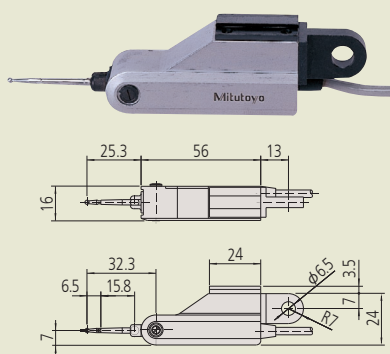
- Interchangeable styli:
 - ø1: **520940** (Standard accessory)
 - ø2: **520939** (Standard equipment)
 - ø3: **520938** (Standard accessory)

519-326



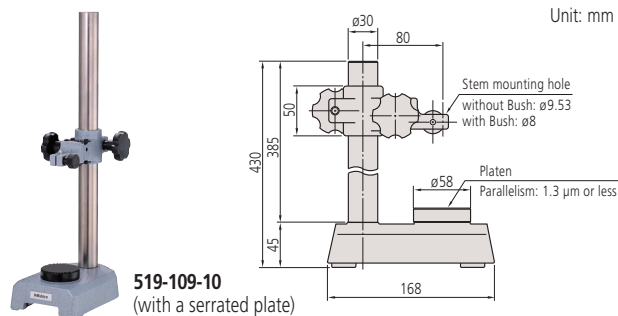
- Interchangeable styli:
 - ø1: **102824** (Option)
 - ø2: **102825** (Standard equipment)
 - ø3: **102826** (Option)

519-327



- Interchangeable styli:
 - ø1: **102824** (Option)
 - ø2: **102825** (Standard equipment)
 - ø3: **102826** (Option)

Transfer Stand



519-109-10
(with a serrated plate)

Main Specifications

Order No.	Effective transfer range [mm]	Fine adjustment range [mm]	Mounting hole [mm]
519-109-10	0 - 320	1	Without Bush: $\phi 9.53$ With Bush: $\phi 8$

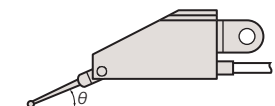
Note on stylus angle

If the stylus of a pivot bearing type probe makes an angle with a workpiece surface, as in the figure, calibration should be performed for accurate measurement. Alternatively, the displayed value may be corrected by multiplying it by the appropriate correction factor as given in the table.

Model **519-326** does not need correction.

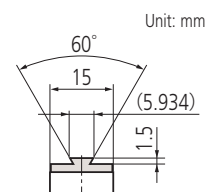
Angle (θ)	Correction factor
0°	1.00
10°	0.98
20°	0.94
30°	0.87
40°	0.77
50°	0.64
60°	0.50

Display value \times Correction factor = Corrected value



Dimensions of dovetail plate on probe body

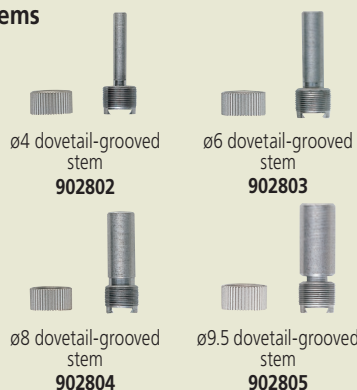
Enables mounting on a lever head mounting bracket or stem.



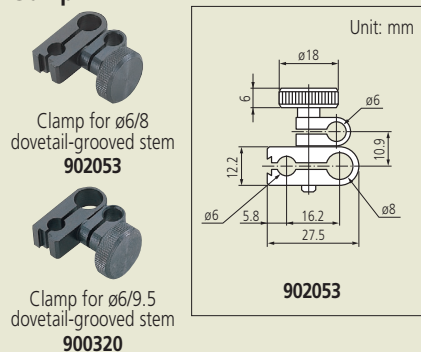
Lever-head mounting brackets (optional)

Optional accessories for Mitutoyo test indicators can be used.

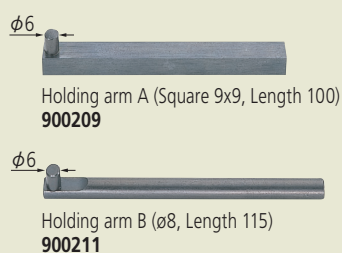
Stems



Clamp



Holder



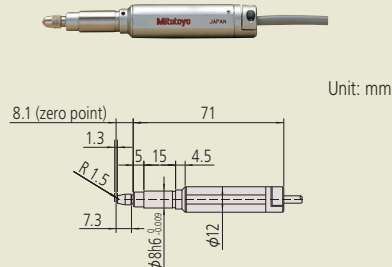
SPECIFICATIONS

Cartridge heads (special order only)

Order No.	519-331	519-332	519-346	519-347	519-385	519-341	519-348
Measuring range (mm)	±0.5	±0.5	±0.25	±0.5	±1.5	±2.5	±1.0
Stroke (mm)	±0.65	±0.65	+0.34 -0.26	+0.85 -0.65	+2.35 -1.65	+3.2 -2.8	+1.35 -1.15
Measuring force (N)	Approx. 0.25	Approx. 0.25	Approx. 0.7	Approx. 0.7	Approx. 0.7	Approx. 0.9	Approx. 0.7
Stem Dia. (mm)	ø8	ø9.52	ø8	ø8	ø8	ø8	ø8
Linearity (%)	±0.5	±0.5	±0.3	±0.3	±0.3	±0.5	±0.3
Plunger support	Plain bearing			Linear ball-bearing			

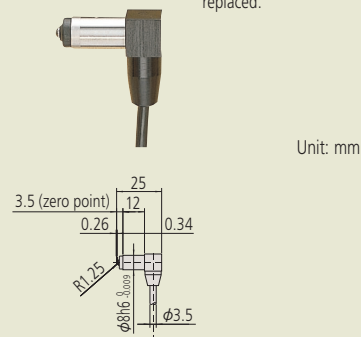
519-331

- M2.5x5 interchangeable contact points for dial indicators can be used.



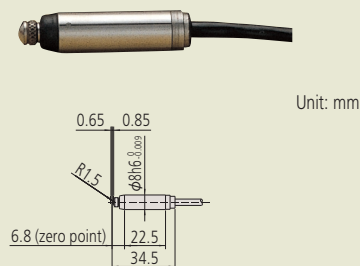
519-346

- Dedicated contact point only that cannot be replaced.



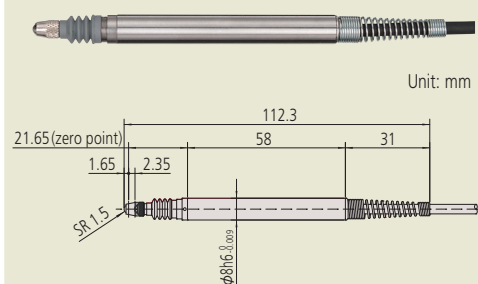
519-347

- Dedicated contact point only that cannot be replaced.



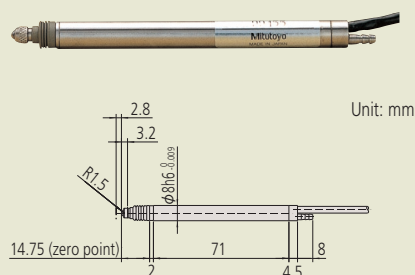
519-385

- M2.5x5 interchangeable contact points for dial indicators can be used.



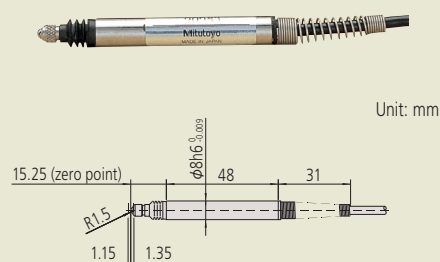
519-341

- M2.5x5 interchangeable contact points for dial indicators can be used.



519-348

- M2.5x5 interchangeable contact points for dial indicators can be used.



Refer to Catalog No. E13003 (Mu-checker) for more details.

Mu-checker

To support building the system with automatic measuring unit or dedicated gages

Analog/digital amplifier/displays SERIES 519 — Electronic micrometer

- Single touch zero-set function is standard.
- Switchable measurement ranges make the Mu-checker suitable for a range of applications, especially those that involve moderately fast-changing measurement values which suit the use of analog readout.
- Two types of analog display are available and one digital type.

Analog Mu-checker



Standard type
519-551



Differential type
519-553

SPECIFICATIONS

	Metric		Inch	
Order No.	519-551*	519-553*	519-552*	519-554*
Type	Standard type (one probe required)	Differential type (one/two probes required)	Standard type (one probe required)	Differential type (one/two probes required)
Display range	$\pm 5 \mu\text{m}/\pm 15 \mu\text{m}/\pm 50 \mu\text{m}/\pm 150 \mu\text{m}/\pm 500 \mu\text{m}/\pm 1500 \mu\text{m}$		$\pm 5 \mu\text{m}/\pm 15 \mu\text{m}/\pm 50 \mu\text{m}/\pm 150 \mu\text{m}/\pm 500 \mu\text{m}/\pm 1500 \mu\text{m}$ $\pm 0.00015 \text{ in}/\pm 0.0005 \text{ in}/\pm 0.0015 \text{ in}/\pm 0.005 \text{ in}/\pm 0.015 \text{ in}/\pm 0.05 \text{ in}$	
Graduation	0.1 μm /0.5 μm /1 μm /5 μm /10 μm /50 μm		0.1 μm /0.5 μm /1 μm /5 μm /10 μm /50 μm 0.000005 in/0.00001 in/0.00005 in/0.0001 in/0.0005 in/0.001 in	
Differential mode	$\pm A$	$\pm A, \pm B, \pm A \pm B$	$\pm A$	$\pm A, \pm B, \pm A \pm B$
Display accuracy (linearity)	$\pm 1\%$ of full-scale reading			
Analog output	$\pm 1\text{V}$ at full-scale reading			
Analog output accuracy	Within $\pm 0.1\%$ of full-scale reading (excluding probe)			
Zero-setting adjustment range	Manual Instant zero setting: 1/3 of full scale for each range			
External dimensions	134(W) \times 183(D) \times 208(H)mm			
Mass	2.4 kg			
Power input	AC adapter 100, 120, 220, 240 VAC 50/60 Hz			
Probe	Various probes (refer to pages G-25 and G-26)			

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, K for KC, C and No suffix are required for PSE.

Digital Mu-checker



Digital Mu-checker
519-561

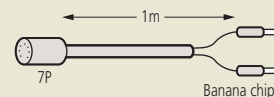
SPECIFICATIONS

	Metric	Inch
Order No.	519-561*	519-562*
Type	Differential type digital Mu-Checker (2 connecting heads)	
Display range	±2.000 mm/±0.2000 mm	±2.000 mm/±0.2000 mm/±0.08 in/±0.008 in
Resolution	0.001 mm/0.0001 mm	0.001 mm/0.0001 mm/0.00005 in/0.000005 in
Differential mode	±A, ±B, ±A±B	
Measurement mode	ABS/CMP	
Analog output	±1V at full-scale reading	
Digital output	Digimatic code out	
External dimensions	134(W)×183(D)×208(H)mm	
Mass	Approx. 2.6 kg	
Power input	AC adapter 100, 120, 220, 240 VAC 50/60 Hz	
Probe	Various probes (refer to pages G-25 and G-26)	

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, K for KC, C and No suffix are required for PSE.

Optional Accessories

- Vertical stand (271214)
Attached to the bottom surface of the Mu-checker, it can be vertically mounted on the base.
- SPC Cable for connecting digital Mu-checker (936937)
Used for connecting to the Digimatic mini-processor.
- Output cable A (934795)
Used for connecting to external devices, such as data recorders, etc.



- Analog, limit out (7P) connector (529035)
Used for output to external data recorders, sequencers, etc.



Refer to Catalog No. E13003 (Mu-checker) for more details.

Main features

- External control (Zero-set, Preset etc.)
- Direction switching
- Error messaging
- Tolerance judgment output
- Each data output (RS-232C, BCD, segment)
- Peak measurement (maximum value, minimum value, runout) and arithmetic operation (addition, average, maximum value, minimum value, maximum width) between axes

Optional Accessories

- I/O output connector: **02ADB440**
- D-EV external unit: **02ADD400**
- SPC cable, 0.5m: **02ADD950**
- SPC cable, 1m: **936937**
- SPC cable, 2m: **965014**

Note 1: To perform calibration a **D-EV** display unit is required.

At least one **D-EV** unit is required when using multiple **EV-16A**.

Note 2: As a power supply is not supplied as standard, an appropriate power supply with a current capacity of 1A or more must be provided for each **EV-16A**.

• SENSORPAK



Refer to page G-20 for more details.



Refer to Catalog No. E13003 (Mu-checker) for more details.

EV-16A Counter SERIES 519 — 6-channel, No-display Type

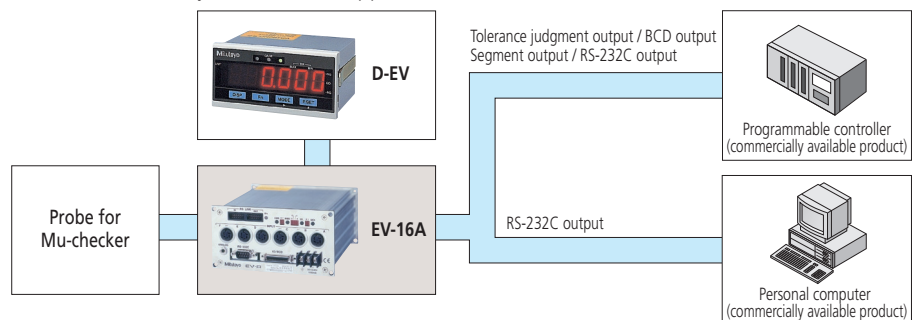


519-355
EV-16A

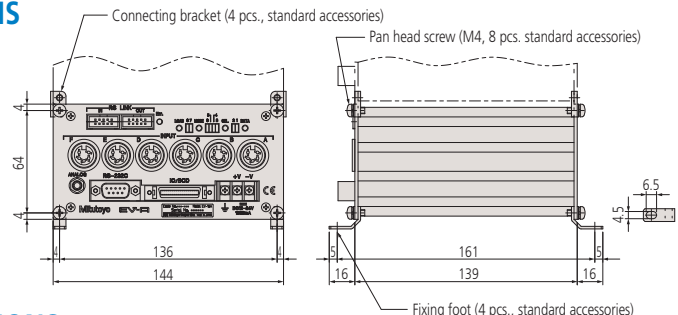
- Up to six probes can be connected to one unit. Up to ten counters can be connected to one personal computer using the RS Link function to enable the configuration of a multi-point measurement system comprising a maximum of 60 gages.
- I/O outputs for RS-232C, BCD, tolerance judgment and segment output are available.
- Maximum, minimum and runout measurement between channels (in the same unit) is possible in addition to normal measurement on individual channels.

SYSTEM CONFIGURATION

Mitutoyo probes, EV-16A counters and D-EV display units combined with commercial controllers and personal computers enable construction of a powerful, multi-channel system that can be built to meet the needs of almost any measurement application.



DIMENSIONS



Unit: mm

SPECIFICATIONS

Order No.		519-335
Number of gage inputs		Six
Quantizing error		±1 LSD
Display range (mm)		±2.000, ±0.200
Resolution (mm)		0.001, 0.0001
Display processing		8 digits for parameters (display setting), 1 for error display
Error messaging		Power supply voltage error, Gage error, etc.
External display		Dedicated external display unit D-EV (optional) can be connected
Number of input switches		4
Input switch function		Measurement mode switching, Parameter settings
I/O	Tolerance judgment output	1 to 6 gages (L1, L2, L3), open-collector
	BCD output	Parallel BCD output (positive/negative-true logic), open-collector
	Segment output	A function to enable only output from the terminal corresponding to the counting values, open-collector
	Control output	Normal operation signal (NOM), open-collector
	Control input	Output channel designation (segment, in BCD mode), presetting, peak value clear, range changeover (at segment output), holding counting value, open-collector or no-voltage contact signal (with/without contact point)
Interface	RS-232C	Measurement data output and control input, EIA RS-232C-compatible Use cross cables for home position DTE (terminal definition)
	RS link	Max. connected units: 10 (6 when using EF counter) Connecting cable length: Max. 10 m (sum of link cable length) Data transfer time: 1.1 sec./60 ch (when transmission rate is 19200 bps)
Rating	Power supply voltage	Terminal (M3 screw), 12-24 VDC
	Current consumption	1 A
Operating temperature (humidity) range		0 to 40 °C (RH 20 to 80%, non-condensing)
Storage temperature (humidity) range		-10 to 50 °C (RH 20 to 80%, non-condensing)
External dimensions		144(W)×72(H)×139(D)mm
Mass		Approx. 1000 g
Standard accessories		Fixing foot (4), connecting bracket (4), fixing screw M4×8 (8)
Applicable probes		For probes, refer to pages G-25 and G-26.