

MEASURING TOOLS

MICROMETERS

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ไมโครมิเตอร์วัดภายนอกแบบหมุนเร็ว

QuantuMike

SERIES 293 - IP65 Micrometer with 2mm/rev Spindle Feed

IP65



IP Codes

- Level 6: Dust-proof.
No ingress of dust allowed.
Protected against water jets.
- Level 5: Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

Dust/Water protection level:	IP65 (IEC60529) ^{*2}
Measuring force:	7 to 12N ^{*3}
Battery:	SR44 (1 pc), 938882, for initial operational checks (Standard accessory) Electromagnetic rotary sensor
Length standard:	Approx. 1.2 years under normal use
Battery life:	Reference bar, 1pc (except for 0-25mm (0-1") models)
Standard accessories:	Spanner (No.301336), 1pc

^{*2} Rustproofing shall be applied after use.^{*3} Measuring force when using the speeder ratchet (Apply a measuring force in the same condition as for measurement and then set the origin.)

Functions

Origin point setting

(ABS length measurement system):

Pressing the ORIGIN button resets the ABS origin at the current spindle position. Origin values can be set depending on each size.

Zero setting

(INC length measurement system):

A brief press on the ZERO/ABS button sets display to zero at the current spindle position and switches to the incremental (INC) measuring mode. A longer press resets to the ABS measuring mode.

Hold:

Pressing the HOLD button freezes the current value in the display. This function is useful for preserving a measurement in situations of poor visibility when the instrument must be moved away from the workpiece before the reading can be recorded.

Function lock:

This function allows the ORIGIN (origin point setting) function and the ZERO (zero setting) function to be locked to prevent these points being reset accidentally.

Auto power ON/OFF:

The reading on the LCD disappears after this instrument is idle for approx. 20 minutes, but the origin point is retained. Turning the spindle causes the reading on the LCD to reappear.

Data output^{*4}:

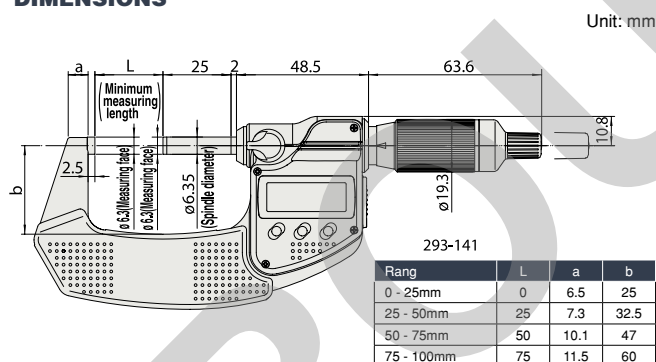
Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system.

Error alarm:

In case of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents an instrument from giving an erroneous reading. Also, when the battery voltage drops to a certain level, the low-battery-voltage alarm annunciator appears well before the micrometer becomes unusable.

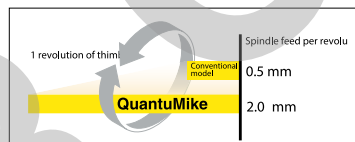
^{*4} Only for the models with SPC data output

DIMENSIONS

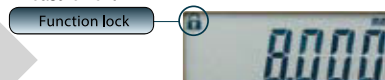


FEATURE

- Advanced pioneering technology has created the next generation of micrometer, the most revolutionary advance in micrometer technology since James Watt invented the instrument.
- Faster measurement is achieved by using a coarser thread which feeds the spindle by 2 mm per revolution of the thimble. This increase in thread lead has been made possible thanks to new high precision threadcutting and testing techniques.



- QuantuMike is equipped with a function lock feature to prevent the origin point being moved by mistake during measurement.



- A graduated scale is provided on the sleeve for use with a reference mark on the thimble so that every millimeter displacement can be checked to provide extra confidence.



- The ratchet thimble mechanism helps ensure repeatable results by transmitting microvibrations along the spindle to the contact face to provide a constant measuring force and encourage good contact with the workpiece. The ratchet works from the thimble as well as the speeder so it is always easy to use – even when making measurements onehanded. The sound of the ratchet provides the user with a sense of confidence and the speeder enables the rapid spindle feed needed when measuring widely different dimensions.



Ratchet-induced microvibrations along the spindle help ensure repeatable measurements.

- A statistical process control system and a measurement network system can be established to share information regarding quality with a model equipped with the data output function. (Refer to page A-002 for details.)
- There is a lineup of convenient Interface Input Tools which enable the conversion of measurement data to keyboard signals and directly input them to cells in off-the-shelf spreadsheet software such as Excel. (Refer to page A-004 for details.)
- Excellent resistance against oil, water and dust (IP65 protection level) enables this product to be used in machining situations that include splashing coolant fluid.
- Measuring faces: Carbide.

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

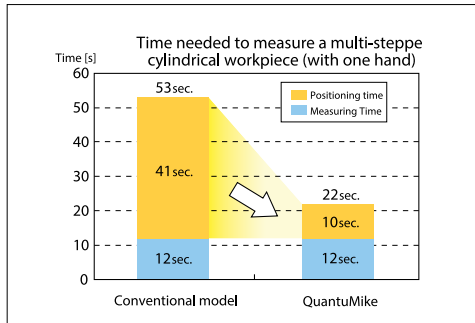
Micrometers
ไมโครมิเตอร์

Mitutoyo

Measuring time on a 6-stepped workpiece with on hand

Thanks to the quick movement, positioning times are reduced by 60%* and measuring times by 35%* compared with a conventional micrometer.

*According to Mitutoyo's comparison test data for measuring time on typical workpieces.



OPTIONAL ACCESSORIES

(Only for models with data output function)
Connecting cables with output switch

1m: **No. 05CZA662**

2m: **No. 05CZA663**

USB Input Tool Direct

USB-ITN-B (2m): **No. 06AFM380B**

Wireless data output **U-WAVE/fit**

U-WAVE-TM **264-622** (IP67 type)

264-623 (Buzzer type)

Connecting cables for **U-WAVE-TM**
No. 02AZF310 (IP67 type)

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

Metric

	Order No.	Range	Resolution	Accuracy*1	Flatness	Parallelism	Mass
	293-140-30	0-20mm					265g
with SPC data	293-141-30	25-50mm		±1μm		1μm	325g
output	293-142-30	50-75mm				2μm	465g
	293-143-30	75-100mm	0.001mm	±2 μm	0.3μm		620g
	293-145-30	0-25mm				1μm	265g
without SPC	293-146-30	25-50mm		±1μm			325g
data output	293-147-30	50-72mm				2μm	465g
	293-148-30	75-100mm		±2 μm			620g

*1 Excluding quantizing error of ±1 count

Inch / Metric

	Order No.	Range	Resolution	Accuracy*1	Flatness	Parallelism	Mass
	293-180-30	0-1"				0.00004"	265g
with SPC data	293-181-30	1"-2"		±0.00005"			325g
output	293-182-30	2"-3"				0.00008"	465g
	293-183-30	3"-4"	0.00005"/	±0.0001"	0.000012"		620g
	293-185-30	0-1"	0.001mm			0.00004"	265g
without SPC	293-186-30	1"-2"		±0.00005"			325g
data output	293-187-30	2"-3"				0.00008"	465g
	293-188-30	3"-4"		±0.0001"			620g

*1 Excluding quantizing error of ±1 count

ไมโครมิเตอร์วัดภายนอกกันน้ำ

Coolant Proof Micrometers

SERIES 293 - with Dust/Water Protection Conforming to IP65 Level

IP65



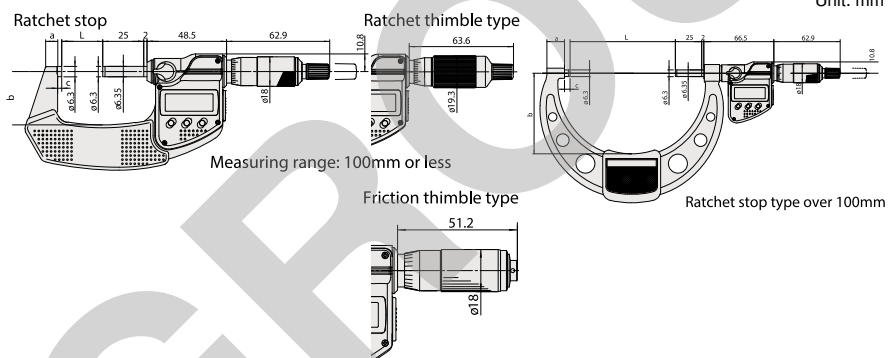
293-230-30



293-252-30

DIMENSIONS

Range	Order No.	L	a	b	c
0-25mm	293-230-30/293-240-30	0	6.5	25	
25-50mm	293-231-30/293-241-30	25	7.3	32.5	
50-75mm	293-232-30/293-242-30	50	10.1	47	
75-100mm	293-233-30/293-243-30	75	11.5	60	
0-25mm	293-234-30/293-244-30	0	6.5	25	2.5
25-50mm	293-235-30/293-245-30	25	7.3	32.5	
100-125mm	293-250-30	100	16.7	76	5.3
125-150mm	293-251-30	125	18.8	90	5.7
150-175mm	293-252-30	150	19.1	103	6.1
175-200mm	293-253-30	175	18.2	115	6.3
200-225mm	293-254-30	200	16.8	126	6.7
225-250mm	293-255-30	225		139	5.5
250-275mm	293-256-30	250	18	152	
275-300mm	293-257-30	275		166	6.5



IP Codes

- Level 6 : Dust-proof.
No ingress of dust allowed.
Level 5: Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

Flatness : 0.3μm/.000012"
Dust/Water protection level : IP65 (IEC60529)²
Measuring force: 5 to 10N (ratchet thimble type is 7 to 12N.)³
Battery: **SR44** (1 pc), **938882**, for initial operational checks (Standard accessory)
Electromagnetic rotary sensor
Battery life: Approx. 2.4years under normal use
Length standard: Electromagnetic rotary sensor
Standard accessories: Reference bar, 1pc (except for 0-25mm (0-1") models)
Spanner (**No.301336**), 1pc

² Rustproofing shall be applied after use.
³ Refer to page B-004 for details.

Optional accessories

(Only for models with data output function)

Connecting cables with output switch

1m: **No. 05CZA662**

2m: **No. 05CZA663**

USB Input Tool Direct

USB-ITN-B (2m): **No. 06AFM380B**

Wireless data output **U-WAVE/it**

U-WAVE-TM 264-622 (IP67 type)

264-623 (Buzzer type)

Connecting cables for **U-WAVE-TM**

No. 02AZF310 (IP67 type)

FEATURE

- World's highest performing micrometer overall.
- Extended battery life of approximately 2.4 years.
- Ergonomic anti-slip frame cover and front panel for more comfortable hand-held measurements.
- Ratchet thimble provides better operability for one-handed operation.
- Oil-resistant material used for all plastic parts.

- Models equipped with a Digimatic output port can form part of a statistical process control or networked measurement system. (Refer to page A-002 for details.)
- Interface Input Tools are available that enable the conversion of measurement data to keyboard signals that are then directly input to cells in off-the-shelf spreadsheet software such as Excel. (Refer to page A-004 for details.)
- Two types of constant-force devices are available: Ratchet Stop and Ratchet Thimble.
- Measuring faces: Carbide

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

Micrometers
ไมโครมิเตอร์

Metric

	Order No.	Range	Resolution	Accuracy*1	Parallelism	Constant-force device	Mass
	293-230-30	0-25mm			1μm		270g
	293-231-30	25-50mm		±1μm			330g
	293-232-30	50-75mm			2μm		470g
	293-233-30	75-100mm					625g
	293-250-30	100-125mm		±2μm			600g
	293-251-30	125-150mm			3μm	With ratchet	740g
	293-252-30	15-175mm				stop	800g
with SPC data	293-253-30	175-200mm	0.001mm	±3μm			970g
output	293-254-30	200-225mm			4μm		1100g
	293-255-30	225-250mm					1270g
	293-256-30	250-275mm		±4μm			1370g
	293-257-30	275-300mm			5μm		1590g
	293-234-30	0-25mm			1μm		280g
	293-235-30	25-50mm		±1μm		With ratchet	340g
	293-236-30	50-75mm			thimble		480g
	293-237-30	75-10mm		±2μm	2μm		635g
	293-240-30	0-25mm			1μm		270g
	293-241-30	25-50mm		±1μm		With ratchet	330g
	293-242-30	50-75mm			stop		470g
without SPC	293-243-30	75-100mm	0.001mm	±2μm	2μm		625g
data output	293-244-30	0-25mm			1μm		280g
	293-245-30	25-50mm		±1μm		With ratchet	340g
	293-246-30	50-75mm			thimble		480g
	293-247-30	75-100mm		±2μm	2μm		635g

*1 Excluding quantizing error of ±1 count

* All-Digit preset type : models over 125mm(5") measuring range are presettable.

Functions

Origin point setting

(ABS length measurement system):

Pressing the ORIGIN button resets the ABS origin at the current spindle position. Origin values can be set depending on each size.

Zero setting

(INC length measurement system):

A brief press on the ZERO/ABS button sets display to zero at the current spindle position and switches to the incremental (INC) measuring mode. A longer press resets to the ABS measuring mode.

HOLD:

Pressing the HOLD button freezes the current value in the display. This function is useful for preserving a measurement in situations of poor visibility when the instrument must be moved away from the workpiece before the reading can be recorded.

Data output*1 :

Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system.

*1: Only models with the data output function

Auto power ON/OFF:

The reading on the LCD disappears after this instrument is idle for approx. 20 minutes, but the origin point is retained. Turning the spindle causes the reading on the LCD to reappear.

Error alarm:

In case of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents an instrument from giving an erroneous reading. Also, when the battery voltage drops to a certain level, the low-battery-voltage alarm annunciator appears well before the micrometer becomes unusable.

Function lock :

This function allows the ORIGIN (origin point setting) function and the ZERO (zero-setting) function to be locked to prevent these points being reset accidentally.

Inch/Metric

	Order No.	Range	Resolution	Accuracy*1	Parallelism	Constant-force device	Mass
	293-330-30	0 - 1"			.00004"		270g
	293-331-30	1" - 2"	.00005"	±.00005"			330g
	293-332-30	2" - 3"	/0.001mm		.00008"		470g
	293-333-30	3" - 4"					625g
	293-350-30	4" - 5"		±.0001"			600g
	293-351-30	5" - 6"			.00012"	With ratchet	740g
	293-352-30	6" - 7"				stop	800g
with SPC data	293-353-30	7" - 8"	.0001"	±.00015"			970g
output	293-354-30	8" - 9"	/0.001mm		.00016"		1100g
	293-355-30	9" - 10"					1270g
	293-356-30	10" - 11"		±.0002"			1370g
	293-357-30	11" - 12"			.0002"		1590g
	293-334-30	0 - 1"	.00005"	±.00005"		With ratchet thimble	280g
	293-335-30	1" - 2"	/0.001mm		.00004"	With ratchet	275g
	293-336-30	2" - 3"			thimble		335g
	293-340-30	0 - 1"			.00004"		270g
	293-341-30	1" - 2"		±.00005"		With ratchet	330g
	293-342-30	2" - 3"			.00008"	stop	470g
without SPC	293-343-30	3" - 4"	.00005"	±.0001"			625g
data output	293-344-30	0 - 1"	/0.001mm		.00004"		280g
	293-345-30	1" - 2"		±.00005"		With ratchet	340g
	293-346-30	2" - 3"			.00008"	thimble	480g
	293-347-30	3" - 4"		±.0001"			635g
	293-348-30	0 - 1"		±.00005"	.00004"	With friction thimble	275g

*1 Excluding quantizing error of ±1 count

* All-Digit preset type : models over 125mm(5") measuring range are presettable.

ไมโครมิเตอร์วัดภายนอก

DIGIMATIC OUTSIDE MICROMETER
SERIES 293

Technical Data

Resolution :	0.001 mm or .0001"/0.001 mm
Measuring force :	10 to 15 N SR44 (2pc), 938882 , for initial operational checks (standard accessory)
Battery life :	Approx. 1.8 years under normal use
Length standard :	Electromagnetic rotary sensor
Standard accessories :	Reference bar, 1 pc Spanner (200154), 1 pc

Functions

Origin point setting (ABS measurement system):
Resets the ABS origin at the current spindle position to the minimum value of the measuring range and switches to ABS mode.

Zero-setting (INC measurement system):
A brief press on the ZERO/ABS button sets display to zero at the current spindle position and switches to the incremental (INC) measuring mode. A longer press resets to the ABS measuring mode.

Hold:

Pressing the HOLD button freezes the current value in the display. This function is useful for preserving a measurement in situations of poor visibility where the instrument must be moved away from the workpiece before the reading can be recorded.

Function lock:

function and the ZERO (zero-setting) function to be locked to prevent these points being reset accidentally. This function allows the PRESET (origin point setting)

Auto power ON/OFF:

is idle for about 20 minutes, but the reading and measurement mode are retained. Turning the spindle. The reading on the LCD disappears after this instrument causes the reading to reappear.

Data output:

Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system.

Error alarm:

In case of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents an instrument from giving an erroneous reading. Also, when the battery voltage drops to a certain level, the low-battery-voltage alarm annunciator appears well before the micrometer becomes unusable.

Optional accessories

Connecting Cables

Recommended cables:

L-Type (does not interfere with operating the thimble.)

1m: **04AZB512**

2m: **05AZB513**

Straight type (may interfere with operating the thimble.)

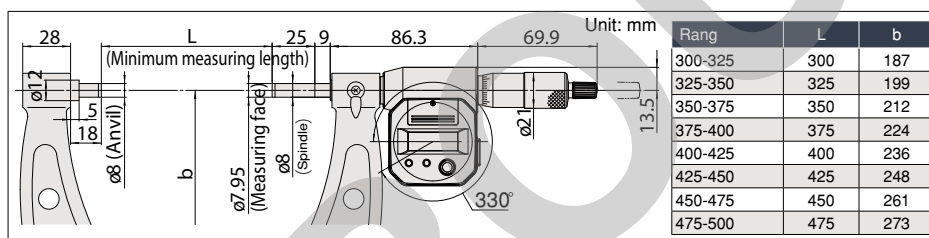
1m: **959149**

2m: **959150**

FEATURE

- Models equipped with a Digimatic output port can form part of a statistical process control or networked measurement system. (Refer to page A-002 for details.)
- Constant-force device: ratchet stop
- Interface Input Tools are available that enable the conversion of measurement data to keyboard signals that are then directly input to cells in off-the-shelf spreadsheet software such as Excel. (Refer to page A-004 for details.)
- Measuring faces: Carbide

DIMENSIONS



Metric

Order No.	Range	Accuracy*	Flatness	Parallelism
293-582	300 - 325mm	±6μm	0.6μm	5μm
293-583	325 - 350mm			
293-584	350 - 375mm			
293-585	375 - 400mm	±7μm		6μm
293-586	400 - 425mm			
293-587	425 - 450mm			
293-588	450 - 475mm	±8μm		7μm
293-589	475 - 500mm			

* Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Accuracy*	Flatness	Parallelism
293-782	12"-13"			
293-783	13"-14"	±.0003"		.0002"
293-784	14"-15"			
293-785	15"-16"		.000024"	
293-786	16"-17"	±.00035"		.00024"
293-787	17"-18"			
293-788	18"-19"	±.0004"		
293-789	19"-20"		.00028"	

* Excluding quantizing error of ±1 count

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

ไมโครมิเตอร์วัดภายนอกพื้นฐานประหยัด

DIGIMATIC OUTSIDE MICROMETER SERIES 293



293-821-30



Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

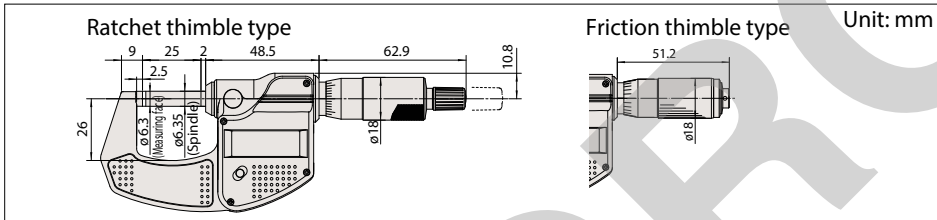
Micrometer Head

หัวไมโครมิเตอร์

FEATURE

- Extended battery life of approximately 2.4 years.
- Simple design and excluding the data output function keeps price economical.
- One switch operation (Origin Set) for easy use.
- Equipped with Ratchet Stop for constant measuring force.
- Measuring faces: Carbide.

DIMENSIONS



Metric with ratchet stop / Measuring force : 5 - 10N

Order No.	Range	Resolution	Accuracy*
293-821-30	0 - 25mm	0.001mm	±2μm

* Excluding quantizing error of ±1 count

Inch / Metric with ratchet stop / Measuring force : 5 - 10N

Order No.	Range	Resolution	Accuracy*
293-831-30	0 - 1"	.00005" / 0.001mm	±.0001"

* Excluding quantizing error of ±1 count

Inch / Metric with friction thimble / Measuring force : 5 - 10N

Order No.	Range	Resolution	Accuracy*
293-832-30	0 - 1"	.00005" / 0.001mm	±.0001"

* Excluding quantizing error of ±1 count

Technical Data

SR44 (1 pc), **938982**, for initial operational checks (standard accessory)

Length standard : Electromagnetic rotary sensor
Reference bar, 1 pc
Standard accessories : Spanner (200154), 1 pc

Functions

Zero-setting :

A brief press on the ORIGIN button sets display to zero at the current spindle position (zero-setting), which allows easy comparison measurement.

Auto power ON/OFF :

The reading on the LCD disappears after this instrument is idle for about 20 minutes, but the reading is retained. Turning the spindle causes the reading on the LCD to reappear.

Error alarm:

In case of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents an instrument from giving an erroneous reading. Also, when the battery voltage drops to a certain level, the low-battery-voltage alarm annunciator appears well before the micrometer becomes unusable.

ไมโครมิเตอร์วัดภายนอก

Quickmike

SERIES 293 - IP65 ABSOLUTE DIGIMATIC MICROMETERS

ABSOLUTE™

IP65

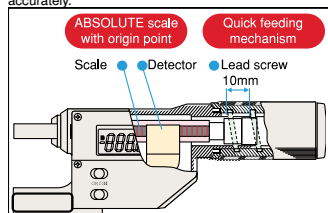


IP Codes

- Level 6 : Dust -proof.
No ingress of dust allowed.
Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

- Resolution : 0.001mm, .00005"/0.001mm
Accuracy : Refer to the list of specifications
Measuring force : 5 -12N
SR44 (1 pc), **938882**, for initial operational checks (standard accessory)
Battery life : Approx. 5 years under normal use (1 year for No. 293-667, 668, 669, 677, 678, 679)
Length standard : Electrostatic capacity absolute sensor
Standard accessories : Reference bar, 1 pc (except for measuring rang 0-30mm (0-1.2") models)
Maximum response speed: without limit
The non-rotating spindle enable even inexperienced operators to perform measurements repeatably and accurately.



Functions

- Origin point setting
Zero-setting
Function lock
On/off
Auto power off
Data output
Error alarm
Min Value hold

Optional accessories

- Connecting cables
1m : **05CZA662**
2m : **05CZA663**
USB Input Tool Direct
USB-ITN-B (2m) : 06AFM380B
Connecting cables for **U-WAVE-T**
02AZD790B 160mm
For foot switch : **02AZE140B**

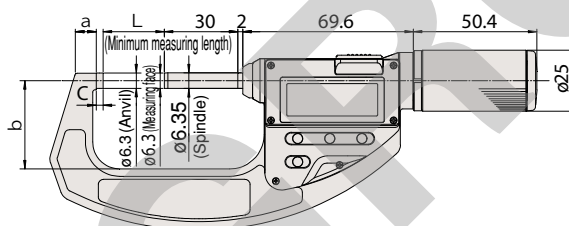


293-669-20

FEATURE

- The Quickmike provides a speedy spindle feed of 10mm per thimble rotation, which enables widely differently sized features to be measured quickly.
- Set the origin only once. The absolute linear scale maintains the origin throughout the life of battery, meaning no more zero setting (presetting) or over speed error.
- Measuring faces: Carbide
- Supplied with a Ratchet Stop for constant measuring measuring force.
- The lineup includes Blade Micrometer types (refer to page B-066), Disk Micrometer types (refer to page B-069) and PCrimp Height Micrometer types (refer to page B-068).

DIMENSIONS



Unit : mm

Rang	L	a	b	c
0 - 30	0	7	25	2
25 - 55	25	8.5	36	
50 - 80	50	10.3	47	
75 - 105	75	10.7	60	

Metric

Order No.	Range	Accuracy*	Flatness	Parallelism	Mass	Output function
293-666-20	0 - 30mm	±2μm	0.3μm	2μm	275g	With
293-667-20	25 - 55mm				340g	
293-668-20	50 - 80mm	480g				
293-669-20	75 - 105mm	±3μm		3μm	585g	

* Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Accuracy*	Flatness	Parallelism	Mass	Output function
293-676-20	0 - 1.2"	±.0001"	.000012"	.00008"	275g	With
293-677-20	1" - 2.2"				340g	
293-678-20	2" - 3.2"	±.00015"			480g	
293-679-20	3" - 4.2"			.00012"	585g	

* Excluding quantizing error of ±1 count

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

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Height Gages

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Linear Height

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Gauge Blocks

เกจบล็อก

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Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

ไมโครมิเตอร์วัดภายนอก

ABSOLUTE DIGIMATIC MICROMETERS SERIES 227 - with Adjustable Measuring Force

MeasurLink[®] ENABLED
Data Management Software by Mitutoyo



227-201-20

ABSOLUTE[™]

Technical Data

Flatness :	0.3μm / .000012"
Parallelism :	2μm / .00008"
Measurement posture :	horizontal orientation only (Recommended spindle inclination : within ±3°)
SR44 (1 pc) 938882 (standard accessory)	for initial operational checks
Battery life :	Approx. 5 years under normal use Approx. 18,000 hours in continuous use
Length standard :	Electrostatic capacity absolute sensor
Standard accessories :	Reference bar, 1 pc (except for measuring range 0-15mm (0-.6")/0-10mm (0-.4") models) Screwdriver (210183), 1pc

Functions

Preset
Zero setting
Hold
Function Lock
On/off
Auto power off
Data output
Error alarm
Adjustable measuring force mechanism

Optional accessories

Connecting cables
1m : **05CZA662**
2m : **05CZA663**
USB Input Tool Direct
USB-ITN-B (2m) : **06AFM380B**
Connecting cables for **U-WAVE-T**
02AZD790B 160mm
For foot switch : **02AZE140B**

Adjustable measuring force

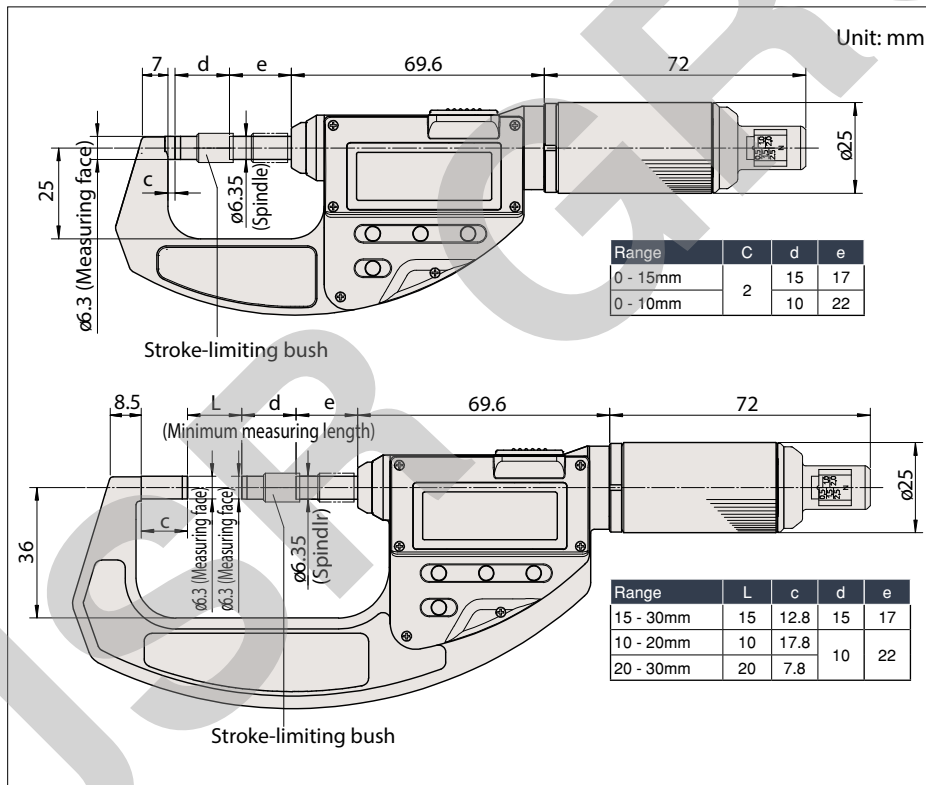
To preset the measuring force, adjust the measuring force setting scale on the thimble with the screwdriver supplied.



FEATURE

- Digimatic micrometer dedicated to applications requiring a constant/low measuring force such as measuring wire, paper, and plastic/rubber parts.
- Ratchet mechanism in the thimble applies constant force to workpiece.
- Compact and easy to handle.
- Measuring force is adjustable (in steps) to suit various kinds of workpiece.
- High-accuracy measurement can be performed even by unskilled operators due to the repeatability of the automatically applied measuring force.
- Non-rotating spindle.
- Measuring faces: Carbide

DIMENSIONS



Metric

Order No.	Range	Measuring force	Resolution	Accuracy*	Measuring force	Accuracy of the selected measuring force *1	Repeatability of measuring force *1	Mass
227-201-20	0 - 15mm	0.5N - 2.5N	0.001mm	$\pm 2\mu\text{m}$	0.5, 1.0, 1.5, 2.0, 2.5N	$\pm(0.1 + \text{the selected measuring force} / 10)\text{N}$	within 0.1N	300g
227-203-20	15 - 30mm							380g
227-205-20	0 - 10mm	2N - 10N	0.001mm	$\pm 2\mu\text{m}$	2, 4, 6, 8, 10N	$\pm(0.4 + \text{the selected measuring force} / 10)\text{N}$	within 0.4N	345g
227-206-20	10 - 20mm							425g
227-207-20	20 - 30mm							415g

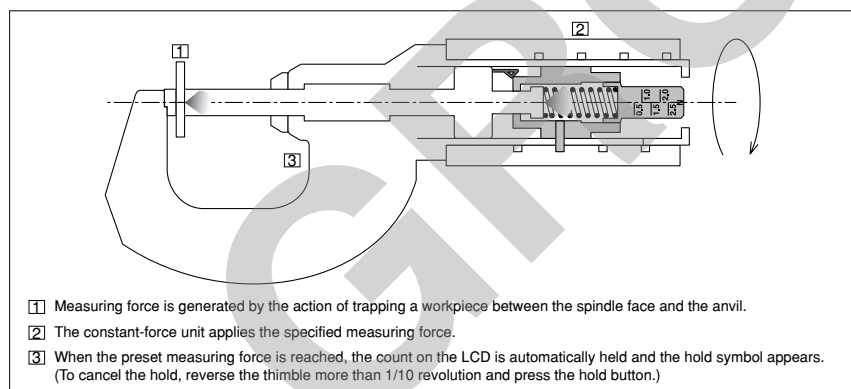
* Excluding quantizing error of ± 1 count*1 : These values are guaranteed used in a horizontal orientation (within ± 3 degrees)

Inch / Metric

Order No.	Range	Measuring force	Resolution	Accuracy*	Measuring force	Accuracy of the selected measuring force *1	Repeatability of measuring force *1	Mass
227-211-20	0 - .6"	0.5 - 2.5N	0.00005"/ 0.001mm	$\pm 0.0001"$	0.5, 1.0, 1.5, 2.0, 2.5N	$\pm(0.1 + \text{the selected measuring force} / 10)\text{N}$	within 0.1N	300g
227-213-20	.6" - 1.2"							380g
227-215-20	0 - 0.4"	2 - 10N	0.001mm	$\pm 0.0001"$	2, 4, 6, 8, 10N	$\pm(0.4 + \text{the selected measuring force} / 10)\text{N}$	within 0.4N	345g
227-216-20	0.4 - 0.8"							425g
227-217-20	0.8 - 1.2"							415g

* Excluding quantizing error of ± 1 count*1 : These values are guaranteed used in a horizontal orientation (within ± 3 degrees)

Constant-measuring-force mechanism

Micrometer
ไมโครมิเตอร์Inside
Measurement
เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

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Gauge Blocks

เกจบล็อก

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ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์วัดภายนอก

OUTSIDE MICROMETERS SERIES 102

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์



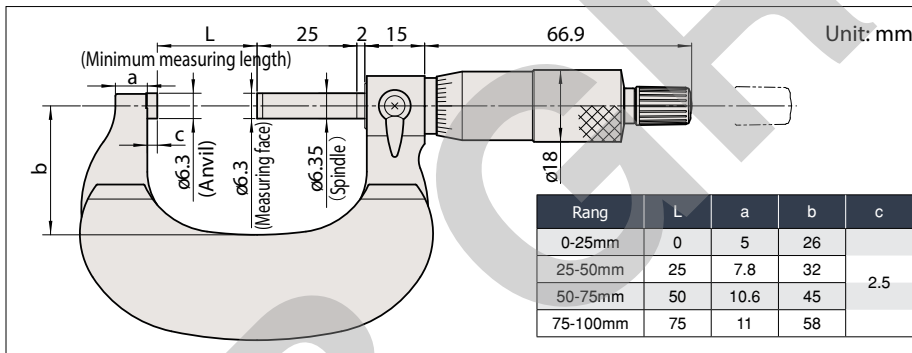
Ratchet stop
102-301

FEATURE

- Heat-insulated frame.
- Cut-away frame (behind anvil) for measuring in hard-to-reach places
- A ratchet stop or a friction thimble for a constant measuring force.
- Measuring faces : Carbide.



DIMENSIONS



Common specifications :
Standard accessories : Reference bar, 1 pc
(except for measuring range 0-25mm models)
Spanner (301336), 1 pc
(for measuring range 0-25mm/25-50mm models)
Spanner (200877), 1 pc
(for measuring range 50-75mm / 75-100mm models)

Ratchet stop type



Friction thimble type



Metric

Order No.	Range	Graduation	Accuracy	Flatness	Parallelism	Constant-force device
102-301	0-25mm	0.01mm	±2μm	0.6μm	2μm	Ratchet stop
102-302	25-50mm					

Metric

Order No.	Range	Graduation	Accuracy	Flatness	Parallelism	Constant-force device
102-311	0-25mm					Ratchet stop
102-313		0.001mm	±1μm	0.3μm	1μm	Friction thimble
102-312	25-50mm					
102-303	50-75mm		±2μm		2μm	Ratchet stop
102-304	75-100mm	0.01mm	±3μm	0.6μm	3μm	

Metric - Micrometer Set

Order No.	Range	Models included
102-911-40	0-100mm (Four micrometers per set)	• 102-301 • 102-302 • 102-303 • 102-304 • 3 micrometer standards

ไมโครมิเตอร์วัดภายนอก

OUTSIDE MICROMETERS

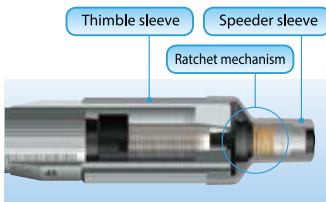
SERIES 102 - Ratchet Thimble Micrometer



Technical Data

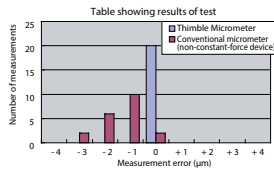
Flatness: 0.6 μm /0.000024"
Parallelism: 2 μm / .00008"
Measuring force: 5 - 10N
Standard accessories: Reference bar, 1 pc
(except for measuring range 0-25 mm (0-1") models)
Spanner (301336), 1 pc

Internal Structure



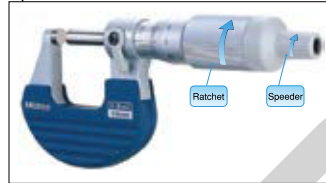
Greatly Improved Accuracy and Repeatability

Measurement results of one-handed operation
A beginner performed a test by measuring a workpiece 20 times using a conventional micrometer and a Ratchet Thimble Micrometer.

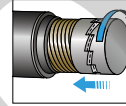


FEATURE

- More accurate in one-handed operation: inexperienced operators measure significantly more accurately with the new micrometer.
- Ratchet function works both from the thimble and the speeder.



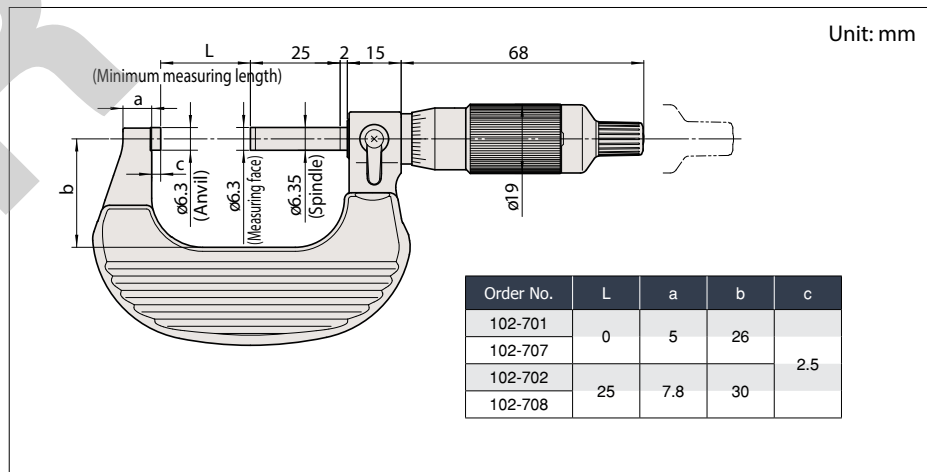
- Rotating the thimble/ speeder when the workpiece is between the anvil and spindle causes the ratchet mechanism to operate and apply a constant measuring force to the workpiece.



- Clearly audible ratchet operation for reassurance that measurement is being performed at constant, preset force.
- The speeder is always available for quick rotation of spindle.
- A simple mechanism, which requires neither parts maintenance nor special technique, is employed in the constant-force device.
- Heat-insulated frame.
- Measuring faces: Carbide



DIMENSIONS



Metric

Order No.	Range	Graduation	Accuracy	Mass
102-701	0-25mm	0.01mm	26 μm	180g
102-707		0.001mm		
102-702	25-50mm	0.01mm		270g
102-708		0.001mm		

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์วัดภายนอก

OUTSIDE MICROMETERS SERIES 103

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

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Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์



Technical Data

Measuring Force:

5 - 10 N (for maximum measuring range 300 mm or less)

10 - 15 N (for maximum measuring range 325 mm or more)

Flatness: 0.6 μm/0.000024 in for models up to 300 mm/12"

1 μm/0.00004 in for models over 300 mm/12"

Parallelism:

(2 + R/100) μm, R = max. range (mm)

[0.00008+0.00004 (R/4)] in, R = max. range (inch)

*fraction rounded down

Standard accessories: Reference bar, 1 pc

(except for measuring range 0-25 mm (0-1 in) models)

Spanner (301336), 1 pc

(for maximum measuring range up to 300 mm (12 in))

Spanner (200154), 1 pc

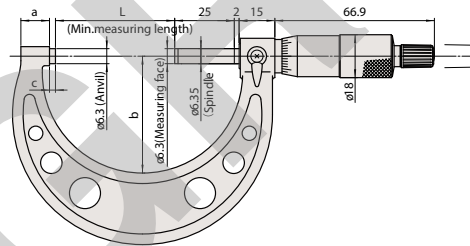
(for maximum measuring range 325 mm (13 in) or over)

FEATURE

- Baked-enamel-finished frame.
- Measuring faces: Carbide.
- Equipped with Ratchet Stop for constant measuring force.

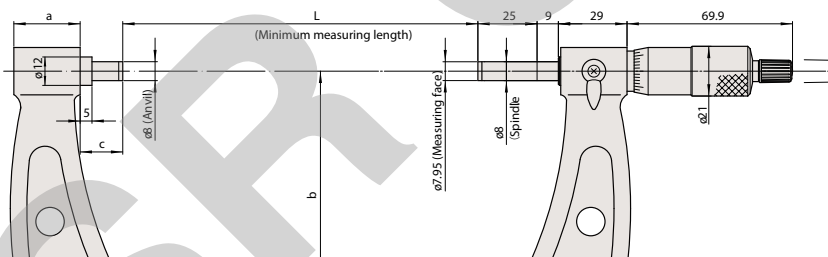
DIMENSIONS

103-137 and 103-138, Models 75mm to 300 mm



Unit: mm

Models 325 mm to 1000 mm



Range	L	a	b	c
0 - 25mm	0	9	28	2.5
25 - 50mm	25	10	38	
50 - 75mm	50	12	49	
75 - 100mm	75	14	60	
100 - 125mm	100	16.7	79	5.3
125 - 150mm	125	18.8	94	5.7
150 - 175mm	150	19.1	106	6.1
175 - 200mm	175	18.2	118	6.3
200 - 225mm	200	16.8	130	6.7
225 - 250mm	225	18	143	5.5

Range	L	a	b	c
250 - 275mm	250	18	156	6.5
275 - 300mm	275		169	
300 - 325mm	300		187	
325 - 350mm	325		199	
350 - 375mm	350	28	212	18
375 - 400mm	375		224	
400 - 425mm	400		236	
425 - 450mm	425		248	
450 - 475mm	450		261	
475 - 500mm	475		273	

Range	L	a	b	c
500 - 525mm	500	28	307	40
525 - 550mm	525			15
550 - 575mm	550		332	40
575 - 600mm	575			15
600 - 625mm	600		355	40
625 - 650mm	625			15
650 - 675mm	650		382	40
675 - 700mm	675			15
700 - 725mm	700		405	40
725 - 750mm	725			15
750 - 775mm	750		430	40
775 - 800mm	775			15
800 - 825mm	800		455	40
825 - 850mm	825			15
850 - 875mm	850		480	40
875 - 900mm	875			15
900 - 925mm	900		505	40
925 - 950mm	925			15
950 - 975mm	950		530	40
975 - 1000mm	975			15

Metric with ratchet stop

Order No.	Range	Graduation	Accuracy
103-137	0-25mm	0.01mm	±2μm
103-129		0.001mm	
103-138		0.01mm	
103-130	25-50mm	0.001mm	±3μm
103-139-10			
103-140-10	50-75mm		±4μm
103-141-10	75-100mm		
103-142-10	100-125mm		
103-143-10	125-150mm		±5μm
103-144-10	150-175mm		
103-145-10	175-200mm		
103-146-10	200-225mm		±6μm
103-147-10	225-250mm		
103-148-10	250-275mm		
103-149	275-300mm		±7μm
103-150	300-325mm		
103-151	325-350mm		
103-152	350-375mm		±8μm
103-153	375-400mm		
103-154	400-425mm		
103-155	425-450mm		±9μm
103-156	450-475mm		
103-157	475-500mm		
103-158	500-525mm		±10μm
103-159	525-550mm		
103-160	550-575mm		
103-161	575-600mm		±11μm
103-162	600-625mm		
103-163	625-650mm		
103-164	650-675mm		±12μm
103-165	675-700mm		
103-166	700-725mm		
103-167	725-750mm		±13μm
103-168	750-775mm		
103-169	775-800mm		
103-170	800-825mm		±14μm
103-171	825-850mm		
103-172	850-875mm		
103-173	875-900mm		±15μm
103-174	900-925mm		
103-175	925-950mm		
103-176	950-975mm		
103-176	975-1000mm		

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

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Linear Height

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ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์



103-904-10



103-905-10



103-906

Metric Micrometer set / With ratchet thimble

Order No.	Range	Models included
103-927-10	0-75mm (3 pcs./set)	103-137, 103-138, 103-139-10, 2 micrometer standards
103-913-50	0-150mm (6 pcs./set)	103-137, 103-138, 103-139-10, 103-140-10, 103-141-10, 103-142-10, 5 micrometer standards
103-915-10	150-300mm (6 pcs./set)	103-143-10, 103-144-10, 103-145-10, 103-146-10, 103-147-10, 103-148-10, 6 micrometer standards
103-914-50	0-300mm (12 pcs./set)	All micrometers of 103-913-50 and 103-915-10 in one set, 11 micrometer standards

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

ไมโครมิเตอร์วัดภายนอก

DIGIT OUTSIDE MICROMETERS SERIES 193

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์



193-101



193-111



193-112

Technical Data

Counter Reading : 0.01mm or .001"

Flatness : 0.6μm/0.00024"

Parallelism : (2+R/100)μm, R=max, range(mm)

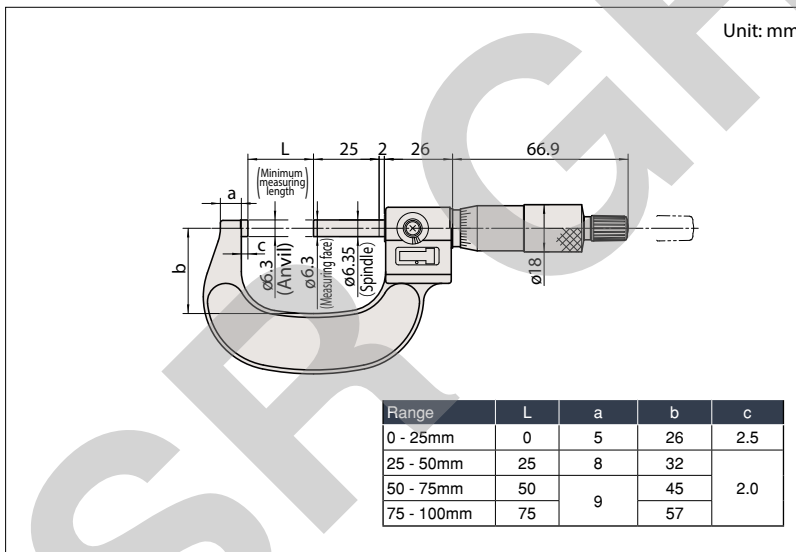
[.00008+.00004(R/4)]", R=max, range (inch)
*fraction rounded down

Standard accessories : Reference bar, 1pc
(except for measuring range 0-25mm (0-1") models)
Spanner (301336), 1 pc

FEATURE

- Mechanical digit counter with 0.01mm or .001" resolution for quick and error-free reading.
- Measuring faces: Carbide
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Metric with ratchet stop

Order No.	Range	Graduation	Accuracy
193-101	0-25mm	0.01mm	±2μm
193-111		0.001mm	
193-102	25-50mm	0.01mm	±2μm
193-112		0.001mm	
193-103	50-75mm	0.01mm	±3μm
193-113		0.001mm	
193-104	75-100mm	0.01mm	±3μm
193-114		0.001mm	

Metric Micrometer set

Order No.	Range	Models included
193-901	0-75mm (3 pcs./set)	• 193-101, 193-102, 193-103 • 2 micrometer standards
193-902	0-100mm (4 pcs./set)	• 193-101, 193-102, 193-103, 193-104 • 3 micrometer standards.

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

ไมโครมิเตอร์วัดภายนอกแกนไม่หมุน

OUTSIDE MICROMETERS

SERIES 406 - Non-Rotating Spindle Type

Technical Data

Battery : **SR44** (1 pc), **93882**, for initial operational checks (standard accessory)

Battery life : Approx. 2.4 years under normal use

Length : Electromagnetic rotary sensor

Standard accessories: Reference bar, 1 pc (except for measuring range 0-25mm (0-1") models)
Spanner (301336), 1 pc

Optional accessories

Connecting cables

1m: **05CZA662**

2m: **05CZA663**

USB Input Tool Direct

USB-ITN-B (2m): **No. 06AFM380B**

Wireless data output **U-WAVE/ir**

U-WAVE-TM **264-622** (IP67 type)

264-623 (Buzzer type)

Connecting cables for **U-WAVE-TM**

No. 02AZF310 (IP67 type)

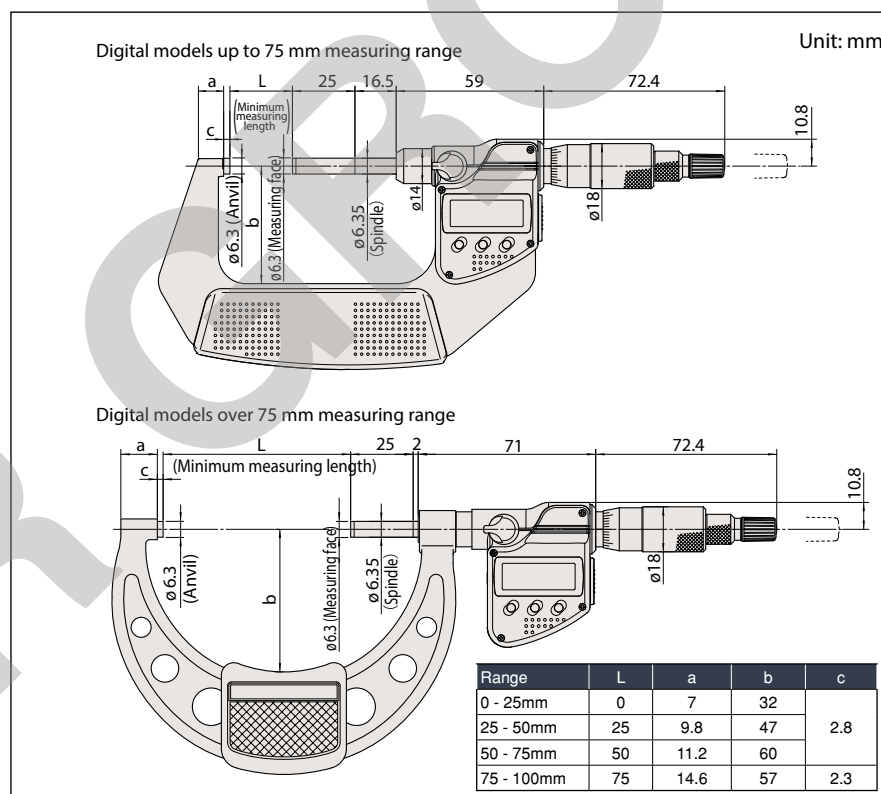


406-250-30

FEATURE

- Non-rotating spindle
- Measuring face of the spindle is carbide tipped.
- Spindle $\phi 6.35$
- Equipped with Ratchet Stop for constant measuring force

DIMENSIONS



Metric

Order No.	Range	Resolution	Accuracy*	Flatness	Parallelism
406-250-30	0-25mm	0.001mm	$\pm 3\mu\text{m}$	0.3 μm	3 μm
406-251-30	25-50mm				
406-252-30	50-75mm				
406-253-30	75-100mm		$\pm 4\mu\text{m}$		4 μm

* Excluding quantizing error of ± 1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*	Flatness	Parallelism
406-350-30	0-1"	.00005"/ 0.001mm	$\pm .00015$ "	.000012"	.00012"
406-351-30	1"-2"				
406-352-30	2"-3"				
406-353-30	3"-4"		$\pm .0002$ "		.00016"

* Excluding quantizing error of ± 1 count

Designed by JSR GROUP

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ห้ามนำไปเผยแพร่ก่อนได้รับอนุญาตจากทางบริษัท

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

ไมโครมิเตอร์วัดภายนอก

INDICATOR TYPE MICROMETERS SERIES 107

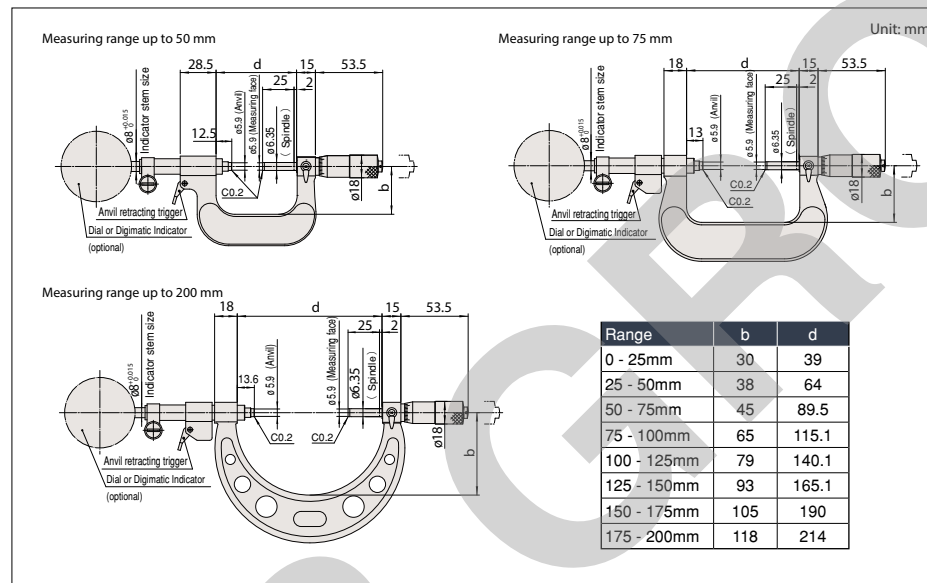


Technical Data

Flatness: 0.6 μ m
Parallelism:
(2 + R/100) μ m, R = max. measuring range (mm)
fraction rounded down
Standard accessories: Reference bar, 1 pc
(except for measuring range 0-25 mm models)
Spanner (301336), 1 pc



DIMENSIONS



Typical indicator choice

Dial indicator (0.01mm) **2046SB**
Dial indicator (0.001mm) / **2109SB-10**
ABS Digimatic Indicator (0.01mm) / **534-400B**
ABS Digimatic Indicator (0.001mm) / **543-390B**
*1 Indicators with stems cannot be installed on this micrometer.

FEATURE

- Designed to mount a dial indicator for direct GO/NG judgment on mass-produced parts.
- Anvil retracting trigger for quick measurement.
- Various kinds of indicators*1 are selectable depending on the measurement type (accuracy required, measuring range, etc.).
- Measuring faces: Carbide
- Anvil stroke: 3mm

Metric with ratchet stop

Order No.	Range	Accuracy
107-201	0-25mm	±2 μ m
107-202	25-50mm	
107-203	50-75mm	
107-204	75-100mm	±3 μ m
107-205	100-125mm	
107-206	125-150mm	
107-207	150-175mm	±4 μ m
107-208	175-200mm	

ไมโครมิเตอร์วัดภายนอกแบบเปลี่ยนแกนรับได้

OUTSIDE MICROMETERS

SERIES 340, 104 - with Interchangeable Anvils

MeasurLink[®] ENABLED
Data Management Software by Mitutoyo

IP 65



IP Codes

Level 6 : Dust-proof.
No ingress of dust allowed.

Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

Flatness:
0.6µm/.000024" for model up to 300mm / 12"
1.0µm/.00004" for models over 300mm/12"

Parallelism:
2µm/.00008" for models up to 75mm/3"
3µm/.00012" for models up to 150mm/6"
(2+R/100)µm for models over 150mm,
R=max. range (mm)
Fraction rounded up
±[.00008" + .00004(R/4)]" For models over 6"
R=max. range (inch)
Fraction rounded up

Accuracy:
±(4+R/7)µm, R=max. range(mm)
±[.00016" + .00004(R/3)]" R=max. range (inch)
(excluding quantizing error for digital models)
Fraction rounded up
Excluding quantizing error

Battery for series 340

SR44 (1 pc), 938882, for initial operational checks
(standard accessory)

Battery life :

Approx. 2.4 years under normal use (for series
340-2XX)

Approx. 1.8 years under normal use (for series
340-5XX)

Length standard :

Electromagnetic rotary sensor (for series 340)

Standard accessories :

Spanner (301336), 1 pc
(for maximum measuring range up to 300mm (12"))

Spanner (200154), 1 pc
(for maximum measuring range 400mm (16") or over)

Optional accessories

Connecting cables for

**340-251-30, 340-252-30, 340-351-30 and
340-252-30**

Wireless data output **U-WAVE™**

U-WAVE-TM **264-622** (IP67 type)

264-623 (Buzzer type)

Connecting cables for **U-WAVE-TM**

No. 02AZF310 (IP67 type)

USB Input Tool Direct

USB-ITN-B (2 m): **06AFM380B**

SPC cables for U-WAVE-T w/ data switch (160 mm):

02AZD790B

For foot switch: **02AZE140B**

Connecting cables for

340-5XX, 340-7XX

Recommended cables:

L-Type (does not interfere with operating the thimble.)

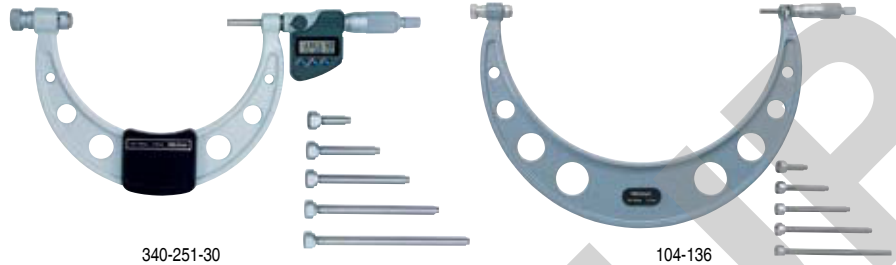
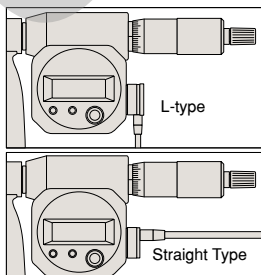
1 m: **04AZB512**

2 m: **04AZB513**

Straight type (may interfere with operating the thimble.)

1 m: **959149**

2 m: **959150**



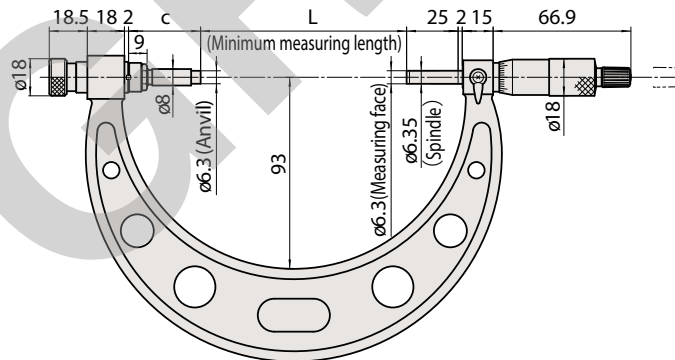
FEATURE

- Wide measuring range with interchangeable anvils.
- Measuring face of the spindle is carbide tipped (standard model).
- IP 65 water/dust protection (series 340).
- * Models with a measuring range up to 300mm.
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS

104-135A

Unit: mm



Interchangeable anvil

		L : Range (mm)					
Range	0 to 150mm models	0 - 25	25 - 50	50 - 75	75 - 100	100 - 125	125 - 150
Range	150 to 300mm models	150 - 175	175 - 200	200 - 225	225 - 250	250 - 275	275 - 300
Order No.		303950	303951	303952	303953	303954	303955
A: Overall length (mm)		135	110	85	60	35	10
Interchangeable anvil		M1	M2	M3	M4	M5	M6

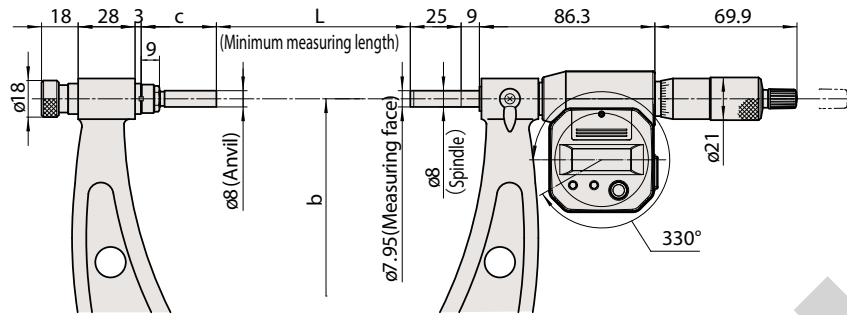
		L : Range (mm)			
Range	300 to 400mm models	300 - 325	325 - 350	350 - 375	375 - 400
Range	400 to 500mm models	400 - 425	425 - 450	450 - 475	475 - 500
Range	500 to 600mm models	500 - 525	525 - 550	550 - 575	575 - 600
Range	600 to 700mm models	600 - 625	625 - 650	650 - 675	675 - 700
Range	700 to 800mm models	700 - 725	725 - 750	750 - 775	775 - 800
Range	800 to 900mm models	800 - 825	825 - 850	850 - 875	875 - 900
Range	900 to 1000mm models	900 - 925	925 - 950	950 - 975	975 - 1000
Order No.		304001	304002	304003	304004
A: Overall length (mm)		87	62	37	12
Interchangeable anvil		M3	M4	M5	M6

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

Over 400 mm up to 1000 mm



	L : Range (mm)				B	C
Range	300 to 400mm models	300 - 325	325 - 350	350 - 375	375 - 400	425 224
Range	400 to 500mm models	400 - 425	425 - 450	450 - 475	475 - 500	525 273
Range	500 to 600mm models	500 - 525	525 - 550	550 - 575	575 - 600	625 332
Range	600 to 700mm models	600 - 625	625 - 650	650 - 675	675 - 700	725 382
Range	700 to 800mm models	700 - 725	725 - 750	750 - 775	775 - 800	825 430
Range	800 to 900mm models	800 - 825	825 - 850	850 - 875	875 - 900	925 480
Range	900 to 1000mm models	900 - 925	925 - 950	950 - 975	975 - 1000	2025 530
Order No.	304001	304002	304003	304004		
A: Overall length (mm)	87	62	37	12		
Interchangeable anvil	M3	M4	M5	M6		

Metric

Order No.	Range	Resolution	Interchangeable anvils	Setting Standard		Micrometer head stroke
				Qty	Size	
Digimatic (LCD)						
340-251-30	0-150mm	0.001mm	6pcs.	5	25-125mm	25mm
340-252-30	150-300mm			6	150-275mm	
340-520	300-400mm		4pcs.	4	300-375mm	
340-521	400-500mm				400-475mm	
340-522	500-600mm				500-575mm	
340-523	600-700mm				600-675mm	
340-524	700-800mm				700-775mm	
340-525	800-900mm				800-875mm	
340-526	900-1000mm				900-975mm	

Metric

Order No.	Range	Resolution	Interchangeable anvils	Setting Standard		Micrometer head stroke
				Qty	Size	
Analog						
104-171*	0-50mm	0.01mm	1pcs.	1	25mm	25mm
104-139A	0-100mm		4pcs.	3	25-75mm	
104-135A	0-150mm		6pcs.	5	25-125mm	
104-161A	50-150mm		4pcs.	4	50-125mm	
104-140A	100-200mm				100-175mm	
104-136A	150-300mm		6pcs.	6	150-275mm	
104-141A	200-300mm		4pcs.	4	200-275mm	
104-142A	300-400mm				30-375mm	
104-143A	400-500mm				400-475mm	
104-144A	500-600mm				500-575mm	
104-145A	600-700mm				60-675mm	
104-146A	700-800mm				700-775mm	
104-147A	800-900mm				800-875mm	
104-148A	900-1000mm				900-975mm	

* The frame is fitted with a heat shield.

Inch / Metric

Order No.	Range	Resolution	Interchangeable anvils	Setting Standard		Micrometer head stroke
				Qty	Size	
Digimatic (LCD)						
340-351-30	0-6"	.00005"/0.001mm	6pcs.	5	1"-5"	1"
340-352-30	6"-12"				6"-11"	
340-720	12"-18"	.0001"/0.001mm		6	12"-17"	
340-721	18"-24"				18"-23"	
340-722	24"-30"				24"-29"	
340-723	30"-36"					

ไมโครมิเตอร์วัดภายนอก

OUTSIDE MICROMETERS

SERIES 105 - with Anvil Extension Collars

Technical Data

Flatness: 1.3 μm

Parallelism:

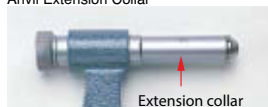
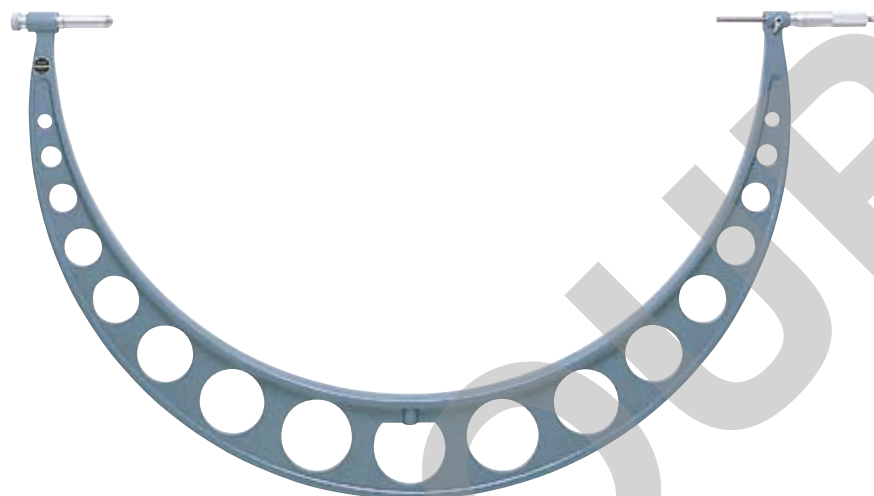
 $(2 + R/100) \mu\text{m}$, R = max. range (mm)
fraction rounded down

Accuracy:

 $\pm(6 + R/75) \mu\text{m}$, R = max. range (mm)
fraction rounded up

Standard accessories: Spanner (200154), 1 pc

Anvil Extension Collar

Measuring range 700 to 750 mm
with **105-105**Measuring range 750 to 800 mm
with **105-105**

FEATURE

- Adjustable measuring range with extension collars.
- 50 mm / 2 in spindle stroke.
- Measuring faces: Carbide.
- Equipped with Ratchet Stop for constant measuring force.

Inch / Metric

Order No.	Range	Graduation	Extension Collars	Setting Standard
105-103	500 - 600mm			
105-104	600 - 700mm			
105-105	700 - 800mm	0.01 mm	1 pc	2 pcs.
105-106	800 - 900mm		(50 mm)	
105-107	900 - 1000mm			

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

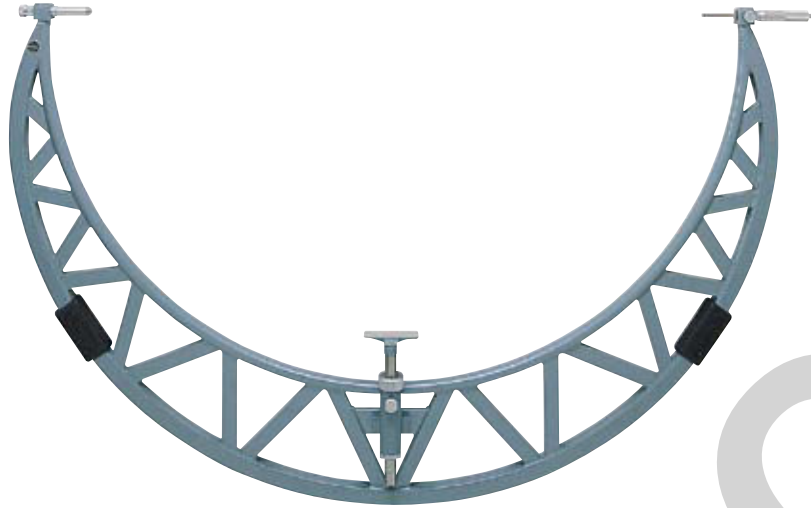
Micrometers
ไมโครมิเตอร์

Mitutoyo

ไมโครมิเตอร์วัดภายนอก

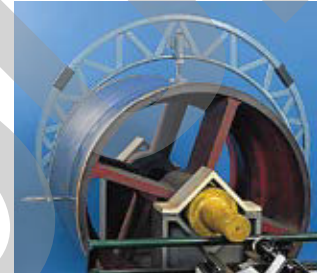
OUTSIDE MICROMETERS

SERIES 105 - with Anvil Extension Collars



Technical Data

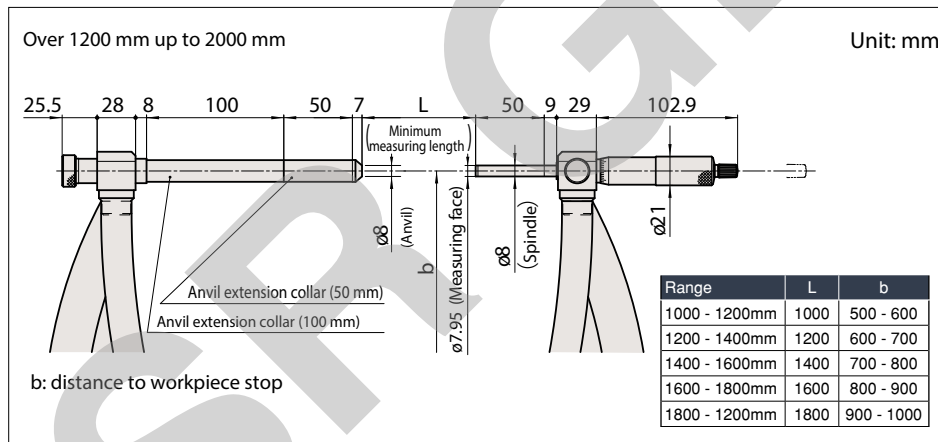
Flatness: 1.3 μm /0.000052 in
Parallelism:
(2 + R/100) μm , R = max. Range (mm)
[0.00008 in + 0.00004(R/4)] in, R = max. Range (inch)
fraction rounded down
Accuracy:
(6+R/75) μm , R = max. Range (mm)
[0.0003 in + 0.00005 in (R/3)] in, R = max. range (inch)
fraction rounded up
Standard accessories: Spanner (200154), 1 pc



FEATURE

- Wide measuring range with anvil extension collars.
- 50 mm / 2 in spindle stroke.
- Measuring faces: Carbide.
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Metric

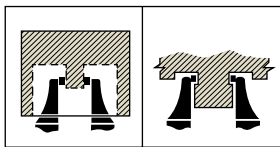
Order No.	Range	Graduation	Extension Collars	Setting Standard (pcs)
(every 100 mm)				
105-408	1000 - 1100 mm			
105-409	1100 - 1200 mm			
105-410	1200 - 1300 mm			
105-411	1300 - 1400 mm			
105-412	1400 - 1500 mm	0.01 mm	1 pc (50mm)	2
105-413	1500 - 1600 mm			
105-414	1600 - 1700 mm			
105-415	1700 - 1800 mm			
105-416	1800 - 1900 mm			
105-417	1900 - 2000 mm			
(every 200 mm)				
105-418	1000 - 1200 mm			
105-419	1200 - 1400 mm	0.01 mm	2 pcs (50mm, 100mm)	4
105-420	1400 - 1600 mm			
105-421	1600 - 1800 mm			
105-422	1800 - 2000 mm			

ไมโครมิเตอร์วัดภายนอก

CALIPER TYPE MICROMETERS
SERIES 343, 143MeasurLink[®] ENABLED
Data Management Software by Mitutoyo

Technical Data

Flatness : 0.3µm/.000012"

Parallelism : (3+R/75)µm, R = max. range(mm)
[.00012" + .00004(R/3)]" R=max.
range (inch)
fraction rounded down

Battery for series 343

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)
Battery life :
Approx. 2.4 years under normal use (for series 343)
Length standard :
Electromagnetic rotary sensor (for series 343)
Standard accessories :
Reference bar, 1 pc
(except for measuring range 0-25mm (0-1") models)
Spanner (301336), 1 pc

Optinal accessories for series 343

Connecting cables
1m: **05CZA662**
2m: **05CAZ663**
USB Input Tool Direct
USB-ITN-B (2m): **06AFM380B**
Wireless data output **U-WAVE/fit**
U-WAVE-TM **264-622** (IP67 type)
264-623 (Buzzer type)
Connecting cables for **U-WAVE-TM**
No. 02AZF310 (IP67 type)



343-250-30

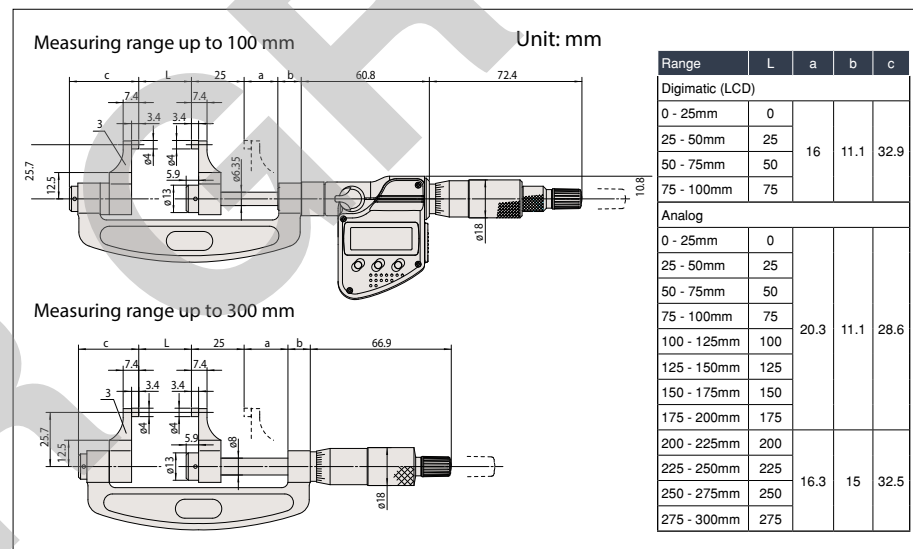


143-101

FEATURE

- Effective for measuring workpiece features where access is difficult.
- Measuring faces: Carbide
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Metric

Order No.	Range	Resolution	Accuracy*
Digimatic (LCD)			
343-250-30	0-25mm	0.001mm	±5µm
343-251-30	25-50mm		±6µm
343-252-30	50-75mm		±7µm
343-253-30	75-100mm		±8µm

* Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*
Digimatic (LCD)			
343-350-30	0-1"	.00005"/ 0.001mm	±.00025"
343-351-30	1"-2"		±.0003"
343-352-30	2"-3"		±.00035"
343-353-30	3"-4"		±.0004"

* Excluding quantizing error of ±1 count

Metric

Order No.	Range	Resolution	Accuracy*
Analog			
143-101	0-25mm	0.01mm	±5µm
143-102	25-50mm		±6µm
143-103	50-75mm		±7µm
143-104	75-100mm		±8µm
143-105	100-125mm		±9µm
143-106	125-150mm		±10µm
143-107	150-175mm		
143-108	175-200mm		
143-109	200-225mm		
143-110	225-250mm		±11µm
143-111	250-275mm		
143-112	275-300mm	±12µm	

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์วัดเกลียว

SCREW THREAD MICROMETERS SERIES 125



125-103

Technical Data

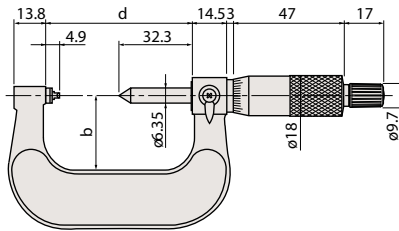
Accuracy : $\pm(2+R/75)\mu\text{m}$, R=max. range(mm)
fraction rounded up

Standard Spinner (301336), 1 pc
accessories :



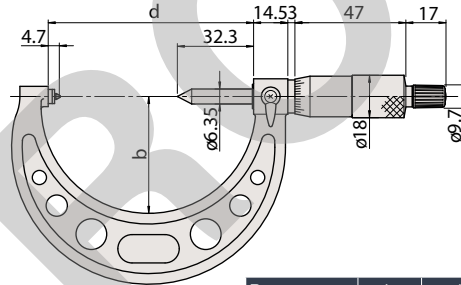
DIMENSIONS

125-101, 125-106



Range	b	d
0 - 25mm	25	37.2
25 - 50mm	32	62.2

125-111, 125-116



Range	b	d
0 - 25mm	49	87
25 - 50mm	63	112

Unit: mm

FEATURE

- Fixed anvil type to suit 60° threads
- Directly indicates screw pitch diameter (no need for calculation)
- Equipped with Ratchet Stop for constant measuring force.

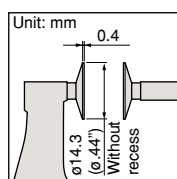
Metric

Order No.	Thread to be measured (Metric/Unified)	Range	Graduation
125-101	0.4 - 0.5mm / 64 - 48TPI	0-25mm	
125-102	0.6 - 0.9mm / 44 - 28TPI		
125-103	1 - 1.75mm / 24 - 14TPI		
125-104	2 - 3mm / 13 - 9TPI		
125-105	3.5 - 5mm / 8 - 5TPI		
125-106	0.4 - 0.5mm / 64 - 48TPI	25-50mm	
125-107	0.6 - 0.9mm / 44 - 28TPI		
125-108	1 - 1.75mm / 24 - 14TPI		
125-109	2 - 3mm / 13 - 9TPI		
125-110	3.5 - 5mm / 8 - 5TPI		
125-111	0.6 - 0.9mm / 44 - 28TPI	50-75mm	0.01mm
125-112	1 - 1.75mm / 24 - 14TPI		
125-113	2 - 3mm / 13 - 9TPI		
125-114	3.5 - 5mm / 8 - 5TPI		
125-115	5.5 - 7mm / 4.5 - 3.5TPI		
125-116	0.6 - 0.9mm / 44 - 28TPI	75-100mm	
125-117	1 - 1.75mm / 24 - 14TPI		
125-118	2 - 3mm / 13 - 9TPI		
125-119	3.5 - 5mm / 8 - 5TPI		
125-120	5.5 - 7mm / 4.5 - 3.5TPI		

* A setting standard is supplied with each model (except for 0-25mm measuring range).

The setting standard is for metric threads (unified) 60°.

ไมโครมิเตอร์วัดความหนากระดาษ - แกนไม่หมุน

**PAPER THICKNESS MICROMETERS
SERIES 169 - Non-Rotating Spindle Type****Anvil dimensions**

(): Inch mode

Technical Data

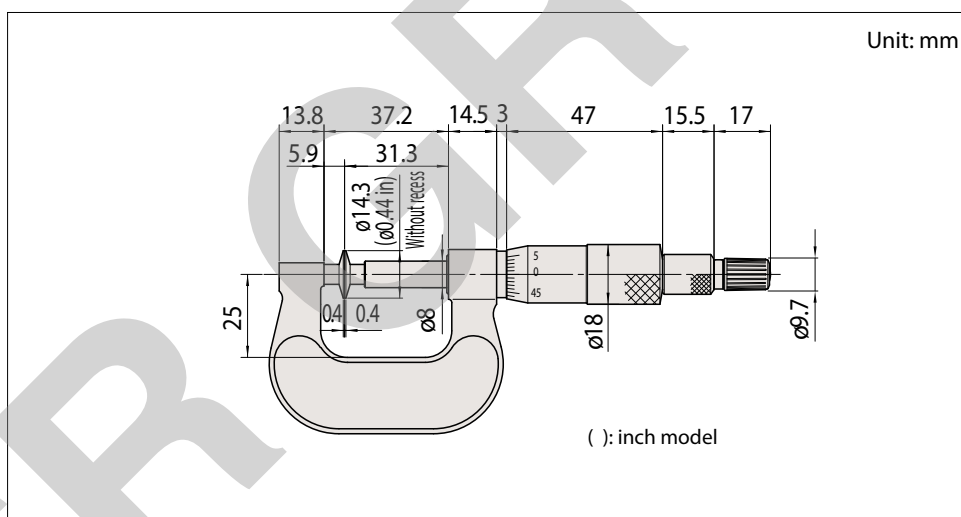
Standard accessories : Spanner (301336), 1 pc

FEATURE

- For paper thickness measurement.
- Non-rotating spindle.
- Equipped with Ratchet Stop for constant measuring force. $(8.02 \pm 0.8\text{N})$



169-101

DIMENSIONS**Metric**

Order No.	Range	Resolution	Accuracy*	Flatness	Parallelism
169-101	0-25mm	0.01mm	$\pm 4\mu\text{m}$	$1\mu\text{m}$	$3\mu\text{m}$

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์วัดเกลียว - เปลี่ยนแกนรับ / แกนวัด

SCREW THREAD MICROMETERS

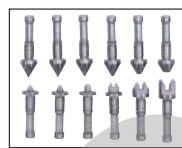
SERIES 326, 126 - Interchangeable Anvil / Spindle Tip Type



326-251-30



126-125



Interchangeable anvils / spindle tips (optional)

IP65



www.tuv.com
ID 0000040191

IP Codes

Level 6 : Dust-proof.
No ingress of dust allowed.

Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data



Battery for series 326

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)

Battery life :

Approx. 2.4 years under normal use (for series 326)

Length standard :

Electromagnetic rotary sensor (for series 326)

Standard accessories :

Spanner (301336), 1 pc

Optional accessories

Connecting cables

1m: **05CZA662**

2m: **05CAZ663**

USB Input Tool Direct

USB-ITN-B (2m): **06AFM380B**

Wireless data output **U-WAVE fit**

U-WAVE-TM 264-622 (IP67 type)

264-623 (Buzzer type)

Connecting cables for **U-WAVE-TM**

No. 02AZF310 (IP67 type)

Optional accessories

Set of interchangeable anvils / spindle tips

• For Metric/Unified threads (pair)

Order No.	Matching anvils/Spindle tips included
126-800	0.4 - 0.5mm / 64 - 48TPI (126-801) 0.6 - 0.9mm / 44 - 28TPI (126-802) 1 - 1.75mm / 24 - 14TPI (126-803) 2 - 3mm / 13 - 9TPI (126-804) 3.5 - 5mm / 8 - 5TPI (126-805) 5.5 - 7mm / 4.5 - 3.5TPI (126-806)

• For Whitworth threads (pair)

Order No.	Matching anvils/Spindle tips included
126-810	60 - 48TPI (126-811) 48 - 40TPI (126-812) 40 - 32TPI (126-813) 32 - 24TPI (126-814) 24 - 18TPI (126-815) 18 - 14TPI (126-816) 14 - 10TPI (126-817) 10 - 7TPI (126-818) 7 - 4.5TPI (126-819) 4.5 - 3.5TPI (126-820)

Technical description

• Anvils / spindle tips

Allowable error of the angle of anvils and spindle tips

Type	Metric (unified)	Whitworth (unified)	Half angle error
Pitch (mm), Nominal designation of threads per inch	M1 (U1)	W1	±30'
	W2	±30'	
	W3	±20'	
	M2 (U2)	W4	±20'
	W5	±15'	
	M3 (U3)	W6	±15'
	M4 (U4)	W7	±10'
	W8	±10'	
	M5 (U5)	W9	±10'
	M6 (U6)	W10	±10'

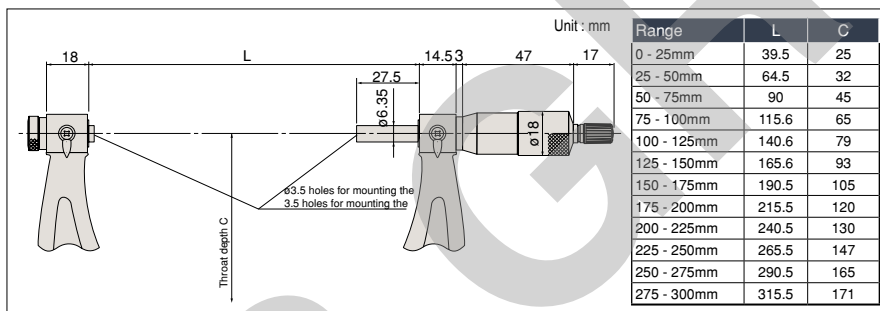
Note: This chart indicates the difference between the angle made by anvil's contact faces and spindle's axes and the half angle with error α .
Metric/Unified $\theta = 60^\circ$ Whitworth $\theta = 55^\circ$

FEATURE

- Anvils and spindle tips are interchangeable in matching pairs to enable measurement of Metric/Unified or Whitworth threads.
- Direct reading of screw pitch diameter (no need for calculation)

- Equipped with Ratchet Stop for constant measuring force.
- Interchangeable anvils / spindle tips are optional.

DIMENSIONS



Metric

Order No.	Range	Resolution	Accuracy*
Digimatic (LCD)			
326-251-30	0 - 25mm	0.001mm	±4μm
326-252-30	25 - 50mm		
326-253-30	50 - 75mm		
326-254-30	75 - 100mm		±5μm

* Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*
Digimatic (LCD)			
326-351-30	0 - 1"		
326-352-30	1" - 2"	.00005"	±.0002"
326-353-30	2" - 3"	0.001mm	
326-354-30	3" - 4"		±.00025"

* Excluding quantizing error of ±1 count

Metric

Order No.	Range	Resolution	Accuracy*
Analog			
126-125	0 - 25mm		
126-126	25 - 50mm		±4μm
126-127	50 - 75mm		
126-128	75 - 100mm		
126-129	100 - 125mm	0.001mm	±5μm
126-130	125 - 150mm		
126-131	150 - 175mm		
126-132	175 - 200mm		±6μm
126-133	200 - 225mm		
126-134	225 - 250mm		
126-135	250 - 275mm		±7μm
126-136	275 - 300mm		

Notes: 1) A matching setting standard is supplied with each model (except for 0-25mm measuring range). (Refer to page B.083 for details.) The setting standard is for metric threads (unified) 60°.

2) For functional details of 326 series, refer to 293 series.

Please note that origin setting of these models is free-digit preset type. Also, connecting cables (optional) have to be a waterproof type.

ไมโครมิเตอร์วัดภายนอก - เปลี่ยนแกนรับได้

UNIVERSAL MICROMETER**SERIES 116 - INTERCHANGEABLE ANVIL TYPE****Technical Data**

Standard accessories : Spanner (301336), 1 pc



116-101

FEATURE

• Non-rotating spindle type which accepts seven forms of optional interchangeable anvil / spindle tip (flat, spline, spherical, point, knife-edge, disk, and blade) for a wide range of applications.

• Equipped with Ratchet Stop for constant measuring force.
• Optional anvils / spindle tips for screw thread measurement (matching V and cone) are also available.

Metric

Order No.	Range	Resolution	Accuracy*
116-101	0-25mm		
116-102	25-50mm	0.001mm	±4μm

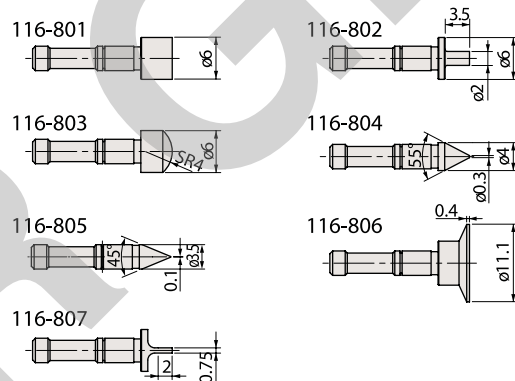
* 116-102 is provided with a plain setting standard (167-101) and a 60°-thread setting standard (167-261) for adjusting the minimum range point according to the application.

* 116-106 is provided with a plain setting standard (167-141) and a 60°-thread setting standard (167-294) for adjusting the minimum range point according to the application.

Optional accessories

• Interchangeable anvils / spindle tips are available in matching pairs.

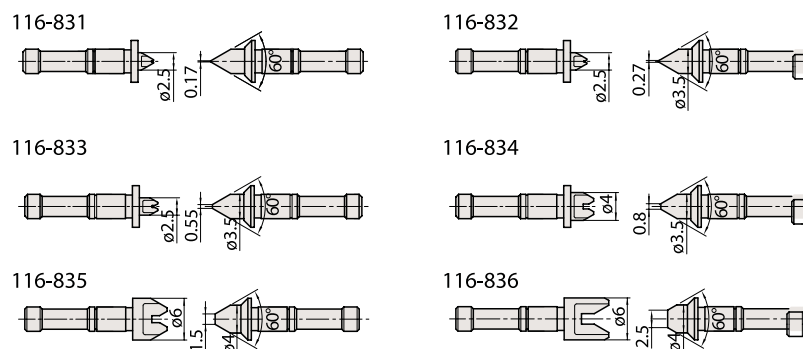
Order No.	Description
116-801	Flat
116-802	Spline
116-803	Spherical
116-804	Point
116-805	Knife-edge
116-806	Disk
116-807	Blade
116-800 116-801 - 116-807 Set Anvils / spindle tips set (7 pairs)	



Interchangeable contact points (optional)

Order No.	Set Identifier Range of measurement (mm)
116-831	0.4 - 0.5mm / 64 - 48TPI
116-832	0.6 - 0.9mm / 44 - 28TPI
116-833	1 - 1.75mm / 24 - 14TPI
116-834	2 - 3mm / 13 - 9TPI
116-835	3.5 - 5mm / 8 - 5 TPI
116-836	5.5 - 7mm / 4.5 - 3.5TPI
116-830 116-831 - 116-836 M (U) Set	

• Thread-measuring interchangeable contact points are available in matching pairs.

**Micrometer**

ไมโครมิเตอร์

Inside**Measurement**

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

3-Wire Units 3 - WIRE UNITS SERIES 313

Technical Data

Accuracy of wire diameter : $\pm 2\mu\text{m}$



952141



3 - Wire Units set

Order No.	Set	Wire dia. (mm)	Support spindle dia. (mm)
313-101	18	0.170 - 3.200	$\varnothing 6.35$

Order No. (One pair) (Support spindle dia.) $\varnothing 6.35\text{mm}$ (.25" DIA.)	Wire dia. (mm)	Pitch		
		Metric thread (mm)	Unified thread (thread per inch)	Whitworth thread (thread per inch)
952131	0.170	0.2, 0.25, 0.3	80	-
952132	0.195	0.35	72	-
952133	0.220	0.4	64	-
952134	0.250	0.45	56	60
952135	0.290	0.5	48	48
952136	0.335	0.6	44, 40	40
952137	0.390	0.7	36	36
952138	0.455	0.75, 0.8	32	32
952139	0.530	0.9	28	28, 26
952140	0.620	1.0	24	24, 22
952141	0.725	1.25	20	20, 19, 18
952142	0.895	1.5	18, 16	16
952143	1.100	1.75, 2.0	14, 13, 12	14, 12
952144	1.350	2.5	11, 10	11, 10
952145	1.650	3.0	9, 8	9, 8
952146	2.050	3.5	7	7
952147	2.550	4, 4.5	6	6
952148	3.200	5, 5.5, 6	5, 4.5	5, 4.5

ไมโครมิเตอร์วัดเฟือง - เปลี่ยนแกนรับ / แกนวัด แบบบอล

GEAR TOOTH MICROMETERS

SERIES 324, 124 - Interchangeable Ball Anvil / Spindle Tip Type

MeasurLink[®] ENABLED
Data Management Software by Mitutoyo

IP Codes

Level 6 : Dust-proof.
No ingress of dust allowed.Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Optional accessories

Order No.	Diameter* (mm)	Gear module	Dia. pitch
124-801	Ø0.8	0.5-0.55	50
124-802	Ø1.0	0.6-0.65	45
124-803	Ø1.191(3/64")	0.7-0.8	35-30
124-821	Ø1.5	0.9-1	28-26
124-804	Ø1.588(1/16")	0.9-1	28-26
124-805	Ø2.0	1.25	22
124-806	Ø2.381(3/32")	1.5	17
124-822	Ø2.5	1.5	17
124-807	Ø3.0	1.75	15
124-808	Ø3.175(1/8")	-	14
124-823	Ø3.5	2	13
124-809	Ø3.969(5/32")	2	13
124-810	Ø4.0	2.25	11
124-824	Ø4.5	2.5	10
124-811	Ø4.763(3/16")	2.5	10
124-812	Ø5.0	2.75	9
124-813	Ø5.556(7/32")	3.0-3.25	8
124-814	Ø6.0	3.5	7
124-815	Ø6.35(1/4")	3.75	7
124-816	Ø7.0	4.0	6.5
124-817	Ø7.144(9/32")	4.25	6
124-818	Ø7.938(5/16")	4.5	5.5
124-819	Ø8.0	4.75	5.5
124-820	Ø8.731(11/32")	5.0-5.25	5

*Ø2mm or less / carbide-tipped type

Battery for series 324

SR44 (1 pc), 938882, for initial operational checks (standard accessory)

Battery life :

Approx. 2.4 years under normal use (for series 324)

Length standard :

Electromagnetic rotary sensor (for series 324)

Standard accessories :

Reference bar, 1 pc

(except for measuring range 0-25mm (0-1") models)

Spanner (301336), 1 pc

Optional accessories

Connecting cables for Series 324

1m: 05CZA662

2m: 05CAZ663

USB Input Tool Direct

USB-ITN-B (2m): 06AFM380B

Wireless data output U-WAVE[®] fit

U-WAVE-TM 264-622 (IP67 type)

264-623 (Buzzer type)

Connecting cables for U-WAVE-TM

No. 02AZF310 (IP67 type)



FEATURE

- Measures over-pin diameter of gears using precision steel (or carbide) ball anvils / spindle tips.
- Series 324: IP65 Digimatic gear tooth micrometers.
- Determination of the over-pin diameter: refer to "Quick Guide to Precision Measuring Instruments".

- Interchangeable ball anvils / spindle tips for various gear modules (0.5-5.25) are optional.
- Equipped with Ratchet Stop for constant measuring force.
- Ball anvil / spindle tips: optional.

Metric

Order No.	Range	Resolution	Accuracy*
Digimatic (LCD)			
324-251-30	0-25mm	0.001mm	±4μm
324-252-30	25-50mm		
324-253-30	50-75mm		
324-254-30	75-100mm		±5μm

* Excluding quantizing error

Metric

Order No.	Range	Resolution	Accuracy*
Analog			
124-173	0-25mm	0.001mm	±4μm
124-174	25-50mm		
124-175	50-75mm		
124-176	75-100mm		
124-177	100-125mm	0.001mm	±5μm
124-178	125-150mm		
124-179	150-175mm		
124-180	175-200mm		
124-181	200-225mm	0.001mm	±6μm
124-182	225-250mm		
124-183	250-275mm		
124-195	275-300mm		

Inch / Metric

Order No.	Range	Resolution	Accuracy*
Digimatic (LCD)			
324-351-30	0-1"	.00005" / 0.001mm	±.0002"
324-352-30	1"-2"		
324-353-30	2"-3"		
354-354-30	3"-4"		±.00025"

* Excluding quantizing error

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo
DIMENSIONS

Micrometers
ไมโครมิเตอร์

Micrometer

ไมโครมิเตอร์

Inside Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

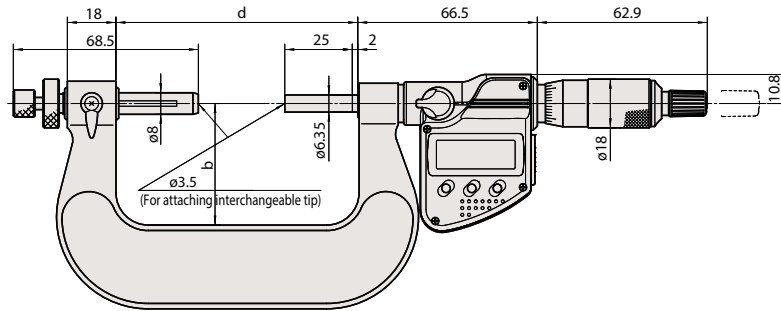
ขาตั้ง

Micrometer

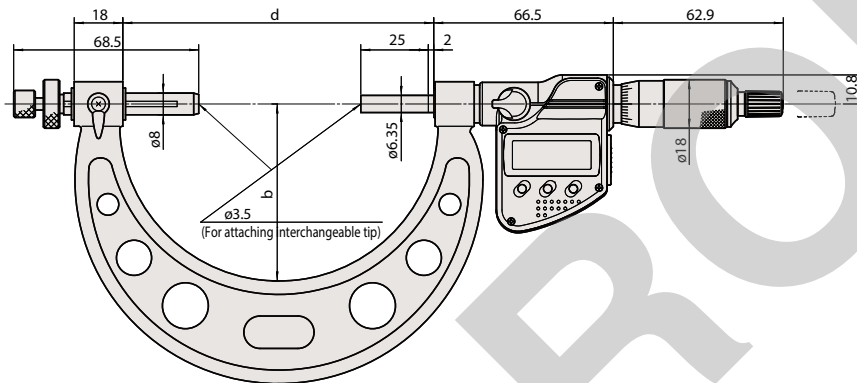
ไมโครมิเตอร์

Micrometer Head

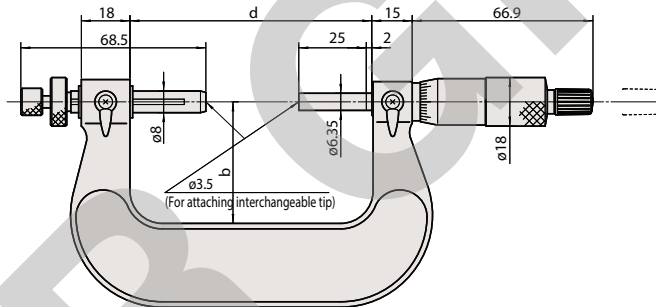
หัวไมโครมิเตอร์



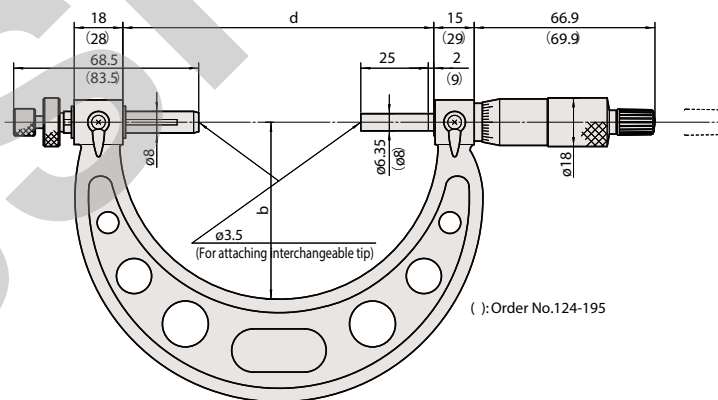
Range	b	d
0-25mm	32	64
25-50mm	45	89.5



Range	b	d
50-70mm	65	115.1
75-100mm	79	140.1



Range	b	d
0-25mm	32	64
25-50mm	45	89.5



Range	b	d
50-75mm	65	115.1
75-100mm	79	140.1
100-125mm	93	165.1
125-150mm	105	190
150-175mm	118	214
175-200mm	131	240
200-225mm	144	265
225-250mm	156	290
250-275mm	169	314
275-300mm	187	352

(): Order No.124-195

ไมโครมิเตอร์ปากแบบหน้างาน DISK MICROMETER SERIES 323, 223, 123



IP Codes

Level 6 : Dust-proof.
No ingress of dust allowed.

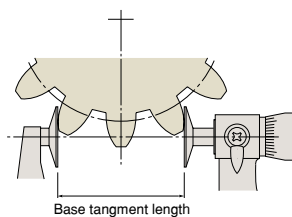
Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

Flatness : 1µm/.00004" for models up to 100mm/4"
1.6µm/.000063" for models over 100mm/4"

Parallelise : 4 µm for models up to 50 mm
0.0002 in for models up to 2 in
6 µm for models up to 100 mm
0.0003 in for models up to 4 in
(5+R/75) in for models over 100 mm,
R = max. range (mm)
fraction rounded up

Root tangent length of gear (En)



Battery for series 323

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)
Battery life :
Approx. 2.4 years under normal use (for series 323)
Length standard :
Electromagnetic rotary sensor (for series 323)
Standard accessories :
Reference bar, 1 pc
(except for measuring range 0-25mm (0-1") models)
Spanner (301336), 1 pc

Optional accessories

Connecting cables
1m: **05CZA662**
2m: **05CAZ663**
USB Input Tool Direct
USB-ITN-B (2m): **06AFM380B**
Wireless data output **U-WAVE**
U-WAVE-TM **264-622** (IP67 type)
264-623 (Buzzer type)
Connecting cables for **U-WAVE-TM**
No. 02AZF310 (IP67 type)

MeasurLink® ENABLED
Data Management Software by Mitutoyo



FEATURE

- Measures "root tangent length" of spur gears and helical gears.
- Determination of the root tangent length: refer to "Quick Guide to Precision Measuring Instruments".
- Equipped with Ratchet Stop for constant measuring force.
- Supplied with a setting standard (except for 0-25mm/0-1" measuring range).

Metric

Order No.	Range	Resolution	Accuracy*	Anvil dia.	Measurablemodule
Digimatic (LCD)					
323-250-30	0 - 25mm	0.001mm	±4µm	Ø 20mm	0.5 - 6
323-251-30	25 - 50mm				
323-252-30	50 - 75mm				
323-253-30	75 - 100mm				

* Excluding quantizing error

Metric

Order No.	Range	Resolution	Accuracy*	Anvil dia.	Measurable module
Mechanical counter model					
223-101	0 - 25mm	0.01mm	±4μm	Ø 20mm	0.5-6
223-102	25 - 50mm				
Analog					
123-101	0-25mm		±4μm	Ø 20mm	0.5-6
123-113*					
123-102	25-50mm				
123-114*				Ø 20mm	0.5-6
123-103	50-75mm				
123-115*					
123-104	75-100mm	0.01mm	±6μm		
123-116*					
123-105	100-125mm				
123-106	125-150mm		±7μm		
123-107	150-175mm				
123-108	175-200mm				
123-109	200-225mm		±8μm	Ø 30mm	0.7-11
123-110	225-250mm				
123-111	250-275mm				
123-112	275-300mm		±9μm		

* Excluding quantizing error

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

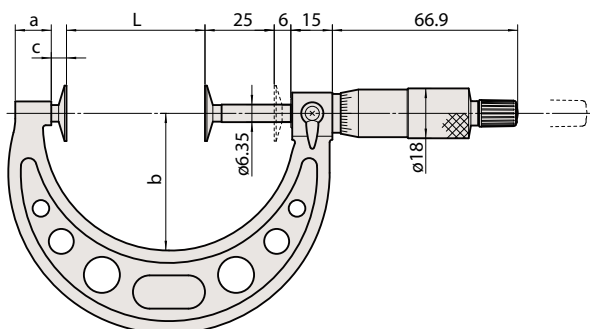
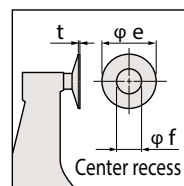
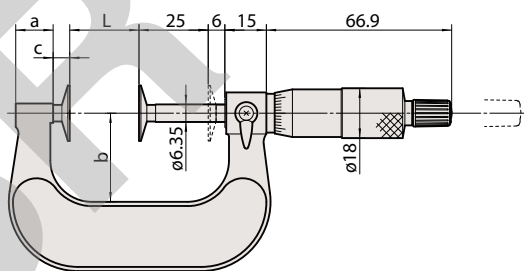
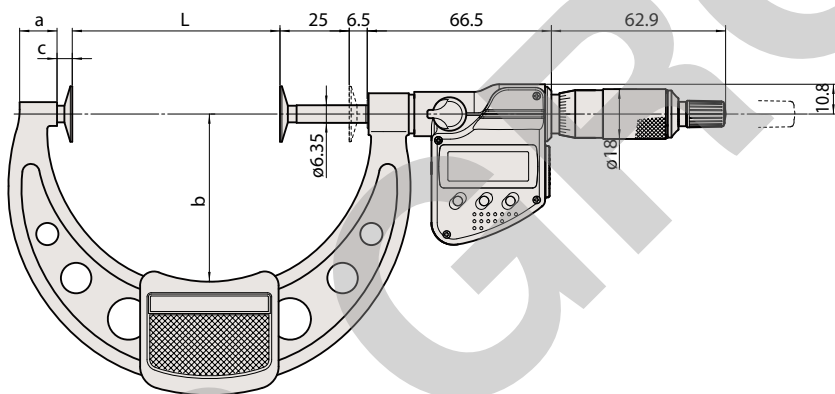
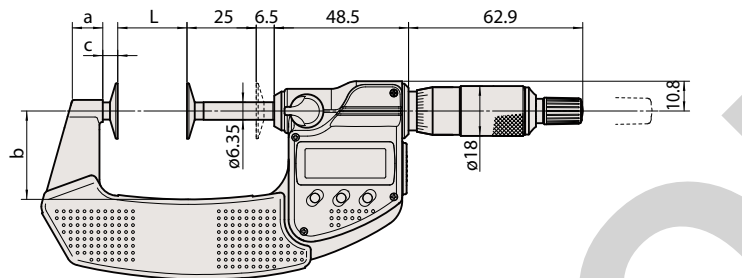
Micrometers
ไมโครมิเตอร์

Inch / Metric

Order No.	Range	Resolution	Accuracy*	Anvil dia.	Measurable module
Digimatic (LCD)					
323-350-30	0 - 1"		±.0002"		
323-351-30	1" - 2"	.00005" /		.787"	0.5 - 6
323-352-30	2" - 3"	0.001mm			
323-353-30	3" - 4"		±.0003"		

* Excluding quantizing error

DIMENSIONS



Range	L	a	b	c	e	f	t
Digimatic (LCD)							
0 - 25mm	0	9.2	25	4.5			
25 - 50mm	25	11	31	5.4			
50 - 75mm	50	12.2	50	5.5			
75 - 100mm	75	14	60				
Analog							
0 - 25mm	0		25	5.7			
25 - 50mm	25	13.8	32				
50 - 75mm	50	12	49	5.5	20	8	0.7
75 - 100mm	75	14	63				
100 - 125mm	100	12	79				
125 - 150mm	125	14.5	94				
150 - 175mm	150	15.2	106				
175 - 200mm	175	14.5	118				
200 - 225mm	200		130				
225 - 250mm	225	13.5	143				
250 - 275mm	250		156				
275 - 300mm	275	14.5	169				

* Data in () applies to those with carbide-faced disks.

Micrometer
ไมโครมิเตอร์Inside
Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

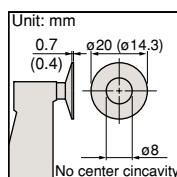
หัวไมโครมิเตอร์

ไมโครมิเตอร์ปากแบบหน้างาน

DISK MICROMETER

SERIES 369, 227, 169 - Non Rotating Spindle Type

Anvil



Battery for series 369 and 227

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)

Battery life: Approx. 2.4 years under normal use

(for series 369-2XX, 3XX)

Approx. 5 year under normal use

(for series 369-4XX)

Approx. 5 years under normal use

(for series 227-2XX)

Approx. 18,000 hours in continuous use

Length standard: Electromagnetic rotary sensor

(for series 369-2XX, 3XX)

Electrostatic capacity absolute sensor

(for series 369-4XX, 2XX)

Standard accessories: Reference bar, 1 pc

(except for measuring range 0-10 mm / 0-15 mm /

0-25 mm / 0-30 mm (0-1/0-1.2 in) models)

Spanner (301336), 1 pc (for series 169-2XX, 369-2XX, 3XX)

Screwdriver (No.210183), 1 pc (for series 227-2XX)

Optional accessories

• Connecting cables

for **369, 227 Series**

1m: **05CZA662**

2m: **05CAZ663**

• **USB Input Tool Direct**

USB-ITN-B (2m): **06AFM380B**

Wireless data output **U-WAVE fit**

U-WAVE-TM 264-622 (IP67 type)

264-623 (Buzzer type)

Connecting cables for **U-WAVE-TM**

No. 02AZF310 (IP67 type)

Note: cannot be used with Quickmike type



Quickmike

Provides a speedy spindle feed of 10mm per thimble rotation, which enables widely differently sized features to be measured quickly.

Quickmike type with adjustable measuring force

Digimatic micrometer dedicated to applications requiring a constant/low measuring force such as measuring wire, paper, and plastic/rubber part.



Digimatic (LCD)
369-250-30



Quickmike type (LCD)
369-411-20



Quickmike type with adjustable measuring force
(LCD) 227-221-20



169-201

FEATURE

- Measures "root tangent length" of spur gears and helical gears.
- Determination of the root tangent length: refer to "Quick Guide to Precision Measuring Instruments".
- Non-rotating spindle type.
- Measurable range of gear pitch: 0.5 to 6 module (series 227: 0.4 to 3 module).

- Equipped with Ratchet Stop for constant measuring force.
- Supplied with a setting standard (except for 0-25mm/0-1" measuring range).

Metric

	Order No.	Range	Resolution	Accuracy ^{*1}	Anvil dia.	Flatness	Parallelism	Measuring force
Digimatic (LCD)	369-250-30	0-25mm		±4μm			4μm	
	369-251-30	25-50mm						
	369-252-30	50-75mm		±6μm	20mm		6μm	
	369-253-30	75-100mm						
Quickmike type (LDC)	369-411-20	0-30mm	0.001mm			1μm	4μm	
	369-412-20	25-55mm						
Quickmike Type adjustable	227-221-20	0-15mm		±4μm	14.3mm		3μm	0.5N-2.5N
Quickmike Type adjustable measuring force (LED)	227-223-20	0-10mm						2N-10N

^{*1} Excluding quantizing error of ±1 count

Metric

	Order No.	Range	Resolution	Accuracy ^{*1}	Anvil dia.	Flatness	Parallelism	Measuring force
Analog	169-201	0-25mm		±4μm			4μm	
	169-202	25-50mm			20mm	1μm		
	169-205	50-75mm	0.01mm	±6μm			6μm	
	169-207	75-100mm						

Inch / Metric

	Order No.	Range	Resolution	Accuracy ^{*1}	Anvil dia.	Flatness	Parallelism	Measuring force
Digimatic (LCD)	369-350-30	0-1"		±.0002"			.0002"	
	369-351-30	1"-2"						
	369-352-30	2"-3"	.00005"/	±.0003"	20mm	.00004"	.0003"	
	369-353-30	3"-4"	0.001mm					
Quickmike type (LDC)	369-421-20	0-1.2"		±.0002"			.0002"	
	369-422-20	1"-2.2"						

^{*1} Excluding quantizing error of ±1 count

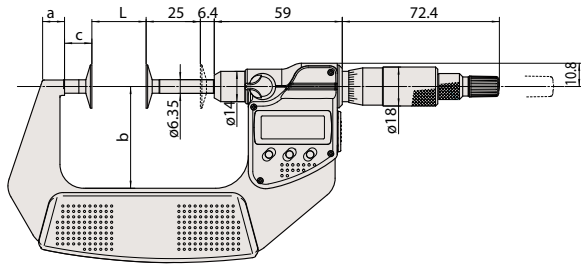
SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

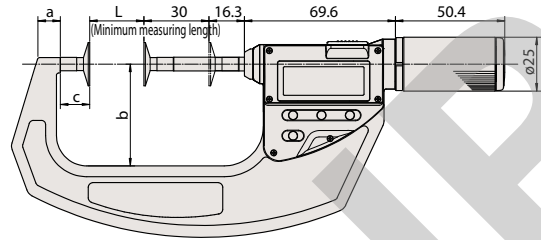
DIMENSIONS

Digital models up to 75 mm



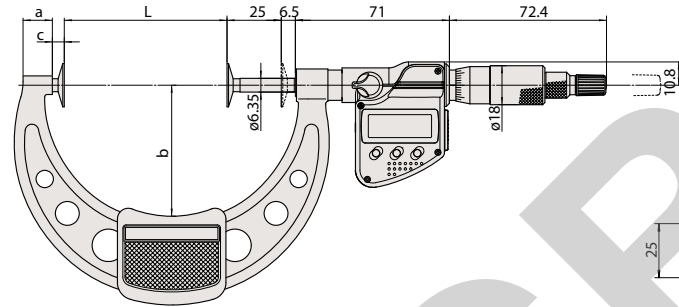
Quickmike type

Unit: mm

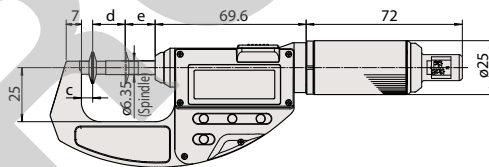


Range	L	a	b	c
0 - 25mm	0	8.5	36	13.5
25 - 50mm	25	10.3	47	

Digital models over 75 mm



Quickmike adjustable measuring force type

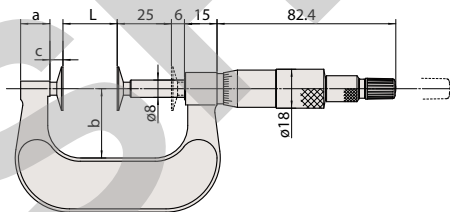


Digital models

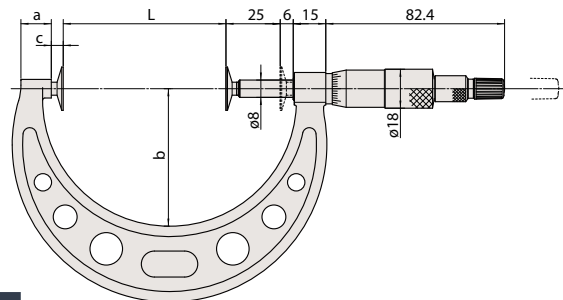
Range	L	a	b	c
0-25mm	0	7	32	12.9
25-50mm	25	9.8	47	
50-75mm	50	11.2	60	
75-100mm	75	13.5		5.5

Range	C	d	e
0-15mm	5.2	15	13.8
0-10mm		10	18.8

Analog models up to 50 mm



Analog models over 50 mm



Analog models

Range	L	a	b	c
0-25mm	0	13.8	25	5.7
25-50mm	25		32	
50-75mm	50	12	49	5.5
75-100mm	75	14	63	

Micrometers
ไมโครมิเตอร์

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

ไมโครมิเตอร์วัดแผ่นโลหะ

SHEET METAL MICROMETERS SERIES 389, 118

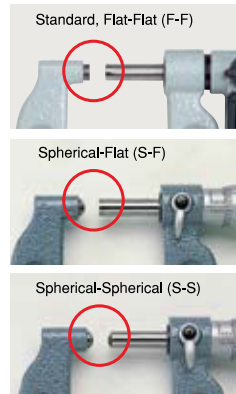


IP Codes

- Level 6 : Dust-proof.
No ingress of dust allowed.
- Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

Flatness:
0.6 $\mu\text{m}/0.00024$ in for models with 150 mm/6" throat
1 $\mu\text{m}/0.0004$ in for models with 300 mm/12" throat
Parallelism: 3 $\mu\text{m}/0.0012$ "
Quantizing error (series 389): excluding ± 1 count



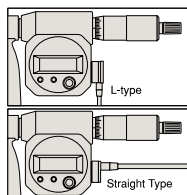
Battery for series 389

SR44 (1 pc), **938882**, **2pcs:389-514, 389-714**
for initial operational checks (standard accessory)
Battery life: Approx. 2.4 years under normal use
(for series 389-2XX, 3XX)
Approx. 1.8 years under normal use
(for series 389-514, 714)

Length standard:
Electromagnetic rotary sensor (for series 389)
Standard accessories: Reference bar, 1 pc
(except for measuring range 0-25 mm (0-1") models)
Spanner (200877), 1 pc (for series 118-1XX)
Spanner (301336), 1 pc (for series 389-2XX, 3XX)
Spanner (200154), 1 pc (for series 118-103/107, 389-514/714)

Optional accessories

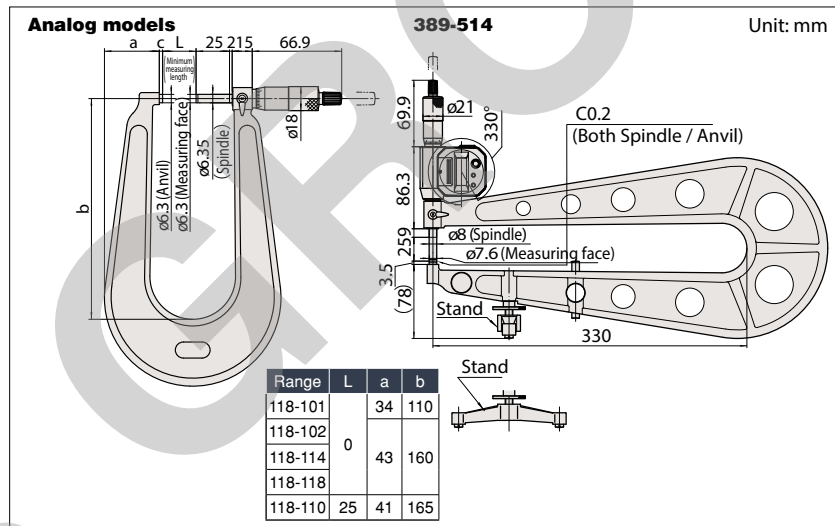
- Connecting cables for **389**
(excluding 389-514 and 389-714)
1m: **05CZA662**
2m: **05CZA663**
- USB Input Tool Direct**
USB-ITN-B (2m): **06AFM380B**
- SPC cables for U-WAVE, **Series 389**
(excluding 389-514 and 389-714)
Wireless data output **U-WAVE/fit**
U-WAVE-TM **264-622** (IP67 type)
264-623 (Buzzer type)
Connecting unit for U-WAVE-TM
02AZF310 (IP67 type)
- Refer to page A-006 for details
- Connecting cables for **389-514, 389-714**
- Recommended cables: L-Type (does not interfere with operating the thimble.)
1 m: **04AZB512**
2 m: **04AZB513**
- Straight type (may interfere with operating the thimble.)
1 m: **959149**
2 m: **959150**



FEATURE

- Measures thickness of sheet metal.
- IP65 water/dust protection (389 series).
- Measuring faces: Carbide
- Profile of measuring faces: Flat-Flat, Spherical-Flat and Spherical-Spherical.
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Metric

Order No.	Range	Resolution	Accuracy*	Throat depth	Measuring surfaces
Digimatic (LCD)					
389-251-30	0-25 mm	0.001mm	$\pm 4\mu\text{m}$	150mm	F-F
389-261-30					S-F
389-271-30					S-S
389-514	25-50 mm	0.001mm	$\pm 5\mu\text{m}$	300mm ¹	F-F
389-252-30					S-F
389-262-30					S-S

*1 Excluding quantizing error of ± 1 count

Metric

Order No.	Range	Resolution	Accuracy*	Throat depth	Measuring surfaces
Analog					
118-101	0-25 mm	0.001mm	$\pm 4\mu\text{m}$	150mm	F-F
118-102					S-F
118-114					S-S
118-118	25-50 mm	0.001mm	$\pm 5\mu\text{m}$	300mm ¹	F-F
118-103					S-F
118-110					S-S

*1 Models with a 300mm (12") throat are equipped with a stand for convenience of measurement in the horizontal orientation as standard.

Inch / Metric

Order No.	Range	Resolution	Accuracy*	Throat depth	Measuring surfaces
Digimatic (LCD)					
389-351-30	0-1"	.00005"/	$\pm .0002$ "	6"	F-F
389-361-30					S-F
389-371-30					S-S
389-714	1"-2"	0.001mm	$\pm .00025$ "	12" ¹	F-F
389-352-30					S-F
389-362-30					S-S

*1 Excluding quantizing error of ± 1 count

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

เครื่องมื่อวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

ไมโครมิเตอร์วัดแผ่นโลหะ

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล้อค

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ชาตัง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์



119-202

Technical Data

Standard accessories : Spanner (200168), 1 pc

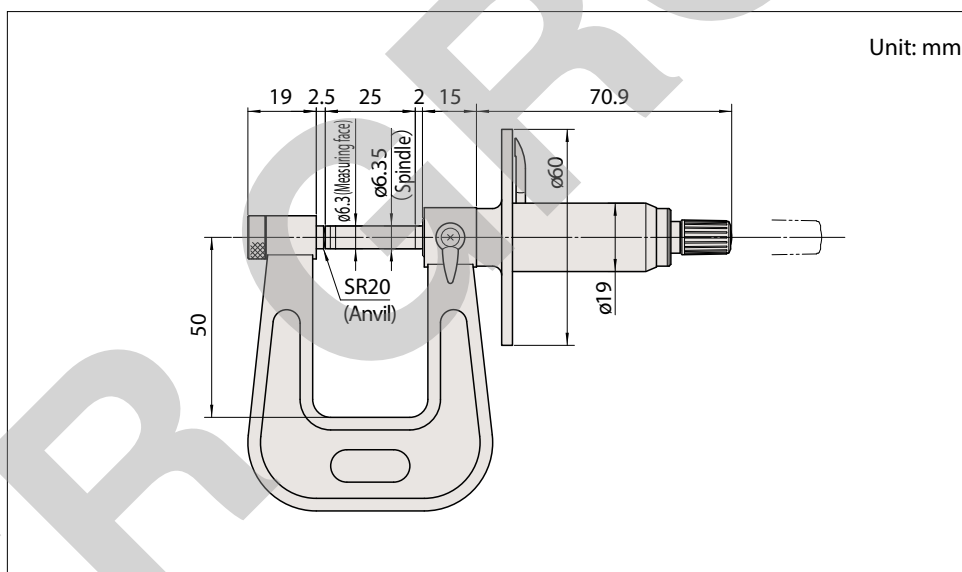


FEATURE

- Large diameter dial model enables easy and quick measurement of sheet metal thickness.
- Adjustable anvil.

- Measuring faces: Carbide
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Unit: mm

Metric

Order No.	Range	Graduation	Accuracy	Throat depth
119-202	0-25mm	0.01mm	±4µm	50mm

ไมโครมิเตอร์แกนวัดรูปตัววี

V-Anvil Micrometers

SERIES 314, 114 - 3 Flutes and 5 Flutes

Battery for series 369 and 227

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)

Battery life: Approx. 2.4 years under normal use (for series 314)

Length standard: Electromagnetic rotary sensor (for series 314)

Standard accessories:

Reference bar, 1 pc

Spanner (301336), 1 pc

(Maximum measuring range up to 55 mm/2.2 in 114-114)*1

(Maximum measuring range up to 45 mm/1 in)*2

Spanner (200877), 1 pc

(for maximum measuring range 70 mm or over)*1

(for maximum measuring range 65 mm or over)*2

*1 For analog type with 3-flute cutting tools.

*2 For analog type with 5-flute cutting tools.

Optional accessories

Connecting cable for series 314

1m : **05CZA662**

2m : **05CZA663**

USB Input Tool Direct

USB-ITN-B (2m) : **06AFM380B**

Wireless data output **U-WAVE** fit

U-WAVE-TM 264-622 (IP67 type)

264-623 (Buzzer type)

Connecting cables for **U-WAVE-TM**

No. 02AZF310 (IP67 type)



314-251-30



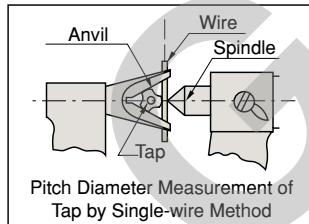
114-121



114-102



114-101

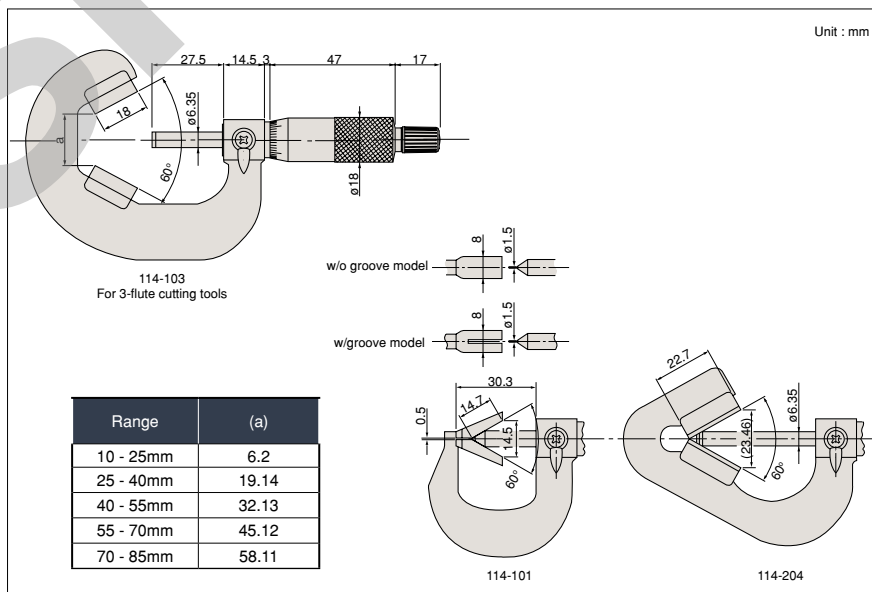


FEATURE

- Measures the outside diameter of cutting tools (such as taps, reamers, end mills) which have three or five flutes
- Measures pitch diameter

- Measuring faces: Carbide
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

Micrometers
ไมโครมิเตอร์

Metric For 3-Flute cutting tools

Order No.	Range	Resolution	Accuracy*	Remark	Anvil
Digimatic (LCD)					
314-251-30	1-15mm	0.001mm	±4µm	w/ groove	60°
314-252-30	10-25mm				
314-253-30	25-40mm		±5µm	-	
314-261-30	1-15mm		±4µm	-	
314-262-30	10-25mm			-	

*1 Excluding quantizing error of ±1 count

Metric For 3-Flute cutting tools

Order No.	Range	Resolution	Accuracy	Remark	Anvil
Analog Anvil, Spindle (With carbide tip)					
114-204	2.3-25mm	0.01mm	±4µm	-	60°
Analog Spindle (With Carbide tip)					
114-101	1-15mm	0.01mm	±4µm	w/ groove	60°
114-102	10-25mm				
114-103	25-40mm		±5µm	-	
114-104	40-55mm		±6µm	-	
114-105	55-70mm		±7µm	-	
114-106	70-85mm			-	
114-161	1-15mm		±4µm	-	
114-162	10-25mm			-	

Inch / Metric For 3-Flute cutting tools

Order No.	Range	Resolution	Accuracy*	Remark	Anvil
Digimatic (LCD)					
314-351-30	.05"-.6"	.00005" / 0.001mm	±.0002"	w/ groove	60°
314-352-30	.4"-1"				
314-353-30	1"-1.6"		±.00025"	-	
314-361-30	.05"-.6"		±.0002"	-	
314-362-30	.4"-1"			-	

*1 Excluding quantizing error of ±1 count

Metric For 5-Flute cutting tools

Order No.	Range	Resolution	Accuracy	Remark	Anvil
Analog Anvil, Spindle (With carbide tip)					
114-137	2.3-25mm	0.01mm	±4µm	-	108°
Analog Spindle (With Carbide tip)					
114-121	5-25mm	0.01mm	±4µm	w/ groove	108°
114-122	25-45mm		±5µm		
114-123	45-65mm		±6µm	-	
114-124	65-85mm		±7µm	-	
114-165	5-25mm		±4µm	-	

ไมโครมิเตอร์วัดท่อ และงานทรงกระบอก

**Tube Micrometers
SERIES 395, 115, 295**

IP65

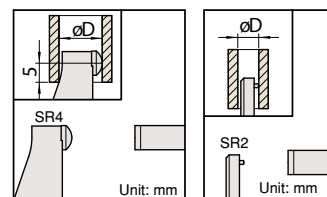
IP Codes

Level 6 : Dust-proof.
No ingress of dust allowed.

Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

Flatness : 0.6µm/.000024" (Series 115 & 295)
3µm/.00012" (Series 395)



Other than 115-101 115-101

Battery for series 395

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)

Battery life: Approx. 2.4 years under normal use (for series 395)

Length standard: Electromagnetic rotary sensor (for series 395)

Standard accessories: Reference bar, 1 pc (except for measuring range 0-15 mm / 0-25 mm (0-1") models)

Spanner (200168), 1 pc (for series 115-101)

Spanner (301336), 1 pc (for models other than series 115-101)

Optional accessories

Connecting cables for series 395

1m: **05CZA662**

2m: **05CZA663**

USB Input Tool Direct

USB-ITN-B (2m): **06AFM380B**

Wireless data output **U-WAVE/m**

U-WAVE-TM **264-622** (IP67 type)

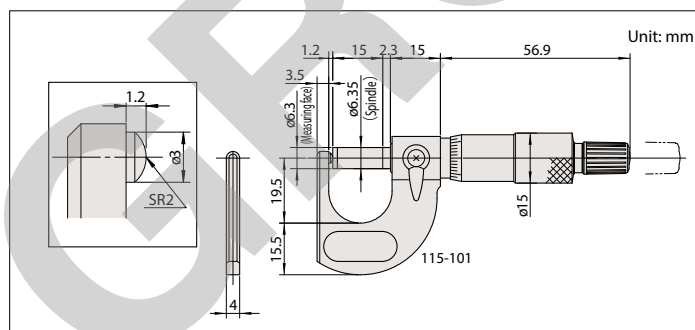
264-623 (Buzzer type)

Connecting unit for U-WAVE-TM

02AZF310 (IP67 type)

**FEATURE**

- Measuring faces: Carbide (115-101: only the spindle is carbide tipped)
- 395 series: IP65 digital spherical-flat anvil type micrometer
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS**Metric**

	Order No.	Range	Resolution	Accuracy*	øD
Digimatic (LCD)					
	395-251-30	0-25mm	0.001mm	±2µm	ø15
	395-252-30	25-50mm			ø19
	395-253-30	50-75mm		±3µm	
	395-254-30	75-100mm			ø20

*1 Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*	øD
Digimatic (LCD)				
395-351-30	0-1"	.00005"/ 0.001mm	±.0001"	ø.59"
395-352-30	1"-2"			ø.75"
395-353-30	2"-3"		±.00015"	ø.79"
395-354-30	3"-4"			

*1 Excluding quantizing error of ±1 count

Metric

Order No.	Range	Resolution	Accuracy*	øD
Analog				
115-101	0 - 15mm	0.01mm	±3µm	ø5.5
115-115	0 - 25mm			ø10
115-116	25 - 50mm			ø11
115-117	50 - 75mm			ø17
115-118	75 - 100mm			ø18

Mechanical counter model

Order No.	Range	Resolution	Accuracy*	øD
295-115	0 - 25mm	0.01mm	±3µm	ø10

*1 Excluding quantizing error of ±1 count

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์วัดท่อ และงานทรงกระบอก

Tube Micrometers

SERIES 395, 115, 295 - SPHERICAL ANVIL AND SPINDLE TYPE



395-271-30



115-215



IP65

IP Codes

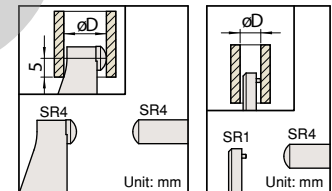
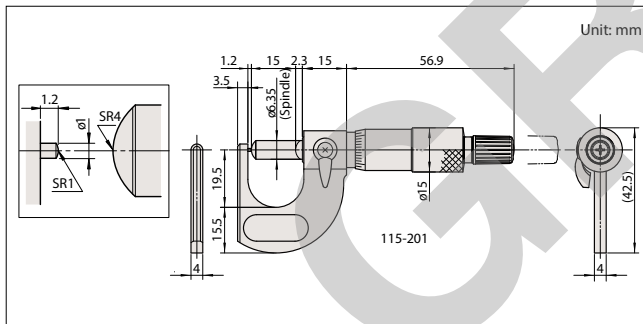
- Level 6 : Dust-proof.
No ingress of dust allowed.
- Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.



FEATURE

- Measuring faces: Carbide (115-201 : only the spindle is carbide tipped.)
- 395 series: IP65 spherical anvil and spindle type digital micrometer.
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Other than 115-201 115-201

Battery for series 395

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)
Battery life: Approx. 2.4 years under normal use (for series 395)
Length standard: Electromagnetic rotary sensor (for series 395)
Standard accessories: Reference bar, 1 pc (except for measuring range 0-15 mm/0-25 mm (0-1 in) models)
Spanner (200168), 1 pc (for series 115-201)
Spanner (301336), 1 pc (for models other than series 115-201)

Optional accessories

Connecting cables for **series 395**
1m: **05CZA662**
2m: **05CZA663**
USB Input Tool Direct
USB-ITN-B (2m): **06AFM380B**
Wireless data output **U-WAVE fit**
U-WAVE-TM **264-622** (IP67 type)
264-623 (Buzzer type)
Connecting unit for U-WAVE-TM
02AZF310 (IP67 type)

Metric

Order No.	Range	Resolution	Accuracy*	øD
Digimatic (LCD)				
395-271-30	0-25mm	0.001mm	±2µm	ø15
395-272-30	25-50mm			
395-273-30	50-75mm			
395-274-30	75-100mm		±3µm	ø20

*1 Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*	øD
Digimatic (LCD)				
395-371-30	0-1"	.00005"/	±.0001"	ø.59"
395-372-30	1"-2"			
395-373-30	2"-3"	0.001mm	±.00015"	ø.75"
395-374-30	3"-4"			

*1 Excluding quantizing error of ±1 count

Metric

Order No.	Range	Resolution	Accuracy*	øD
Analog				
115-201	0 - 15mm	0.01mm	±3µm	ø5.5
115-215	0 - 25mm			ø10
115-216	25 - 50mm			ø11
115-217	50 - 75mm			ø17
115-218	75 - 100mm		±4µm	ø18

Mechanical counter model

Order No.	Range	Resolution	Accuracy*	øD
295-215	0 - 25mm	0.01mm	±3µm	ø10

*1 Excluding quantizing error of ±1 count

ไมโครมิเตอร์ท่อ และงานทรงกระบอก

Tube Micrometers

SERIES 395, 115, 295 - SPHERICAL AND CYLINDRICAL ANVIL TYPE



IP 65

IP Codes

- Level 6 : Dust-proof.
No ingress of dust allowed.
- Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Type A
(pin)



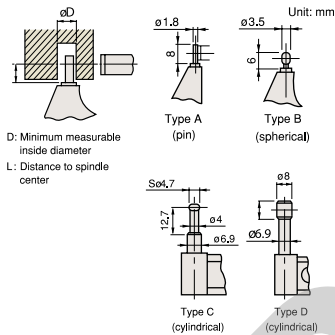
Type B
(spherical)



Type C
(cylindrical)



Type D
(cylindrical)



Anvil	D	L
Type A	2	4
Type B	3.6	4
Type C	4.8	12
Type D	8.2	22

Battery for series 395

SR44 (1 pc), 938882, for initial operational checks (standard accessory)

Battery life: Approx. 2.4 years under normal use (for series 395)

Length standard: Electromagnetic rotary sensor (for series 395)

Standard accessories: Reference bar, 1 pc (except for measuring range 0-25 mm (0-1 in) models)
Spanner (301336), 1 pc

Optional accessories

Connecting cables for series 395

1m: 05CZA662

2m: 05CZA663

USB Input Tool Direct

USB-ITN-B (2m): 06AFM380B

Wireless data output U-WAVE/fit

U-WAVE-TM 264-622 (IP67 type)

264-623 (Buzzer type)

Connecting unit for U-WAVE-TM

02AZF310 (IP67 type)



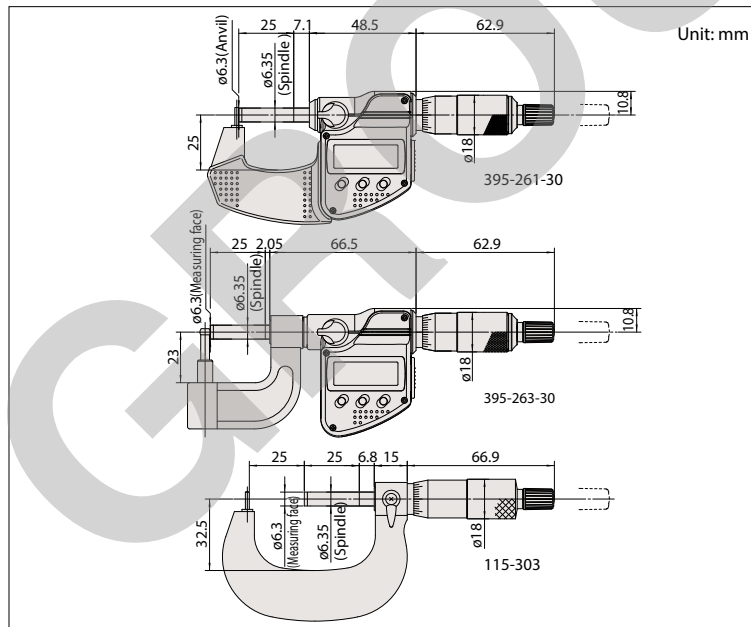
395-261-30



FEATURE

- Spindle face: Carbide
- 395 Series: IP65 spherical and cylindrical anvil type digital micrometers.
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Metric

Order No.	Range	Resolution	Accuracy*	Remark
395-261-30	0 - 25mm	0.001mm	±3μm	Type A
395-262-30				Type B
395-263-30				Type C
395-264-30				Type D

*1 Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*	Remark
395-362-30	0-1"	.0005"/ 0.001mm	±.00015"	Type B
395-363-30				Type C
395-364-30				Type D

*1 Excluding quantizing error of ±1 count

Metric

Order No.	Range	Resolution	Accuracy*	Remark
115-302	0 - 25mm	0.01mm	±3μm	Type A
115-308				Type B
115-303				Type A
115-309				Type B
115-315	0 - 25mm			Type C
115-316				Type D

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

สไปลน์ไมโครมิเตอร์

Spline Micrometers

SERIES 331, 111, 131



MeasurLink® ENABLED
Data Management Software by Mitutoyo



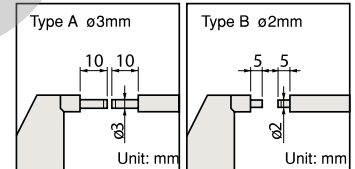
IP65

IP Codes

- Level 6 : Dust-proof.
No ingress of dust allowed.
- Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

Flatness: 0.3µm/0.00012"
Parallelism: (2+R/100)µm, R=max. range(mm)
[.00008"+.00004(R/4)]"
R=max range (inch)
fraction rounded down



Battery for series 331

SR44 (1 pc) **938882**, for initial operational checks (standard accessory)
Battery life :

Approx. 2.4 years under normal use (for series 331)
Length standard : Electromagnetic rotary sensor (for series 331)

Standard accessories : Reference bar, 1 pc (except for measuring range 0-15mm/0-25mm (0-1" models)
Spanner (301336), 1 pc

Optional accessories

Connecting cables for **series 331**

1m: **05CZA662**

2m: **05CZA663**

USB Input Tool Direct

USB-ITN-B (2m): **06AFM380B**

Wireless data output **U-WAVE fit**

U-WAVE-TM **264-622** (IP67 type)

264-623 (Buzzer type)

Connecting unit for U-WAVE-TM

02AZF310 (IP67 type)

FEATURE

- The anvil and spindle are of small diameter for measuring splined shafts, slots, and keyways.
- IP65 water/dust protection (series 331).
- Measuring faces: Carbide
- Equipped with Ratchet Stop for constant measuring force.

Metric

Order No.	Range	Resolution	Accuracy*	Remark
Digimatic (LCD)				
331-251-30	0-25mm	0.001mm	±2µm	Type A
331-252-30	25-50mm			
331-253-30	50-75mm		±3µm	Type B
331-254-30	75-100mm			
331-261-30	0-25mm	0.001mm	±2µm	Type A
331-262-30	25-50mm			
331-263-30	50-75mm		±3µm	Type B
331-264-30	75-100mm			

*1 Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*	Remark
Digimatic (LCD)				
331-351-30	0-1"	.00005" / 0.001mm	±.0001"	Type A
331-352-30	1"-2"			
331-353-30	2"-3"		±.00015"	Type B
331-354-30	3"-4"			
331-361-30	0-1"	.00005" / 0.001mm	±.0001"	Type A
331-362-30	1"-2"			
331-363-30	2"-3"		±.00015"	Type B
331-364-30	3"-4"			

*1 Excluding quantizing error of ±1 count

Metric

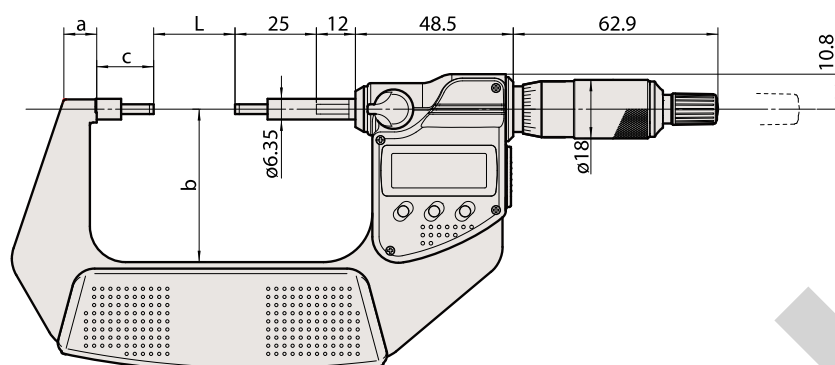
Order No.	Range	Resolution	Accuracy*	Remark		
Analog						
111-215	0-25mm		±3µm	Type B		
111-115	0-25mm					
111-116	25-50mm					
111-117	50-75mm					
111-118	75-100mm					
111-119	100-125mm		0.01mm	±4µm		
111-120	125-150mm					
111-121	150-175mm					
111-122	175-200mm					
111-123	200-225mm		±5µm			
111-124	225-250mm					
111-125	250-275mm					
111-126	270-300mm					
Mechanical counter model						
131-115	0-25mm	0.01mm	±3µm	Type A		

DIMENSIONS

Digital Models

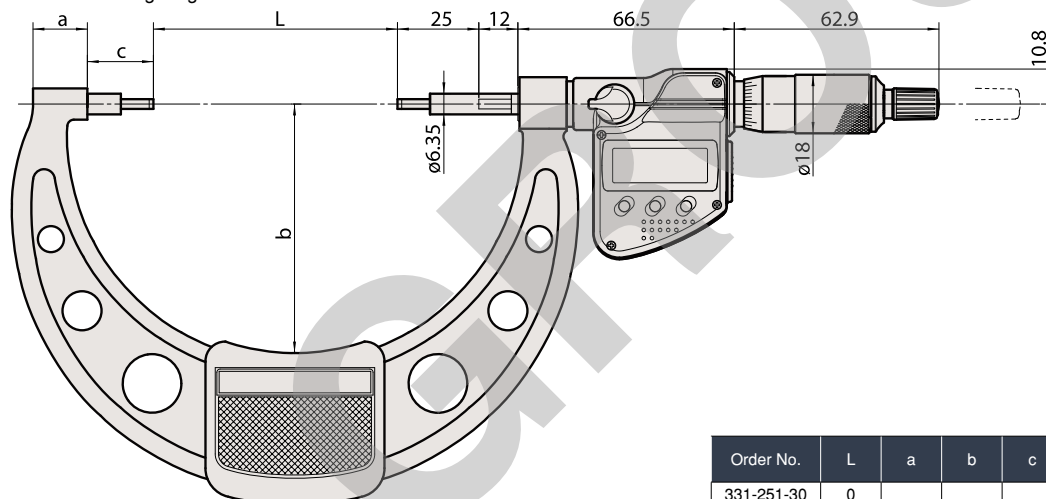
Models up to 75mm measuring range

Unit : mm



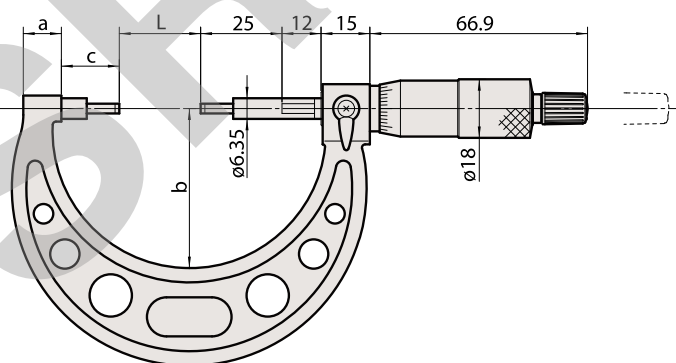
Digital Models

Models over 75mm measuring range



Analog Models

Models over 300mm measuring range



Order No.	L	a	b	c
331-251-30	0	7.3	32.5	17.5
331-261-30	0			
331-252-30	25	10.1	47	
331-262-30	25			
331-253-30	50	11.5	60	
331-263-30	50			
331-254-30	75	16.7	76	20.3
331-264-30	75			
111-215	0	10	38	17.5
111-115	0			
111-116	25	12	49	
111-117	50	14	60	
111-118	75	16.7	79	20.3
111-119	100	18.8	94	20.7
111-120	125	19.1	106	21.1
111-121	150	18.2	118	21.3
111-122	175	16.8	130	21.7
111-123	200	18	143	20.5
111-124	225		156	21.5
111-125	250		169	
111-126	275		181	

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์วัดเป็นจุด

Point Micrometers

SERIES 342, 142, 112

MeasurLink® ENABLED
Data Management Software by Mitutoyo



IP65



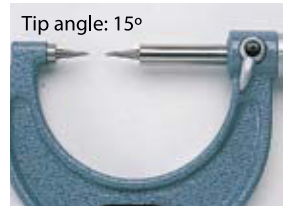
IP Codes

- Level 6 :** Dust-proof.
No ingress of dust allowed.
- Level 5 :** Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

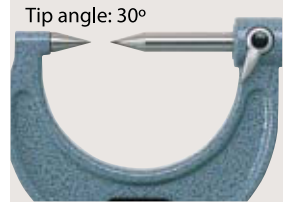
Technical Data



Tip angle: 15°



Tip angle: 30°



Battery for series 342

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)
Battery life: Approx. 2.4 years under normal use (for series 342)
Length standard: Electromagnetic rotary sensor (for series 342)
Standard accessories: Reference bar, 1 pc (except for measuring range 0-25 mm (0-1 in) models)
Spanner (301336), 1 pc

Optional accessories

Connecting cables for **series 342**
1m: **05CZA662**
2m: **05CZA663**
USB Input Tool Direct
USB-ITN-B (2m): **06AFM380B**
Wireless data output **U-WAVE/fit**
U-WAVE-TM **264-622** (IP67 type)
264-623 (Buzzer type)
Connecting unit for U-WAVE-TM
02AZF310 (IP67 type)

FEATURE

- Pointed spindle and anvil for measuring the web thickness of drills, small grooves, keyways, and other hard-to-reach features.
- The measuring points (carbide tipped) have approximately 0.3mm radius.
- 342 series: IP65 Digimatic micrometers
- Equipped with Ratchet Stop for constant measuring force.

Metric

Order No.	Range	Resolution	Accuracy*	Point
Digimatic (LCD) (With carbide tip)				
342-251-30	0-25mm	0.001mm	±2µm	15°
342-252-30	25-50mm			
342-253-30	50-75mm		±3µm	30°
342-254-30	75-100mm			
342-261-30	0-25mm	0.001mm	±2µm	30°
342-262-30	25-50mm			
342-263-30	50-75mm		±3µm	
342-264-30	75-100mm			

*1 Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*	Point
Digimatic (LCD) (With carbide tip)				
342-351-30	0-1"	.00005" / 0.001mm	±.0001"	15°
342-352-30	1"-2"			
342-353-30	2"-3"		±.00015"	30°
342-354-30	3"-4"			
342-361-30	0-1"	.00005" / 0.001mm	±.0001"	30°
342-362-30	1"-2"			
342-363-30	2"-3"		±.00015"	
342-364-30	3"-4"			

*1 Excluding quantizing error of ±1 count

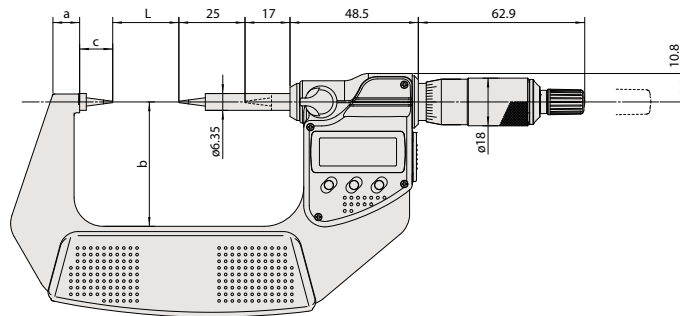
Metric

Order No.	Range	Resolution	Accuracy*	Remark
Analog				
112-153	0-25mm	0.01mm	±3µm	15°
112-154	25-50mm			
112-155	50-75mm		±4µm	
112-156	75-100mm			
112-201	0-25mm		±3µm	30°
112-202	25-50mm			
112-203	50-75mm		±4µm	
112-204	75-100mm			
Analog (With carbide tip)				
112-165	0-25mm	0.01mm	±3µm	15°
112-166	25-50mm			
112-167	50-75mm		±4µm	
112-168	75-100mm			
112-213	0-25mm		±3µm	30°
112-214	25-50mm			
112-215	50-75mm		±4µm	
112-216	75-100mm			
Mechanical counter model				
142-153	0-25mm	0.01mm	±3µm	15°
142-201				30°

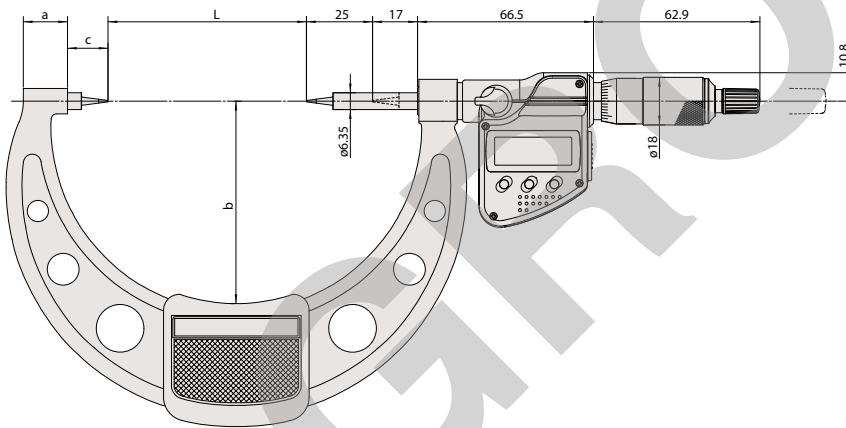
*1 Excluding quantizing error of ±1 count

DIMENSIONS

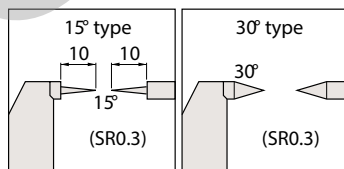
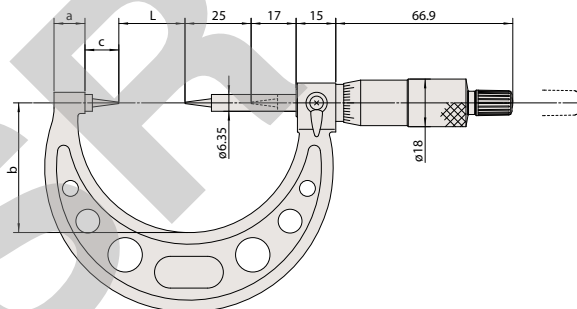
Digital models up to 75mm measuring range



Digital models over 75mm measuring range



Analog models measuring range



Order No.	L	a	b	c	Frame thickness*1
342-251-30	0	7.3	32.5		(11.2)
342-261-30					
342-252-30	25	10.1	47	12.5	(12.8)
342-262-30					
342-253-30	50	11.5	60		(12.8)
342-263-30					
342-254-30	75	16.7	76	15.3	(20.8)
342-264-30					
112-153	0	10	38		(9)
112-154	25	12	49	12.5	(10)
112-155	50	14	60		(11)
112-156	75	16.7	79	15.3	(13)

*1 Digimatic type : thickness over heat shield

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์แกนวัดบาง - แกนไม่หมุน

Blade Micrometers

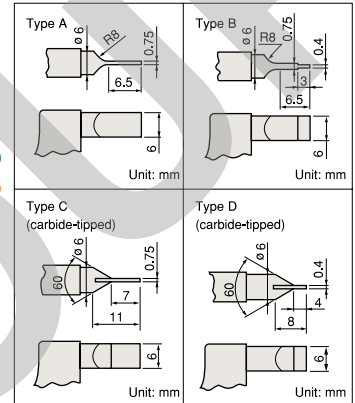
SERIES 422, 122 - Non-Rotating Spindle Type



Technical Data

Parallelise:
3 μ m for models up to 75mm
.00015" for models up to 3"
(3+R/100) μ m for models over 75mm
.0002" for models over 3"
R=max. range(mm)
fraction rounded down

Type and Dimensions



FEATURE

- The anvil and spindle are blade-shaped for measuring the groove diameter of shafts, keyways, and other hard-to-reach features.
- Carbide-tipped measuring faces are also available.
- Non-rotating spindle type.
- Equipped with Ratchet Stop for constant measuring force.

Metric

Order No.	Range	Resolution	Accuracy*	Remark
Digimatic (LCD)				
422-230-30	0-25mm	0.001mm	$\pm 3\mu$ m	Type A
422-231-30	25-50mm			
422-232-30	50-75mm			
422-233-30	75-100mm		$\pm 4\mu$ m	Type B
422-260-30	0-25mm			
422-261-30	25-50mm			
422-270-30	0-25mm		$\pm 3\mu$ m	Type C
422-271-30				Type D

*1 Excluding quantizing error of ± 1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*	Remark
Digimatic (LCD)				
422-330-30	0-1"	.0005"/ 0.001mm	$\pm .00015"$	Type A
422-331-30	1"-2"			
422-332-30	2"-3"			
422-333-30	3"-4"		$\pm .0002"$	Type B
422-360-30	0-1"			
422-361-30	1"-2"			
422-370-30	0-1"		$\pm .00015"$	Type C
422-371-30				Type D

*1 Excluding quantizing error of ± 1 count

Metric Quickmike type

Order No.	Range	Resolution	Accuracy*	Remark
Digimatic (LCD)				
422-411-20	0-30mm	0.001mm	$\pm 3\mu$ m	Type A
422-412-20	25-55mm			

*1 Excluding quantizing error of ± 1 count

Inch / Metric Quickmike type

Order No.	Range	Resolution	Accuracy*	Remark
Digimatic (LCD)				
422-421-20	0-1.2"	.00005"/ 0.001mm	$\pm .00015"$	Type A

*1 Excluding quantizing error of ± 1 count

Metric

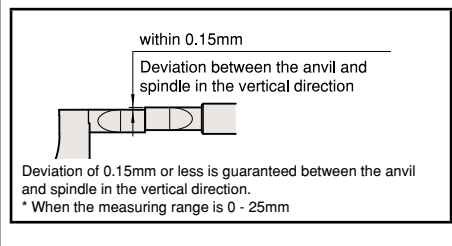
Order No.	Range	Resolution	Accuracy*	Remark
Analog				
122-101	0-25mm	0.001mm	±3μm	Type A
122-102	25-50mm			
122-103	50-75mm			
122-104	75-100mm			
122-105	100-125mm			
122-106	125-150mm			
122-107	150-175mm			
122-108	175-200mm			
122-109	200-225mm			
122-110	225-250mm			
122-115	250-275mm	±6μm		
122-116	275-300mm			
122-111	0-25mm			
122-112	25-50mm	0.01mm	±3μm	Type B
Analog (with carbide tip)				
122-161	0-25mm	0.01mm	±3μm	Type C
122-162	25-50mm			
122-141	0-25mm	0.01mm		±3μm
122-142	25-50mm			

Note: 1) A heat shield is provided with Digimatic models and 422-230-30 as standard

Quickmike

Provides a speedy spindle feed of 10mm per thimble rotation, which enables widely differently sized features to be measured quickly.

Deviation between the Anvil and Spindle in the Vertical Direction



Battery for series 422

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)

Battery life: Approx. 2.4 years under normal use (for series 422-2XX, 3XX)

Approx. 5 year under normal use (for series 422-4XX)

Approx. 18,000 hours in continuous use (for series 422-2XX, 3XX)

Length standard: Electromagnetic rotary sensor (for series 422-2XX, 3XX)

Electrostatic capacity absolute sensor (for series 422-4XX)

Standard accessories: Reference bar, 1 pc (except for measuring range 0-25 mm / 0-30 mm (0-1"/0-1.2") models)

Spanner (301336), 1 pc (for series 122-1XX, 422-2XX, 3XX)

Optional accessories

Connecting cables for **series 342**

1m: **05CZA662**

2m: **05CZA663**

USB Input Tool Direct

USB-ITN-B (2m): **06AFM380B**

Connecting for **422-230-30** to

422-271-30, 422-330-30 to 422-371-30

Wireless data output **U-WAVE/fit**

U-WAVE-TM **264-622** (IP67 type)

264-623 (Buzzer type)

Connecting unit for U-WAVE-TM

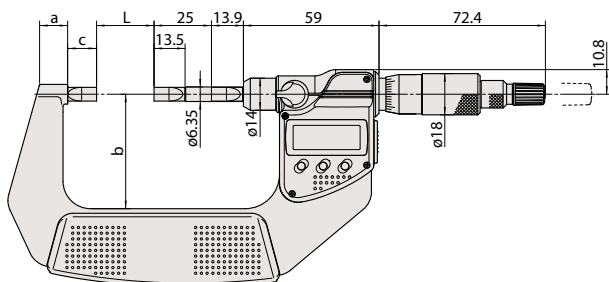
02AZF310 (IP67 type)

Note: cannot be used with Quickmike type

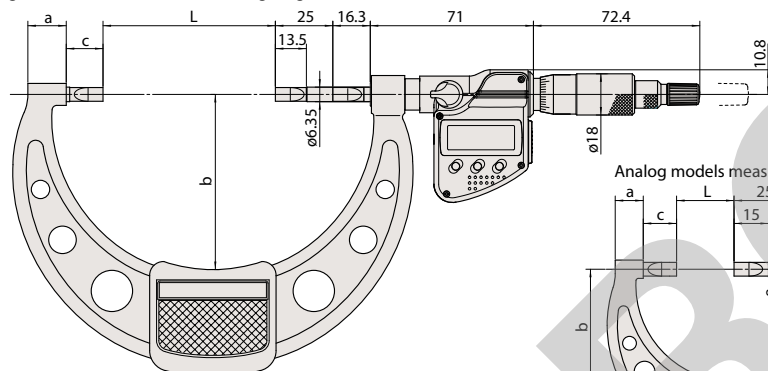
DIMENSIONS

Digital models up to 50mm measuring range

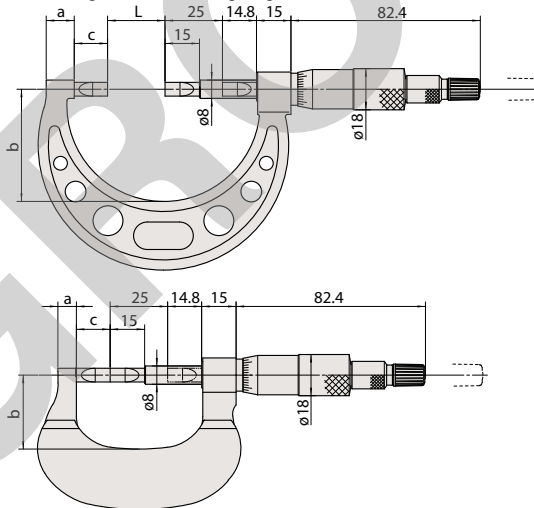
Unit: mm



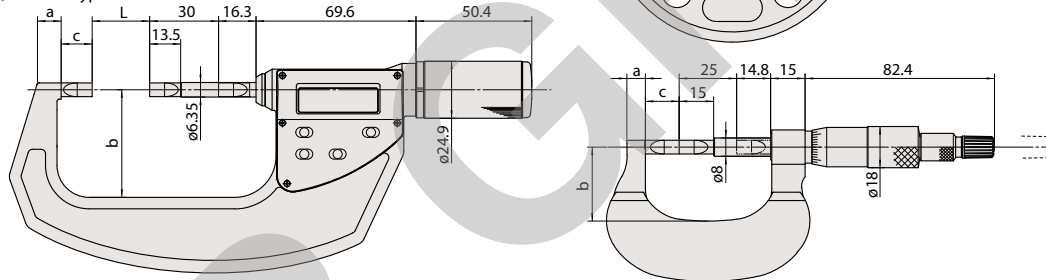
Digital models over 75mm measuring range



Analog models measuring range



Quickmike type



Order No.	L	a	b	c
422-230-30	0	11	31	12.5
422-231-30	25	12.2	50	12.6
422-232-30	50	14.6	57	13
422-233-30	75	16.7	76	16
422-260-30	0	11	31	12.5
422-261-30	25	12.2	50	12.6
422-270-30	0	11	31	12.5
422-271-30	0			
122-101	0	7.8	32	15
122-102	25	12.2	49	14.5
122-103	50	14.6	60	
122-104	75	17	79	17.5
122-105	100	19	94	17.9
122-106	125	20	106	18.3
122-107	150	19	118	18.5
122-108	175	17	130	18.9
122-109	200	18	143	17.7
122-110	225		156	18.7
122-115	250		169	
112-116	275		181	
422-411	0	8.5	36	13.5
422-412	25	10.3	47	

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

អាចារ្យ

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

๕
ชาตัง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

ยูนิ-ไมค์ ไมโครมิเตอร์ - เปลี่ยนแกนรับได้

Uni-Mike

SERIES 317, 117 - Interchangeable Anvil Type



IP 65

IP Codes

- Level 6 : Dust-proof.
No ingress of dust allowed.
- Level 5 : Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical data

Flatness: Spindle face $0.6 \mu\text{m}$ / $0.000024''$ Anvil face $2 \mu\text{m}$ / $0.00008''$ Parallelism: $3 \mu\text{m}$ / $0.00012''$ 

Battery for series 317

SR44 (1 pc), 938882, for initial operational checks (standard accessory)

Battery life: Approx. 2.4 years under normal use (for series 317)

Length standard: Electromagnetic rotary sensor (for series 317)

Standard accessories: Reference bar, 1 pc (except for measuring range 0-25 mm (0-1 in) models)

Spanner (200877), 1 pc (for series 117-XXX)
Spanner (301336), 1 pc (for series 317-XXX)

Optional accessories

Connecting cables for (Series 317)

1m: 05CZA662

2m: 05CZA663

USB Input Tool Direct

USB-ITN-B (2m): 06AFM380B

Wireless data output U-WAVE/ii

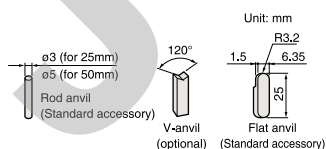
U-WAVE-TM 264-622 (IP67 type)

264-623 (Buzzer type)

Connecting unit for U-WAVE-TM

02AZF310 (IP67 type)

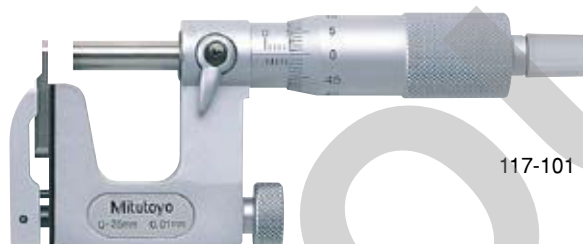
Accessories



Order No.	Item
201216	Flat anvil (standard accessory)
201217	Rod anvil (standard accessory for 117-101 / 117-107 / 317-251-30 / 317-351-30)
201379	Rod anvil (standard accessory for 117-102 / 117-108 / 317-252-30 / 317-352-30)
201218	V-anvil (Optional)
950758	Base for 25mm (Optional)



317-251-30

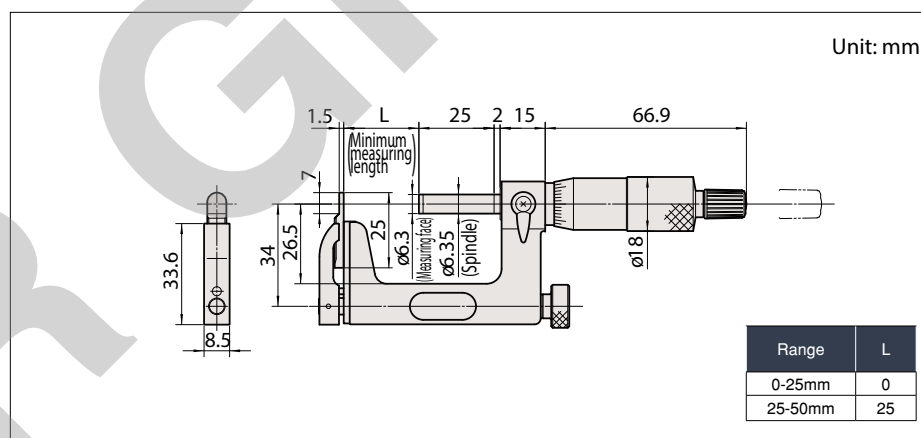


117-101

FEATURE

- Measures tubing thickness, shoulder-edge distance, rivet head height, etc., with interchangeable anvils (flat anvil, rod anvil, V-anvil).
- IP65 water/dust protection (317 series).
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Metric

Order No.	Range	Resolution	Accuracy*
Digimatic (LCD)			
317-251-30	0 - 25mm	0.001mm	$\pm 4 \mu\text{m}$
317-252-30	25 - 50mm		

* Excluding quantizing error of ± 1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*
Digimatic (LCD)			
317-351-30	0 - 1"	.00005"	$\pm .0002''$
317-352-30	1" - 2"	/0.001mm	

* Excluding quantizing error of ± 1 count

Metric

Order No.	Range	Graduation	Accuracy*
Analog			
117-101	0-25mm	0.01mm	$\pm 4 \mu\text{m}$
117-102	25-50mm		

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์วัดภายนอก

Indicating Micrometer SERIES 510

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

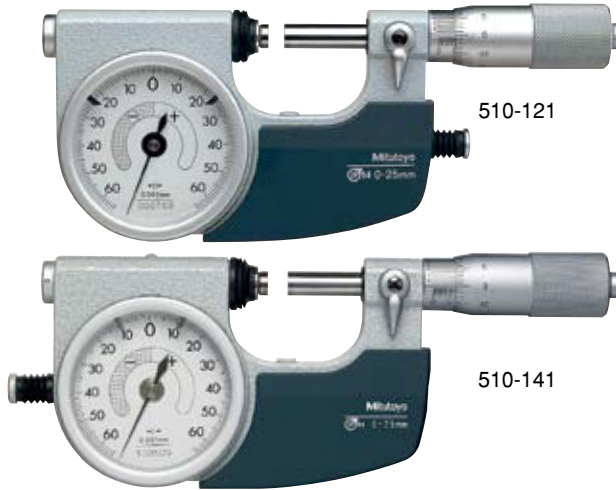
ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์



IP54

Technical data

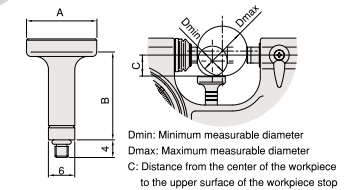
Flatness: 0.3µm/.00012"
Parallelism: 0.6µm/.00004" for models up to 50mm/ 2"
1µm/.00004" for models over 50mm/ 2"
Accuracy: ±2µm
Spindle feed error: 3µm/.00015"
Dispersion of indication: 0.4µm/.00002"
Dial indication accuracy: 1µm/.00005"
Standard accessories: Reference bar, 1pc
(except for measuring range 0-25mm (0-1") models)
Spanner (200154), 1 pc

Workpiece stop (optional)

Realizes more stable measurement.
Three types are available to suit workpieces of different sizes.

Unit : mm

Range	A	B
Workpiece stop A 04AZA124	Ø16	23
Workpiece stop B 04AZA125	Ø14	20.5
Workpiece stop C 04AZA126	Ø14	15



Order No. 510-121, 510-141

Unit : mm

	Dmin	Dmax	C
Workpiece stop A	N/A	N/A	N/A
Workpiece stop B	4	16	5.0
Workpiece stop C	15	25	10.5

510-122

	Dmin	Dmax	C
Workpiece stop A	25	37	15.5
Workpiece stop B	30	42	18.0
Workpiece stop C	41	50	23.5

510-123

	Dmin	Dmax	C
Workpiece stop A	50	61	27.5
Workpiece stop B	54	66	30.0
Workpiece stop C	65	75	35.5

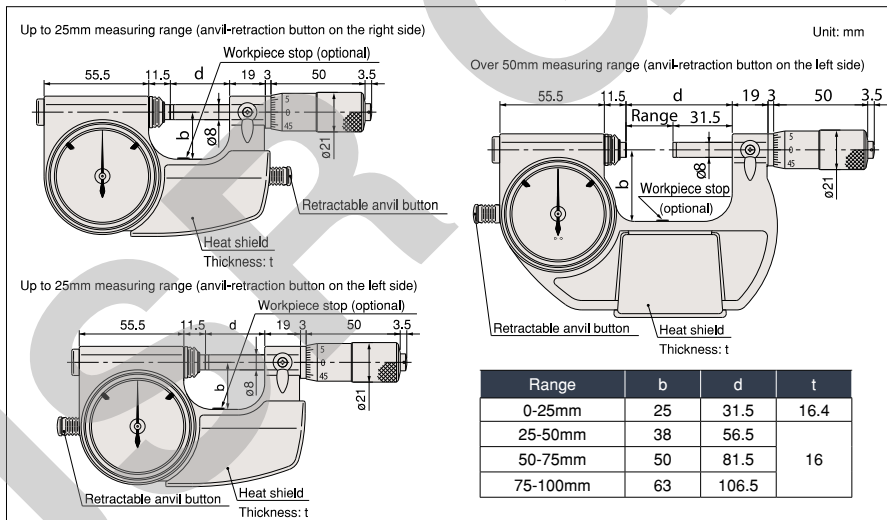
510-124

	Dmin	Dmax	C
Workpiece stop A	75	87	40.5
Workpiece stop B	80	92	43.0
Workpiece stop C	91	100	48.2

FEATURE

- Suited to the measurement of low-volume manufactured parts.
- Easy to use when operating one-handed due to retractable anvil.
- In the 25mm measuring range, the model lineup offers a choice of left or right positioning of the anvil-retraction button.
- Greatly improved accuracy: indication error and graduation of 1µm.
- Water-proof to protection level IP54.
- Hard-coated crystal: enhanced oil and scratch resistance.
- Indicator scale is large and easy-to-read.
- The zero position and adjustable limit markers, for GO/±NG testing, are easily set.
- Measuring faces: Carbide

DIMENSIONS



Metric

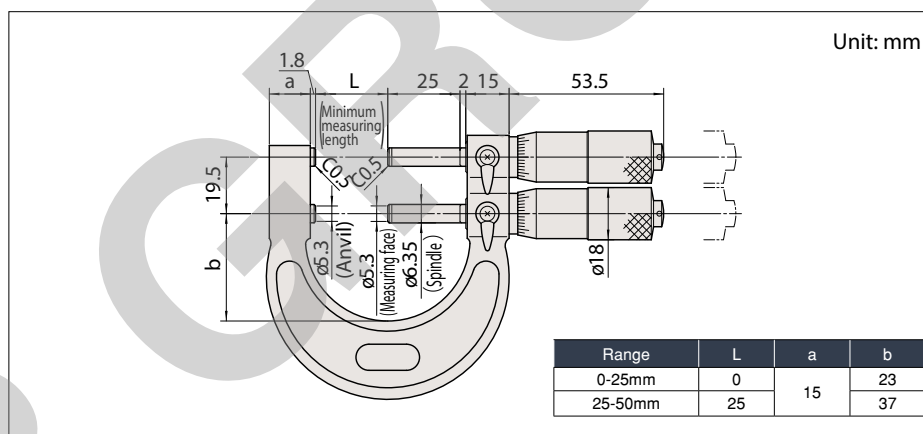
Order No.	Range	Indicating range	Graduation	Dial graduation	Measuring force	Anvil retraction button	Mass
510-121	0-25mm	±0.06mm	0.001mm	0.001mm	5-10N	Right side	520g
510-141							530g
510-122	25-50mm						670g
510-123	50-75mm						820g
510-124	75-100mm						970g



Standard accessories : Reference bar, 1 pc
(except for measuring range 0-25mm (0-1") models)
Spanner (200877), 1 pc



- Dual-spindle design enables use as a GO/±NG gage by setting upper and lower limits.
- Measuring faces: Carbide



Order No.	Range	Graduation	Accuracy	Flatness	Parallelism
113-102	0-25mm	0.01mm	±3μm	0.6μm	3μm
113-103	25-50mm				

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

ไดอัลสแนปมิเตอร์

Dial Snap Meters SERIES 523



523-121

IP54

Technical data

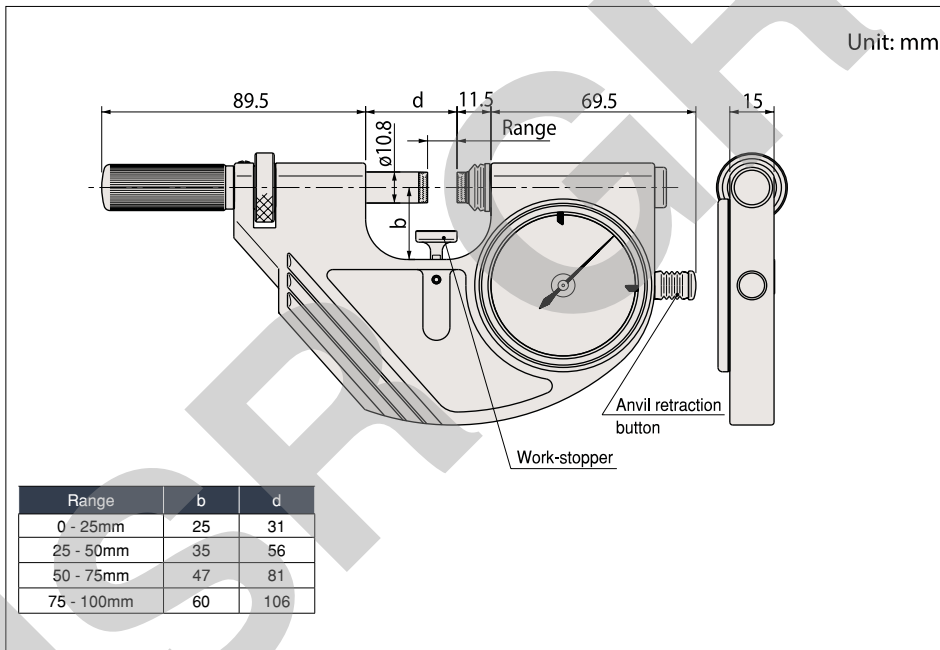
Indicator
Indicating range: $\pm 0.06\text{mm}/\pm 0.0023"$
Repeatability of indication: $0.4\mu\text{m}/0.00002"$
Dial indication accuracy: $1\mu\text{m}/0.00005"$
Flatness: $0.3\mu\text{m}/0.00012"$
Parallelism: $0.6\mu\text{m}/0.00024"$ for models up to 50mm/2" measuring range
 $1\mu\text{m}/0.0004"$ for models over 50mm/2" measuring range



FEATURE

- Suited to the measurement of mass-produced parts.
- Designed for measurement using a stand: realizes stable measurement.
- Greatly improved accuracy: indication error and graduation of $1\mu\text{m}$.
- Water-proof to protection level IP54.
- Hard-coated crystal: enhanced oil and scratch resistance.
- Indicator scale is large and easy-to-read.
- Easily settable adjustable limit markers for GO/±NG testing.
- Equipped with an elevating workpiece stop as standard.
- Measuring faces: Carbide

DIMENSIONS



Metric

Order No.	Range	Dial graduation	Measuring force	Mass
523-121	0 - 25mm	0.001mm	5 - 10N	740g
523-122	25 - 50mm			840g
523-123	50 - 75mm			950g
523-124	75 - 100mm			1080g

สแน็ปมิเตอร์

Snap Meters SERIES 523

Accuracy

Flatness: $0.3\mu\text{m}/.000012''$
Parallelism: $0.6\mu\text{m}/.00004''$ for models up to 50mm/ 2"
 $1\mu\text{m}/.00004''$ for models over 50mm/ 2"
Repeatability of indication: $0.4\mu\text{m}/.00002''$

Typical Indicators used with gage

ID-C (0.001mm) **543-390B**
LGF-L (0.0001mm) / **542-181** & Counter **542-015**



ABS Digimatic Indicator



Linear Gage counter

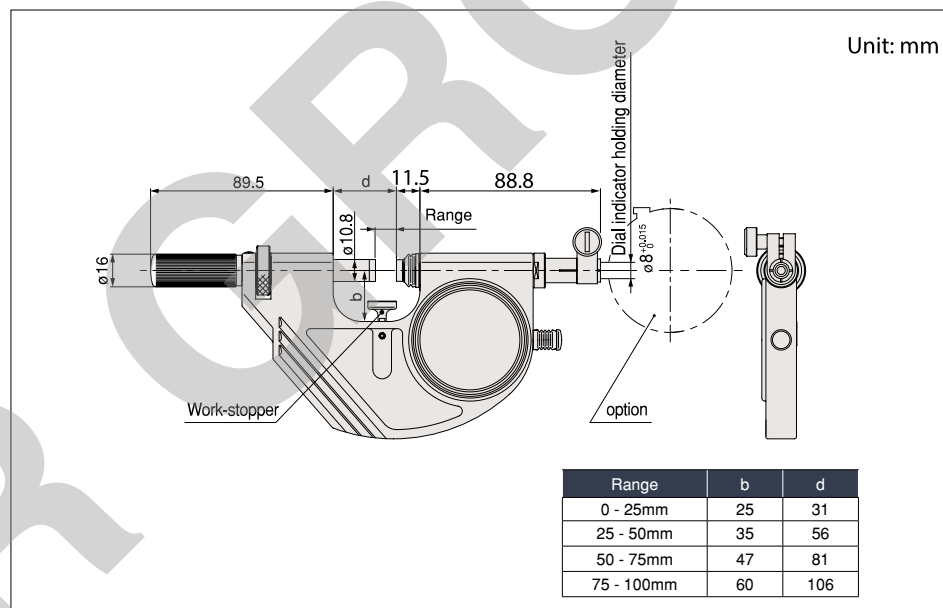


523-141
(Indicator: optional)

FEATURE

- Suited to the measurement of mass-produced parts.
- Various types of indicator can be selected according to the measurement application.
- Measuring faces: Carbide

DIMENSIONS



Metric

Order No.	Range	Anvil movement	Measuring force*	Mass
523-141	0 - 25mm	2mm	5 - 10N	710g
523-142	25 - 50mm			810g
523-143	50 - 75mm			920g
523-144	75 - 100mm			1050g

* Measured at the position where the anvil is retracted by 1mm from the free position without installing the indicator.

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์วัดร่องใน
Groove - Mini
SERIES 146

Micrometers
ไมโครมิเตอร์

Micrometer
ไมโครมิเตอร์

Inside
Measurement
เครื่องมือวัดภายใน

Calipers
คาลิเปอร์

Height Gages
เกจวัดความสูง

Linear Height
เครื่องมือวัดความสูง

Depth Gages
เกจวัดความลึก

Gauge Blocks
เกจบล็อก

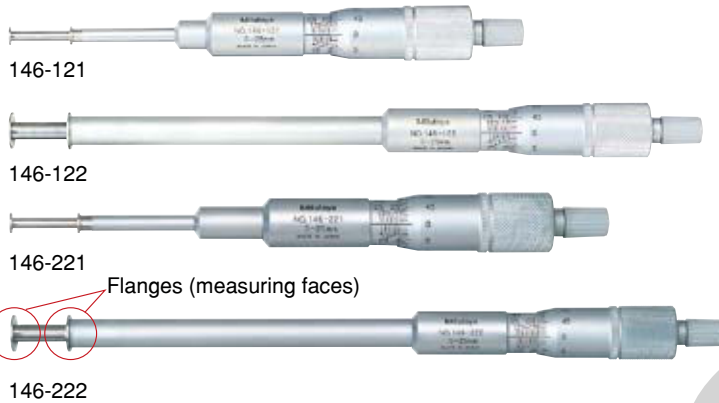
Reference Gages
เครื่องมืออ้างอิง

Indicators
อินดิเคเตอร์

Stands
ขาตั้ง

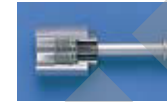
Micrometer
ไมโครมิเตอร์

Micrometer Head
หัวไมโครมิเตอร์

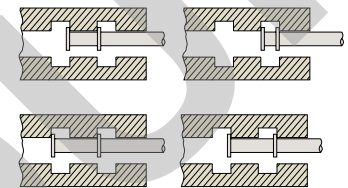


Technical data

Parallelise: 10 μ m/0.0004"



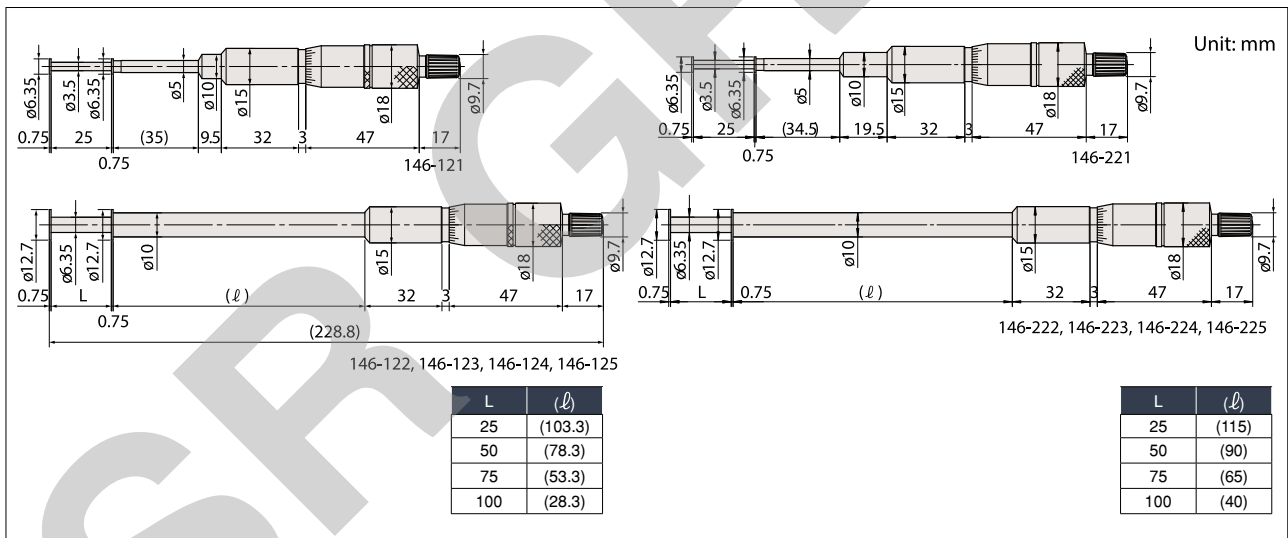
Standard accessories : Spanner (301336), 1 pc



FEATURE

- Flanged spindle and anvil for measuring width and location of grooves inside bores and tubes.
- Two-directional ratchet stop.
- For ID and OD (except for 0 - 25mm) measurement, a master gage is required for adjusting the reference point

DIMENSIONS



Metric

Order No.	Range Outside	Range Inside	Graduation	Accuracy	Flange
Rotating spindle					
146-121	0-25mm	1.6 - 26.5mm	0.01mm	±10 μ m	ø6.35mm
146-122					ø12.7mm
146-123	25-50mm	26.5 - 51.5mm			
146-124	50-75mm	51.5 - 76.5mm			
146-125	75-100mm	76.5 - 101.5mm			

Metric

Order No.	Range Outside	Range Inside	Graduation	Accuracy	Flange
Non-Rotating spindle					
146-221	0-25mm	1.6 - 26.5mm	0.01mm	±10 μ m	ø6.35mm
146-222					ø12.7mm
146-223	25-50mm	26.5 - 51.5mm			
146-224	50-75mm	51.5 - 76.5mm			
146-225	75-100mm	76.5 - 101.5mm			

ไมโครมิเตอร์วัดภายนอก
**Quickmini
SERIES 700****Technical data**

SR44 (1 pc), **938882**, for initial operational checks (standard accessory)
Silver oxide button cell battery **SR44** (**938882**), 1 pc. for monitor (standard accessory)

**Functions**

ABS measurement function: after a data is displayed, next measurement can be performed without zero-setting.

Also, the ABS origin point can be changed with ORIGIN switch.

INC measurement function: clears the displayed data at any point. The comparative measurement can be easily performed.

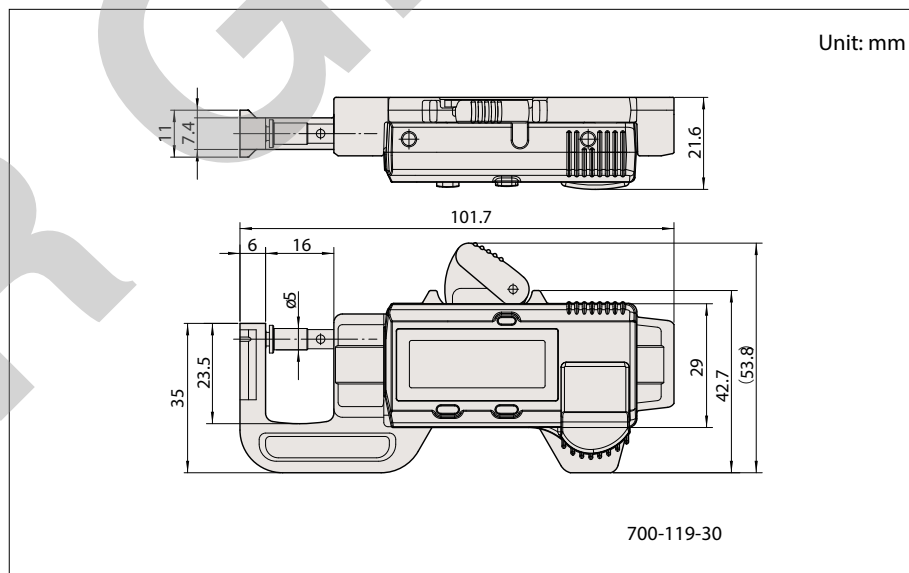
Low battery alarm: notifies that the battery is worn with "B" mark before becoming immeasurable. Thus, the timing for battery replacement can be confirmed in advance.



700-119-30

FEATURE

- Lightweight and palm-sized.
- Highly suitable for quick dimensional inspection of small, thin and delicate objects.
- Functions: origin setting and zero-setting.
- Application examples
 - Measurement of small objects: pearls, jewels, shims for engine tappets and screws.
 - Measurement of thin objects: printing paper, polyethylene bags, sheet materials, foods including noodles, lenses for glasses, media substrates, foils, thin plates and medical products including filter cloths.
 - Measurement of fine lines and bars: fishing lines, dental reamers, pasta, drills for PCB and hard wiring.

DIMENSIONS

Unit: mm

Metric

Order No.	Range	Resolution	Accuracy*	Mass
700-119-30	0 - 12mm	0.01mm	±0.02	100g

* Excluding quantizing error of ±1 count

Inch / Metric

Order No.	Range	Resolution	Accuracy*	Mass
700-118-30	0" - 5" / 0 - 12mm	.0005" / 0.01mm	±.001"	100g

* Excluding quantizing error of ±1 count

Micrometer

ไมโครมิเตอร์

Inside**Measurement**

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

ชุดเกจวัดรูใน
**Small Hole Gage Set
SERIES 154**



154-902

FEATURE

- Extra long for gaging deep and shallow holes, slots, and similar workpiece features.
- Two sprung leaves are fully expanded inside a feature so that its size can be measured with an outside micrometer after extraction.

Metric

Order No.	Rang
4-gage Set	
154-902	3 - 13mm
Gages included	
154-101	3 - 5mm
154-102	5 - 7.5mm
154-103	7.5 - 10mm
154-104	10 - 13mm



DIMENSIONS

Unit: mm

Clamp

Rang	Ød1	L	ØD	l
3-5mm	2.8-5.2	90	5.5	22.5
5-7.5mm	4.8-7.8	97.6		30
7.5-10mm	7.3-10.3	108	8.5	40
10-13mm	9.8-13.2			

ชุดเกจวัดรูใน
**Telescoping Gage Set
SERIES 155**



155-905

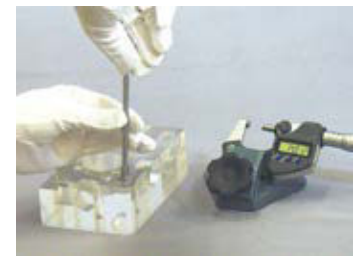
FEATURE

- A spring-loaded plunger expands within a bore (or groove) and is locked in place, allowing measurement of diameter (or width) with an outside micrometer after extraction.

Metric

Order No.	Rang
6-gage Set	
155-905	8 - 150mm
Gages included	
155-127	8 - 12.7mm
155-128	12.7 - 19mm

Order No.	Rang
155-129	19 - 32mm
155-130	32 - 54mm
155-131	54 - 90mm
155-132	90 - 150mm



DIMENSIONS

Unit: mm

Clamp

Ød

Ød1

Ød2

L

Rang	L	ØD	Ød1	Ød2
8-12.7mm	110	5	4	3
12.7-19mm		5.5	5	3.5
19-32mm				
32-54mm	150	8	7.5	6
54-90mm				
90-150mm				

อุปกรณ์ทดสอบความยาวและเพลามาตรฐาน สำหรับไมโครมิเตอร์วัดนอก

Setting Standards for Outside Micrometers

SERIES 167

Technical data

Flatness: 0.3μm
Parallelism: 2μm



Micrometer Inspection Gauge Block



516-152 / 153 / 154



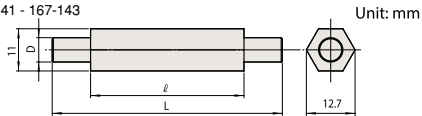
Micro Checker (holder only)
516-607



FEATURE

- Used for adjusting the reference point of the outside micrometer.

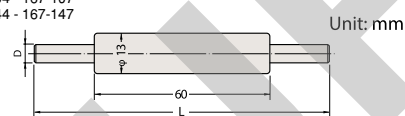
167-101 - 167-103
167-141 - 167-143



Metric

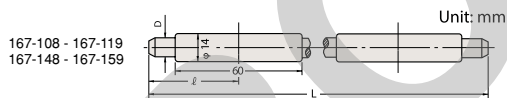
Order No.	Length (L)	Tolerance	l	Diameter (D)
167-101	25mm	±1.5μm	18	6.35mm
167-102	50mm	±2.0μm	40	
167-103	75mm	±2.5μm	40	

167-104 - 167-107
167-144 - 167-147



Metric

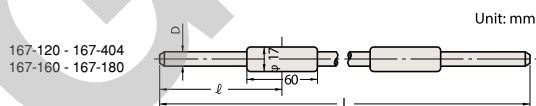
Order No.	Length (L)	Tolerance	l	Diameter (D)
167-104	100mm	±3μm	74	7.9mm
167-105	125mm	±3.5μm	80	
167-106	150mm	±4μm	85	
167-107	175mm	±4.5μm	90	



Metric

Order No.	Length (L)	Tolerance	l	Diameter (D)
167-108	200mm	±5.0μm	47	9.4mm
167-109	225mm	±5.5μm	47	
167-110	250mm	±6.0μm	52	
167-111	275mm	±6.5μm	57	
167-112	300mm	±7μm	64	
167-113	325mm	±7.5μm	69	

Order No.	Length (L)	Tolerance	l	Diameter (D)
167-114	350mm	±8μm	74	9.4mm
167-115	375mm	±8.5μm	80	
167-116	400mm	±9μm	85	
167-117	425mm	±9.5μm	90	
167-118	450mm	±10μm	95	
167-119	475mm	±10.5μm	101	



Metric

Order No.	Length (L)	Tolerance	l	Diameter (D)
167-120	500mm	±11μm	106	11.9mm
167-121	525mm	±11.5μm	112	
167-122	550mm	±12.0μm	117	
167-123	575mm	±12.5μm	122	
167-124	600mm	±13μm	128	
167-125	625mm	±13.5μm	133	
167-126	650mm	±14μm	138	
167-127	675mm	±14.5μm	142	
167-128	700mm	±15μm	147	
167-129	725mm	±15.5μm	153	
167-130	750mm	±16μm	158	
167-131	775mm	±16.5μm	164	
167-132	800mm	±17μm	170	
167-133	825mm	±17.5μm	175	
167-134	850mm	±18μm	180	
167-135	875mm	±18.5μm	185	
167-136	900mm	±19μm	191	
167-137	925mm	±19.5μm	196	
167-138	950mm	±20μm	201	
167-139	975mm	±20.5μm	207	
167-140	1000mm	±21μm	211	
167-365	1025mm	±21.5μm	217	
167-366	1050mm	±22μm	222	
167-367	1075mm	±22.5μm	227	
167-368	1100mm	±23μm	232	
167-369	1125mm	±23.5μm	238	
167-370	1150mm	±24μm	243	
167-371	1175mm	±24.5μm	248	
167-372	1200mm	±25μm	254	
167-373	1225mm	±25.5μm	259	
167-374	1250mm	±26μm	264	
167-375	1275mm	±26.5μm	269	

Order No.	Length (L)	Tolerance	l	Diameter (D)
167-376	1300mm	±27μm	275	11.9mm
167-377	1325mm	±27.5μm	280	
167-378	1350mm	±28μm	285	
167-379	1375mm	±28.5μm	291	
167-380	1400mm	±29μm	296	
167-381	1425mm	±29.5μm	301	
167-382	1450mm	±30μm	306	
167-383	1475mm	±30.5μm	312	
167-384	1500mm	±31μm	317	
167-385	1525mm	±31.5μm	322	
167-386	1550mm	±32μm	328	
167-387	1575mm	±32.5μm	333	
167-388	1600mm	±33μm	338	
167-389	1625mm	±33.5μm	343	
167-390	1650mm	±34μm	349	
167-391	1675mm	±34.5μm	354	
167-392	1700mm	±35μm	359	
167-393	1725mm	±35.5μm	364	
167-394	1750mm	±36μm	370	
167-395	1775mm	±36.5μm	375	
167-396	1800mm	±37μm	380	
167-397	1825mm	±37.5μm	386	
167-398	1850mm	±38μm	391	
167-399	1875mm	±38.5μm	396	
167-400	1900mm	±39μm	401	
167-401	1925mm	±39.5μm	407	
167-402	1950mm	±40μm	412	
167-403	1975mm	±40.5μm	417	
167-404	2000mm	±41μm	423	

Available up to 79"

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

อุปกรณ์ทดสอบเกลียวมาตรฐาน ของไมโครมิเตอร์วัดเกลียว

Setting Standards for Screw Thread Micrometers SERIES 167



167-264
(60° screw)



167-262
(60° screw)



Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

FEATURE

- Used for accurately setting screw thread micrometers at the start or end of the measuring range.

Metric

	Order No.	Range Outside	Flange
Metric (unified) $\theta=60^\circ$			
	167-261	25mm	$\pm 4\mu\text{m}$
	167-262	50mm	$\pm 5\mu\text{m}$
	167-263	75mm	$\pm 6\mu\text{m}$
	167-264	100mm	$\pm 7\mu\text{m}$
	167-265	125mm	$\pm 8\mu\text{m}$
	167-266	150mm	$\pm 9\mu\text{m}$
	167-267	175mm	$\pm 10\mu\text{m}$
	167-268	200mm	$\pm 11\mu\text{m}$
	167-269	225mm	$\pm 12\mu\text{m}$
	167-270	250mm	$\pm 13\mu\text{m}$
	167-271	275mm	$\pm 14\mu\text{m}$
Whitworth $\theta=60^\circ$			
	167-272	25mm	$\pm 4\mu\text{m}$
	167-273	50mm	$\pm 5\mu\text{m}$
	167-274	75mm	$\pm 6\mu\text{m}$
	167-275	100mm	$\pm 7\mu\text{m}$
	167-276	125mm	$\pm 8\mu\text{m}$
	167-277	150mm	$\pm 9\mu\text{m}$
	167-278	175mm	$\pm 10\mu\text{m}$
	167-279	200mm	$\pm 11\mu\text{m}$
	167-280	225mm	$\pm 12\mu\text{m}$
	167-281	250mm	$\pm 13\mu\text{m}$
	167-282	272mm	$\pm 14\mu\text{m}$

อุปกรณ์ทดสอบความยาวและเพลามาตรฐาน ของไมโครมิเตอร์วัดรูปตัววี

Setting Standards for V-Anvil Micrometers SERIES 167



167-329



FEATURE

- Used for accurately setting screw thread micrometers at the start or end of the measuring range.

Metric

	Order No.	Length (L)	Accuracy	Type
	167-327	5mm		
	167-328	10mm	$\pm 2\mu\text{m}$	Plug
	167-329	25mm		
	167-330	40mm		
	167-331	55mm		
	167-332	70mm	$\pm 3\mu\text{m}$	Ring
	167-333	85mm		

แผ่นแก้วตรวจสอบความขนาน

**Optical Parallels
SERIES 157**

157-903

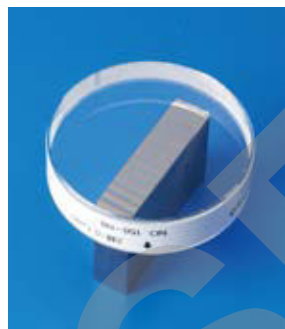
FEATURE

- Designed to inspect parallelism and flatness of measuring faces of micrometers. For details, refer to "Quick Guide to Precision Measuring Instruments".
- Each set consists of 4 sizes to aid in testing parallelism at various angular positions of the micrometer spindle.

Metric

Order No.	Range of micrometer to be checked	Size of parallels included in set	Diameter	Flatness	Parallelism	Remarks
157-903	0-25mm	12.00, 12.12, 12.25, 12.37mm	ø30			For 25mm
157-904	25-50mm	25.00, 25.12, 25.25, 13.37mm	ø30	1μm	0.2μm	For 50mm

แผ่นแก้วตรวจสอบความเรียบ

**Optical Flats
SERIES 158**

158-118

FEATURE

- Used for inspecting the flatness of very surfaces. For details, refer to "Quick Guide to Precision Measuring Instruments".

Metric

Order No.	Thickness	Diameter	Flatness grade
158-117		45mm	0.2μm
158-118	12mm	45mm	0.1μm
158-119		60mm	0.2μm
158-120	15mm	60mm	0.1μm

Micrometer

ไมโครมิเตอร์

Inside**Measurement**

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

อุปกรณ์เสริม

Color-Coded Ratchet and Speeder Covers

Micrometer

ไมโครมิเตอร์

Inside
Measurement
เครื่องมือวัดภายใน

Calipers
คาร์ลิเปอร์

Height Gages
เกจวัดความสูง

Linear Height
เครื่องมือวัดความสูง

Depth Gages
เกจวัดความลึก

Gauge Blocks
เกจบล็อก

Reference Gages
เครื่องมืออ้างอิง

Indicators
อินดิเคเตอร์

Stands
ขาตั้ง

Micrometer
ไมโครมิเตอร์

Micrometer Head
หัวไมโครมิเตอร์

Ratchet



Speeder



Standard outside micrometers



FEATURE

- Ratchet and speeder covers in a choice of seven colors for use in instrument identification control schemes: red, blue, yellow, green, brown, black and gray.

Analog type: 0-300mm

Order No.		Color	Material
Ratchet	Speeder		
04GZA239	04GAA260	Gray	Plastic
985056	301708	Black	
985061	301709	Red	
985081	301713	Blue	
985071	301711	Yellow	
985076	301712	Green	
985066	301710	Brown	
950700	-	Gray	Steel

Analog type: 300-1000mm

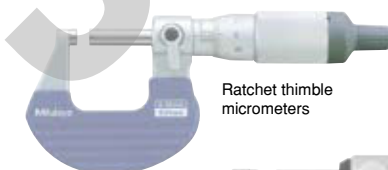
Order No.		Color	Material
Ratchet	Speeder		
04GZA243	04GAA260	Gray	Plastic
-	301708	Black	
-	301709	Red	
-	301713	Blue	
-	301711	Yellow	
-	301712	Green	
-	301710	Brown	
950701	-	Gray	Steel

Analog type: 0-300mm

Order No.		Color	Material
Ratchet	Speeder		
04AZB661	04GAA260	Gray	Plastic
04GZA241	04GAA260	Gray	
-	301708	Black	
-	301709	Red	
-	301713	Blue	
-	301711	Yellow	
-	301712	Green	
-	301710	Brown	
951588	-	Gray	Steel

*Cannot be used for analog types.

Color-coded speeder covers



Ratchet thimble
micrometers



QuantuMike

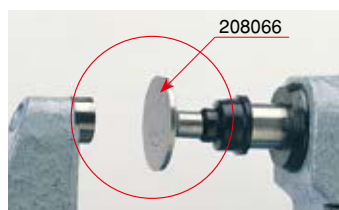
Color-coded speeder covers



Order No.	Color
04GAA899	Black
04GAA900	Red
04GAA901	Yellow
04GAA902	Green
04GAA903	Blue
04AAB208	Gray

อุปกรณ์เสริม

Spindle Attachment Tips



Technical data

Tip length: 10mm±5μm

FEATURE

- Simple interchangeable tips attached to standard micrometer spindles enable measurement of contours otherwise unmeasurable (for 6.35 spindles only).
- Measuring range changes when a spindle attachment tip is mounted: the maximum measuring range is 10mm or less (accuracy is not guaranteed).

Specifications and Dimensions

Unit : mm		
Order No.	Tip type	Dimensions
208062	Spline	
208063	Comparator	
208064	Blade	
208065	Knife-edge	
208066	Disk-plate	

SMALL TOOLS

เครื่องมือวัดละเอียด

Micrometers
ไมโครมิเตอร์

Mitutoyo

แท่นจับยึดไมโครมิเตอร์

Micrometer Stands SERIES 156

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

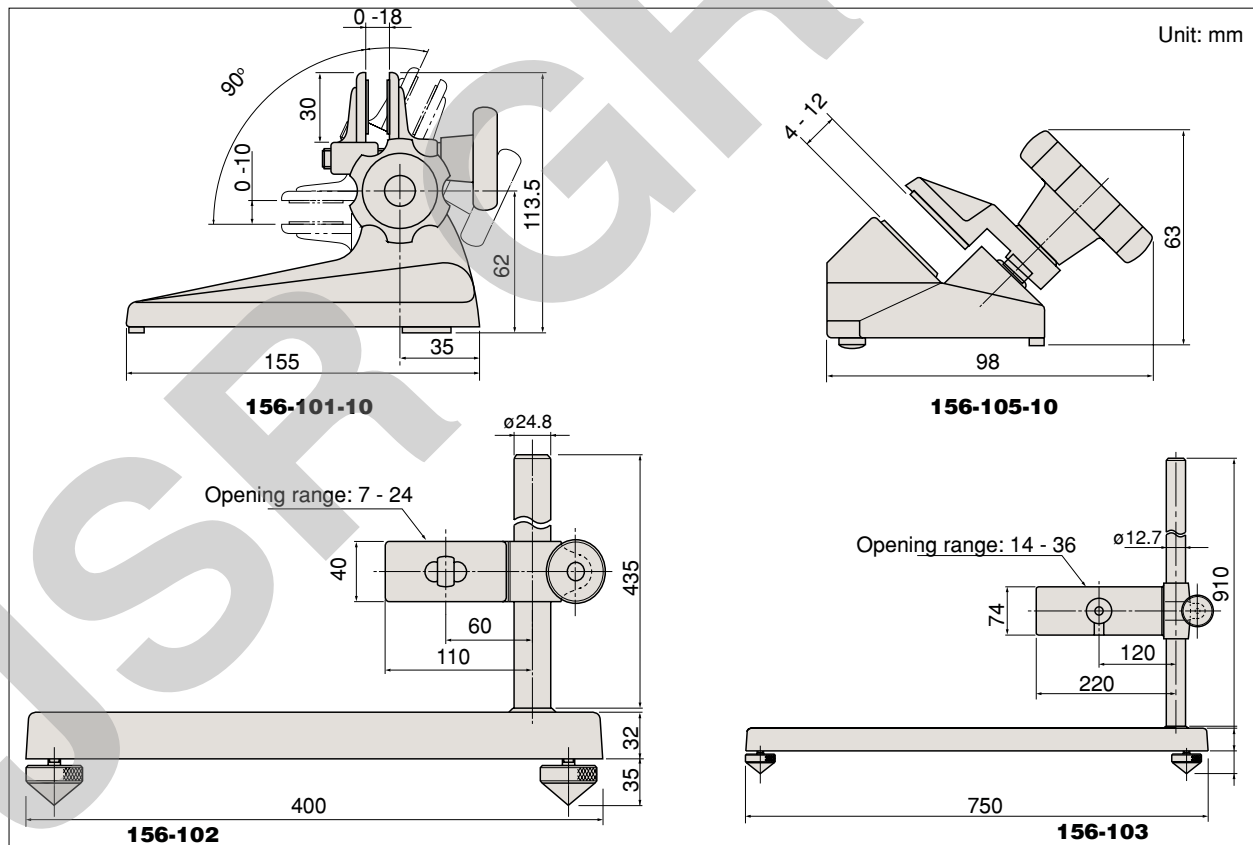
หัวไมโครมิเตอร์



FEATURE

- Designed to allow benchtop use of hand micrometers or other gag which have frames suitable for gripping by the clamp.

DIMENSIONS



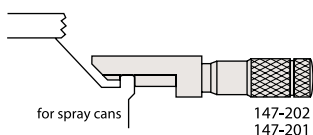
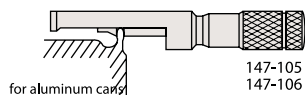
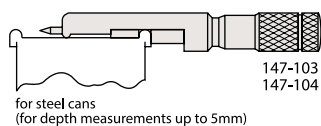
Order No.	Micrometer ranger	Remark
156-101-10	Up to 100mm (4")*	Adjustable angle type
156-105-10	0-25mm (0-1"), 25-50mm (1"-2")	Fixed angle type
156-102	125-300mm (5"-12")	Vertical type
156-103	300-1000mm (12"-40")	Vertical type

*Items that cannot be mounted on these stands
(Order No. 406-253-30, 323-253-30, 331-254-30, 342-254-30, 342-264-30, 369-253-30, 422-232-30, 422-233-30, etc.)

ไมโครมิเตอร์วัดมุมขอบ

Can Seam Micrometers
SERIES 147

Technical data

Standard accessories : Spanner (200168), 1pc
Spanner (202863), 1pc

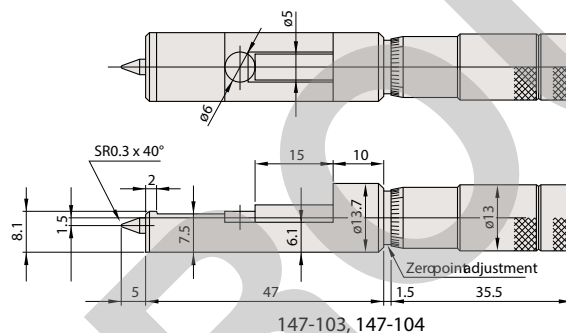
147-103

FEATURE

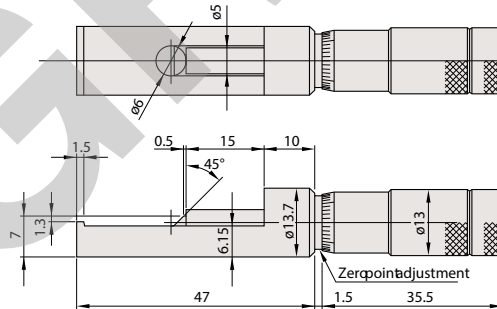
- Measures the width, height, and depth of can seams.

DIMENSIONS

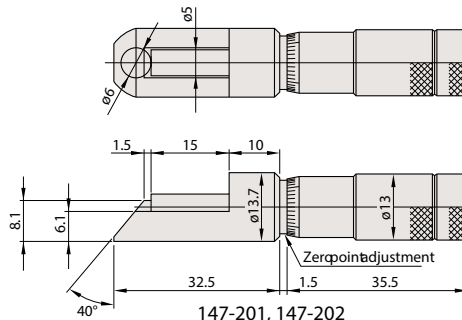
Unit: mm



147-103, 147-104



147-105, 147-106



147-201, 147-202

Metric

Order No.	Range	Graduation	Accuracy	Remarks
147-103				for steel cans
147-105	0 - 13mm	0.01mm	±3μm	for aluminum cans
147-202				for spray cans

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิสเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

ไมโครมิเตอร์สอดวัดแกนใน Hub Micrometers SERIES 147

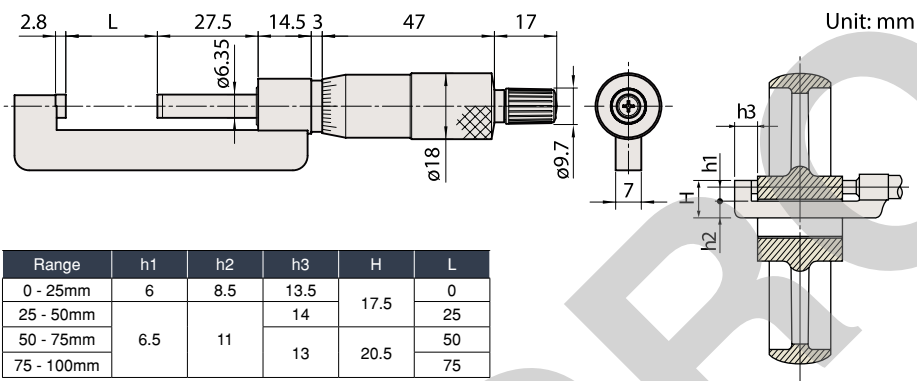


147-301

FEATURE

- Measures hub thickness and shoulders inside a bore.
- Measuring faces: Carbide
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Technical data

Flatness: $0.6\mu\text{m}/.000024''$
 Parallelise: $(2+R/100)\mu\text{m}$, $R=\text{max. range(mm)}$
 $[.00008''+.00004(R/4)]''$
 $R=\text{max range (mm)}$
 *fraction rounded up
 Standard accessories : Reference bar, 1pc
 (except for measuring range 0-25mm (0-1") models)
 Spanner (301336), 1 pc



Metric

Order No.	Range	Graduation	Accuracy
147-301	0 - 25mm	0.01mm	$\pm 2\mu\text{m}$
147-302	25 - 50mm		
147-303	50 - 75mm		
147-304	75 - 100mm		$\pm 3\mu\text{m}$

ไมโครมิเตอร์วัดเส้นลวด Wire Micrometers SERIES 147

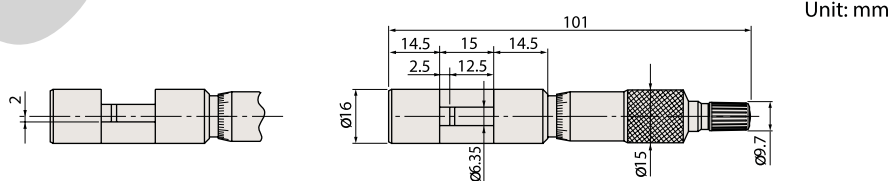


147-401

FEATURE

- Designed for measuring wire thickness.
- Measurable wire dia.: 10mm or less
- Measuring faces: Carbide
- Equipped with Ratchet Stop for constant measuring force.

DIMENSIONS



Technical data

Flatness: $0.6\mu\text{m}/.000024''$
 Parallelise: $1.3\mu\text{m}/.00005''$



Standard accessories : Spanner (200168), 1pc
 Spanner (202863), 1pc

Metric

Order No.	Range	Graduation	Accuracy
147-401	0 - 10mm	0.01mm	$\pm 3\mu\text{m}$

SMALL TOOLS

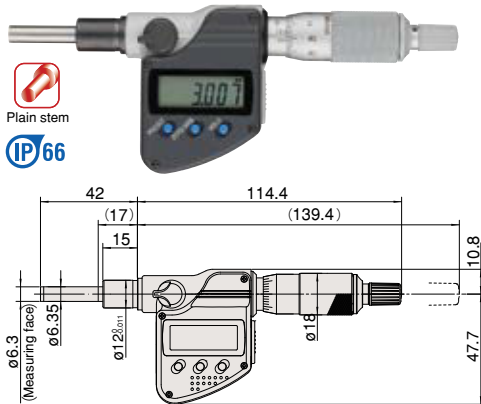
เครื่องมือวัดละเอียด

Mitutoyo

DIMENSIONS

Plain stem

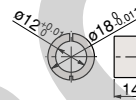
Unit: mm



350-281-30 (Stem dia. 12mm, waterproof type) Mass: 230g



Equipped with a non-rotating device
350-261-30
(Stem dia. 12mm, waterproof type)
Mass: 235g



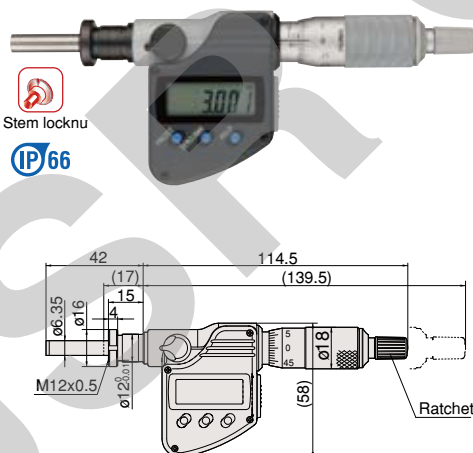
Bush (standard accessory)
350-261-30



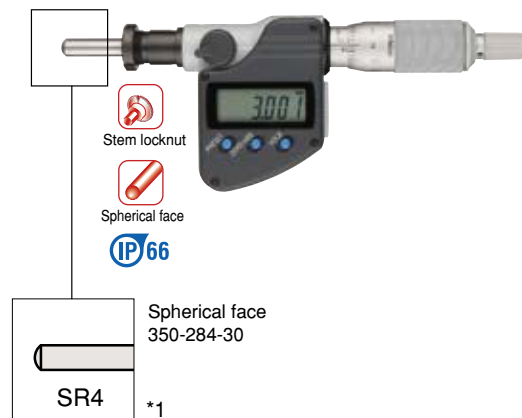
*1

*1 Other dimensions are the same as 350-281-30.
(): with spindle fully retracted

Stem locknut



Fixture thickness: 11.5mm
350-282-30 (Stem dia. 12mm, equipped with locknut, waterproof type) Mass: 230g

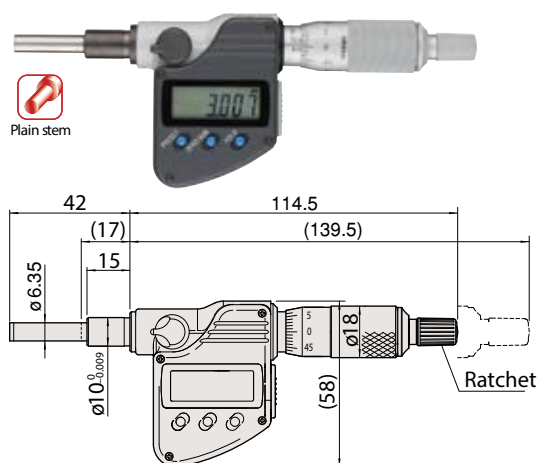


*1 Other dimensions are the same as 350-282-30.
(): with spindle fully retracted

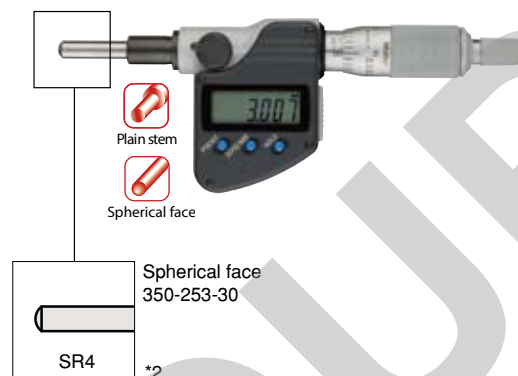
DIMENSIONS

Plain stem

Unit: mm

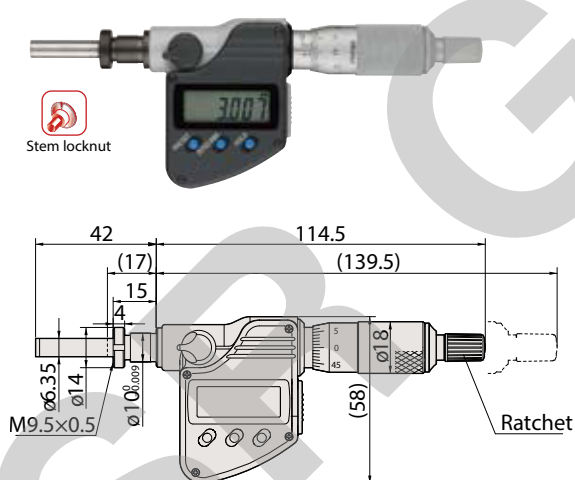


350-251-30
(Stem dia. 10mm, for general use) Mass: 230g

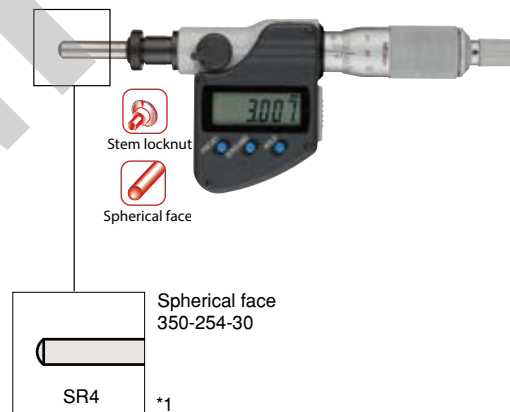


*2 Other dimensions are the same as 350-251-30.
(): with spindle fully retracted

Stem locknut



Fixture thickness: 11.5mm
350-252-30
(Stem dia. 10mm, for general use) Mass: 230g



*1 Other dimensions are the same as 350-252-30.
(): with spindle fully retracted

Micrometer
ไมโครมิเตอร์

Inside
Measurement
เครื่องมือวัดภายใน

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Depth Gages
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ไมโครมิเตอร์

Micrometer Head
หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 148 - Small / Ultra-small Type

FEATURE

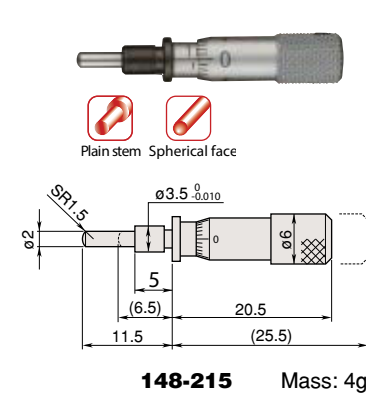
- Miniature micrometer heads for ease of incorporating into machine

Technical data

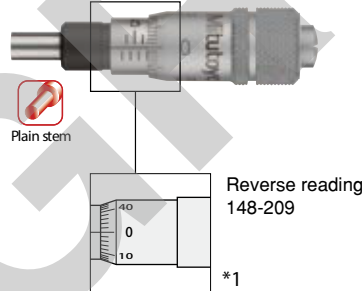
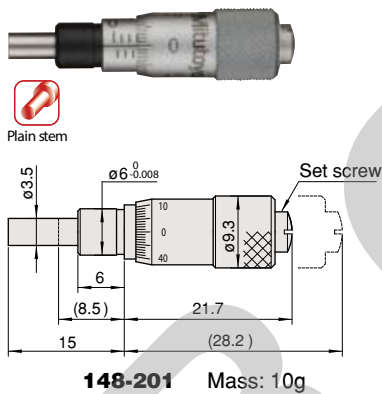
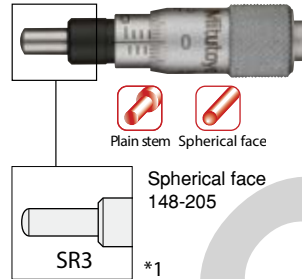
Graduation : 0.02mm (148-215, 148-216)
0.01mm

DIMENSIONS

Plain stem



Unit: mm



*1 Other dimensions are the same as 148-201.
() : with spindle fully retracted

Metric

Order No.	Range	Accuracy	Stem dia.	Stem	Spindle end	Graduation features
148-215	5mm	±5μm	3.5mm	Plain	Spherical (SR1.5)	Standard
148-216				W/ Clamp nut		
148-201	Plain		Flat			
148-203	W/ Clamp nut					
148-205	6.5mm		6mm	Plain	Spherical (SR3)	
148-207				W/ Clamp nut		
148-209				Plain	Flat	
148-211		W/ Clamp nut		Reverse reading		

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 148 - Short Thimble with choice of Diameter

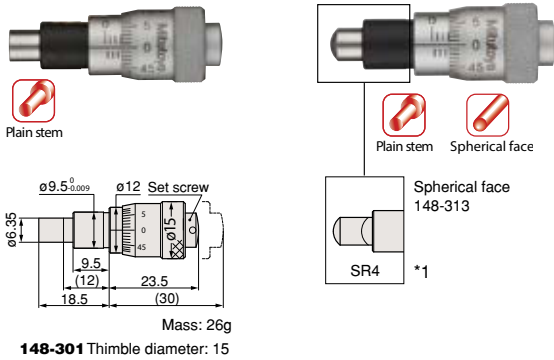
Technical data

Graduation : 0.01mm or 0.001"
Spindle pitch : 0.5mm or 0.025"

- Short body design maintains measuring stroke for limited space applications.
- Available in three thimble diameters to provide ease-of-reading options.

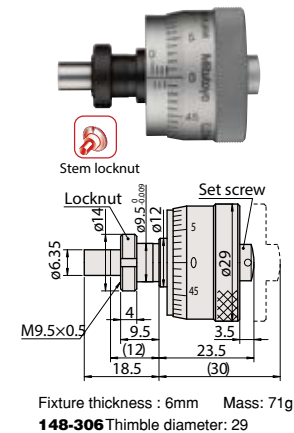
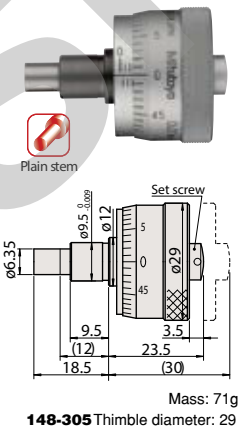
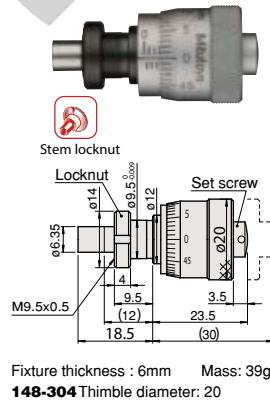
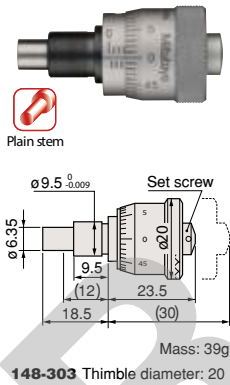
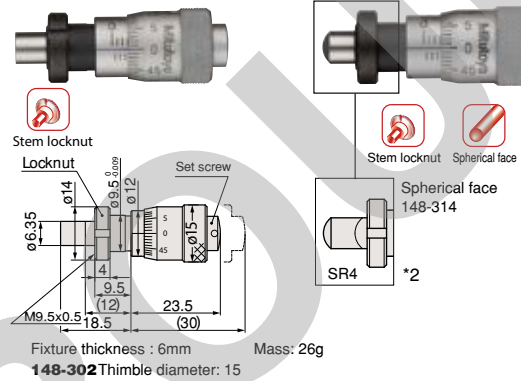
DIMENSIONS

Plain stem



Stem locknut

Unit: mm



() : with spindle fully retracted

Micrometer ไมโครมิเตอร์

Inside
Measurement
เครื่องมือวัดภายใน

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Linear Height
เครื่องมือวัดความสูง

Depth Gages
เกจวัดความลึก

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เกจบล็อก

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Stands
ขาตั้ง

Micrometer
ไมโครมิเตอร์

Micrometer Head
หัวไมโครมิเตอร์

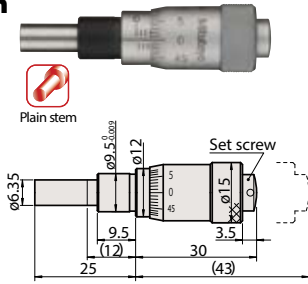
SMALL TOOLS

เครื่องมือวัดละเอียด

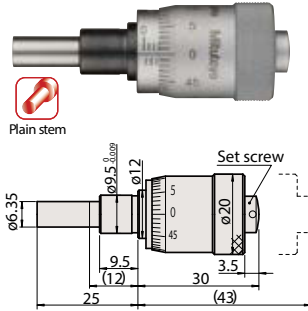
Mitutoyo

DIMENSIONS

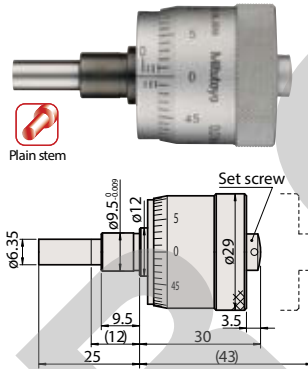
Plain stem



Mass: 35g
148-307 Thimble diameter: 15



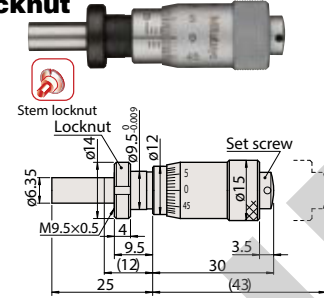
Mass: 55g
148-309 Thimble diameter: 20



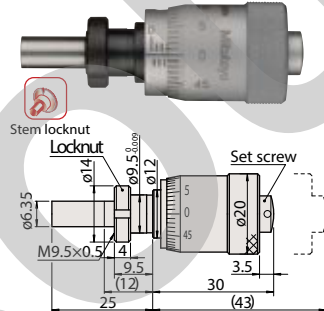
Mass: 103g
148-311 Thimble diameter: 29

Stem locknut

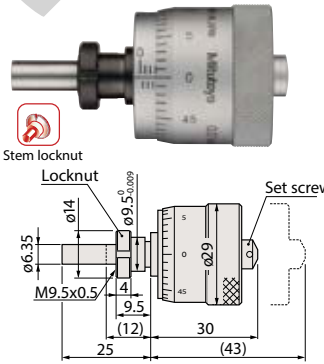
Unit: mm



Fixture thickness : 6mm Mass: 35g
148-308 Thimble diameter: 15



Fixture thickness : 6mm Mass: 55g
148-310 Thimble diameter: 20



Fixture thickness : 6mm Mass: 103g
148-312 Thimble diameter: 29

() : with spindle fully retracted

Metric

Order No.	Range	Accuracy	Stem dia.	Stem	Spindle end	Special feature
148-301	6.5mm	±2μm	9.5mm	Plain	Flat	15mm thimble dia.
148-302				W/ Clamp nut		
148-303				Plain		20mm thimble dia.
148-304				W/ Clamp nut	Sphercal (SR4)	
148-305				Plain		29mm thimble dia.
148-306				W/ Clamp nut		
148-313	13mm	±2μm	9.5mm	Plain	Flat	15mm thimble dia.
148-314				W/ Clamp nut		
148-307				Plain		20mm thimble dia.
148-308				W/ Clamp nut	Sphercal (SR4)	
148-309				Plain		29mm thimble dia.
148-310				W/ Clamp nut		
148-311				Plain	Flat	20mm thimble dia.
148-312				W/ Clamp nut		29mm thimble dia.

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 148 - Small Standard Type

Technical data

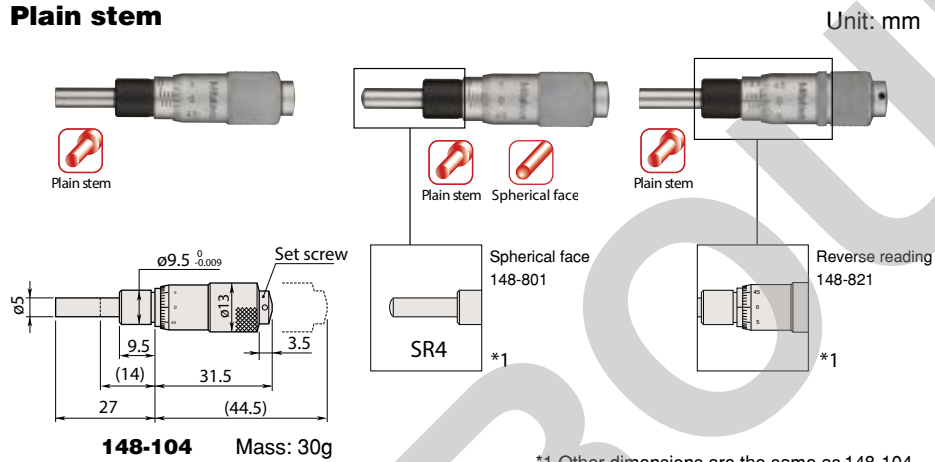
Graduation : 0.01mm
Spindle pitch : 0.5mm

FEATURE

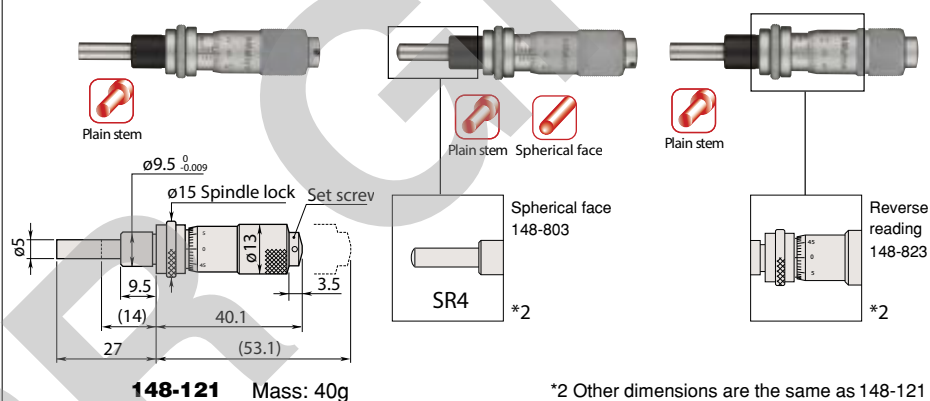
• Measuring range of 13mm.

DIMENSIONS

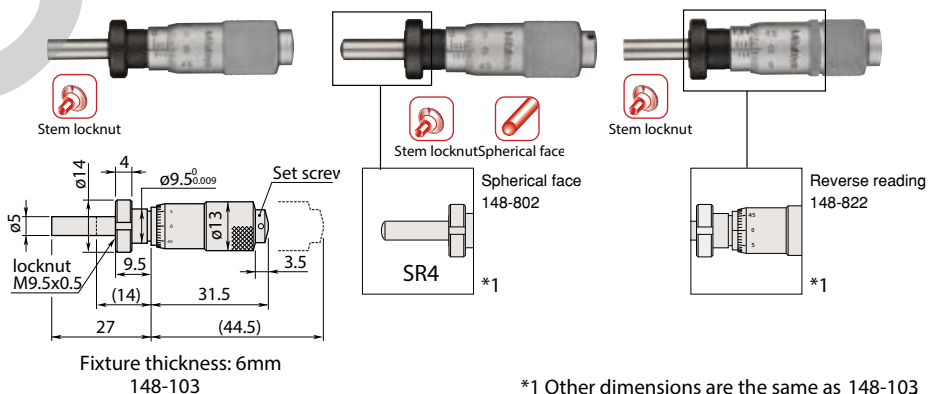
Plain stem



Plain stem and spindle lock



Stem locknut Mass: 40g



Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

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Micrometer

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Micrometer Head

หัวไมโครมิเตอร์

เครื่องมือนวัตกรรม

Mitutoyo

Micrometers Head

Micrometer
ไมโครมิเตอร์

**Inside
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เครื่องมือวัดภายใน

Calipers
คาร์ลิเปอร์

Height Gages
เกจวัดความสูง

Linear Height
 รื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks
เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

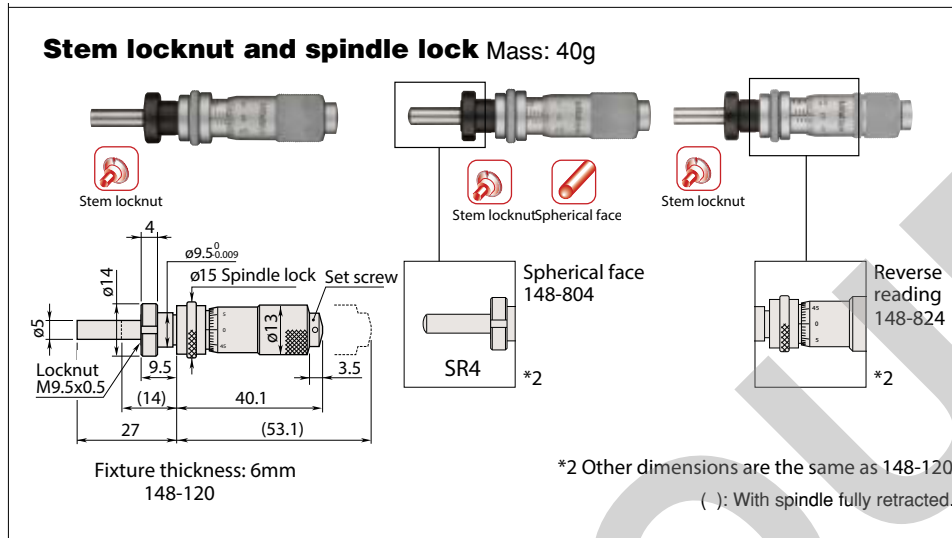
Indicators
อินดิเคเตอร์

Stands
ชาตัง

Micrometer
ไมโครมิเตอร์

Micrometer Head
หัวไมโครมิเตอร์

DIMENSIONS



Metric

Order No.	Range	Accuracy	Stem dia.	Stem	Spindle end	Graduation features
148-104	13mm	±2μm	9.5mm	Plain	Flat	Standard
148-103				W/ Clamp nut		
148-121				Plain*		
148-120				W/ Clamp nut*		
148-801				Plain	Spherical (SR4)	
148-802				W/ Clamp nut		
148-803				Plain*		
148-804				W/ Clamp nut*		
148-821				Plain	Flat	Reverse reading
148-822				W/ Clamp nut		
148-823				Plain*		
148-824				W/ Clamp nut*		

* with spindle lock

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 148 - Small Thimble Diameter Standard Type

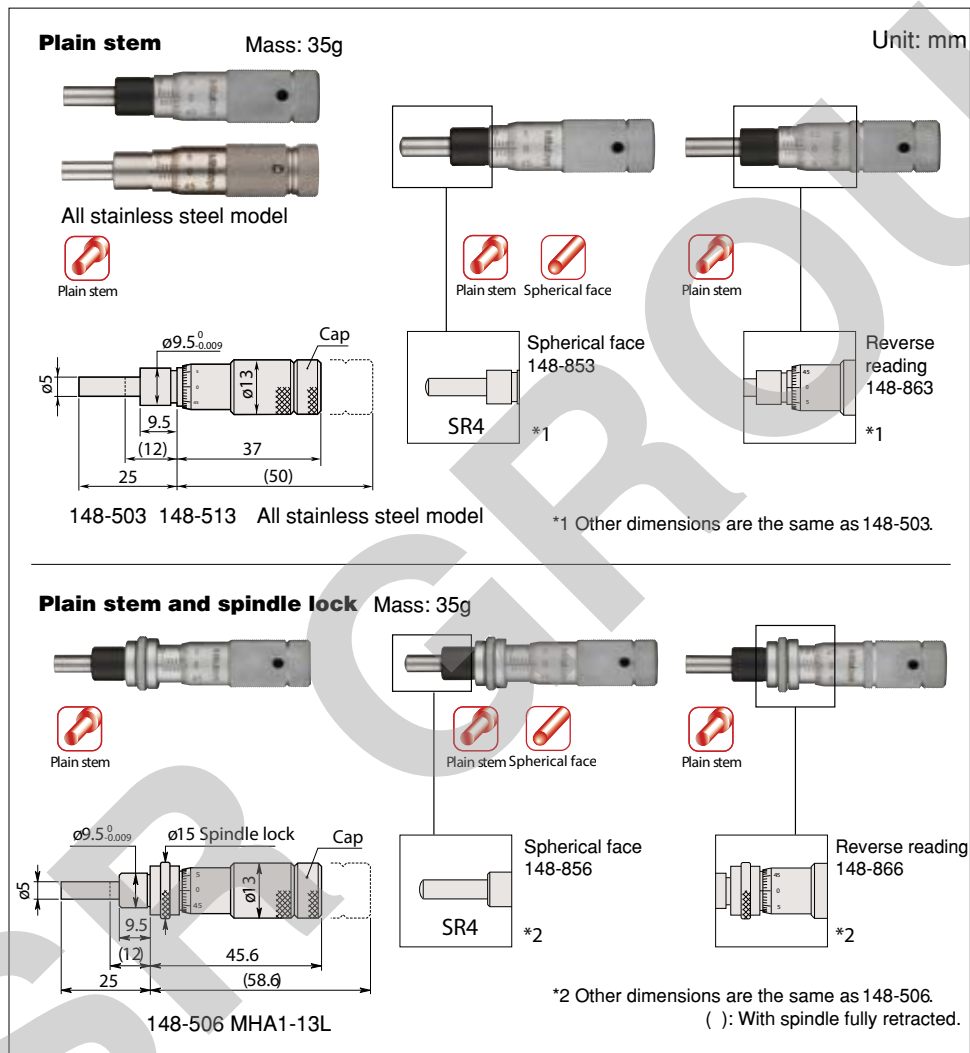
Technical data

Graduation : 0.01mm or 0.001"
Spindle pitch : 0.5mm or 0.025"

FEATURE

- Measuring range of 13mm.
- The thimble can be set to zero at any position by loosening the setscrew.
- Stainless steel throughout: 148-513, 518, 511

DIMENSIONS



Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

DIMENSIONS

Stem locknut

Unit: mm



All stainless steel model



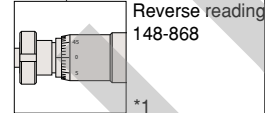
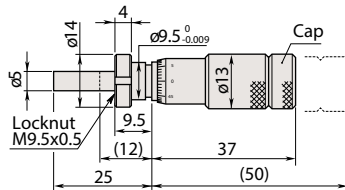
Stem locknut



Stem locknut Spherical face



Stem locknut



Fixture thickness: 6mm

148-508 148-518 All stainless steel model Mass: 40g

*1 Other dimensions are the same as 148-508.

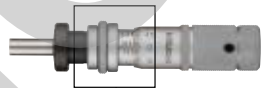
Stem locknut and spindle lock



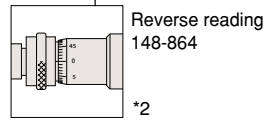
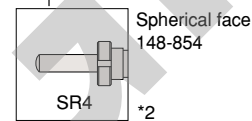
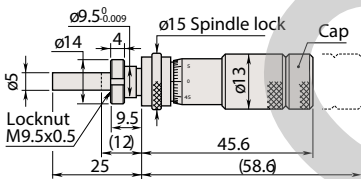
Stem locknut



Stem locknut Spherical face



Stem locknut



Fixture thickness: 6mm Mass: 40g

148-504

*2 Other dimensions are the same as 148-504.

(): With spindle fully retracted.

Metric

Order No.	Range	Accuracy	Stem dia.	Stem	Spindle end	Graduation features
148-503				Plain		Standard
148-513						Stainless steel throughout
148-508				W/ clamp nut	Flat	
148-506				Plain*		
148-504				W/ clamp nut*		Standard
148-853				Plain	Spherical (SR4)	
148-854	13mm	±2μm	9.5mm	W/ clamp nut*		
148-863				Plain		
148-864				W/ clamp nut*	Flat	Reverse reading
148-518**				W/ clamp nut		Stainless steel throughout *
148-858**				W/ clamp nut	Spherical (SR4)	Standard
148-866**				Plain*	Flat	Reverse reading
148-856**				Plain*	Spherical (SR4)	Standard
148-868**				W/ clamp nut	Flat	Reverse reading

* with spindle lock ** made-to-order models

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 148 - Locking-screw Type

Locking screw



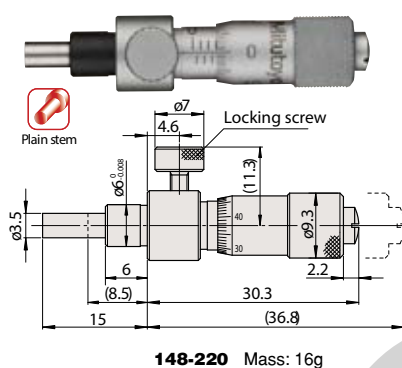
Secure spindle

FEATURE

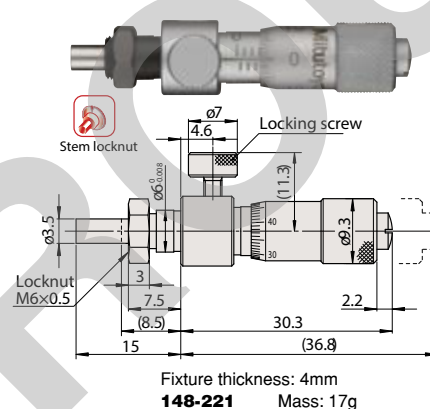
- Locking screw provides secure locking at any position of the spindle.
- Position of the locking screw is the same as the sleeve index line.

DIMENSIONS

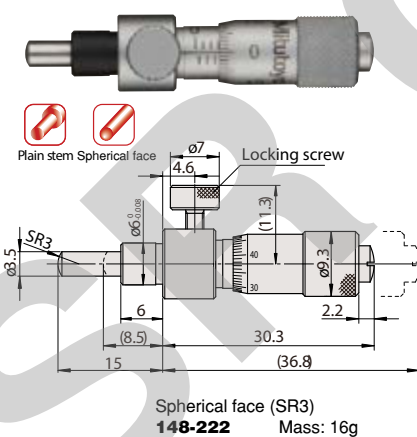
Plain stem



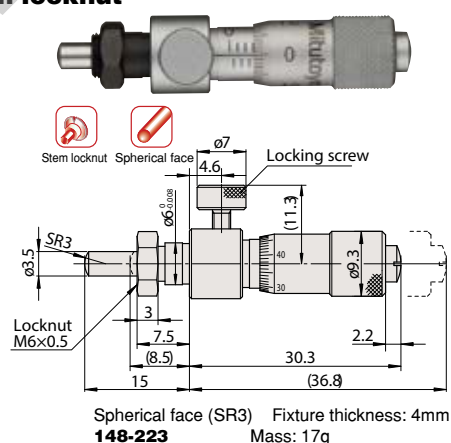
Stem locknut



Plain stem



Stem locknut



(): With spindle fully retracted.

Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle end	Graduation features
148-220	6.5mm		±5µm	6mm	Plain	Flat	Standard
148-221					W/ clamp nut		
148-222					Plain	Sphercal (SR3)	
148-223					W/ clamp nut		
148-150	13mm	0.01mm		9.5mm	Plain	Flat	
148-151					W/ clamp nut		
148-152					Plain	Sphercal (SR4)	
148-153					W/ clamp nut		
148-316	6.5mm		±2µm		Plain	Flat	
148-317					W/ clamp nut		
148-318					Plain	Flat (carbide tip)	
148-319					W/ clamp nut		

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 149 - Small standard Type with Carbide-Tipped Spindle

FEATURE

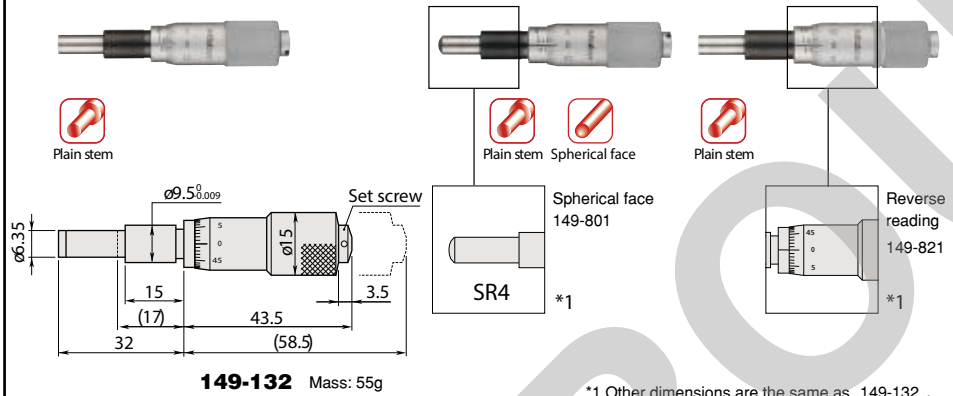
- Carbide-tipped spindle provides high abrasion resistance.

Technical data

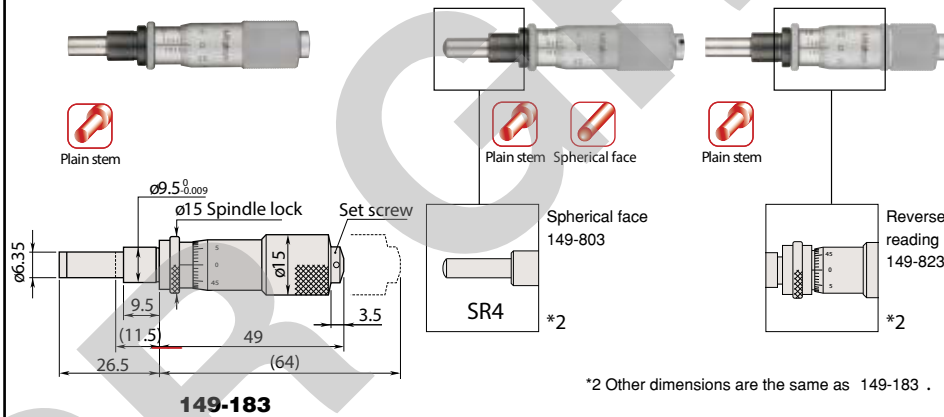
Graduation : 0.01mm or 0.001"
Spindle pitch : 0.5mm or 0.025"

DIMENSIONS

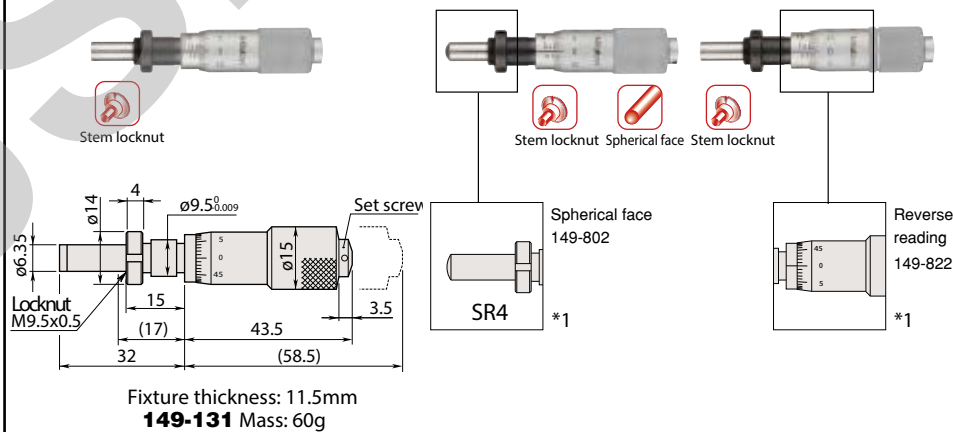
Plain stem



Plain stem and spindle lock

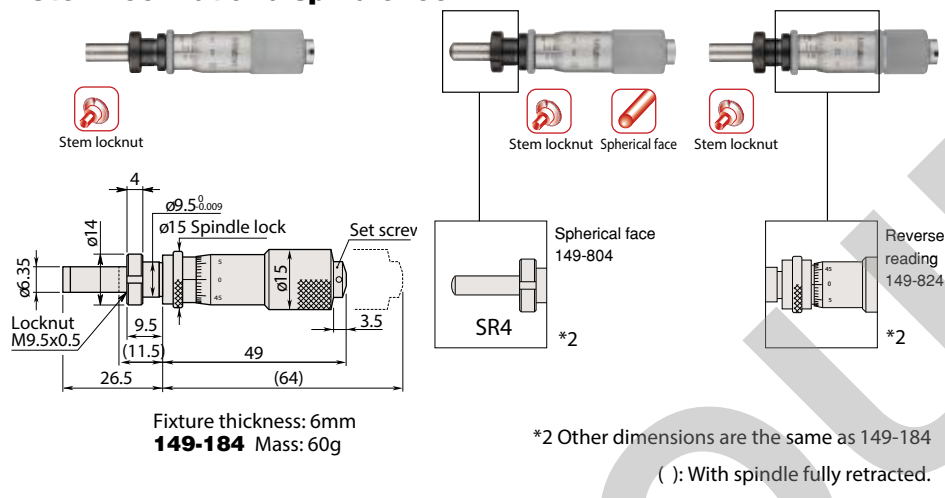


Stem locknut



DIMENSIONS

Stem locknut and spindle lock



Metric

Order No.	Range	Accuracy	Stem dia.	Stem	Spindle end	Graduation features
149-132				Plain		
149-131				W/ clamp nut		
149-183				Plain*	Flat (carbide tip)	
149-184				W/ clamp nut*		Standard
149-801				Plain	Spherical (SR4)	
149-802				W/ clamp nut	(carbide tip)	
149-821	15mm	$\pm 2\mu\text{m}$	9.5mm	Plain	Flat (carbide tip)	Reverse reading
149-822				W/ clamp nut		
149-803**				Plain*	Spherical (SR4)	
149-804**				W/ clamp nut*	(carbide tip)	Standard
149-823**				Plain*	Flat (carbide tip)	Reverse reading
149-824**				W/ clamp nut*		

* with spindle lock

**made-to-order models

Micrometer

ไมโครมิเตอร์

Inside

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Calipers

คาร์ติเปอร์

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เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

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ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 150 - Medium-sized Standard Type

FEATURE

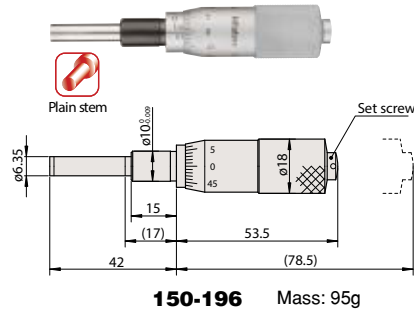
- Measuring rang of 25mm.

Technical data

Graduation: 0.01 mm, 0.001 mm, 0.001 in or 0.0001 in
Spindle pitch: 0.5 mm or 0.025 in

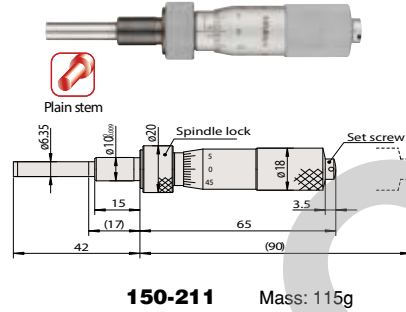
DIMENSIONS

Plain stem

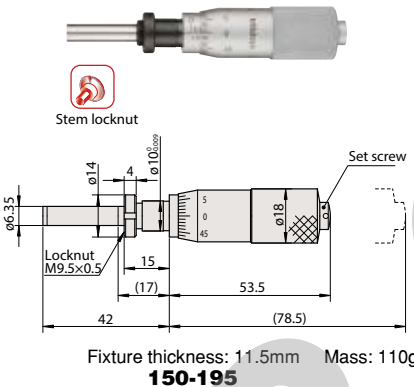


Plain stem and spindle lock

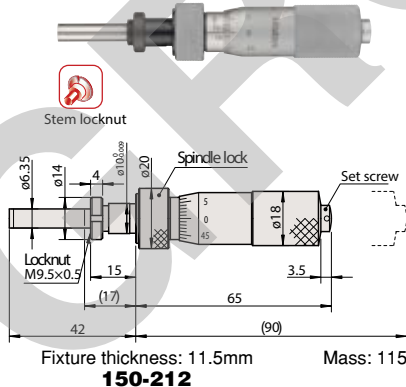
Unit: mm



Stem locknut



Stem locknut and spindle lock



() : With spindle fully retracted.

Metric

Order No.	Range	Accuracy	Stem dia.	Stem	Spindle end	Graduation features
150-192				Plain		
150-191				W/ clamp nut		
150-209				Plain*	Flat (carbide tip)	
150-210				W/ clamp nut*		Standard
150-801				Plain	Sphercal (SR4)	
150-802				W/ clamp nut	(carbide tip)	
150-821				Plain		Reverse reading
150-822				W/ clamp nut		
150-190				Plain		
150-189				W/ clamp nut		
150-183**				Plain*		W/vernier (0.001mm)
150-184				W/ clamp nut*	Flat (carbide tip)	
150-196	25mm	±2µm	10mm	Plain		
150-195				W/ clamp nut		
150-211				Plain*		w/o ratchet stop
150-212				W/ clamp nut*		
150-219				Plain		
150-220				W/ clamp nut	Flat	Long spindle
150-803**				Plain*		
150-804**				W/ clamp nut*	Sphercal (SR4)	Standard
150-823**				Plain*	(carbide tip)	
150-824**				W/ clamp nut*	Flat (carbide tip)	Reverse reading
150-223**				Plain*		
150-224**				W/ clamp nut*	Flat	Long spindle

* with spindle lock

**made-to-order models

SMALL TOOLS

เครื่องมือวัดละเอียด

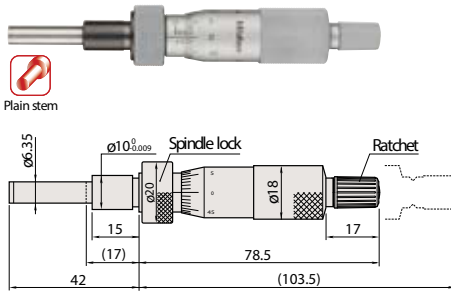
Mitutoyo

DIMENSIONS

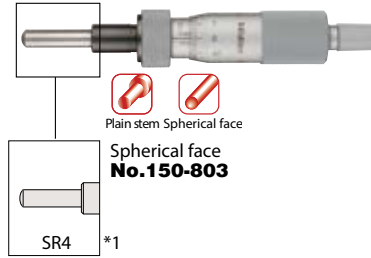
Plain stem and spindle lock Mass: 110g

(): With spindle fully retracted.

Unit: mm

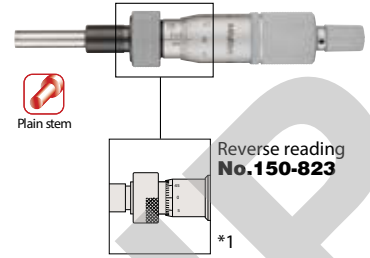


150-209



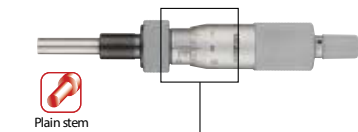
Plain stem Spherical face
No.150-803

SR4 *1

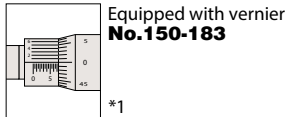


Reverse reading
No.150-823

*1

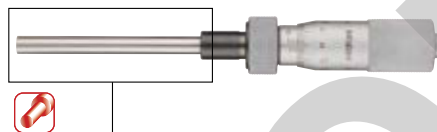


Plain stem

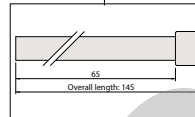


Equipped with vernier
No.150-183

*1



Plain stem

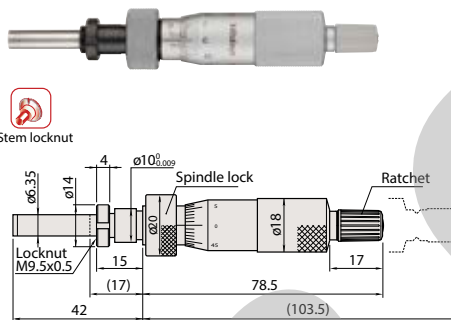


Long spindle (without ratchet)
No.150-223

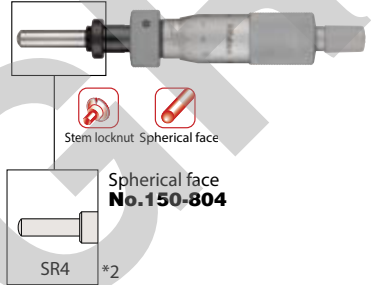
Overall length: 145

*1 Other dimensions are the same as 150-209

Stem locknut and spindle lock Mass: 115g

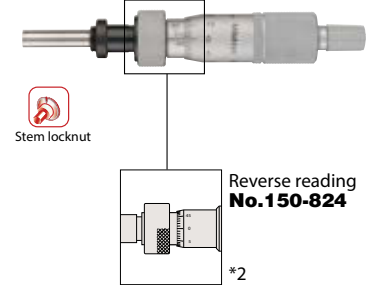


Fixture thickness: 11.5mm
150-210



Stem locknut Spherical face
No.150-804

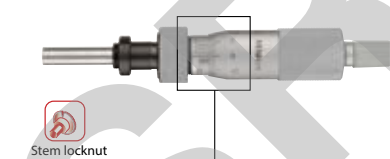
SR4 *2



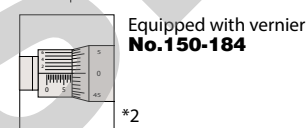
Stem locknut

Reverse reading
No.150-824

*2

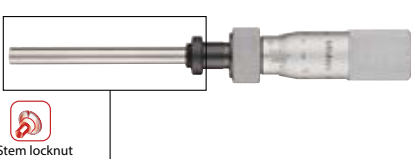


Stem locknut

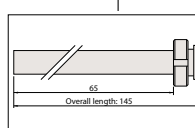


Equipped with vernier
No.150-184

*2



Stem locknut



Long spindle (without ratchet)
No.150-224

*2

*2 Other dimensions are the same as 150-210

Micrometers Head
หัวไมโครมิเตอร์

Micrometer
ไมโครมิเตอร์

Inside
Measurement
เครื่องมือวัดภายใน

Calipers
คาลิเปอร์

Height Gages
เกจวัดความสูง

Linear Height
เครื่องมือวัดความสูง

Depth Gages
เกจวัดความลึก

Gauge Blocks
เกจบล็อก

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Stands
ขาตั้ง

Micrometer
ไมโครมิเตอร์

Micrometer Head
หัวไมโครมิเตอร์

หัวไมโครมิเตอร์

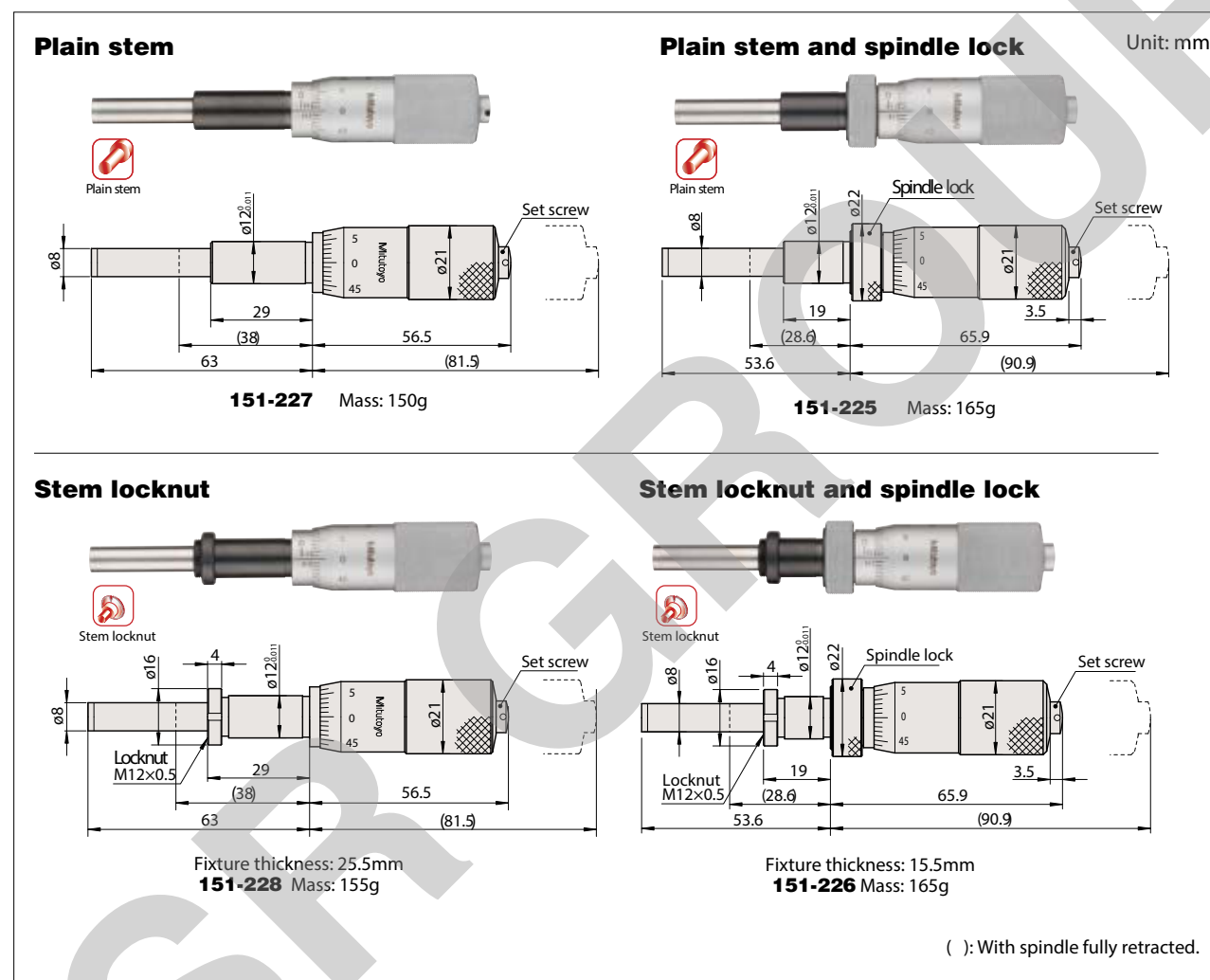
Micrometer Heads

SERIES 151 - Medium-sized Standard Type with 8mm diameter spindle

FEATURE

- Larger spindle ($\varnothing 8\text{mm}$) for heavy-duty application (normally $\varnothing 6.35\text{mm}$).

DIMENSIONS



Metric

Order No.	Range	Accuracy	Stem dia.	Stem	Spindle end	Graduation features
151-224	25mm	$\pm 2\mu\text{m}$	12mm	Plain	Flat (carbide tip)	W/ vernier (0.001mm)
151-223				W/ clamp nut		
151-214**				Plain*		
151-213**				W/ clamp nut*		
151-222				Plain		
151-221				W/ clamp nut		
151-212**				Plain*		
151-211**				W/ clamp nut*		
151-227				Plain		
151-228				W/ clamp nut		
151-225	50mm	$\pm 4\mu\text{m}$		Plain*		w/o ratchet stop
151-226				W/ clamp nut*		
151-256				Plain		
151-255				W/ clamp nut		
151-260				Plain		
151-259				W/ clamp nut		w/o ratchet stop

* with spindle lock

**made-to-order models

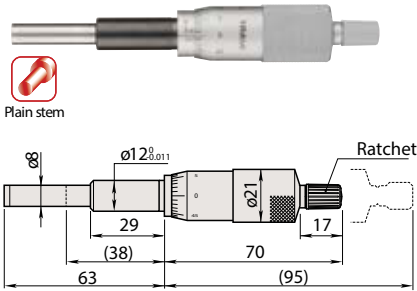
SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

DIMENSIONS

Plain stem

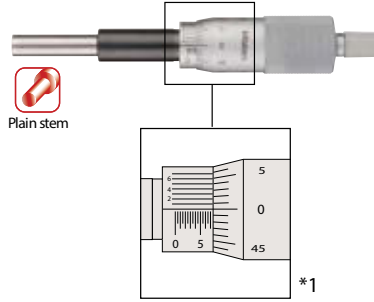


151-224

Mass: 150g

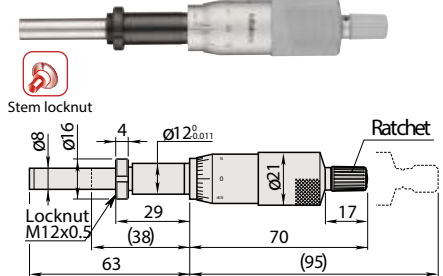
Equipped with vernier
151-222

Unit: mm



*1 Other dimensions are the same as 151-224.

Stem locknut

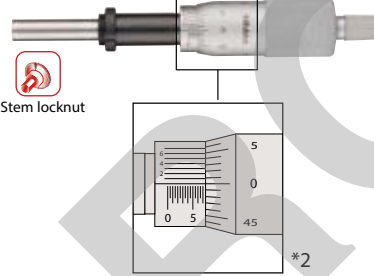


Fixture thickness: 25.5mm

151-223

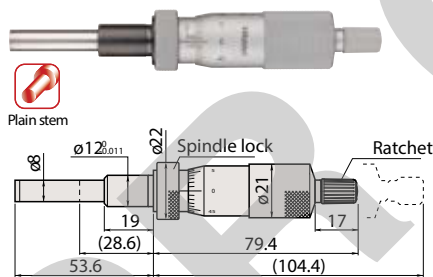
Mass: 155g

Equipped with vernier
151-221



*2 Other dimensions are the same as 150-223.

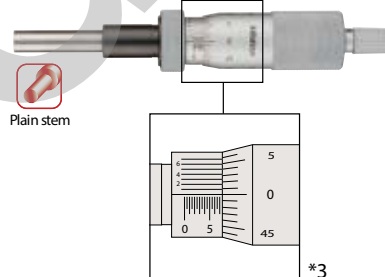
Plain stem and spindle lock



151-214

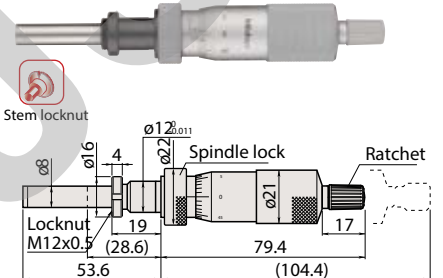
Mass: 160g

Equipped with vernier
151-212



*3 Other dimensions are the same as 150-214.

Stem locknut and spindle lock

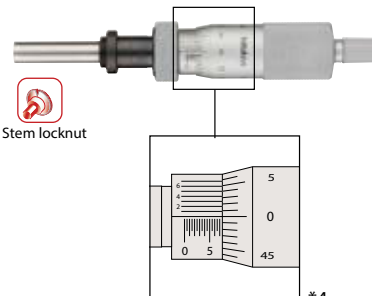


Fixture thickness: 15.5mm

151-213

Mass: 165g

Equipped with vernier
151-211

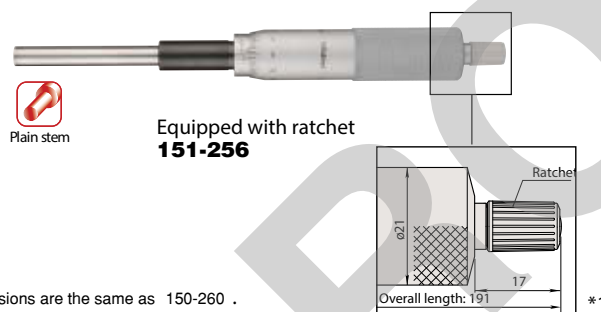
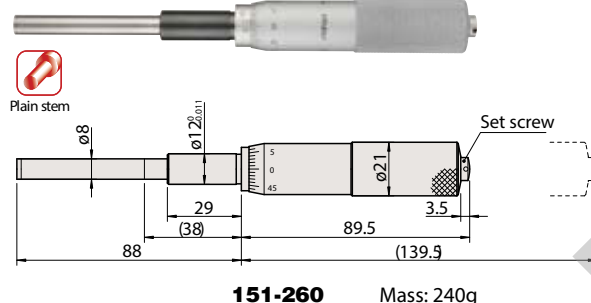


*4 Other dimensions are the same as 150-213.
(): With spindle fully retracted.

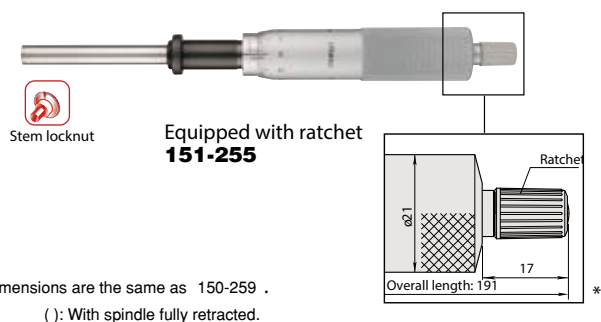
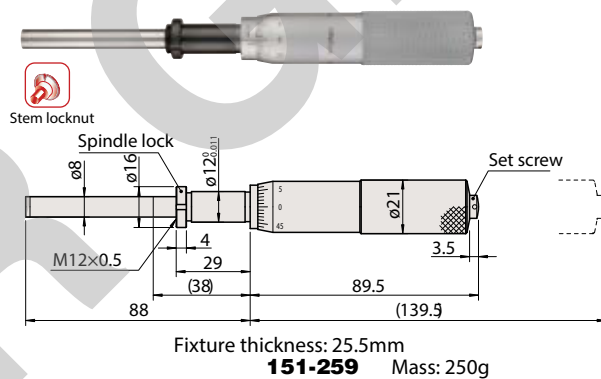
DIMENSIONS

Plain stem

Unit: mm



Stem locknut



Micrometer
ไมโครมิเตอร์

Inside
Measurement
เครื่องมือวัดภายใน

Calipers
คาร์ลิเปอร์

Height Gages
เกจวัดความสูง

Linear Height
เครื่องมือวัดความสูง

Depth Gages
เกจวัดความลึก

Gauge Blocks
เกจบล็อก

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เครื่องมืออ้างอิง

Indicators
อินดิเคเตอร์

Stands
ขาตั้ง

Micrometer
ไมโครมิเตอร์

Micrometer Head
หัวไมโครมิเตอร์

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 152 - Quick Spindle Feed of 1mm/rev

FEATURE

- Quick spindle feed of 1mm/rev.
- The larger screw thread also provides greater load-bearing capacity than does a standard head.

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

Micrometer

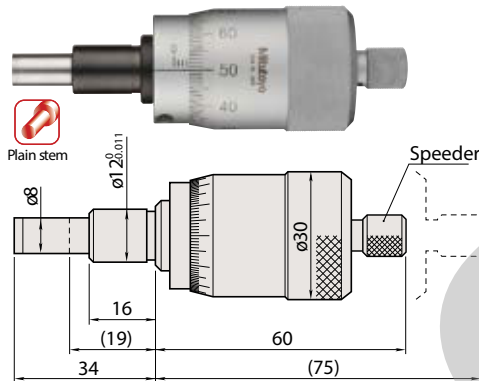
ไมโครมิเตอร์

Micrometer Head

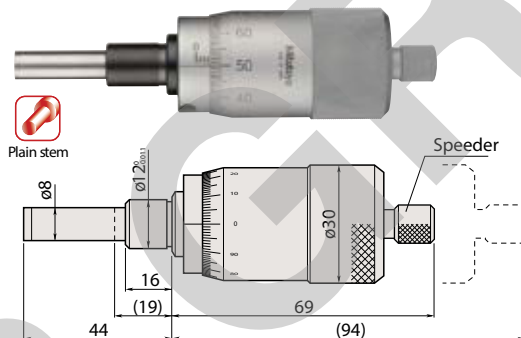
หัวไมโครมิเตอร์

DIMENSIONS

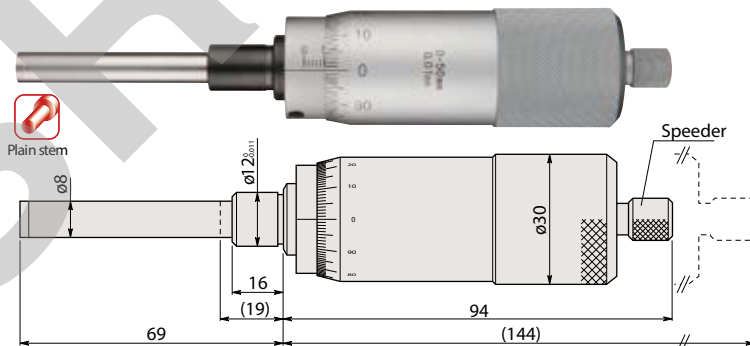
Unit: mm



152-101 Mass: 220g



152-102 Mass: 230g



152-103 Mass: 350g

() : With spindle fully retracted.

Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle end	Spindle pitch
152-101	15mm	0.01mm	±2μm	12mm	Plain	Flat (carbide tip)	1mm
152-102	25mm		±4μm				
152-103	50mm						

หัวไมโครมิเตอร์

Micrometer Heads

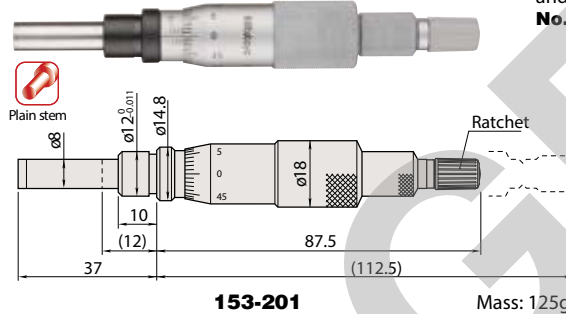
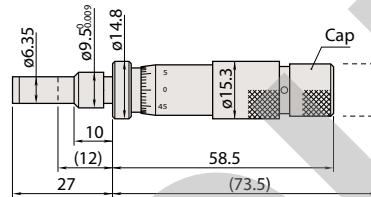
SERIES 153 - Non-rotating Spindle Type

FEATURE

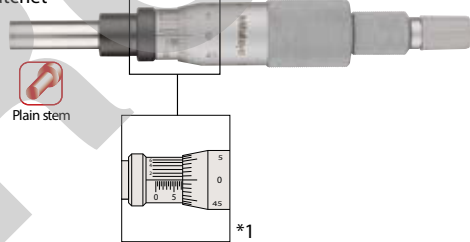
- The spindle translates without rotation.
- Torsion-free feed reduces workpiece deformation and wear.

DIMENSIONS

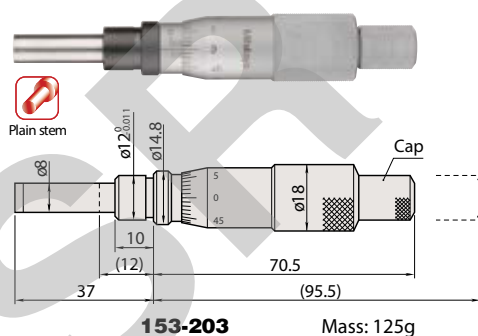
Unit: mm

**153-101** Mass: 70g**153-201**

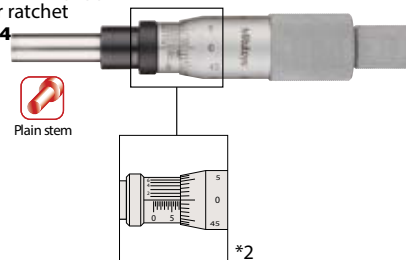
Mass: 125g

Equipped with ratchet
and vernier ratchet
No.153-202

*1 Other dimensions are the same as 153-201

**153-203**

Mass: 125g

Without ratchet/ Equipped
with vernier ratchet
No.153-204

*2 Other dimensions are the same as 153-203

() : With spindle fully retracted.

Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle end	Spindle pitch	Graduation features
153-101	15mm	0.01mm		9.5mm				Standard
153-201*								
153-202*		0.001mm	±3μm	12mm	Plain	Flat (carbide tip)	0.5mm	w/ vernier (0.001mm)
153-203	25mm	0.01mm						Standard
153-204		0.001mm						w/ vernier (0.001mm)

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

หัวไมโครมิเตอร์

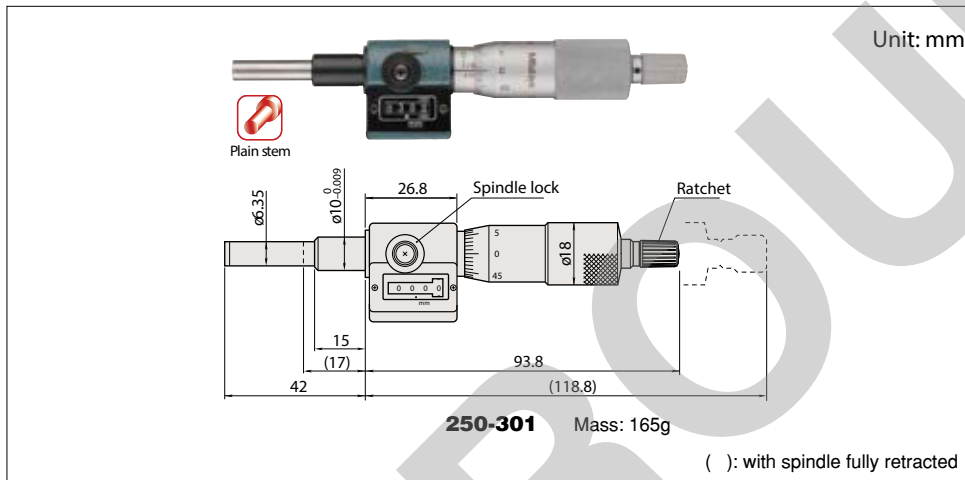
Micrometer Heads

SERIES 250 - Digit Counter type

FEATURE

- Digit counter for easy reading of spindle movement.
- Carbide measuring face

DIMENSIONS



Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle end	Spindle pitch	Graduation features
250-301	25mm	0.01mm	±2μm	10mm	Plain	Flat (carbide tip)	0.5mm	-

หัวไมโครมิเตอร์

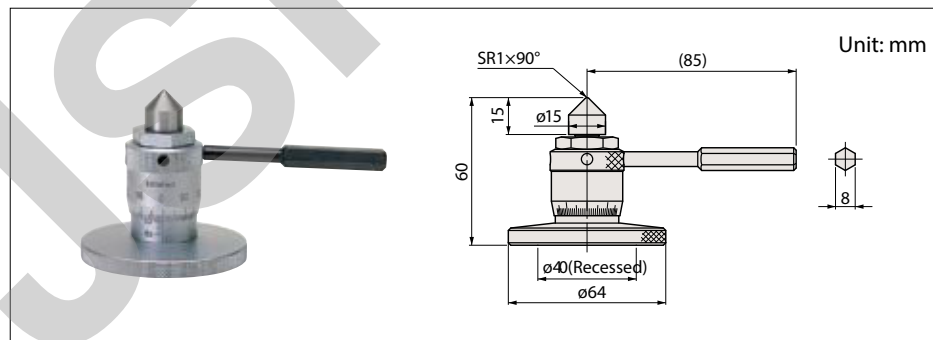
Micro Jack

SERIES 7

FEATURE

- Used for accurate leveling of machines, surface plates, and other precision instruments.
- Zero-setting is possible at any position.
- Easy adjustment under heavy load.

DIMENSIONS



Metric

Order No.	Range	Graduation	Handle power at the max. loading	Remarks
7850	60 - 75mm	0.01mm	90 N	Max. load : 400 kg

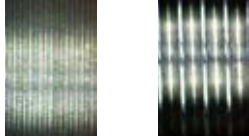


หัวไมโครมิเตอร์

Micrometer Heads

SERIES 148 - Fine Spindle Feed of 0.1mm/rev

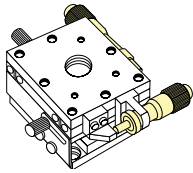
Spindle pitch



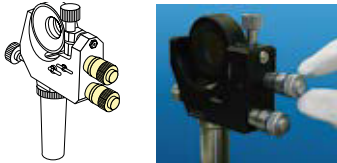
Pitch = 0.1mm Pitch = 0.5mm

Applications

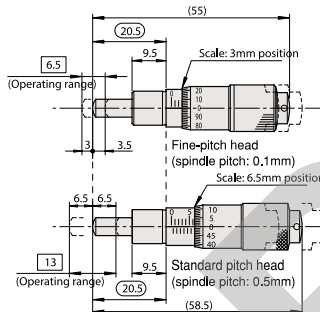
- Semiconductor-wafer positioning machinery and optical component alignment units, etc.
- Precision X-Y table positioning



- Precision adjustment of mirror in holder



Comparison of mounting dimensions between a fine-pitch head and a standard-pitch head at the mid-range travel position.



While the fine-pitch micrometer head has a measuring range of 6.5mm, the standard head has a larger range of 13mm.

When replacing a standard head, the fine-pitch type can use the common range in the middle of the spindle travel.

The standard and compact types of fine-pitch head are otherwise completely interchangeable.

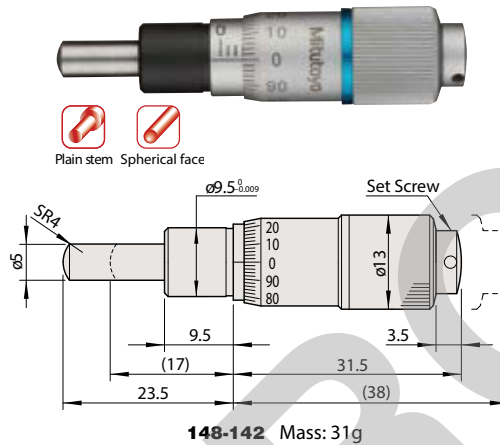
FEATURE

- Highly accurate 0.1mm pitch thread is only one-fifth of that used for a standard-pitch head (0.5mm).
- External dimensions are compatible with standard 0.5mm pitch heads.

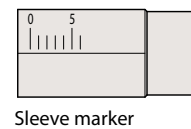
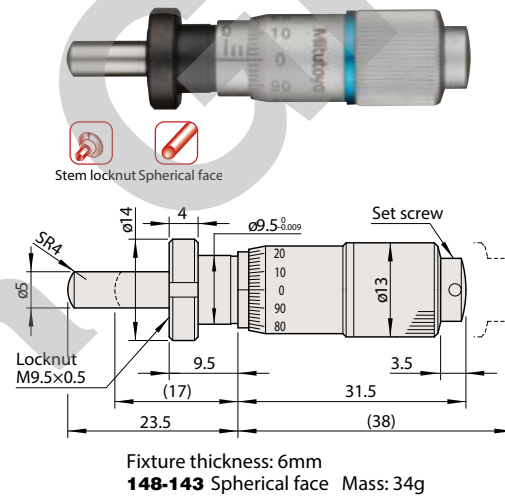
DIMENSIONS

Plain stem

Unit: mm



Stem locknut



Sleeve marker

(): With spindle fully retracted.

Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle end	Spindle pitch	Special features
148-142					Plain			
148-143					w/ clamp nut			
148-342					Plain	Spherical (SR4)		
148-343					w/ clamp nut			
148-242					Plain	Spherical (SR3)		
148-243					w/ clamp nut			
148-244					Plain	Spherical (SR1.5)		
148-245					w/ clamp nut			

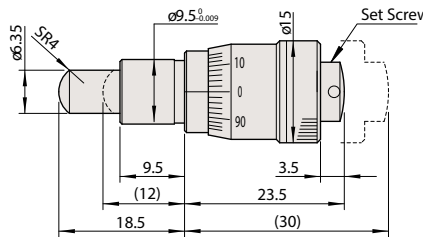
SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

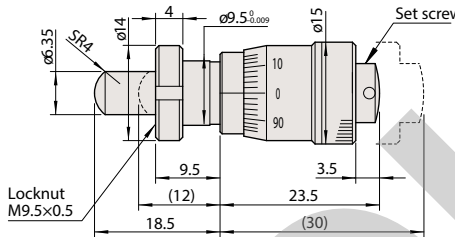
DIMENSIONS

Plain stem



148-342 Mass: 29g

Stem locknut



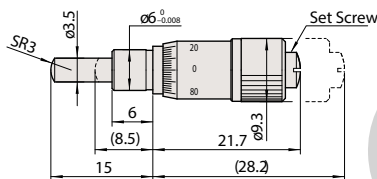
148-343 Spherical face Mass: 31g

Unit: mm



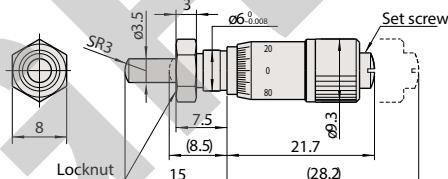
Sleeve marker

Plain stem



148-242 Mass: 10g

Stem locknut

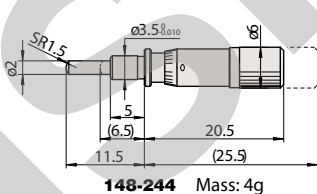


148-243 Spherical face Mass: 10g



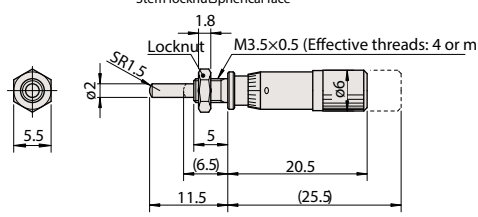
Sleeve marker

Plain stem



148-244 Mass: 4g

Stem locknut



148-245 Spherical face Mass: 5g



Sleeve marker

() : With spindle fully retracted.

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 148 - Fine Spindle Feed of 0.25mm/rev

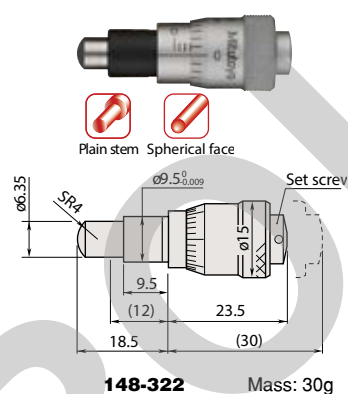
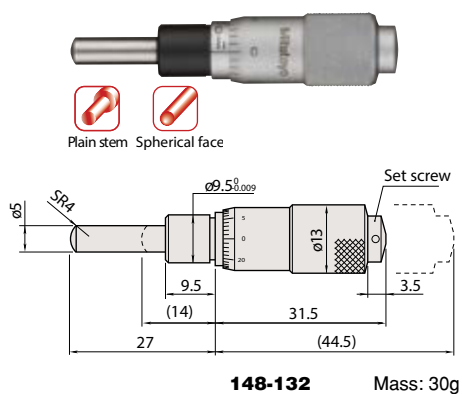
FEATURE

- Miniature micrometer heads for ease of incorporating into machines.

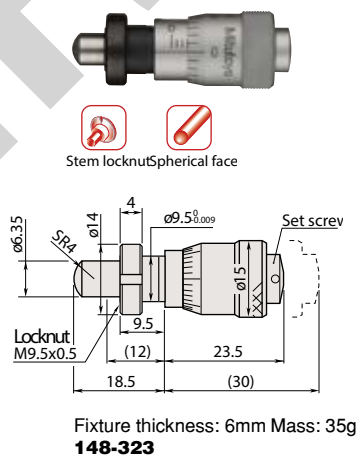
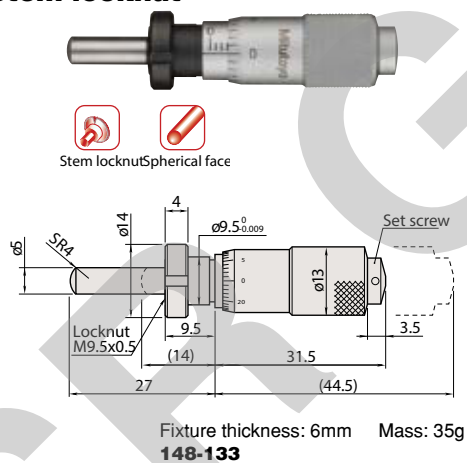
DIMENSIONS

Plain stem

Unit: mm



Stem locknut



() : with spindle fully retracted

Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle end	Spindle pitch
148-132	13mm	0.01mm	±2μm	9.5mm	Plain	Spherical (SR4)	0.25mm
148-133					w/ clamp nut		
148-322	6.5mm				Plain		
148-323					w/ clamp nut		

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 110 - Differential Screw Thread Translator (Extra-Fine Feed) Type

FEATURE

- The Differential movement of spindle threads and nuts allows ultra-fine feeding.

DIMENSIONS

Unit: mm

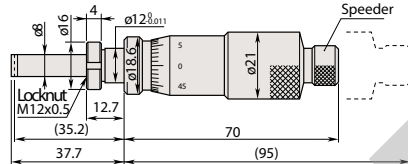
- Differential movement mechanism with double spindle.
- Non-rotating spindle.
- Fixture thickness: 9.5mm



Equipped with vernier



Stem locknut



Fixture thickness: 9.5mm

110-101, 110-102 Equipped with vernier Mass: 150g

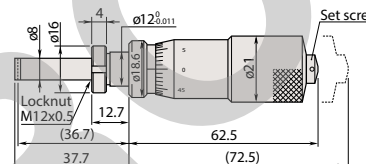
- Differential movement mechanism with double spindle.
- Non-rotating spindle.
- Fixture thickness: 9.5mm



Equipped with vernier



Stem locknut



Fixture thickness: 9.5mm

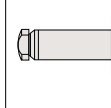
110-105, 110-106 Equipped with vernier Mass: 150g

Spherical face



Equipped with vernier

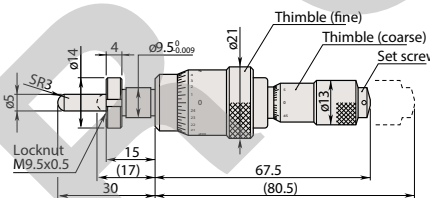
Stem locknut Spherical face

**No. 110-107****No. 110-108** Equipped with vernier

() : with spindle fully retracted



Stem locknut Spherical face



Fixture thickness: 11.5mm

110-502 Dual thimble

Mass: 95g

Metric

Order No.	Range		Graduation		Accuracy**	Stem dia.	Stem	Spindle end	Graduation features
110-101	2.5mm		0.001mm		±5µm/ ±1.5µm	12mm	w/ clamp nut	Flat (carbide tip)	Standard
0.0001mm			Fine						
110-102			0.001mm						Standard
110-105	1mm		0.0001mm		±3µm/ ±1.5µm			Spherical (SR10) (carbide tip)	Fine
0.001mm			Standard						
110-106			0.0001mm						Fine
110-107			0.001mm						Standard
110-108			0.0001mm						Fine
110-502	Thimble (fine)	0.2mm	Thimble (fine)	0.0005mm	±3µm/ ±1.5µm	9.5mm		Spherical (SR3)	Dual scales; 0.2mm fine-feed range
	Thimble (coarse)	13mm	Thimble (coarse)	0.01mm					

**Wide range / narrow range

หัวไมโครมิเตอร์

Micrometer Heads

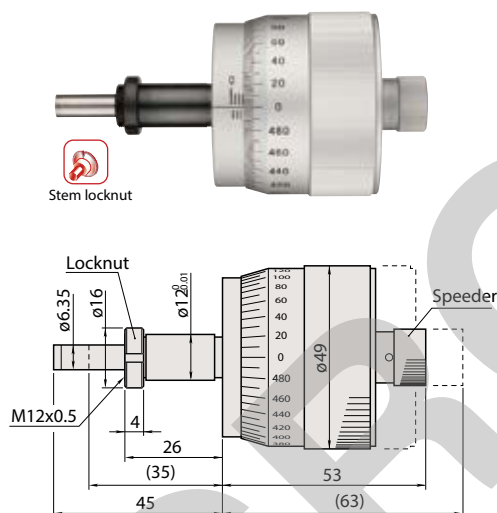
SERIES 152 - Large thimble type

FEATURE

- Large-diameter thimble for fine adjustment and positioning.

DIMENSIONS

Unit: mm



Fixture thickness: 22.5mm
152-283 Mass: 190g



152-332
152-348 Bidirectional Mass: 310g

(): with spindle fully retracted

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

Micrometers Head
หัวไมโครมิเตอร์

Micrometer
ไมโครมิเตอร์

Inside
Measurement
เครื่องมือวัดภายใน

Calipers
คาลิเปอร์

Height Gages
เกจวัดความสูง

Linear Height
เครื่องมือวัดความสูง

Depth Gages
เกจวัดความลึก

Gauge Blocks
เกจบล็อก

Reference Gages
เครื่องมืออ้างอิง

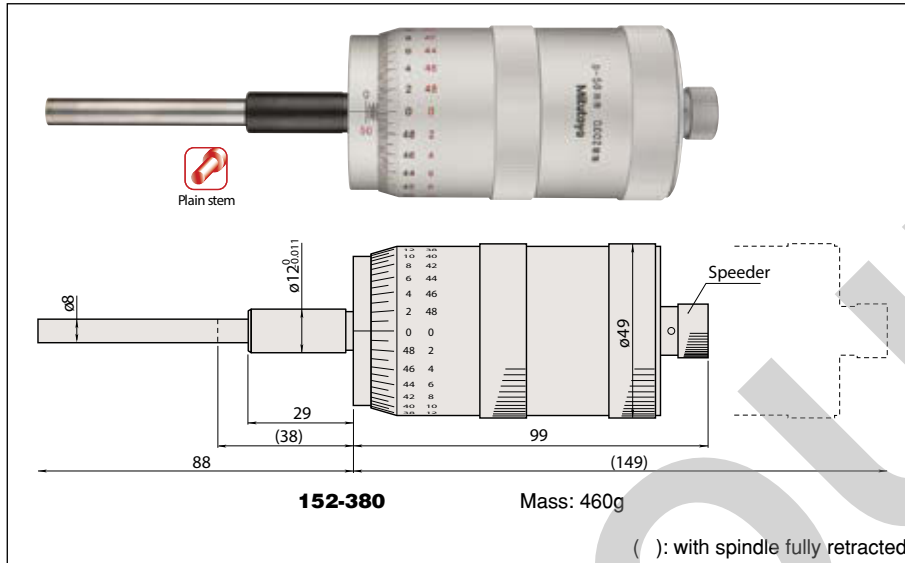
Indicators
อินดิเคเตอร์

Stands
ขาตั้ง

Micrometer
ไมโครมิเตอร์

Micrometer Head
หัวไมโครมิเตอร์

DIMENSIONS



Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle end	Spindle pitch	Graduation features
152-283	10mm	0.002mm	±2μm	12mm	w/ clamp nut	Flat (carbide tip)	0.5mm	Standard
152-332	25mm				Plain			
152-348	50mm		±4μm					Bidirectional

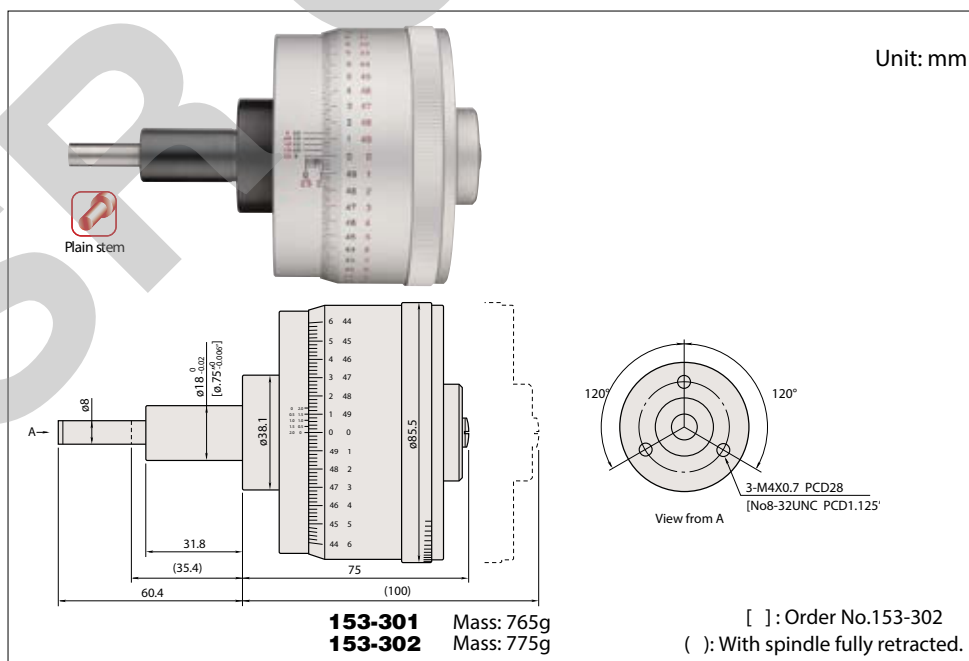
หัวไมโครมิเตอร์

Micrometer Heads SERIES 148 - High Accuracy and Resolution

FEATURE

- Fine graduation and high resolution model.
- Non-rotating spindle type.

DIMENSIONS



Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle end	Spindle pitch	Graduation features
153-301	25mm	0.0005mm	±1/ ±0.5μm	18mm	Plain	Flat (carbide tip)	0.5mm	Bidirectional

*Wide range / narrow range

หัวไมโครมิเตอร์

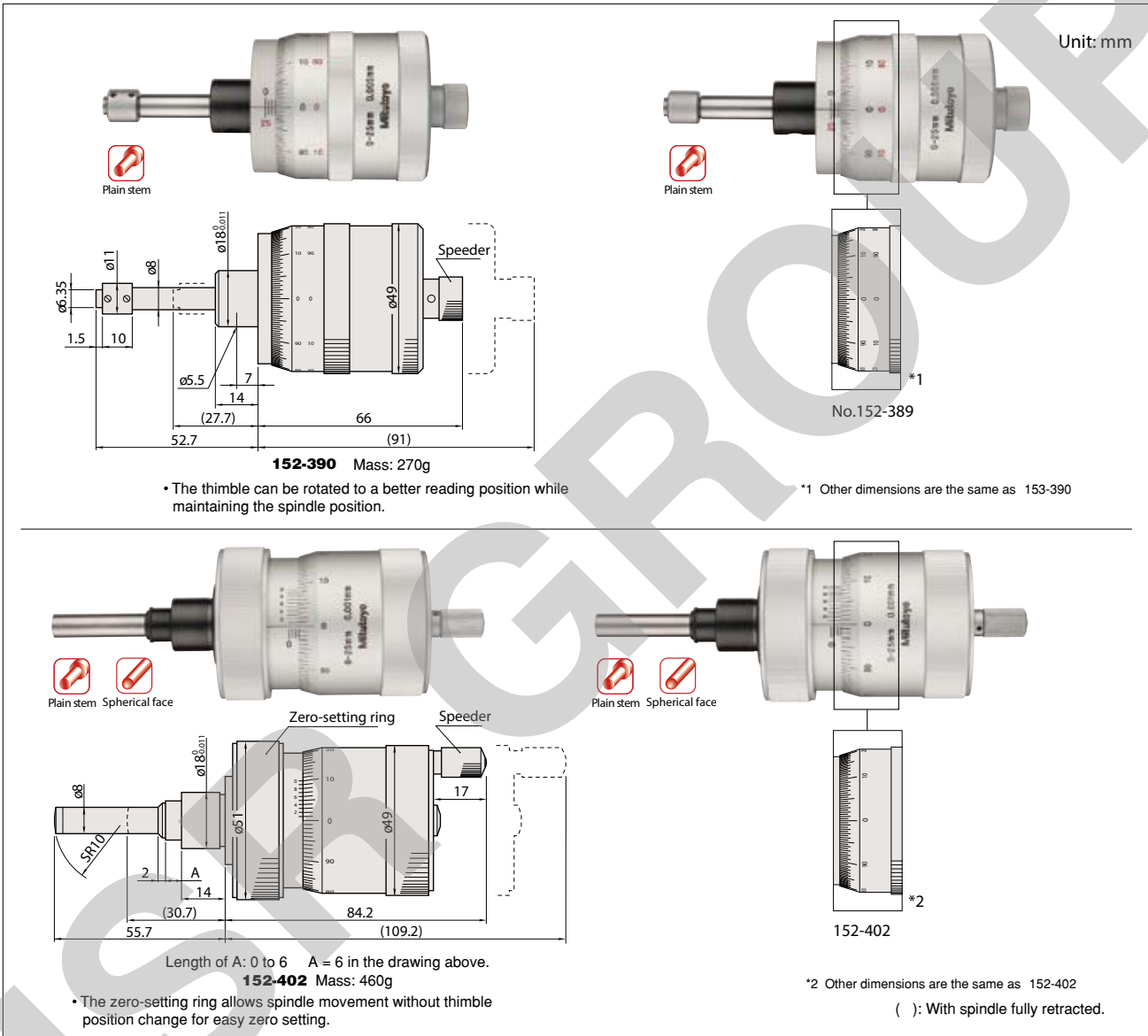
Micrometer Heads

SERIES 152 - XY-Stage type

FEATURE

- Micrometer heads especially designed for accurate cross-travel stage translation in X and Y.
- Spindle end: Flat form and hardened, or spherical with carbide tip (more than HRA90), lapped surface.

DIMENSIONS



Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle pitch	Graduation features
152-390	0-25mm	0.005mm	±2μm	18mm	Plain	1mm	for Y-axis, bidirectional
152-389		0.001mm					
152-402		Vernier graduation					for Y-axis, with vernier
152-401							

SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

หัวไมโครมิเตอร์

Micrometer Heads

SERIES 197 - Long Stroke Non-rotating Spindle

FEATURE

- Large thimble micrometer head with non-rotating spindle.
- Floating thimble allows easy zero setting at any spindle position.
- Dual-spindle mechanism for quick feed of 1mm/rev (standard models: 0.5mm/rev)

Micrometer

ไมโครมิเตอร์

Inside

Measurement

เครื่องมือวัดภายใน

Calipers

คาร์ลิเปอร์

Height Gages

เกจวัดความสูง

Linear Height

เครื่องมือวัดความสูง

Depth Gages

เกจวัดความลึก

Gauge Blocks

เกจบล็อก

Reference Gages

เครื่องมืออ้างอิง

Indicators

อินดิเคเตอร์

Stands

ขาตั้ง

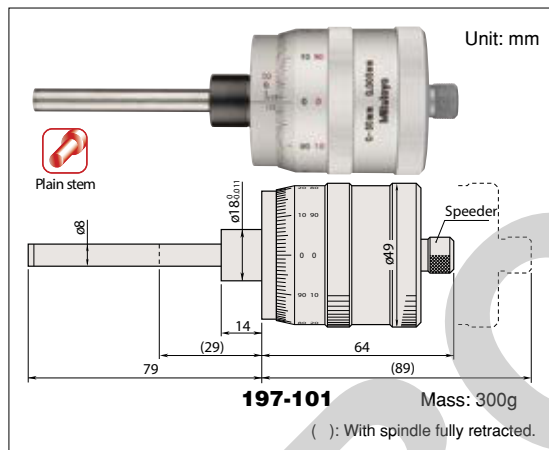
Micrometer

ไมโครมิเตอร์

Micrometer Head

หัวไมโครมิเตอร์

DIMENSIONS



Metric

Order No.	Range	Graduation	Accuracy	Stem dia.	Stem	Spindle end	Spindle pitch	Graduation features
197-101	50mm	0.005mm	$\pm 5\mu\text{m}$	18mm	Plain	Flat (Carbide tip)	1mm	Bidirectional

ที่จับหัวไมโครมิเตอร์

Micrometer Heads
Mounting Fixture

FEATURE

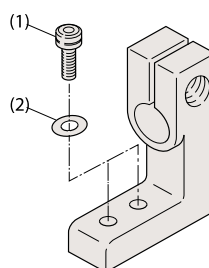
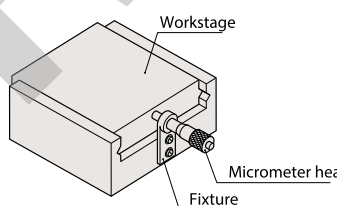
- Manufacturing brackets to mount micrometer heads for each particular application can be laborious and costly. Mitutoyo offers various types of fixtures for micrometer heads to meet a wide range of applications. These fixtures are made of nickel-plated cast iron.



Mounting hole size

Order No.	Fixture (Order No.)	Mounting hole size
148 Series	303560, 303562, 303564, 303566 303559, 303561, 303563, 303565	Ø9.5x9.5 long for plain stem locknut type micrometer heads
149 Series	303569, 303571, 303573, 303575 303568, 303570, 303572, 303574	Ø9.5x15 long for plain stem locknut type micrometer heads
150 Series	303579, 303581, 303583, 303585 303578, 303580, 303582, 303584	Ø10x15 long for plain stem locknut type micrometer heads

* Supplied with a socket head screw (M3 x 0.5 x 12) for fixtures to be used with a micrometer head without stem locknut (plain stem type micrometer head).



Recommended socket head screws for the fixture

Fixture (Order No.)	Socket head screw (1)	Washer (2)
303559, 303560, 303561, 303562 303563, 303564, 303565, 303566	M3x0.5x8 M3x0.5x12	Small, Nominal dia. : 3 Small, Nominal dia. : 3
303568, 303569, 303570, 303571, 303572, 303573, 303578, 303579, 303580, 303581, 303582, 303583	M4x0.47x10	Small, Nominal dia. : 4
303574, 303575 303584, 303585	M4x0.7x12	Small, Nominal dia. : 4

() : with spindle fully retracted

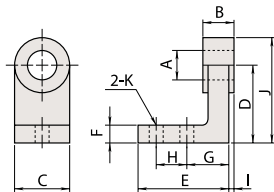
SMALL TOOLS

เครื่องมือวัดละเอียด

Mitutoyo

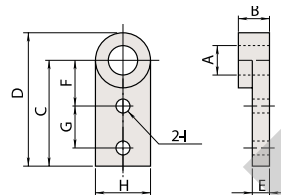
Micrometers Head
หัวไมโครมิเตอร์

Fixtures for micrometer heads with stem locknut



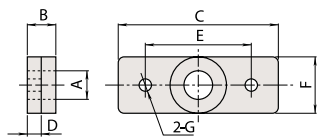
(Unit: mm)

Order No.	A	B	C	D	E	F	G	H	I	J	K
303559	Ø9.5	6	15	20	24	5	11	8	0.5	27.5	Ø3.4
303568	Ø9.5	11.5	20	30	35	7	16	12	1.75	40	Ø4.5
303578	Ø10										



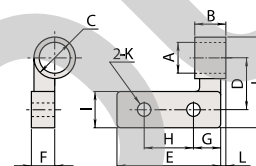
(Unit: mm)

Order No.	A	B	C	D	E	F	G	H	I
303563	Ø9.5	6	30	37.5	4.5	15	10	15	Ø3.4
303572	Ø9.5	11.5	40	50	6.5	18	15	20	Ø4.5
303582	Ø10								



(Unit: mm)

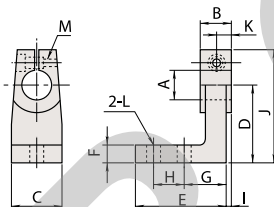
Order No.	A	B	C	D	E	F	G
303561	Ø9.5	6	40	3.5	30	15	Ø3.4
303570	Ø9.5	11.5	60	5.5	40	20	Ø4.5
303580	Ø10						



(Unit: mm)

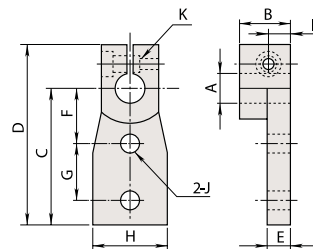
Order No.	A	B	C	D	E	F	G	H	I	J	K	L
303565	Ø9.5	6		15	25		7.5	10	10	27.5	Ø3.4	0.75
303574	Ø9.5	11.5	Ø15	20	40	8.5	10	20	15	35	Ø4.5	1.25
303584	Ø10											

Fixtures for plain stem type micrometer heads



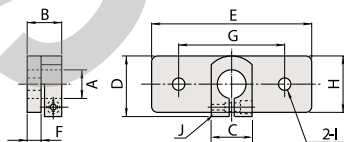
(Unit: mm)

Order No.	A	B	C	D	E	F	G	H	I	J	K	L	G
303560	Ø9.5	9	15	20	23	5	11	8	1.5	3.25	4.5	Ø3.4	
303569	Ø9.5	14.5	20	30	35	7	16	12	3.25	4.25	7.25	Ø4.5	M3x0.5
303579	Ø10												



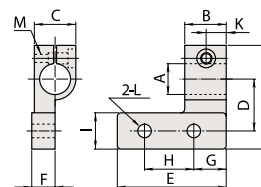
(Unit: mm)

Order No.	A	B	C	D	E	F	G	H	I	J	K
303564	Ø9.5	9		4.25	4	15	10	15	4.5	Ø3.4	
303573	Ø9.5	14.5	30	3.25	6	8	15	20	7.25	Ø4.5	M3x0.5
303583	Ø10										



(Unit: mm)

Order No.	A	B	C	D	E	F	G	H	I	J
303562	Ø9.5	9		20	40	3	30	15	Ø3.4	
303571	Ø9.5	14.5	15	22.5	60	5	40	20	Ø4.5	M3x0.5
303581	Ø10									



(Unit: mm)

Order No.	A	B	C	D	E	F	G	H	I	J	K	L	M
303566	Ø9.5	9		15	25		7.5	10	10	32.5	4.5	Ø3.4	
303575	Ø9.5	14.5	15	20	40	8.5	10	20	15	40	7.25	Ø4.5	M3x0.5
303585	Ø10												