

# Mitutoyo

GB-20004



MEASURING INSTRUMENTS CATALOGUE 2019 - 2021





### Competence and customer proximity on one spot

Throughout Europe, the name Mitutoyo represents innovational power as well as outstanding quality in the field of sophisticated dimensional measuring solutions. In order to strengthen and synchronise the concerted pan-European activities, Mitutoyo established the European headquarters named Mitutoyo Europe GmbH in Neuss near Düsseldorf/Germany in January 2010.

The headquarters oversees all the activities of Mitutoyo's sales, service and production facilities throughout Europe and adjacent markets, e.g. of Turkey. It also plans and implements the medium and long term business strategies of such European operations. A Mitutoyo Europe GmbH key objective is to promote coordination amongst its European group companies in order to optimise its sales and technical support services in the best interests of customer satisfaction.

More than 260 highly skilled members of staff work for the benefit of our customers in development, service, sales and administration. They are supported by the specialists of Mitutoyo CTL Germany GmbH in Oberndorf on the River Neckar, which focuses solely on developing ground-breakingly powerful and easy to use software for three-coordinate measurement technology. The peripheral fields of coordinate measuring machines, jiggling and loading systems and thermal cabins are covered by KOMEG company based in Saarland.

The range of products offered by Mitutoyo in Europe is divided into eight groups:

- Coordinate Measuring Machines
- Vision Measuring Systems
- Form Measurement
- Optical Measuring
- Sensor Systems
- Test Equipment and Seismometers
- Digital Scale and DRO Systems
- Small Tool Instruments and Data Management

In addition to top-level measuring and testing equipment, the range of products also includes a wide selection of accessories and – as a further area of focus – sophisticated, high-performance software for coordinate measuring machines and vision measuring systems as well as surface roughness, hardness and form measurement.

The Mitutoyo Information Center of Metrology (MIM) has been demonstrating the manufacturer's commitment to advanced training in all fields of dimensional measurement technology since 1999. The MIM is open to anyone working in the fields of manufacturing, service, science and research. Mitutoyo Europe GmbH is, moreover, a corporate member of "Ausbildung Koordinatenmesstechnik e. V. (AUKOM)". This association is dedicated to providing training schemes for coordinate measuring technology with the aim of ensuring a neutral, comprehensive and state of the art training concept.

Germany has also been home to the Mitutoyo M<sup>3</sup> Solutions Europe division since 2004. The abbreviation M<sup>3</sup> stands for Mitutoyo Measurement Metrology and, as such, for the concept of special measuring solutions developed by Mitutoyo to meet the particular requirements of its customers across the whole breadth of length, form and surface measurement technology. The Mitutoyo Europe GmbH in Neuss offers sample configurations in the 400 m<sup>2</sup> M<sup>3</sup> Solution Center Europe to demonstrate the numerous possibilities. The center also presents the smooth and seamless integration of peripheral systems, such as jigs or feed and climate control systems from KOMEG alongside the measuring equipment.



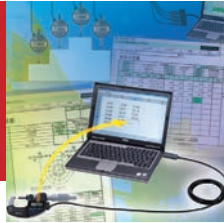
# Highlights

<p>Dial Test Indicator</p> 	<p>ABS AOS Caliper IP67</p> 	<p>New Indicator Series</p> 	<p>QM Height</p> 
<p>MF Microscope</p> 	<p>SJ-410</p> 	<p>SV-3200</p> 	<p>RA-6000CNC</p> 
<p>HM-210</p> 	<p>Automatic CMM Part Program Generation</p> 	<p>MACH Ko-ga-me</p> 	<p>CRYSTA-Apex S</p> 
<p>MANUAL Vision</p> 	<p>CNC Vision</p> 	<p>Fixtures</p> 	<p>Styli</p> 

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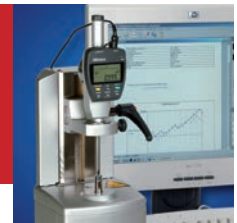
Absolute Digimatic Caliper  
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Depth Measuring Instruments



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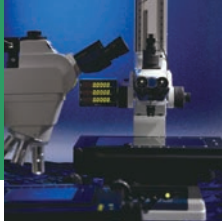
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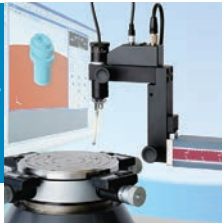
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etc.



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### For better communication with our customers

Mitutoyo's Domestic Network  
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M<sup>3</sup> Solution Centers



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### Hardness Testing

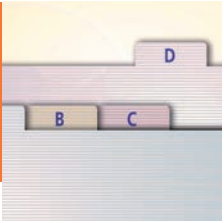
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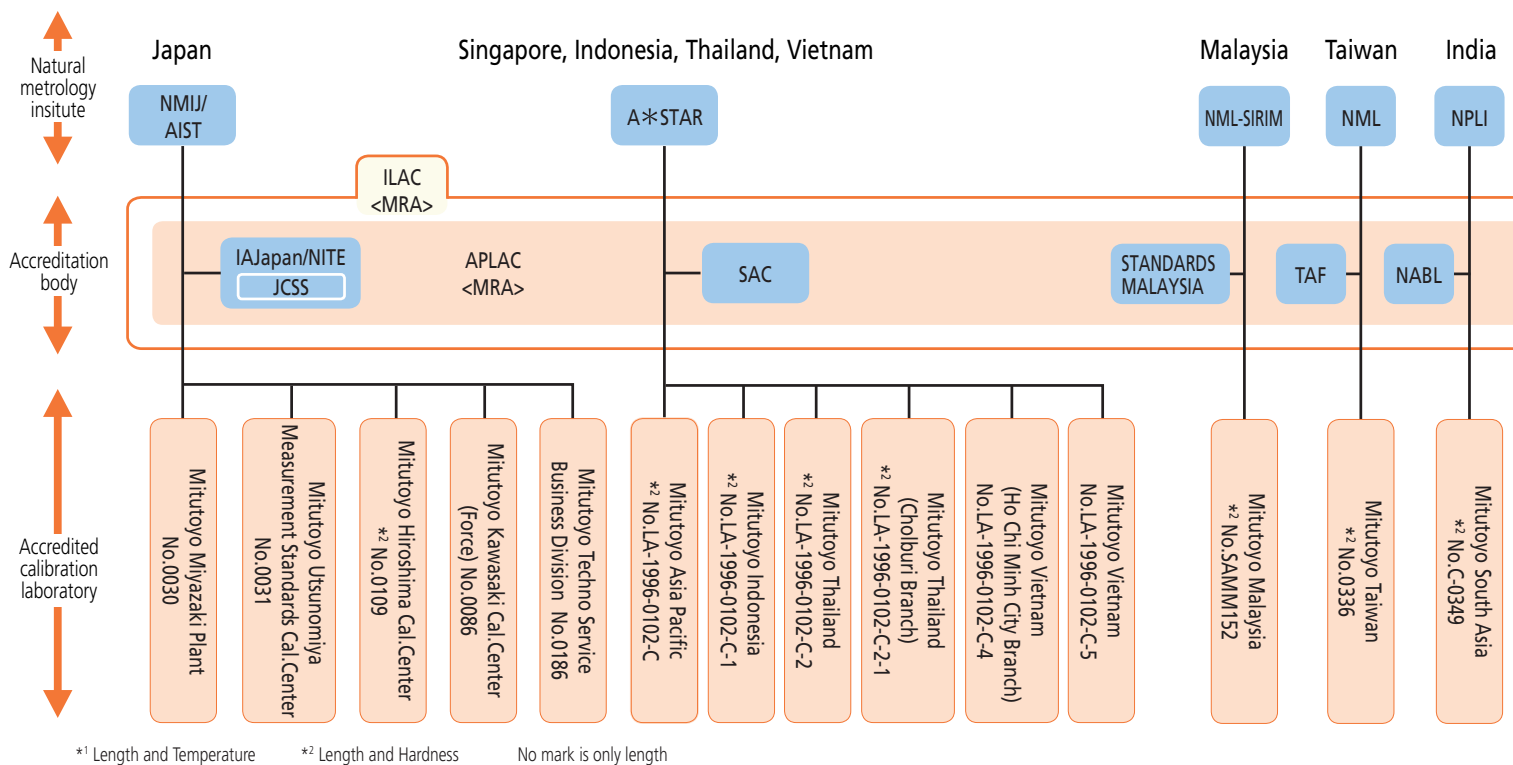
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# Offering Reliable Traceability Worldwide

## Calibration laboratories worldwide

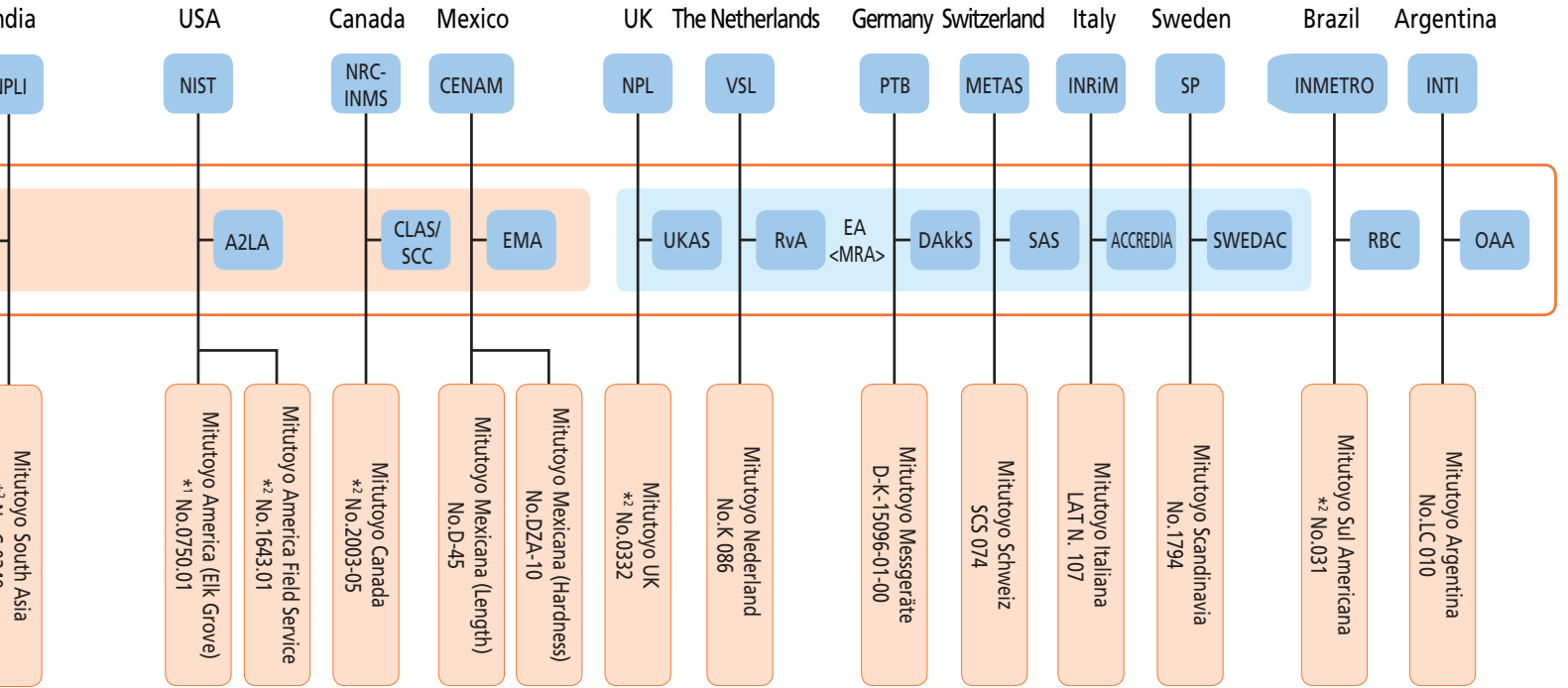
Mitutoyo has a system allowing comprehensive support for the calibration of precision measuring products in the global market. In order to provide calibration services on a global basis, Mitutoyo has calibration laboratories that have received ISO/IEC 17025 certification, which is an international standard, from the accredited organisations in each of the countries in which Mitutoyo operates and subsidiaries are located, both in Japan and overseas.



\*1 Length and Temperature    \*2 Length and Hardness    No mark is only length

- AIST: National Institute of Advanced Industrial Science and Technology
- NMIJ: National Metrology Institute of Japan
- JCSS: Japan Calibration Service System
- NITE: National Institute of Technology and Evaluation
- IAJapan: International Accreditation Japan
- A\*STAR: Agency for Science, Technology and Research
- SAC: Singapore Accreditation Council
- NML: National Measurement Laboratory
- TAF: Taiwan Accreditation Foundation
- NML-SIRIM: National Metrology Laboratory, Standards and Industrial Research Institute of Malaysia
- STANDARDS MALAYSIA: Department of Standards Malaysia
- NIST: National Institute of Standards and Technology
- A2LA: American Association for Laboratory Accreditation
- NRC-INMS: National Research Council of Canada-Institute for National Measurement Standards
- CLAS: Calibration Laboratory Assessment Service
- SCC: Standards Council of Canada
- CENAM: Centro Nacional de Metrología
- EMA: Entidad Mexicana de Acreditación, a.c.
- UKAS: United Kingdom Accreditation Service
- NMI: Nederlands Meetinstituut

- RvA: Raad voor Accreditatie
- PTB: Physikalisch-Technische Bundesanstalt
- DAKKS: Deutsche Akkreditierungsstelle GmbH
- METAS: The Swiss Federal Office of Metrology and Accreditation
- SAS: Swiss Accreditation Service
- IMGC: Istituto di Metrologia "GUSTAVO COLONNETTI"
- ACCREDIA: L'NTE ITALIANO DI ACCREDITAMENTO
- SP: Swedish National Testing and Research Institute
- SWEDAC: Swedish Board for Accreditation and Conformity Assessment
- INMETRO: Instituto Nacional de Metrologia Normalizacao e Qualidade Industrial
- RBC: Rede Brasileira de Calibracao
- INTI: Instituto Nacional de Tecnologia Industrial
- OAA: Organismo Argentino de Acreditaci
- NPL: National Physical Laboratory
- NPLI: National Physical Laboratory of India
- NABL: National Accreditation Board for Testing and Calibration Laboratories
- (ILAC): International Laboratory Accreditation Cooperation
- (APLAC): Asia-Pacific Laboratory Accreditation Cooperation
- (EA): European Accreditation Cooperation
- (MRA): Mutual Recognition Arrangement
- #: Accreditation No.



# Offering High-level Calibration Services Worldwide

Based on highest measurement capabilities of the same level as national standards

## Traceability system

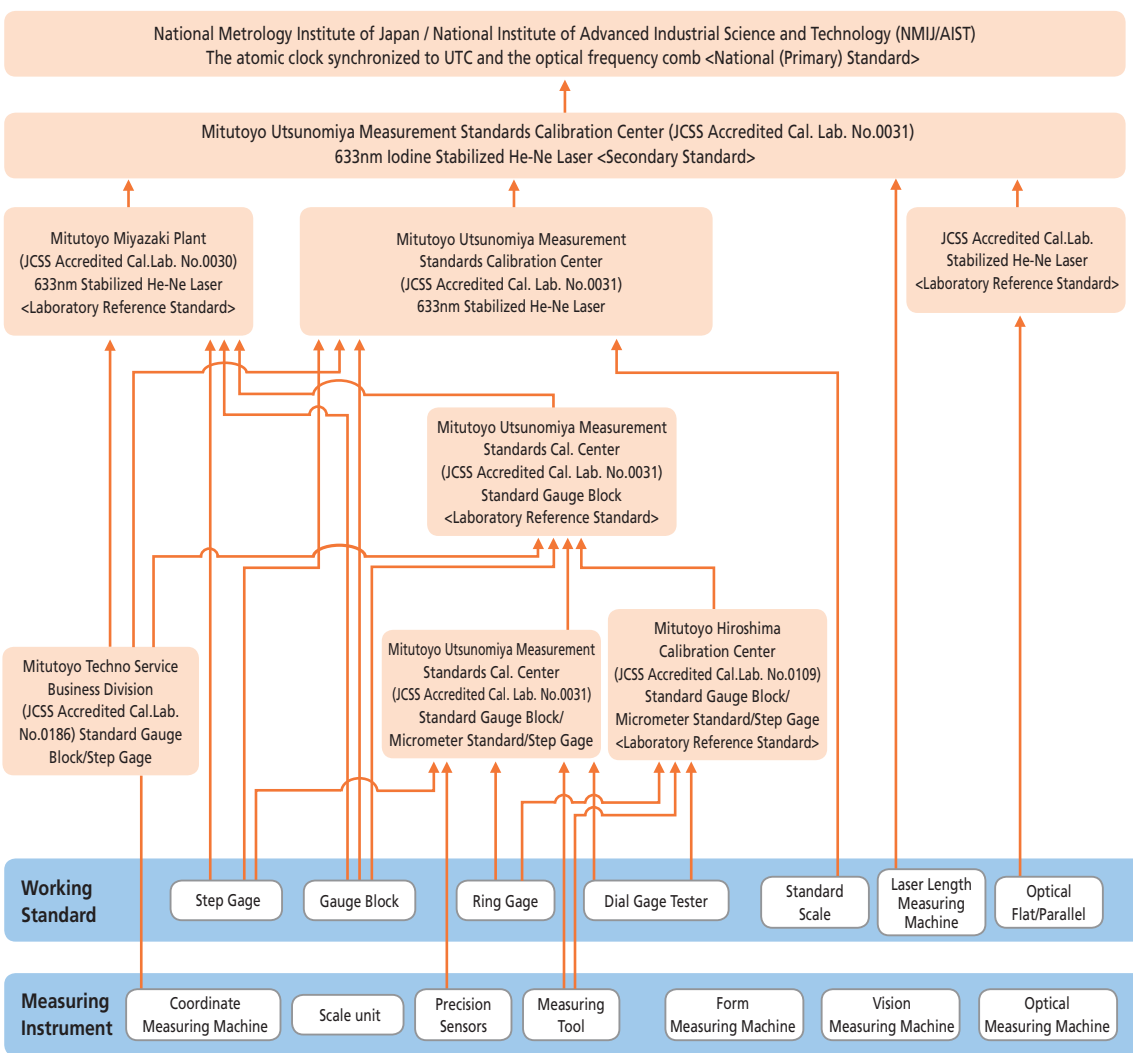
Mitutoyo has a traceability system made possible through an in-house calibration organisation certified by the ISO/IEC 17025 international standard, with length standards directly related to national standards (atomic clock synchronised to UTC and the optical frequency comb) at the highest level.

National standards are mutually recognised by CIPM, and the certified calibration organisation is mutually recognised by ILAC, so that the establishment and maintenance of traceability for Mitutoyo products is achieved both in Japan and overseas.

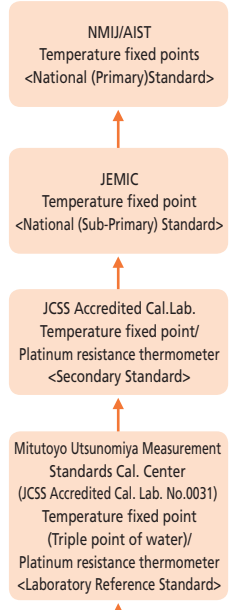


Certificate of JCSS accredited laboratory (Mitutoyo Utsunomiya Measurement Standards Calibration Center)

### Traceability of length



### Traceability of temperature

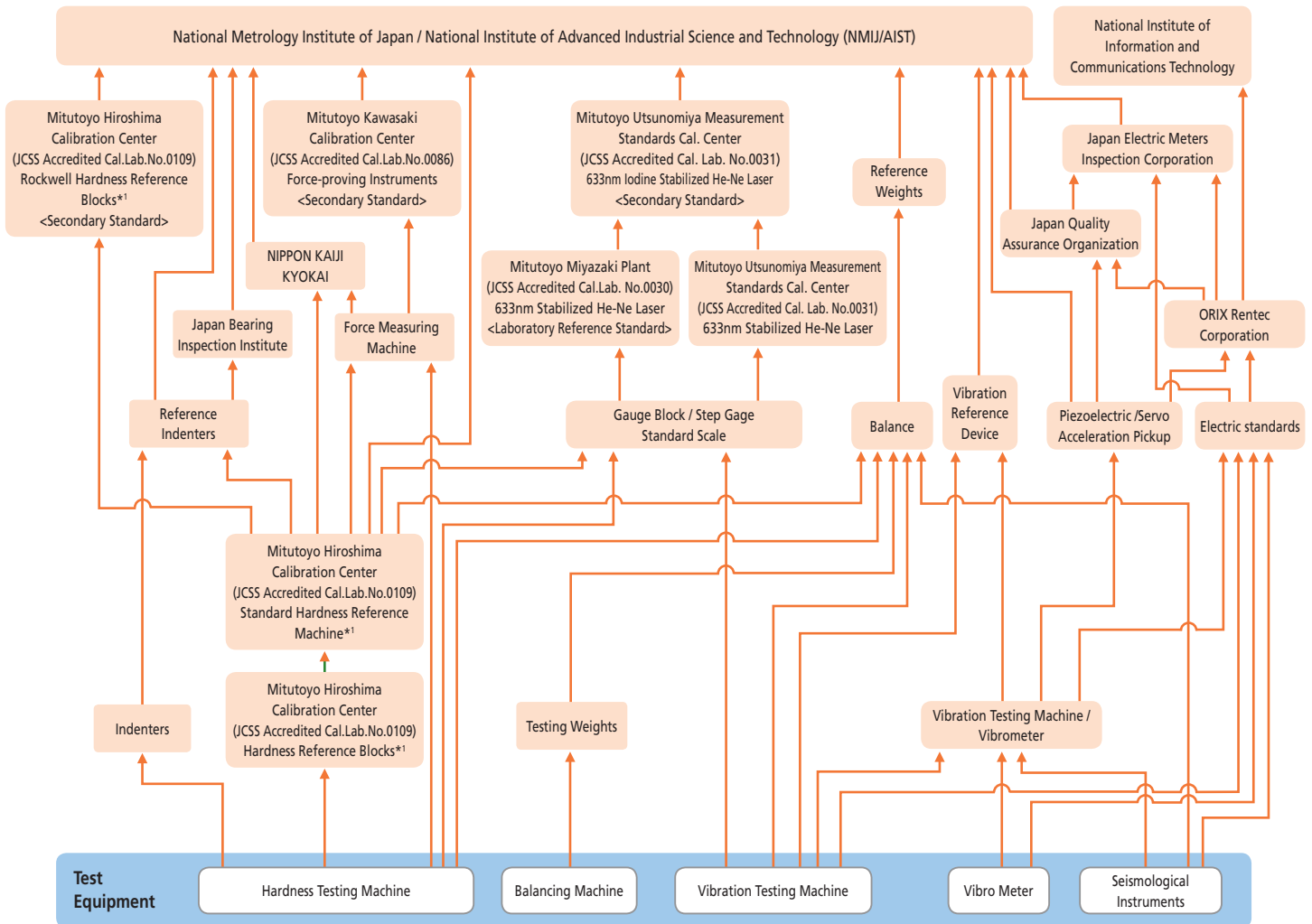


Note: This chart is a simplified representation of Mitutoyo's overall traceability system. Detailed traceability charts are published for each product.



# CE Marking Directives

## Traceability of Test Equipment

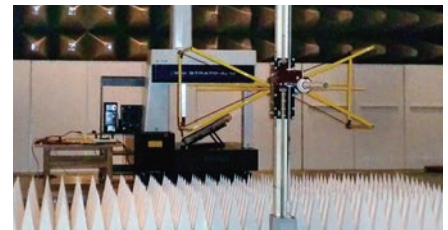


\*1 The scope of JCSS accreditation is from 20HRC up to 65HRC in Rockwell Hardness Testing Machines and Hardness Reference Blocks.

**Note:** This chart is a simplified representation of Mitutoyo's overall traceability system. Detailed traceability charts are published for each product.

## CE Marking Directives

CE stands for "Conformité Européenne", a challenging and important task for Mitutoyo in Europe. For Mitutoyo as a manufacturer of measuring electronics and measuring machines this means no sale without CE marking, no CE marking without completed conformity assessment procedure.



# Meaning of Symbols



## ABSOLUTE Linear Encoder

Mitutoyo's technology has realised the absolute position method (absolute method). With this method, you do not have to reset the system to zero after turning it off and then turning it on. The position information recorded on the scale is read every time. The following three types of absolute encoders are available: electrostatic capacitance model, electromagnetic induction model and model combining the electrostatic capacitance and optical methods. These encoders are widely used in a variety of measuring instruments as the length measuring system that can generate highly reliable measurement data.

### Advantages:

1. No count error occurs even if you move the slider or spindle extremely rapidly.
2. You do not have to reset the system to zero when turning on the system after turning it off\*<sup>1</sup>.
3. As this type of encoder can drive with less power than the incremental encoder, the battery life is prolonged to about 3.5 years (continuous operation of 18,000 hours)\*<sup>2</sup> under normal use.

\*1: Unless the battery is removed

\*2: In the case of the ABSOLUTE AOS Digimatic caliper (electromagnetic encoder model)



## Measuring Instruments Shipped with Inspection Certificate

Mitutoyo guarantees product quality as a leading precision measuring instrument manufacturer and ships measuring instruments with an inspection certificate that includes inspection data so that customers can use them with confidence. Mitutoyo also calibrates the purchased measuring instrument and issues, for a fee, a calibration certificate that proves traceability to the relevant standard.

\* For the meaning of the inspection marks shown at left, refer to the detailed description of each product



## Installation of Main Unit Startup System

As a part of the enhancement of our export control system, the CNC measuring machines (all the CNC Coordinate Measuring Machines, Vision Measuring Systems, and Form Measuring Machines) are equipped with a Main Unit Startup System (relocation detecting system). This system is designed to take a machine out of operation upon detecting the mechanical shock that accompanies relocation. If you intend to relocate a measuring machine fitted with this system, please contact us beforehand so that our service engineers can assist you. On the other hand, the system may be triggered in the event of a natural event such as a powerful earthquake. In this case, our service engineers will deal with the situation at the earliest opportunity.



## IP Codes

These are codes that indicate the degree of protection provided (by an enclosure) for the electrical function of a product against the ingress of foreign bodies, dust and water as defined in IEC standards (IEC 60529: 2001) and JIS C 0920: 2003. [IEC: International Electrotechnical Commission]

First characteristic numeral	Degrees of protection against solid foreign objects		Second characteristic numeral	Degrees of protection against water	
	Brief description	Definition		Brief description	Definition
0	Unprotected	—	0	Unprotected	—
1	Protected against solid foreign objects of $\phi 50$ mm and greater	A $\phi 50$ mm object probe shall not fully penetrate enclosure*	1	Protected against vertical water drops	Vertically falling water drops shall have no harmful effects.
2	Protected against solid foreign objects of $\phi 12.5$ mm and greater	A $\phi 12.5$ mm object probe shall not fully penetrate enclosure*	2	Protected against vertical water drops within a tilt angle of 15 degrees	Vertically falling water drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical.
3	Protected against solid foreign objects of $\phi 2.5$ mm and greater	A $\phi 2.5$ mm object probe shall not fully penetrate enclosure*	3	Protected against spraying water	Water sprayed at an angle up to 60° either side of the vertical shall have no harmful effects.
4	Protected against solid foreign objects of $\phi 1.0$ mm and greater	A $\phi 1.0$ mm object probe shall not fully penetrate enclosure*	4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effects.
5	Protected against dust	Ingress of dust is not totally prevented, but dust that does penetrate must not interfere with satisfactory operation of the apparatus or impair safety.	5	Protected against water jets	Water projected in jets against the enclosure from any direction shall have no harmful effects.
6	Dust-proof	No ingress of dust allowed.	6	Protected against powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.
7	—	—	7	Protection against water penetration	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardised conditions of pressure and time.
8	—	—	8	Protected against the effects of continuous immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe than for IPX7.

\*: For details of the test conditions used in evaluating each degree of protection, please refer to the original standard.



### Independent Confirmation of Compliance

IP65, IP66 and IP67 protection level ratings for applicable Mitutoyo products have been independently confirmed by the German certification organisation, TÜV Rheinland.



### Metric/Inch

Mitutoyo offers this quality product also in an switchable Metric/Inch version. Please refer to your local Mitutoyo website for detailed information.



### Inch/Metric

Mitutoyo offers this quality product also in an switchable Inch/Metric version. Please refer to your local Mitutoyo website for detailed information.



### Inch

Mitutoyo offers this quality product also in an Inch version. Please refer to your local Mitutoyo website for detailed information.



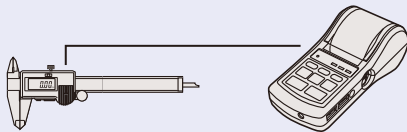
# Example of Measurement Data Management System Design

A system for recording and analysing measurement results from various Mitutoyo measuring instruments for quality assurance purposes.

## Implementation Step 1

### Recording measurement results

#### No more handwriting



**DP-1VR**

Measurement data can be printed easily. Data can be output to a PC for statistics calculations.

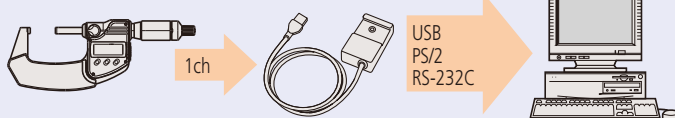
#### Direct data input to a PC

Connecting-cable-integrated USB-ITN



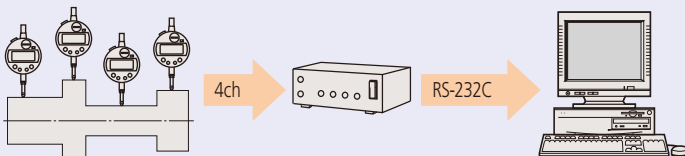
#### USB Input Tool Series

Lineups of three models with different output specifications  
IT-012U/IT-005D/IT-007R



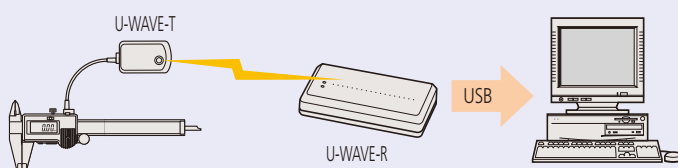
#### Input Tool Series

Connectable to a RS-232C interface PC with 4 channels and a sequencer



#### Multiplexer MUX-10F

#### Wireless

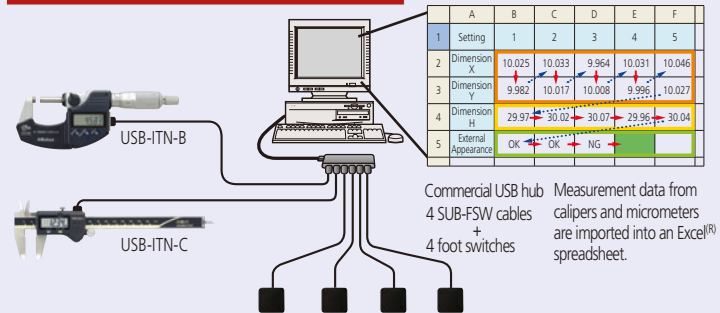


#### U-WAVE

## Implementation Step 2

### Software dedicated to inspection and quality control

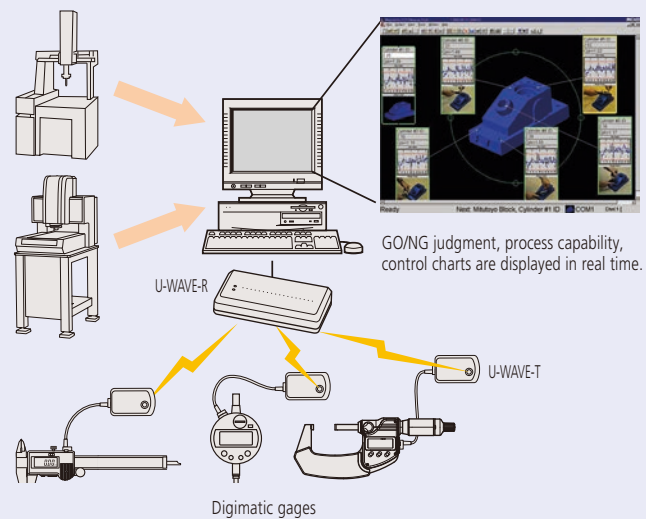
#### Inspection certificate creation



Commercial USB hub  
4 SUB-FSW cables +  
4 foot switches  
Measurement data from calipers and micrometers are imported into an Excel® spreadsheet.

#### USB-ITPAK

#### Statistical process control



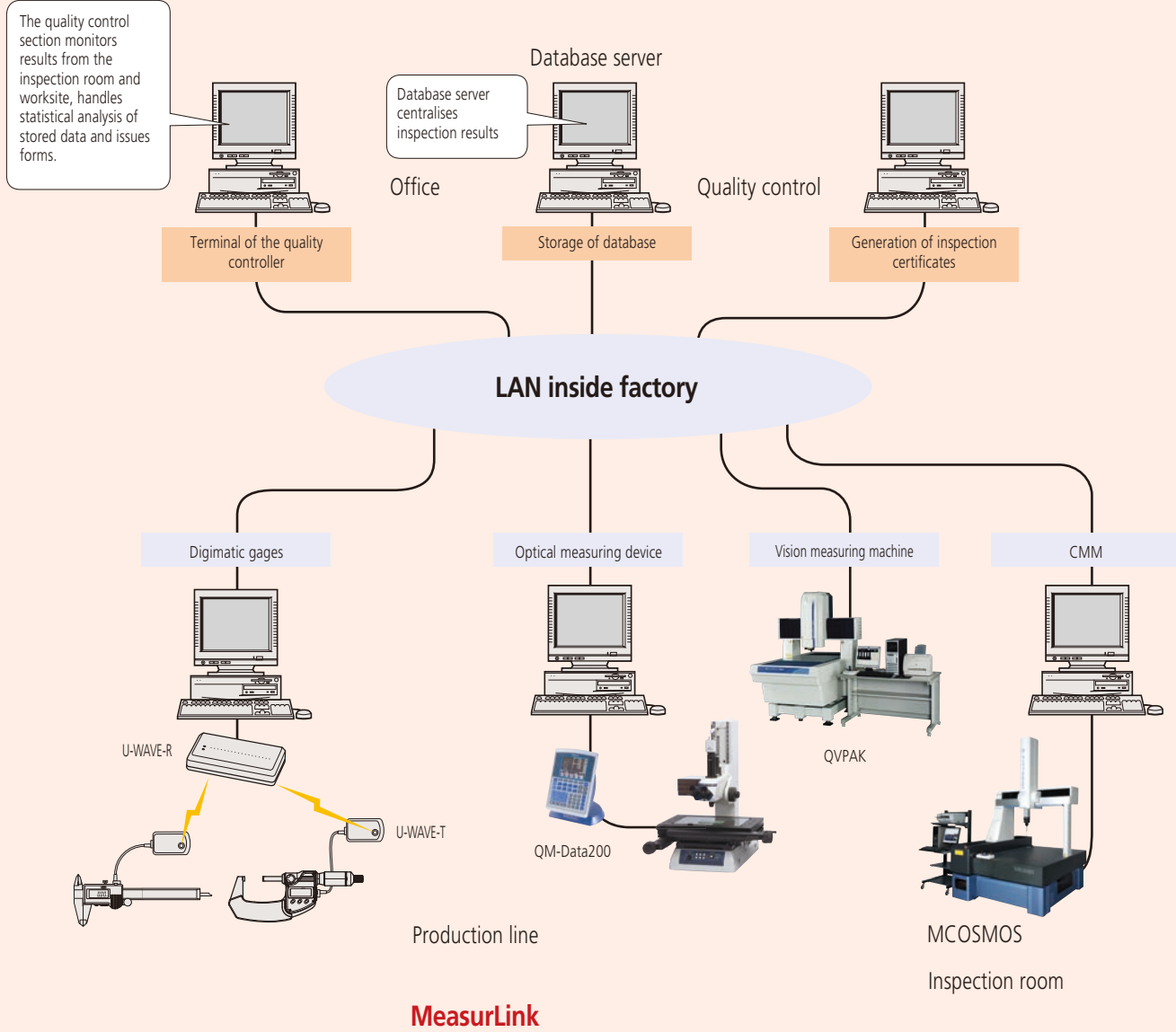
GO/NG judgment, process capability, control charts are displayed in real time.

#### MeasurLink

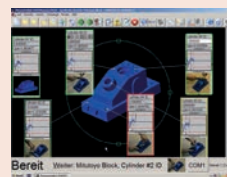
# Implementation Step 3

Creating a quality control network covering a wide area within the factory

## Unify management of the quality test using the network in the factory



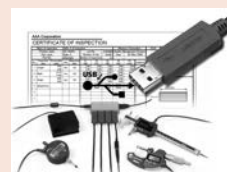
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**Digimatic Interface**  
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## An Integrated Solution for Quality Data Management

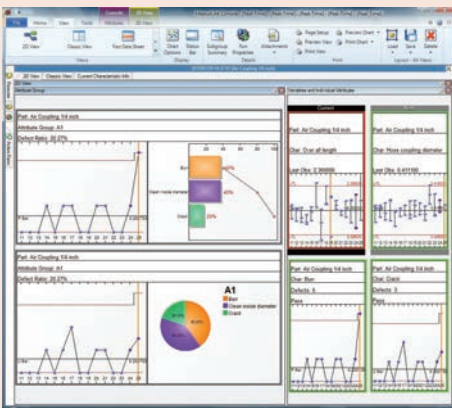
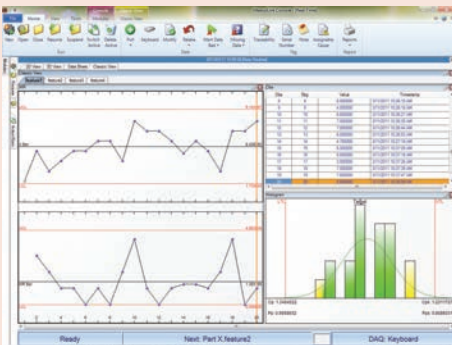
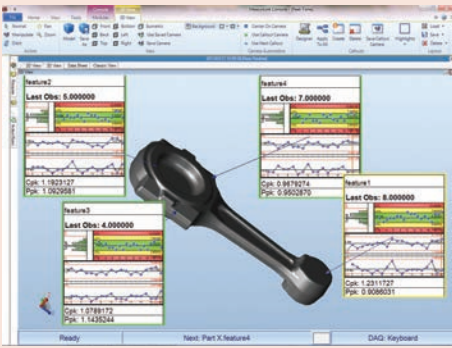
Most of Mitutoyo's electronic instruments can output data via optional connecting cables or wireless transmitters & receivers in the form of the Digimatic code. The Digimatic code can also be converted in RS-232C format by any of several available gage multiplexers. In this way, digital data can be sent to PCs for data acquisition and advanced statistical analysis.

As a client/server application, MeasurLink gives you the performance you need through distributed processing. Combined with a multi-user relational database, MeasurLink delivers a safe and organized data warehousing system making quality data available for viewing and analysis by any member of the production, engineering and managerial staff throughout your company. Inspection in the factory produces data for analysis, corrective action, and various reporting needs. As the backbone of your quality efforts, MeasurLink is guaranteed to reduce your production costs and increase your bottom line.

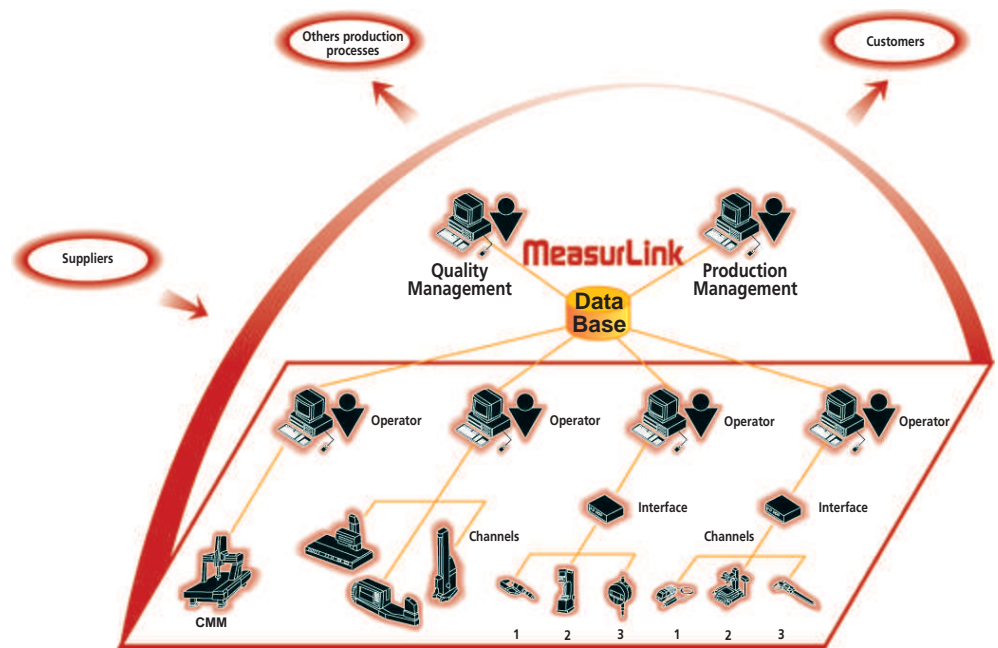
MeasurLink is capable of linking and managing multiple "islands" of inspection into a common database of part information, statistical data, gage information, process, etc. Information is shared across an entire manufacturing facility.

### Group Licensing

MeasurLink is available in several modules offering you a wide range of solutions, from data acquisition to manager views and gage management. Details about all modules can be found on the next pages. However, you can create your own package and combine modules by choosing one of the following license bundles:



MeasurLink brochure available on request



No.	Description
64AAB614FR	MeasurLink 9 Floating License - 30 Licenses*
64AAB614R	MeasurLink 9 Site License - 30 Licenses*
64AAB615FR	MeasurLink 9 Floating License - 15 Licenses*
64AAB615R	MeasurLink 9 Workgroup License - 15 Licenses*
64AAB617FR	MeasurLink 9 Floating License - 10 Licenses*
64AAB617R	MeasurLink 9 Werkgroup License - 10 Licenses*
64AAB618FR	MeasurLink 9 Floating License - 5 Licenses*
64AAB618R	MeasurLink 9 Workgroup License - 5 Licenses*
64AAB619R	MeasurLink 9 Academic License - 20 Licenses*

\* Real-Time Professional 3D is not included

# MeasurLink 9

## MeasurLink Real-Time Standard Edition

Designed for customers who want to acquire and analyze data in real-time from Small Tools like calipers and micrometers.

Features:

- Variable and attributive inspection
- Real-time graphics
- Run charts
- Control charts
- Histograms
- Statistics
- Customized Info View
- Full Reporting Template

**Supported data sources:** keyboard, RS232-C, USB devices

No.	Description
64AAB606R	MeasurLink 9 Real-Time Standard
64AAB606R-U	MeasurLink 9 Real-Time Standard Upgrade

## MeasurLink Real-Time Professional Edition

On-line Real-Time Data Collection

Acquire data directly from Mitutoyo devices such as:

- Coordinate Measuring Machines
  - Form Measuring Instruments
  - Vision Measurement Machines
- Import data from other devices via:

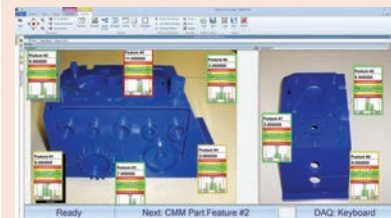
- ASCII
- QMD (xml based)

Features:

- Variable and attributive inspection
- Real-time graphics
- Run charts
- Control charts
- Histograms
- Statistics
- Customized Info View
- Full Reporting Template
- **Data filter**

**Supported data sources:** keyboard, RS232, USB devices, **Mitutoyo DDE, ASCII, QMD.**

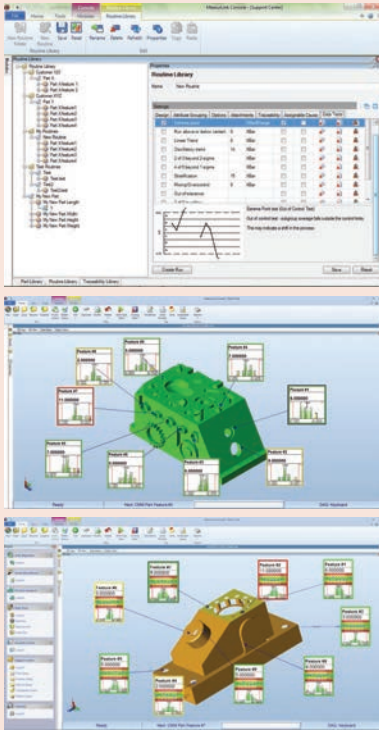
No.	Description
64AAB607R	MeasurLink 9 Real-Time Professional
64AAB607R-U	MeasurLink 9 Real-Time Professional Upgrade



# MeasurLink 9

## MeasurLink Real-Time Professional 3D Edition

On-line Real-Time Data Collection



Designed for customers who wish to collect data using the Hoops 3D graphics view. Hoops 3D files can be exported from most CAD systems and provide the operator with a real view of the part.

Acquire data directly from Mitutoyo devices such as:

- Coordinate Measuring Machines
- Form Measuring Instruments
- Vision Measurement Machines

Import data from other devices via:

- ASCII
- QMD (xml based)

Features:

- Variable and attributive inspection
- Real-time graphics
- Run charts
- Control charts
- Histograms
- Statistics
- Customized Info View
- Full Reporting Template
- **Data filter**
- **3D View**
- **Flexible callout design**
- **Guided sequence**

Supported data sources: keyboard, RS232, USB devices, **Mitutoyo DDE**, ASCII, QMD.

No.	Description
64AAB608R	MeasurLink 9 Real-Time Professional 3D
64AAB608R-U	MeasurLink 9 Real-Time Professional 3D Upgrade

## MeasurLink Process Analyse Professional Edition

Data Analysis Software



Designed for more robust manipulation of Real-Time data in a networked environment.

- Slice and dice data in meaningful ways
- Contribute to quality control initiatives!
- Analyze your process
- Identify problem areas
- Take corrective action
- Improve your product's quality!

Features:

- Review inspection data
- Switch between databases
- Tree control navigation
- Reporting
- Group, search and sort data
- Merge data
- Scatter plots
- Electronic signatures

No.	Description
64AAB609R	MeasurLink 9 Process Analyzer Professional
64AAB609R-U	MeasurLink 9 Process Analyzer Professional Upgrade

# MeasurLink 9

## MeasurLink Process Manager Standard Edition

### Network Monitoring Software

Real-time monitoring of data as it is collected. The perfect tool for QC and Production Managers!

- Organize and maintain a shop-wide quality program at a glance.
- Audit the entire shop floor inspection activity from a single PC
- Get process information without leaving the office
- View current production across all machines
- Show clients your quality operation for the entire facility
- Establish Cpk thresholds for acceptability
- Stay up to the minute on production problem
- Drill down for details on certain
  - traceability
  - assignable cause
  - failed tests
  - serial numbers

No.	Description
64AAB610R	MeasurLink 9 Process Manager
64AAB610R-U	MeasurLink 9 Process Manager Upgrade

## MeasurLink Gage R&R

### Gage R and R

Designed according to standard ISO/TS 16949, Gage R&R allows you to use the methods of study AIAG :

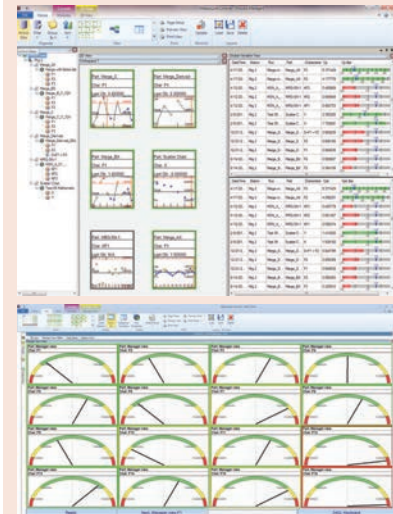
- Range
- Average and Range
- Average and Range including part variation
- Variance analysis
- Short method for attributive gages
- Bias study
- Linearity study
- Stability study

Features :

Graphical analysis tools :

- Xbar R chart
- Part by appraiser plot

No.	Description
64AAB611R	MeasurLink 9 Gage R&R
64AAB611R-U	MeasurLink 9 Gage R&R Upgrade





# MeasurLink 9

## MeasurLink Gage Management

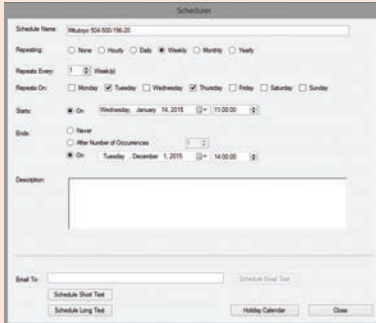
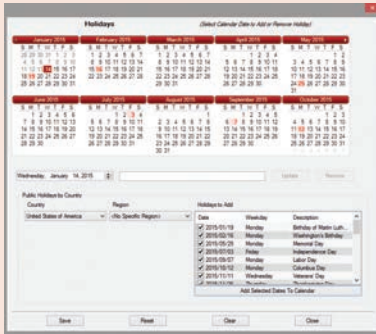
### Gage Inventory and Calibration Control

MeasurLink Gage Management allows customers to build a complete gage and fixture inventory. Calibration is made simple by supporting digital gages for both, variable and attributive features. Achieve optimal calibration frequencies - set-up individual calendars with:

- Gage in-service dates
- Calibration recall dates
- Gage R&R dates

#### Features:

- Vendor contact lists
- User lists
- Print and archive calibration certificates
- Incremental response methods
- Customized gage label printing



No.	Description
64AAB612R	MeasurLink 9 Gage Management
64AAB612R-U	MeasurLink 9 Gage Management Upgrade

## MeasurLink Report Scheduler V9

Report Scheduler Standard Edition is a tool that provides automated report distribution from a Windows service environment. Create reporting tasks that will run on a given schedule.

### Reporting Task Type

- Crystal Reports – Select a Crystal Reports template file and database connection to report on. Set values for parameters defined in template.
- MeasurLink Reports – Select a database connection, MeasurLink report template, run or feature run data to report on, and optionally select a filter to be applied to the data.

### Destinations

The reports can be printed, emailed, and exported in formats such as PDF. Multiple destinations can be assigned to a reporting task.

### Assign Schedule

Schedules can be defined on hourly, daily, weekly, monthly, and yearly intervals. Define a schedule and assign it to a report task.

### View Reports

Previewing the report allows validation of the output before scheduling the report task.

No.	Description
64AAB613R	MeasurLink 9 Report Scheduler
64AAB613R-U	MeasurLink 9 Report Scheduler Upgrade



# Digimatic Mini Processor DP-1VA LOGGER

## Series 264

This DP-1VA printer allows you to print measuring data, statistical evaluations a.s.o.

- Digimatic 2 support. 8 digits output for data printing and analysis even from high resolution or long stroke instruments.
- Statistical evaluations, and data printout from calipers, micrometers and other measuring devices equipped with a Digimatic port.
- Excellent printing speed, prints upon one-touch start and at low noise level. The thermosensitive paper has outstanding durability and chemical resistance for long-term storage.
- Timer function for timed measurement data loading
- Easy data transfer from printer to PC. USB (VCP/HID) output for PC (USB IT-PAK Vers. 2,1 or later, MeasurLink, Excel a.s.o.)
- Data Logger Function. Saves up to 1000 data records with time and date. Data can be saved even after the power is turned off.



264-505D

No.	Remarks	Mass [g]
264-505D	Digimatic Mini Processor DP-1VA	390

## Specifications

Data input	Digimatic, Digimatic 2, RS-232C Input (KA-Counter only)
Printer type	Thermal line printer
Printer speed	6,5 mm/s (using AC adapter)
Printer line number	7000 lines/roll (with large font) 10000 lines/roll (with normal font)
Printer paper	Width: 58 mm, length: 48 m
Processing capacity	Mode 0: 100000 data entries Mode 1/2: 9999 data entries Mode 3: sample size 10x subgroup 9999 = total number of data entries 99990
Logging of the measurement data (to store)	Max. 1000 points
Power supply	AC adapter 6V, battery: LR6 x 4 (alkaline) or AA x 4 Ni-MH (rechargeable, battery is not charged in the device)
Data output	USB, RS-232C at TTL level, tolerance judgment result (-NG, GO, +NG)
Battery life	Appr. 10000 lines (with 1600 mA Ni-MH and print 1 time/5 s)
Timer function	0,25 s; 1 s; 5 s; 30 s; 1 min; 30 min; 60 min (0,25 s only statistical function)

## Standard accessories

No.	Description
09EAA069D	Thermal Printer Paper DP1-VR-VA, 1 Roll
06AEG180D	AC-Adapter, 6V 2A, CEE Type

## Optional accessories

No.	Description
06AFM386	USB-ITPAK Version 2.1, Software with Dongle
09EAA084	RS-232C Cable, DP1-VR to PC, 1m, 9 Pin Connector
09EAA094	RS-232C Cable, DP1-VR-VA to KA-Counter, 1m, 25 Pin Connector
09EAA082-5	Thermal Printer Paper DP1-VR-VA, 5 Rolls
06AFZ050	USB Cable 1m
937179T	Footswitch for SPC
965516	GO/±NG judgement cable, for external device, 2m
011037	Battery LR6 (AA) 4x

09EAA084 and 965516 can not be used simultaneously.

```

Mitutoyo
* DP-1VA *
* MODE 1 *
DATE 2018 / 2/27
TIME 10:43
*LIMIT DATA 1*
LSL 26.44 mm
USL 27.00 mm
TOL 0.56 mm
1 27.02 mm
2 26.43 mm
3 26.42 mm
4 26.56 mm
5 26.56 mm
6 26.63 mm
7 26.62 mm
8 26.46 mm
9 26.48 mm
10 26.70 mm
PART NO.:
DATE 2018 / 2/27
TIME 10:43
NAME:
* RESULT *
N 27.02 mm
MAX 27.02 mm
MIN 26.42 mm
R 0.60 mm
X 26.5900 mm
S 0.1673 mm
O-1 0.1764 mm
-NG 2
+NG 1
P 30.000 %
Cp 0.529
Cpk 0.268
* HISTOGRAM *
LSL 26.44 mm
USL 27.00 mm
TOL 0.56 mm
DIV 10
-NG 2
+NG 1
A
B
C
D
E
F
G
H
I
J
26.4400 mm -
26.4900 mm -
26.5200 mm -
26.5079 mm -
26.5639 mm -
26.7199 mm -
26.7799 mm -
26.8319 mm -
26.8879 mm -
26.9439 mm -
27.0000 mm -

```

Mode 0

GO/±NG judgment

Modes 1,2

N: Number of data  
MAX: Maximum value  
MIN: Minimum value  
R: Range  
X: Average value  
S: Standard deviation of the sample (N)  
O-1: Sample standard deviation (N-1)  
-NG: Number of data smaller than lower limit value  
+NG: Number of data larger than upper limit value  
P: Fraction defective  
Cp: Process capability index  
Cpk: Process capability index (process target centered)

```

Mitutoyo
* DP-1VA *
* MODE 2 *
DATE 2018 / 2/27
TIME 10:44
*LIMIT MODE*
*LIMIT DATA 1*
*NO LIMIT DATA*
LIMIT1 26.86 mm
LIMIT2 27.44 mm
*NEW LIMIT DATA*
*LIMIT DATA 1*
DATE 2018 / 2/27
TIME 10:44
LSL 26.86 mm
USL 27.44 mm
TOL 0.58 mm
L C U
27.41mm |
27.31mm | |
27.51mm | | |
27.36mm | | |
27.07mm | | |
27.06mm | | |
27.14mm | | |
27.14mm | | |
27.17mm | | |
27.35mm | | |
10 |
27.35mm | | |
27.42mm | | |
27.47mm | | |
27.46mm | | |
27.49mm | | |
PART NO.:
DATE 2018 / 2/27
TIME 10:44
NAME:
* RESULT *

```

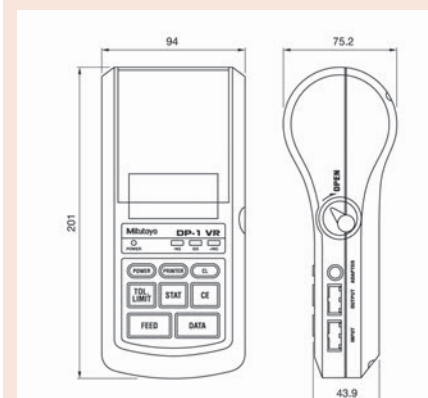
Mode 3

N: Number of data  
MAX: Maximum value  
MIN: Minimum value  
n: Number of subgroup (Max.10)  
X: Average value of subgroup  
R: Range of subgroup  
X: Mean value  
X-UCL: Upper control limit  
R: Mean (R control)  
R-UCL: Upper control limit (R control)  
R-LCL: Lower control limit (R control)

```

Mitutoyo
* DP-1VA *
* MODE 3 *
DATE 2018 / 2/27
TIME 10:45
SUB GR. NO. 1
1 27.54 mm
2 28.30 mm
3 27.71 mm
4 26.95 mm
5 27.43 mm
6 27.94 mm
7 27.27 mm
X 27.7914 mm
R 1.08 mm
PART NO.:
DATE 2018 / 2/27
TIME 10:45
NAME:
SUB GR. NO. 2
1 28.28 mm
2 28.07 mm
3 26.86 mm
4 29.20 mm
5 29.59 mm
6 30.11 mm
7 30.76 mm
X 29.2343 mm
R 2.71 mm
PART NO.:
DATE 2018 / 2/27
TIME 10:45
NAME:
*CONTROL LIMIT*
DATE 2018 / 2/27
TIME 10:45
NO. OF SUB GR. 2
SAMPLE SIZE 7
X 26.5129 mm
X-UCL 29.3059 mm
X-LCL 27.7159 mm
R 1.9950 mm

```



# Digimatic Data Cables

These data cables enable the connection of measuring instruments with a Digimatic interface to a PC – directly via USB or an interface box (e.g. DMX-Box). A wireless connection with U-WAVE-T transmitter is possible by using a connection cable.

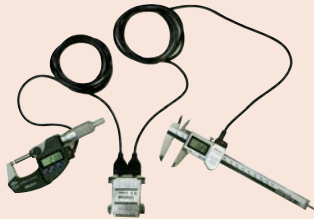
Your choice of Digimatic Data Cables (numbers refer to below schemes):

- USB Input Tool Direct Cable (1)
- Digimatic Cable and Interface Box or Printer DP-1 (2)
- U-WAVE-T Wireless System (3)

Please find the appropriate cables for your particular Digimatic measuring instrument in the "Optional Accessories" section of its catalogue entry.



(1)  
USB Input Tool Direct Cable  
2 m



(2)  
Standard Digimatic Cable  
1 m or 2 m

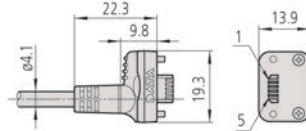


(3)  
U-WAVE Connection Cable  
(Standard)

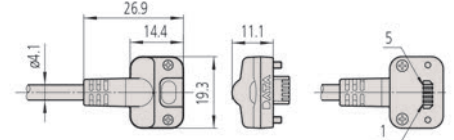


(3)  
U-WAVE Connection Cable  
with Footswitch Connector  
(FSW)

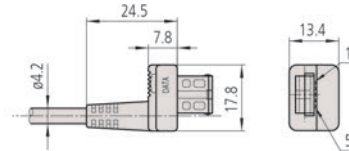
(1) 06AFM380A (2) 05CZA624 (1 m)  
05CZA625 (2 m) (3) 02AZD790A (Standard)  
02AZE140A (FSW)



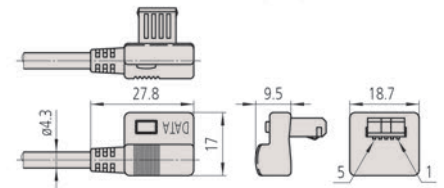
(1) 06AFM380B (2) 05CZA662 (1 m)  
05CZA663 (2 m) (3) 02AZD790B (Standard)  
02AZE140B (FSW)



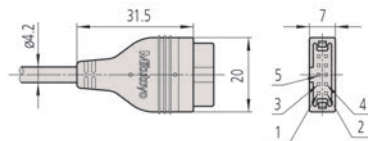
(1) 06AFM380C (2) 959149 (1 m)  
959150 (2 m) (3) 02AZD790C (Standard)  
02AZE140C (FSW)



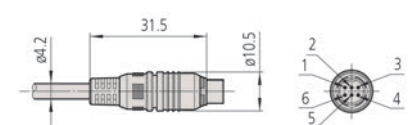
(1) No applicable models (2) 04AZB512 (1 m)  
04AZB513 (2 m) (3) No applicable models



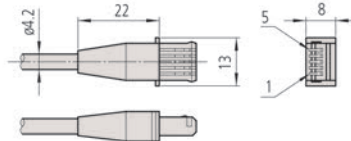
(1) 06AFM380D (2) 936937 (1 m)  
965014 (2 m) (3) 02AZD790D (Standard)  
02AZE140D (FSW)



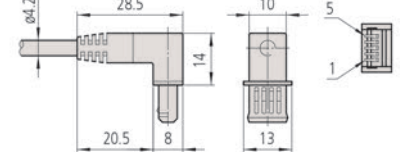
(1) 06AFM380E (2) 937387 (1 m)  
965013 (2 m) (3) 02AZD790E (Standard)  
02AZE140E (FSW)



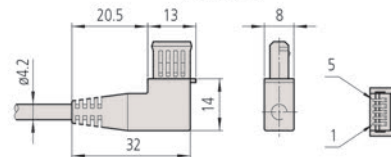
(1) 06AFM380F (2) 905338 (1 m)  
905409 (2 m) (3) 02AZD790F (Standard)  
02AZE140F (FSW)



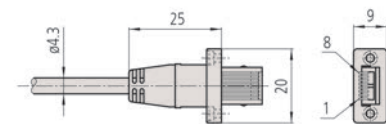
(1) No applicable models (2) 905689 (1 m)  
905690 (2 m) (3) No applicable models



(1) No applicable models (2) 905691 (1 m)  
905692 (2 m) (3) No applicable models



(1) 06AFM380G (2) 21EAA194 (1 m)  
21EAA190 (2 m) (3) 02AZD790G (Standard)  
02AZE140G (FSW)



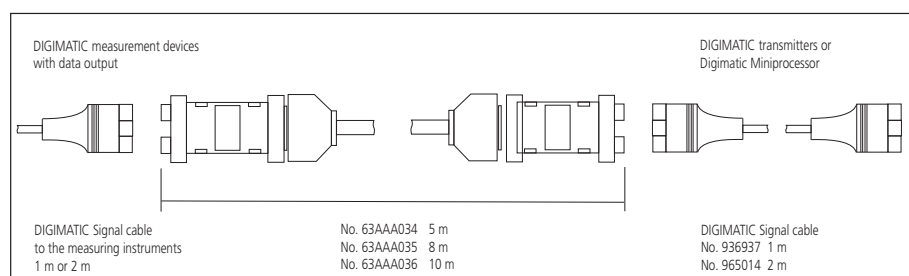
# Digimatic Extension Cables

## Series 63

- These extension cables allow you to extend Digimatic data cables up to 14 metres, extending the working distance between a measuring instrument and an external device such as a PC or DP-1VR.



63AAA036



No.	Length [m]
63AAA034	5
63AAA035	8
63AAA036	10

## Optional accessories

No.	Description
936937	Digimatic Cable, Flat 10-Pin Type, 1m
965014	Digimatic Cable, Flat 10-Pin Type, 2m



# USB Input Tool Direct (Digimatic-USB cable)

## Specifications

Cable length	2 m
Output	USB (HID/VCP)
OS compatibility	Windows® 2000 Professional (≥SP4), Windows® XP Professional (≥SP2), Windows® XP Home Edition (≥SP2), Windows Vista®/7 (32bit,64bit), Windows® 8, 8.1, 10 (32bit,64bit)
Max connectable devices	Microsoft® Windows® 2000, XP: 100 cables, Windows® Vista®, 7, 8, 8.1, 10: 20 cables

## Optional accessories

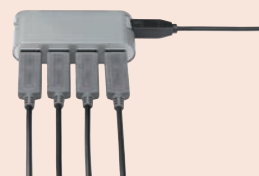
No.	Description
06AFM386	USB-ITPAK Version 2.1, Software with Dongle
937179T	Footswitch for SPC
06ADV384	USB Input Tool Direct, Footswitch Adapter



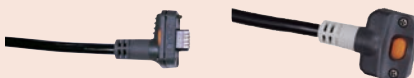
06AFM380C



937179T and 06ADV384



Common USB Hub



06AFM380A



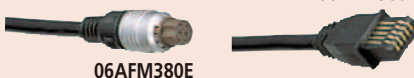
06AFM380B



06AFM380C



06AFM380D



06AFM380E



06AFM380F



06AFM380G



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## Series 06AFM

This input tool allows you to directly connect Digimatic measuring devices to a USB interface, without needing additional software.

The USB Input Tool Direct offers the following benefits:

- Measurement data is converted into keyboard codes, enabling interaction with any program working with keyboard entries (HID).
- You can also connect to a USB with fixed COM assignment in Microsoft® Windows® as channel identification (VCP).
- The USB-ITPAK software lets you easily create Microsoft® Excel® worksheets.
- Multi-channel input for measurement values, Microsoft® Excel®.
- Cables can be cascaded via a standard USB hub.



## Data cable USB

No.	Model	Remarks
06AFM380A	A	IP USB Input Tool Direct Cable Straight With Data Switch (2m) e.g. for IP67 Caliper
06AFM380B	B	IP USB Input Tool Direct Cable Back Side With Data Switch (2m) e.g. for IP65 Micrometer
06AFM380C	C	USB Input Tool Direct Cable Straight With Data Switch (2m) e.g. for Standard Absolute Caliper
06AFM380D	D	USB Input Tool Direct Cable Plain (2m) e.g. for ID-H/ID-F Indicator
06AFM380E	E	USB Input Tool Direct Cable Round (2m) e.g. for Caliper Gauge Series 209
06AFM380F	F	USB Input Tool Direct Cable Straight (2m) e.g. for ID-C/ID-S Indicator
06AFM380G	G	IP USB Input Tool Direct Cable ID-N/ID-B (2m)

## Advantages of the new Digimatic USB connections

Application	Situation	Software USB-ITPAK	Data format	Remarks
Arbitrary software which expects a keyboard code	Only a USB Input tools signal cable required.	Software is not needed.	Measured value as keyboard format (HID = Human Interface Device)	Foot switch can not be connected.
Commercial statistics software like e.g. Mitutoyo MeasurLink	A USB input tools signal cable and the software USB ITPAK are required.	For each measuring instrument (cable) a fixedly assigned virtual COM-Port is generated once; afterwards Software USB IT PAK becomes inactive.	MUX-10 Specification (e.g. 01A+138626) with fixed COM assignment as channel identification	
Arbitrary software, which expects a keyboard code e.g. Word, txt-format		- Connected measuring instruments and foot switches are selected and assigned. - Terminator is determined. - Procedure is registered as a part program	Transmission of a measured value in text format (VCP = as virtual COM port)	
Microsoft® Excel®		- Connected measuring instruments and foot switches are selected and assigned. - Performs organization of the Microsoft® Excel®-table, i.e. the transferred measured values are written into the pre-defined cells.	Measuring report Microsoft® Excel®-format and character sequence of max. 31 characters (e.g. text input)	



# Wireless Communication System: U-WAVE

## U-WAVE and U-WAVE fit - Wireless Data transmission system



- Approx. 20 m (within visible range).
- Communication frequency: 2,4GHz wireless system for reliable and secure data transmission.
- Easy data export to Easy data export to Microsoft® Excel® or other professional SPC software applications like Mitutoyo MeasurLink.
- Transmitter confirms data transfer by a buzzer sound or a red/green LED signal.
- An IP67 transmitter is available.
- Low power consumption: 400000 data transmissions with one battery.
- By using optional software (U-WAVE Event) it will also support a data request from a PC. This is ideal if the system is installed at an inaccessible side.

### Specifications

Wireless communication protocol	Proprietary (2,4 GHz by original specification based on IEEE 802.15.4)
Modulation method	DS-SS (Direct Sequence Spread Spectrum)
Communication distance	Approx. 20 m (within visible range)
Communication speed kbps	250
Communication with measuring tool	Digimatic (6 digits), Digimatic 2 (8 digits) automatic identification
Communication frequency	2,4 GHz band (2,405-2,475 GHz, 15 channels (5 MHz interval))
Transmission output	2,5 mW (4 dBm) or below
OS compatibility	Windows® 2000 Professional (≥SP4), Windows® XP Professional (≥SP2), Windows® XP Home Edition (≥SP2), Windows Vista®, Windows® 7 (32bit, 64bit), Windows® 8, 8. 1, 10 (32bit, 64bit)



PC with U-WAVE-R (Receiver)



For Caliper U-WAVE-TC with Connection Unit



For Micrometer U-WAVE-TM with Connection Unit



For miscellaneous measuring instruments U-WAVE-T with Connection Cable

# Wireless Communication System: U-WAVE

## U-WAVE-T and U-WAVE-TC/TM (U-WAVE fit) - Wireless Data transmission system

### Specifications

Wireless communication protocol	Proprietary (2,4 GHz by original specification based on IEEE 802.15.4)
Modulation method	DS-SS (Direct Sequence Spread Spectrum)
Communication distance	Approx. 20 m (within visible range)
Communication speed kbps	250
Communication with measuring tool	Digimatic (6 digits), Digimatic 2 (8 digits) automatic identification
Communication frequency	2,4 GHz band (2,405-2,475 GHz, 15 channels (5 MHz interval))
Transmission output	2,5 mW (4dBm) or below
OS compatibility	Windows® 2000 Professional (≥SP4), Windows® XP Professional (≥SP2), Windows® XP Home Edition (≥SP2), Windows Vista®, Windows® 7 (32bit, 64bit), Windows® 8, 8. 1, 10 (32bit, 64bit)

### Standard accessories

No.	Description
05SAA217D	Lithium battery CR-2032, 1 pcs.

### Optional accessories

No.	Description
06AFM386	USB-ITPAK Version 2.1, Software with Dongle
02NDB003	U-WAVE Event Drive, 64 bit Version



02AZD810D  
U-WAVE-R (receiver)



264-622 + 02AZF310  
U-WAVE-TM + Connection Unit

264-620 + 02AZF310  
U-WAVE-TC + Connection Unit

### U-WAVE-R (Receiver) for all Mitutoyo Transmitter

No.	Type	Remarks	Software	Number of U-WAVE-R units that can be connected to PC	Number of U-WAVE-T units that can be connected	USB Cable length [m]	Mass [g]
02AZD810D	U-WAVE-R	U-WAVE-R + Software	U-WAVE PAK	Up to 16	Up to 100	1	130

\*For details of connectable measuring instruments please contact Mitutoyo or distributor

### U-WAVE-TC/TM (transmitter) for caliper and micrometer

No.	Type	Measuring Instruments*	Remarks	Data reception indication	Mass [g]
264-620	U-WAVE-TC	100, 150, 200, 300 mm IP67 caliper/standard caliper	IP67 model	LED (green, red, orange)	20
264-621	U-WAVE-TC	100, 150, 200, 300 mm IP67 caliper/standard caliper	Buzzer model	Buzzer and LED (green, red, orange)	20
264-622	U-WAVE-TM	COOLANT PROOF (IP65) micrometer	IP67 model	LED (green, red, orange)	20
264-623	U-WAVE-TM	COOLANT PROOF (IP65) micrometer	Buzzer model	Buzzer and LED (green, red, orange)	20
02AZF300	Connection Unit (Standard type)		Standard type		6
02AZF310	Connection Unit (Waterproof type)		Waterproof type		6

\*For details of connectable measuring instruments please contact Mitutoyo or distributor



Transmitter and connector for Caliper  
(U-WAVE-TC + 02AZF300)



Transmitter and connector for Micrometer  
(U-WAVE-TM + 02AZF310)

# Wireless Communication System: U-WAVE

U-WAVE-T and U-WAVE-TC/TM (U-WAVE fit) - Wireless Data transmission system



02AZD730G + 02AZD790A  
U-WAVE-T and Connection Cable

U-WAVE-T for miscellaneous instruments

No.	Type	Measuring Instruments*	Remarks	Data reception indication	Mass [g]
02AZD730G	U-WAVE-T for miscellaneous instruments	Indicator, 3-Point Inside Micrometer, Carbon Fibre Caliper, Height Gauge, a.s.o	IP67 model	LED	23
02AZD880G	U-WAVE-T for miscellaneous instruments	Indicator, 3-Point Inside Micrometer, Carbon Fibre Caliper, Height Gauge, a.s.o	Standard model	LED and Buzzer	23

\*For details of connectable measuring instruments please contact Mitutoyo or distributor



Transmitter and connection cables

Application with Digital Indicator

(connection cables, see next page)



Application with Carbon Fibre Caliper



Application with Height Gauge



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## Specifications

Wireless communication protocol	Proprietary (2,4 GHz by original specification based on IEEE 802.15.4)
Modulation method	DS-SS (Direct Sequence Spread Spectrum)
Communication distance	Approx. 20 m (within visible range)
Communication speed kbps	250
Communication frequency	2,4 GHz band (2,405-2,475 GHz, 15 channels (5 MHz interval))
Communication with measuring tool	Digimatic (6 digits), Digimatic 2 (8 digits) automatic identification
Transmission output	2,5 mW (4 dBm) or below
OS compatibility	Windows® 2000 Professional (≥SP4), Windows® XP Professional (≥SP2), Windows® XP Home Edition (≥SP2), Windows Vista®, Windows® 7 (32bit, 64bit), Windows® 8, 8. 1, 10 (32bit, 64bit)

## Standard accessories

No.	Description
05SAA217D	Lithium battery CR-2032, 1 pcs.

## Optional accessories

No.	Description
06AFM386	USB-ITPAK Version 2.1, Software with Dongle
02NDB003	U-WAVE Event Drive, 64 bit Version
02AZE200	Holder for U-WAVE T
02AZE990	U-WAVE-T Mounting Plate
63BAA057	U-WAVE T External Power Supply Adapter

## Consumable spares

No.	Description
05SAA217D	Lithium battery CR-2032, 1 pcs.

By using optional Software (U-WAVE Event Drive) it will also support a data request from a PC.

This is ideal if the system is installed at an inaccessible side.

The Event Drive Mode will reduce the battery life.

With power supply adapter (63BAA057) external power supply can be provided.

# U-WAVE-T Connection Cables

## Series 02AZD / 02AZE

- This connecting cable connects a measuring tool to its U-WAVE T unit. Choose the appropriate cable for your measuring tool from the seven types below, A to G.

### Standard accessories

No.	Description
02AZD770	Clip for Cable Fixing - U-WAVE T
05CZA619	Screw Driver

### Optional accessories

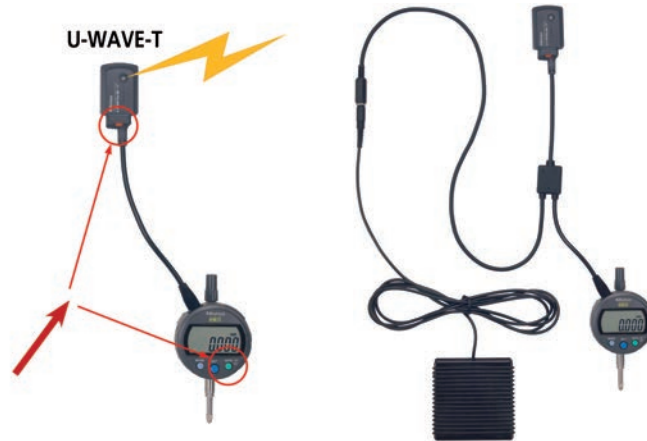
No.	Description
06AFM386	USB-ITPAK Version 2.1, Software with Dongle
02NDB003	U-WAVE Event Drive, 64 bit Version
02AZE200	Holder for U-WAVE T
02AZE990	U-WAVE-T Mounting Plate
63BAA057	U-WAVE T External Power Supply Adapter
937179T	Footswitch for SPC



**02AZE200**  
Holder for U-WAVE-T  
for Indicator, Carbon  
Fibre Caliper



**02AZE990**  
Holder for U-WAVE-T  
for QM-Height



Cable without footswitch connection

Cable with footswitch connection  
Footswitch: 937179T (optional)

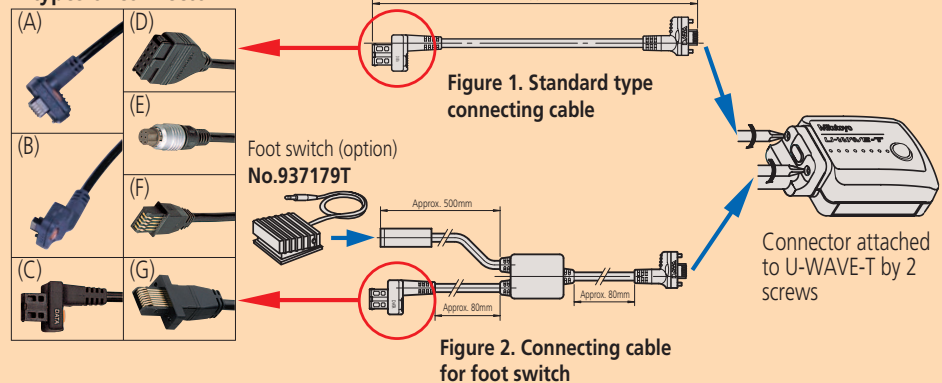
### 1 Cable without footswitch connection

No.	Model	Remarks
02AZD790A	A	IP U-WAVE Data Cable Straight with Data Switch e.g. for IP66 Carbon Fibre Caliper
02AZD790B	B	IP U-WAVE Data Cable Back Side with Data Switch e.g. for IP65 Holtest
02AZD790C	C	U-WAVE Data Cable Straight with Data Switch e.g. for Height Gauge
02AZD790D	D	U-WAVE Data Cable Plain e.g. for ID-H/ID-F Indicator
02AZD790E	E	U-WAVE Data Cable Round e.g. for Digital Caliper Gauge Series 209
02AZD790F	F	U-WAVE Data Cable Straight e.g. for ID-C/ID-S Indicator
02AZD790G	G	IP U-WAVE Data Cable e.g. for ID-N/ID-B Indicator

### 2 Cable with footswitch connection

No.	Model	Remarks
02AZE140A	A	IP U-WAVE Data Cable Straight with Data Switch/FootSwitch Connector e.g. for IP66 Carbon Fibre Caliper
02AZE140B	B	IP U-WAVE Data Cable Back Side with Data Switch/FootSwitch Connector e.g. for IP65 Holtest
02AZE140C	C	U-WAVE Data Cable Straight with Data Switch/FootSwitch Connector e.g. for Height Gauge
02AZE140D	D	U-WAVE Data Cable Plain with FootSwitch Connector e.g. for ID-H/ID-F Indicator
02AZE140E	E	U-WAVE Data Cable Round with FootSwitch Connector e.g. for Digital Caliper Gauge Series 209
02AZE140F	F	U-WAVE Data Cable Straight with FootSwitch Connector e.g. for ID-C/ID-S Indicator
02AZE140G	G	IP U-WAVE Data Cable with FootSwitch Connector e.g. for ID-N/ID-B Indicator

### 7 types of connector





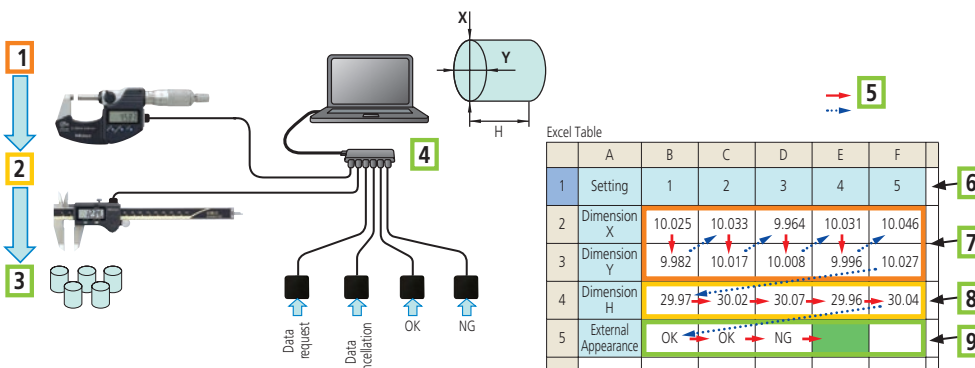
# USB-ITPAK

## Series 06AFM

- USB-ITPAK is a setting and data collection software for collection data from measuring instruments with Digimatic/Digimatic 2 output for entry to Microsoft® Excel®.
- USB Input Tool Direct cable, U-WAVE Wireless communication system and USB Footswitch adapter can be used to send the data to a Microsoft® Excel® worksheet.

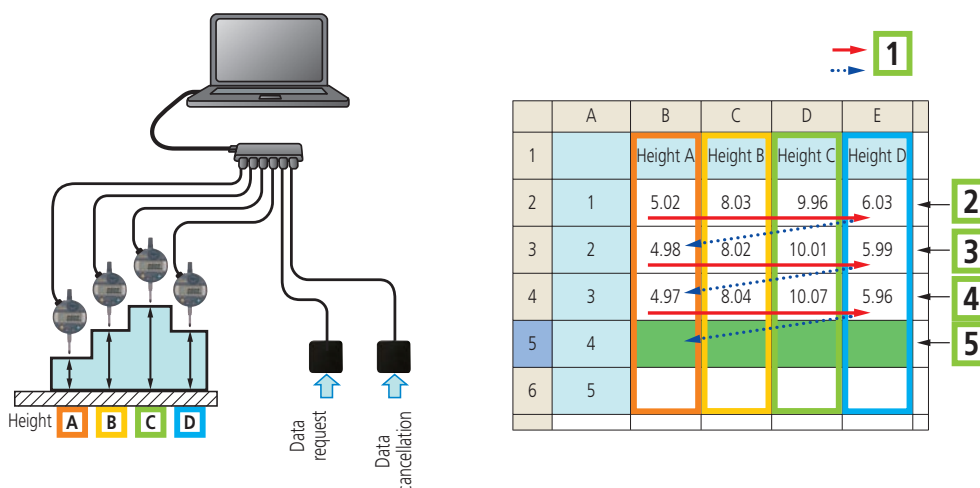


No.	Remarks
06AFM386	Can be used for Wireless Communication (U-WAVE), USB Input Tool Direct Cable and USB-Input Tool No. 264-016-10



### Sequential Measurement

- 1: Micrometer for diameters X and Y; 2: Caliper for height measurement H; 3: Inspection by attributes OK/NG with foot switch e.g. scratches in the surface; 4: standard USB-Hub; 5 Measurement direction; 6: Workpiece No.
- 7: Measuring result X/Y; 8: Measuring result H; 9: OK/NG judgement (e.g. scratches)

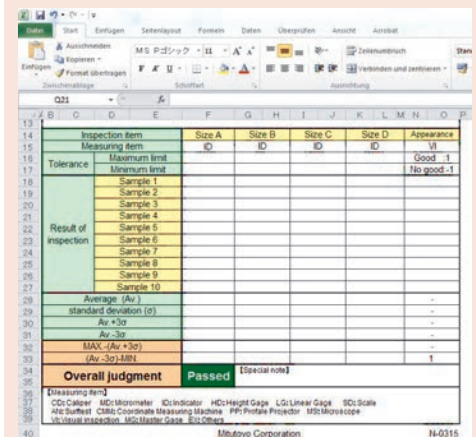


### Simultaneous Measurement

- 1: Measurement direction; 2: First measurement: press foot switch once = 4 complete data batches;
- 3: second measurement: press foot switch once = 4 complete data batches; 4: third measurement: press foot switch once = 4 complete data batches; 5: is waiting for the next batch measurement

### Specifications

OS compatibility	Windows® 2000 Professional (≥SP4), Windows® XP Professional (≥SP2), Windows® XP Home Edition (≥SP2), Windows Vista®/7 (32bit,64bit), Windows® 8, 8.1, 10 (32bit,64bit)
Applicable MS Excel Version	Microsoft® Excel® 2002/2003/2007/2010/2013/2016
Functions	- setting of Microsoft® Excel® input (workbook, worksheet, cell range a.s.o.) - data collection: USB Input Tool Direct cable wireless communication system U-WAVE - selection of measuring input (sequential, simultaneous, individual) - control of data input (mouse, foot switch, keyboard) - character string input by foot switch - timer function - measurement time input
Language for display	English, German, French, Italian, Spanish, Turkish, Czech, Polish, Hungarian, Swedish, Russian, Japanese, Korean, Simplified Chinese, Traditional Chinese
Delivered	License Key, Software CD



Microsoft® Excel® Worksheet waiting for data



Scan QR Code with your mobile device and watch our product videos on YouTube



# USB Input Tool

## Specifications

Dimensions (WxDxH)	38 x 64 x 21 mm
Cable length	1 m
Power supply	Bus power
Max. connectable devices	Microsoft® Windows® 2000, XP: 100 cables, Windows® Vista®, 7, 8, 8. 1, 10: 20 cables
OS compatibility	Microsoft® Windows® 2000, XP, Vista®, 7, 8, 8. 1, 10 (32bit, 64bit)

## Optional accessories

No.	Description
937179T	Footswitch for SPC
06AFM386	USB-ITPAK Version 2.1, Software with Dongle

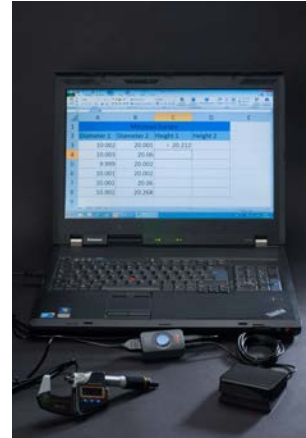
	A	B	C	D	E
1	Height	Diameter 1	Diameter 2		
2	0.000	0.000	0.000		
3	2.734	5.031	13.526		
4	2.700	5.036	13.525		
5	2.701	5.036	13.525		
6	2.701	5.037	13.525		
7	2.702	5.037	13.525		
8	2.702	5.037	13.433		
9	2.702	5.037	13.432		
10	2.701	4.940	13.432		
11	2.357	4.940	12.129		

## Series 264 - Keyboard Interface

The input tool allows you to directly connect Digimatic measuring devices to a USB interface, without needing additional software.

The USB Input Tool Direct offers the following benefits:

- Measurement data is converted into keyboard codes, enabling interaction with any program working with keyboard entries. (HID)
- You can also connect to a USB with fixed COM assignment in Microsoft Windows as a channel identification (VCP) with USB IT PAK software only.
- The USB-IT PAK software lets you easily create Microsoft Excel worksheets.



264-016-10

No.	Data input	Data output	Output decimal mark	Footswitch connector	Mass [g]
264-016-10	1x Digimatic/ Digimatic 2	USB Virtual COM-Port (VCP) with USB IT PAK, USB keyboard signal (HID)	Emulates the local setting	Yes	56

# DMX-3T / FS2 USB

## Series 63 - Keyboard Interface

- The DMX-3 T/FS2 USB is a keyboard interface that transmits measurement data from measuring instruments equipped with Digimatic interfaces to a PC. Measurement data is converted into keyboard codes, allowing you to easily access it with any program working with keyboard entries, regardless of the operating system. The USB and data conversation interfaces also allow you to directly input the measurement data into a spreadsheet.



63AAA041

rear panel

## Specifications

Dimensions (WxDxH)	112 x 122 x 45 mm
Power supply	5 V from the USB
Timer function	0-99 s (1s step) or 0-99 min
OS compatibility	Microsoft® Windows® 2000, XP, Vista®, 7, 8, 8. 1, 10 (32bit, 64bit)
Max. no. of cascable interface	3 via optional link cable

## Optional accessories

No.	Description
937179T	Footswitch for SPC
63AAA105	Link Cabel DMX-3T/FS2

	A	B	C	D	E
1	Height	Diameter 1	Diameter 2		
2	0.000	0.000	0.000		
3	2.734	5.031	13.526		
4	2.700	5.036	13.525		
5	2.701	5.036	13.525		
6	2.701	5.037	13.525		
7	2.702	5.037	13.525		
8	2.702	5.037	13.433		
9	2.702	5.037	13.432		
10	2.701	4.940	13.432		
11	2.357	4.940	12.129		

No.	Data input	Data output	Output decimal mark	Footswitch connector	Mass [g]
63AAA041	3 x Digimatic	USB keyboard signal (HID)	point or comma (selectable)	Yes	330

# DMX-1

## Series 63

This DMX-1 D-SUB9 serial interface is a microcontrolled interface for connecting one single measurement device, with Digimatic output, to the RS-232C interface of a computer.

The DMX-1 offers the following benefits:

- Easily connect a measuring device to a computer's RS-232C serial port.
- No external power supply is needed, as the small level of power needed is supplied by the handshake lines RTS and DTR.

No.	Data input	Data output	Footswitch connector	Interface cable connection	Baud rate	Data bits	Stop bits	Parity
63AAA029	1 x Digimatic	RS-232C	Yes	D-SUB 9	9600	8	1	none

# DMX-1 USB

## Series 63

- The DMX-1 USB is a micro-controlled interface for connecting 1 Digimatic-output measurement device to the USB interface of a computer. The device appears as a virtual COM-PORT (VCP) to the computer.



No.	Data input	Data output	Footswitch connector	Interface cable connection	Baud rate	Data bits	Stop bits	Parity
63AAA040	1 x Digimatic	USB virtual COM-Port (VCP)	Yes	USB	9600	8	1	none

# DMX-2 S

## Series 63

This DMX-2 S D-SUB5 serial interface is a microcontrolled interface for connecting two measurement devices, with Digimatic output, to the RS-232C serial port of a computer.

The DMX-2 S offers the following benefits:

- Easily connect two measuring devices to a computer's RS-232C serial port.
- No external power supply is needed, as the small level of power needed is supplied by the handshake lines RTS and DTR.



No.	Data input	Data output	Footswitch connector	Interface cable connection	Baud rate	Data bits	Stop bits	Parity
63AAA038	2 x Digimatic	RS-232C	Yes	D-SUB 25	9600	8	1	none

### Specifications

Dimensions (WxDxH)	58 x 62 x 18 mm
--------------------	-----------------

### Optional accessories

No.	Description
937179T	Footswitch for SPC
63AAA027	RS-232C Signal Cable, D-Sub9-D-Sub9, 2m



63AAA029

### Specifications

OS compatibility	Microsoft® Windows® 2000, XP, Vista®, 7, 8, 1, 10 (32bit, 64bit)
Dimensions (WxDxH)	33 x 57 x 20 mm
Delivered	USB cable (1.8 m) Driver Software

### Optional accessories

No.	Description
937179T	Footswitch for SPC

### Specifications

Dimensions (WxDxH)	58 x 62 x 18 mm
--------------------	-----------------

### Optional accessories

No.	Description
63AAA108	RS-232C Signal Cable, D-Sub-25-D-Sub-9, 2m
63AAA028	Adapter D-Sub25-D-Sub9, 0,2m
937179T	Footswitch for SPC



Sample application with footswitch (optional accessory)

## DMX-2 USB

### Specifications

OS compatibility	Microsoft® Windows® 2000, XP, Vista®, 7, 8, 8. 1, 10 (32bit, 64bit)
Output decimal mark (HID)	point or comma
Dimensions (WxDxH)	61 x 76 x 35 mm
Delivered	USB cable (1.8 m) Driver Software

### Optional accessories

No.	Description
937179T	Footswitch for SPC

### Series 63

Connecting two measurement devices, with Digimatic-output, to a USB port.

The DMX-2 USB offers the following benefits:

- It appears either as a virtual COM-Port (VCP) or as a keyboard (HID) on the computer.
- It has a mode switch available to easily swap between keyboard format (HID) and virtual COM-Port (VCP).



63AAA037



rear panel

No.	Data input	Data output	Footswitch connector	Interface cable connection	Baud rate	Data bits	Stop bits	Parity
63AAA037	2 x Digimatic	USB virtual COM-Port (VCP) USB keyboard signal (HID) (switchable on the box)	Yes	USB	9600	8	1	none

## DMX-3 USB

### Specifications

OS compatibility	Microsoft® Windows® 2000, XP, Vista®, 7, 8, 8. 1, 10 (32bit, 64bit)
Dimensions (WxDxH)	170 x 128 x 55 mm
Delivered	USB cable (1.8 m) Driver Software AC Adapter (only for serial cable connection)

### Optional accessories

No.	Description
937179T	Footswitch for SPC
63AAA027	RS-232C Signal Cable, D-Sub9-D-Sub9, 2m

### Series 63

The DMX-3 3 channel USB VCP interface/ D-SUB9 serial interface is a microcontrolled interface that connects three measurement devices, with Digimatic output, to either the RS-232C serial port or USB port of a computer.

The DMX-3 USB offers the following benefits:

- If the USB output is used, the measuring device will appear as a virtual COM-Port (VCP) on the computer.
- Power is supplied by an AC/DC adapter, which is a standard accessory only required for serial cable D-Sub 9 connection.



63AAA039



rear panel

No.	Data input	Data output	Foot-switch connector	Interface cable connection	Baud rate	Data bits	Stop bits	Parity
63AAA039	3 x Digimatic	USB virtual COM-Port (VCP), RS-232C	Yes	For serial cable: D-SUB 9 for USB: cable type B	1200/9600 (adjustable with jumper)	8	1	none

# MUX-10F

## Series 264

The MUX-10F 4 channel D-SUB9 serial interface is a microcontrolled interface that connects four measurement devices, with Digimatic output, to the RS-232C serial port of a computer.

- You can connect four measurement devices to an RS-232C serial port.



264-002D



rear panel

No.	Data input	Data output	Interface cable connection	Footswitch connector	Baud rate	Data bits	Stop bits	Parity
264-002D	4 x Digimatic	RS-232C	D-SUB 9	Yes	300, 600, 1200, 2400, 9600, 19200	8	1	none

# DMX-8/2

## Series 63

The DMX-8/2 8 channel D-SUB9 serial interface is a microcontrolled interface for connecting eight measurement devices, with Digimatic output, to the RS-232C serial port of a computer. The DMX-8/2 model provides power and an ABS/Zero button to operate Series 575 ABS Linear Gauges.



63AAA033



rear panel

No.	Data input	Data output	Footswitch connector	Interface cable connection	Baud rate	Data bits	Stop bits	Parity
63AAA033	8 x Digimatic	RS-232C	Yes	D-SUB 9	9600	8	1	none

# DMX-16 / DMX-16C

## Series 63

- The DMX-16/16C is a micro controlled Interface for connecting 16 Digimatic output measurement devices to the RS-232C interface of a computer
- DMX-16C features integrated microprocessors for data processing, thus enabling simultaneous input and output from all measurement instruments and increasing data processing speed.
- The DMX-16 and DMX-16C provides power and an ABS/ZERO button to operate Series 575 ABS Linear Gauges

No.	Remarks	Type	Data input	Data output	Interface cable connection	Foot-switch connector	Baud rate	Data bits	Stop bits	Parity
63AAA026	successive data reception	DMX-16	16 x Digimatic	RS-232C	D-SUB 9	Yes	9600	8	1	none
63AAA106	simultaneous data reception	DMX-16C	16 x Digimatic	RS-232C	D-SUB 9	Yes	9600	8	1	none

### Specifications

Dimensions (WxDxH)	91,4 x 92,5 x 50,4 mm
Delivered	AC Adapter

### Optional accessories

No.	Description
937179T	Footswitch for SPC
63AAA027	RS-232C Signal Cable, D-Sub9-D-Sub9, 2m

### Specifications

Power supply	220-240V 50Hz
Dimensions (WxDxH)	158 x 204 x 66 mm
Delivered	Power cable

### Optional accessories

No.	Description
937179T	Footswitch for SPC
63AAA027	RS-232C Signal Cable, D-Sub9-D-Sub9, 2m

### Specifications

Power supply	220-240V 50 Hz
Dimensions (WxDxH)	225 x 204 x 75 mm
Delivered	Power cable

### Optional accessories

No.	Description
937179T	Footswitch for SPC
63AAA027	RS-232C Signal Cable, D-Sub9-D-Sub9, 2m



63AAA106



rear panel



## DMX-3-2 USB

### Specifications

Timer function	interval 0-99 s or 0-99 min
Mitutoyo measuring instruments with RS232C output	KA-Counter Protractor Series 950 EH, EF, EV-Counter Printer DP1-VA Linear Height LH-600 QM-Data 200 Litematic VL-50 Laser Scan Micrometer LSM QM-Height MF-Microscope Series PJ A3000 Projector PJ H30 Projector ID-H Indicator
OS compatibility	Microsoft® Windows® 2000, XP, Vista®, 7, 8, 8.1, 10 (32bit, 64bit)
Output decimal mark (HID)	point or comma
Dimensions (WxDxH)	170 x 128 x 55 mm
Max. no. of cascable interface	3 via optional link cable
Delivered	USB cable (1.8 m) Driver Software

### Optional accessories

No.	Description
937179T	Footswitch for SPC
63AAA105	Link Cabel DMX-3T/FS2

### Specifications

Power supply	AC-Adaptor 10 V, 120 mA or USB bus power
Timer function	1 s-99 h 59 min 59 s (100 h)
Dimensions (WxDxH)	55 x 58 x 31 mm
Timer tolerance	±8 s/24 h
Delivered	USB connection cable (0,8 m) AC adaptor Footswitch cable TTB1 (0,52 m)
Mass	84 g



Sample application with DMX Box

### Series 63

This DMX-3-2 USB is a three channel USB interface for connecting three measurement devices, with Digimatic output, and two devices with RS232C output (such as the Mitutoyo QM-Data 200) to the USB interface of a computer.

The DMX-3-2 USB offers the following benefits:

- It can connect more than 70 different measuring instruments with RS232C output, including Mitutoyo devices as well as other brands (a list is available on request).
- The interface converts the different signals from the connected measuring instruments into the same format: keyboard signal (HID) or virtual COM-Port MUX-10 or MUX-50 (VCP).



63AAA042



Rear panel

No.	Data input	Data output	Footswitch connector	Interface cable connection	Baud rate	Data bits	Stop bits	Parity
63AAA042	3 x Digimatic 2 x RS-232C	USB virtual COM-Port (VCP) USB keyboard signal (HID)	Yes	USB	9600	8	1	none

## Digimatic Timerbox

### Series 63

This timerbox allows you to connect to the footswitch connector of a Mitutoyo interface to trigger data transfer, based on a time interval.

The Digimatic Timerbox offers the following benefits:

- Software neutral for all applications.
- It can be used with all Mitutoyo interfaces featuring 3,5mm TRS Foot switch connectors (Mono) such as USB Input Tool Direct.
- It works as a time-controlled footswitch.



63AAA107



Sample application with USB Input Tool Direct

No.
63AAA107



# Digimatic Display Unit

## Series 542

For devices equipped with SPC Digimatic output e.g. Indicator a.s.o.



542-007D



542-072D



For more details (functions a.s.o) please refer to counters and displays under "Linear Gages".

# Digimatic Switch Box

## Series 63/939

This switch box is a distribution box that connects 3-5 Digimatic tools to one channel interface (for example a DMX-1 USB).



63AAA030



939039

No.	Data output	Data input	Footswitch connector
63AAA030	1 x Digimatic (1 channel)	5 x Digimatic	Yes
939039	1 x Digimatic (1 channel)	3 x Digimatic	No

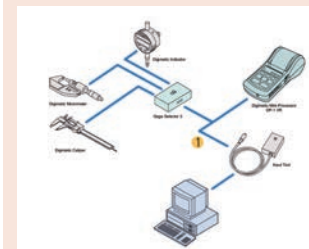
### Specifications

Delivered AC Adapter (63AAA030)

### Optional accessories

No.	Description
936937	Digimatic Cable, Flat 10-Pin Type, 1m
965014	Digimatic Cable, Flat 10-Pin Type, 2m
937179T	Footswitch for SPC

937179T for 63AAA030 only



1: cable 936937 (1 m), 965014 (2 m)

# Digimatic Tolerance Box

## Series 011

This tolerance box allows you to connect Digimatic measuring instruments for visual -NG/GO/+NG evaluations.

The Digimatic Tolerance Box offers the following benefits:

- Simple connection to Digimatic measuring instruments.



011516



No.	Remarks
011516	Tolerance setting with the measuring instrument

### Specifications

Power supply AC adapter or 2 batteries LR6 (AA)

Dimensions (WxDxH) 117 x 73 x 24 mm

Delivered With AC adapter

### Optional accessories

No.	Description
011037	Battery LR6 (AA) 4x

# Micrometers



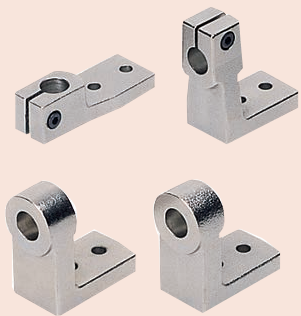
**Digital Micrometers and Mechanical Micrometers**  
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**Micrometer Accessories**  
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**Micrometer Heads**  
Page 104



**Micrometer Head Accessories**  
Page 128

# High Accuracy Digital Micrometer

## Series 293

This Micrometer enables 0,1 µm resolution measurements and is ideal for customers who need to make highly accurate measurements with a hand-held tool (such as Gauge R & R analysis).

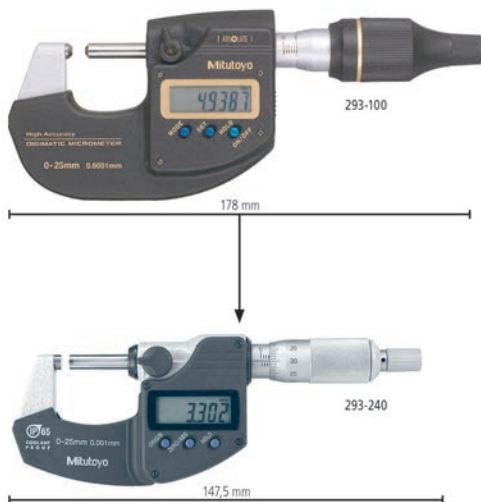
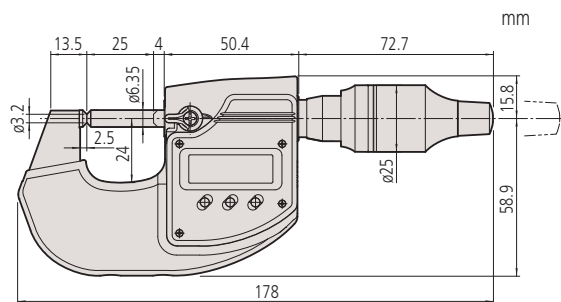
The Absolute High-Accuracy Micrometer offers the following benefits:

- It delivers higher accuracy without sacrificing operability, by using Mitutoyo's innovative 0,1 µm resolution ABS (absolute) rotary sensor and high accuracy screw machining technology which reduces instrumental error to just 0,5 µm.
- Its highly rigid frame and high-performance constant-force mechanism (7-9 N) enable more stable measurement.



### Metric

No.	Range [mm]	Digital step	Instrumental error	Flatness	Parallelism	Mass [g]
293-100-10	0-25	0,1 µm or 0,5 µm	±0,5 µm	0,3 µm	0,6 µm	400



### Comparative sizes:

High Accuracy-Micrometer with a highly rigid frame and a common Micrometer with a standard frame

Functions	Series 293
ON/OFF	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
HOLD	●
Data output	●
PRESET	●
Resolution switching	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Measuring surface	ø3,2 mm, carbide tipped, micro-lap finish
Measuring spindle	With spindle lock, ø6,35 mm, spindle pitch 0,5 mm
Power supply	Lithium battery (CR-2032) x 1
Measuring system	Electromagnetic induction type ABS rotary sensor
Measuring force	7-9 N
Battery life	approx. 2 years
Delivered	Including box, key, driver, 1 battery, heat insulating cover, certificate of inspection

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type

### Consumable spares

No.	Description
05SAA217D	Lithium battery CR-2032, 1 pcs.



0,1µm digital step



Scan QR Code with your mobile device and watch our product videos on YouTube

# Digimatic Micrometer QuantuMike IP65

Functions	Series 293
ORIGIN (until 100 mm)	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Thimble and sleeve satin chrome finish
Digital step	0,001 mm
Measuring surfaces	carbide-tipped, micro-lap finish
Measuring spindle	With spindle lock, ø6,35mm, 2 mm spindle pitch
Measuring force	7-12 N
Battery life	approx. 2,4 years
Delivered	Including box, key, 1 battery, setting standard (from 25 mm upward), certificate of inspection (0-50 mm range)

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
04GAA899	Color speeder, for Ratched Thimble Black
04GAA900	Color speeder, for Ratched Thimble Red
04GAA901	Color speeder, for Ratched Thimble Yellow
04GAA902	Color speeder, for Ratched Thimble Green
04GAA903	Color speeder, for Ratched Thimble Blue
04AAB208	Color speeder, for Ratched Thimble Grey

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



With Wireless System U-WAVE fit

### Series 293

This is an IP65 micrometer offering movement four times as fast as a standard micrometer. It presents you with the following benefits:

- Faster measurement is achieved by using a coarser thread which feeds the spindle by 2 mm per thimble rotation.
- Extraordinary battery life of 2,4 years
- Outstanding accuracy
- Ratched thimble mechanism ensures easy single-handed or stand operation.
- Excellent resistance against water and dust (IP65 protection level) enables this micrometer to be used in machining situations that include splashing coolant fluid.

### QuantuMike®



293-140-30



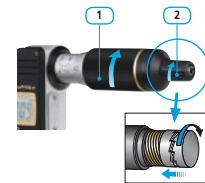
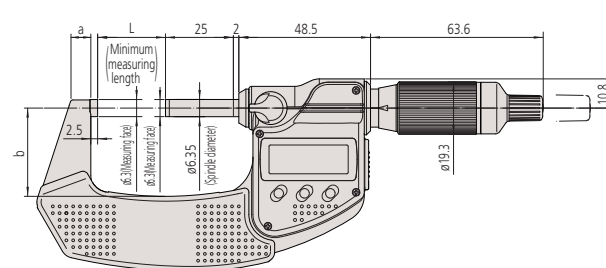
Coloured speeders



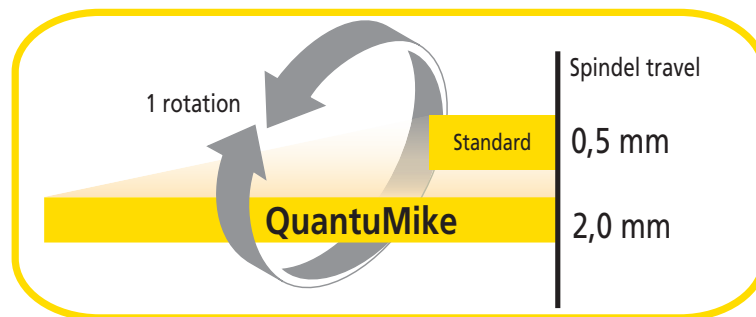
Only for 0-25, 25-50 mm

### Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	Data output	L [mm]	a [mm]	b [mm]	Mass [g]
293-140-30	0-25	$\pm 1$	0,3 $\mu$ m	1 $\mu$ m	●	0	9	25	265
293-145-30	0-25	$\pm 1$	0,3 $\mu$ m	1 $\mu$ m	●	0	9	25	265
293-141-30	25-50	$\pm 1$	0,3 $\mu$ m	1 $\mu$ m	●	25	9,8	32	325
293-146-30	25-50	$\pm 1$	0,3 $\mu$ m	1 $\mu$ m	●	25	9,8	32	325
293-142-30	50-75	$\pm 1$	0,3 $\mu$ m	2 $\mu$ m	●	50	12,6	47	465
293-147-30	50-75	$\pm 1$	0,3 $\mu$ m	2 $\mu$ m	●	50	12,6	47	465
293-143-30	75-100	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	●	75	14	60	620
293-148-30	75-100	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	●	75	14	60	620



1 : Ratchet on thimble  
2 : Ratchet on speeder





# Digimatic Micrometer IP65 Metric

## Series 293

This IP65 micrometer offers outstanding accuracy, with and without data input, is highly robust and offers the following benefits:

- Outstanding accuracy and oil-resistant material used for all plastic parts
- Extraordinary battery life of 2,4 years
- Excellent resistance against water and dust (IP65 protection level) enables this micrometer to be used in machining situations that include splashing coolant fluid.



Only for 0-25, 25-50 mm



293-234-30 with ratched thimble



293-230-30 with ratched stop



293-252-30



Excellent resistance against water and dust IP65

### Metric

With ratchet stop

No.	Range [mm]	Accuracy [µm]	Flatness	Parallelism	Data output	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
293-230-30	0-25	±1	0,3 µm	1 µm	●	0	6,5	25	2,5	270
293-240-30	0-25	±1	0,3 µm	1 µm	●	0	6,5	25	2,5	270
293-231-30	25-50	±1	0,3 µm	1 µm	●	25	7,3	32,5	2,5	330
293-241-30	25-50	±1	0,3 µm	1 µm	●	25	7,5	32,5	2,5	330
293-232-30	50-75	±1	0,3 µm	2 µm	●	50	10,1	47	2,5	470
293-242-30	50-75	±1	0,3 µm	2 µm	●	50	10,1	47	2,5	470
293-233-30	75-100	±2	0,3 µm	2 µm	●	75	11,5	60	2,5	625
293-243-30	75-100	±2	0,3 µm	2 µm	●	75	11,5	60	2,5	625
293-250-30	100-125	±2	0,3 µm	5 µm	●	100	16,7	76	5,3	600
293-251-30	125-150	±2	0,3 µm	5 µm	●	125	18,8	90	5,7	740
293-252-30	150-175	±3	0,3 µm	5 µm	●	150	19,1	103	6,1	800
293-253-30	175-200	±3	0,3 µm	5 µm	●	175	18,2	115	6,3	970
293-254-30	200-225	±3	0,3 µm	5 µm	●	200	16,8	126	6,7	1100
293-255-30	225-250	±4	0,3 µm	5 µm	●	225	18	139	5,5	1270
293-256-30	250-275	±4	0,3 µm	5 µm	●	250	18	152	6,5	1340
293-257-30	275-300	±4	0,3 µm	5 µm	●	275	18	166	6,5	1540

Dimensions see next page

### Metric

With ratchet thimble

No.	Range [mm]	Accuracy [µm]	Flatness	Parallelism	Data output	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
293-234-30	0-25	±1	0,3 µm	1 µm	●	0	6,5	25	2,5	270
293-244-30	0-25	±1	0,3 µm	1 µm	●	0	6,5	25	2,5	270
293-235-30	25-50	±1	0,3 µm	1 µm	●	25	7,3	32,5	2,5	330
293-245-30	25-50	±1	0,3 µm	1 µm	●	25	7,3	32,5	2,5	330
293-236-30	50-75	±1	0,3 µm	2 µm	●	50	10,1	47	2,5	470
293-246-30	50-75	±1	0,3 µm	2 µm	●	50	10,1	47	2,5	470
293-237-30	75-100	±2	0,3 µm	2 µm	●	75	11,5	60	2,5	625
293-247-30	75-100	±2	0,3 µm	2 µm	●	75	11,5	60	2,5	625

Dimensions see next page

Functions	Series 293
ORIGIN (until 100 mm)	●
ZERO/ABS	●
2 x PRESET (over 100 mm)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Thimble and sleeve satin chrome finish, ø18 mm
Digital step	0,001 mm
Measuring surfaces	carbide-tipped, micro-lap finish
Measuring spindle	With spindle lock, ø 6,35 mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Battery life	approx. 2,4 years for models up to 100 mm 1,2 years for >100 mm
Delivered	Including box, key, 1 battery, setting standard (from 25 mm upward) certificate of inspection (0-50 mm range)

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



With Wireless System U-WAVE fit



Scan QR Code with your mobile device and watch our product videos on YouTube

# Digimatic Micrometer IP65 Metric

Functions	Series 293 - Micrometers in set
ORIGIN (until 100 mm)	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
HOLD	●

### Specifications

Accuracy	See individual types
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Digital step	0,001 mm
Measuring surfaces	carbide-tipped, micro-lap finish
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Battery life	approx. 2,4 years
Delivered	Including box, key, batteries, setting standard (from 25 mm upward) certificate of inspection (0-50 mm range)

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



With Wireless System U-WAVE fit

### Series 293 - Micrometers in set

This metric micrometer offers outstanding accuracy, with and without data output.



only for 0-25mm, 25-50mm

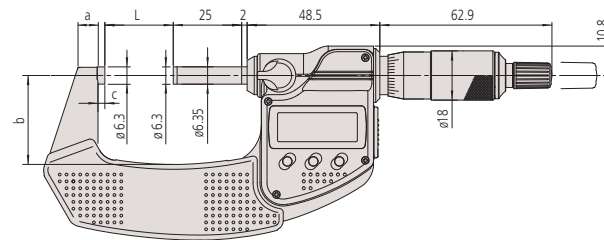


293-963-30

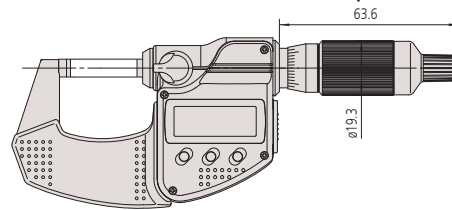
### Metric

Set/With ratchet stop

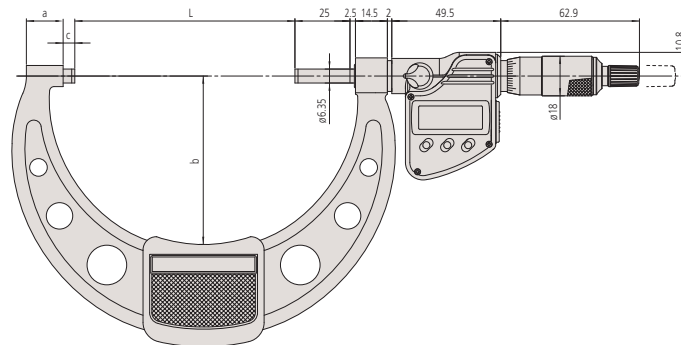
No.	Range [mm]	Flatness	Parallelism	Data output	Set combination
293-966-30	0-50	0,3 $\mu$ m	1 $\mu$ m	●	293-230-30 / 293-231-30 + setting standard 25 mm (ceramic gauge block grade 1)
293-962-30	0-75	0,3 $\mu$ m	1 $\mu$ m for 0-50 mm 2 $\mu$ m for 50-100 mm	●	293-230-30 / 293-231-30 / 293-232-30 + setting standard 25 mm and 50 mm
293-963-30	0-100	0,3 $\mu$ m	1 $\mu$ m for 0-50 mm 2 $\mu$ m for 50-100 mm	●	293-230-30 / 293-231-30 / 293-232-30 / 293-233-30 + setting standard 25 mm, 50 mm and 75 mm



Ratchet stop



Ratchet thimble



Ratchet stop type over 100 mm

# Digimatic Micrometer 300-500 mm

## Series 293

The Digimatic Micrometer 300-500 mm has a measuring range of 300-500 mm and offers the following benefits:

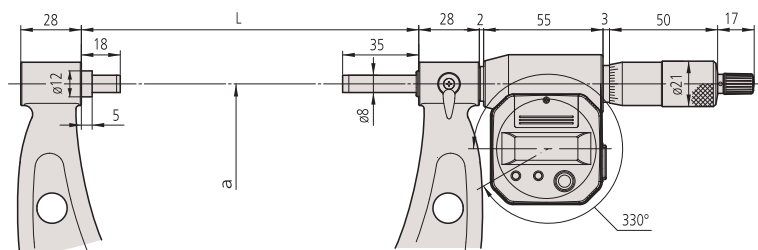
- The micrometer's 330° rotatable display unit enables easy reading in all measurement positions.
- 300-500 mm measuring range.



293-582

### Metric

No.	Range [mm]	Accuracy [μm]	Flatness	Parallelism	L [mm]	a [mm]	Mass [g]
293-582	300-325	±6	0,6 μm	5 μm	353	187	2000
293-583	325-350	±6	0,6 μm	5 μm	378	199	2150
293-584	350-375	±6	0,6 μm	5 μm	403	212	2300
293-585	375-400	±7	0,6 μm	6 μm	428	224	2450
293-586	400-425	±7	0,6 μm	6 μm	453	236	2600
293-587	425-450	±7	0,6 μm	6 μm	478	248	2750
293-588	450-475	±8	0,6 μm	6 μm	503	261	2900
293-589	475-500	±8	0,6 μm	7 μm	528	273	3100



The display is 330° rotatable

Functions	Series 293
ZERO/ABS	●
2 x PRESET (over 100 mm)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

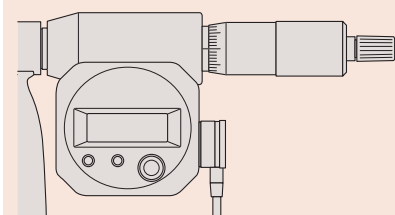
Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Thimble and sleeve satin chrome finish
Digital step	0,001 mm
Measuring surfaces	Carbide tipped, micro lap finish
Measuring spindle	with spindle lock, ø 8 mm, single pitch 0,5 mm
Measuring force	10-14 N
Battery life	approx. 1,8 years
Delivered	Including box, setting standard, key, 2 batteries

### Optional accessories

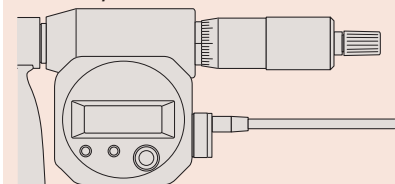
No.	Description
04AZB512	Digimatic Cable with Data Button, 1m, Flat L-Shape Left Type
04AZB513	Digimatic Cable with Data Button, 2m, Flat L-Shape Left Type
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790C	U-WAVE-T Connection Cable C, Straight, with Data Button

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



Cable orientation downwards  
04AZB512, 04AZB513



Cable orientation in thimble direction  
959149, 959150

# Digimatic Micrometer



Functions	Series 293
ORIGIN	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish $\varnothing$ 18 mm
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	$\varnothing$ 6,35 mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Battery life	approx. 2,4 years (approx. 8700 hours)
Delivered	Including box, key, 1 battery, certificate of inspection

### Consumable spares

No.	Description
938882	Battery SR44 1.5V

### Series 293

This standard model digimatic micrometer is an affordable device that offers the following benefits:

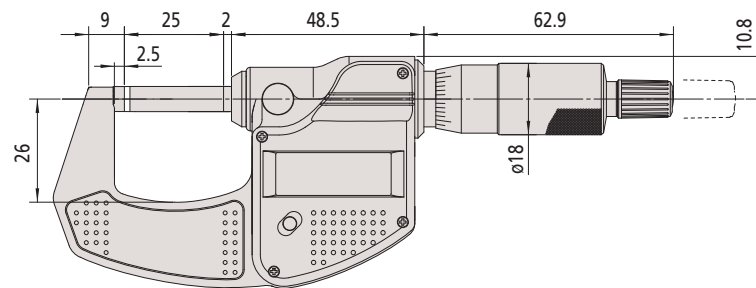
- It is cost-effective with simplified functionality for standard applications.
- Extraordinary battery life of 2,4 years. Without data output.
- Constant measuring force



293-821-30

Metric With ratchet stop

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	Mass [g]
293-821-30	0-25	$\pm$ 2	0,3 $\mu$ m	2 $\mu$ m	275





# Outside Micrometer Non-Rotating Spindle Type

## Series 406

This micrometer features a non-rotating spindle, and offers the following benefits:

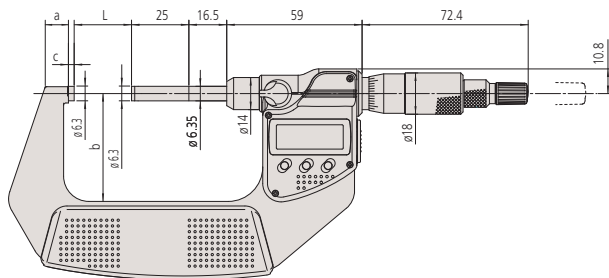
- Sliding spindle, not rotating.
- Ratchet stop.
- Data output.



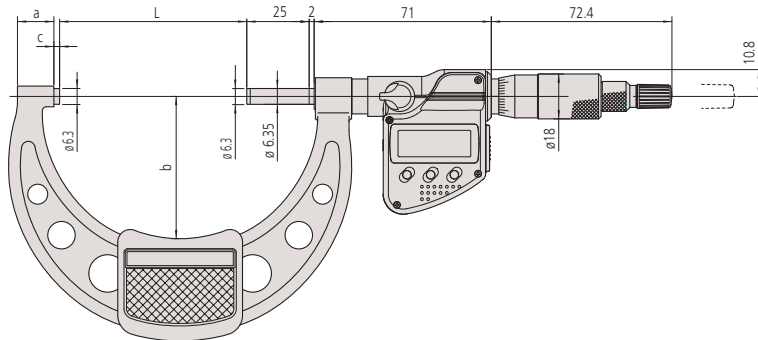
406-250-30

### Metric

No.	Range [mm]	Accuracy [μm]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
406-250-30	0-25	±3	0,3 μm	3 μm	0	7	32	2,8	330
406-251-30	25-50	±3	0,3 μm	3 μm	25	9,8	47	2,8	470
406-252-30	50-75	±3	0,3 μm	3 μm	50	11,2	60	2,8	625
406-253-30	75-100	±4	0,3 μm	4 μm	75	14,6	57	2,3	460



0 - 75 mm



75 - 100 mm

Functions	Series 406
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Thimble and sleeve satin chrome finish ø 18 mm
Digital step	0,001 mm
Measuring surfaces	carbide-tipped, micro-lap finish
Measuring spindle	With spindle lock, ø 6,35 mm, spindle pitch 0,5mm
Measuring force	3-8 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



With Wireless System U-WAVE fit

# ABSOLUTE Digimatic Micrometer Quickmike

ABSOLUTE®

IP65

Series 293	
<b>Functions</b>	
ORIGIN	●
ZERO/ABS	●
ON/OFF	●
Low voltage alarm	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Measuring surfaces	Carbide tipped, micro-lap finish surfaces
Measuring spindle	ø6,35 mm, non-rotating, 10 mm pitch
Measuring force	5-12 N
Battery life	approx. 5 years under normal use
Display	LCD, character height 10 mm
Delivered	Including box, setting standard (from 25 mm upward), 1 battery

### Optional accessories

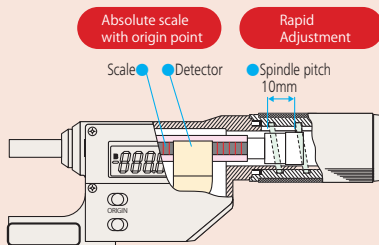
No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



293-666-20 with fixing device 156-101-10 (optional accessories)



This micrometer has a spindle mechanism enabling a spindle drive of 10 mm/rev. The drive rate is therefore twenty times as fast as conventional micrometers.

### Series 293

This Quickmike, with a non-rotating spindle, delivers much faster movement than standard models and offers the following benefits:

- With 10 mm feed per revolution, it delivers twenty times as fast as standard devices.
- Excellent resistance against water and dust (IP65) enables this micrometer to be used in machining situations that include splashing coolant fluid.
- ABSOLUTE linear scale means no restriction on adjustment speed.
- Larger measuring range - 30 mm compared with 25 mm - than standard micrometer.



293-666-20



293-667-20



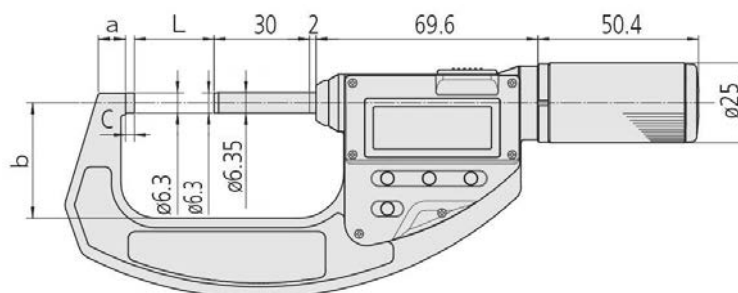
293-668-20



293-669-20

### Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
293-666-20	0-30	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	0	7	25	2	275
293-667-20	25-55	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	25	8,5	36	2,8	340
293-668-20	50-80	$\pm 3$	0,3 $\mu$ m	2 $\mu$ m	50	10,3	47	2,8	480
293-669-20	75-105	$\pm 3$	0,3 $\mu$ m	3 $\mu$ m	75	10,7	60	2,8	585



# ABSOLUTE Digimatic Micrometer Quickmike

## Series 227

This micrometer has an adjustable measuring force to suit various kinds of workpieces.

The ABSOLUTE Digimatic Micrometer Quickmike offers the following benefits:

- It's dedicated to applications requiring a constant/low measuring force such as measuring wire, paper and plastic/rubber parts.
- Constant and low measuring force mechanism in the thimble.
- Non-rotating spindle.
- Speedy spindle feed of 10mm/rev.

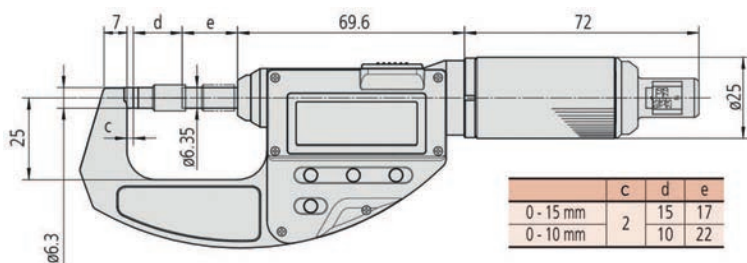


227-201-20

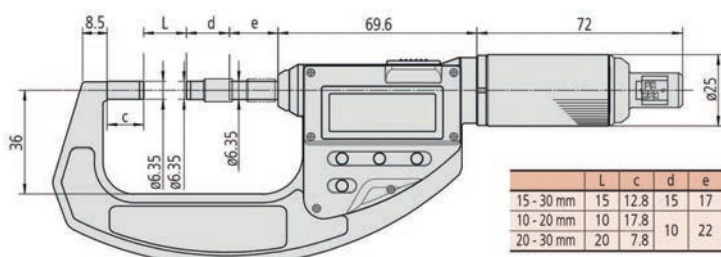
### Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	Measuring force settings <sup>(1)</sup> [N]	Measuring force accuracy <sup>(1)</sup> [N]	Mass [g]
227-201-20	0-15	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	0,5; 1; 1,5; 2; 2,5	$\pm 0,1 +$ (force setting/10)	300
227-203-20	15-30	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	0,5; 1; 1,5; 2; 2,5	$\pm 0,1 +$ (force setting/10)	380
227-205-20	0-10	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	2; 4; 6; 8; 10	$\pm 0,4 +$ (force setting/10)	345
227-206-20	10-20	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	2; 4; 6; 8; 10	$\pm 0,4 +$ (force setting/10)	425
227-207-20	20-30	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	2; 4; 6; 8; 10	$\pm 0,4 +$ (force setting/10)	415

<sup>(1)</sup> Only valid for instrument orientation within  $\pm 3$  degrees of horizontal when measuring.



227-201-20, 227-205-20



227-203-20, 227-206-20, 227-207-20

## ABSOLUTE<sup>+</sup>

	Series 227	
	227-201-20	227-203-20 up to 227-207-20
<b>Functions</b>		
ZERO/ABS	●	●
ON/OFF	●	●
Data output	●	●
<b>Specifications</b>		
Measuring direction	horizontal	
Accuracy	Refer to the list of specifications (excluding quantizing error)	
Digital step	0,001 mm	
Measuring surfaces	carbide-tipped, micro-lap finish	
Measuring spindle	$\phi$ 6,35 mm, non-rotating, 10 mm pitch	
Battery life	Approx. 5 years under normal use	
Display	LCD, character height 10 mm	
Delivered	Including box, setting standard (for 10-30 mm models), screwdriver, 1 battery	

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V





# Ratchet Thimble Micrometer

## Specifications

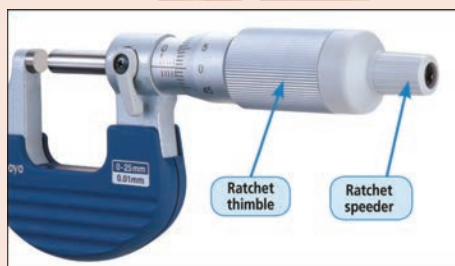
Accuracy	Refer to the list of specifications
Scale	Thimble and sleeve satin chrome finish $\varnothing 19$ mm
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, key, setting standard (from 25 mm upward), certificate of inspection

## Optional accessories

No.	Description
04GAA899	Color speeder, for Ratched Thimble Black
04GAA900	Color speeder, for Ratched Thimble Red
04GAA901	Color speeder, for Ratched Thimble Yellow
04GAA902	Color speeder, for Ratched Thimble Green
04GAA903	Color speeder, for Ratched Thimble Blue

## Consumable spares

No.	Description
04AAB208	Color speeder, for Ratched Thimble Grey



## Series 102

This ratchet thimble micrometer has a mechanism that ensures consistent and reliable measurements. It offers you the following benefits:

- It works both from the thimble and the speeder, enabling easy, one-handed operation.
- Ratchet's clearly audible operation provides reassurance that measurements are being taken at a constant, preset measuring force.
- Heat insulating frame



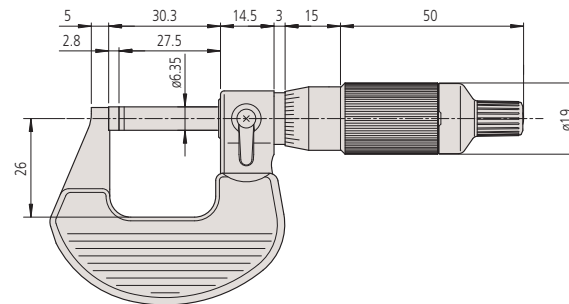
102-701



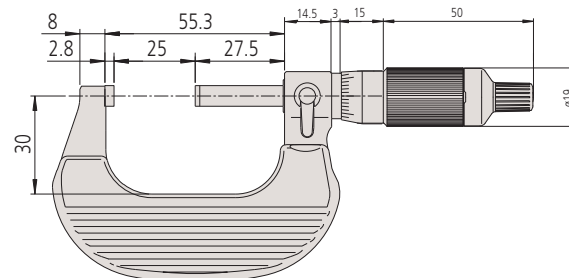
102-702

## Metric

No.	Range [mm]	Graduation	Accuracy [ $\mu$ m]	Flatness	Parallelism	Mass [g]
102-701	0-25	0,01 mm	$\pm 2$	0,6 $\mu$ m	2 $\mu$ m	180
102-707	0-25	0,001 mm	$\pm 2$	0,6 $\mu$ m	2 $\mu$ m	180
102-702	25-50	0,01 mm	$\pm 2$	0,6 $\mu$ m	2 $\mu$ m	270
102-708	25-50	0,001 mm	$\pm 2$	0,6 $\mu$ m	2 $\mu$ m	270



0-25 mm



25-50 mm



Coloured ratchet caps (optional accessories)



# Outside Micrometer

## Series 102

This outside micrometer is an accurate and reliable device that offers you the following benefits:

- Cut-away frame (behind anvil) for measurements in hard-to-reach places
- Ratchet stop delivers a constant measuring force.



Only for 0-25, 25-50 mm



102-301



102-911-40

**Metric** Graduation 0,001 mm is obtained with vernier on sleeve

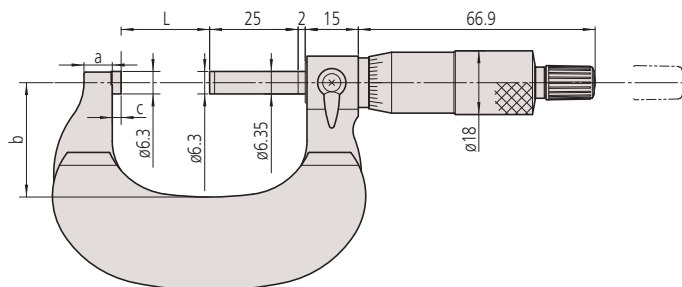
No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
102-311	0-25	$\pm 2$	0,3 $\mu$ m	0	5	26	2,5	180
102-312	25-50	$\pm 2$	0,3 $\mu$ m	25	7,8	32	2,5	270

**Metric** Graduation 0,01 mm

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
102-301	0-25	$\pm 2$	0,6 $\mu$ m	0	5	26	2,5	180
102-302	25-50	$\pm 2$	0,6 $\mu$ m	25	7,8	32	2,5	270
102-303	50-75	$\pm 2$	0,6 $\mu$ m	50	10,6	45	2,5	375
102-304	75-100	$\pm 3$	0,6 $\mu$ m	75	11	58	2,5	490

**Metric** Micrometer set

No.	Range [mm]	Flatness	Content of Set	Mass [g]
102-911-40	0-100	0,6 $\mu$ m	102-301, 102-302, 102-303, 102-304, 3 setting standards	1200



## Specifications

Accuracy	Refer to the list of specifications
Scale	Thimble and sleeve satin chrome finish $\phi 18$ mm
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	With spindle lock, $\phi 6,35$ mm, spindle pitch 0,5 mm
Parallelism	2 $\mu$ m for 0 to 75 mm model 3 $\mu$ m for models 75-100 mm
Measuring force	5-10 N
Delivered	Including box, key, setting standard (from 25 mm upward), certificate of inspection (0-50 mm range)

# Outside Micrometer

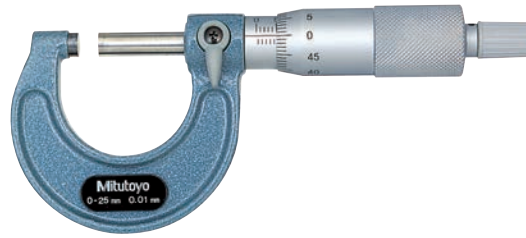
## Series 103

### Specifications

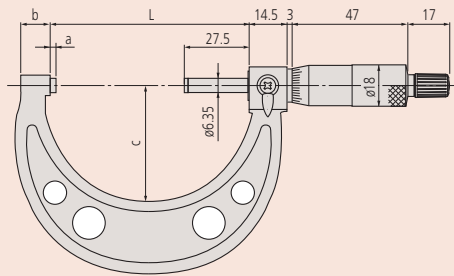
Accuracy	Refer to the list of specifications
Scale	Thimble and sleeve satin chrome finish
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	with spindle lock, spindle pitch 0,5 mm
Parallelism	$(2+L/100) \mu\text{m}$ , L = max. range (mm)
Measuring force	5-10 N (from 100 mm upward : 5-15 N)
Delivered	Including box, setting standard (from 25 mm upward), key, certificate of inspection (0-50 mm range)



Only for 0-25 and 25-50 mm



103-137



### Metric

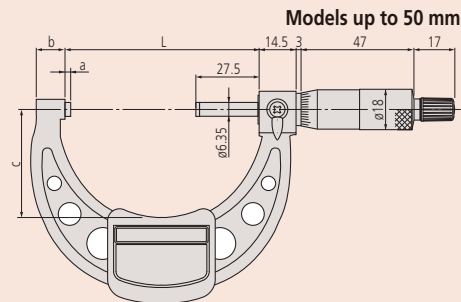
Graduation 0,001 mm is obtained with vernier on sleeve

No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
103-129	0-25	$\pm 2$	$0,6 \mu\text{m}$	30,3	2,8	9	28	6,35	175
103-130	25-50	$\pm 2$	$0,6 \mu\text{m}$	55,3	2,8	10	38	6,35	215

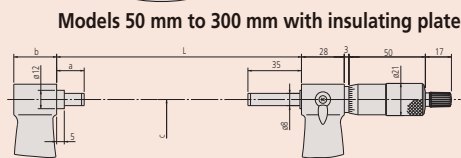
### Metric

Graduation 0,01 mm

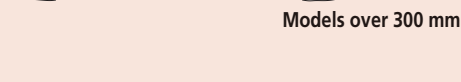
No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
103-137	0-25	$\pm 2$	$0,6 \mu\text{m}$	30,3	2,8	9	28	6,35	175
103-138	25-50	$\pm 2$	$0,6 \mu\text{m}$	55,3	2,8	10	38	6,35	215
103-139-10	50-75	$\pm 2$	$0,6 \mu\text{m}$	80,3	2,8	12	46	6,35	315
103-140-10	75-100	$\pm 3$	$0,6 \mu\text{m}$	105,3	2,8	14	57	6,35	375
103-141-10	100-125	$\pm 3$	$0,6 \mu\text{m}$	132,8	5,3	17	76	6,35	515
103-142-10	125-150	$\pm 3$	$0,6 \mu\text{m}$	158,2	5,7	19	90	6,35	665
103-143-10	150-175	$\pm 4$	$0,6 \mu\text{m}$	183,6	6,1	20	102	6,35	720
103-144-10	175-200	$\pm 4$	$0,6 \mu\text{m}$	208,8	6,3	19	115	6,35	920
103-145-10	200-225	$\pm 4$	$0,6 \mu\text{m}$	234,2	6,7	18	127	6,35	1080
103-146-10	225-250	$\pm 5$	$0,6 \mu\text{m}$	258	5,5	18	139	6,35	1255
103-147-10	250-275	$\pm 5$	$0,6 \mu\text{m}$	284	6,5	18	152	6,35	1405
103-148-10	275-300	$\pm 5$	$0,6 \mu\text{m}$	309	6,5	18	166	6,35	1565
103-149	300-325	$\pm 6$	$1 \mu\text{m}$	353	18	28	187	8	1985
103-150	325-350	$\pm 6$	$1 \mu\text{m}$	378	18	28	199	8	2155
103-151	350-375	$\pm 6$	$1 \mu\text{m}$	403	18	28	212	8	2305
103-152	375-400	$\pm 7$	$1 \mu\text{m}$	428	18	28	224	8	2455
103-153	400-425	$\pm 7$	$1 \mu\text{m}$	453	18	28	236	8	2715
103-154	425-450	$\pm 7$	$1 \mu\text{m}$	478	18	28	248	8	2965
103-155	450-475	$\pm 8$	$1 \mu\text{m}$	503	18	28	261	8	3215
103-156	475-500	$\pm 8$	$1 \mu\text{m}$	528	18	28	273	8	3450
103-157	500-525	$\pm 9$	$1 \mu\text{m}$	575	40	28	307	8	4060
103-158	525-550	$\pm 9$	$1 \mu\text{m}$	575	15	28	307	8	4080
103-159	550-575	$\pm 9$	$1 \mu\text{m}$	625	40	28	332	8	4500
103-160	575-600	$\pm 9$	$1 \mu\text{m}$	625	15	28	332	8	4525
103-161	600-625	$\pm 9$	$1 \mu\text{m}$	675	40	28	355	8	4915
103-162	625-650	$\pm 9$	$1 \mu\text{m}$	675	15	28	355	8	4930
103-163	650-675	$\pm 9$	$1 \mu\text{m}$	725	40	28	382	8	5200
103-164	675-700	$\pm 9$	$1 \mu\text{m}$	725	15	28	382	8	5215
103-165	700-725	$\pm 9$	$1 \mu\text{m}$	775	40	28	405	8	5835
103-166	725-750	$\pm 9$	$1 \mu\text{m}$	775	15	28	405	8	5860
103-167	750-775	$\pm 9$	$1 \mu\text{m}$	825	40	28	430	8	6385
103-168	775-800	$\pm 9$	$1 \mu\text{m}$	825	15	28	430	8	6410
103-169	800-825	$\pm 9$	$1 \mu\text{m}$	875	40	28	455	8	6925
103-170	825-850	$\pm 9$	$1 \mu\text{m}$	875	15	28	455	8	6940
103-171	850-875	$\pm 9$	$1 \mu\text{m}$	925	40	28	480	8	7565
103-172	875-900	$\pm 9$	$1 \mu\text{m}$	925	15	28	480	8	7590
103-173	900-925	$\pm 9$	$1 \mu\text{m}$	975	40	28	505	8	8215
103-174	925-950	$\pm 9$	$1 \mu\text{m}$	975	15	28	505	8	8240
103-175	950-975	$\pm 9$	$1 \mu\text{m}$	1025	40	28	530	8	8860
103-176	975-1000	$\pm 9$	$1 \mu\text{m}$	1025	15	28	530	8	8880



Models up to 50 mm



Models 50 mm to 300 mm with insulating plate



Models over 300 mm

# Outside Micrometers in Set

## Series 103

These outside micrometers are accurate and reliable. They offer you the following benefits:

- Lightweight workshop design
- Ratchet stop delivers a constant measuring force.



103-913-50

## Specifications

Graduation | 0,01 mm

### Metric Micrometer set

No.	Range [mm]	Content of Set	Mass [g]
103-927-10	0-75	103-137, 103-138, 103-139-10, 2 setting standards	750
103-913-50	0-150	103-137, 103-138, 103-139-10, 103-140-10, 103-141-10, 103-142-10, 5 setting standards	2260
103-915-10	150-300	103-143-10, 103-144-10, 103-145-10, 103-146-10, 103-147-10, 103-148-10, 6 setting standards	7695
103-914-50	0-300	All micrometers of 103-913-50 and 103-915-10 in one set, 11 setting standards	9300

# Digit Outside Micrometer

## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,001 mm; 0,01 mm
Counter reading	0,01 mm
Scale	Thimble and sleeve satin chrome finish
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	With spindle lock, $\varnothing$ 6,35 mm, spindle pitch 0,5 mm
Measuring force	5-15 N
Delivered	Including box, setting standard (from 25 mm upward), key



193-902

## Series 193

This digit outside micrometer comes with a mechanical counter and offers you the following benefits:

- Mechanical digit counter
- Quick and error-free reading



193-101

### Metric

Graduation 0,001 mm is obtained with vernier on sleeve

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
193-111	0-25	$\pm 2$	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	30	2,5	5	26	224
193-112	25-50	$\pm 2$	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	55	2	8	32	275
193-113	50-75	$\pm 2$	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	80	2	9	45	379
193-114	75-100	$\pm 3$	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	105	2	9	57	489

### Metric

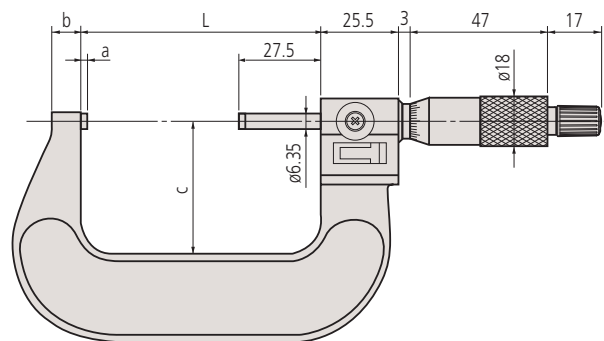
Graduation 0,01 mm

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
193-101	0-25	$\pm 2$	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	30	2,5	5	26	224
193-102	25-50	$\pm 2$	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	55	2	8	32	275
193-103	50-75	$\pm 2$	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	80	2	9	45	379
193-104	75-100	$\pm 3$	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	105	2	9	57	489

### Metric

Micrometer set

No.	Range [mm]	Flatness	Parallelism	Content of Set	Mass [g]
193-901	0-75	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	193-101, 193-102, 193-103, 2 setting standards	820
193-902	0-100	0,6 $\mu$ m	(2+L/100) $\mu$ m, L = max. range	193-101, 193-102, 193-103, 193-104, 3 setting standards	1367





# Digimatic Micrometer with Interchangeable Anvils

## Series 340

This Digimatic Micrometer offers you an extra wide measuring range, and has the following benefits:

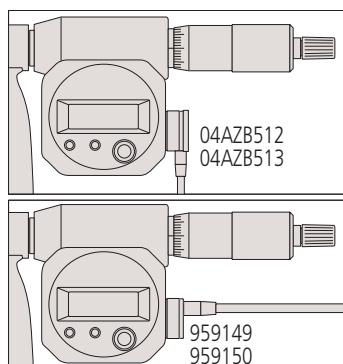
- Easy, interchangeable anvils allow a wide range of measurements.
- Ratchet stop for constant force.



340-251-30

### Metric

No.	Range [mm]	Flatness	Parallelism	Interchangeable anvils	Protection IP65	Setting standard	Mass [kg]
340-251-30	0-150	0,6 µm	(2+L/100) µm, L = max. range	6	●	5	0,96
340-252-30	150-300	0,6 µm	(2+L/100) µm, L = max. range	6	●	6	1,88
340-520	300-400	0,6 µm	(2+L/100) µm, L = max. range	4		4	2,6
340-521	400-500	0,6 µm	(2+L/100) µm, L = max. range	4		4	4,1
340-522	500-600	0,6 µm	(2+L/100) µm, L = max. range	4		4	5,5
340-523	600-700	0,6 µm	(2+L/100) µm, L = max. range	4		4	6,8
340-524	700-800	0,6 µm	(2+L/100) µm, L = max. range	4		4	8,2
340-525	800-900	0,6 µm	(2+L/100) µm, L = max. range	4		4	9,5
340-526	900-1000	0,6 µm	(2+L/100) µm, L = max. range	4		4	10,9



Models over 300 mm

	340-251-30	340-252-30	340-520 up to 340-526
<b>Functions</b>			
ZERO/ABS	●	●	●
ON			●
Auto Power OFF after 20 min. non use	●	●	●
2 x PRESET	●	●	●
Low voltage alarm	●	●	●
Function lock	●	●	●
Data output	●	●	●
HOLD	●	●	●

### Specifications

Accuracy	±(4+L/75) µm, L = max. range (mm) (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish ø18 mm, ø21 mm (over 300 mm)
Measuring surfaces	Hardened, lapped (anvil), carbide tipped, lapped (spindle side)
Measuring spindle	With spindle lock, ø6,35 mm, ø8 mm (over 300 mm), spindle pitch 0,5 mm
Measuring force	5-10 N, 10-14 N (over 300 mm)
Battery life	approx. 2,4 years, approx. 1,8 years (over 300 mm)
Delivered	Including box, setting standard, anvils, key, 1 battery (2 batteries over 300 mm)

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
04AZB512	Digimatic Cable with Data Button, 1m, Flat L-Shape Left Type
04AZB513	Digimatic Cable with Data Button, 2m, Flat L-Shape Left Type
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790C	U-WAVE-T Connection Cable C, Straight, with Data Button

05CZA662/05CZA663/06AFM380B/264-622/264-623/02AZF310 for models up to 300 mm  
 959149/959150/04AZB512/04AZB513/06AFM380C/02AZD730G/02AZD880G/02AZD790C for models over 300 mm

### Consumable spares

No.	Description
938882	Battery SR44 1.5V

# Outside Micrometer with Interchangeable Anvils

## Specifications

Accuracy	$\pm(4+L/75) \mu\text{m}$ , L = max. range (mm)
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish $\varnothing 18$ mm (up to 300 mm) $\varnothing 21$ mm (over 300 mm)
Measuring surfaces	Hardened, lapped (anvil), carbide tipped, lapped (spindle side)
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm (up to 300 mm) $\varnothing 8$ mm (over 300 mm), spindle pitch 0,5 mm
Measuring force	5-10 N, 10-14 N (over 300 mm)
Delivered	Including box, setting standard, anvils, key

## Series 104

This outside micrometer offers you an extra wide measuring range and presents you with the following benefits:

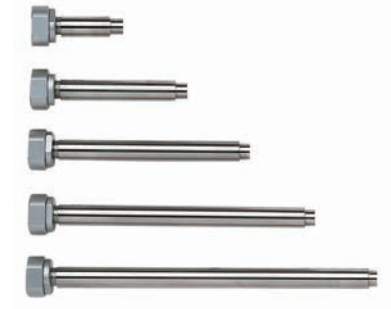
- Easy, interchangeable anvils allow a wide range of measurements.
- Ratchet stop delivers a constant measuring force.



104-171



104-135A



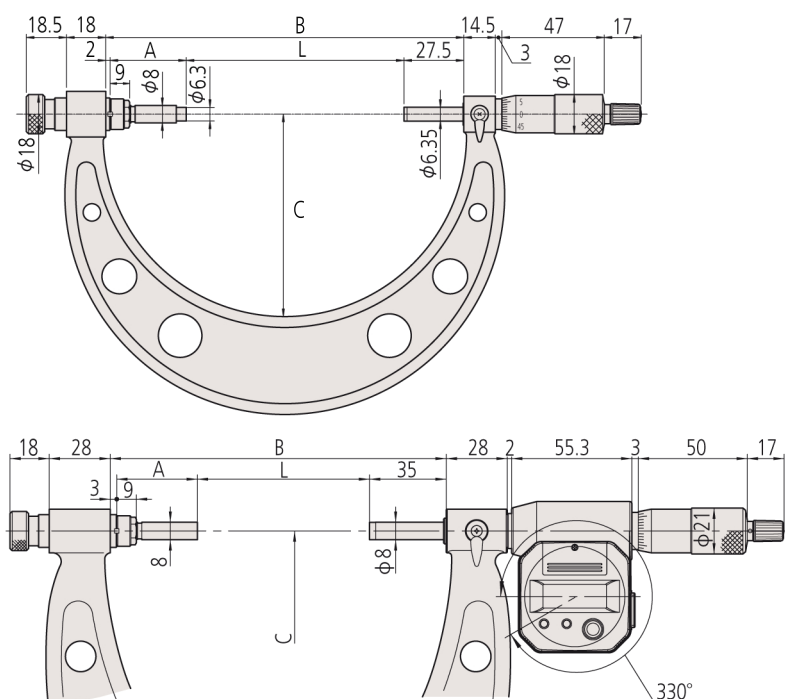
## Metric

No.	Range [mm]	Flatness	Parallelism	Interchangeable anvils	Setting standard	Mass [kg]
104-171	0-50	0,6 $\mu\text{m}$	2 $\mu\text{m}$	1	1	0,32
104-139A	0-100	0,6 $\mu\text{m}$	3 $\mu\text{m}$	4	3	0,79
104-135A	0-150	0,6 $\mu\text{m}$	2 $\mu\text{m}$ for 0-75 mm 3 $\mu\text{m}$ for 75-150 mm	6	5	1,35
104-161A	50-150	0,6 $\mu\text{m}$	2 $\mu\text{m}$ for 0-75 mm 3 $\mu\text{m}$ for 75-150 mm	4	4	1,35
104-140A	100-200	0,6 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	4	4	1,38
104-136A	150-300	0,6 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	6	6	2,65
104-141A	200-300	0,6 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	4	4	2,22
104-142A	300-400	1 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	4	4	3,31
104-143A	400-500	1 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	4	4	4,81
104-144A	500-600	1 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	4	4	6,35
104-145A	600-700	1 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	4	4	7,72
104-146A	700-800	1 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	4	4	9,08
104-147A	800-900	1 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	4	4	10,41
104-148A	900-1000	1 $\mu\text{m}$	$(2+L/100) \mu\text{m}$ , L = max. range	4	4	11,78

# Outside Micrometer with Interchangeable Anvils

## Series 104/340

These are optional interchangeable anvils you can use with the 104 and 340 series.



**Note:** The values for B mm and C mm are valid for all products shown in the tables below:

### B mm:

Value for measuring range:

0/150 mm: 164,5; 150/300 mm: 314,5; 300/400 mm: 425; 400/500 mm: 525; 500/600 mm: 625; 600/700 mm: 725; 700/800 mm: 825; 800/900 mm: 925; 900/1.000 mm: 1.025

### C mm:

Value for measuring range:

0/150 mm: 93; 150/300 mm: 166; 300/400 mm: 224; 400/500 mm: 273; 500/600 mm: 332; 600/700 mm: 382; 700/800 mm: 430; 800/900 mm: 480; 900/1.000 mm: 530

### 0 - 300 mm

Interchangeable anvil ident	M1 mm	M2 mm	M3 mm	M4 mm	M5 mm	M6 mm
<b>No.</b>	<b>303950</b>	<b>303951</b>	<b>303952</b>	<b>303953</b>	<b>303954</b>	<b>303955</b>
L=0/150 mm	0-25	25-50	50-75	75-100	100-125	125-150
L=150/300 mm	150-175	175-200	200-225	225-250	250-275	275-300
A mm	135	110	85	60	35	10

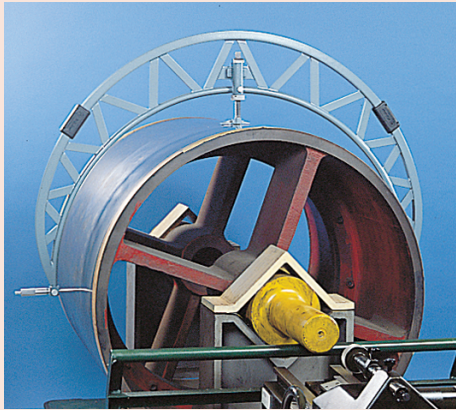
### 300 - 1000 mm

Interchangeable anvil ident	M3 mm	M4 mm	M5 mm	M6 mm
<b>No.</b>	<b>304001</b>	<b>304002</b>	<b>304003</b>	<b>304004</b>
L=300/400 mm	300-325	325-350	350-375	375-400
L=400/500 mm	400-425	425-450	450-475	475-500
L=500/600 mm	500-525	525-550	550-575	575-600
L=600/700 mm	600-625	625-650	650-675	675-700
L=700/800 mm	700-725	725-750	750-775	775-800
L=800/900 mm	800-825	825-850	850-875	875-900
L=900/1000 mm	900-925	925-950	950-975	975-1000
A mm	87	62	37	12

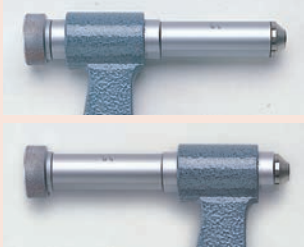
# Outside Micrometer with Anvil Extension Collars

## Specifications

Accuracy	$\pm(6+L/75) \mu\text{m}$ , L = max. range (mm)
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\phi 21$ mm
Parallelism	$(2+L/100) \mu\text{m}$ , L = max. range (mm)
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	With spindle lock, $\phi 8$ mm spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, setting standards (2 pieces), adjustable stop (for models over 1.000 mm range)



Application with adjustable stop on workpiece



Anvil extension collar

Range	L	a (distance to workpiece stopper)
1000 - 1200 mm	1225	500 - 600
1200 - 1400 mm	1425	600 - 700
1400 - 1600 mm	1625	700 - 800
1600 - 1800 mm	1825	800 - 900
1800 - 2000 mm	2025	900 - 1000

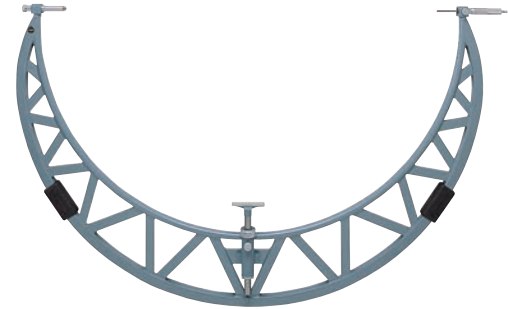
## Series 105

This Outside Micrometer comes with Extension Anvil Collars. It offers you the following benefits:

- The collars have a stable and rugged yet lightweight tube construction, and are ideal for large micrometers.
- The 50mm spindle stroke gives you extended range compared to standard spindle types.
- Anvil collars extend the measuring range even further.
- The setting standards supplied cover the whole measuring range.



105-105



105-408

### Metric

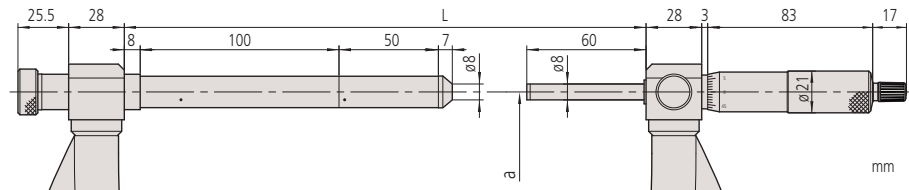
Extension Collar: 50 mm

No.	Range [mm]	Flatness	Extension collar [mm]	Mass [kg]
105-103	500-600	1,3 $\mu\text{m}$	50	5,53
105-104	600-700	1,3 $\mu\text{m}$	50	6,35
105-105	700-800	1,3 $\mu\text{m}$	50	7,17
105-106	800-900	1,3 $\mu\text{m}$	50	7,99
105-107	900-1000	1,3 $\mu\text{m}$	50	8,81
105-408	1000-1100	1,3 $\mu\text{m}$	50	10,49
105-409	1100-1200	1,3 $\mu\text{m}$	50	11,28
105-410	1200-1300	1,3 $\mu\text{m}$	50	12,05
105-411	1300-1400	1,3 $\mu\text{m}$	50	12,72
105-412	1400-1500	1,3 $\mu\text{m}$	50	13,4
105-413	1500-1600	1,3 $\mu\text{m}$	50	14,33
105-414	1600-1700	1,3 $\mu\text{m}$	50	15,26
105-415	1700-1800	1,3 $\mu\text{m}$	50	16,44
105-416	1800-1900	1,3 $\mu\text{m}$	50	18,1
105-417	1900-2000	1,3 $\mu\text{m}$	50	19,76

### Metric

Extension Collar: 50 mm, 100 mm

No.	Range [mm]	Flatness	Extension collar [mm]	Mass [kg]
105-418	1000-1200	1,3 $\mu\text{m}$	50, 100	13,77
105-419	1200-1400	1,3 $\mu\text{m}$	50, 100	15,77
105-420	1400-1600	1,3 $\mu\text{m}$	50, 100	17,91
105-421	1600-1800	1,3 $\mu\text{m}$	50, 100	20,8
105-422	1800-2000	1,3 $\mu\text{m}$	50, 100	22,76





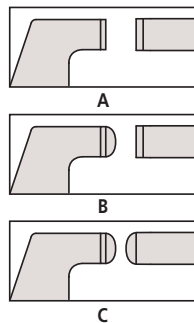
# Digimatic Sheet Metal Micrometer

## Series 389

This Digimatic Sheet Metal Micrometer is designed with a deep frame, for measuring the thickness of sheet material.

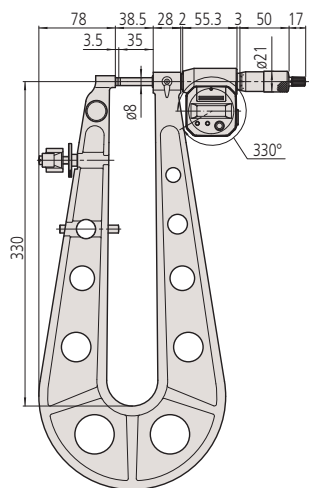


389-251-30

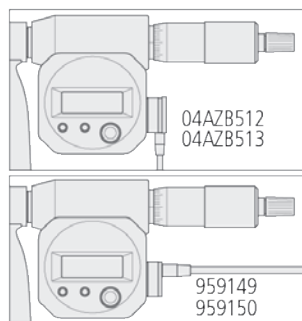


### Metric

No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	Parallelism	Anvil/ Tip	IP65	Mass [g]
389-251-30	0-25	$\pm 4$	0,6 $\mu\text{m}$	3 $\mu\text{m}$	A	●	840
389-261-30	0-25	$\pm 4$	0,6 $\mu\text{m}$	3 $\mu\text{m}$	B	●	840
389-271-30	0-25	$\pm 4$	0,6 $\mu\text{m}$	3 $\mu\text{m}$	C	●	840
389-514	0-25	$\pm 5$	1 $\mu\text{m}$	3 $\mu\text{m}$	A	●	2750
389-252-30	25-50	$\pm 4$	0,6 $\mu\text{m}$	3 $\mu\text{m}$	A	●	920
389-262-30	25-50	$\pm 4$	0,6 $\mu\text{m}$	3 $\mu\text{m}$	B	●	920
389-272-30	25-50	$\pm 4$	0,6 $\mu\text{m}$	3 $\mu\text{m}$	C	●	920



389-514



Digimatic cable for 389-514

Functions	Series 389
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Measuring force	3-8, 10-14 (389-514) N
Scale	Thimble and sleeve satin chrome finish, $\phi$ 18 mm/ $\phi$ 21 mm
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	With spindle lock, $\phi$ 6,35 mm/ $\phi$ 8 mm (389-514), spindle pitch 0,5 mm (389-514)
Battery life	approx. 2,4 years, approx. 1,8 years (389-514)
Delivered	Including box, key, 1 battery/ 2 batteries (389-514)

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
04AZB512	Digimatic Cable with Data Button, 1m, Flat L-Shape Left Type
04AZB513	Digimatic Cable with Data Button, 2m, Flat L-Shape Left Type
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790C	U-WAVE-T Connection Cable C, Straight, with Data Button

04AZB512/04AZB513/959149/959150/  
06AFM380C/  
02AZD880G/02AZD730G/02AZD790C  
for 389-514

### Consumable spares

No.	Description
938882	Battery SR44 1.5V

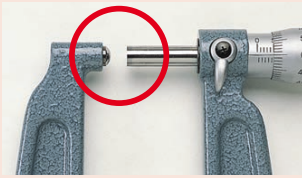
# Sheet Metal Micrometer

## Specifications

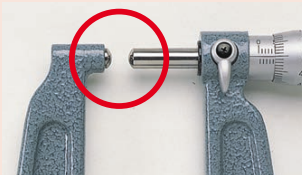
Accuracy	Refer to the list of specifications
Graduation	0,01mm
Scale	Thimble and sleeve satin chrome finish, $\phi$ 18 mm or $\phi$ 21 mm
Measuring surfaces	Carbide-tipped, micro-lap finish
Measuring spindle	With spindle lock, throat depth up to 150 mm : $\phi$ 6,35 mm throat depth up to 300 mm : $\phi$ 8 mm, spindle pitch 0,5 mm
Measuring force	3-8 N
Delivered	Including box, key, setting standard (from 25 mm upward)



Type A  
Flat-Flat



Type B  
Spherical-Flat



Type C  
Spherical-Spherical

## Series 118

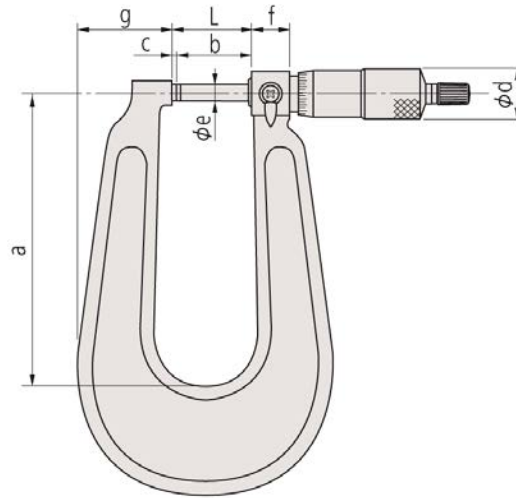
This Sheet Metal Micrometer is designed with a deep frame for measuring the thickness of sheet material.



118-102

## Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	Anvil/Tip	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	g [mm]	Mass [g]
118-101	0-25	$\pm 4$	0,6 $\mu$ m	3 $\mu$ m	A	30,3	110	27,5	2,8	18	6,35	14,5	39	445
118-102	0-25	$\pm 4$	0,6 $\mu$ m	3 $\mu$ m	A	30,3	160	27,5	2,8	18	6,35	14,5	48	740
118-103	0-25	$\pm 5$	1 $\mu$ m	3 $\mu$ m	A	38,5	330	35	3,5	21	8	28	84	2650
118-110	25-50	$\pm 4$	0,6 $\mu$ m	3 $\mu$ m	A	55,3	165	27,5	2,5	18	6,35	14,5	45	820
118-114	0-25	$\pm 4$	0,6 $\mu$ m	3 $\mu$ m	B	30,3	160	27,5	2,8	18	6,35	14,5	48	740
118-118	0-25	$\pm 4$	0,6 $\mu$ m	3 $\mu$ m	C	30,3	160	27,5	2,8	18	6,35	14,5	48	740
118-126	25-50	$\pm 4$	0,6 $\mu$ m	3 $\mu$ m	C	55,3	165	27,5	2,5	18	6,35	14,5	48	820



# Sheet Metal Micrometer Graduated Dial

## Series 119

This Sheet Metal Micrometer comes with a graduated dial. It offers you the following features:

- A deep frame that enables you to measure the thickness of sheet material.
- Easy-to-read graduated dial.

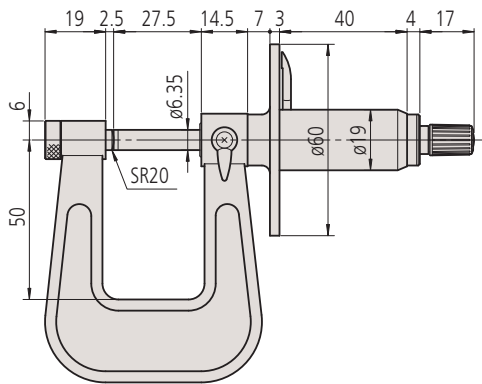


119-202

Metric Dial reading model

No.	Range [mm]	Accuracy [ $\mu$ m]	Throat [mm]	Mass [g]
119-202	0-25	$\pm 4$	50	305

mm



## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish
Measuring surfaces	Convex anvil and flat spindle
Measuring spindle	With spindle lock, $\varnothing$ 6,35 mm



The Series 119 is provided with a dial for making easy and quick reading.

# Digimatic Caliper Jaw Micrometer

## Series 343

This Digimatic Caliper Jaw Micrometer has been specially designed for measuring in hard-to-reach places.



343-250-30

Functions	Series 343
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	1-6 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

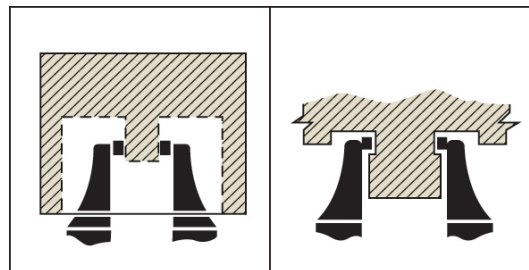
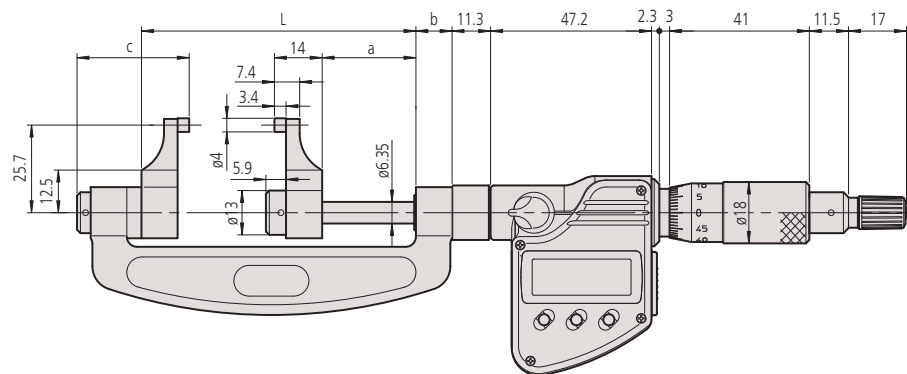
### Consumable spares

No.	Description
938882	Battery SR44 1.5V



### Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
343-250-30	0-25	$\pm 5$	0,3 $\mu$ m	(3+L/75) $\mu$ m, L = max. range	55,5	27,5	10,6	32,9	320
343-251-30	25-50	$\pm 6$	0,3 $\mu$ m	(3+L/75) $\mu$ m, L = max. range	80,5	27,5	10,6	32,9	340
343-252-30	50-75	$\pm 7$	0,3 $\mu$ m	(3+L/75) $\mu$ m, L = max. range	105,5	27,5	10,6	32,9	390
343-253-30	75-100	$\pm 8$	0,3 $\mu$ m	(3+L/75) $\mu$ m, L = max. range	130,5	27,5	10,6	32,9	440





# Caliper Jaw Micrometer

## Series 143

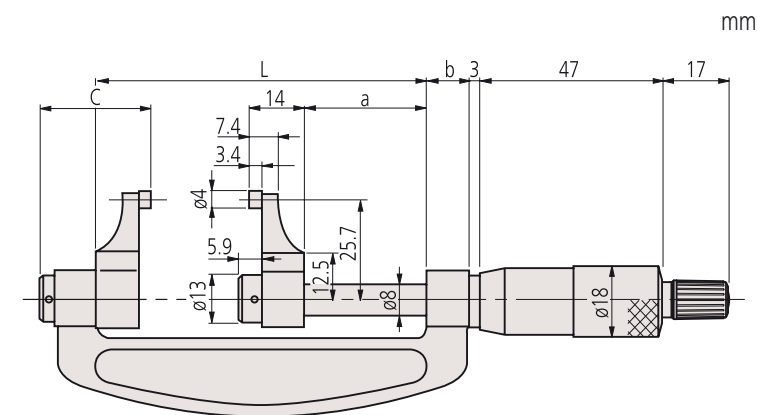
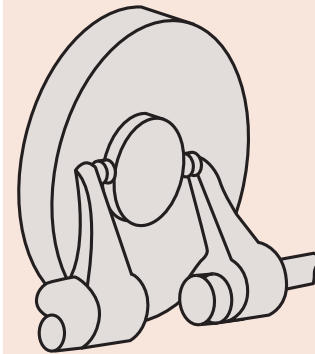
This Caliper Jaw Micrometer has been specially designed for measuring in hard-to-reach places.



143-101

### Metric

No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
143-101	0-25	$\pm 5$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	59,8	31,8	10,6	28,6	210
143-102	25-50	$\pm 6$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	84,8	31,8	10,6	28,6	230
143-103	50-75	$\pm 7$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	109,8	31,8	10,6	28,6	280
143-104	75-100	$\pm 8$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	134,8	31,8	10,6	28,6	330
143-105	100-125	$\pm 9$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	159,8	31,8	10,6	28,6	400
143-106	125-150	$\pm 9$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	184,8	31,8	10,6	28,6	450
143-107	150-175	$\pm 10$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	209,8	31,8	10,6	28,6	520
143-108	175-200	$\pm 10$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	234,8	31,8	10,6	28,6	600
143-109	200-225	$\pm 11$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	255,8	27,8	14,5	32,5	690
143-110	225-250	$\pm 11$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	280,8	27,8	14,5	32,5	790
143-111	250-275	$\pm 12$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	305,8	27,8	14,5	32,5	900
143-112	275-300	$\pm 12$	$0,3 \mu\text{m}$	$(3+L/75) \mu\text{m}$ , L = max. range	330,8	27,8	14,5	32,5	920



### Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	$\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	1-6 N
Delivered	Including box, setting standard (from 25 mm upward), key

# Universal Micrometer

## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring spindle	$\varnothing 8$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, plain and 60.0° thread, setting standard (from 25.0 mm upward), key Interchangeable anvils/spindle-tips not included

## Optional accessories

No.	Description
116-801	Measuring Tip, Flat
116-802	Measuring Tip, Spline
116-803	Measuring Tip, Spherical
116-804	Measuring Tip Point
116-805	Measuring Tip, Knife-edge
116-806	Measuring Tip, Disk
116-807	Measuring Tip Blade
116-800	Measuring Tip Set, 7 Pairs
116-830	Measuring Tip Thread Measurement Set, 6 Pairs

116-830 :  
 0,4-0,5 mm/64-48TPI (116-831)  
 0,6-0,9 mm/44-28TPI (116-832)  
 1-1,75 mm/24-14TPI (116-833)  
 2-3 mm/13-9TPI (116-834)  
 3,5-5mm/8-5TPI (116-835)  
 5,5-7mm/4,5-3,5TPI (116-836)

## Series 116

This Universal Micrometer should be used with optional interchangeable tips. It offers you the following benefits:

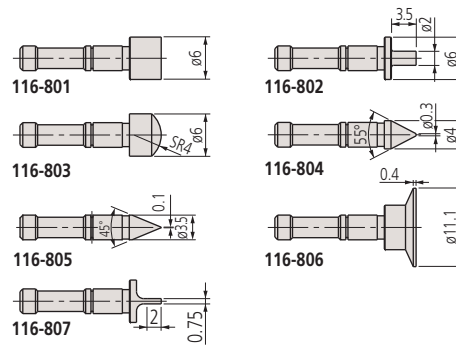
- Its non-rotating spindle accepts seven forms of optional interchangeable anvil/spindle tip (including flat, spline, spherical, point, knife-edge, disc, and blade) allowing you to use it in a wide range of applications.
- Optional anvils/spindle-tips for screw thread measurement (matching V and cone) are also available.



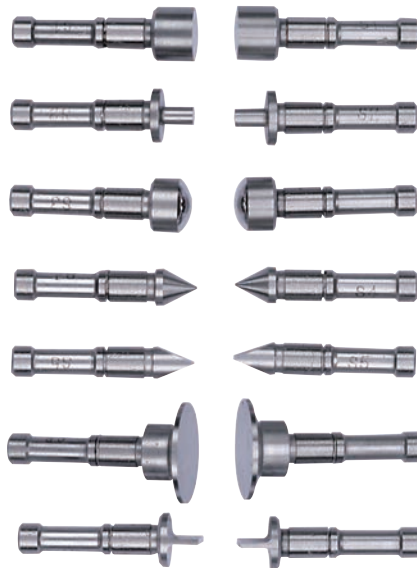
116-101

## Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Mass [g]
116-101	0-25	$\pm 4$	250
116-102	25-50	$\pm 4$	300



Optional interchangeable tips



Optional interchangeable tips

# Digimatic Screw Thread Micrometer with Interchangeable Tips

## Series 326

This Digimatic Screw Thread Micrometer should be used with optional, interchangeable, anvils/spindle-tips that allow you to measure a wide range of metric/unified and Whitworth screw-thread pitch diameters.



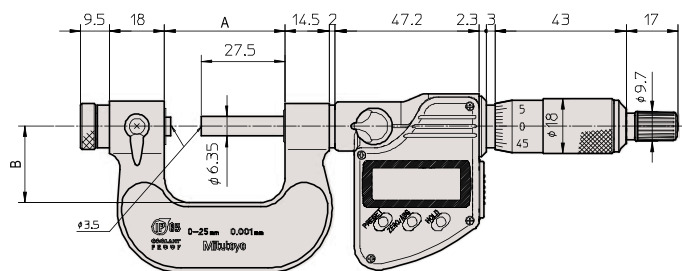
326-251-30 with optional accessories



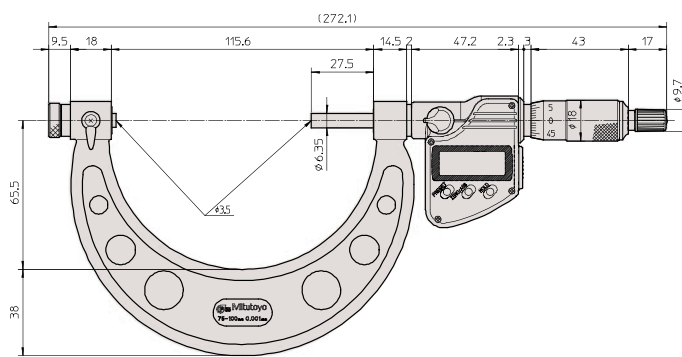
Interchangeable anvils/spindle tips in matching pairs

### Metric

No.	Range [mm]	Accuracy [μm]	A [mm]	B [mm]	Mass [g]
326-251-30	0-25	±4	39,5	25	350
326-252-30	25-50	±4	64,5	32	380
326-253-30	50-75	±4	90	45	470
326-254-30	75-100	±5	115,6	65,5	510



0-75 mm



75-100 mm



Anvil/spindle-tip matching pair

Functions	Series 326
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, ø18 mm
Measuring spindle	With spindle lock, ø6,35 mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (60°) (from 25 mm upward), key, 1 battery Interchangeable anvils/spindle tips not included

### Standard accessories

No.	Description
167-261	Setting Standard Screw Thread Micrometer, 60°, Length: 25mm
167-262	Setting Standard Screw Thread Micrometer, 60°, Length: 50mm
167-263	Setting Standard Screw Thread Micrometer, 60°, Length: 75mm

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
167-272	Setting Standard Screw Thread Micrometer, 55°, Length: 25mm
167-273	Setting Standard Screw Thread Micrometer, 55°, Length: 50mm
167-274	Setting Standard Screw Thread Micrometer, 55°, Length: 75mm
167-275	Setting Standard Screw Thread Micrometer, 55°, Length: 100mm

### Consumable spares

No.	Description
938882	Battery SR44 1.5V

# Screw Thread Micrometer with Interchangeable Tips

## Specifications

Accuracy	Refer to the list of specifications
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Graduation	0,01 mm
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, setting standard (60°) (from 25 mm upward), key Interchangeable anvils/spindle tips not included

## Standard accessories

No.	Description
167-261	Setting Standard Screw Thread Micrometer, 60°, Length: 25mm
167-262	Setting Standard Screw Thread Micrometer, 60°, Length: 50mm
167-263	Setting Standard Screw Thread Micrometer, 60°, Length: 75mm
167-264	Setting Standard Screw Thread Micrometer, 60°, Length: 100mm
167-265	Setting Standard Screw Thread Micrometer, 60°, Length: 125mm
167-266	Setting Standard Screw Thread Micrometer, 60°, Length: 150mm
167-267	Setting Standard Screw Thread Micrometer, 60°, Length: 175mm
167-268	Setting Standard Screw Thread Micrometer, 60°, Length: 200mm
167-269	Setting Standard Screw Thread Micrometer, 60°, Length: 225mm
167-270	Setting Standard Screw Thread Micrometer, 60°, Length: 250mm
167-271	Setting Standard Screw Thread Micrometer, 60°, Length: 275mm

## Optional accessories

No.	Description
167-272	Setting Standard Screw Thread Micrometer, 55°, Length: 25mm
167-273	Setting Standard Screw Thread Micrometer, 55°, Length: 50mm
167-274	Setting Standard Screw Thread Micrometer, 55°, Length: 75mm
167-275	Setting Standard Screw Thread Micrometer, 55°, Length: 100mm
167-276	Setting Standard Screw Thread Micrometer, 55°, Length: 125mm
167-277	Setting Standard Screw Thread Micrometer, 55°, Length: 150mm
167-278	Setting Standard Screw Thread Micrometer, 55°, Length: 175mm
167-279	Setting Standard Screw Thread Micrometer, 55°, Length: 200mm
167-280	Setting Standard Screw Thread Micrometer, 55°, Length: 225mm

## Series 126

This Screw Thread Micrometer should be used with optional, interchangeable, anvils/spindle-tips that allow you to measure a wide range of metric/unified and Whitworth screw-thread pitch diameters.



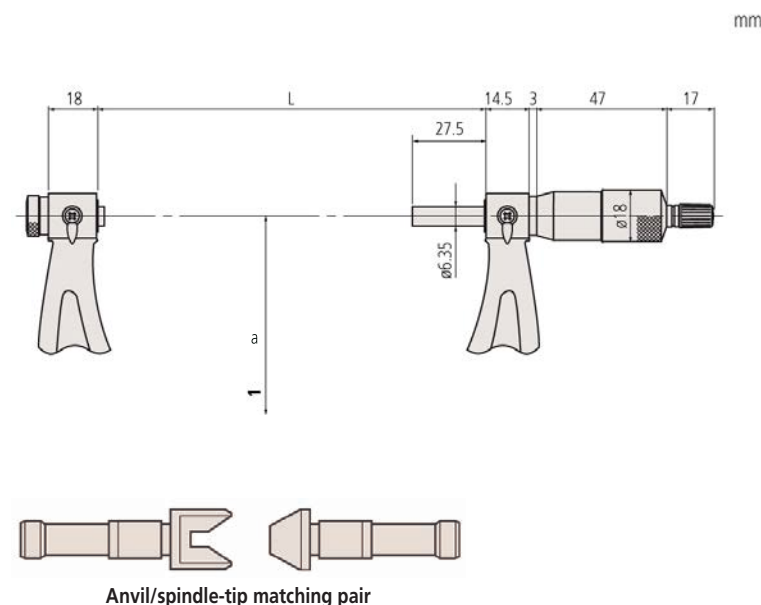
126-125 with optional accessories



Interchangeable anvils/spindle tips in matching pairs

## Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	L [mm]	a [mm]	Mass [g]
126-125	0-25	$\pm 4$	39,5	25	240
126-126	25-50	$\pm 4$	64,5	32	290
126-127	50-75	$\pm 4$	90	45	390
126-128	75-100	$\pm 5$	115,6	65	450
126-129	100-125	$\pm 5$	140,6	79	530
126-130	125-150	$\pm 5$	165,6	93	620
126-131	150-175	$\pm 6$	190,5	105	730
126-132	175-200	$\pm 6$	214,5	120	860
126-133	200-225	$\pm 6$	240,5	131	1030
126-134	225-250	$\pm 7$	265,5	144	1200
126-135	250-275	$\pm 7$	290,5	156	1370
126-136	275-300	$\pm 7$	314,5	171	1540





# Screw Thread Micrometer with Interchangeable Tips

## Series 126

Optional accessories anvils/spindle-tips



Individual measuring anvil/spindle-tip pairs

No.	Accuracy	Remarks	Metric pitch	UNF threads/inch	Whitworth threads/inch
126-801	±30'	M1 (U1)	0,4 - 0,5 mm	64 - 48 TPI	
126-802	±20'	M2 (U2)	0,6 - 0,9 mm	44 - 28 TPI	
126-803	±15'	M3 (U3)	1 - 1,75 mm	24 - 14 TPI	
126-804	±10'	M4 (U4)	2 - 3 mm	13 - 9 TPI	
126-805	±10'	M5 (U5)	3,5 - 5 mm	8 - 5 TPI	
126-806	±10'	M6 (U6)	5,5 - 7 mm	4,5 - 3,5 TPI	
126-811	±30'	W1			60 - 48 TPI
126-812	±30'	W2			48 - 40 TPI
126-813	±20'	W3			40 - 32 TPI
126-814	±20'	W4			32 - 24 TPI
126-815	±15'	W5			24 - 18 TPI
126-816	±15'	W6			18 - 14 TPI
126-817	±10'	W7			14 - 10 TPI
126-818	±10'	W8			10 - 7 TPI
126-819	±10'	W9			7 - 4,5 TPI
126-820	±10'	W10			4,5 - 3,5 TPI

Measuring anvil/spindle-tip set Metric UNF (consists of No. 126-801 to 126-806)

No.	Remarks
126-800	M1 to M6

Measuring anvil/spindle-tip set Whitworth (consists of No. 126-811 to 126-820)

No.	Remarks
126-810	W1 to W10

Ø	Thread pitch	Pitch
Nominal	P	Ø
		d2
M 1	0,25	0,838
M 1,2	0,25	1,038
M 1,4	0,30	1,205
M 1,7	0,35	1,473
M 2	0,40	1,740
M 2,3	0,40	2,040
M 2,6	0,45	2,308
M 3	0,50	2,675
M 3,5	0,60	3,110
M 4	0,70	3,545
M 5	0,80	4,480
M 6	1,00	5,350
M 8	1,25	7,188
M 10	1,50	9,026
M 12	1,75	10,863

Ø	Thread pitch	Pitch
Nominal	P	Ø
		d2
M 14	2,00	12,701
M 16	2,00	14,701
M 20	2,50	18,376
M 22	2,50	20,376
M 24	3,00	22,051
M 27	3,00	25,051
M 30	3,50	27,727
M 33	3,50	30,727
M 36	4,00	33,402
M 39	4,00	36,402
M 42	4,50	39,077
M 45	4,50	42,077
M 48	5,00	44,752
M 52	5,00	48,752
M 56	5,50	52,428
M 60	5,50	56,428

# Screw Thread Micrometer

## Specifications

Accuracy	$\pm(2+L/75) \mu\text{m}$ L = max. range (mm)
Graduation	0,01 mm
Delivered	Including box, setting standard 60° (from 25 mm upward), key



## Series 125

This Screw Thread Micrometer has a fixed anvil, offering the following benefits:

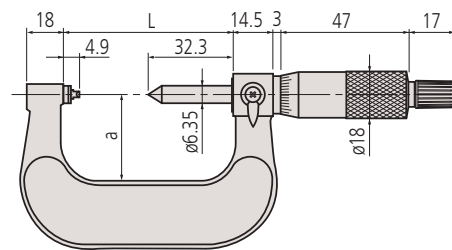
- Fixed anvil type.
- It directly indicates screw pitch diameter, meaning no need for calculation.



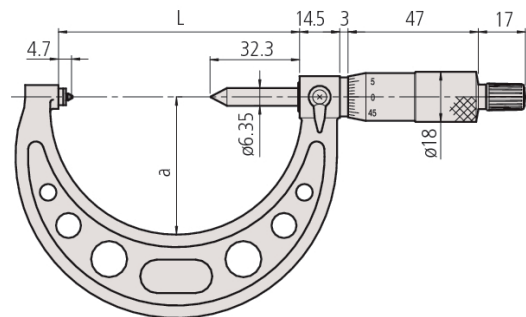
125-103

## Metric

No.	Range [mm]	Thread to be measured (Metric/Unified)	L [mm]	a [mm]	Mass [g]
125-101	0-25	0,4-0,5 mm / 64-48 TPI	37,2	25	200
125-102	0-25	0,6-0,9 mm / 44-28 TPI	37,2	25	200
125-103	0-25	1-1,75 mm / 24-14 TPI	37,2	25	200
125-104	0-25	2-3 mm / 13-9 TPI	37,2	25	200
125-105	0-25	3,5-5 mm / 8-5 TPI	37,2	25	200
125-106	25-50	0,4-0,5 mm / 64-48 TPI	62,2	32	250
125-107	25-50	0,6-0,9 mm / 44-28 TPI	62,2	32	250
125-108	25-50	1-1,75 mm / 24-14 TPI	62,2	32	250
125-109	25-50	2-3 mm / 13-9 TPI	62,2	32	250
125-110	25-50	3,5-5 mm / 8-5 TPI	62,2	32	250
125-111	50-75	0,6-0,9 mm / 44-28 TPI	87	49	260
125-112	50-75	1-1,75 mm / 24-14 TPI	87	49	260
125-113	50-75	2-3 mm / 13-9 TPI	87	49	260
125-114	50-75	3,5-5 mm / 8-5 TPI	87	49	260
125-115	50-75	5,5-7 mm / 4,5-3,5 TPI	87	49	260
125-116	75-100	0,6-0,9 mm / 44-28 TPI	112	63	330
125-117	75-100	1-1,75 mm / 24-14 TPI	112	63	330
125-118	75-100	2-3 mm / 13-9 TPI	112	63	330
125-119	75-100	3,5-5 mm / 8-5 TPI	112	63	330
125-120	75-100	5,5-7 mm / 4,5-3,5 TPI	112	63	330



0-50 mm



50-100 mm

# Digimatic Gear Tooth Micrometer

## Series 324

This Gear Tooth Micrometer has an interchangeable ball insert.

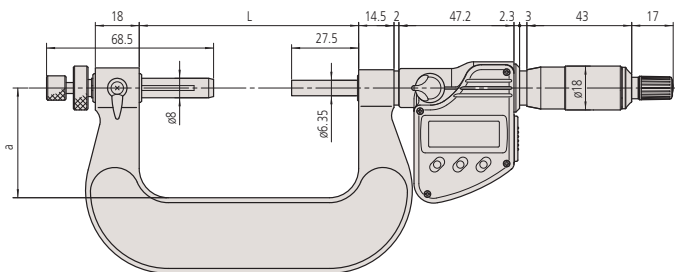
- Measuring the over-pin diameter of gears with precision.
- It has interchangeable ball inserts that allow you to measure modules sized between 0,5-5,25 mm.



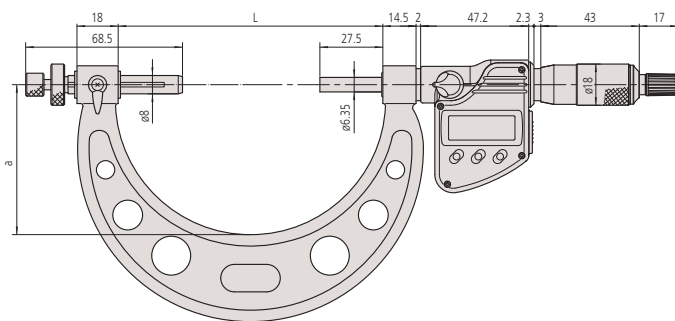
324-251-30 with optional accessories

### Metric Digital model

No.	Range [mm]	Accuracy [μm]	L [mm]	a [mm]	Mass [g]
324-251-30	0-25	±4	64,5	32	400
324-252-30	25-50	±4	90	45	490
324-253-30	50-75	±4	115,6	65,5	530
324-254-30	75-100	±5	140,6	79	600



0-50 mm



50-100 mm

Functions	Series 324
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
PRESET	●
HOLD	●

### Specifications

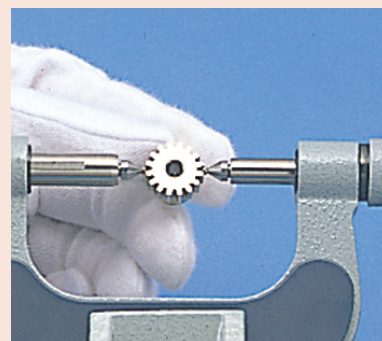
Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Thimble and sleeve satin chrome finish, ø18 mm
Digital step	0,001 mm
Measuring spindle	With spindle lock, ø6,35 mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery Interchangeable anvils/spindle tips not included

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



# Gear Tooth Micrometer

## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, setting standard (from 25 mm upward), key, interchangeable anvils/spindle tips not included

## Series 124

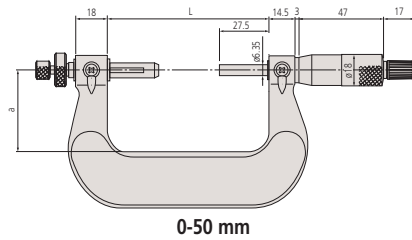


124-173 with optional accessories

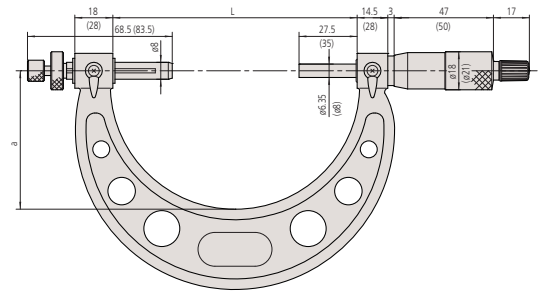
### Metric

Analog model

No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	L [mm]	a [mm]	Mass [g]
124-173	0-25	$\pm 4$	64,5	32	295
124-174	25-50	$\pm 4$	90	45	400
124-175	50-75	$\pm 4$	115,6	65	460
124-176	75-100	$\pm 5$	140,6	79	540
124-177	100-125	$\pm 5$	165,6	93	640
124-178	125-150	$\pm 5$	190,5	105	760
124-179	150-175	$\pm 6$	214,5	120	900
124-180	175-200	$\pm 6$	240,5	131	1060
124-181	200-225	$\pm 6$	265,5	144	1230
124-182	225-250	$\pm 7$	290,5	156	1430
124-183	250-275	$\pm 7$	314,5	171	1620
124-195	275-300	$\pm 7$	353	187	2070



0-50 mm

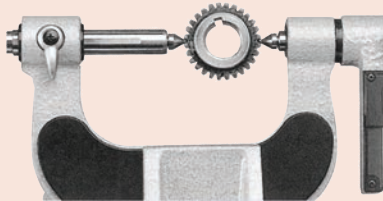


50-300 mm

## Interchangeable Ball Anvil/Spindle Tip Set

### Series 124/ 324

These optional interchangeable anvils allow you to measure the over-pin diameter of gears with precision.



### Metric

No.	Diameter	Remarks	Gear module	Dia. pitch
124-801	0,8 mm	carbide-tipped type	0,5-0,55	50
124-802	1 mm	carbide-tipped type	0,6-0,65	45
124-821	1,5 mm	carbide-tipped type	0,9-1	28-26
124-805	2 mm	carbide-tipped type	1,25	22
124-822	2,5 mm		1,5	17
124-807	3 mm		1,75	15
124-823	3,5 mm		2	13
124-810	4 mm		2,25	11
124-824	4,5 mm		2,5	10
124-812	5 mm		2,75	9
124-814	6 mm		3,5	7
124-816	7 mm		4	6,5
124-819	8 mm		4,75	5,5



# Digimatic Disc Micrometer

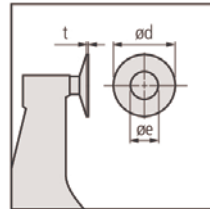
## Series 323

This Digimatic Disc Micrometer enables you to measure hard-to-reach features, offering you the following benefits:

- Measuring the root tangent length of spur and helical gears.
- You can measure recessed features that are difficult to reach with a standard micrometer.

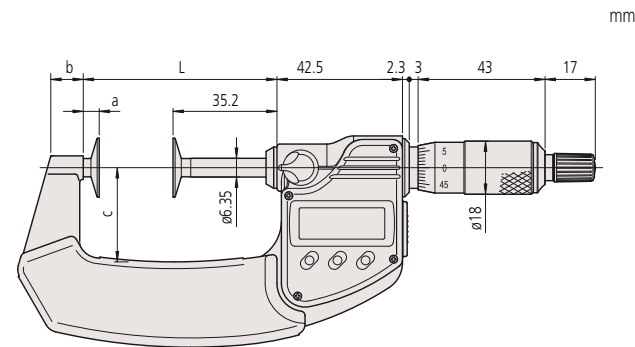


323-250-30

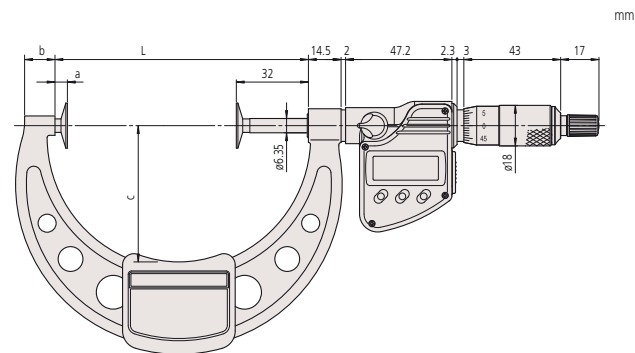


### Metric

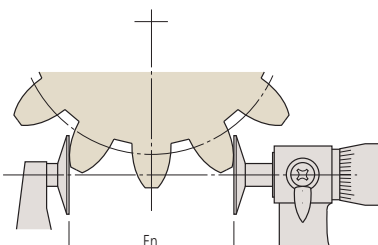
No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	e [mm]	d [mm]	t [mm]	Mass [g]
323-250-30	0-25	$\pm 4$	1 $\mu$ m	4 $\mu$ m	39,7	4,5	9,2	25	8	20	0,7	290
323-251-30	25-50	$\pm 4$	1 $\mu$ m	4 $\mu$ m	65,6	5,4	11	31	8	20	0,7	355
323-252-30	50-75	$\pm 6$	1 $\mu$ m	6 $\mu$ m	90,7	5,5	12,2	50	8	20	0,7	555
323-253-30	75-100	$\pm 6$	1 $\mu$ m	6 $\mu$ m	112,5	5,5	13,5	60	8	20	0,7	610



0-75 mm



75-100 mm



Root tangent length of gear (En)

Functions	Series 323
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\phi 18$ mm
Measuring spindle	With spindle lock, spindle pitch 0,5 mm
Measurable module	0,5-6
Measuring force	5-10 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



# Disc Micrometer

## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing$ 18 mm
Measuring spindle	With spindle lock, spindle pitch 0,5 mm
Measurable module	0,5-6 0,7-11 : models over 100 mm
Measuring force	5-10 N
Delivered	Including box, setting standard (from 25 mm upward), key

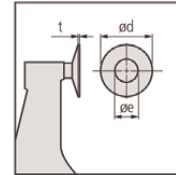
## Series 123

This Disc Micrometer enables you to measure hard-to-reach features, offering you the following benefits:

- Measuring the root tangent length of spur and helical gears.
- You can measure recessed features that are difficult to reach with a standard micrometer.



123-101



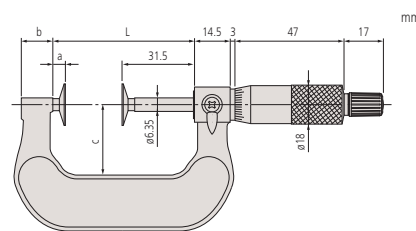
## Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	e [mm]	d [mm]	t [mm]	Mass [g]
123-101	0-25	$\pm 4$	1 $\mu$ m	4 $\mu$ m	37,5	6	14	25	8	20	0,7	200
123-102	25-50	$\pm 4$	1 $\mu$ m	4 $\mu$ m	62,5	6	14	32	8	20	0,7	250
123-103	50-75	$\pm 6$	1 $\mu$ m	6 $\mu$ m	87	5,5	11	49	8	20	0,7	300
123-104	75-100	$\pm 6$	1 $\mu$ m	6 $\mu$ m	112	5,5	11	63	8	20	0,7	375
123-105	100-125	$\pm 7$	1,6 $\mu$ m	(5+L/75) $\mu$ m, L = max. range	137,5	6	12	79	12	30	1	520
123-106	125-150	$\pm 7$	1,6 $\mu$ m	(5+L/75) $\mu$ m, L = max. range	162,5	6	15	94	12	30	1	570
123-107	150-175	$\pm 8$	1,6 $\mu$ m	(5+L/75) $\mu$ m, L = max. range	187,5	6	16	106	12	30	1	730
123-108	175-200	$\pm 8$	1,6 $\mu$ m	(5+L/75) $\mu$ m, L = max. range	212,5	6	15	118	12	30	1	890
123-109	200-225	$\pm 8$	1,6 $\mu$ m	(5+L/75) $\mu$ m, L = max. range	237,5	6	14	130	12	30	1	1000
123-110	225-250	$\pm 9$	1,6 $\mu$ m	(5+L/75) $\mu$ m, L = max. range	262,5	6	14	143	12	30	1	1200
123-111	250-275	$\pm 9$	1,6 $\mu$ m	(5+L/75) $\mu$ m, L = max. range	287,5	6	15	156	12	30	1	1410
123-112	275-300	$\pm 9$	1,6 $\mu$ m	(5+L/75) $\mu$ m, L = max. range	312,5	6	15	169	12	30	1	1680

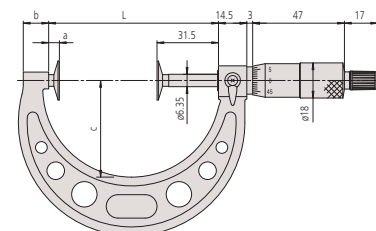
## Metric

disks have carbide tips

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	e [mm]	d [mm]	t [mm]	Mass [g]
123-113	0-25	$\pm 4$	1 $\mu$ m	4 $\mu$ m	39,7	4,5	9,2	25	9,8	20	0,7	200
123-114	25-50	$\pm 4$	1 $\mu$ m	4 $\mu$ m	65,6	5,4	11	31	9,8	20	0,7	250
123-115	50-75	$\pm 6$	1 $\mu$ m	6 $\mu$ m	90,7	5,5	12,2	50	9,8	20	0,7	300
123-116	75-100	$\pm 6$	1 $\mu$ m	6 $\mu$ m	112,5	5,5	13,5	60	9,8	20	0,7	375



0-50 mm



50-300 mm

# Digimatic Disc Micrometer Non-Rotating Spindle Type

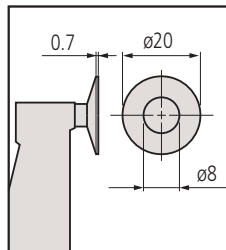
## Series 369

This Digimatic Disc Micrometer allows you to measure a range of different materials. It offers you the following benefits:

- Non-rotating spindle and disc-shaped measuring surfaces.
- Measuring the root tangent length of spur and helical gears
- Measurable range of gear pitch: 0,5-6 module
- Suitable for measuring felt, rubber, cardboard, fabric etc.

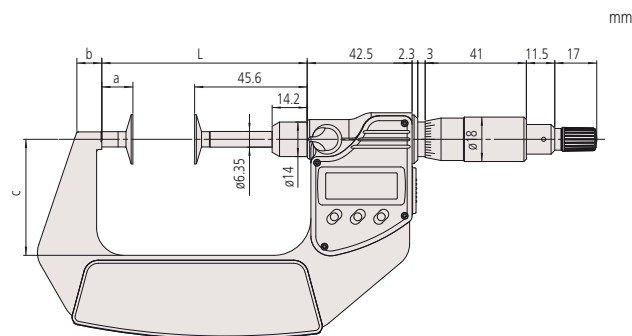


369-250-30

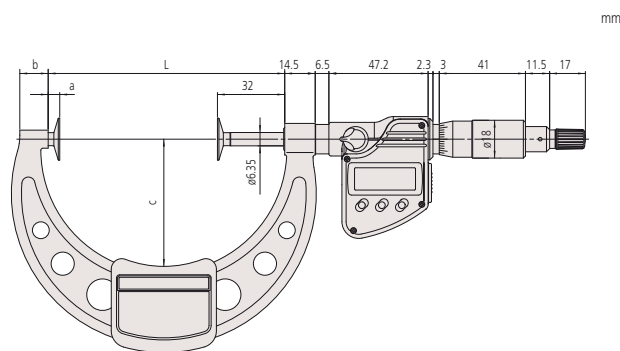


### Metric

No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
369-250-30	0-25	$\pm 4$	1 $\mu\text{m}$	4 $\mu\text{m}$	58,5	12,9	7	32	340
369-251-30	25-50	$\pm 4$	1 $\mu\text{m}$	4 $\mu\text{m}$	83,5	12,9	9,8	47	480
369-252-30	50-75	$\pm 6$	1 $\mu\text{m}$	6 $\mu\text{m}$	108,5	12,9	11,2	60	635
369-253-30	75-100	$\pm 6$	1 $\mu\text{m}$	6 $\mu\text{m}$	112,5	5,5	13,5	60	775



0-75 mm



75-100 mm

Functions	Series 369
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring spindle	With spindle lock, spindle pitch 0,5 mm
Measurable module	0,5-6
Measuring force	3-8 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



# ABSOLUTE Digimatic Disc Micrometer Quickmike

ABSOLUTE®

**IP65**

369-411-20  
369-412-20

Functions	Series 369 and Series 227
ORIGIN	●
ZERO/ABS	●
ON/OFF	●
Low voltage alarm	●
Data output	●
HOLD	●

## Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Measuring surfaces	Hardened steel, micro-lap finish surfaces
Measuring spindle	Non-rotating, 10 mm pitch
Measurable module	0,5-6 0,4-3 Series 227
Measuring force	3-8 N
Battery life	Approx. 5 years under normal use
Display	LCD, character height 10 mm
Delivered	Including box, setting standard (from 25 mm upward), 1 battery

## Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V



**Adjustable Measuring Force**  
227-221-20  
227-223-20

## Series 369 and Series 227

The ABSOLUTE Digimatic Disc Micrometer Quickmike allows you to measure with a fast spindle feed of 10 mm/rev. It offers you the following benefits:

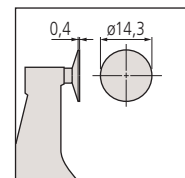
- Suitable for measuring felt, rubber, cardboard, fabric etc.
- Suitable to measure "root tangent length" of spur gears and helical gears.
- With a non-rotating spindle and disc-shaped measuring surface.
- Measuring force is adjustable for various kinds of workpieces (series 227)



369-411-20



227-221-20



Series 227 without recess

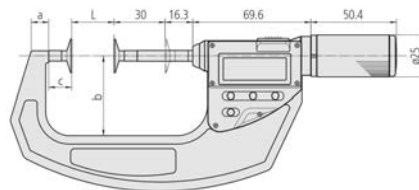
## Metric

No.	Range [mm]	Accuracy [µm]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
369-411-20	0-30	± 4	1 µm	4 µm	0	8,5	36	13,5	360
369-412-20	25-55	± 4	1 µm	4 µm	25	10,3	47	13,5	490

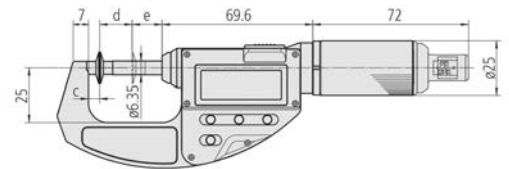
## Metric

Quickmike type with adjustable measuring force

No.	Range [mm]	Accuracy [µm]	Flatness	Parallelism	c [mm]	d [mm]	e [mm]	Measuring force settings <sup>(1)</sup> [N]	Measuring force accuracy <sup>(1)</sup> [N]	Mass [g]
227-221-20	0-15	± 4	1 µm	3 µm	5,2	15	13,8	0,5; 1; 1,5; 2; 2,5	±0,1 + (for setting/10)	300
227-223-20	0-10	± 4	1 µm	3 µm	5,2	10	18,8	2; 4; 6; 8; 10	±0,4 + (for setting/10)	340



369-411-20, 369-412-20



227-221-20, 227-223-20

<sup>(1)</sup> Only valid for instrument orientation within ±3 degrees of horizontal when measuring.



# Disc Micrometer Non-Rotating Spindle Type

## Series 169

This Disc Micrometer has a non-rotating spindle and allows you measure a range of different materials.

It offers you the following benefits:

- It features a non-rotating spindle and disc-shaped measuring surfaces.
- Measuring the root tangent length of spur and helical gears
- Measurable range of gear pitch: 0,5-6 module
- It's suitable for measuring materials such as felt, rubber, cardboard and fabric.

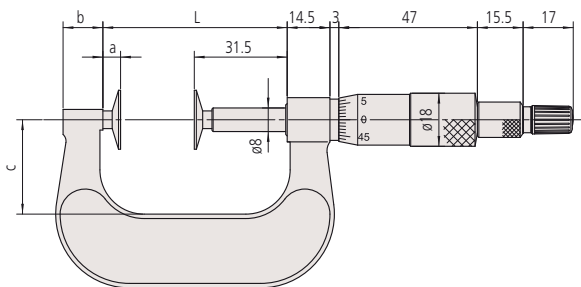


169-201

### Metric

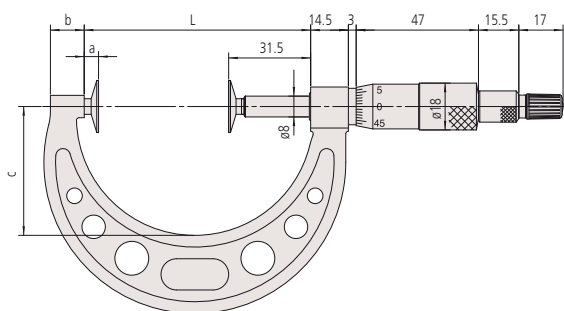
No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
169-101	0-25	$\pm 4$	1 $\mu\text{m}$	3 $\mu\text{m}$	37,5	6	13,5	25	230
169-201	0-25	$\pm 4$	1 $\mu\text{m}$	4 $\mu\text{m}$	37,5	6	13,5	25	230
169-202	25-50	$\pm 4$	1 $\mu\text{m}$	4 $\mu\text{m}$	62,5	6	13,5	32	280
169-205	50-75	$\pm 6$	1 $\mu\text{m}$	6 $\mu\text{m}$	87	5,5	13	49	315
169-207	75-100	$\pm 6$	1 $\mu\text{m}$	6 $\mu\text{m}$	112	5,5	13	63	400

mm



0-50 mm

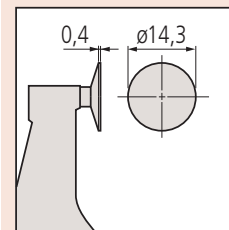
mm



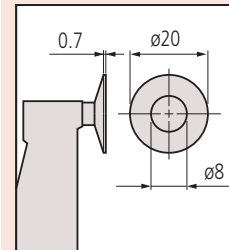
50-100 mm

### Specifications

Accuracy	Refer to the list of specifications.
Graduation	0,01mm
Scale	Thimble and sleeve satin chrome finish, $\phi$ 18 mm
Measuring spindle	$\phi$ 8 mm, spindle pitch 0,5 mm
Measuring force	8,02 N $\pm$ 0,8 N (169-101) 5-10 N
Delivered	Including box, setting standard (from 25 mm upward), key



169-101 no central recess



With annular measuring surfaces

# Digimatic Spline Micrometer



Functions	Series 331
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

## Specifications

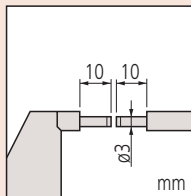
Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\phi 18$ mm
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	With spindle lock, $\phi 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Battery life	approx 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery

## Optional accessories

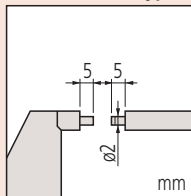
No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V



Type A



Type B

## Series 331

This digimatic spline micrometer makes it easy for you to measure grooves and shaped parts. It offers you the following benefits:

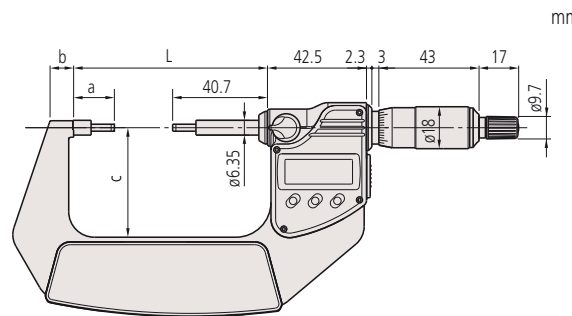
- Outstanding accuracy and oil-resistant material used for all plastic parts (IP65)
- Anvil and spindle are of small diameter for measuring splined shafts, slots and keyways.
- Excellent resistance against water and dust (IP65 protection level) enables this micrometer to be used in machining situations that include splashing coolant fluid.



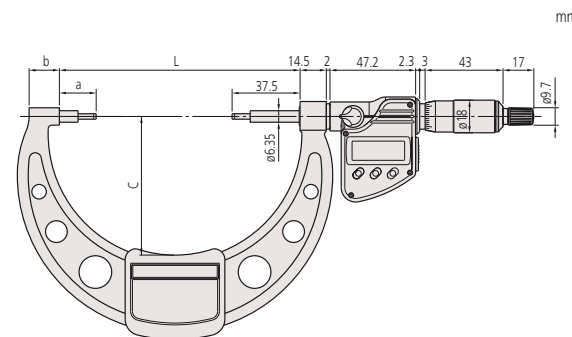
331-251-30

## Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	Anvil/ Tip	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
331-251-30	0-25	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	A	58,2	17,5	7,3	32	330
331-261-30	0-25	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	B	58,2	17,5	7,3	32	330
331-252-30	25-50	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	A	83,2	17,5	10,1	47	470
331-262-30	25-50	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	B	83,2	17,5	10,1	47	470
331-253-30	50-75	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	A	108,2	17,5	11,5	60	625
331-263-30	50-75	$\pm 2$	0,3 $\mu$ m	2 $\mu$ m	B	108,2	17,5	11,5	60	625
331-254-30	75-100	$\pm 3$	0,3 $\mu$ m	3 $\mu$ m	A	132,8	20,3	16,7	76	565
331-264-30	75-100	$\pm 3$	0,3 $\mu$ m	3 $\mu$ m	B	132,8	20,3	16,7	76	565



0-75 mm



75-100 mm

# Spline Micrometer

## Series 111

This Spline Micrometer makes it easy for you to measure grooves and shaped parts. It offers you the following benefits:

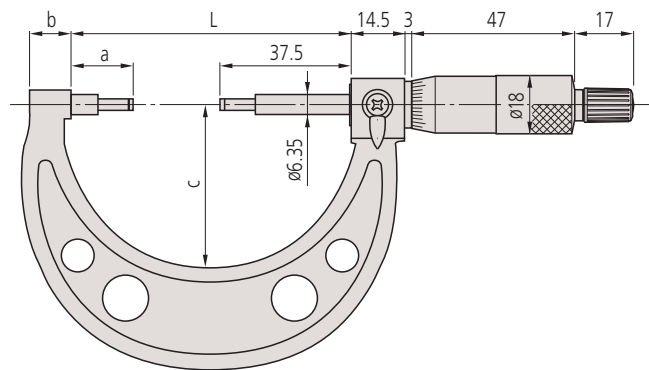
- Stepped measuring surfaces.
- Suitable for measuring grooves, splined shafts, recesses, shaped parts, etc.



111-115

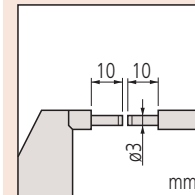
### Metric

No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	Parallelism	Anvil/ Tip	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
111-115	0-25	$\pm 3$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	54,5	17,5	10	38	205
111-215	0-25	$\pm 3$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	B	54,5	17,8	10	38	205
111-116	25-50	$\pm 3$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	79,5	17,8	12	49	305
111-117	50-75	$\pm 3$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	104,5	17,8	14	60	370
111-118	75-100	$\pm 4$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	132,3	20,3	16,7	79	500
111-119	100-125	$\pm 4$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	157,7	20,7	18,8	94	655
111-120	125-150	$\pm 4$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	183,1	21,1	19,1	106	710
111-121	150-175	$\pm 5$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	208,3	21,3	18,2	118	900
111-122	175-200	$\pm 5$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	233,7	21,7	16,8	130	1040
111-123	200-225	$\pm 5$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	257,5	20,5	18	143	1245
111-124	225-250	$\pm 6$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	283,5	21,5	18	156	1395
111-125	250-275	$\pm 6$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	308,5	21,5	18	169	1555
111-126	275-300	$\pm 6$	0,3 $\mu\text{m}$	(2+L/100) $\mu\text{m}$ , L = max. range	A	333,5	21,5	18	181	1975

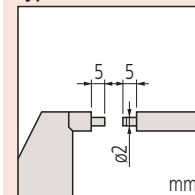


### Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish $\varnothing 18$ mm
Measuring surfaces	carbide-tipped, micro-lap finish, stepped
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, setting standard (from 25 mm upward), key



Type A



Type B

# Digimatic Tube Micrometer



Functions	Series 395
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

## Specifications

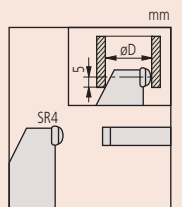
Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, ø18 mm
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	With spindle lock, ø 6,35 mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery

## Optional accessories

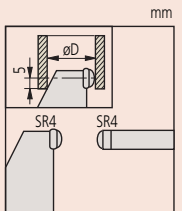
No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V



Type A



Type B

## Series 395

This Digimatic Tube Micrometer allows you to measure curved surfaces such as the wall thickness of tubes, bearings and rings.



395-251-30

## Metric

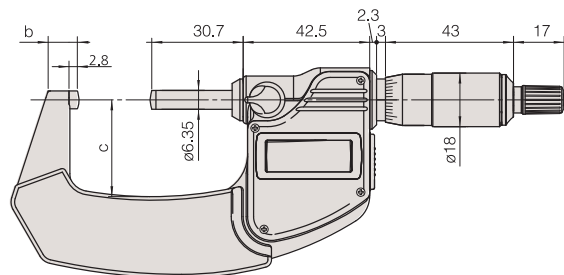
Model with spherical anvil

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Anvil/ Tip	D [mm]	b [mm]	c [mm]	Mass [g]
395-251-30	0-25	$\pm 2$	0,3 $\mu$ m	Type A	15	9	25	270
395-252-30	25-50	$\pm 2$	0,3 $\mu$ m	Type A	15	9,8	32	330
395-253-30	50-75	$\pm 2$	0,3 $\mu$ m	Type A	19	12,6	47	470
395-254-30	75-100	$\pm 3$	0,3 $\mu$ m	Type A	20	14	60	625

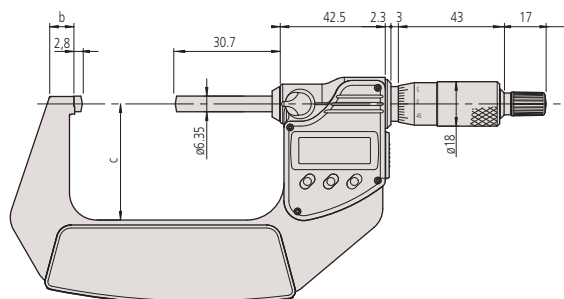
## Metric

Model with spherical anvil and spindle

No.	Range [mm]	Accuracy [ $\mu$ m]	Anvil/ Tip	D [mm]	b [mm]	c [mm]	Mass [g]
395-271-30	0-25	$\pm 2$	Type B	15	9	25	270
395-272-30	25-50	$\pm 2$	Type B	15	9,8	32	330
395-273-30	50-75	$\pm 2$	Type B	19	12,6	32	470
395-274-30	75-100	$\pm 3$	Type B	20	14	60	625



0-50 mm



50-100 mm

# Digimatic Tube Micrometer

## Series 395

This Digimatic Tube Micrometer allows you to measure curved surfaces such as the wall thickness of tubes, bearings and rings.



395-261-30



395-262-30



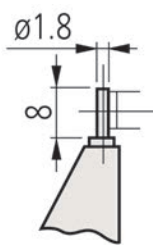
395-263-30



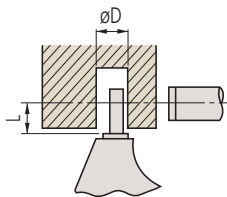
395-264-30

### Metric

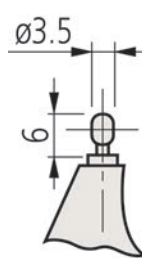
No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	Anvil/ Tip	L [mm]	D [mm]	Mass [g]
395-261-30	0-25	$\pm 3$	0,3 $\mu\text{m}$	Type A	4	2	270
395-262-30	0-25	$\pm 3$	0,3 $\mu\text{m}$	Type B	4	3,6	270
395-263-30	0-25	$\pm 3$	0,3 $\mu\text{m}$	Type C	12	4,8	310
395-264-30	0-25	$\pm 3$	0,3 $\mu\text{m}$	Type D	22	8,2	310



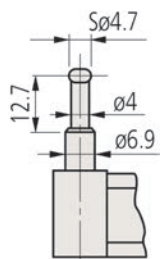
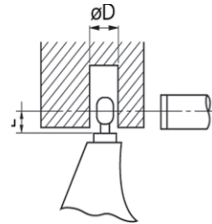
Type A



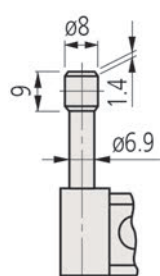
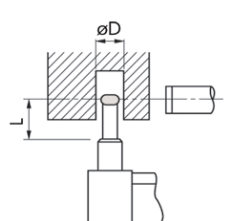
Type B



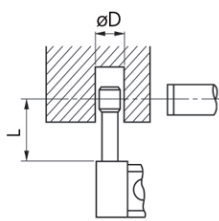
Type B



Type C



Type D



Functions	Series 395
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring surfaces	Carbide tipped, micro-lap finish (spindle) anvil: hardened steel
Measuring spindle	with spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	3-8 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V





# Tube Micrometer

## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring surfaces	Spindle and anvil: carbide-tipped, micro-lap finish (115-1xx, 115-2xx) spindle: carbide tipped anvil: hardened steel (115-3xx)
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N (Type E, F) 3-8 N (Type A, B, C, D)
Delivered	Including box, setting standard (from 25 mm upward), key

## Series 115

This Tube Micrometer allows you to measure curved surfaces such as the wall thickness of tubes, bearings and rings.



115-215

### Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Remarks	L [mm]	D [mm]	Mass [g]
115-302	0-25	$\pm 3$	0,6 $\mu$ m	Type A	4	2	180
115-308	0-25	$\pm 3$	0,6 $\mu$ m	Type B	4	3,6	180
115-315	0-25	$\pm 3$	0,6 $\mu$ m	Type C	12	4,8	180
115-316	0-25	$\pm 3$	0,6 $\mu$ m	Type D	22	8,2	180
115-303	25-50	$\pm 3$	0,6 $\mu$ m	Type A	4	2	240
115-309	25-50	$\pm 3$	0,6 $\mu$ m	Type B	4	3,6	240

### Metric

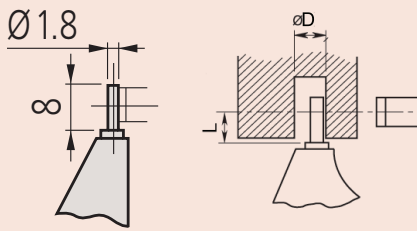
Model with spherical anvil

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Remarks	D [mm]	Mass [g]
115-115	0-25	$\pm 3$	0,6 $\mu$ m	Type E	10	180
115-116	25-50	$\pm 3$	0,6 $\mu$ m	Type E	11	240
115-117	50-75	$\pm 3$	0,6 $\mu$ m	Type E	17	315
115-118	75-100	$\pm 4$	0,6 $\mu$ m	Type E	18	375

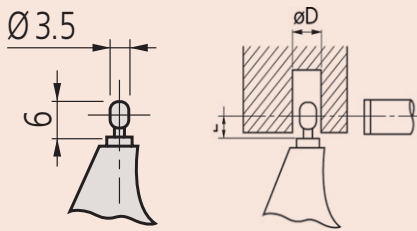
### Metric

Model with spherical anvil and spindle face

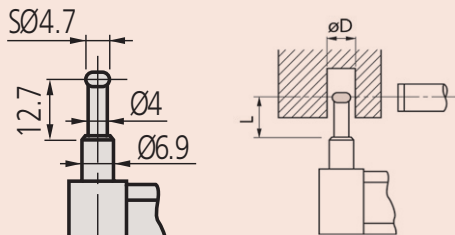
No.	Range [mm]	Accuracy [ $\mu$ m]	Remarks	D [mm]	Mass [g]
115-215	0-25	$\pm 3$	Type F	10	180
115-216	25-50	$\pm 3$	Type F	11	240
115-217	50-75	$\pm 3$	Type F	17	315
115-218	75-100	$\pm 4$	Type F	18	375



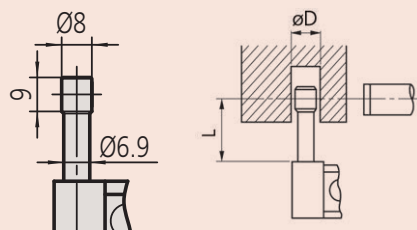
Type A



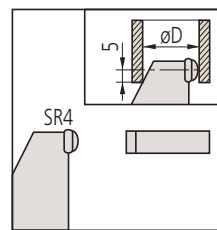
Type B



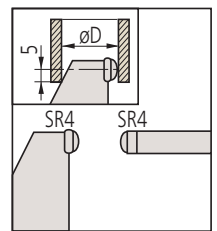
Type C



Type D



Type E



Type F

# Digimatic Point Micrometer

## Series 342

This Digimatic Point Micrometer features a pointed anvil and spindle, and offers the following benefits:

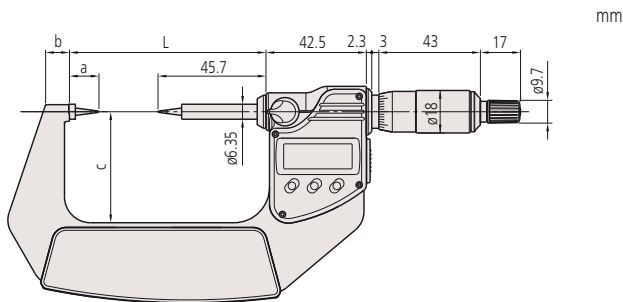
- Its pointed anvil and spindle has a choice of included angle, ending in small-radius contact points.
- You can use it to measure grooves, steps and similar.



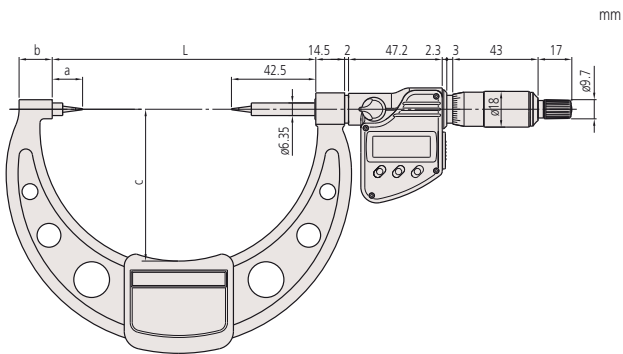
342-251-30

### Metric

No.	Range [mm]	Accuracy [μm]	L [mm]	a [mm]	b [mm]	c [mm]	Point	Mass [g]
342-251-30	0-25	±2	58,2	12,5	7,3	32	15°	330
342-261-30	0-25	±2	58,2	12,5	7,3	32	30°	330
342-252-30	25-50	±2	83,2	12,5	10,1	47	15°	470
342-262-30	25-50	±2	83,2	12,5	10,1	47	30°	470
342-253-30	50-75	±2	108,2	12,5	11,5	60	15°	625
342-263-30	50-75	±2	108,2	12,5	11,5	60	30°	625
342-254-30	75-100	±3	132,8	15,3	16,7	76	15°	565
342-264-30	75-100	±3	132,8	15,3	16,7	76	30°	565



0-75 mm



75-100 mm

Functions	Series 342
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●

### Specifications

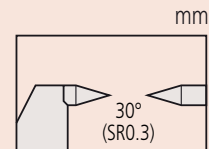
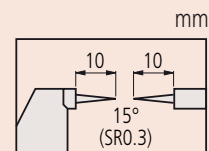
Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, ø18 mm
Measuring surfaces	Carbide tipped and conical spindle and anvil, measuring point radius 0,3 mm
Measuring spindle	with spindle lock, ø 6,35 mm, spindle pitch 0,5 mm
Measuring force	3-8 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

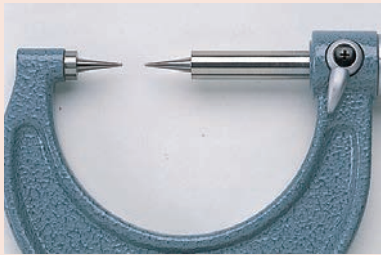
No.	Description
938882	Battery SR44 1.5V



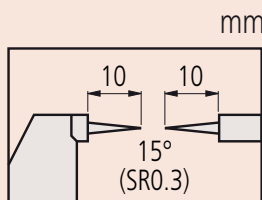
# Point Micrometer

## Specifications

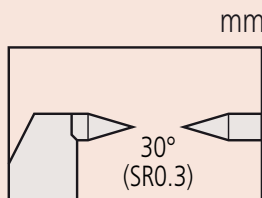
Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish $\phi 18$ mm
Measuring surfaces	Carbide pointed or hardened steel spindle and anvil, measuring point radius 0,3 mm
Measuring spindle	With spindle lock, spindle pitch 0,5 mm
Measuring force	3-8 N
Delivered	Including box, setting standard (from 25 mm upward), key



Type angle : 15°



Type angle : 30°



## Series 112

This Point Micrometer features a pointed anvil and spindle, and offers the following benefits:

- Its pointed anvil and spindle has a choice of included angle, ending in small-radius contact points.
- You can use it to measure grooves, steps and similar.



112-201

### Metric

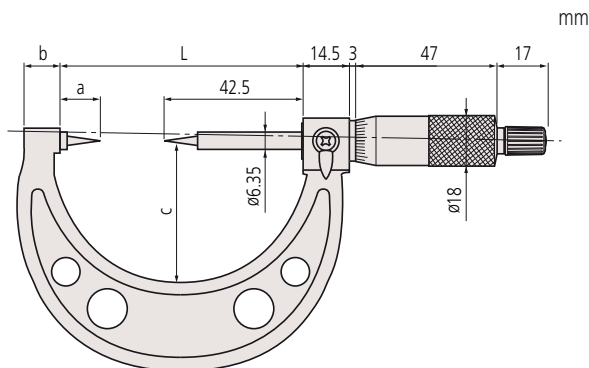
#### Carbide tip

No.	Range [mm]	Accuracy [ $\mu$ m]	Point	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
112-165	0-25	$\pm 3$	15°	55,3	12,8	10	38	205
112-213	0-25	$\pm 3$	30°	55,3	12,8	10	38	205
112-166	25-50	$\pm 3$	15°	80,3	12,8	12	49	305
112-214	25-50	$\pm 3$	30°	80,3	12,8	12	49	305
112-167	50-75	$\pm 3$	15°	105,3	12,8	14	60	370
112-215	50-75	$\pm 3$	30°	105,3	12,8	14	60	370
112-168	75-100	$\pm 4$	15°	132,8	15,3	17	79	500
112-216	75-100	$\pm 4$	30°	132,8	15,3	17	79	500

### Metric

#### Hardened steel tip

No.	Range [mm]	Accuracy [ $\mu$ m]	Point	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
112-153	0-25	$\pm 3$	15°	55,3	12,8	10	38	205
112-201	0-25	$\pm 3$	30°	55,3	12,8	10	38	205
112-154	25-50	$\pm 3$	15°	80,3	12,8	12	49	305
112-202	25-50	$\pm 3$	30°	80,3	12,8	12	49	305
112-155	50-75	$\pm 3$	15°	105,3	12,8	14	60	370
112-203	50-75	$\pm 3$	30°	105,3	12,8	14	60	370
112-156	75-100	$\pm 4$	15°	132,8	15,3	17	79	500
112-204	75-100	$\pm 4$	30°	132,8	15,3	17	79	500



# Crimp Height Micrometer

## Series 342/ Series 112

This crimp height micrometer that features a flat anvil and pointed spindle offers you the following benefits:

- It allows you to measure the crimped height of electrical contacts.
- Outstanding accuracy and oil-resistant material used for all plastic parts
- Excellent resistance against water and dust enables this micrometer to be used in machining situations that include splashing coolant fluid.



112-401



342-271-30



342-451-20

### Metric Analog model

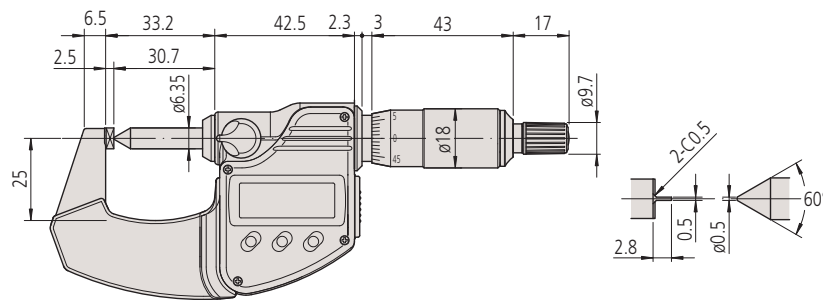
No.	Range [mm]	Accuracy [μm]	Mass [g]
112-401	0-25	±3	165

### Metric Digital model

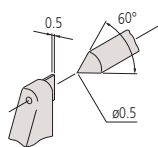
No.	Range [mm]	Accuracy [μm]	Mass [g]
342-271-30	0-25	±3	270

### Metric Quickmike

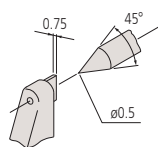
No.	Range [mm]	Accuracy [μm]	Mass [g]
342-451-20	0-15	±3	270



342-271-30



342-271-30  
112-401



342-451-20

	Series 342/ Series 112	
	342-271-30	342-451-20
<b>Functions</b>		
ORIGIN	●	●
ZERO/ABS	●	●
ON/OFF		●
Auto Power OFF after 20 min. non use	●	
Low voltage alarm	●	●
Function lock	●	●
Data output	●	●
HOLD	●	●

### Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Digital step	0,001 mm
Measuring force	3-8 N 4-6 (342-451-20) N
Scale	Thimble and sleeve satin chrome finish, ø 18 mm (342-271-30, 112-401)
Measuring surfaces	Hardened and precision ground
Measuring spindle	With spindle lock, ø 6,35 mm, spindle pitch 0,5 mm (342-271-30, 112-401) without spindle lock ø 6,35 mm, spindle pitch 10 mm (342-451-20)
Battery life	Appr. 2,4 years (342-271-30), 5 years under normal use (342-451-20)
Delivered	Including box, 1 battery

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type

02AZD880G, 02AZD730G, 02AZD790B  
Wireless System for 342-451-20



# Digimatic Blade Micrometer

Functions	Series 422
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

## Specifications

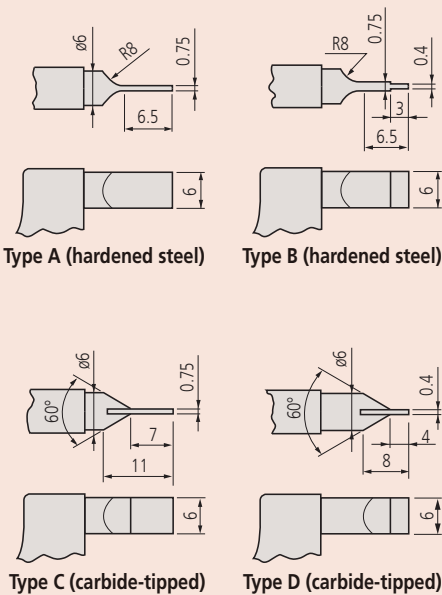
Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	3-8 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery

## Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V



## Series 422

This digimatic blade micrometer is designed to help you measure hard-to-reach features. It offers the following benefits:

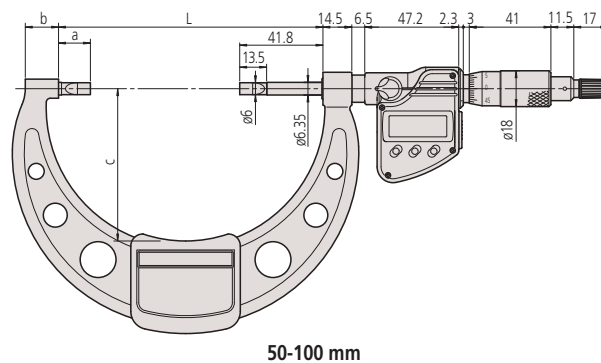
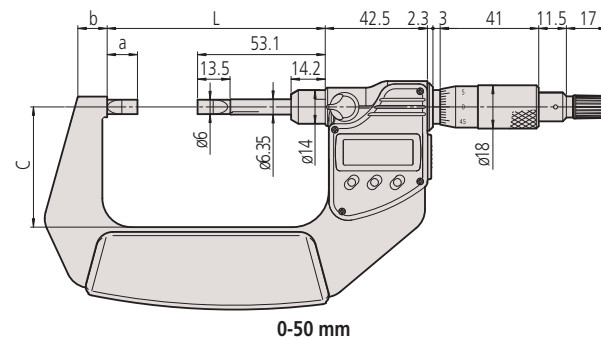
- Blade-shaped anvil and spindle for measuring the groove diameter of shafts, keyways and other hard-to reach features
- Non-rotating spindle



422-230-30

## Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Anvil/ Tip	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
422-230-30	0-25	$\pm 3$	Type A	3 $\mu$ m	65,6	12,5	11	31	365
422-260-30	0-25	$\pm 3$	Type B	3 $\mu$ m	65,6	12,5	11	31	365
422-270-30	0-25	$\pm 3$	Type C	3 $\mu$ m	65,6	12,5	11	31	365
422-271-30	0-25	$\pm 3$	Type D	3 $\mu$ m	65,6	12,5	11	31	365
422-231-30	25-50	$\pm 3$	Type A	3 $\mu$ m	90,7	12,6	12,2	50	565
422-261-30	25-50	$\pm 3$	Type B	3 $\mu$ m	90,7	12,6	12,2	50	565
422-232-30	50-75	$\pm 3$	Type A	3 $\mu$ m	105,3	13,5	14,1	57	465
422-233-30	75-100	$\pm 4$	Type A	4 $\mu$ m	132,8	16	16,7	76	580





# ABSOLUTE Digimatic Blade Micrometer Quickmike

## Series 422

This ABSOLUTE digimatic blade micrometer Quickmike is designed to help you measure hard-to-reach features. It offers the following benefits:

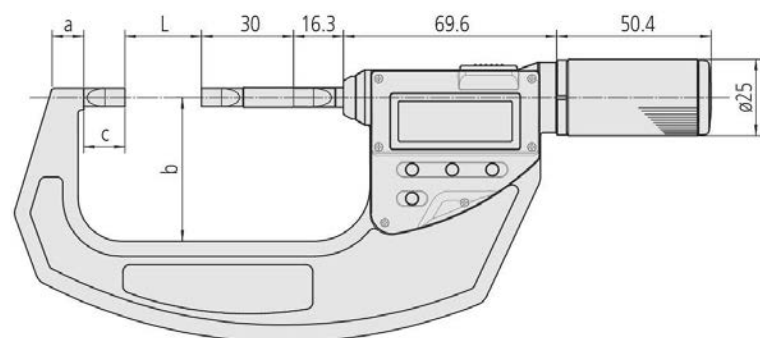
- Blade-shaped anvil and spindle for measuring the groove diameter of shafts, keyways and other hard-to reach features
- Non-rotating spindle
- Fast spindle feed of 10 mm / revolution



422-411-20

### Metric

No.	Range [mm]	Accuracy [μm]	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
422-411-20	0-30	± 3	3 μm	0	8,5	36	13,5	350
422-412-20	25-55	± 3	3 μm	25	10,3	47	13,5	490



Functions	Series 422
ORIGIN	●
ZERO/ABS	●
ON/OFF	●
Low voltage alarm	●
Data output	●
HOLD	●

### Specifications

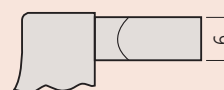
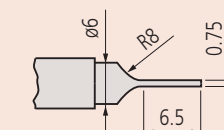
Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Measuring spindle	ø6,35 mm, spindle pitch 10 mm
Battery life	approx. 5 years under normal use
Display	LCD, character height 10 mm
Delivered	Including box, setting standard (from 25 mm upward), 1 battery

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



Type A (hardened steel)

# Blade Micrometer

## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\phi 18$ mm
Measuring spindle	$\phi 8$ mm, spindle pitch 0,5 mm
Measuring force	3-8 N
Delivered	Including box, setting standard (from 25 mm upward), key

## Series 122

This Blade Micrometer is designed to help you measure hard-to-reach features. It offers the following benefits:

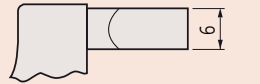
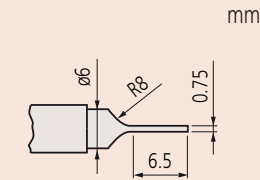
- Blade-shaped anvil and spindle for measuring the groove diameter of shafts, keyways, and other hard-to-reach features.
- Non-rotating spindle.



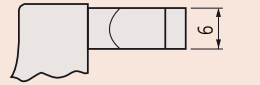
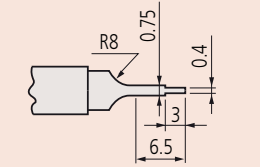
122-101

## Metric

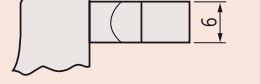
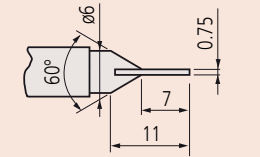
No.	Range [mm]	Accuracy [ $\mu$ m]	Anvil/ Tip	Parallelism	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
122-101	0-25	$\pm 3$	A	3 $\mu$ m	55,3	15	8	30	260
122-111	0-25	$\pm 3$	B	3 $\mu$ m	55,3	15	8	30	260
122-161	0-25	$\pm 3$	C	3 $\mu$ m	55,3	15	8	30	275
122-141	0-25	$\pm 3$	D	3 $\mu$ m	55,3	15	8	30	275
122-102	25-50	$\pm 3$	A	3 $\mu$ m	80,3	15	12	49	300
122-112	25-50	$\pm 3$	B	3 $\mu$ m	80,3	15	12	49	300
122-162	25-50	$\pm 3$	C	3 $\mu$ m	80,3	15	12	49	315
122-142	25-50	$\pm 3$	D	3 $\mu$ m	80,3	15	12	49	315
122-103	50-75	$\pm 3$	A	3 $\mu$ m	105,3	15	13	60	360
122-104	75-100	$\pm 4$	A	4 $\mu$ m	132,8	17,5	17	79	525
122-105	100-125	$\pm 4$	A	4 $\mu$ m	158,2	17,9	19	94	670
122-106	125-150	$\pm 4$	A	4 $\mu$ m	183,6	18,3	20	106	775
122-107	150-175	$\pm 5$	A	5 $\mu$ m	208,8	18,5	19	118	950
122-108	175-200	$\pm 5$	A	5 $\mu$ m	234,2	18,9	19	118	1140
122-109	200-225	$\pm 5$	A	5 $\mu$ m	258	17,7	18	143	1300
122-110	225-250	$\pm 6$	A	6 $\mu$ m	284	18,7	18	156	1450
122-115	250-275	$\pm 6$	A	6 $\mu$ m	309	18,7	18	169	1600
122-116	275-300	$\pm 6$	A	6 $\mu$ m	334	18,7	18	181	2020



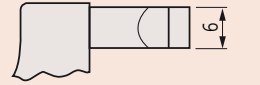
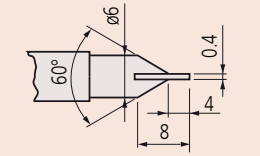
Type A (hardened steel)



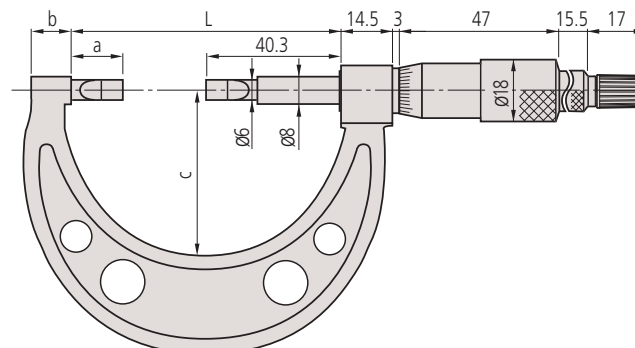
Type B (hardened steel)



Type C (carbide-tipped)



Type D (carbide-tipped)



# Digimatic V-Anvil Micrometer

## Series 314

This Digimatic V-Anvil Micrometer helps you measure cutting tools and taps. It offers the following benefits:

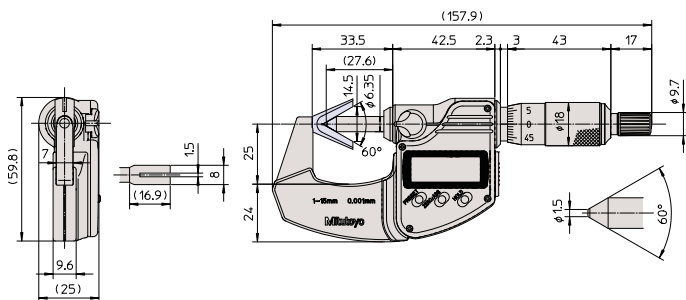
- It measures the outside diameter of cutting tools (such as taps, reamers, end mills) which have three or five flutes.
- V-anvils with a centreline groove are available for measuring the pitch diameter of taps by the single-wire method.



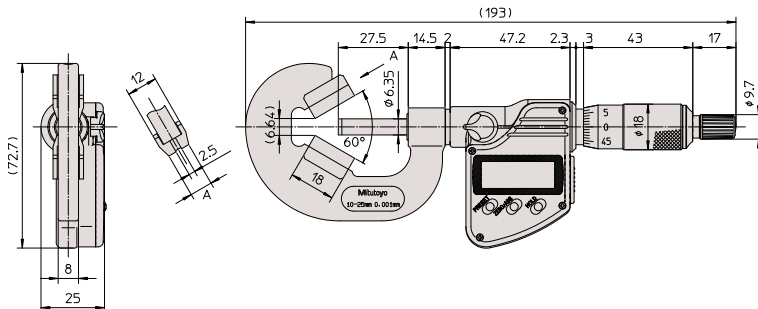
314-251-30

### Metric

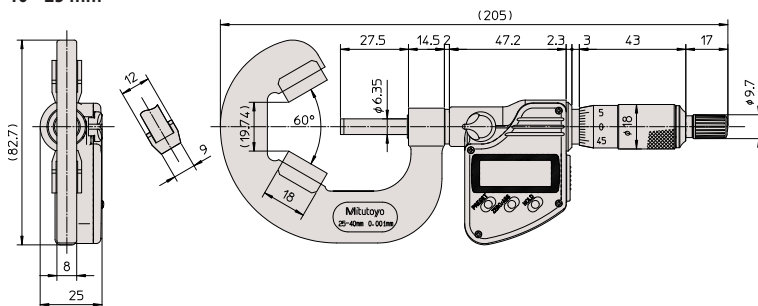
No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	Remarks	Setting standard	Mass [g]
314-251-30	1-15	$\pm 4$	0,3 $\mu\text{m}$ (spindle) 1 $\mu\text{m}$ (anvil)	with groove	167-327 $\varnothing$ 5 mm	275
314-261-30	1-15	$\pm 4$	0,3 $\mu\text{m}$ (spindle) 1 $\mu\text{m}$ (anvil)	-	167-327 $\varnothing$ 5 mm	275
314-252-30	10-25	$\pm 4$	0,3 $\mu\text{m}$ (spindle) 1 $\mu\text{m}$ (anvil)	with groove	167-328 $\varnothing$ 10 mm	410
314-262-30	10-25	$\pm 4$	0,3 $\mu\text{m}$ (spindle) 1 $\mu\text{m}$ (anvil)	-	167-328 $\varnothing$ 10 mm	410
314-253-30	25-40	$\pm 5$	0,3 $\mu\text{m}$ (spindle) 1 $\mu\text{m}$ (anvil)	-	167-329 $\varnothing$ 25 mm	465



1 - 15 mm



10 - 25 mm



25 - 40 mm

Functions	Series 314
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing$ 18 mm
Measuring surfaces	Prism angle 60°
Measuring spindle	With spindle lock; $\varnothing$ 6,35 mm, spindle pitch 0,75 mm
Measuring force	5-10 N 3-8 N (1-15 mm)
Battery life	approx. 2,4. years
Delivered	Including box, setting standard, key, 1 battery

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



# V-Anvil Micrometer

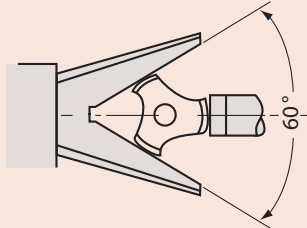
## Series 114

This V-Anvil Micrometer helps you measure cutting tools and taps. It offers the following benefits:

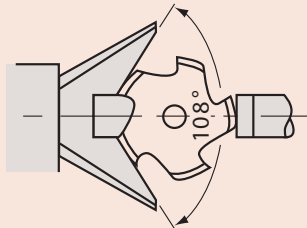
- It measures the outside diameter of cutting tools (such as taps, reamers, end mills) which have three or five flutes.
- V-anvils with a centreline groove are available for measuring the pitch diameter of taps by the single-wire method.

### Specifications

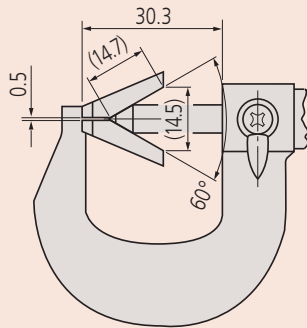
Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring surfaces	Prism angle $60^\circ/108^\circ$
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,75 mm
Measuring force	5-10 N
Delivered	Including box, setting standard, key



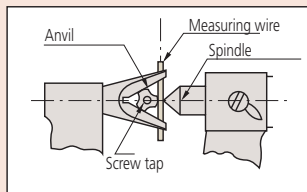
For 3-flute cutting tools



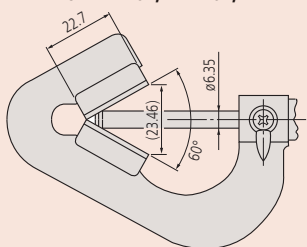
For 5-flute cutting tools



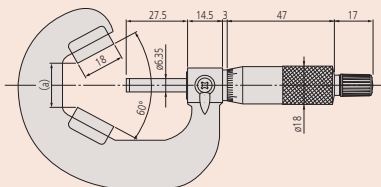
114-101, 114-161



For 114-101, 114-102, 114-121



114-204



114-102 to 114-110



114-102



114-121

### Metric

For 3-flute cutting tools ( $60^\circ$ )

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Remarks	Setting standard	a [mm]	Mass [g]
114-101	1-15	$\pm 4$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	with groove	167-327 $\varnothing 5$ mm	0,5	120
114-161	1-15	$\pm 4$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-327 $\varnothing 5$ mm	0,5	120
114-204	2,3-25	$\pm 4$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-327 $\varnothing 5$ mm	0,5	290
114-102	10-25	$\pm 4$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	with groove	167-328 $\varnothing 10$ mm	6,2	280
114-162	10-25	$\pm 4$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-328 $\varnothing 10$ mm	6,2	280
114-103	25-40	$\pm 5$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-329 $\varnothing 25$ mm	19,14	400
114-104	40-55	$\pm 6$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-330 $\varnothing 40$ mm	32,13	465
114-105	55-70	$\pm 6$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-331 $\varnothing 55$ mm	45,12	675
114-106	70-85	$\pm 7$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-332 $\varnothing 70$ mm	58,11	910
114-107	85-100	$\pm 7$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-333 $\varnothing 85$ mm	71,1	1160
114-108	100-115	$\pm 8$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-334 $\varnothing 100$ mm	84,1	1480
114-109	115-130	$\pm 8$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-335 $\varnothing 115$ mm	97,09	2080
114-110	130-145	$\pm 9$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-336 $\varnothing 130$ mm	110,1	2880

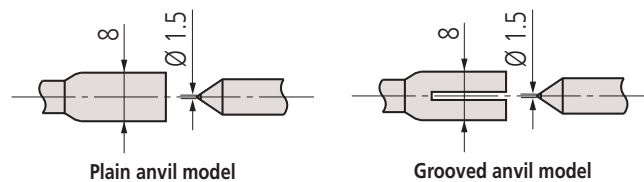
114-204, 114-137: carbide-tipped anvil and spindle  
others: carbide tipped spindle

### Metric

For 5-flute cutting tools ( $108^\circ$ )

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Remarks	Setting standard	Mass [g]
114-121	5-25	$\pm 4$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	with groove	167-327 $\varnothing 5$ mm	255
114-165	5-25	$\pm 4$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-327 $\varnothing 5$ mm	255
114-137	2,3-25	$\pm 4$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-327 $\varnothing 5$ mm	220
114-122	25-45	$\pm 5$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-329 $\varnothing 25$ mm	400
114-123	45-65	$\pm 6$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-331 $\varnothing 55$ mm	540
114-124	65-85	$\pm 7$	0,6 $\mu$ m (spindle) 1,3 $\mu$ m (anvil)	-	167-332 $\varnothing 70$ mm	760

114-204, 114-137: carbide-tipped anvil and spindle  
others: carbide tipped spindle



Plain anvil model

Grooved anvil model

# Can Seam Micrometer

## Series 147

This Can Seam Micrometer allows you to measure different types of can seams. It offers the following benefits:

- Designed to measure the width, height and depth of can seams.
- Three types are available, for steel, aluminium and spray cans.



147-103



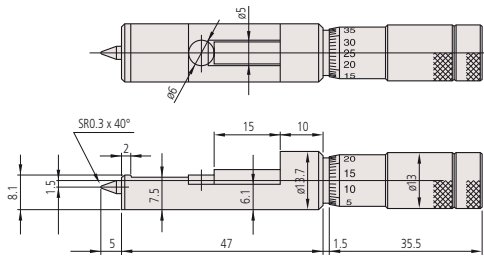
147-105



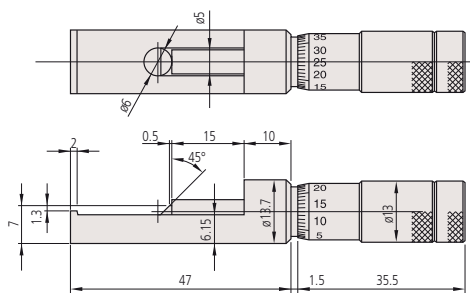
147-202

### Metric

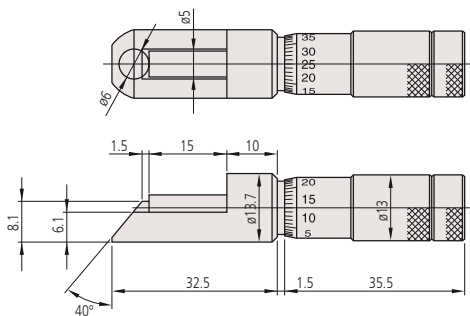
No.	Range [mm]	Remarks	Mass [g]
147-103	0-13	For steel cans	65
147-105	0-13	For aluminium cans	65
147-202	0-13	For spray cans	65



147-103



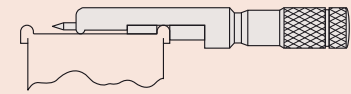
147-105



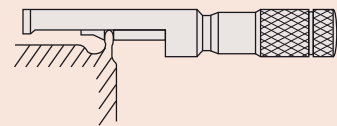
147-202

### Specifications

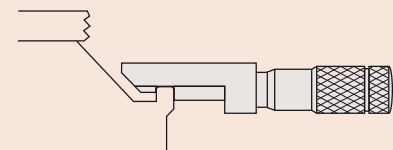
Accuracy	3 $\mu$ m
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing$ 13 mm
Delivered	Including box, key



147-103  
For steel cans



147-105  
For aluminium cans



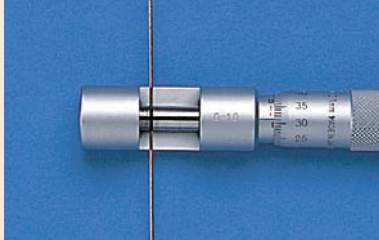
147-202  
For spray cans



# Wire Micrometer

## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 15$ mm
Measuring surfaces	Carbide tipped, micro-lap finish
Measuring spindle	$\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, key



## Series 147

This Wire Micrometer takes easy, accurate measurements and offers the following benefits:

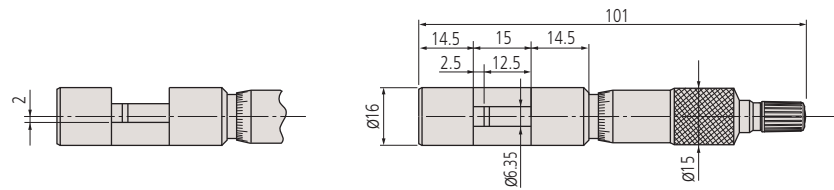
- Designed for measuring wire thickness.
- You can also use it to measure the diameter of small balls.



147-401

## Metric

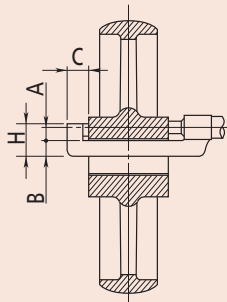
No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	Mass [g]
147-401	0-10	$\pm 3$	0,6 $\mu$ m	1,3 $\mu$ m	65



# Hub Micrometer

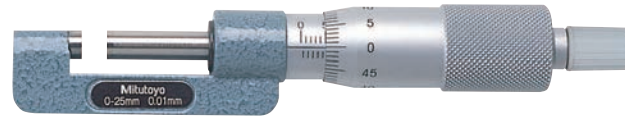
## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring surfaces	carbide-tipped, micro-lap finish
Measuring spindle	$\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, setting standard (from 25 mm upward), key



## Series 147

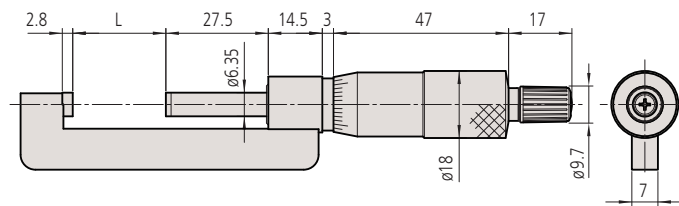
This Hub Micrometer is designed with a very small throat depth, allowing you to measure hub thickness, shouldered features inside a bore and bearing bushings.



147-301

## Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	L [mm]	A [mm]	B [mm]	C [mm]	H [mm]	Mass [g]
147-301	0-25	$\pm 2$	0,6 $\mu$ m	3 $\mu$ m	0	6	8,5	13,5	17,5	135
147-302	25-50	$\pm 2$	0,6 $\mu$ m	3 $\mu$ m	25	6,5	11	14	20,5	150
147-303	50-75	$\pm 2$	0,6 $\mu$ m	3 $\mu$ m	50	6,5	11	13	20,5	170
147-304	75-100	$\pm 3$	0,6 $\mu$ m	3 $\mu$ m	75	6,5	11	13	20,5	185



# Digimatic Micrometer Interchangeable Anvil Type

## Series 317

This Digimatic Micrometer Interchangeable Anvil Type lets you measure a range of different features.

It offers the following benefits:

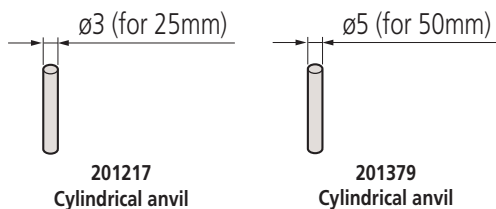
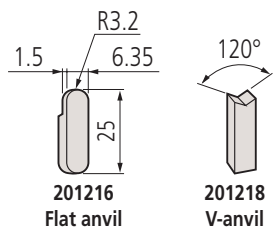
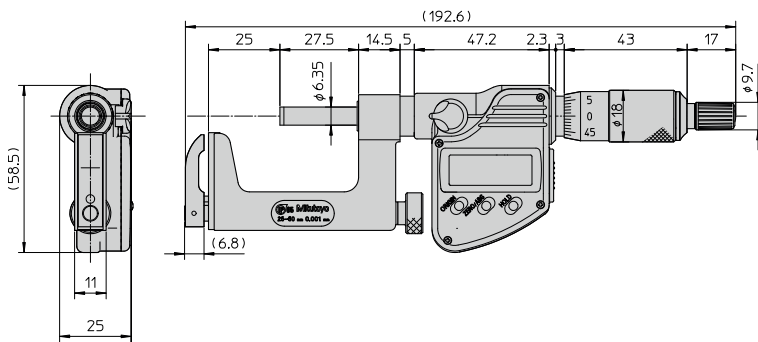
- It is designed to accept interchangeable anvils shaped for specific tasks.
- You can use it to measure the wall thickness of tubes, as well as openings and slots from edge to edge, and features in hard-to-reach locations.



317-251-30

### Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	Anvils included	Mass [g]
317-251-30	0-25	$\pm 4$	0,6 $\mu$ m (spindle) 2 $\mu$ m (anvil)	3 $\mu$ m	201217, 201216	335
317-252-30	25-50	$\pm 4$	0,6 $\mu$ m (spindle) 2 $\mu$ m (anvil)	3 $\mu$ m	201379, 201216	360



Functions	Series 317
ORIGIN	●
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\phi 18$ mm
Measuring surfaces	Carbide tipped (spindle)
Measuring spindle	With spindle lock, $\phi 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Battery life	approx. 2,4 years
Delivered	Including box, setting standard (from 25 mm upward), key, 1 battery, anvils

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
950758	Round Base for Series 117, for 0-25mm
201218	V-Anvil

### Consumable spares

No.	Description
938882	Battery SR44 1.5V
201217	Cylindrical Anvil 3mm
201379	Cylindrical Anvil 5mm
201216	Flat Anvil



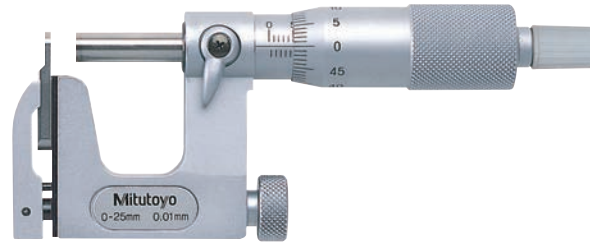
950758 with micrometer

# Micrometer Interchangeable Anvil Type

## Series 117

This Micrometer Interchangeable Anvil Type lets you measure a range of different features. It offers the following benefits:

- It is designed to accept interchangeable anvils shaped for specific tasks.
- You can use it to measure the wall thickness of tubes, as well as openings and slots from edge to edge, and features in hard-to-reach locations.



117-101

### Specifications

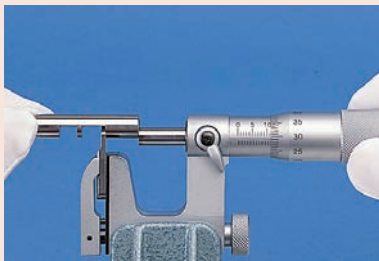
Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\phi$ 18 mm
Measuring surfaces	Carbide tipped (spindle)
Measuring spindle	With spindle lock, $\phi$ 6,35 mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, setting standard (from 25 mm upward), key, anvils

### Optional accessories

No.	Description
201218	V-Anvil
950758	Round Base for Series 117, for 0-25mm

### Consumable spares

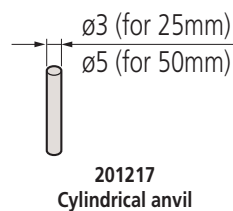
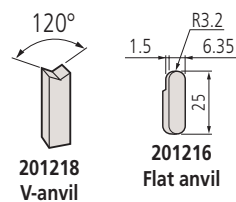
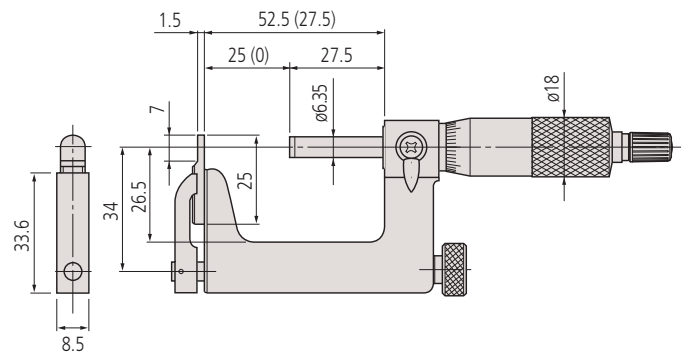
No.	Description
201217	Cylindrical Anvil 3mm
201379	Cylindrical Anvil 5mm
201216	Flat Anvil



950758 with micrometer

### Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Flatness	Parallelism	Anvils included	Mass [g]
117-101	0-25	$\pm 4$	0,6 $\mu$ m (spindle) 2 $\mu$ m (anvil)	3 $\mu$ m	201217, 201216	255
117-102	25-50	$\pm 4$	0,6 $\mu$ m (spindle) 2 $\mu$ m (anvil)	3 $\mu$ m	201379, 201216	320



# Limit Micrometer

## Series 113

This Limit Micrometer offers the following benefits:

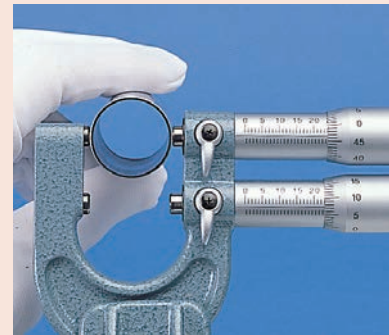
- Spindle and Anvil with chamfered edge.
- You can use it as a GO/±NG gauge by setting the upper and lower limits of dimension.



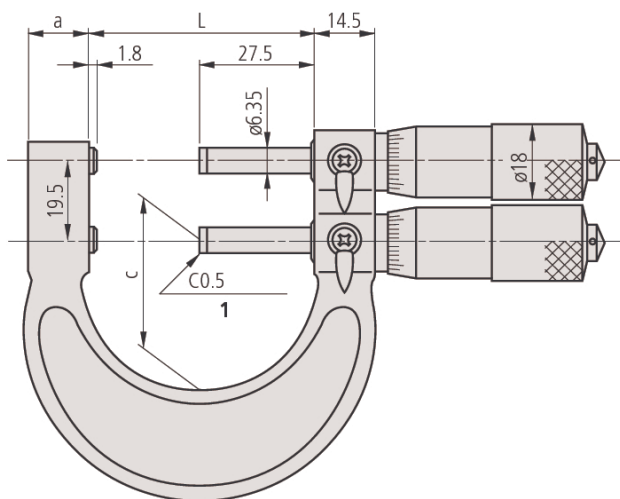
113-102

### Metric

No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Flatness	Parallelism	L [mm]	a [mm]	c [mm]	Mass [g]
113-102	0-25	$\pm 3$	0,6 $\mu\text{m}$	3 $\mu\text{m}$	29,3	15	23	340
113-103	25-50	$\pm 3$	0,6 $\mu\text{m}$	3 $\mu\text{m}$	54,3	15	37	380



mm



### Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring surfaces	Carbide tipped with chamfer micro-lap finish
Measuring spindle	With spindle lock, $\varnothing 6,35$ mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, setting standard (from 25 mm upward), key

# Indicating Micrometer



## Specifications

Graduation	0,001 mm
Graduation dial comparator	0,001 mm
Accuracy micrometer	2 μm
Accuracy dial comparator	1 μm
Scale	Thimble and sleeve satin chrome finish, ø 21 mm
Measuring surfaces	Carbide-tipped, micro-lap finish, ø 8 mm
Measuring force	5-10 N
Delivered	Including box, key

## Optional accessories

No.	Description
04AZA124	Workpiece Stopper Indicating Micrometer, 23mm
04AZA125	Workpiece Stopper Indicating Micrometer, 20,5mm
04AZA126	Workpiece Stopper Indicating Micrometer, 15mm

## Series 510

This is an indicating micrometer with a dial comparator that enables you to take fast and highly accurate measurements. It offers you the following benefits:

- It is easy to use when operated one-handed due to retractable anvil.
- Protection level IP54 and large and easy to read characters on the dial plate
- Large dial comparator for easy reading (+/- 0,06 mm)
- Tolerance markers for GO/NG measurements
- 8 mm spindle diameter gives you easy positioning and highly accurate measurements.

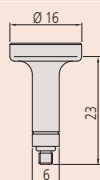


510-121

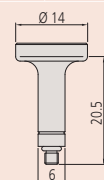
Measuring range mm	Nr.	Diameter range of workpiece supported		
		A Ø mm	B Ø mm	C Ø mm
0- 25	510-121	-	4-16	15- 25
25- 50	510-122	25-37	30-42	41- 50
50- 75	510-123	50-61	54-66	65- 75
75-100	510-124	75-87	80-92	91-100

## Metric

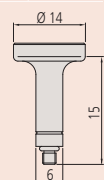
No.	Range [mm]	Anvil retracting stroke	Flatness	Parallelism	Indicating range	Operating button	L [mm]	D [mm]	Mass [g]
510-121	0-25	2 mm	0,3 μm	0,6 μm	±0,06 mm	Right	31,5	25	520
510-141	0-25	2 mm	0,3 μm	0,6 μm	±0,06 mm	Left	31,5	25	520
510-122	25-50	2 mm	0,3 μm	0,6 μm	±0,06 mm	Left	56,5	38	670
510-123	50-75	2 mm	0,3 μm	1 μm	±0,06 mm	Left	81,5	50	820
510-124	75-100	2 mm	0,3 μm	1 μm	±0,06 mm	Left	106,5	63	970



04AZA124  
Workpiece stop A



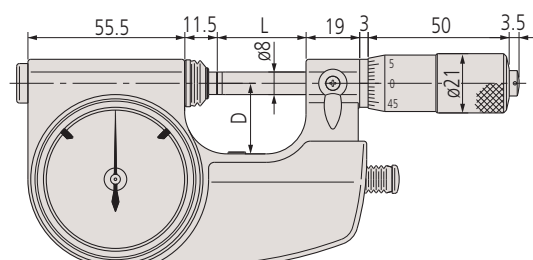
04AZA125  
Workpiece stop B



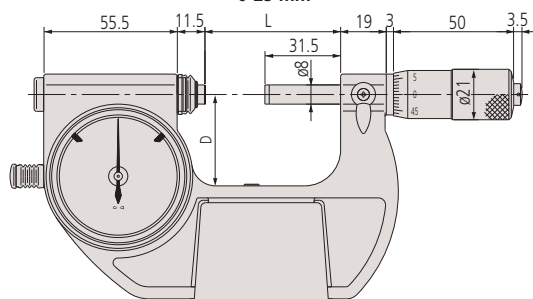
04AZA126  
Workpiece stop C



Adjusting screw for dial comparator ± 5 μm



0-25 mm



25-100 mm



# Indicating Snap Gauge

## Series 523

This is a snap gauge with integrated dial comparator. It offers you the following benefits:

- It is ideal for rapidly inspecting workpieces, especially cylindrical, in batch or mass production situations.
- It can be set with external length standards such as block gauges.
- Easy-to-operate retracting button



### Specifications

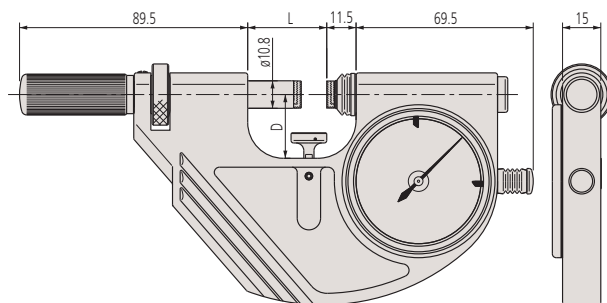
Graduation dial comparator	0,001 mm
Accuracy dial comparator	1 μm
Measuring surfaces	Carbide tipped, micro-lap finish ø 10,8 mm
Measuring force	5-10 N
Delivered	Including box, workpiece rest



523-121

### Metric

No.	Range [mm]	Anvil retracting stroke	Flatness	Parallelism	Indicating range	L [mm]	D [mm]	Mass [g]
523-121	0-25	2 mm	0,3 μm	0,6 μm	±0,06 mm	31	25	740
523-122	25-50	2 mm	0,3 μm	0,6 μm	±0,06 mm	56	35	840
523-123	50-75	2 mm	0,3 μm	1 μm	±0,06 mm	81	47,5	950
523-124	75-100	2 mm	0,3 μm	1 μm	±0,06 mm	106	60	1080



# Snap Gauge

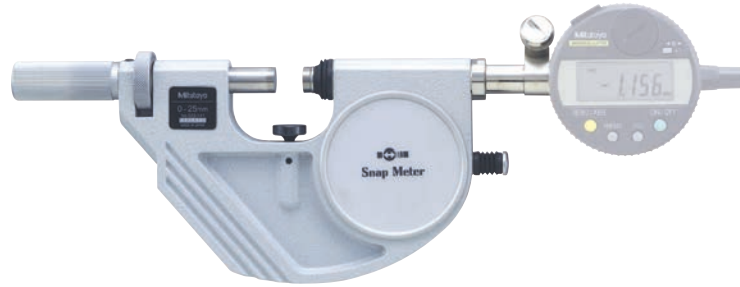
## Specifications

Measuring surfaces	Carbide-tipped, micro-lap finish, Ø 10,8 mm
Optional accessories	See dial gauges section
Measuring force	5-10 N
Delivered	Including box, workpiece rest, without indicator

## Series 523

This Snap Gauge designed to mount an indicator to suit the measurement application, and offers the following benefits:

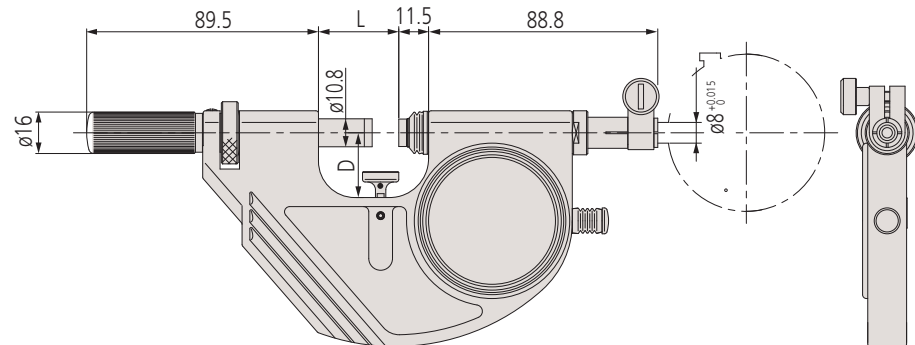
- It's ideal for rapidly inspecting workpieces, especially cylindrical, in batch or mass production situations, when you need an indication of where a measurement falls within the tolerance band.
- You can set it with external length standards such as block gauges.
- Easy-to-operate retracting button.



523-141 with optional indicator

## Metric

No.	Range [mm]	Anvil retracting stroke	Flatness	Parallelism	Repeatability [µm]	L [mm]	D [mm]	Mass [g]
523-141	0-25	2 mm	0,3 µm	0,6 µm	0,4	31	25	710
523-142	25-50	2 mm	0,3 µm	0,6 µm	0,4	56	35	810
523-143	50-75	2 mm	0,3 µm	1 µm	0,4	81	47,5	920
523-144	75-100	2 mm	0,3 µm	1 µm	0,4	106	60	1050



Sample application:  
with dial indicator



Sample application:  
with digital indicator



Sample application:  
with Linear Gauge

# Dial Gauge Micrometer

## Series 107

This Dial Gauge Micrometer allows you to quickly measure mass-produced parts. It offers the following benefits:

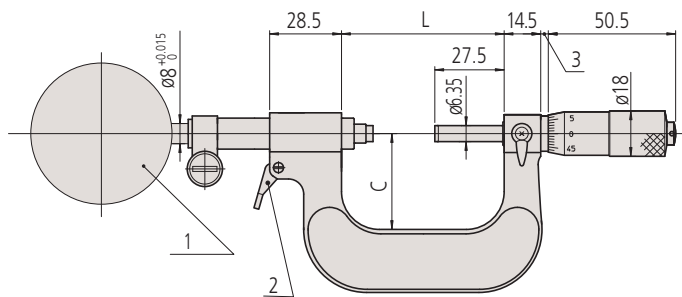
- Designed to mount a dial or a digital indicator for direct GO/NG judgement of mass-produced parts.
- You can take rapid measurements thanks to its anvil retracting trigger.
- 3mm anvil retracting stroke.



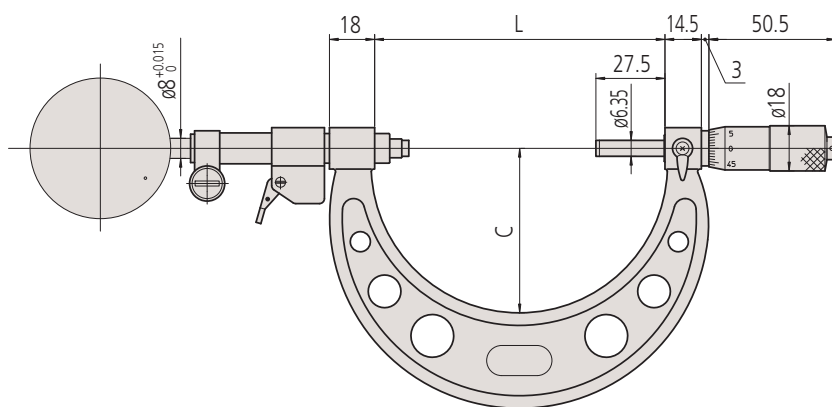
107-201 with optional dial indicator

### Metric

No.	Range [mm]	Accuracy [μm]	Flatness	Parallelism	L [mm]	C [mm]	Mass [g]
107-201	0-25	±2	0,6μm	(2+L/100) μm, L = max. range	39,5	30	480
107-202	25-50	±2	0,6μm	(2+L/100) μm, L = max. range	64,5	38	520
107-203	50-75	±2	0,6μm	(2+L/100) μm, L = max. range	90	45	585
107-204	75-100	±3	0,6μm	(2+L/100) μm, L = max. range	115,6	65	630
107-205	100-125	±3	0,6μm	(2+L/100) μm, L = max. range	140,6	79	725
107-206	125-150	±3	0,6μm	(2+L/100) μm, L = max. range	165,6	93	810
107-207	150-175	±4	0,6μm	(2+L/100) μm, L = max. range	190,5	105	1050
107-208	175-200	±4	0,6μm	(2+L/100) μm, L = max. range	215,5	120	1170



1: dial indicator - 2: retracting trigger (0 - 50 mm)



50 - 200 mm

### Specifications

Accuracy	Refer to the list of specifications
Graduation	0,01 mm
Anvil retracting stroke	3 mm
Scale	Thimble and sleeve satin chrome finish, Ø18 mm
Measuring surfaces	Carbide-tipped, micro-lap finish
Measuring spindle	With spindle lock, Ø 6,35 mm, spindle pitch 0,5 mm
Measuring force	5-10 N
Delivered	Including box, setting standard (from 25 mm upward), key



2900SB-10 (1μm)



543-390B (1μm)



542-181 (0,1 μm)

Optional  
See dial indicators section

# Dial Snap Gauges

## Specifications

Anvil retracting stroke	2 mm
Anvil positioning range	25 mm
Measuring force	15 N ±3
Delivered	Including hand guard Adjustable workpiece stop Suitable for dial indicators with ø 8 mm stem (metric)

## Optional accessories

No.	Description
2046SB	Dial Indicator, Flat Back, 10mm, 0,01mm
2109SB-10	Dial Indicator, Flat Back, 1mm, 0,001mm, Shockproof
21DZA000	Protector for Indicator (plastic cover)
2972TB	Dial Indicator, Flat Back, 1mm, 0,01mm, One Revolution, Shockproof



201-101 with optional accessories:  
Stand 156-101-10  
Dial indicator 2109SB-10

## Series 201

These Dial Snap Gauges are designed to let you quickly carry out GO/NG judgement of the diameters of cylinders and shafts in machining processes.

They offer the following benefits:

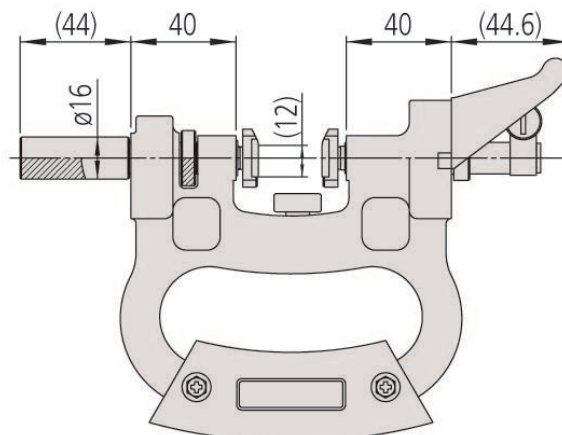
- Wide, flat carbide anvils.
- 2mm anvil retracting stroke.
- You can adjust the measuring range with an adjustment nut.



201-101 with optional accessories

## Metric

No.	Range [mm]	Flatness	Parallelism	Mass [g]
201-101	0-25	1 µm	5 µm	570
201-102	25-50	1 µm	5 µm	660
201-103	50-75	1 µm	5 µm	700
201-104	75-100	1 µm	5 µm	770
201-105	100-125	1 µm	5 µm	870
201-106	125-150	1 µm	5 µm	950
201-107	150-175	1 µm	5 µm	1070
201-108	175-200	1 µm	5 µm	1160
201-109	200-225	1 µm	5 µm	1260
201-110	225-250	1 µm	5 µm	1350
201-111	250-275	1 µm	5 µm	1470
201-112	275-300	1 µm	5 µm	1620



# Internal Groove Micrometer

## Series 146

This Internal Groove Micrometer is designed to measure the width and location of grooves cut into bore walls.

It offers the following features:

- Two-directional ratchet stop.
- Non-rotating spindle models are also available.



146-122



146-221



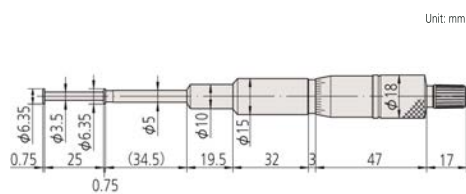
146-222

### Metric Non-rotating spindle type

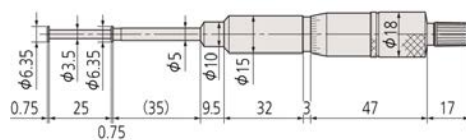
No.	Range Outside	Range Inside	Parallelism	Diameter of measuring plate [mm]	l [mm]	L [mm]	Mass [g]
146-221	0-25 mm	1,6-26,5 mm	10 μm	6,35			135
146-222	0-25 mm	1,6-26,5 mm	10 μm	12,7	115	25	185
146-223	25-50 mm	26,5-51,5 mm	10 μm	12,7	90	50	175
146-224	50-75 mm	51,5-76,5 mm	10 μm	12,7	65	75	165
146-225	75-100 mm	76,5-101,5 mm	10 μm	12,7	40	100	160

### Metric Rotating spindle type

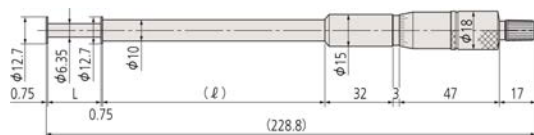
No.	Range Outside	Range Inside	Parallelism	Diameter of measuring plate [mm]	l [mm]	L [mm]	Mass [g]
146-121	0-25 mm	1,6-26,5 mm	10 μm	6,35			135
146-122	0-25 mm	1,6-26,5 mm	10 μm	12,7	103,3	25	185
146-123	25-50 mm	26,5-51,5 mm	10 μm	12,7	78,3	50	175
146-124	50-75 mm	51,5-76,5 mm	10 μm	12,7	53,3	75	165
146-125	75-100 mm	76,5-101,5 mm	10 μm	12,7	28,3	100	160



146-221

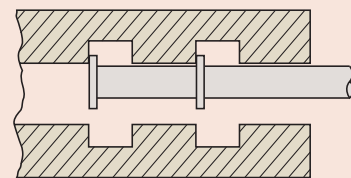
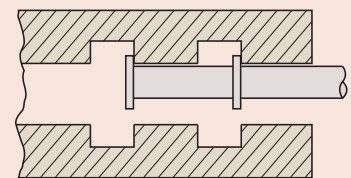
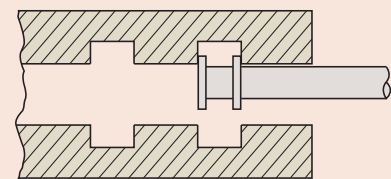
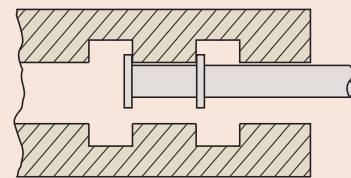
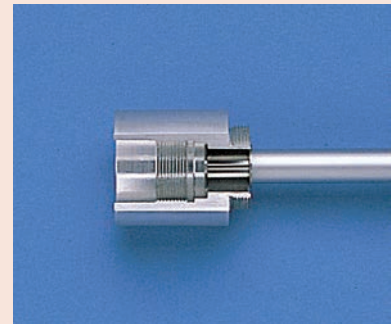


146-121



## Specifications

Accuracy	±10 μm
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish, ø18 mm
Measuring surfaces	hardened
Measuring spindle	Spindle pitch 0,5 mm
Ratchet	Can be used in both directions
Delivered	Including box, key





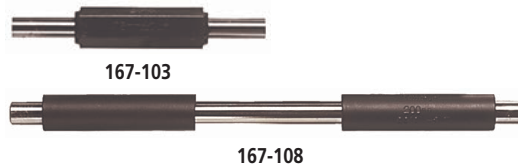
# Micrometer Setting Standards $\leq 1000$ mm

## Specifications

Accuracy	Refer to the list of specifications (Tolerance on deviation of measured central length from nominal at 20°C.)
Flatness	0,3 $\mu\text{m}$
Parallelism	2 $\mu\text{m}$
Measuring surfaces	micro-lap finish



## Series 167



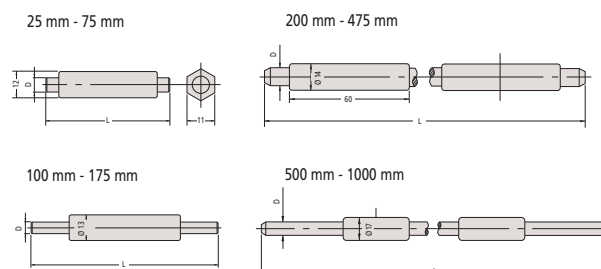
### Metric

No.	Length [mm]	Accuracy [ $\mu\text{m}$ ]	Diameter (D) [mm]
167-101	25	$\pm 1,5$	6,35
167-102	50	$\pm 2$	6,35
167-103	75	$\pm 2,5$	6,35
167-104	100	$\pm 3$	7,9
167-105	125	$\pm 3,5$	7,9
167-106	150	$\pm 4$	7,9
167-107	175	$\pm 4,5$	7,9
167-108	200	$\pm 5$	9,4
167-109	225	$\pm 5,5$	9,4
167-110	250	$\pm 6$	9,4
167-111	275	$\pm 6,5$	9,4
167-112	300	$\pm 7$	9,4
167-113	325	$\pm 7,5$	9,4
167-114	350	$\pm 8$	9,4
167-115	375	$\pm 8,5$	9,4
167-116	400	$\pm 9$	9,4
167-117	425	$\pm 9,5$	9,4
167-118	450	$\pm 10$	9,4
167-119	475	$\pm 10,5$	9,4
167-120	500	$\pm 11$	11,9
167-121	525	$\pm 11,5$	11,9
167-122	550	$\pm 12$	11,9
167-123	575	$\pm 12,5$	11,9
167-124	600	$\pm 13$	11,9
167-125	625	$\pm 13,5$	11,9
167-126	650	$\pm 14$	11,9
167-127	675	$\pm 14,5$	11,9
167-128	700	$\pm 15$	11,9
167-129	725	$\pm 15,5$	11,9
167-130	750	$\pm 16$	11,9
167-131	775	$\pm 16,5$	11,9
167-132	800	$\pm 17$	11,9
167-133	825	$\pm 17,5$	11,9
167-134	850	$\pm 18$	11,9
167-135	875	$\pm 18,5$	11,9
167-136	900	$\pm 19$	11,9
167-137	925	$\pm 19,5$	11,9
167-138	950	$\pm 20$	11,9
167-139	975	$\pm 20,5$	11,9
167-140	1000	$\pm 21$	11,9

### Metric

#### Sets

No.	Length [mm]	Number of standards
167-902	25-125	5
167-903	25-275	11



# Micrometer Setting Standards > 1000 mm

## Series 167

This Micrometer Setting Standards 1000mm lets you accurately set outside micrometers at either end of the measuring range.



### Metric

No.	Length [mm]	Diameter (D) [mm]
167-365	1025	11,9
167-366	1050	11,9
167-367	1075	11,9
167-368	1100	11,9
167-369	1125	11,9
167-370	1150	11,9
167-371	1175	11,9
167-372	1200	11,9
167-373	1225	11,9
167-374	1250	11,9
167-375	1275	11,9
167-376	1300	11,9
167-377	1325	11,9
167-378	1350	11,9
167-379	1375	11,9
167-380	1400	11,9
167-381	1425	11,9
167-382	1450	11,9
167-383	1475	11,9
167-384	1500	11,9
167-385	1525	11,9
167-386	1550	11,9
167-387	1575	11,9
167-388	1600	11,9
167-389	1625	11,9
167-390	1650	11,9
167-391	1675	11,9
167-392	1700	11,9
167-393	1725	11,9
167-394	1750	11,9
167-395	1775	11,9
167-396	1800	11,9
167-397	1825	11,9
167-398	1850	11,9
167-399	1875	11,9
167-400	1900	11,9
167-401	1925	11,9
167-402	1950	11,9
167-403	1975	11,9
167-404	2000	11,9

### Specifications

Accuracy	$\pm(1+L/50) \mu\text{m}$
Flatness	0,3 $\mu\text{m}$
Parallelism	2 $\mu\text{m}$
Measuring surfaces	Micro-lap finish

# Setting Standards for Screw Thread Micrometers

## Specifications

Accuracy Refer to the list of specifications



## Series 167

These Setting Standards are specially designed to allow you to accurately set Screw Thread Micrometers.

### Metric Angle 55°

No.	Length [mm]	Accuracy [ $\mu\text{m}$ ]
167-272	25	$\pm 4$
167-273	50	$\pm 5$
167-274	75	$\pm 6$
167-275	100	$\pm 7$
167-276	125	$\pm 8$
167-277	150	$\pm 9$
167-278	175	$\pm 10$
167-279	200	$\pm 11$
167-280	225	$\pm 12$
167-281	250	$\pm 13$
167-282	275	$\pm 14$

### Metric Angle 60°

No.	Length [mm]	Accuracy [ $\mu\text{m}$ ]
167-261	25	$\pm 4$
167-262	50	$\pm 5$
167-263	75	$\pm 6$
167-264	100	$\pm 7$
167-265	125	$\pm 8$
167-266	150	$\pm 9$
167-267	175	$\pm 10$
167-268	200	$\pm 11$
167-269	225	$\pm 12$
167-270	250	$\pm 13$
167-271	275	$\pm 14$

## Specifications

Accuracy Refer to the list of specifications



167-329

## Series 167

These Setting Standards are designed so you can accurately set V-Anvil Micrometers.

### Metric

No.	Length [mm]	Accuracy [ $\mu\text{m}$ ]
167-327	5	$\pm 2$
167-328	10	$\pm 2$
167-329	25	$\pm 2$
167-330	40	$\pm 3$
167-331	55	$\pm 3$
167-332	70	$\pm 3$
167-333	85	$\pm 3$

# 3-Wire Measuring Process

## Series 313

This three-wire measuring process is one of the most precise procedures for determining the pitch diameter of threads. It offers you the following benefits:

- The measuring wires are hardened and precision-lapped.
- They are placed onto the spindle and anvil of an outside micrometer, allowing you to measure the pitch diameter of threads.



313-101

1) Wire in set

No.	Spindle diameter [mm]
313-101	6,35
313-102	8

Individual wires (content of 313-101)  
One pair, support spindle ø 6,35 mm

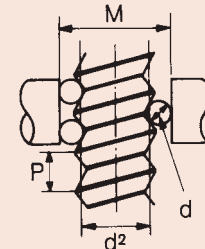
No.	Measuring wire ø [mm]
952131	0,17
952132	0,195
952133	0,22
952134	0,25
952135	0,29
952136	0,335
952137	0,39
952138	0,455
952139	0,53
952140	0,62
952141	0,725
952142	0,895
952143	1,1
952144	1,35
952145	1,65
952146	2,05
952147	2,55
952148	3,2

Individual wires (content of 313-102)  
One pair, support spindle ø 8 mm

No.	Measuring wire ø [mm]
952149	0,17
952150	0,195
952151	0,22
952152	0,25
952153	0,29
952154	0,335
952155	0,39
952156	0,455
952157	0,53
952158	0,62
952159	0,725
952160	0,895
952161	1,1
952162	1,35
952163	1,65
952164	2,05
952165	2,55
952166	3,2

## Specifications

Accuracy wires	DIN 2269, Grade 1
Tolerance wires	±1 µm
Contents	18 pairs of wires ø 0,17 mm up to ø 3,2 mm



$P$  = thread pitch  
 $d_b$  = measuring wire Ø  
 $d_2$  = pitch diameter  
 $M$  = theoretical dimension at measuring pressure  $d$   
 $a$  = pitch angle  
 $d$  = correction factor

$$M = d_2 + \frac{d_b}{\sin \frac{a}{2}} - \frac{P}{2 \tan \frac{a}{2}} + d_b + d$$

$$d = \frac{d_b}{2} \cdot \frac{p^2}{p^2} \cdot \frac{\cos \frac{a}{2} \cdot \cot \frac{a}{2}}{d_2^2}$$

ø Nominal	Thread pitch P	Pitch ø d2	Measuring wire ø dD	Measurement over wire M	(M-d2)
M 14	2,00	12,701	1,350	15,021	2,320
M 16	2,00	14,701	1,350	17,021	2,320
M 20	2,50	18,376	1,650	21,163	2,787
M 22	2,50	20,376	1,650	23,163	2,787
M 24	3,00	22,051	2,050	25,606	3,555
M 27	3,00	25,051	2,050	28,605	3,554
M 30	3,50	27,727	2,050	30,848	3,121
M 33	3,50	30,727	2,050	33,848	3,121
M 36	4,00	33,402	2,550	37,591	4,189
M 39	4,00	36,402	2,550	40,590	4,188
M 42	4,50	39,077	2,550	42,832	3,755
M 45	4,50	42,077	2,550	45,832	3,755
M 48	5,00	44,752	3,200	50,025	5,273
M 52	5,00	48,752	3,200	54,024	5,272
M 56	5,50	52,428	3,200	57,267	4,839
M 60	5,50	56,428	3,200	61,267	4,839

ø Nominal	Thread pitch P	Pitch ø d2	Measuring wire ø dD	Measurement over wire M	(M-d2)
M 1	0,25	0,838	0,170	1,133	0,295
M 1,2	0,25	1,038	0,170	1,332	0,294
M 1,4	0,30	1,205	0,170	1,456	0,251
M 1,7	0,35	1,473	0,220	1,831	0,358
M 2	0,40	1,740	0,250	2,145	0,405
M 2,3	0,40	2,040	0,250	2,444	0,404
M 2,6	0,45	2,308	0,290	2,789	0,481
M 3	0,50	2,675	0,290	3,113	0,438
M 3,5	0,60	3,110	0,335	3,596	0,486
M 4	0,70	3,545	0,455	4,305	0,760
M 5	0,80	4,480	0,455	5,153	0,673
M 6	1,00	5,350	0,620	6,346	0,996
M 8	1,25	7,188	0,725	8,282	1,094
M 10	1,50	9,026	0,895	10,414	1,388
M 12	1,75	10,863	1,100	12,650	1,787

# Micrometer Stands

## Series 156

This is a micrometer stand that offers you the following benefits:

- Keeps both hands free for operating the micrometer and positioning the workpiece.
- Designed for batch or mass production measurements in manufacturing and quality assurance.



156-105-10

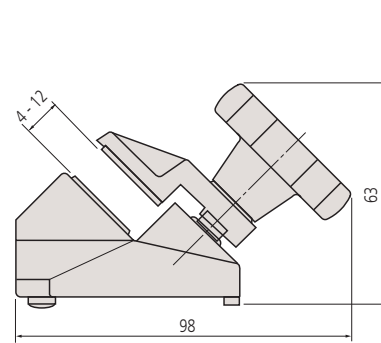


156-101-10

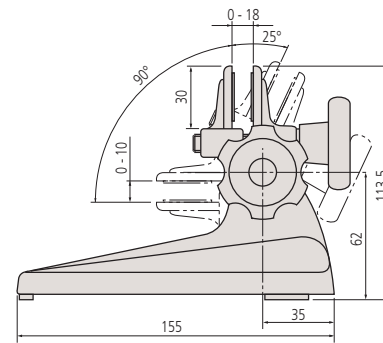


156-102

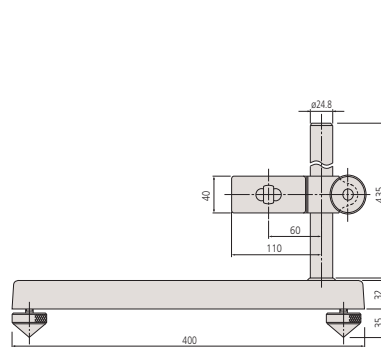
No.	Micrometer range	Remarks	Mass [g]
156-105-10	0-50 mm	Fixed angle type 45°	700
156-101-10	0 - 100 mm	Adjustable angle type	1210
156-102	100-300 mm	Vertical type	9000
156-103	300-1000 mm	Vertical type	8500



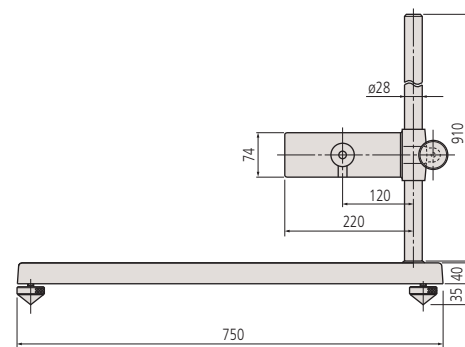
156-105-10



156-101-10



156-102



156-103



# Colour Coded Ratchets and Speeders

## Micrometer accessories



Colour-coded ratchets



Colour-coded speeders for Ratchet Thimble Micrometer series 102-7XX, QuantuMike and Series 293 with ratched thimble



Colour-coded ratchets for analogue micrometer 0-300 mm

No.	Colour
985056	Black
985061	Red
985081	Blue
985071	Yellow
985076	Green
985066	Brown
04GZA239	Grey

Colour-coded ratchets for analogue micrometer 300-1000 mm

No.	Colour
04GZA243	Grey

Colour-coded speeders for digital micrometer 0-300 mm

No.	Colour
04GZA241	Grey

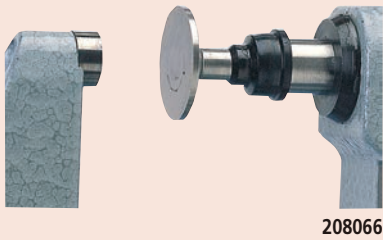
Colour-coded speeders for series 102-7XX, QuantuMike and series 293 with ratched thimble

No.	Colour
04AAB208	Grey
04GAA899	Black
04GAA900	Red
04GAA901	Yellow
04GAA902	Green
04GAA903	Blue

# Spindle attachment tips

## Specifications

Tip length | 10 mm ±5 µm



208066

## Micrometer accessories

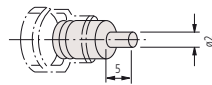
These spindle attachment tips give you an economical way to adapt a micrometer spindle for different tasks.

They offer the following benefits:

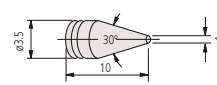
- You can use the tips on a micrometer spindle as an economical adaptation for particular measurement applications.
- They can also be mounted on micrometer anvils  $\varnothing$  6,35 mm.
- The measuring range changes when a spindle attachment tip is mounted.



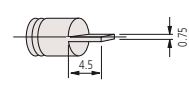
No.	Description
208062	Spline
208063	Spherical
208064	Knife edge
208065	Knife edge
208066	Tray



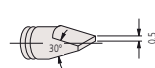
208062



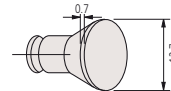
208063



208064



208065



208066

# Ball attachment

## Micrometer accessories

- Ball attachment to fit micrometer anvils ( $\varnothing$  6,35 mm only)



Sample application



101468M

## Metric

No.	$\varnothing$ ball [mm]
101468M	5

# Optical parallels

## Series 157

These Optical Parallels allow you to inspect micrometers and other measuring tools. They offer the following benefits:

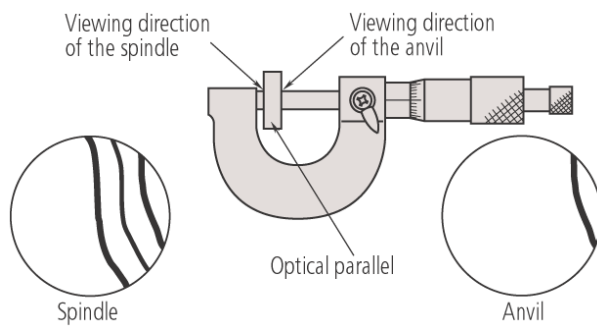
- Using optical interference, they can inspect the measuring faces of micrometers for parallelism and flatness.
- Each set consists of 4 sizes designed for testing at each quarter revolution.



157-903

### Metric

No.	Contents	Range of micrometer to be checked	Sizes of parallels included in set
157-903	157-101	0-25 mm	12 mm
	157-102		12,12 mm
	157-103		12,25 mm
	157-104		12,37 mm
157-904	157-105	25-50 mm	25 mm
	157-106		25,12 mm
	157-107		25,25 mm
	157-108		25,37 mm



Testing a micrometer for flatness and parallelism of anvil and spindle faces : flatness is indicated by straightness and regular spacing of interference fringes, and parallelism by how many fringes are visible.

### Specifications

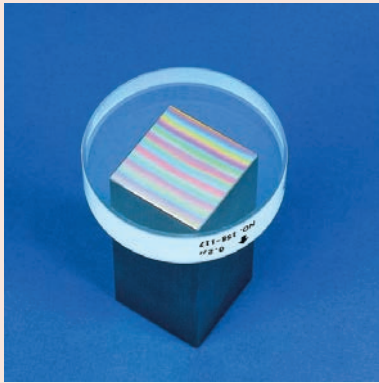
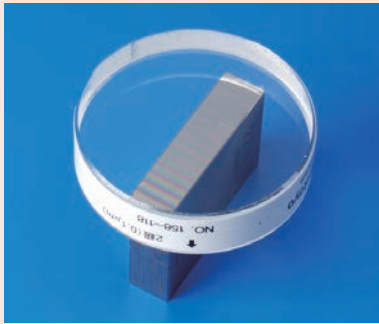
Flatness	0,1 μm
Parallelism	0,2 μm
Diameter	30 mm



# Optical flats

## Series 158

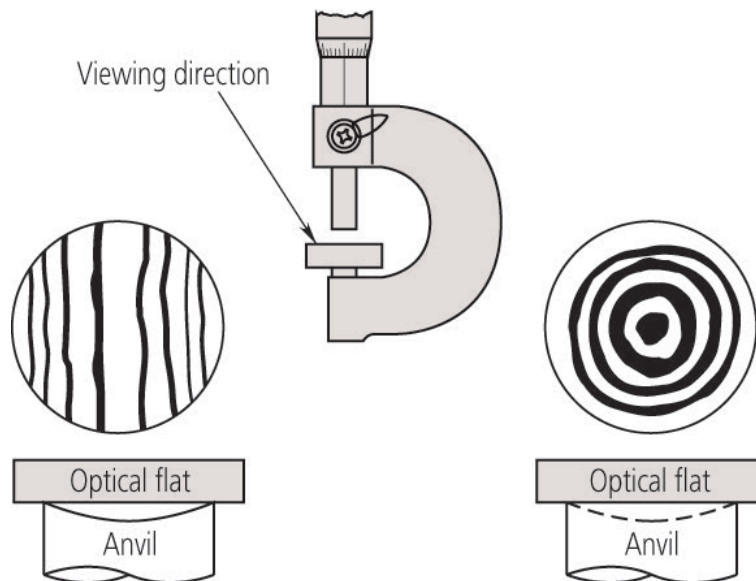
These optical flats are an essential tool for you to test the flatness of reflective surfaces such as gauge blocks and setting standards, through optical interference technology.



158-118

### Metric

No.	Flatness	Diameter [mm]
158-117	0,2 µm	45
158-119	0,2 µm	60
158-118	0,1 µm	45
158-120	0,1 µm	60



# Survey Micrometer Head

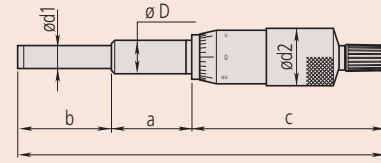
## Micrometer Head Selector

Stem w/ locknut No.	Plain stem No.	Range mm	1)	2)	4	5)	6)	Grad. mm	x mm	y mm	a mm	b mm	c mm	Ø D mm	Ø d1 mm	Ø d2 mm
110-105.		0-1				●	●	0,001			12,7	25	62,5	12	8	21
110-106.		0-1				●	●	0,0001			12,7	25	62,5	12	8	21
110-107.		0-1	●			●	●	0,001			12,7	25	62,5	12	8	21
110-108.		0-1	●			●	●	0,0001			12,7	25	62,5	12	8	21
110-101.		0-2,5				●	●	0,001			12,7	25	70	12	8	21
110-102.		0-2,5				●	●	0,0001			12,7	25	70	12	8	21
148-216.	148-215.	0-5	●					0,02	5,5	1,8	5	6,5	20,5	3,5	2	6
	148-201.	0-6,5						0,01			6	9	21,7	6	3,5	9,3
148-203.		0-6,5						0,01	8	3	7,5	7,5	21,7	6	3,5	9,3
148-302.	148-301.	0-6,5						0,01	14	4	9,5	9	23,5	9,5	6,35	15
148-304.	148-303.	0-6,5						0,01	14	4	9,5	9	23,5	9,5	6,35	20
148-306.	148-305.	0-6,5						0,01	14	4	9,5	9	23,5	9,5	6,35	29
148-221.	148-220.	0-6,5		●				0,01			15	9	22,5	6	3,5	9,3
148-223.	148-222.	0-6,5		●				0,01			17	7,5	22,5	6	3,5	9,3
148-317.	148-316.	0-6,5		●				0,01			18,7	9	22,5	9,5	6,35	15
148-319.	148-318.	0-6,5		●				0,01			18,7	9	22,5	9,5	6,35	15
148-207.	148-205.	0-6,5	●					0,01	8	3	7,5	7,5	21,7	6	3,5	9,3
148-323.	148-322.	0-6,5	●					0,01	14	4	9,5	9	23,5	9,5	6,35	15
148-143.	148-142.	0-6,5	●					0,002	14	4	9,5	14	31,5	9,5	5	13
148-343.	148-342.	0-6,5	●					0,002	14	4	9,5	9	23,5	9,5	6,35	15
148-243.	148-242.	0-6,5	●					0,002	8	3	6	9	21,9	6	3,5	9,3
152-283.		0-10				●		0,002	16	4	26	19	53	12	6,35	49
110-502.		0-13	●			●		0,0005			15	15	67,5	9,5	5	13
148-133.	148-132.	0-13	●					0,01	14	4	9,5	17,5	31,5	9,5	5	13
148-802.	148-801.	0-13	●					0,01	14	4	9,5	17,5	31,5	9,5	5	13
	148-853.	0-13	●					0,01			9,5	15,5	37	9,5	5	13
148-804.	148-803.	0-13	●	●				0,01	14	4	9,5	17,5	40	9,5	5	13
148-854.		0-13	●	●				0,01	14	4	9,5	15,5	45,5	9,5	5	13
	148-104.	0-13						0,001	14	4	9,5	17,5	31,5	9,5	5	13
148-103.		0-13						0,01	14	4	9,5	17,5	31,5	9,5	5	13
148-308.	148-307.	0-13						0,01	14	4	9,5	15,5	30	9,5	6,35	15
148-310.	148-309.	0-13						0,01	14	4	9,5	15,5	30	9,5	6,35	20
148-312.	148-311.	0-13						0,01	14	4	9,5	15,5	30	9,5	6,35	29
148-508.	148-503.	0-13						0,01	14	4	9,5	15,5	37	9,5	5	13
	148-513.	0-13						0,01			9,5	15,5	37	9,5	5	13
148-120.	148-121.	0-13		●				0,01	14	4	9,5	17,5	40,1	9,5	5	13
148-504.	148-506.	0-13		●				0,01	14	4	9,5	15,5	45,6	9,5	5	13
148-151.	148-150.	0-13		●				9,5			18,7	17,5	31	12	5	13
148-153.	148-152.	0-13		●				9,5			18,7	17,5	31	12	5	13
149-131.	149-132.	0-15				●		0,01	14	4	15	17	43,5	9,5	6,35	15
	152-101.	0-15				●		0,01			16	18	60	12	8	30
	153-101.	0-15				●	●	0,01			10	17	58,5	9,5	6,35	15,3
149-184.	149-183.	0-15		●		●		0,01	14	4	9,5	17	49	9,5	6,35	15
149-802.	149-801.	0-15	●			●		0,01	14	4	15	17	43,5	9,5	6,35	15
150-189.	150-190.	0-25			●	●		0,001	14	4	15	27	67	10	6,35	18
151-221.	151-222.	0-25			●	●		0,001	16	4	29	34	70	12	8	21
150-191.	150-192.	0-25			●	●		0,01	14	4	15	27	67	10	6,35	18
151-223.	151-224.	0-25			●	●		0,01	16	4	29	34	70	12	8	21
150-195.	150-196.	0-25				●		0,01	14	4	15	27	54	10	6,35	18
	152-102.	0-25				●		0,01			16	28	69	12	8	30
	152-332.	0-25				●		0,002			29	34	66	12	8	49

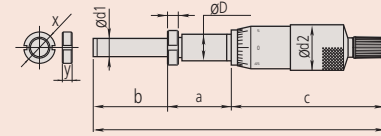
1) Spherical measuring surface 2) With spindle lock 4 With ratchet 5) With non-rotating spindle 6) Carbide tipped  
x and y apply to heads with clamp nut

## Specifications

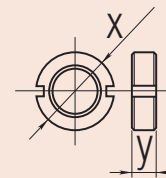
Graduation | 0,001mm/ 0,0005mm/ 0,0001mm



Total length  $l = a + b + c$



Total length  $l = a + b + c$

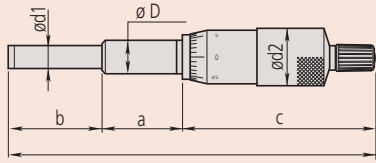




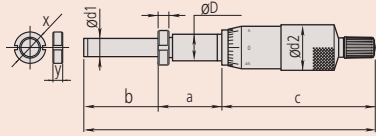
# Survey Micrometer Head

## Specifications

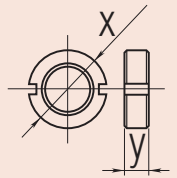
Graduation 0,001mm/ 0,0005mm/ 0,0001mm



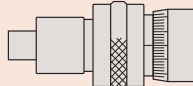
Total length  $l = a + b + c$



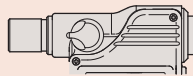
Total length  $l = a + b + c$



With clamp nut



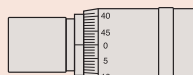
With spindle lock



With spindle lock 250-301 / 350-2XX



With spherical measuring surfaces



With reverse reading

## Micrometer Head Selector

Stem w/ locknut No.	Plain stem No.	Range	1)	2)	3)	4)	5)	6)	7)	Grad. mm	x mm	y mm	a mm	b mm	c mm	Ø D mm	Ø d1 mm	Ø d2 mm
150-220.	150-219.	0 - 25								0,01	14	4	15	65	53,5	10	6,35	18
	153-203.	0 - 25				●	●			0,01			10	27	70,5	12	8	18
	153-204.	0 - 25				●	●			0,001			10	27	71	12	8	18
	153-301.	0 - 25				●	●			0,0005				28,6	31,8	18	8	85,5
	153-201.	0 - 25				●	●	●		0,01			10	27	87,5	12	8	18
	153-202.	0 - 25				●	●	●		0,001			10	27	88	12	8	18
150-210.	150-209.	0 - 25	●	●	●					0,01	14	4	15	27	78,5	10	6,35	18
	250-301.	0 - 25	●	●	●					0,01			15	27	94	10	6,35	18
350-252-30.	350-251-30.	0 - 25	●	●	●					0,001	14	4		27	114,5	10	6,35	18
350-272-30.	350-271-30.	0 - 25	●	●	●					0,001				27	113,5	12	6,35	18
350-282-30.	350-281-30.	0 - 25	●	●	●					0,001	16	4		27	114,5	12	6,35	18
150-212.	150-211.	0 - 25	●				●			0,01	14	4	15	27	65	10	6,35	18
151-226.	151-225.	0 - 25	●				●			0,01	16	4	19	34,5	66	12	8	21
350-261-30.		0 - 25	●					●		0,001				38,7	101	12	6,35	18
150-802.	150-801.	0 - 25	●			●	●			0,01	14	4	15	27	67	10	6,35	18
350-254-30.	350-253-30.	0 - 25	●	●	●					0,001	14	4		27	113,5	10	6,35	18
350-274-30.	350-273-30.	0 - 25	●	●	●					0,001	16	4		27	113,5	12	6,35	18
350-284-30.	350-283-30.	0 - 25	●	●	●					0,001	16	4		27	114,5	12	6,35	18
	152-348.	0-25-0			●			●		0,002			29	34	66	12	8	49
	152-401.	0-25-0	●					●		0,001			14	41,7	84,3	18	8	49
151-255.	151-256.	0 - 50				●	●			0,01	16	4	29	59	103	12	8	21
151-259.	151-260.	0 - 50						●		0,01	16	4	29	59	90	12	8	21
	152-103.	0 - 50						●		0,01			16	53	94	12	8	30
	164-163.	0 - 50				●	●			0,001			14	65	143	18	11	49
	197-101.	0 - 50				●	●			0,005			14	65	64	18	8	49
	152-380.	0-50-0			●			●		0,002			29	34	66	12	8	49
148-211.	148-209.	6,5-0			●					0,01	8	3	7,5	7,5	21,7	6	3,5	9
148-822.	148-821.	13-0			●					0,01	14	4	9,5	17,5	31,5	9,5	5	13
	148-863.	13-0			●					0,01			9,5	15,5	37	9,5	5	13
148-824.	148-823.	13-0	●	●						0,01	16	4	9,5	17,5	40,1	9,5	5	13
	148-864.	13-0	●	●						0,01			9,5	15,5	45,6	9,5	5	13
149-822.	149-821.	15-0			●			●		0,01	16	4	15	17	43,5	9,5	6,35	15
150-822.	150-821.	25-0	●	●				●		0,01	16	4	15	27	84	10	6,35	18

1) Spherical measuring surface 2) With spindle lock 3) Reverse reading 4) With ratchet 5) With non-rotating spindle 6) Carbide tipped 7) Non-rotating measuring surface

x and y apply to heads with clamp nut

# Digital Micrometer Head

## Series 164

This is a digital micrometer head with non-rotating spindle. It offers you the following benefits:

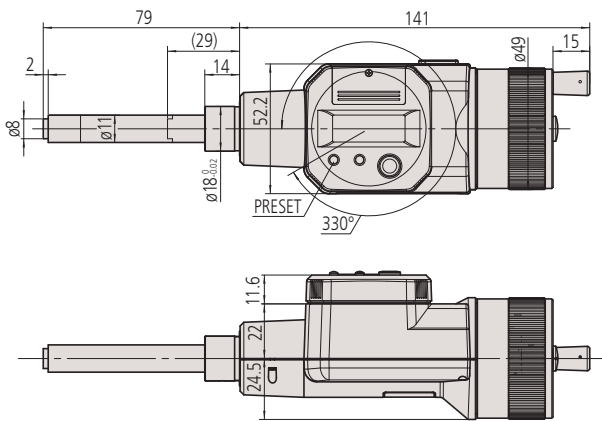
- Rotatable display, carbide tipped and non-rotating spindle
- It is perfect for integration into machinery and measuring instruments.



164-163

### Metric

No.	Range [mm]	Accuracy	Spindle end	Stem Ø	Remarks	Mass [g]
164-163	0-50	±3 µm	Carbide tipped	18 mm	Non-rotating spindle	490



164-163  
( ): with spindle full retracted

Functions	Series 164
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Data output	●
Counting direction switchable	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Measuring spindle	spindle pitch 0,5 mm
Power supply	2 batteries SR-44
Battery life	approx. 1,8 years
Display	LCD character height 7,5 mm

### Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790C	U-WAVE-T Connection Cable C, Straight, with Data Button

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



# Digital Micrometer Head with 10 mm Stem

Functions	Series 350
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Function lock	●
Data output	●
HOLD	●

## Specifications

Accuracy	±2 μm (excluding quantizing error)
Digital step	0,001 mm
Measuring spindle	With spindle lock, ø 6,35 mm, spindle pitch 0,5 mm
Power supply	Battery SR-44
Battery life	approx. 2,4 years
Display	LCD, Character Height 7,5 mm

## Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V

## Series 350

This Micrometer Head has a 25 mm range and a 10 mm stem, and offers the following benefits:

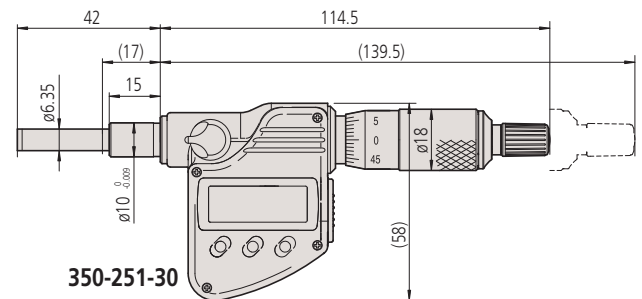
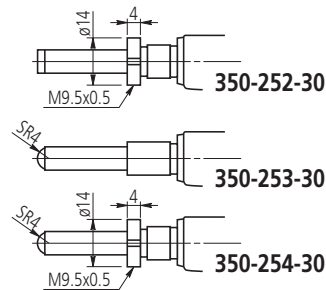
- You can integrate it into machinery and measuring instruments.
- Measurement values are clearly displayed in 0,001mm increments.
- Stem diameter: 10 mm.



350-251-30

## Metric

No.	Range [mm]	Spindle end	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Mass [g]
350-251-30	0-25	Flat (carbide tip)	Plain	10 mm		230
350-252-30	0-25	Flat (carbide tip)	w/ clamp nut	10 mm	11,5	230
350-253-30	0-25	Spherical (SR4)	Plain	10 mm		230
350-254-30	0-25	Spherical (SR4)	w/ clamp nut	10 mm	11,5	230



( ): with spindle full retracted

# Digital Micrometer Head with 12 mm Stem

## Series 350

This Micrometer Head has a 25 mm range and a 12 mm stem, and offers the following benefits:

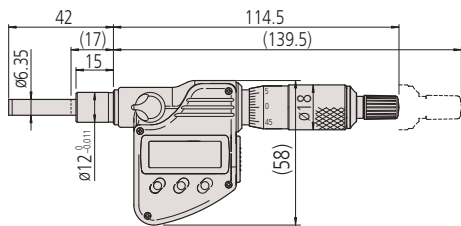
- You can integrate it into machinery and measuring instruments.
- Its excellent water and dust resistance (IP65 protection level) lets you use it in machining situations that include splashing coolant fluid (except types with threaded stem).
- Measurement values are clearly displayed in 0,001 mm increments.



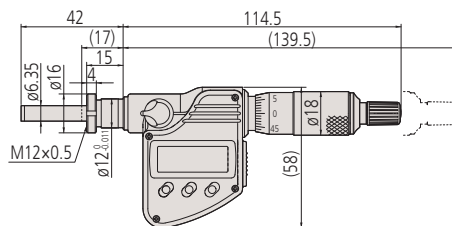
350-281-30

### Metric

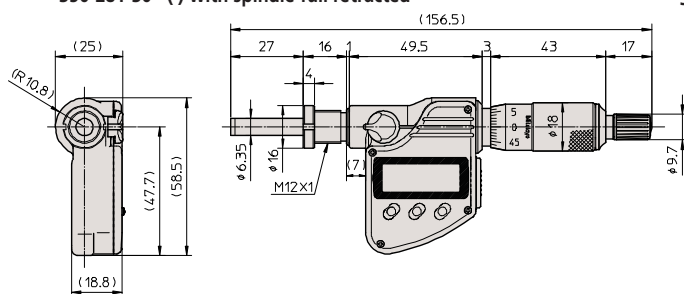
No.	Range [mm]	Spindle end	Remarks	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Mass [g]
350-271-30	0-25	Flat (carbide tip)	IP65	Plain	12 /18 mm		230
350-272-30	0-25	Flat (carbide tip)	threaded stem	w/ clamp nut	M12 x 1	11,5	230
350-273-30	0-25	Spherical (SR4)	IP65	Plain	12 /18 mm		230
350-274-30	0-25	Spherical (SR4)	threaded stem	w/ clamp nut	M12 x 1	11,5	230
350-281-30	0-25	Flat (carbide tip)	IP65	Plain	12 mm		230
350-282-30	0-25	Flat (carbide tip)	IP65	w/ clamp nut	12 mm	11,5	230
350-283-30	0-25	Spherical (SR4)	IP65	Plain	12 mm		230
350-284-30	0-25	Spherical (SR4)	IP65	w/ clamp nut	12 mm	11,5	230
350-261-30	0-25	Flat	IP65, w/ non-rotating measuring face w/o ratched stop	Plain	12/18 mm		235



350-281-30 ( ) with spindle full retracted



350-282-30



350-272-30

Functions	Series 350
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	±2 μm (excluding quantizing error)
Digital step	0,001 mm
Measuring spindle	With spindle lock, ø 6,35 mm spindle pitch 0,5 mm
Power supply	Battery SR-44
Battery life	approx. 2,4 years
Display	LCD, Character Height 7,5 mm

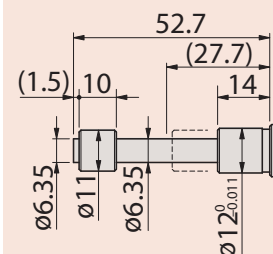
### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

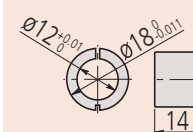
### Consumable spares

No.	Description
938882	Battery SR44 1.5V
305307	Bush, Series 350, Ø 12/18 mm, 14 mm length
306625	Bush, Series 350, Ø 12/18 mm, 16 mm length

306625 Standard for 350-271-30, 350-273-30  
305307 Standard for 350-261-30



350-261-10



305307

# Micrometer Head with Counter

### Specifications

Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome
Measuring spindle	With spindle lock, $\phi$ 6,35 mm, spindle pitch 0,5 mm

### Series 250 - Digit counter type

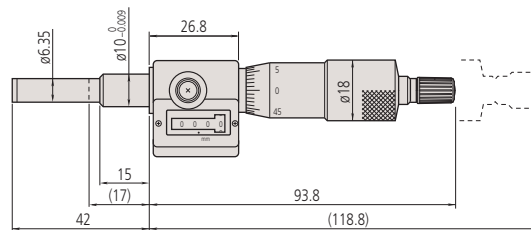
This Digit counter type is a micrometer head with a mechanical counter.



250-301

### Metric

No.	Range [mm]	Accuracy	Spindle end	Stem $\phi$	Stem	Mass [g]
250-301	0-25	$\pm 2 \mu\text{m}$	Flat (carbide tip)	10 mm	Plain	165

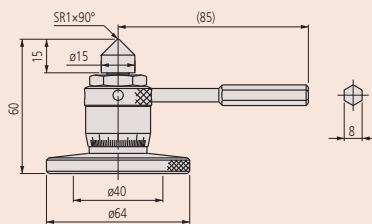


250-301

# Micro Jack

### Specifications

Graduation	0,01mm
------------	--------



7850

### Series 7

This Micro Jack allows you to make easy adjustments under a heavy load. It offers the following benefits:

- Adjustments can easily be made under a heavy load.
- You can use it to accurately level machines, surface plates, and other precision instruments.



7850

### Metric

No.	Range [mm]	Remarks
7850	60-75	Max. load : 400kg



# Fine Spindle Feed Micrometer Head 5 mm and 6.5 mm Range

Series 148 - Very fine spindle feed of 0,1/rev

These micrometer heads have a very fine spindle feed of 0,1 mm/rev. They offer the following benefits:

- Small size micrometer heads with extremely fine pitch of 0,1 mm.
- Ideal for fine adjustment applications in scientific apparatus.



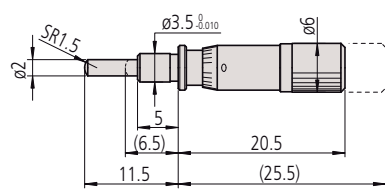
148-143



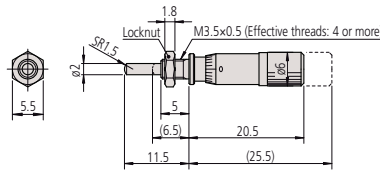
148-243

## Metric

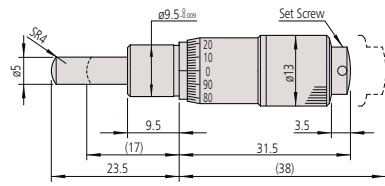
No.	Range [mm]	Accuracy [ $\mu$ m]	Spindle end	Stem	Stem $\varnothing$	Fixture thickness for clamp nut [mm]	Mass [g]
148-244	0-5	$\pm 5$	Spherical (SR1,5)	Plain	3,5 mm		4
148-245	0-5	$\pm 5$	Spherical (SR1,5)	w/ clamp nut	3,5 mm	3	5
148-142	0-6,5	$\pm 2$	Spherical (SR4)	Plain	9,5 mm		31
148-143	0-6,5	$\pm 2$	Spherical (SR4)	w/ clamp nut	9,5 mm	6	34
148-342	0-6,5	$\pm 2$	Spherical (SR4)	Plain	9,5 mm		29
148-343	0-6,5	$\pm 2$	Spherical (SR4)	w/ clamp nut	9,5 mm	6	31
148-242	0-6,5	$\pm 5$	Spherical (SR3)	Plain	6 mm		10
148-243	0-6,5	$\pm 5$	Spherical (SR3)	w/ clamp nut	6 mm	4	10



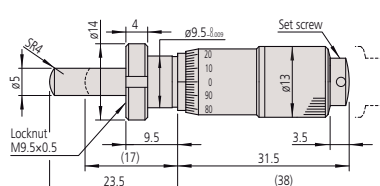
148-244



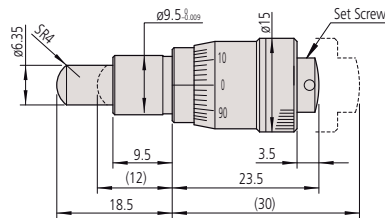
148-245



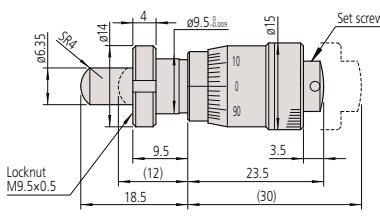
148-142



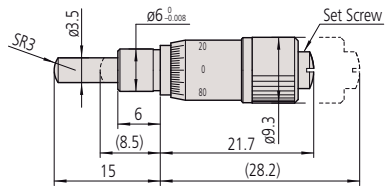
148-143



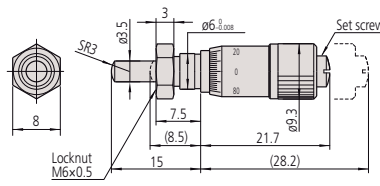
148-342



148-343



148-242

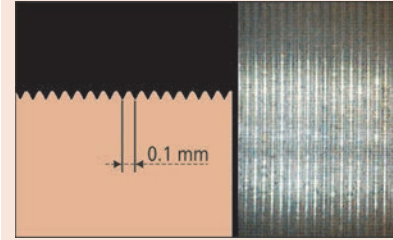


148-243

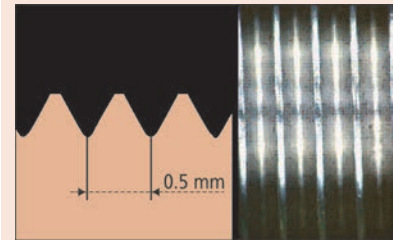
( ): with spindle full retracted

## Specifications

Graduation	0,002 mm 0,004 mm (148-244, 148-245)
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,1 mm
Measuring surfaces	Hardened steel (>60 HRC)



Pitch 0,1 mm



Pitch 0,5 mm

# Micrometer Head 5 mm and 6,5 mm Range

## Specifications

Accuracy	±5 μm
Graduation	0,02 mm 0,01 mm (148-215, 148-216)
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Hardened steel (>60 HRC)



## Series 148 - Ultra small

This ultra-small micrometer head allows you to easily incorporate it into machines and offers you the following benefits:

- Plain stem and a flat spindle end
- Hardened steel measuring surface



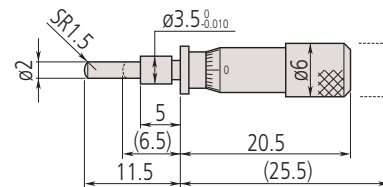
148-201



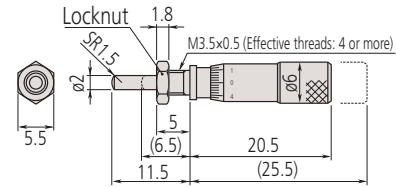
148-215

## Metric

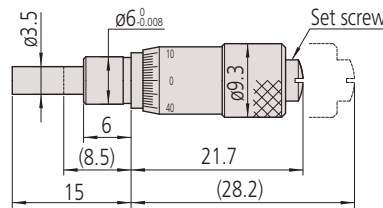
No.	Range [mm]	Spindle end	Stem Ø	Stem	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
148-215	0-5	Spherical (SR1,5)	3,5 mm	Plain		-	4
148-216	0-5	Spherical (SR1,5)	3,5 mm	w/ clamp nut	3	-	4
148-201	0-6,5	Flat	6 mm	Plain		-	10
148-203	0-6,5	Flat	6 mm	w/ clamp nut	4	-	10
148-205	0-6,5	Spherical (SR3)	6 mm	Plain		-	10
148-207	0-6,5	Spherical (SR3)	6 mm	w/ clamp nut	4	-	10
148-209	0-6,5	Flat	6 mm	Plain		Reverse reading	10
148-211	0-6,5	Flat	6 mm	w/ clamp nut	4	Reverse reading	10



148-215

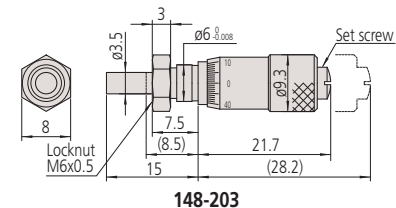


148-216



148-201

( ): with spindle full retracted



148-203

# Micrometer Head 6,5 mm and 13 mm Range

## Series 148 - Fine spindle feed of 0,25/rev

These micrometer heads are a standard, small-sized type with a 6,5 mm and 13 mm measuring range.

They offer the following benefits:

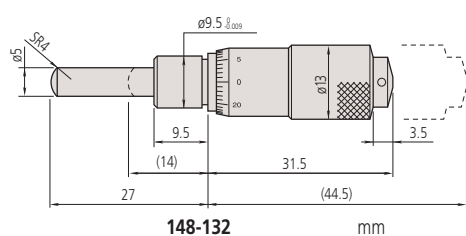
- Fine spindle feed of 0,25 mm/rev for fine adjustment.



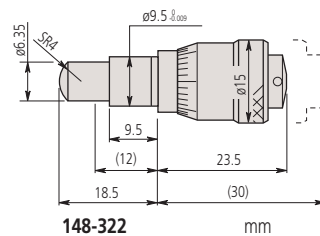
148-132

### Metric

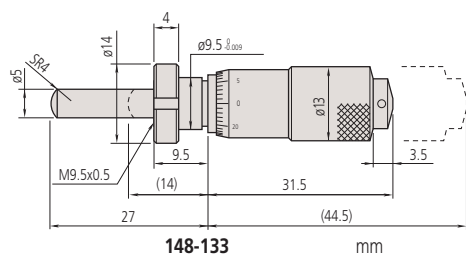
No.	Range [mm]	Spindle end	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Mass [g]
148-322	0-6,5	Spherical (SR4)	Plain	9,5 mm		30
148-323	0-6,5	Spherical (SR4)	w/ clamp nut	9,5 mm	6	35
148-132	0-13	Spherical (SR4)	Plain	9,5 mm		30
148-133	0-13	Spherical (SR4)	w/ clamp nut	9,5 mm	6	35



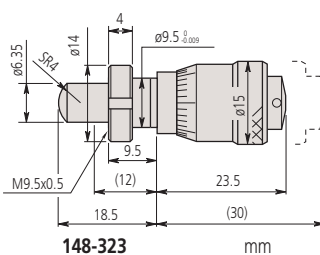
148-132 mm



148-322 mm



148-133 mm



148-323 mm

( ): with spindle full retracted

### Specifications

Accuracy	±2 μm
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,25 mm
Measuring surfaces	Hardened steel (> 60 HRC)

# Micrometer Head 6,5 mm and 13 mm Range

## Specifications

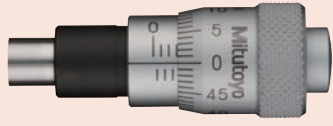
Accuracy	±2 μm
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Hardened steel (>60 HRC)

## Series 148 - Large Thimble Diameter for Easy Reading

These micrometer heads feature a locking screw so you can lock the spindle in any position with the knurled locking screw.

### Metric

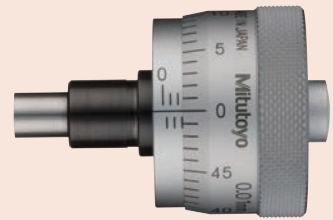
No.	Range [mm]	Spindle end	Stem	Stem Ø	Thimble Ø	Fixture thickness for clamp nut [mm]	Mass [g]
148-301	0-6,5	Flat	Plain	9,5 mm	15 mm		26
148-302	0-6,5	Flat	w/ clamp nut	9,5 mm	15 mm	6	26
148-303	0-6,5	Flat	Plain	9,5 mm	20 mm	6	39
148-304	0-6,5	Flat	w/ clamp nut	9,5 mm	20 mm	6	39
148-305	0-6,5	Flat	Plain	9,5 mm	29 mm		71
148-306	0-6,5	Flat	w/ clamp nut	9,5 mm	29 mm	6	71
148-313	0-6,5	Spherical (SR4)	Plain	9,5 mm	15 mm		26
148-314	0-6,5	Spherical (SR4)	w/ clamp nut	9,5 mm	15 mm	6	26
148-307	0-13	Flat	Plain	9,5 mm	15 mm		35
148-308	0-13	Flat	w/ clamp nut	9,5 mm	15 mm	6	35
148-309	0-13	Flat	Plain	9,5 mm	20 mm		55
148-310	0-13	Flat	w/ clamp nut	9,5 mm	20 mm	6	55
148-311	0-13	Flat	Plain	9,5 mm	29 mm		103
148-312	0-13	Flat	w/ clamp nut	9,5 mm	29 mm	6	103



148-301



148-303



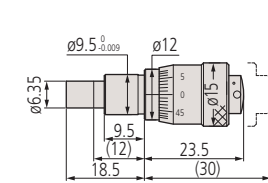
148-305



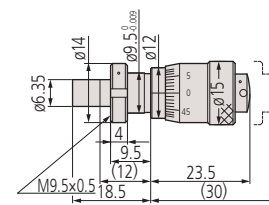
148-313



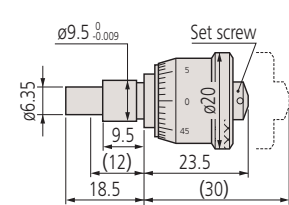
148-314



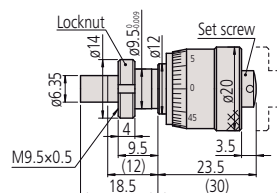
148-301



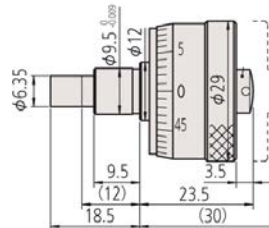
148-302



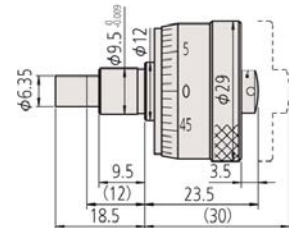
148-303



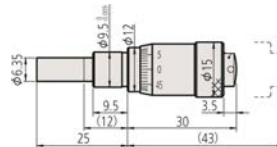
148-304



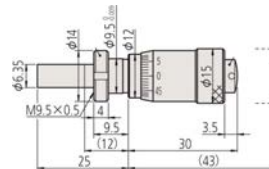
148-305



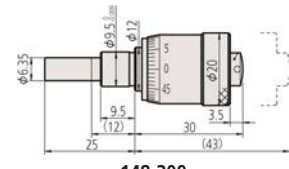
148-306



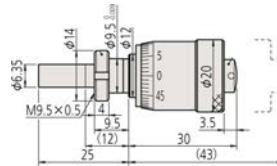
148-307



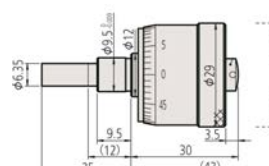
148-308



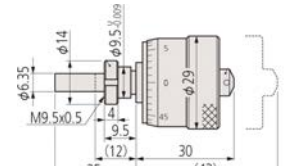
148-309



148-310



148-311



148-312

(:): with spindle full retracted

# Micrometer Head 6,5 mm Range with Spindle Lock

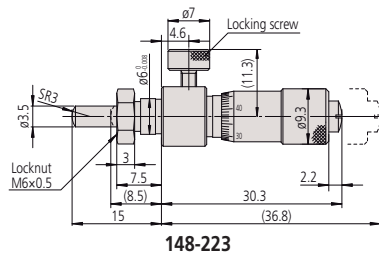
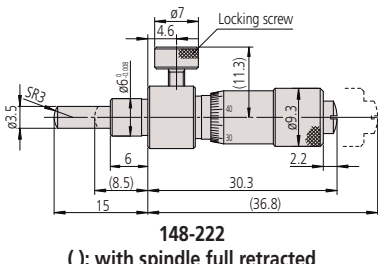
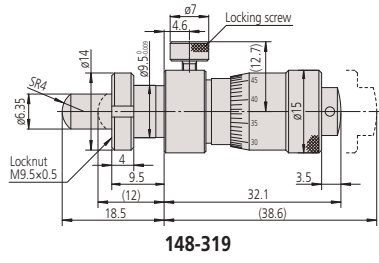
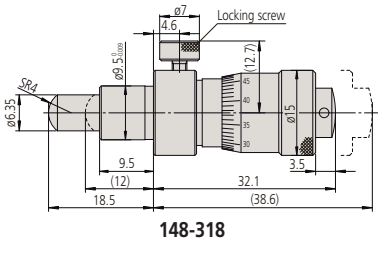
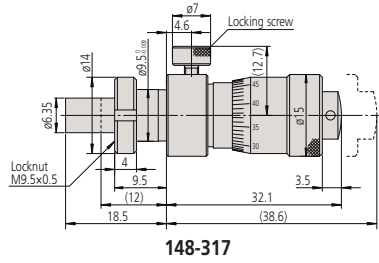
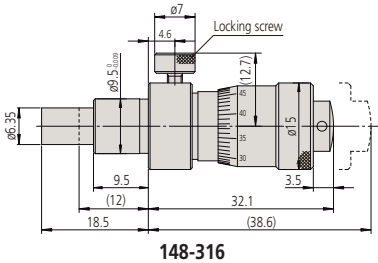
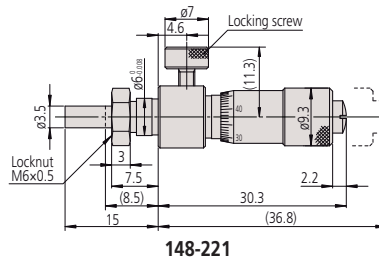
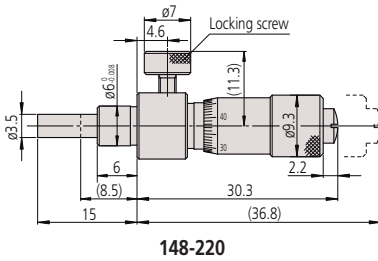
## Series 148 - Locking screw Type

These micrometer heads feature a knurled locking screw so you can lock the spindle in any position with the knurled locking screw.



### Metric

No.	Range [mm]	Accuracy [ $\mu$ m]	Spindle end	Stem	Stem $\varnothing$	Fixture thickness for clamp nut [mm]	Mass [g]
148-220	0-6,5	$\pm 5$	Flat	Plain	6 mm		16
148-221	0-6,5	$\pm 5$	Flat	w/ clamp nut	6 mm	4	17
148-222	0-6,5	$\pm 5$	Spherical (SR3)	Plain	6 mm		16
148-223	0-6,5	$\pm 5$	Spherical (SR3)	w/ clamp nut	6 mm	4	17
148-316	0-6,5	$\pm 2$	Flat	Plain	9,5 mm		40
148-317	0-6,5	$\pm 2$	Flat	w/ clamp nut	9,5 mm	6	43
148-318	0-6,5	$\pm 2$	Spherical (SR4)	Plain	9,5 mm		40
148-319	0-6,5	$\pm 2$	Spherical (SR4)	w/ clamp nut	9,5 mm	6	43



(:): with spindle full retracted

### Specifications

Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Hardened steel (>60 HRC)



# Micrometer Head 13 mm Range with Spindle Lock

## Specifications

Accuracy	±2 μm
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Hardened steel (>60 HRC)

## Series 148 - Locking screw Type

These micrometer heads feature a locking screw so you can lock the spindle in any position with the knurled locking screw.

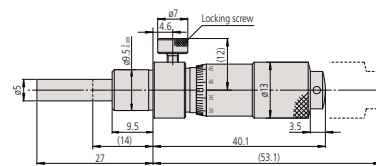


148-150

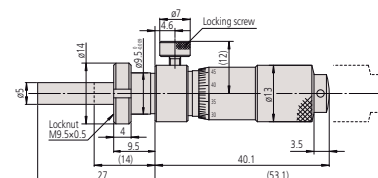
148-153

## Metric

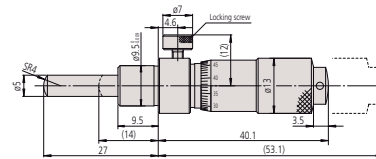
No.	Range [mm]	Spindle end	Stem Ø	Stem	Fixture thickness for clamp nut [mm]	Mass [g]
148-150	0-13	Flat	9,5 mm	Plain		40
148-151	0-13	Flat	9,5 mm	w/ clamp nut	6	43
148-152	0-13	Spherical (SR4)	9,5 mm	Plain		40
148-153	0-13	Spherical (SR4)	9,5 mm	w/ clamp nut	6	43



148-150

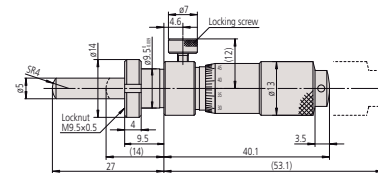


148-151



148-152

( ): with spindle full retracted



148-153

# Micrometer Head 13 mm Range with Zero Thimble

Series 148 - Standard type, small size with zero-adjustable thimble.

These are a standard type of small size micrometer heads with a zero-adjustable thimble. They offer the following benefits:

- You can make a zero-setting at any position by loosening the setscrew in the thimble.



148-503



148-504

## Metric

No.	Range [mm]	Spindle end	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
148-503	0-13	Flat	Plain	9,5 mm		-	35
148-513	0-13	Flat	Plain	9,5 mm		Stainless steel	35
148-508	0-13	Flat	w/ clamp nut	9,5 mm	6	-	40
148-853	0-13	Spherical (SR4)	Plain	9,5 mm		-	40
148-518	0-13	Flat	w/ clamp nut	9,5 mm	6	Stainless steel	40
148-858	0-13	Spherical (SR4)	w/ clamp nut	9,5 mm	6	-	40

## Metric

Reverse reading

No.	Range [mm]	Spindle end	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Mass [g]
148-863	0-13	Flat	Plain	9,5 mm		35
148-868	0-13	Flat	w/ clamp nut	9,5 mm	6	40

## Metric

Reverse reading / with spindle lock

No.	Range [mm]	Spindle end	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Mass [g]
148-864	0-13	Flat	w/ clamp nut	9,5 mm	6	40
148-866	0-13	Flat	Plain	9,5 mm		35

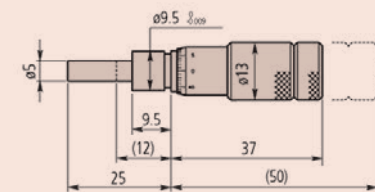
## Metric

With spindle lock

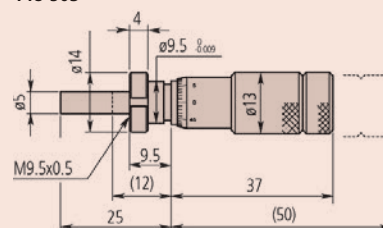
No.	Range [mm]	Spindle end	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Mass [g]
148-506	0-13	Flat	Plain	9,5 mm		35
148-504	0-13	Flat	w/ clamp nut	9,5 mm	6	40
148-854	0-13	Spherical (SR4)	w/ clamp nut	9,5 mm	6	40
148-856	0-13	Spherical (SR4)	Plain	9,5 mm		35

## Specifications

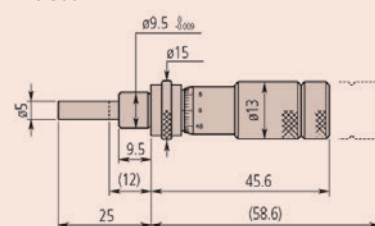
Accuracy	±2 μm
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Hardened steel (> 60 HRC)



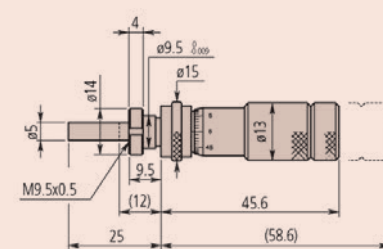
148-503



148-508



148-506



148-504

( ): with spindle full retracted

# Micrometer Head 13 mm Range

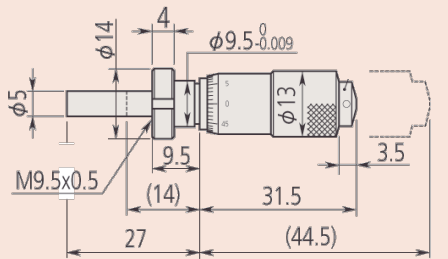
## Specifications

Accuracy	±2 μm
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Hardened steel (> 60 HRC)

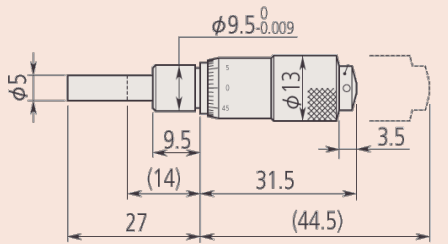
## Series 148 - Small standard type

This is a standard, small-sized micrometer head which offers you the following benefits:

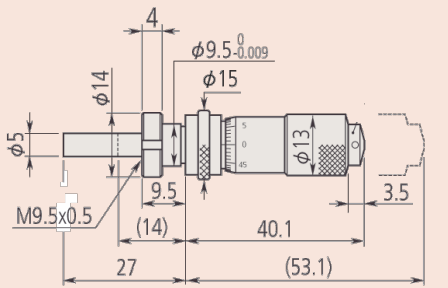
- Plain stem and a flat spindle end
- Hardened steel measuring surface



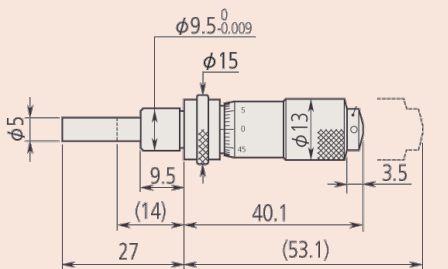
148-103



148-104



148-120



148-121

( ) with spindle full retracted



## Metric

No.	Range [mm]	Spindle end	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
148-104	0-13	Flat	Plain	9,5 mm		-	30
148-103	0-13	Flat	w/ clamp nut	9,5 mm	6	-	35
148-801	0-13	Spherical (SR4)	Plain	9,5 mm		-	30
148-802	0-13	Spherical (SR4)	w/ clamp nut	9,5 mm	6	-	35
148-821	0-13	Flat	Plain	9,5 mm		Reverse reading	30
148-822	0-13	Flat	w/ clamp nut	9,5 mm	6	Reverse reading	35

## Metric

With spindle lock

No.	Range [mm]	Spindle end	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
148-121	0-13	Flat	Plain	9,5 mm		-	40
148-120	0-13	Flat	w/ clamp nut	9,5 mm	6	-	45
148-803	0-13	Spherical (SR4)	Plain	9,5 mm		-	40
148-804	0-13	Spherical (SR4)	w/ clamp nut	9,5 mm	6	-	45
148-823	0-13	Flat	Plain	9,5 mm		Reverse reading	40
148-824	0-13	Flat	w/ clamp nut	9,5 mm	6	Reverse reading	45

# Micrometer Head 15 mm Range

## Series 149 - Small standard type with carbide-tipped spindle

This small micrometer head with tungsten carbide measuring surface offers you the following benefits:

- Stem with clamp nut and a flat spindle end
- Stem with carbide-tipped spindle



149-132

149-184

### Specifications

Accuracy	±2 μm
Graduation	0,01mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Carbide tipped

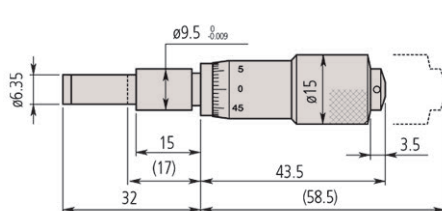
### Metric

No.	Range [mm]	Spindle end	Stem Ø	Stem	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
149-132	0-15	Flat (carbide tip)	9,5 mm	Plain		-	55
149-131	0-15	Flat (carbide tip)	9,5 mm	w/ clamp nut	11,5	-	60
149-801	0-15	Spherical (SR4)	9,5 mm	Plain		-	55
149-802	0-15	Spherical (SR4)	9,5 mm	w/ clamp nut	11,5	-	60
149-821	0-15	Flat (carbide tip)	9,5 mm	Plain		Reverse reading	55
149-822	0-15	Flat (carbide tip)	9,5 mm	w/ clamp nut	11,5	Reverse reading	60

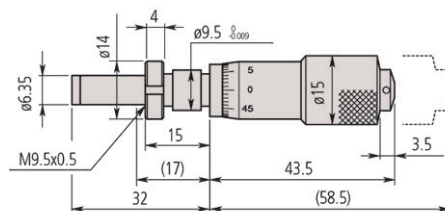
### Metric

With spindle lock

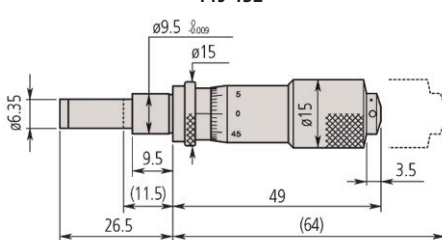
No.	Range [mm]	Spindle end	Stem Ø	Stem	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
149-183	0-15	Flat (carbide tip)	9,5 mm	Plain		-	55
149-184	0-15	Flat (carbide tip)	9,5 mm	w/ clamp nut	6	-	60
149-803	0-15	Spherical (SR4)	9,5 mm	Plain		-	55
149-804	0-15	Spherical (SR4)	9,5 mm	w/ clamp nut	6	-	60
149-823	0-15	Flat (carbide tip)	9,5 mm	Plain		Reverse reading	55
149-824	0-15	Flat (carbide tip)	9,5 mm	w/ clamp nut	6	Reverse reading	60



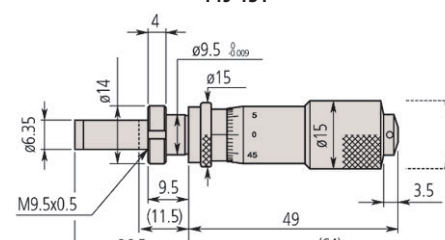
149-132



149-131



149-183



149-184

( ): with spindle full retracted

# Micrometer Head 25 mm Range

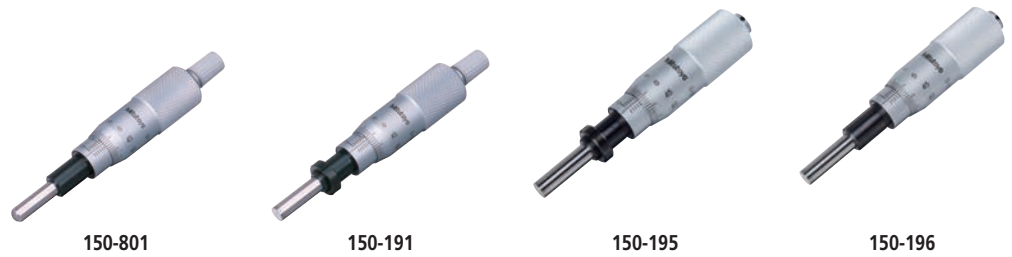
## Specifications

Accuracy	±2 μm
Graduation	0,01 mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Carbide tipped

## Series 150 - Medium-sized standard type

This is a standard, medium-size micrometer head that offers you the following benefits:

- Plain stem and a flat spindle end
- With carbide-tipped spindle



## Metric

No.	Range [mm]	Spindle end	Stem Ø	Stem	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
150-192	0-25	Flat (carbide tip)	10 mm	Plain		-	95
150-191	0-25	Flat (carbide tip)	10 mm	w/ clamp nut	11,5	-	100
150-801	0-25	Spherical (SR4)	10 mm	Plain		-	95
150-802	0-25	Spherical (SR4)	10 mm	w/ clamp nut	11,5	-	100
150-190	0-25	Flat (carbide tip)	10 mm	Plain		Graduation 0,001 mm	95
150-189	0-25	Flat (carbide tip)	10 mm	w/ clamp nut	11,5	Graduation 0,001 mm	100
150-196	0-25	Flat (carbide tip)	10 mm	Plain		w/o ratchet stop	95
150-195	0-25	Flat (carbide tip)	10 mm	w/ clamp nut	11,5	w/o ratchet stop	110
150-219	0-25	Flat	10 mm	Plain		Long spindle	95
150-220	0-25	Flat	10 mm	w/ clamp nut	11,5	Long spindle	100
150-821	0-25	Flat (carbide tip)	10 mm	Plain		Reverse reading	95
150-822	0-25	Flat (carbide tip)	10 mm	w/ clamp nut	11,5	Reverse reading	100

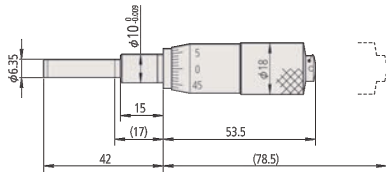
## Metric

With spindle lock

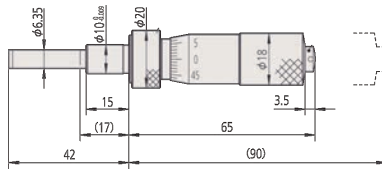
No.	Range [mm]	Spindle end	Stem Ø	Stem	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
150-209	0-25	Flat (carbide tip)	10 mm	Plain		-	110
150-183	0-25	Flat (carbide tip)	10 mm	Plain		Graduation 0,001 mm	110
150-184	0-25	Flat (carbide tip)	10 mm	w/ clamp nut	11,5	Graduation 0,001 mm	115
150-211	0-25	Flat (carbide tip)	10 mm	Plain		w/o ratchet stop	115
150-210	0-25	Flat (carbide tip)	10 mm	w/ clamp nut	11,5	-	115
150-212	0-25	Flat (carbide tip)	10 mm	w/ clamp nut	11,5	w/o ratchet stop	115
150-803	0-25	Spherical (SR4)	10 mm	Plain		-	110
150-804	0-25	Spherical (SR4)	10 mm	w/ clamp nut	11,5	-	115
150-823	0-25	Flat (carbide tip)	10 mm	Plain		Reverse reading	110
150-824	0-25	Flat (carbide tip)	10 mm	w/ clamp nut	11,5	Reverse reading	115
150-223	0-25	Flat (carbide tip)	10 mm	Plain		Long spindle/ w/o/ratched stop	110
150-224	0-25	Flat (carbide tip)	10 mm	w/ clamp nut	11,5	Long spindle/ w/o/ratched stop	115



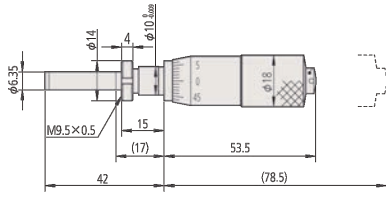
# Micrometer Head 25 mm Range



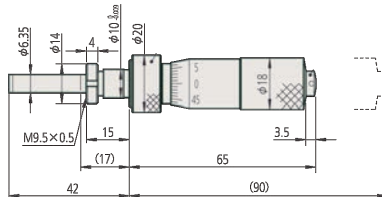
150-196



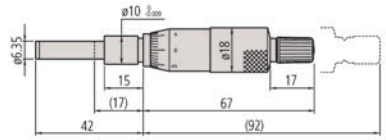
150-211



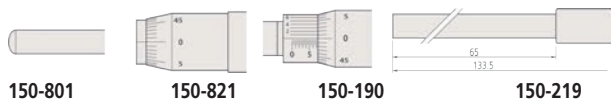
150-195



150-212



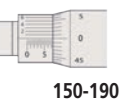
150-192



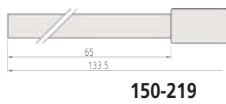
150-801



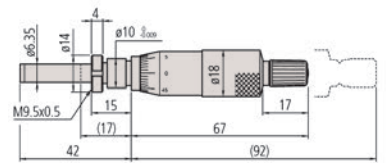
150-821



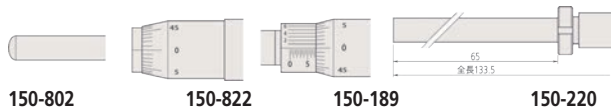
150-190



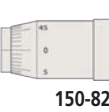
150-219



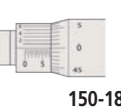
150-191



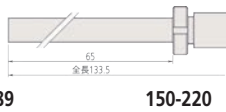
150-802



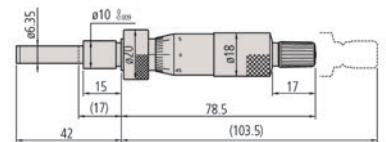
150-822



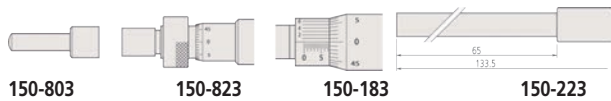
150-189



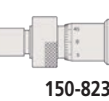
150-220



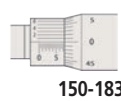
150-209



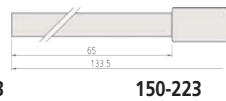
150-803



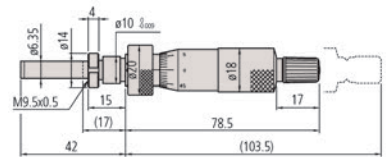
150-823



150-183

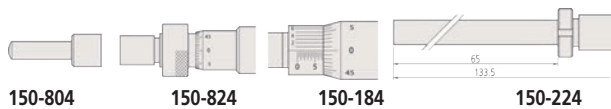


150-223

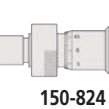


150-210

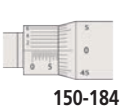
( ): with spindle full retracted



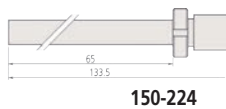
150-804



150-824



150-184



150-224

# Micrometer Head 25 mm and 50 mm Range

## Specifications

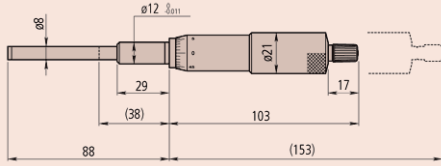
Accuracy	±2 μm ±4 μm (50 mm)
Graduation	0,01 mm/ 0,001 mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Carbide tipped

## Series 151 - Medium-sized standard type with 8 diameter spindle.

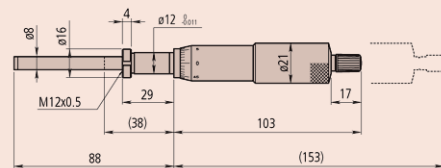
These micrometer heads are a medium-sized, standard type.

They offer the following benefits:

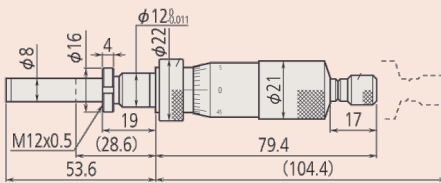
- 8 mm diameter spindle
- Extremely sturdy micrometer head with or without a ratchet.



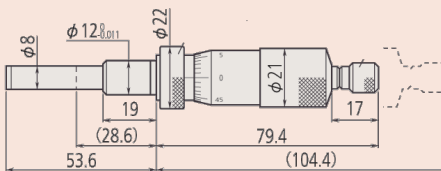
151-256



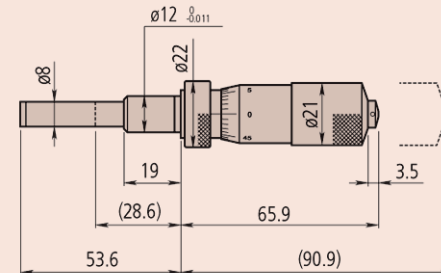
151-255



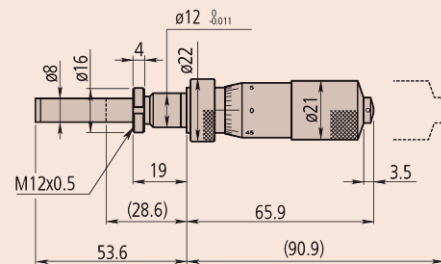
151-213



151-214



151-225



151-226  
( ): with spindle full retracted



151-224

151-223



151-255

151-256

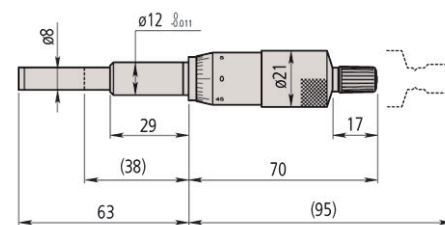
## Metric

No.	Range [mm]	Spindle end	Stem Ø	Stem	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
151-224	0-25	Flat (carbide tip)	12 mm	Plain		-	150
151-223	0-25	Flat (carbide tip)	12 mm	w/ clamp nut	25,5	-	155
151-222	0-25	Flat (carbide tip)	12 mm	Plain		Graduation 0,001 mm	150
151-221	0-25	Flat (carbide tip)	12 mm	w/ clamp nut	25,5	Graduation 0,001 mm	155
151-227	0-25	Flat (carbide tip)	12 mm	Plain		w/o ratchet stop	150
151-228	0-25	Flat (carbide tip)	12 mm	w/ clamp nut	25,5	w/o ratchet stop	155
151-256	0-50	Flat (carbide tip)	12 mm	Plain		-	240
151-255	0-50	Flat (carbide tip)	12 mm	w/ clamp nut	25,5	-	250
151-260	0-50	Flat (carbide tip)	12 mm	Plain		w/o ratchet stop	240
151-259	0-50	Flat (carbide tip)	12 mm	w/ clamp nut	25,5	w/o ratchet stop	250

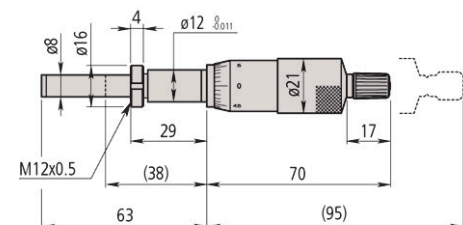
## Metric

With spindle lock

No.	Range [mm]	Spindle end	Stem Ø	Stem	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
151-214	0-25	Flat (carbide tip)	12 mm	Plain		-	160
151-213	0-25	Flat (carbide tip)	12 mm	w/ clamp nut	15,5	-	165
151-212	0-25	Flat (carbide tip)	12 mm	Plain		Graduation 0,001 mm	160
151-211	0-25	Flat (carbide tip)	12 mm	w/ clamp nut	15,5	Graduation 0,001 mm	165
151-225	0-25	Flat (carbide tip)	12 mm	Plain		w/o ratchet stop	165
151-226	0-25	Flat (carbide tip)	12 mm	w/ clamp nut	15,5	w/o ratchet stop	165



151-224



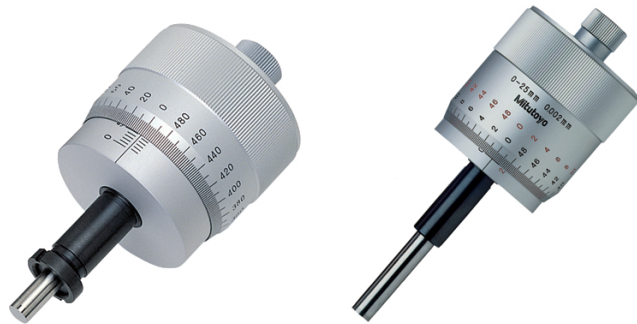
151-223

# Micrometer Heads with Large Thimble

## Series 152 - Large thimble type for fine adjustment

These micrometer heads come with a large thimble, allowing you to make fine adjustments. They offer the following benefits:

- The large scale drum allows fine graduation and very easy rotation.



152-283

152-348

### Specifications

Accuracy	0,002 mm
Scale	White anodized aluminium
Spindle pitch	0,5 mm
Measuring surfaces	Carbide tipped

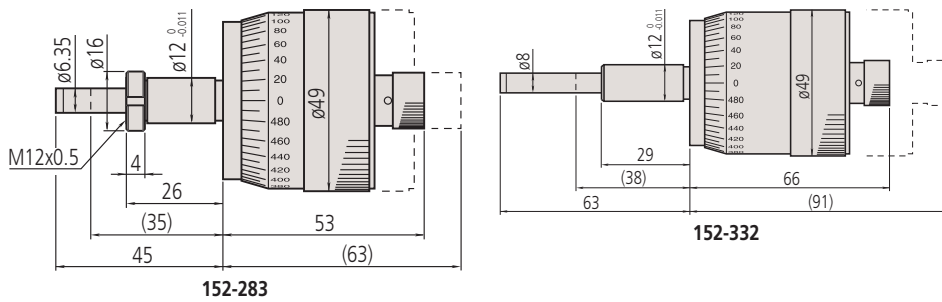
### Metric

No.	Range [mm]	Accuracy	Spindle end	Stem	Stem Ø	Fixture thickness for clamp nut [mm]	Special features	Mass [g]
152-283	0-10	±2 µm	Flat (carbide tip)	w/ clamp nut	12 mm	22,5	-	190
152-332	0-25	±2 µm	Flat (carbide tip)	Plain	12 mm		-	310

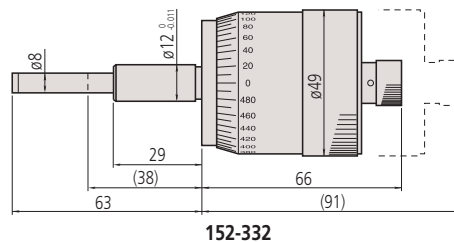
### Metric

Black and red scaling in both directions

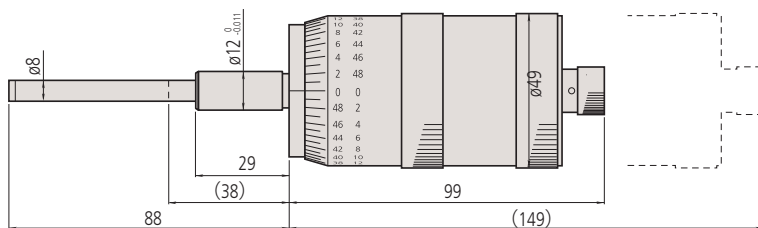
No.	Range [mm]	Accuracy	Spindle end	Stem	Stem Ø	Special features	Mass [g]
152-348	0-25	±2 µm	Flat (carbide tip)	Plain	12 mm	Bidirectional graduation	310
152-380	0-50	±4 µm	Flat (carbide tip)	Plain	12 mm	Bidirectional graduation	460



152-283



152-332



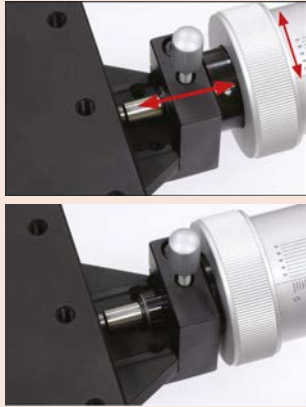
152-380

( ): with spindle full retracted

# Micrometer Head for XY-Stage

## Specifications

Accuracy	±2 μm
Graduation	0,005 mm (152-390, 152-389) 0,001 mm (152-402, 152-401)
Scale	White anodized aluminium
Spindle pitch	1 mm
Measuring surfaces	Hardened steel (>60 HRC) 152-390, 152-389, 152-392, 152-391 Carbide tipped 152-402, 152-401



152-402, 152-401

The zero point setting ring allows spindle travel without changing the scale drum position, thus simplifying zero point setting.

## Series 152 - XY Stage type

These XY Stage type micrometer heads let you read measurement values easily. They offer the following benefits:

- Micrometer head with rotating spindle, non-rotating measuring surface and bidirectional reading 152-390, 152-389.
- Graduations for each direction are engraved in a different colour (black or red).
- You can read measurement values directly from the 100-step graduation thimble without having to consider 1/2 mm values, reducing the chance of error.



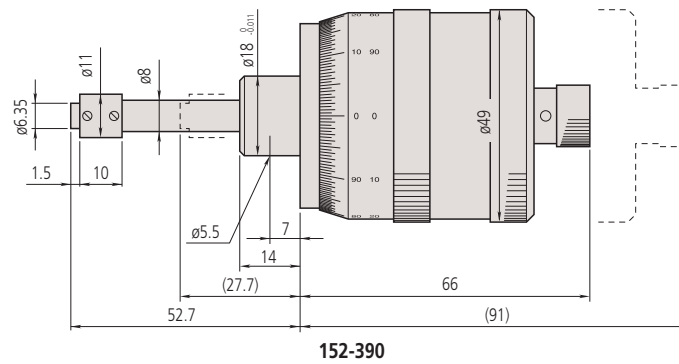
152-390



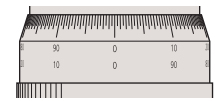
152-402

## Metric

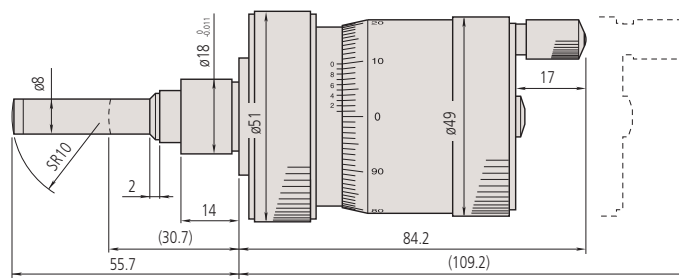
No.	Range [mm]	Spindle end	Stem	Stem Ø	Special features	Mass [g]
152-390	0-25	Flat (hardened) with non-rotating device	Plain	18 mm	For X-axis Bidirectional grad.	270
152-389	0-25	Flat (hardened) with non-rotating device	Plain	18 mm	For Y-axis Bidirectional grad.	270
152-402	0-25	Spherical with carbide tip (SR10)	Plain	18 mm	For X-axis	460
152-401	0-25	Spherical with carbide tip (SR10)	Plain	18 mm	For Y-axis	460



152-390

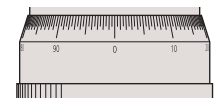


152-389



152-402

(): with spindle full retracted



152-401

# Quick Spindle Feed Micrometer Head

Series 152 - Quick spindle feed of 1/rev

This is a quick spindle micrometer head.

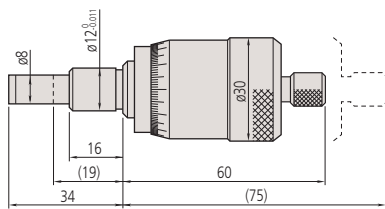
It offers you the following benefits:

- Micrometer head with 1 mm / rotation

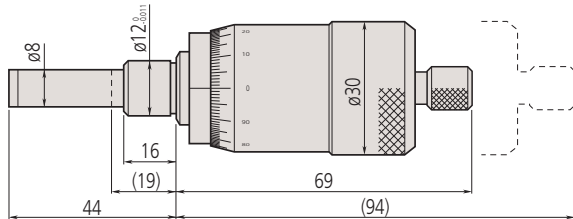


### Metric

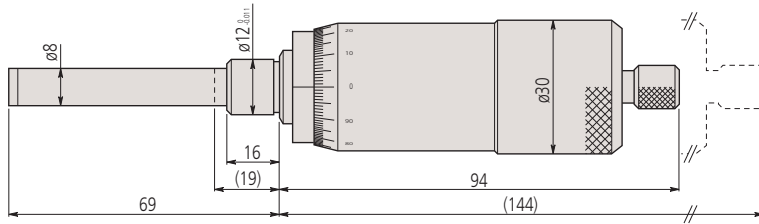
No.	Range [mm]	Accuracy [ $\mu$ m]	Spindle end	Stem	Stem $\varnothing$	Mass [g]
152-101	0-15	$\pm 2$	Flat (carbide tip)	Plain	12 mm	205
152-102	0-25	$\pm 2$	Flat (carbide tip)	Plain	12 mm	230
152-103	0-50	$\pm 4$	Flat (carbide tip)	Plain	12 mm	355



152-101



152-102



152-103

( ): with spindle full retracted

### Specifications

Graduation	0,01mm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	1 mm
Measuring surfaces	Carbide tipped



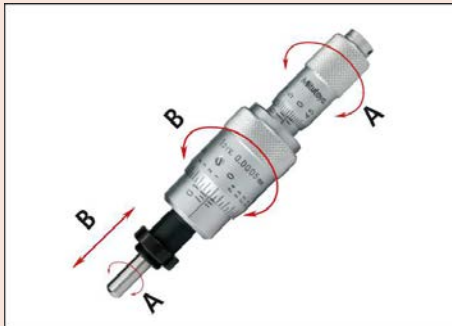
# Micrometer Head with Non-Rotating Spindle

## Specifications

Accuracy	±3 μm (1 mm) ±5 μm (2,5 mm) ±3 μm (13 mm)
Scale	Thimble and sleeve satin chrome finish
Measuring surfaces	Carbide tipped



Version with non-rotating spindle

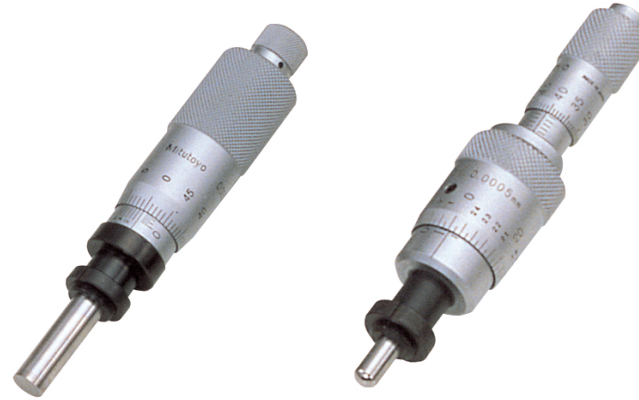


Version with rotating spindle  
110-502

## Series 110 - Differential screw translator (Extra-fine feed) type

This is a differential screw translator (extra-fine feed) type of micrometer head. It offers you the following benefits:

- Micrometer head with ultra-fine rate of travel.
- With its non-rotating spindle it is particularly suited to fine adjustments.
- The differential travel mechanism with double spindle enables ultra-sensitive travel

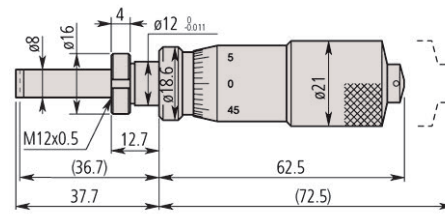


110-102

110-502

## Metric

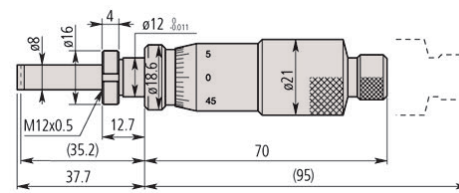
No.	Range	Graduation	Spindle end	Stem Ø	Stem	Fixture thickness for clamp nut [mm]	Mass [g]
110-105	0 - 1	0,001 mm	Flat (carbide tip)	12 mm	w/ clamp nut	9,5	150
110-106	0 - 1	0,0001 mm	Flat (carbide tip)	12 mm	w/ clamp nut	9,5	150
110-107	0 - 1	0,001 mm	Spherical (SR10)	12 mm	w/ clamp nut	9,5	150
110-108	0 - 1	0,0001 mm	Spherical (SR10)	12 mm	w/ clamp nut	9,5	150
110-101	0 - 2.5	0,001 mm	Flat (carbide tip)	12 mm	w/ clamp nut	9,5	150
110-102	0 - 2.5	0,0001 mm	Flat (carbide tip)	12 mm	w/ clamp nut	9,5	150
110-502	A: 0-13 B: 0-0,2	A: 0,01 mm B: 0,0005mm	Spherical (SR3)	9,5 mm	w/ clamp nut	11,5	100



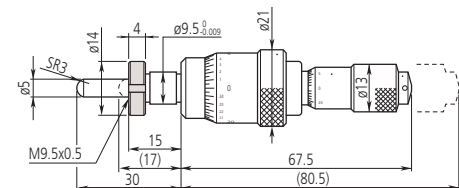
110-105  
110-106



110-107  
110-108



110-101  
110-102



110-502

( ): with spindle full retracted

# Micrometer Head with Non-Rotating Spindle

## Series 153



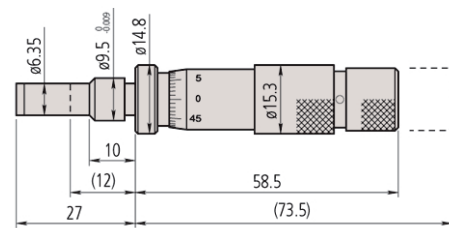
### Metric

No.	Range [mm]	Graduation	Spindle end	Stem Ø	Stem	Special features	Mass [g]
153-101	0-15	0,01 mm	Flat (carbide tip)	9,5 mm	Plain		70
153-203	0-25	0,01 mm	Flat (carbide tip)	12 mm	Plain		125
153-204	0-25	0,001 mm	Flat (carbide tip)	12 mm	Plain	Graduation with vernier	125

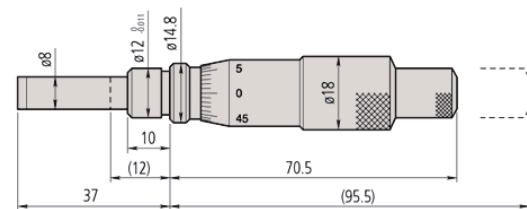
### Metric

With ratchet stop

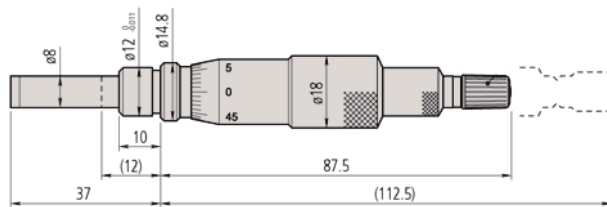
No.	Range [mm]	Graduation	Spindle end	Stem Ø	Stem	Special features	Mass [g]
153-201	0-25	0,01 mm	Flat (carbide tip)	12 mm	Plain		125
153-202	0-25	0,001 mm	Flat (carbide tip)	12 mm	Plain	Graduation with vernier	125



153-101



153-203 + 153-204



153-201 + 153-202

( ): with spindle full retracted

### Specifications

Accuracy	±3 µm
Scale	Thimble and sleeve satin chrome finish
Spindle pitch	0,5 mm
Measuring surfaces	Carbide tipped

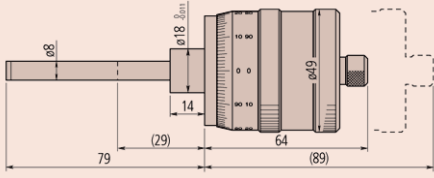


Version with non-rotating spindle

# Micrometer Head with Non-Rotating Spindle

## Specifications

Accuracy	±5 µm
Scale	White anodized aluminium
Spindle pitch	1 mm
Measuring surfaces	Carbide tipped



197-101

## Series 197 - Non-rotating spindle and large thimble

- Micrometer Head with non-rotating spindle and 1 mm spindle pitch.
- Measurement values can be read directly from the 100-step graduation thimble without the complication of having to consider 1/2 mm values, which simplifies reading and therefore reduces the chance of error.
- The scale is set to zero by rotating the barrel.



197-101

## Metric

No.	Range [mm]	Spindle end	Stem Ø	Stem	Special features	Mass [g]
197-101	0-50	Flat (carbide tip)	18 mm	Plain	Bidirectional graduation	300

## Specifications

Accuracy	±1 µm
Scale	White anodized aluminium
Spindle pitch	0,5 mm
Measuring surfaces	Carbide tipped

## Series 153 - Fine graduation and high accuracy

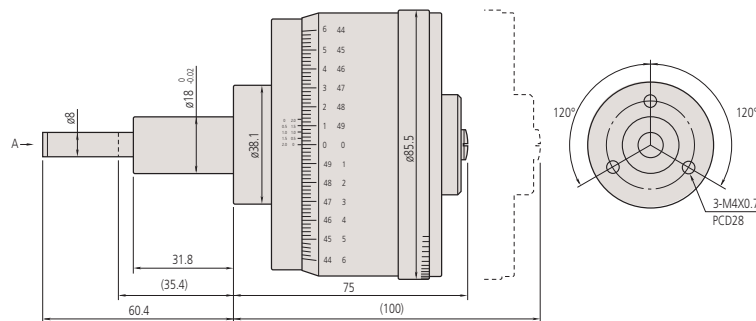
- Extra-large-diameter micrometer head with non-rotating spindle.



153-301

## Metric

No.	Range [mm]	Spindle end	Stem Ø	Stem	Special features	Mass [g]
153-301	0-25	Flat (carbide tip)	18 mm	Plain	Bidirectional graduation	750



153-301

# Fixtures for Micrometer Head

Mitutoyo offers various types of fixture designed for micrometer heads, which you can use for a wide range of applications, that have the following benefits:

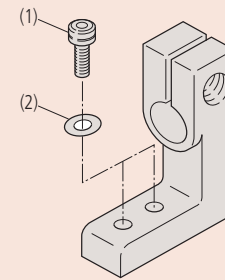
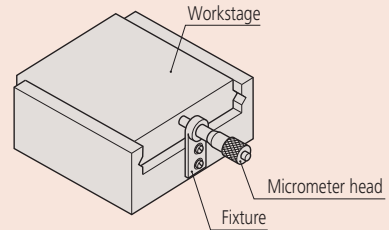
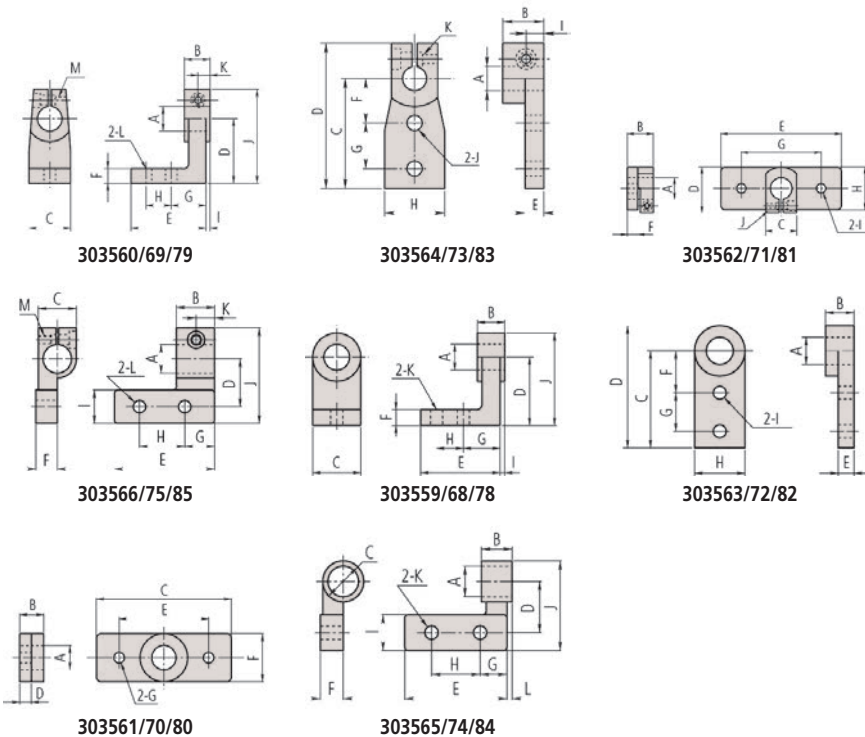
- These fixtures are high quality and durable, manufactured from nickel-plated cast iron.
- Two types of fixture for micrometer heads are available, depending on whether the head has a plain stem or is a clamp nut type.

Fixtures for micrometer heads with clamp nut

No.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	J [mm]	K [mm]	L [mm]
303559	9,5	6	15	20	24	5	11	8	0,5	27,5	3,4	
303568	9,5	11,5	20	30	35	7	16	12	1,75	40	4,5	
303578	10	11,5	20	30	35	7	16	12	1,75	40	4,5	
303563	9,5	6	30	37,5	4,5	15	10	15	3,4			
303572	9,5	11,5	40	50	6,5	18	15	20	4,5			
303582	10	11,5	40	50	6,5	18	15	20	4,5			
303561	9,5	6	40	3,5	30	15	3,4					
303570	9,5	11,5	60	5,5	40	20	4,5					
303580	10	11,5	60	5,5	40	20	4,5					
303565	9,5	6	15	15	25	8,5	7,5	10	10	27,5	3,4	0,75
303574	9,5	11,5	15	20	40	8,5	10	20	15	35	4,5	1,25
303584	10	11,5	15	20	40	8,5	10	20	15	35	4,5	1,25

Fixtures for plain stem type micrometer heads

No.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	J [mm]	K [mm]	L [mm]	M [mm]
303560	9,5	9	15	20	23	5	11	8	1,5	32,5	4,5	ø3,4	M3x0,5
303569	9,5	14,5	20	30	35	7	16	12	3,25	42,5	7,25	4,5	M3x0,5
303579	10	14,5	20	30	35	7	16	12	3,25	42,5	7,25	4,5	M3x0,5
303564	9,5	9	30	42,5	4	15	10	15	4,5	3,4	M3x0,5		
303573	9,5	14,5	40	52,5	6	18	15	20	7,25	4,5	M3x0,5		
303583	10	14,5	40	52,5	6	18	15	20	7,25	4,5	M3x0,5		
303562	9,5	9	15	20	40	3	30	15	3,4	M3x0,5			
303571	9,5	14,5	15	22,5	60	5	40	20	4,5	M3x0,5			
303581	10	14,5	15	22,5	60	5	40	20	4,5	M3x0,5			
303566	9,5	9	15	15	25	8,5	7,5	10	10	32,5	4,5	3,4	M3x0,5
303575	9,5	14,5	15	20	40	8,5	10	20	15	40	7,25	4,5	M3x0,5
303585	10	14,5	15	20	40	8,5	10	20	15	40	7,25	4,5	M3x0,5



Fixtures for use with plain stem type micrometer heads are split, and clamp the stem by tightening a socket head screw (M3x0.5x12 mm).

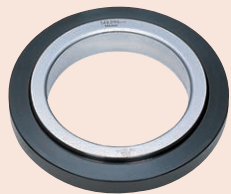
## Inside Measuring Instruments



**Inside Micrometer**  
Page 130



**Bore Gauges**  
Page 152



**Inside Measuring Instruments Accessories**  
Page 165



# Digimatic Holtest Individual

## Series 468

These are three-point internal micrometers that offer you the following benefits:

- Individual micrometer.
- Titanium-coated measuring pins give you excellent durability and impact resistance.
- They also have excellent resistance against water and dust (IP65 protection level), allowing you to use this product in machining situations that include splashing coolant fluid.
- Large LCD display with character height of 7,5 mm enables you to read measurements easily.
- Without setting rings or extensions.



Titanium coated measuring surfaces for durability

### Metric

No.	Range [mm]	Mass [g]
468-161	6-8	370
468-162	8-10	370
468-163	10-12	370
468-164	12-16	400
468-165	16-20	400
468-166	20-25	470
468-167	25-30	480
468-168	30-40	480
468-169	40-50	500
468-170	50-63	620
468-171	62-75	630
468-172	75-88	960
468-173	87-100	970
468-174	100-125	940
468-175	125-150	1030
468-176	150-175	1120
468-177	175-200	1210
468-178	200-225	1300
468-179	225-250	1390
468-180	250-275	1480
468-181	275-300	1570

Functions	Series 468
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	6-20 mm : ±2 μm 20-100 mm : ±3 μm 100-300 : ±5 μm (excluding quantizing error) - The given values require close contact of the measuring surfaces.
Digital step	0,001 mm
Measuring pins	Titanium coated tungsten carbide (6-12 mm) Titanium coated hardened steel (12-300 mm) Taper: tungsten carbide
Battery life	approx. 1,2 years
Display	LCD, character height 7,5 mm
Delivered	Including box, key, 1 battery, certificate of inspection

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type
952322	Holtest, Borematic Extension 100mm, 6-12mm
952621	Holtest, Borematic Extension 150mm, 12-20mm
952622	Holtest, Borematic Extension 150mm, 20-50mm
952623	Holtest, Borematic Extension 150mm, 50-300mm
04AZB157	Holder for Micrometer Stand, for Series 468
156-101-10	Micrometer Stand, Adjustable Angle Type, for Micrometer 0-100mm

### Consumable spares

No.	Description
938882	Battery SR44 1.5V

# Digimatic Holtest Individual



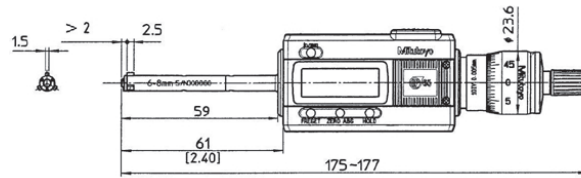
Holtest with optional accessories  
 Stand 156-101-10  
 Printer DP1-VA 264-505D  
 Holder 04AZB157  
 Cable 05CZA662



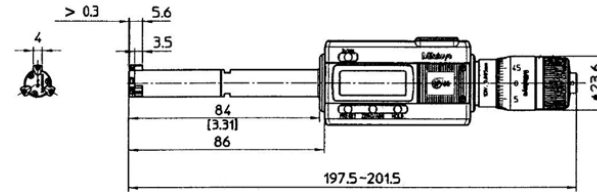
04AZB157



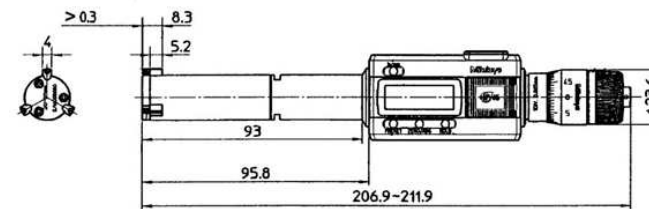
Extension rod for deep holes



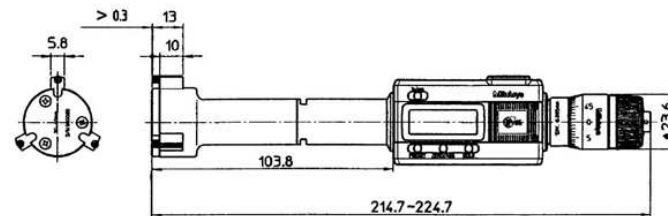
468-161, 468-162, 468-163



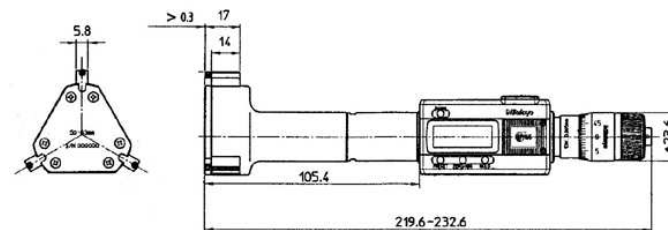
468-164, 468-165



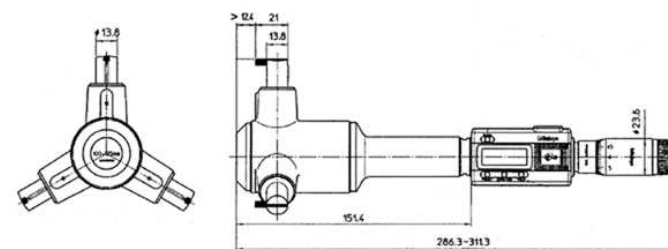
468-166, 468-167



468-168, 468-169



468-170, 468-171, 468-172, 468-173



468-174, 468-175, 468-176, 468-177, 468-178, 468-179, 468-180, 468-181

# Digimatic Holtest Interchangeable Head Set

## Series 468

These are three-point internal micrometers that offer you the following benefits:

- Interchangeable head set.
- Titanium-coated measuring pins give you excellent durability and impact resistance.
- They also have excellent resistance against water and dust (IP65 protection level), allowing you to use this product in machining situations that include splashing coolant fluid.
- Large LCD display with character height of 7,5 mm enables you to read measurements easily.
- With setting rings and extensions.



468-973



Titanium coated measuring surfaces for durability

### Metric

No.	Range [mm]	Remarks	Individual ranges [mm]	Setting rings included	Mass [g]
468-971	6-12	100 mm extension	6-8, 8-10, 10-12	ø8 mm (177-125) ø10 mm (177-126)	420
468-972	12-20	150 mm extension	12-16, 16-20	ø16 mm (177-177)	560
468-973	20-50	150 mm extension	20-25, 25-30, 30-40, 40-50	ø25 mm (177-139) ø40 mm (177-290)	1170
468-974	50-100	150 mm extension	50-63, 62-75, 75-88, 87-100	ø62 mm (177-314) ø87 mm (177-318)	2420
468-975	100-200	150 mm extension	100-125, 125-150, 150-175, 175-200	ø125 mm (177-298) ø175 mm (177-302)	3540



Holtest with optional accessories  
Stand 156-101-10  
Printer DP1-VA 264-505D  
Holder 04AZB157  
Cable 05CZA662

Functions	Series 468
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	6-20 mm : ±2 µm 20-100 mm : ±3 µm 100-200 mm : ±5 µm (excluding quantizing error) - The given value require close contact of the measuring surfaces.
Digital step	0,001 mm
Measuring pins	Titanium coated tungsten carbide (6-12 mm) Titanium coated hardened steel (12-200 mm) Taper: tungsten carbide
Battery life	approx. 1,2 years
Display	LCD, character height 7,5 mm
Delivered	Including box, key, 1 battery, setting ring, extension, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type
156-101-10	Micrometer Stand, Adjustable Angle Type, for Micrometer 0-100mm
04AZB157	Holder for Micrometer Stand, for Series 468
952322	Holtest, Borematic Extension 100mm, 6-12mm
952621	Holtest, Borematic Extension 150mm, 12-20mm
952622	Holtest, Borematic Extension 150mm, 20-50mm
952623	Holtest, Borematic Extension 150mm, 50-300mm

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



04AZB157



Extension

# Digimatic Holtest Complete Unit Set



Functions	Series 468
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Low voltage alarm	●
Function lock	●
Data output	●
HOLD	●

### Specifications

Accuracy	6-20 mm : ±2 μm 20-100 mm : ±3 μm (excluding quantizing error) - The given values require close contact of the measuring surfaces.
Digital step	0,001 mm
Measuring pins	Titanium coated tungsten carbide (6-12 mm) Titanium coated hardened steel (12-100 mm) Taper: tungsten carbide
Battery life	approx. 1,2 years
Display	LCD, character height 7,5 mm
Delivered	Including box, key, 1.0 battery, setting ring, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type
04AZB157	Holder for Micrometer Stand, for Series 468
156-101-10	Micrometer Stand, Adjustable Angle Type, for Micrometer 0-100mm
952322	Holtest, Borematic Extension 100mm, 6-12mm
952621	Holtest, Borematic Extension 150mm, 12-20mm
952622	Holtest, Borematic Extension 150mm, 20-50mm
952623	Holtest, Borematic Extension 150mm, 50-300mm

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



04AZB157



Extension

### Series 468

These are three-point internal micrometers that offer you the following benefits:

- Complete unit set.
- Titanium-coated measuring pins give you excellent durability and impact resistance.
- They also have excellent resistance against water and dust (IP65 protection level), allowing you to use this product in machining situations that include splashing coolant fluid.
- Large LCD display with character height of 7,5 mm enables you to read measurements easily.
- With setting rings but without extensions.



468-983



Titanium coated measuring surfaces for durability

### Metric

Measuring surfaces titanium coated. Carbide taper and contact points.

No.	Range [mm]	Individual ranges	Models included	Setting rings included	Mass [g]
468-981	6-12	6-8, 8-10, 10-12 mm	468-161 / 468-162 / 468-163	ø8 mm (177-125) ø10 mm (177-126)	1160
468-982	12-25	12-16, 16-20, 20-25 mm	468-164 / 468-165 / 468-166	ø16 mm (177-177) ø20 mm (177-286)	1290
468-983	25-50	25-30, 30-40, 40-50 mm	468-167 / 468-168 / 468-169	ø30 mm (177-288) ø40 mm (177-290)	1480
468-984	50-75	50-63, 62-75 mm	468-170 / 468-171	ø62 mm (177-314)	1270
468-985	75-100	75-88, 87-100 mm	468-172 / 468-173	ø87 mm (177-318)	1990



Holtest with optional accessories  
Stand 156-101-10  
Printer DP1-VA 264-505D  
Holder 04AZB157  
Cable 05CZA662



# Holtest Metric

## Series 368

These are metric three-point and two-point internal micrometers that offer you the following benefits:

- Titanium-coated measuring pins give you excellent durability and impact resistance.
- Three-point micrometer allows stable measurement through automatic centring.
- It is delivered without setting rings or extensions.

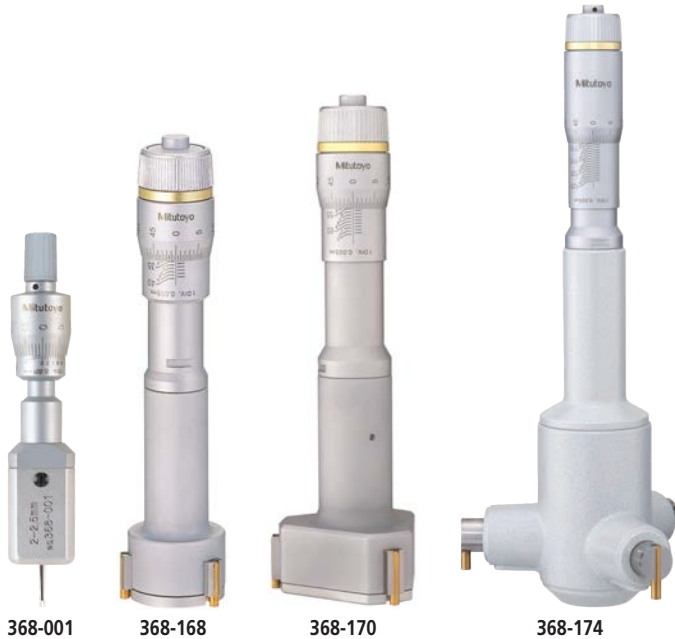
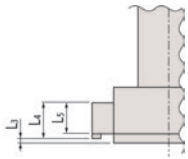


### Specifications

Graduation	up to 12 mm : 0,001 mm over 12 mm : 0,005 mm
Accuracy	2-20 mm : $\pm 2 \mu\text{m}$ 20-100 mm : $\pm 3 \mu\text{m}$ 100-300 mm : $\pm 5 \mu\text{m}$
Scale	Thimble and sleeve satin chrome finish, Up to 12 mm : $\varnothing 17 \text{ mm}$ Over 12 mm : $\varnothing 23 \text{ mm}$
Measuring Surface/Pins	2 - 6 mm : carbide 6 - 12 mm : titanium coated tungsten carbide 12 - 300 mm : titanium coated hardened steel taper: tungsten carbide
Measuring spindle	Spindle pitch 0,5 mm
Measuring method	2-6 mm : 2-point 6-300 mm : 3-point
Delivered	Including box, key, certificate of inspection

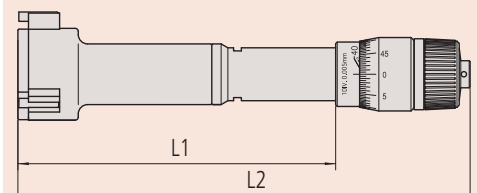
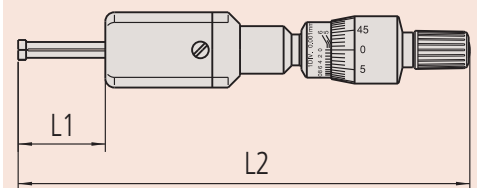
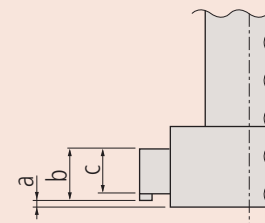
### Optional accessories

No.	Description
952621	Holtest, Borematic Extension 150mm, 12-20mm
952622	Holtest, Borematic Extension 150mm, 20-50mm
952623	Holtest, Borematic Extension 150mm, 50-300mm
952322	Holtest, Borematic Extension 100mm, 6-12mm



### Metric

No.	Range [mm]	L1 [mm]	L2 [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
368-001	2-2,5	12	103,5-104			2	88
368-002	2,5-3	12	103,5-104			2	88
368-003	3-4	22	113-114			2	91
368-004	4-5	22	113-114			2	91
368-005	5-6	22	113-114			2	91
368-161	6-8	59	102-104	2		2,5	60
368-162	8-10	59	102-104	2		2,5	60
368-163	10-12	59	102-104	2		2,5	60
368-164	12-16	82	126-130	0,3	5,6	3,5	150
368-165	16-20	82	126-130	0,3	5,6	3,5	160
368-166	20-25	94	126-130	0,3	8,3	5,2	260
368-167	25-30	94	137-142	0,3	8,3	5,2	280
368-168	30-40	102	145-155	0,3	13	10	290
368-169	40-50	102	145-155	0,3	13	10	330
368-170	50-63	105	150-163	0,3	17	14	440
368-171	62-75	105	150-163	0,3	17	14	450
368-172	75-88	105	150-165	0,3	17	14	570
368-173	87-100	105	150-165	0,3	17	14	580
368-174	100-125	161	227-252	12,4	21	13,8	1030
368-175	125-150	161	227-252	12,4	21	13,8	1120
368-176	150-175	161	227-252	12,4	21	13,8	1210
368-177	175-200	161	227-252	12,4	21	13,8	1320
368-178	200-225	161	227-252	12,4	21	13,8	1430
368-179	225-250	161	227-252	12,4	21	13,8	1550
368-180	250-275	161	227-252	12,4	21	13,8	1700
368-181	275-300	161	227-252	12,4	21	13,8	1870







# Holtest Set

## Series 368

This is a set of three-point and two-point internal micrometers that offers you the following benefits:

- Complete unit set.
- Carbide measuring surface (2-6 mm range)
- Titanium-coated measuring pins (> 6 mm range) give you excellent durability and impact resistance.
- With setting rings and extensions, except for models 368-906, 368-907 which are supplied with setting rings only.

### Specifications

Graduation	0,001 mm 0,005 mm (models over 12 mm)
Accuracy	2-20 mm : 2 µm 20-100 mm : 3 µm 100-300 mm : 5 µm
Scale	Thimble and sleeve satin chrome finish, Up to 12 mm : ø17 mm Over 12 mm : ø23 mm
Measuring method	2-6 mm 2-point 6-200 mm 3-point
Delivered	Including box, key, setting ring, extension, certificate of inspection (instruments only - certificate of inspection for setting rings not included).



368-906



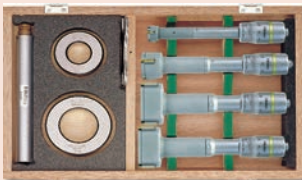
368-907



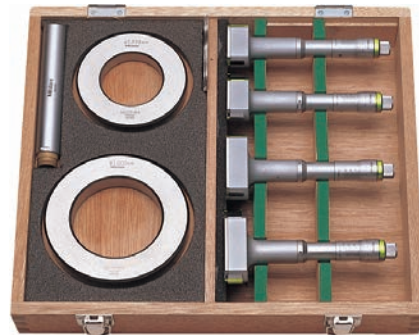
368-911



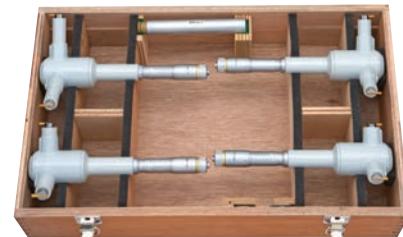
368-912



368-913



368-914



368-915

### Metric

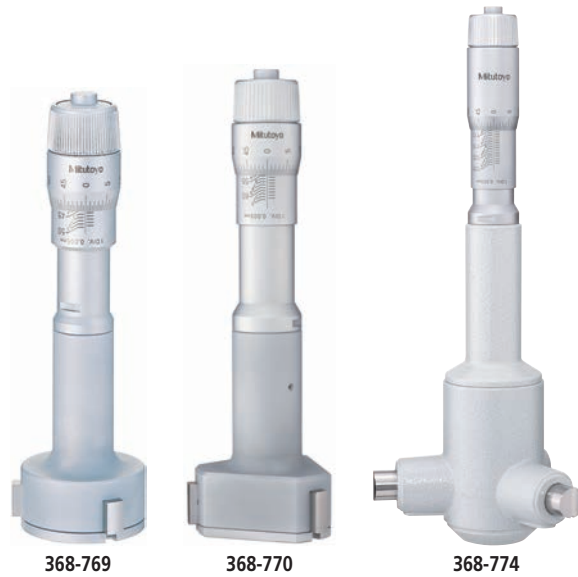
No.	Range [mm]	Individual ranges	Models included	Setting rings included	Extension rod	Mass [g]
368-906	2-3	2-2,5, 2,5-3 mm	368-001 / 368-002	ø2,5 mm (177-208)		310
368-907	3-6	3-4, 4-5, 5-6 mm	368-003 / 368-004 / 368-005	ø4 mm (177-204) ø5 mm (177-205)		505
368-911	6-12	6-8, 8-10, 10-12 mm	368-161 / 368-162 / 368-163	ø8 mm (177-125) ø10 mm (177-126)	952322	180
368-912	12-20	12-16, 16-20 mm	368-164 / 368-165	ø16 mm (177-177)	952621	280
368-913	20-50	20-25, 25-30, 30-40, 40-50 mm	368-166 / 368-167 / 368-168 / 368-169	ø25 mm (177-139) ø40 mm (177-290)	952622	960
368-914	50-100	50-63, 62-75, 75-88, 87-100 mm	368-170 / 368-171 / 368-172 / 368-173	ø62 mm (177-314) ø87 mm (177-318)	952623	2030
368-915	100-200	100-125, 125-150, 150-175, 175-200 mm	368-174 / 368-175 / 368-176 / 368-177	ø125 mm (177-298) ø175 mm (177-302)	952623	4680

# Economy Holtest

## Series 368

This is an economy version of a three-point internal micrometer, that offers you the following benefits:

- Hardened tool steel anvils and tapers allow a more economically priced and affordable tool.
- Individual types without setting rings or extensions.



### Metric

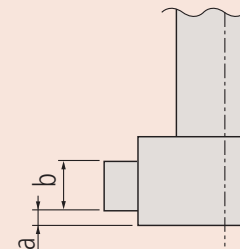
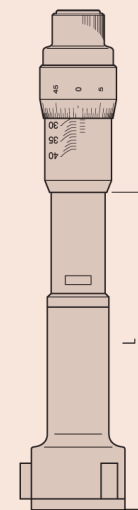
No.	Range [mm]	L [mm]	a [mm]	b [mm]	Mass [g]
368-764	12-16	82	2,6	3,5	150
368-765	16-20	82	2,6	3,5	150
368-766	20-25	94	3,4	5,2	260
368-767	25-30	94	3,4	5,2	280
368-768	30-40	102	3,4	10	290
368-769	40-50	102	3,4	10	330
368-770	50-63	105	3,4	14	440
368-771	62-75	105	3,4	14	450
368-772	75-88	105	3,4	14	560
368-773	87-100	105	3,4	14	570
368-774	100-125	161	19,6	13,8	1020
368-775	125-150	161	19,6	13,8	1110
368-776	150-175	161	19,6	13,8	1200
368-777	175-200	161	19,6	13,8	1300
368-778	200-225	161	19,6	13,8	1420
368-779	225-250	161	19,6	13,8	1540
368-780	250-275	161	19,6	13,8	1690
368-781	275-300	161	19,6	13,8	1860

### Specifications

Graduation	0,005 mm
Accuracy	12-20 mm : $\pm 2 \mu\text{m}$ 20-100 mm : $\pm 3 \mu\text{m}$ 100-300 mm : $\pm 5 \mu\text{m}$
Scale	Thimble and sleeve satin chrome finish, Up to 12 mm : $\text{Ø}17 \text{ mm}$ Over 12 mm : $\text{Ø}23 \text{ mm}$
Measuring surfaces	hardened steel Taper: hardened steel
Measuring spindle	Spindle pitch 0,5 mm
Measuring method	3-point
Delivered	Including box, key, certificate of inspection

### Optional accessories

No.	Description
952621	Holtest, Borematic Extension 150mm, 12-20mm
952622	Holtest, Borematic Extension 150mm, 20-50mm
952623	Holtest, Borematic Extension 150mm, 50-300mm



# Economy Holtest Set



## Specifications

Graduation	up to 12 mm: 0,001 mm over 12 mm: 0,005 mm
Accuracy	12-20 mm : ±2 µm 20-100 mm : ±3 µm 100-300 mm : ±5 µm
Scale	Thimble and sleeve satin chrome finish, Up to 12 mm : Ø17 mm Over 12 mm : Ø23 mm
Delivered	Including box, key, setting ring, extension, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

## Optional accessories

No.	Description
952621	Holtest, Borematic Extension 150mm, 12-20mm
952622	Holtest, Borematic Extension 150mm, 20-50mm
952623	Holtest, Borematic Extension 150mm, 50-300mm



Extension

## Series 368

This is an economy version of a three-point internal micrometer, that offers you the following benefits:

- Hardened tool steel anvils and tapers allow a more economically priced and affordable tool.
- Individual types without setting rings or extensions.
- Sets with setting rings and extensions.



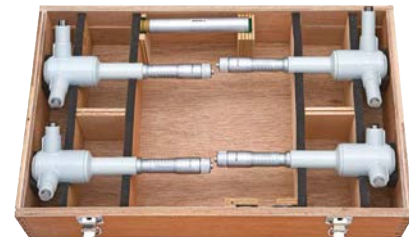
368-991



368-992



368-993



368-994



## Metric

No.	Range [mm]	Individual ranges	Models included	Setting rings included	Extension rod	Mass [g]
368-991	12-20	12-16, 16-20 mm	368-764 / 368-765	ø16 mm (177-177)	952621	310
368-992	20-50	20-25, 25-30, 30-40, 40-50 mm	368-766 / 368-767 368-768 / 368-769	ø25 mm (177-139) ø40 mm (177-290)	952622	1160
368-993	50-100	50-63, 62-75, 75-88, 87-100 mm	368-770 / 368-771 / 368-772 / 368-773	ø62 mm (177-314) ø87 mm (177-318)	952623	2020
368-994	100-200	100-125, 125-150, 150-175, 175-200 mm	368-774 / 368-775 / 368-776 / 368-777	ø125 mm (177-298) ø175 mm (177-302)	952623	4630

# ABSOLUTE Borematic

## Series 568

This is a three-point Digimatic snap open bore gauge. The Absolute Borematic offers you the following benefits:

- It enables you to take measurements easily and quickly.
- Titanium-coated measuring pins gives you excellent durability and impact resistance.
- A large LCD display with character height of 11mm makes measurements easy to read.
- 330° rotatable display unit also gives you easy reading at any angle.
- GO/NG tolerance judgement function.
- It has a function lock to protect the setup against unauthorised use.

ABSOLUTE®



Functions	Series 568
ZERO/ABS	●
GO/±NG judgement	●
ON/OFF	●
DATA/HOLD	●
2 x PRESET	●
Function lock	●
Data output	●

### Specifications

Accuracy	6-20 mm : ±5 µm 20-125 mm : ±6 µm (excluding quantizing error)
Digital step	0,001 mm
Measuring pins	Titanium coated tungsten carbide (6 - 12 mm) Titanium coated hardened steel (12 - 125 mm)
Battery life	approx. 5000 hours
Display	LCD, character height: 11 mm
Delivered	Including box, key, 1 battery, certificate of inspection

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
952621	Holtest, Borematic Extension 150mm, 12-20mm
952622	Holtest, Borematic Extension 150mm, 20-50mm
952623	Holtest, Borematic Extension 150mm, 50-300mm
952322	Holtest, Borematic Extension 100mm, 6-12mm

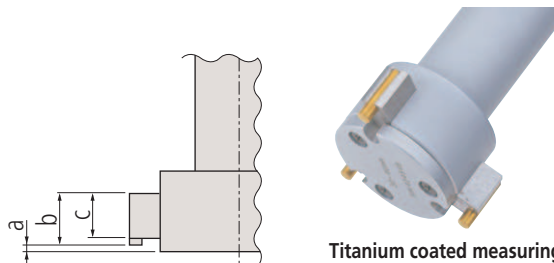
### Consumable spares

No.	Description
938882	Battery SR44 1.5V

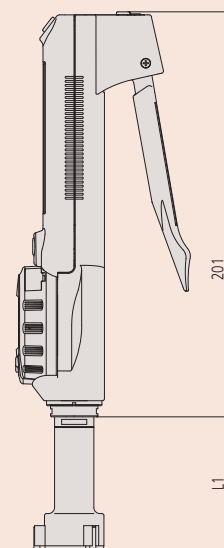


### Metric

No.	Range [mm]	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
568-361	6-8	83	2		2,5	480
568-362	8-10	83	2		2,5	485
568-363	10-12	83	2		2,5	485
568-364	12-16	53	0,3	5,6	3,5	475
568-365	16-20	53	0,3	5,6	3,5	480
568-366	20-25	59,3	0,3	8,3	5,2	540
568-367	25-30	59,3	0,3	8,3	5,2	555
568-368	30-40	67,3	0,3	13	10	565
568-369	40-50	67,3	0,3	13	10	610
568-370	50-63	75,4	0,3	17	14	730
568-371	62-75	75,4	0,3	17	14	740
568-372	75-88	75,4	0,3	17	14	790
568-373	87-100	75,4	0,3	17	14	800
568-374	100-113	75,4	0,3	17	14	900
568-375	112-125	75,4	0,3	17	14	910



Titanium coated measuring surfaces for durability







# ABSOLUTE Borematic

Functions	Series 568
ZERO/ABS	●
GO/±NG judgement	●
ON/OFF	●
DATA/HOLD	●
2 x PRESET	●
Function lock	●
Data output	●

### Specifications

Accuracy	6-20 mm : ±5 µm 20-125 mm : ±6 µm (excluding quantizing error)
Digital step	0,001 mm
Measuring pins	Titanium coated tungsten carbide (6 - 12 mm) Titanium coated hardened steel (12 - 125 mm)
Battery life	approx. 5000 hours
Display	LCD, character height: 11 mm
Delivered	Including box, key, 1 battery, setting ring, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
952322	Holtest, Borematic Extension 100mm, 6-12mm
952621	Holtest, Borematic Extension 150mm, 12-20mm
952622	Holtest, Borematic Extension 150mm, 20-50mm
952623	Holtest, Borematic Extension 150mm, 50-300mm

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



Titanium coated measuring surfaces for durability

### Series 568

This is a three-point Digimatic snap open bore gauge. Each set includes one display unit with interchangeable measuring heads of the sizes specified.

The Absolute Borematic offers you the following benefits:

- It enables you to take measurements easily and quickly.
- Titanium-coated measuring pins gives you excellent durability and impact resistance.
- A large LCD display with character height of 11mm makes measurements easy to read.
- 330° rotatable display unit also gives you easy reading at any angle.
- GO/NG tolerance judgement function.
- It has a function lock to protect the setup against unauthorised use.



568-924



568-926

### Metric

No.	Range [mm]	Individual ranges	Setting rings included	Mass [g]
568-924	6-12	6-8 mm 8-10 mm 10-12 mm	Ø8 mm (177-125) Ø10 mm (177-126)	530
568-925	12-25	12-16 mm 16-20 mm 20-25 mm	Ø16 mm (177-177) Ø20 mm (177-286)	690
568-926	25-50	25-30 mm 30-40 mm 40-50 mm	Ø30 mm (177-288) Ø40 mm (177-290)	930
568-927	50-100	50-63 mm 62-75 mm 75-88 mm 87-100 mm	Ø62 mm (177-314) Ø87 mm (177-318)	1850



# ABSOLUTE Borematic

## Series 568

This is a three-point Digimatic snap open bore gauge. Each set includes display units and measuring heads for each size. The Absolute Borematic offers you the following benefits:

- It enables you to take measurements easily and quickly.
- Titanium-coated measuring pins gives you excellent durability and impact resistance.
- A large LCD display with character height of 11mm makes measurements easy to read.
- 330° rotatable display unit also gives you easy reading at any angle.
- GO/NG tolerance judgement function.
- It has a function lock to protect the setup against unauthorised use.

ABSOLUTE®



568-959

### Metric

No.	Range [mm]	Individual ranges	Setting rings included	Mass [g]
568-955	6-12	6-8 mm 8-10 mm 10-12 mm	Ø8 mm (177-125) Ø10 mm (177-126)	1450
568-956	12-25	12-16 mm 16-20 mm 20-25 mm	Ø16 mm (177-177) Ø20 mm (177-286)	1520
568-957	25-50	25-30 mm 30-40 mm 40-50 mm	Ø30 mm (177-288) Ø40 mm (177-290)	1750
568-958	50-75	50-63 mm 62-75 mm	Ø62 mm (177-314)	1490
568-959	75-100	75-88 mm 87-100 mm	Ø87 mm (177-318)	1610

Functions	Series 568
ZERO/ABS	●
GO/±NG judgement	●
ON/OFF	●
DATA/HOLD	●
2 x PRESET	●
Function lock	●
Data output	●

### Specifications

Accuracy	6-20 mm : ±5 µm 20-125 mm : ±6 µm (excluding quantizing error)
Digital step	0,001 mm
Measuring pins	Titanium coated tungsten carbide (6 - 12 mm) Titanium coated hardened steel (12 - 125 mm)
Battery life	approx. 5000 hours
Display	LCD, character height: 11 mm
Delivered	Including box, key, battery, setting ring, certificate of inspection (instruments only - certificate of inspection for setting rings not included).

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
952322	Holtest, Borematic Extension 100mm, 6-12mm
952621	Holtest, Borematic Extension 150mm, 12-20mm
952622	Holtest, Borematic Extension 150mm, 20-50mm
952623	Holtest, Borematic Extension 150mm, 50-300mm

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



Titanium coated measuring surfaces for durability

# Measuring Heads for Borematic

- 1 : Measuring head
- 2 : Adapter
- 3 : Display unit Borematic

## Series 568



**Metric** Display unit Borematic

**No.**  
**568-014**

**Metric** Measuring heads

No.	Range [mm]
04AZB136	6-8
04AZB137	8-10
04AZB138	10-12
04AZA719	12-16
04AZA720	16-20
04AZA728	20-25
04AZA729	25-30
04AZA737	30-40
04AZA738	40-50
04AZA750	50-63
04AZA751	62-75
04AZA752	75-88
04AZA753	87-100
04AZA941	100-113
04AZA942	112-125

Adapter

No.	Range [mm]
954595	6-12
216556	12-20
216557	20-50
216558	50-125

Note : These adapters are necessary to adapt measuring heads to the Borematic display unit.

# Digimatic Caliper Jaw Inside Micrometer

## Series 345

The Digimatic Caliper Jaw Inside Micrometer offers you the following features:

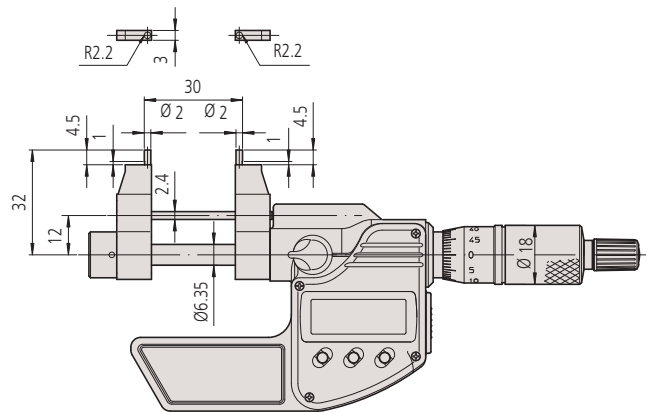
- You can measure surfaces in carbide, micro-lap finish.
- An inside-length standard is needed to accurately set the micrometer.



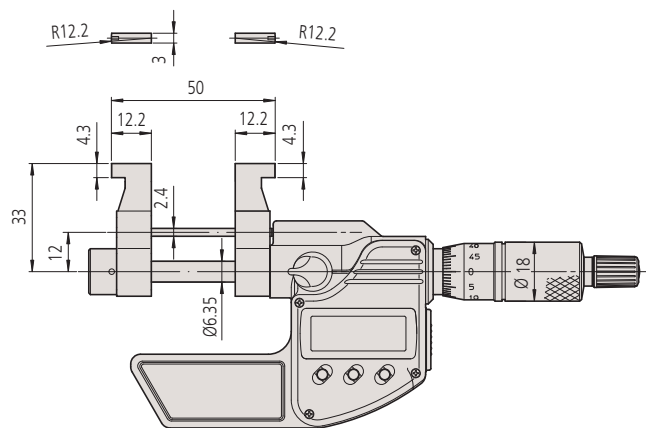
345-250-30

### Metric

No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Mass [g]
345-250-30	5-30	$\pm 5$	305
345-251-30	25-50	$\pm 6$	310



345-250-30



345-251-30

Functions	Series 345
Auto Power OFF after 20 min. non use	●
DATA/HOLD	●
2 x PRESET	●
Low voltage alarm	●
Function lock	●
Data output	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring surfaces	Carbide tipped
Measuring spindle	With spindle lock, spindle pitch 0,5 mm
Measuring force	1-6 N
Battery life	2,4 years
Delivered	Including box, key, 1 battery.

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



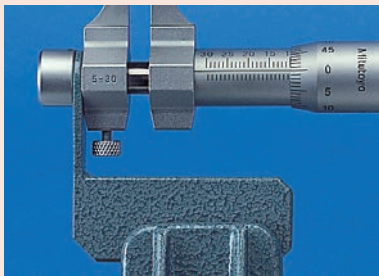
# Caliper Jaw Inside Micrometer

## Specifications

Graduation	0,01 mm
Accuracy	Refer to the list of specifications
Scale	Thimble and sleeve satin chrome finish, $\phi 18$ mm
Measuring surfaces	Carbide tipped
Measuring spindle	With spindle lock, spindle pitch 0,5 mm
Measuring force	1-6 N
Delivered	Including box, key

## Optional accessories

No.	Description
300400	Holder for Series 145
300401	Cap for Series 145



Holder and cap for:  
145-185, 145-186, 145-193, 145-194

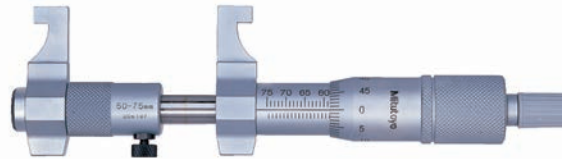
## Series 145

The digimatic caliper jaw inside micrometer offers you the following benefits:

- Carbide measuring faces
- A setting standard is needed to accurately set the micrometer to the reference point.



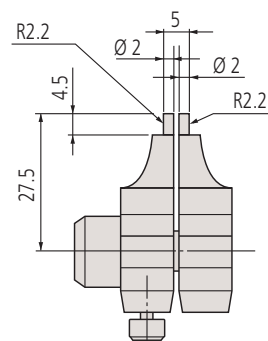
145-185



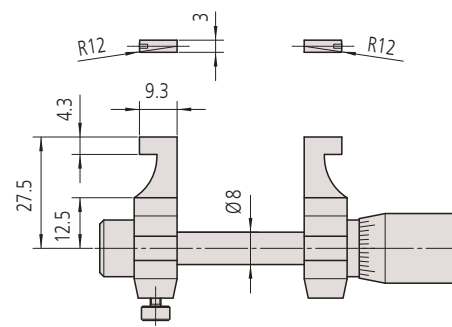
145-187

## Metric

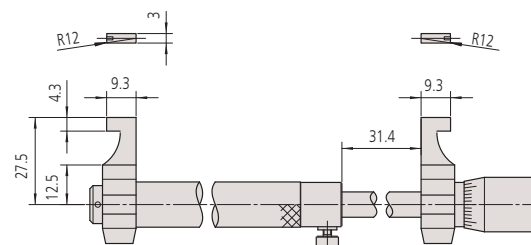
No.	Range [mm]	Accuracy [ $\mu\text{m}$ ]	Mass [g]
145-185	5-30	$\pm 5$	130
145-186	25-50	$\pm 6$	140
145-187	50-75	$\pm 7$	160
145-188	75-100	$\pm 8$	180
145-189	100-125	$\pm 9$	210
145-190	125-150	$\pm 9$	230
145-191	150-175	$\pm 10$	250
145-192	175-200	$\pm 10$	270
145-217	200-225	$\pm 11$	310
145-218	225-250	$\pm 11$	330
145-219	250-275	$\pm 12$	350
145-220	275-300	$\pm 12$	370



145-185



145-186



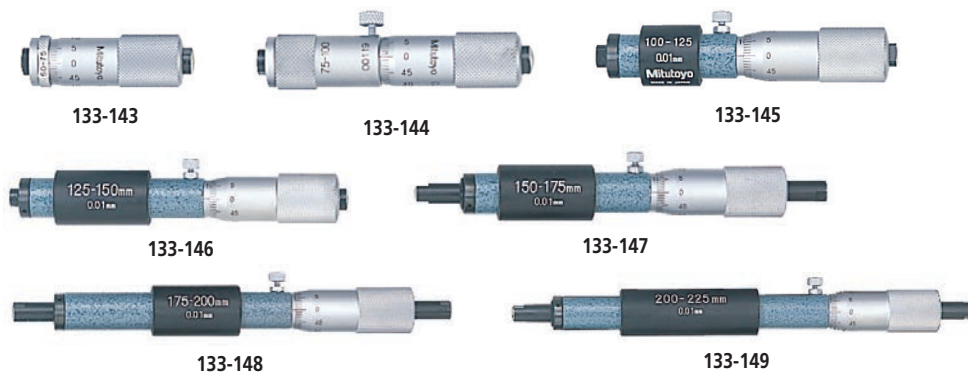
50-300 mm

# Tubular Inside Micrometer

## Series 133

This is a standard single rod type inside micrometer, with the following features:

- Standard single rod.
- Carbide measuring faces.

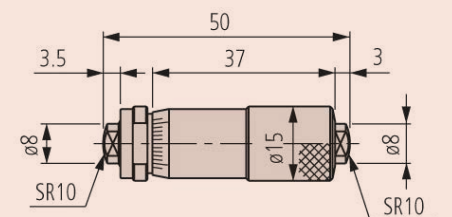


### Metric

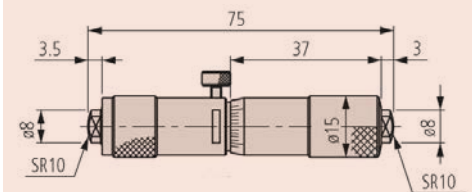
No.	Range [mm]	Accuracy [ $\mu$ m]	L [mm]	a [mm]	b [mm]	Mass [g]
133-143	50-75	$\pm 3$				50
133-144	75-100	$\pm 4$				75
133-145	100-125	$\pm 5$	100	5	3	130
133-146	125-150	$\pm 5$	125	5	3	160
133-147	150-175	$\pm 5$	150	18	15	170
133-148	175-200	$\pm 5$	175	18	15	180
133-149	200-225	$\pm 5$	200	18	15	200
133-150	225-250	$\pm 6$	225	18	15	210
133-151	250-275	$\pm 6$	250	18	15	235
133-152	275-300	$\pm 6$	275	18	15	245
133-153	300-325	$\pm 7$	300	18	15	265
133-154	325-350	$\pm 7$	325	18	15	285
133-155	350-375	$\pm 7$	350	18	15	300
133-156	375-400	$\pm 8$	375	18	15	315
133-157	400-425	$\pm 8$	400	18	15	330
133-158	425-450	$\pm 8$	425	18	15	340
133-159	450-475	$\pm 9$	450	18	15	360
133-160	475-500	$\pm 9$	475	18	15	370
133-161	500-525	$\pm 9$	500	18	15	390
133-162	525-550	$\pm 10$	525	18	15	400
133-163	550-575	$\pm 10$	550	18	15	410
133-164	575-600	$\pm 10$	575	18	15	415
133-165	600-625	$\pm 11$	600	18	15	430
133-166	625-650	$\pm 11$	625	18	15	450
133-167	650-675	$\pm 11$	650	18	15	470
133-168	675-700	$\pm 12$	675	18	15	480
133-169	700-725	$\pm 12$	700	18	15	500
133-170	725-750	$\pm 12$	725	18	15	510
133-171	750-775	$\pm 13$	750	18	15	520
133-172	775-800	$\pm 13$	775	18	15	540
133-173	800-825	$\pm 13$	800	18	15	555
133-174	825-850	$\pm 14$	825	18	15	570
133-175	850-875	$\pm 14$	850	18	15	590
133-176	875-900	$\pm 14$	875	18	15	600
133-177	900-925	$\pm 15$	900	18	15	620
133-178	925-950	$\pm 15$	925	18	15	630
133-179	950-975	$\pm 15$	950	18	15	650
133-180	975-1000	$\pm 16$	975	18	15	670

### Specifications

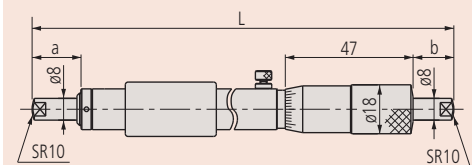
Graduation	0,01mm
Accuracy	Refer to the list of specifications
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring surfaces	Carbide tipped, crown lapped
Measuring spindle	With spindle lock (except 50-75 mm), spindle pitch 0,5 mm
Delivered	Including box, insulation (from 100 mm), key



133-143



133-144



100-1000 mm



# Tubular Inside Micrometer

## Specifications

Graduation	0,01mm
Scale	Thimble and sleeve satin chrome finish, Ø18 mm
Measuring surfaces	Carbide tipped, crown lapped
Measuring spindle	With spindle lock (except 50-75 mm), spindle pitch 0,5 mm
Delivered	Including box, insulation (from 100 mm), key



## Series 133

This is a standard single rod type inside micrometer, with the following features:

- Standard single rod.
- Carbide measuring faces.



133-902

## Metric

### Micrometer set

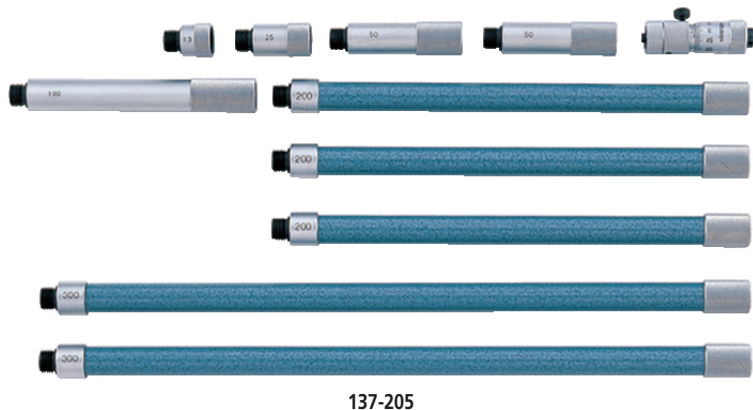
No.	Range [mm]	Models included	Mass [g]
133-901	50-150	133-143, 133-144, 133-145, 133-146	415
133-902	50-300	133-143, 133-144, 133-145, 133-146, 133-147, 133-148, 133-149, 133-150, 133-151, 133-152	1655

# Tubular Inside Micrometer with Extensions

## Series 137

This is an extension rod type inside micrometer that offers you the following benefits:

- Interchangeable extensions with cylindrical gage rods are spring-mounted in protective sleeves so you can extend the measuring range.
- Carbide measuring faces are available.



137-205



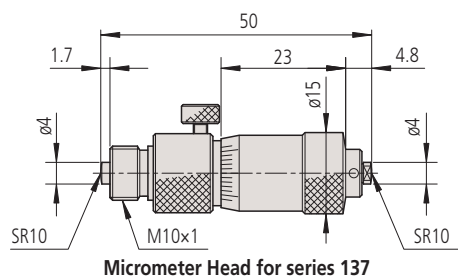
137-011

### Metric With carbide measuring surface

No.	Range [mm]	Extension rods	Mass [g]
137-206	50-150	3 (13, 25, 50 mm)	145
137-207	50-300	5 (13, 25, 50 (2 pcs.), 100 mm)	305
137-208	50-500	6 (13, 25, 50 (2 pcs.), 100, 200 mm)	460
137-209	50-1000	8 (13, 25, 50 (2 pcs.), 100, 200 (2 pcs.), 300 mm)	845
137-210	50-1500	10 (13, 25, 50 (2 pcs.), 100, 200 (3 pcs.), 300 mm (2 pcs.))	1225

### Metric With hardened measuring surface

No.	Range [mm]	Extension rods	Mass [g]
137-201	50-150	3 (13, 25, 50 mm)	145
137-202	50-300	5 (13, 25, 50 (2 pcs.), 100 mm)	305
137-203	50-500	6 (13, 25, 50 (2 pcs.), 100, 200 mm)	460
137-204	50-1000	8 (13, 25, 50 (2 pcs.), 100, 200 (2 pcs.), 300 mm)	845
137-205	50-1500	10 (13, 25, 50 (2 pcs.), 100, 200 (3 pcs.), 300 mm (2 pcs.))	1225



Micrometer Head for series 137

### Specifications

Graduation	0,01 mm
Accuracy	$\pm(3+n+L/50) \mu\text{m}$ n = Number of extensions, L = Maximum measuring length (mm)
Scale	Thimble and sleeve satin chrome finish, $\varnothing 15$ mm
Measuring spindle	Spindle pitch 0,5 mm
Measuring span	13 mm
Extension	$\varnothing 12,5$ mm
Delivered	Including box, key, extensions, micrometer head

### Optional accessories

No.	Description
137-011	Inside Micrometer, Hardened Face, 50-63mm
137-013	Inside Micrometer, Carbide-tipped, 50-63mm

### Consumable spares

No.	Description
980505	Extension Rod for Series 137, 13mm, Hardened Face
980507	Extension Rod for Series 137, 25mm, Hardened Face
980509	Extension Rod for Series 137, 50mm, Hardened Face
980511	Extension Rod for Series 137, 100mm, Hardened Face
980515	Extension Rod for Series 137, 200mm, Hardened Face
980517	Extension Rod for Series 137, 300mm, Hardened Face
980519	Extension Rod for Series 137, 337, 13mm, Carbide Tipped
980521	Extension Rod for Series 137, 337, 25mm, Carbide Tipped
980523	Extension Rod for Series 137, 337, 50mm, Carbide Tipped
980525	Extension Rod for Series 137, 337, 100mm, Carbide Tipped
980529	Extension Rod for Series 137, 337, 200mm, Carbide Tipped
980531	Extension Rod for Series 137, 337, 300mm, Carbide Tipped

# Tubular Inside Micrometer with Extensions

## Specifications

Graduation	0,01 mm
Accuracy	$\pm(3+n+L/50) \mu\text{m}$ $\pm(6+L/50) \mu\text{m}$ (139-203, 139-204) n = number of extensions, L = Maximum measuring length (mm)
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm $\varnothing 13$ mm (139-203, 139-204)
Measuring surfaces	Carbide
Measuring spindle	Spindle pitch 0,5 mm
Measuring span	25 mm 10 mm(139-203), 25 mm (139-204)
Extension	$\varnothing 17$ mm $\varnothing 10$ mm (139-203, 139-204)
Delivered	Including box, key, extensions, micrometer head

## Standard accessories

No.	Description
139-001	Tubular Inside Micrometer, 100-125mm, for 139-173 to 139-177
139-003	Tubular Inside Micrometer 100-110mm, for 139-203
139-005	Tubular Inside Micrometer 100-125mm, for 139-204

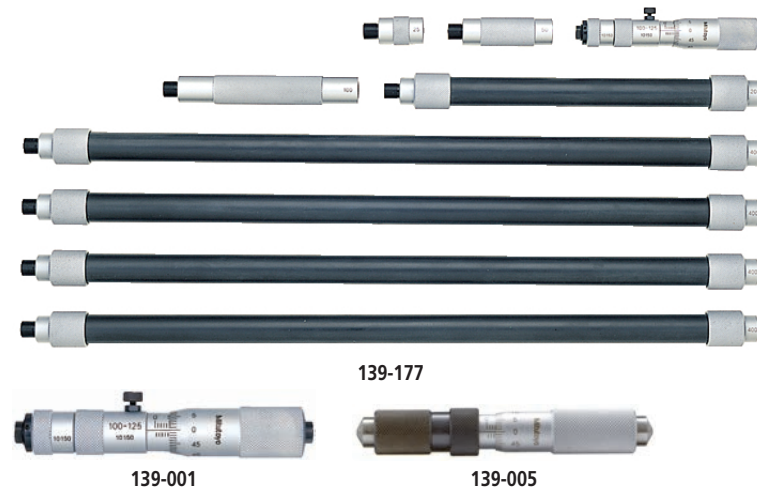
## Consumable spares

No.	Description
981003	Extension Rod for Series 139, 339, 25mm
981005	Extension Rod for Series 139, 339, 50mm
981007	Extension Rod for Series 139, 339, 100mm
981009	Extension Rod for Series 139, 339, 200mm
981011	Extension Rod for Series 139, 339, 400mm
981981	Extension Rod 10mm, for 139-203
981982	Extension Rod 20mm, for 139-203
981983	Extension Rod 30mm, for 139-203
981984	Extension Rod 60mm, for 139-203
981985	Extension Rod 90mm, for 139-203
981986	Extension Rod 110mm, for 139-203
981987	Extension Rod 120mm, for 139-203
981988	Extension Rod 130mm, for 139-203
981991	Extension Rod 25mm, for 139-204
981993	Extension Rod 75mm, for 139-204
981994	Extension Rod 150mm, for 139-204
981995	Extension Rod 225mm, for 139-204
981996	Extension Rod 300mm, for 139-204
981997	Extension Rod 350mm, for 139-204
981998	Extension Rod 400mm, for 139-204
981999	Extension Rod 425mm, for 139-204
982000	Extension Rod 450mm, for 139-204

## Series 139

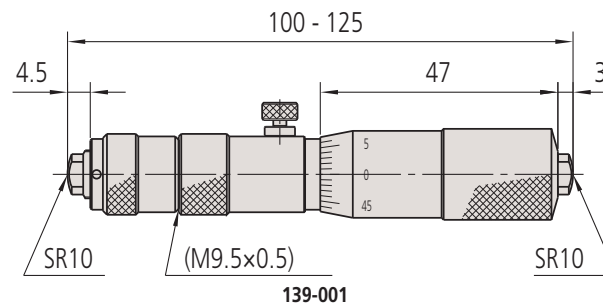
This is an extension pipe type inside micrometer that offers you the following benefits:

- Interchangeable extensions in a hollow pipe design.
- Carbide measuring faces are available.



## Metric

No.	Range [mm]	Extension rods	Mass [g]
139-173	100-500	4 (25, 50, 100, 200 mm)	490
139-174	100-900	5 (25, 50, 100, 200, 400 mm)	790
139-175	100-1300	6 (25, 50, 100, 200, 400 mm (2 pcs.))	1090
139-176	100-1700	7 (25, 50, 100, 200, 400 mm (3 pcs.))	1390
139-177	100-2100	8 (25, 50, 100, 200, 400 mm (4 pcs.))	1690
139-203	40-300	8 (10, 20, 30, 60, 90, 110, 120, 130 mm)	240
139-204	100-1000	10 (25, 50, 75, 150, 225, 300, 350, 400, 425, 450 mm)	770

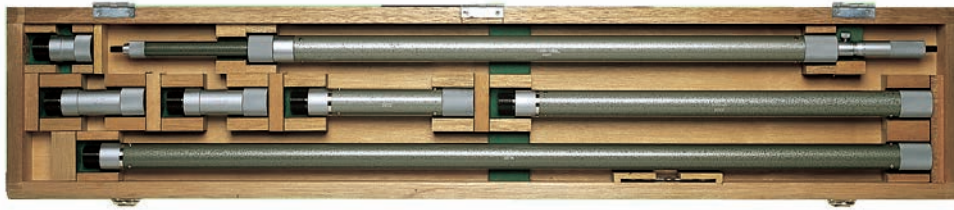


# Tubular Inside Micrometer with Extensions

## Series 140

This is a long range inside micrometer that offers you the following benefits:

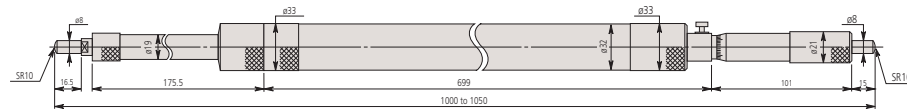
- It has a long measuring range of up to 5000 mm
- Extension tube type design.
- Measuring surfaces in carbide are available, micro-lap finish



140-158

### Metric

No.	Range [mm]	Extension rods	Mass [g]
140-157	1000-2000	5 (50, 100 (2 pcs.), 200, 500 mm)	3700
140-158	1000-3000	6 (50, 100 (2 pcs.), 200, 500, 1000 mm)	5200
140-159	1000-4000	7 (50, 100 (2 pcs.), 200, 500, 1000 mm (2 pcs.))	6700
140-160	1000-5000	8 (50, 100 (2 pcs.), 200, 500, 1000 mm (3 pcs.))	8260



Micrometer Head for series 140

### Specifications

Graduation	0,01 mm
Accuracy	$\pm(7+n+L/50) \mu\text{m}$ n = number of extensions, L = Maximum measuring length (mm)
Scale	Thimble and sleeve satin chrome finish, $\phi 21$ mm
Measuring spindle	Spindle pitch 0,5 mm
Measuring span	50 mm
Extension	$\phi 32$ mm
Delivered	Including box, key

### Consumable spares

No.	Description
04GZA394	Extension Rod 50mm, for Series 140
04GZA396	Extension Rod 100mm, for Series 140
04GZA398	Extension Rod 200mm, for Series 140
04GZA400	Extension Rod 500mm, for Series 140
04GZA402	Extension Rod 1000mm, for Series 140



# Digimatic Tubular Inside Micrometer with Extensions



Functions	Series 337
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Low voltage alarm	●
Function lock	●
Data output	●

### Specifications

Accuracy	$\pm(3+n+L/50) \mu\text{m}$ n = Number of extensions, L = Maximum measuring length (mm) (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18 \text{ mm}$
Measuring spindle	Spindle pitch 0,5 mm
Measuring span	25 mm
Extension	$\varnothing 12,5 \text{ mm}$
Display	LCD, character height 7,5 mm
Delivered	Including box, key, 1 battery, extensions, micrometer head

### Standard accessories

No.	Description
337-101	Digital Tubular Inside Micrometer (Rod), 200-225mm, Digimatic, IP65

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V
980521	Extension Rod for Series 137, 337, 25mm, Carbide Tipped
980523	Extension Rod for Series 137, 337, 50mm, Carbide Tipped
980525	Extension Rod for Series 137, 337, 100mm, Carbide Tipped
980529	Extension Rod for Series 137, 337, 200mm, Carbide Tipped
980531	Extension Rod for Series 137, 337, 300mm, Carbide Tipped

### Series 337

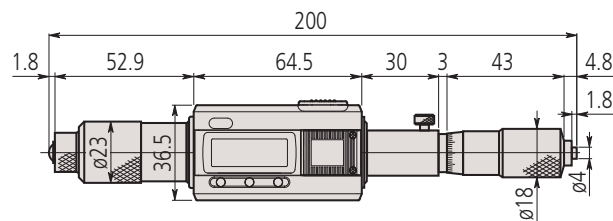
This is an extension rod type inside micrometer that offers you the following benefits:

- Interchangeable extensions with cylindrical gage rods are spring-mounted in protective sleeves so you can extend the measuring range.
- Carbide measuring faces.
- Digimatic type, with data output.
- It has excellent resistance against water and dust (IP65 protection level) enabling you to use it in machining situations that include splashing coolant fluid.



### Metric

No.	Range [mm]	Extension rods	Mass [g]
337-301	200-1000	6 (25, 50, 100 (2 pcs.), 200, 300 mm)	1040
337-302	200-1500	7 (25, 50, 100, 200, 300 (3 pcs.))	1410



Micrometer Head for series 337





# Digimatic Tubular Inside Micrometer with Extensions

## Series 339

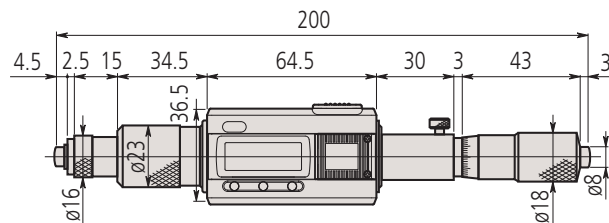
This is an extension pipe type inside micrometer that offers you the following benefits:

- Interchangeable extensions in a hollow pipe design.
- Carbide measuring faces.
- Digimatic type with data output.
- It has excellent resistance against water and dust (IP65 protection level) enabling you to use it in machining situations that include splashing coolant fluid.



### Metric

No.	Range [mm]	Extension rods	Mass [g]
339-301	200-1000	5 (25, 50, 100, 200, 400 mm)	1050
339-302	200-2000	8 (25, 50, 100, 200 (2 pcs.), 400 mm (3 pcs.))	1800



Functions	Series 339
ZERO/ABS	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Low voltage alarm	●
Function lock	●
Data output	●

### Specifications

Accuracy	$\pm(3+n+L/50)$ $\mu\text{m}$ n = number of extensions, L = Maximum measuring length (mm) (excluding quantizing error)
Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\phi 18$ mm
Measuring spindle	Spindle pitch 0,5 mm
Measuring span	25 mm
Extension	$\phi 17$ mm
Display	LCD, character height 7,5 mm
Delivered	Including box, key, 1 battery, extensions, micrometer head

### Standard accessories

No.	Description
339-101	Digital Tubular Inside Micrometer (Pipe), 200-225mm, Digimatic, IP65

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790B	U-WAVE-T Connection Cable B, with Data Button IP Micrometer Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V
981003	Extension Rod for Series 139, 339, 25mm
981005	Extension Rod for Series 139, 339, 50mm
981007	Extension Rod for Series 139, 339, 100mm
981009	Extension Rod for Series 139, 339, 200mm
981011	Extension Rod for Series 139, 339, 400mm

# Inside Micrometer with Interchangeable Rod

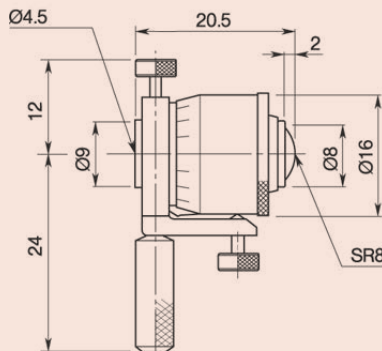
## Specifications

Graduation	0,01 mm
Accuracy	$\pm(6+L/50) \mu\text{m}$ , L = Maximum measuring length (mm)
Scale	Thimble and sleeve satin chrome finish
Measuring surfaces	Hardened
Measuring spindle	Spindle pitch 0,5 mm with spindle lock
Delivered	Including box, key

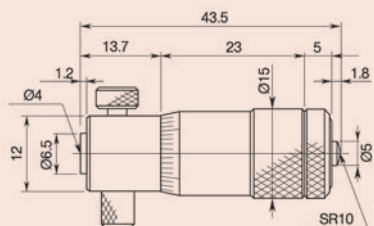


When using one of the extension rods supplied

141-101 with extension handle



141-001/003



141-025/027

## Series 141 - Interchangeable Rod Type

This an interchangeable rod type inside micrometer that offers you the following benefits:

- Interchangeable measuring rods allow you to take inside measurements of up to 1000 mm.
- Each interchangeable rod is marked with its measuring range.
- For models supplied with more than one interchangeable rod, you can achieve the full measuring range by combining spacing collars with the rods.
- A extension handle to help you measure deep bores is included in sets up to 300 mm range.



141-205

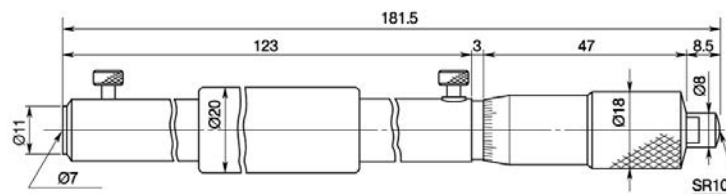
### Metric

No.	Range [mm]	Head adjustment range [mm]	Interchangeable rod	Extension collar	Accessories: inside micrometer (standard in the set) No.	Mass [g]
141-001	25-32	7	-	-	-	20
141-101	25-50	7	2 (38, 50 mm)	1 (6 mm)	141-001	60
141-025	50-63	13	-	-	-	40
141-205	50-200	13	3 (100, 150, 200 mm)	1 (12 mm)	141-025	125
141-206	50-300	13	5 (100, 150, 200, 250, 300 mm)	1 (12 mm)	141-025	275
141-009	200-225	25	-	-	-	220
141-117	200-500	25	3 (300, 400, 500 mm)	2 (25/50 mm)	141-009	520
141-118	200-1000	25	8 (300, 400, 500, 600, 700, 800, 900, 1000 mm)	2 (25/50 mm)	141-009	1940

### Metric

With carbide measuring surface

No.	Range [mm]	Head adjustment range [mm]	Interchangeable rod	Extension collar	Accessories: inside micrometer (standard in the set) No.	Mass [g]
141-003	25-32	7	-	-	-	20
141-103	25-50	7	2 (38, 50 mm)	1 (6 mm)	141-003	60
141-027	50-63	13	-	-	-	40
141-211	50-200	13	3 (100, 150, 200 mm)	1 (12 mm)	141-027	125
141-212	50-300	13	5 (100, 150, 200, 250, 300 mm)	1 (12 mm)	141-027	275
141-011	200-225	25	-	-	-	220



141-009

# Bore Gauge for Extra Small Holes

## Series 526 Bore Gauge

This is a two point split contact point ideally suited to smaller bore measurements. It offers you the following benefits:

- A precision bore gauge so you can make quick and accurate measurements of small hole diameters (0,95-18 mm).
- You can replace the analogue indicator fitted to this instrument with a customer-supplied Digital indicator if you need.
- The contact point is hard chrome finish



### Metric

No.	Range [mm]	Graduation	No. Dial Indicator	Measuring depth	Number of anvils
526-173-1	0,95-1,55	0,01 mm	2046SB	11,5 mm	5
526-163-1	1,5-4	0,01 mm	2046SB	17,5-22,5 mm <sup>(1)</sup>	9
526-153-1	3,7-7,3	0,01 mm	2046SB	32 mm	7
526-126	7-10	0,01 mm	2046SB	40-56 mm <sup>(2)</sup>	6
526-127	10-18	0,01 mm	2046SB	62 mm	8
526-172-1	0,95-1,55	0,001 mm	2109SB-10	11,5 mm	5
526-162-1	1,5-4	0,001 mm	2109SB-10	17,5-22,5 mm <sup>(1)</sup>	9
526-152-1	3,7-7,3	0,001 mm	2109SB-10	32 mm	7
526-124	7-10	0,001 mm	2109SB-10	40-56 mm <sup>(2)</sup>	6
526-125	10-18	0,001mm	2109SB-10	62 mm	8

<sup>(1)</sup> Holes  $\varnothing \leq 2,25$  mm : measuring depth 17,5 mm / holes  $\varnothing > 2,25$  mm : measuring depth 22,5 mm

<sup>(2)</sup> Holes  $\varnothing \leq 8$  mm : measuring depth 40 mm / holes  $\varnothing > 8$  mm : measuring depth 56 mm

### Specifications

Accuracy	4 $\mu$ m 6 $\mu$ m for range 10-18 mm
Repeatability	2 $\mu$ m
Delivered	In box including plastic cover for Dial Indicator

### Optional accessories

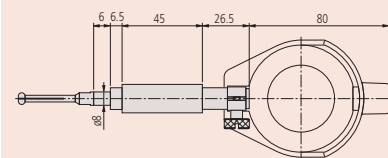
No.	Description
215-120-10	Stand for Bore Gauge Series 526
543-310B	Digital Indicator Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back

Setting rings are optional accessories. See Series 177 for details.

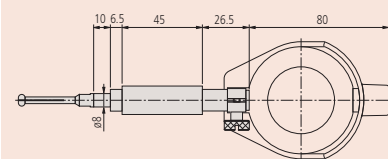


215-120-10

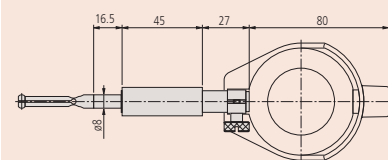
543-310B



0,95 - 4 mm



3,7 - 7,3 mm



7 - 18 mm

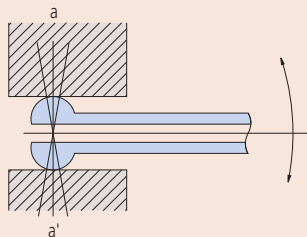
For details on indicators suitable for use with this instrument, refer to Dial Gauges section.

# Bore Gauge for Extra Small Holes

## Contact Point for Series 526



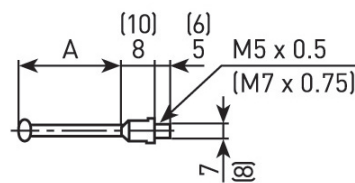
526-153-1



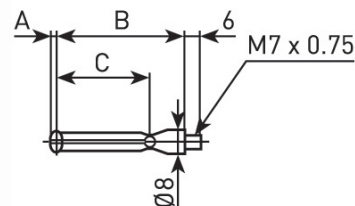
**Positioning of Bore Gauges**  
The contact points have a large curvature, simplifying positioning for bore diameter measurement (in the direction a-a')

### Replacement contact points

No.	Range [mm]	Marking on the measuring head (engraved)	A [mm]	B [mm]	C [mm]
21DAA601A	0,95-1,15	1	11,5		
21DAA601B	1,07-1,25	1,1	11,5		
21DAA601C	1,17-1,35	1,2	11,5		
21DAA601D	1,27-1,45	1,3	11,5		
21DAA601E	1,37-1,55	1,4	11,5		
21DAA602A	1,5-1,9	1,75	17,5		
21DAA602B	1,8-2,2	2	17,5		
21DAA602C	2,05-2,45	2,25	17,5		
21DAA602D	2,25-2,75	2,5	22,5		
21DAA602E	2,5-3	2,75	22,5		
21DAA602F	2,75-3,25	3	22,5		
21DAA602G	3-3,5	3,25	22,5		
21DAA602H	3,25-3,75	3,5	22,5		
21DAA602J	3,5-4	3,75	22,5		
21DAA603A	3,7-4,3	4	32		
21DAA603B	4,2-4,8	4,5	32		
21DAA603C	4,7-5,3	5	32		
21DAA603D	5,2-5,8	5,5	32		
21DAA603E	5,7-6,3	6	32		
21DAA603F	6,2-6,8	6,5	32		
21DAA603G	6,7-7,3	7	32		
102469	7-7,5	1	1,8	40	29,2
102470	7,5-8	2	1,8	40	29,2
102471	8-8,5	3	1,8	40	29,2
102472	8,5-9	4	1,8	40	29,2
102473	9-9,5	5	1,8	40	29,2
102474	9,5-10	6	1,8	40	29,2
102454	10-11	1	2,1	46	38
102455	11-12	2	2,7	46	38
102456	12-13	3	2,7	46	38
102457	13-14	4	2,7	46	38
102458	14-15	5	2,7	46	38
102459	15-16	6	2,7	46	38
102460	16-17	7	2,7	46	38
102461	17-18	8	2,7	46	38



526-162-1, 526-163-1, 526-172-1, 526-173-1  
( ) 526-152-1, 526-153-1



526-124, 526-125, 526-126, 526-127

# Bore Gauge for Small Holes

## Series 511

These are bore gauges that automatically self-centre via a centring bridge. They offer you the following benefits:

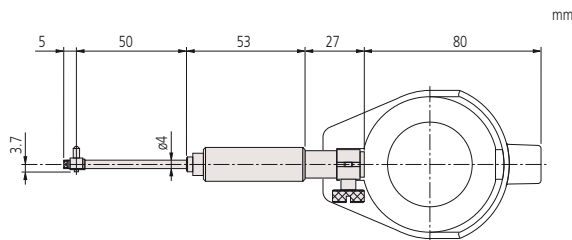
- A long plunger stroke gives you amazing accuracy.
- Interchangeable washers 0,5mm thick are supplied as standard accessories, so you can enable setting in small steps.
- Contact points are carbide (> 18 mm range), giving you high durability and wear resistance.
- A large grip reduces heat transfer from the operator by 50%.



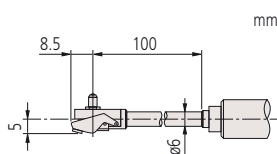
511-204

### Metric

No.	Range [mm]	Graduation	No. Dial Indicator	Measuring depth	Stroke of contact point [mm]	Number of anvils	Mass [g]
511-211	6-10	0,01 mm	2046SB	50 mm	0,5	9	255
511-204	10-18,5	0,01 mm	2046SB	100 mm	0,6	9	264
511-210	6-10	0,001 mm	2109SB-10	50 mm	0,5	9	255
511-203	10-18,5	0,001 mm	2109SB-10	100 mm	0,6	9	268



6-10 mm



10-18,5 mm

### Specifications

Accuracy	5 µm
Delivered	Including box, dial indicator, plastic cover for indicator

### Optional accessories

No.	Description
543-310B	Digital Indicator Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back



543-310B

For details on indicators suitable for use with this instrument, refer to the Dial Gauges section.



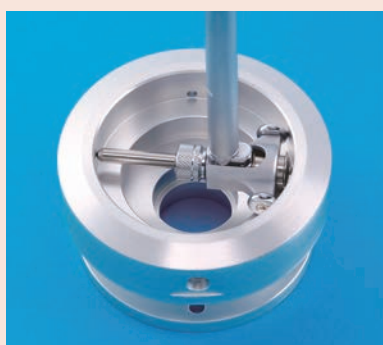
# Bore Gauge

## Specifications

Accuracy	2 µm
Stroke of contact point	18 - 60 mm: 1,2 mm 50 - 400 mm: 1,6 mm
Repeatability	0,5 µm
Delivered	Including box, dial indicator, plastic cover for indicator

## Optional accessories

No.	Description
953549	Extension Rod Series 511, 125mm, 9mm rod diameter
953550	Extension Rod Series 511, 250mm, 9mm rod diameter
953551	Extension Rod Series 511, 500mm, 9mm rod diameter
953552	Extension Rod Series 511, 125mm, 12mm rod diameter
953553	Extension Rod Series 511, 250mm, 12mm rod diameter
953554	Extension Rod Series 511, 500mm, 12mm rod diameter
953555	Extension Rod Series 511, 750mm, 12mm rod diameter
953556	Extension Rod Series 511, 1000mm, 12mm rod diameter
953557	Extension Rod Series 511, 125mm, 15mm rod diameter
953558	Extension Rod Series 511, 500mm, 15mm rod diameter
953559	Extension Rod Series 511, 750mm, 15mm rod diameter
953560	Extension Rod Series 511, 1000mm, 15mm rod diameter
953561	Extension Rod Series 511, 250mm, 15mm rod diameter
543-310B	Digital Indicator Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back



For details on indicators suitable for use with this instrument, refer to the Dial Gauges section. For a description of replacement contact points, see the Spare Parts section at end of catalogue.

## Series 511

This is a bore gauge that automatically self-centres via a centring bridge and offers you the following benefits:

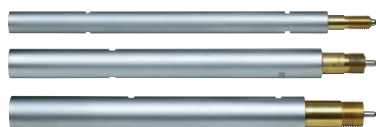
- It reduces the influence of heat from the operator's hand by 50% by making the grip hollow structured, thereby retaining high accuracy measurement.
- Interchangeable washers (0,5 mm thick) are supplied as standard accessories, so you can enable setting in small steps.
- Contact points are carbide (> 18 mm range), giving you high durability and wear resistance.



511-712



511-713



Extensions for deep-hole measurement (optional accessory)

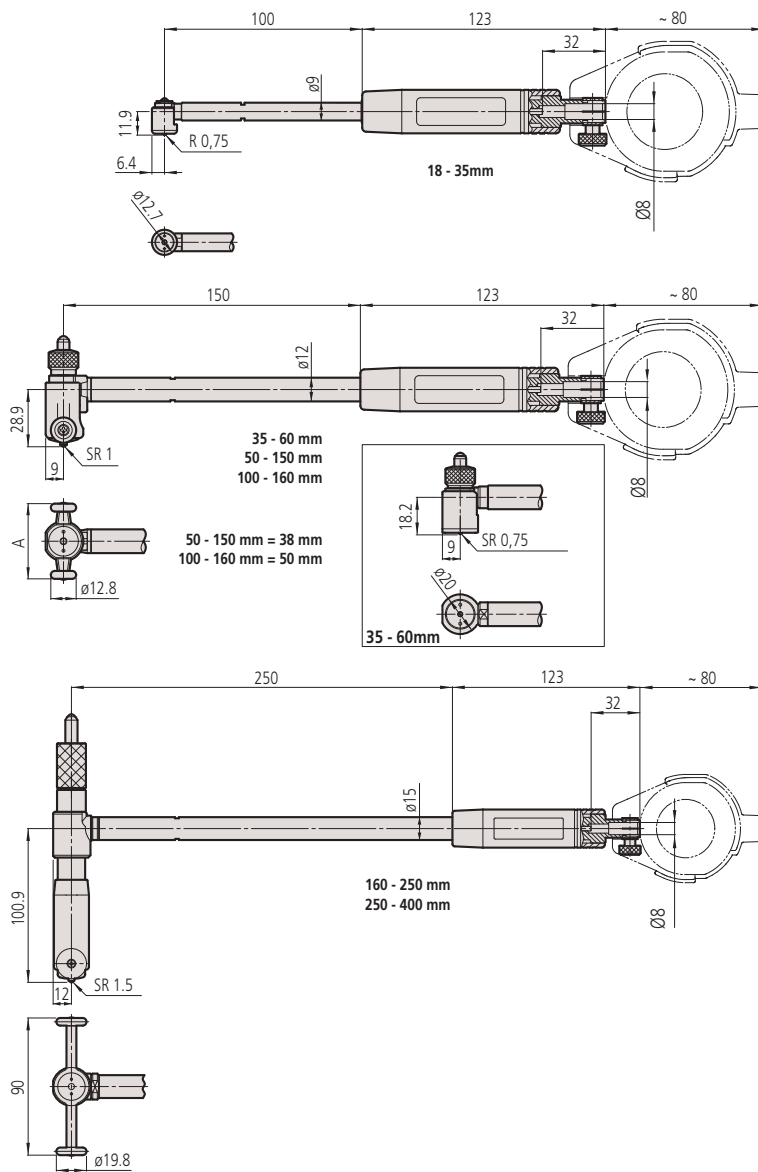
## Metric

No.	Range [mm]	Graduation	No. Dial Indicator	Measuring depth	Number of anvils	Mass [g]
511-721	18-35	0,001 mm	2109SB-10	100 mm	9	330
511-722	35-60	0,001 mm	2109SB-10	150 mm	6	400
511-723	50-150	0,001 mm	2109SB-10	150 mm	11	420
511-724	100-160	0,001 mm	2109SB-10	150 mm	13	480
511-725	160-250	0,001 mm	2109SB-10	250 mm	6	850
511-726	250-400	0,001 mm	2109SB-10	250 mm	5	945
511-711	18-35	0,01 mm	2046SB	100 mm	9	330
511-712	35-60	0,01 mm	2046SB	150 mm	6	400
511-713	50-150	0,01 mm	2046SB	150 mm	11	420
511-714	100-160	0,01 mm	2046SB	150 mm	13	480
511-715	160-250	0,01 mm	2046SB	250 mm	6	850
511-716	250-400	0,01 mm	2046SB	250 mm	5	945

# Bore Gauge

Series 511

Example of measuring heads with different capacity.



# Bore Gauge

## Series 511

This is a bore gauge that automatically self-centres via a centring bridge and offers you the following benefits:

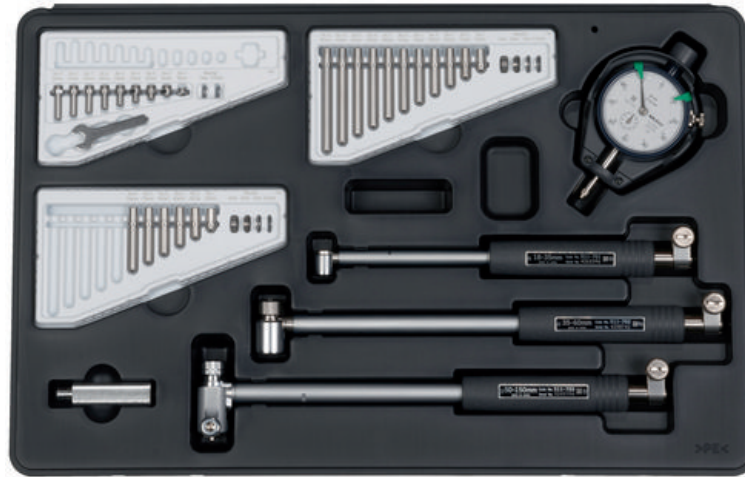
- Carbide for the contact point ensuring high durability and wear resistance
- It reduces the influence of heat from the operator's hand by 50% by making the grip hollow structured, thereby retaining high accuracy measurement.

### Specifications

Accuracy	2 µm
Repeatability	0,5 µm

### Standard accessories

No.	Description
21DZA213A	Carbide Tipped Anvil Series 511, Range 18 mm
21DZA213B	Carbide Tipped Anvil Series 511, Range 20 mm
21DZA213C	Carbide Tipped Anvil Series 511, Range 22 mm
21DZA213D	Carbide Tipped Anvil Series 511, Range 24 mm
21DZA213E	Carbide Tipped Anvil Series 511, Range 26 mm
21DZA213F	Carbide Tipped Anvil Series 511, Range 28 mm
21DZA213G	Carbide Tipped Anvil Series 511, Range 30 mm
21DZA213H	Carbide Tipped Anvil Series 511, Range 32 mm
21DZA213J	Carbide Tipped Anvil Series 511, Range 34 mm
21DZA232A	Carbide Tipped Anvil Series 511, Range 50mm (100mm)
21DZA232B	Carbide Tipped Anvil Series 511, Range 40mm, 55mm (105mm)
21DZA232C	Carbide Tipped Anvil Series 511, Range 45mm, 60mm (110mm)
21DZA232D	Carbide Tipped Anvil Series 511, Range 50mm, 65mm (115mm)
21DZA232E	Carbide Tipped Anvil Series 511, Range 55mm, 70mm (120mm)
21DZA232F	Carbide Tipped Anvil Series 511, Range 60mm, 75mm (125mm)
21DZA232G	Carbide Tipped Anvil Series 511, Range 80mm (130mm)
21DZA232H	Carbide Tipped Anvil Series 511, Range 85mm (135mm)
21DZA232J	Carbide Tipped Anvil Series 511, Range 90mm (140mm)
21DZA232L	Carbide Tipped Anvil Series 511, Range 95mm (145mm)
21DZA232M	Carbide Tipped Anvil Series 511, Range 100mm (150mm)
205457	Washer Series 511, 0,5mm, Range 35-160mm
205458	Washer Series 511, 1 mm, Range 35-160mm
205459	Washer Series 511, 2 mm, Range 35-160mm
205460	Washer Series 511, 3 mm, Range 35-160mm
205623	Washer Series 511, 0,5mm, Range 18-35mm
205624	Washer Series 511, 1mm, Range 18-35mm
102178	Sub-Anvil Series 511, 50 mm



511-921



Indicator 2046SB included in the set 511-921



Indicator 2109SB-10 included in the set 511-922



Indicator 543-310B included in the set 511-925-10

### Metric

No.	Range [mm]	Graduation	No. Dial Indicator	Measuring depth
511-921	18-150	0,01 mm	2046SB	100/150 mm
511-922	18-150	0,001 mm	2109SB-10	100/150 mm
511-925-10	18-150	0,001 mm	543-310B	100/150 mm

# Bore Gauge with Micrometer Head

## Series 511

This is a micrometer head that enables measurements without interchangeable anvils. It offers you the following benefits:

- A long plunger stroke gives you amazing accuracy.
- Contact points are carbide (> 18 mm range), giving you high durability and wear resistance.
- A large grip reduces heat transfer from the operator by 50%.
- Wide measuring range with sub-anvils.



511-814



Extensions for deep-hole measurement (optional accessory)

### Metric

No.	Range [mm]	Graduation	No. Dial Indicator	Micrometer Head stroke	Sub anvils	Measuring depth	Mass [g]
511-823	60-100	0,001 mm	2109SB-10	10 mm	10, 20 mm	150 mm	430
511-824	100-160	0,001 mm	2109SB-10	13 mm	10, 20, 20 mm	150 mm	480
511-825	150-250	0,001 mm	2109SB-10	13 mm	10, 20, 20, 50 mm	150 mm	850
511-826	250-400	0,001 mm	2109SB-10	25 mm	25, 50, 50 mm	150 mm	950
511-827	400-600	0,001 mm	2109SB-10	50 mm	50, 100 mm	250 mm	1.270
511-828	600-800	0,001 mm	2109SB-10	50 mm	50, 100 mm	250 mm	1.670
511-813	60-100	0,01 mm	2046SB	10 mm	10, 20 mm	150 mm	430
511-814	100-160	0,01 mm	2046SB	13 mm	10, 20, 20 mm	150 mm	480
511-815	150-250	0,01 mm	2046SB	13 mm	10, 20, 20, 50 mm	150 mm	850
511-816	250-400	0,01 mm	2046SB	25 mm	25, 50, 50 mm	150 mm	950
511-817	400-600	0,01 mm	2046SB	50 mm	50, 100 mm	250 mm	1.270
511-818	600-800	0,01 mm	2046SB	50 mm	50, 100 mm	250 mm	1.670

### Specifications

Accuracy	2 μm
Repeatability	0,5 μm
Delivered	Including box, dial indicator, plastic cover for indicator

### Optional accessories

No.	Description
953552	Extension Rod Series 511, 125mm, 12mm rod diameter
953553	Extension Rod Series 511, 250mm, 12mm rod diameter
953554	Extension Rod Series 511, 500mm, 12mm rod diameter
953555	Extension Rod Series 511, 750mm, 12mm rod diameter
953556	Extension Rod Series 511, 1000mm, 12mm rod diameter
953557	Extension Rod Series 511, 125mm, 15mm rod diameter
953561	Extension Rod Series 511, 250mm, 15mm rod diameter
953558	Extension Rod Series 511, 500mm, 15mm rod diameter
953559	Extension Rod Series 511, 750mm, 15mm rod diameter
953560	Extension Rod Series 511, 1000mm, 15mm rod diameter
543-310B	Digital Indicator Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back



543-310B

For details on indicators suitable for use with this instrument, refer to the Dial Gauges section. For a description of replacement contact points, see the Spare Parts section at end of catalogue.

# Bore Gauge with Micrometer Head

Series 511

Dimensions



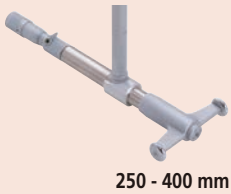
60 - 100 mm



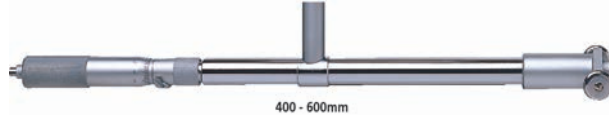
100 - 160 mm



150 - 250 mm



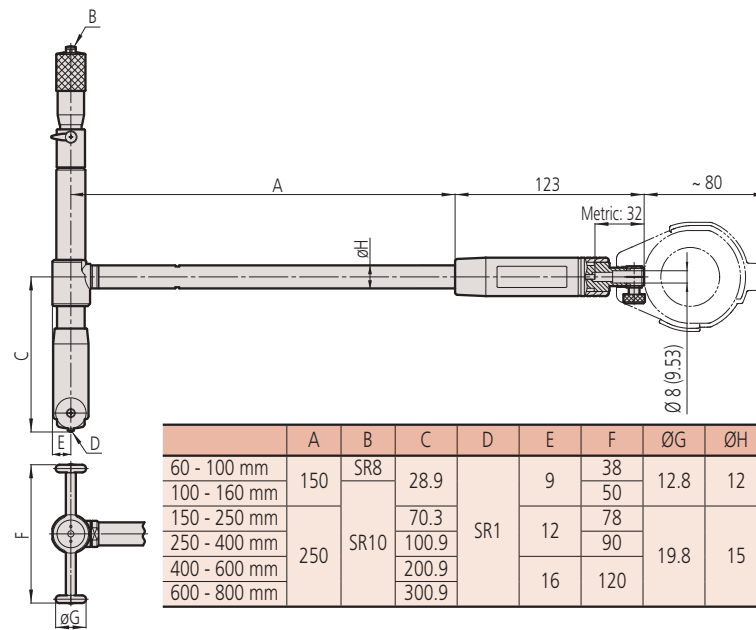
250 - 400 mm



400 - 600mm



600 - 800mm



## Extension Rods

### Accessories for Bore Gauges

These extension rods help you with deep-hole measurement, and offer you the following benefits:

- Using a single, longer extension rod rather than several short ones reduces error. When several extension rods are joined together there is the possibility of small errors arising from the extra joints involved. Therefore it is good practice not to connect more than 2 rods to a bore gauge at any one time.
- You can use extension rods up to 1mm.
- If you are using an extension rod longer than 500mm, use the bore gauge in the vertical orientation.
- You can confirm accurate and satisfactory operation after connecting an extension rod.

Applicable Range	1. 125 mm	2. 250 mm	3. 500 mm	4. 750 mm	5. 1000 mm
	No.	No.	No.	No.	No.
A. 18-35 mm	953549	953550	953551	—	—
B. 35-160 mm	953552	953553	953554	953555	953556
C. 150-800 mm	953557	953561	953558	953559	953560

### Specifications

Extension rod diameter  
 ø9 mm (range 18-35 mm)  
 ø12 mm (range 35-160 mm)  
 ø15 mm (range 150-800 mm)



953549



953552



953557



# Bore Gauge Short Length Type

## Series 511

This is a compact and lightweight bore gauge due to the short length below the grip. It offers you the following benefits:

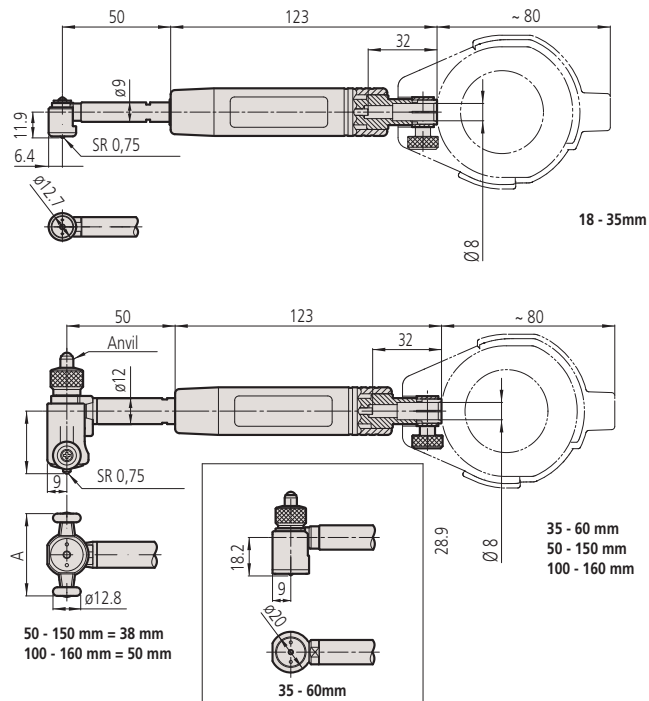
- A long plunger stroke gives you amazing accuracy.
- Contact points are carbide giving you high durability and wear resistance.
- A large grip reduces heat transfer from the operator by 50%.



511-766

### Metric

No.	Range [mm]	Graduation	No. Dial Indicator	Measuring depth	Number of anvils	Mass [g]
511-771	18-35	0,001 mm	2109SB-10	50 mm	9	320
511-772	35-60	0,001 mm	2109SB-10	50 mm	6	380
511-773	50-150	0,001 mm	2109SB-10	50 mm	11	400
511-774	100-160	0,001 mm	2109SB-10	50 mm	13	460
511-766	18-35	0,01 mm	2046SB	50 mm	9	320
511-767	35-60	0,01 mm	2046SB	50 mm	6	380
511-768	50-150	0,01 mm	2046SB	50 mm	11	400
511-769	100-160	0,01 mm	2046SB	50 mm	13	460



### Specifications

Accuracy	2 $\mu$ m
Repeatability	0,5 $\mu$ m
Stroke of contact point	18 - 60 mm: 1,2 mm 50 - 160 mm: 1,6 mm
Delivered	Including box, dial indicator, plastic cover for indicator

### Optional accessories

No.	Description
543-310B	Digital Indicator Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back



543-310B



For details of indicators suitable for use with this instrument, refer to the Dial Gauges section. For a description of replacement contact points, see the Spare Parts section at end of catalogue.

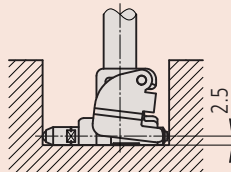
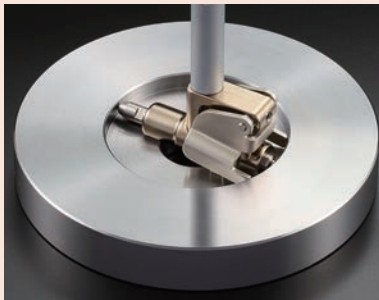
# Bore Gauge for Blind Holes

## Specifications

Accuracy	4 $\mu$ m
Repeatability	1 $\mu$ m
Stroke of contact point	1,2 mm
Delivered	Including box, dial indicator, plastic cover for indicator

## Optional accessories

No.	Description
543-310B	Digital Indicator Bore Gauge ID-C, 12,7mm, 0,001mm, Flat Back
953549	Extension Rod Series 511, 125mm, 9mm rod diameter
953550	Extension Rod Series 511, 250mm, 9mm rod diameter
953551	Extension Rod Series 511, 500mm, 9mm rod diameter



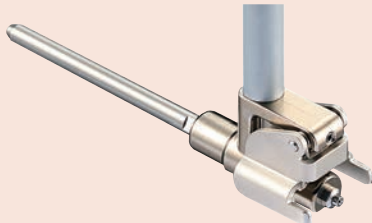
For blind holes with minimum depth 2,5 mm



15 - 35 mm



35 - 60 mm



50 - 150 mm

For details on indicators suitable for use with this instrument, refer to the Dial Gauges section. For a description of replacement contact points, see the Spare Parts section at end of catalogue.

## Series 511

This is a bore gauge for measuring blind holes that offers you the following benefits:

- You can measure the inside diameter close to the bottom of blind holes.
- Contact points are carbide giving you high durability and wear resistance.



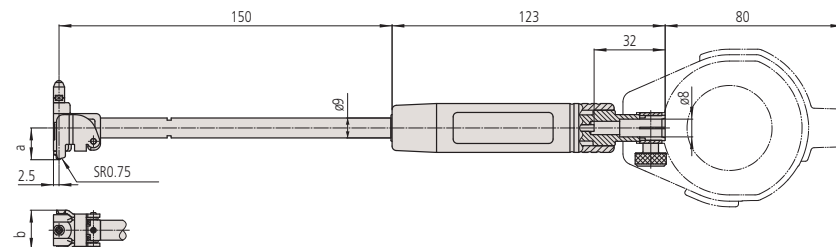
511-427



511-426

## Metric

No.	Range [mm]	Graduation	No. Dial Indicator	Measuring depth	a [mm]	b [mm]	Mass [g]
511-425	15-35	0,01 mm	2046SB	150 mm	9,9	10,6	350
511-426	35-60	0,01 mm	2046SB	150 mm	14,3	18	370
511-427	50-150	0,01 mm	2046SB	150 mm	22,7	22	380
511-435	15-35	0,001 mm	2109SB	150 mm	9,9	10,6	350
511-436	35-60	0,001 mm	2109SB	150 mm	14,3	18	370
511-437	50-150	0,001 mm	2109SB	150 mm	22,7	22	380



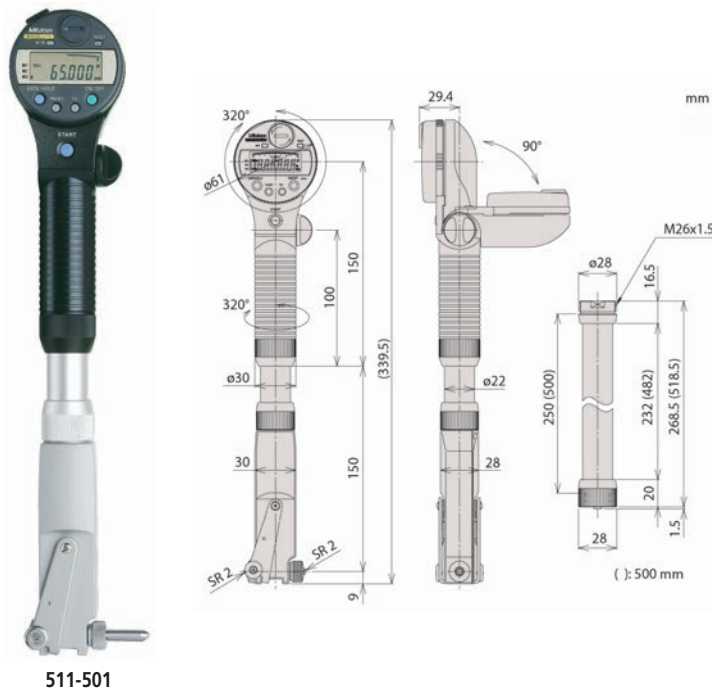
# ABSOLUTE Digimatic Bore Gauge

## Series 511

This is a Digimatic bore gauge that lets you take digital inside measurements with amazing accuracy even at the maximum 2m depth.

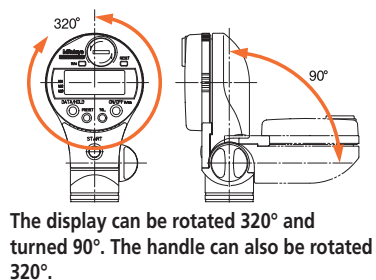
The ABSOLUTE Digimatic Bore Gauge offers you the following benefits:

- Precision bore gauge lets you easily measure the diameter of deep bores without loss of accuracy.
- You can store and recall up to 3 sets of master values and upper/lower tolerance values at the push of a button.
- GO/±NG judgement can be set.
- Up to max. four extension rods (250 or 500mm) can be used.

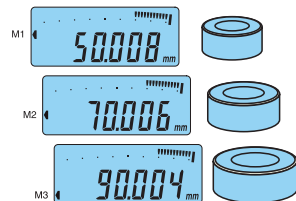


### Metric

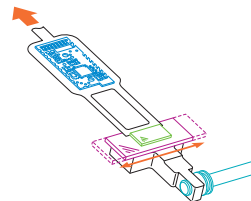
No.	Range [mm]	Number of anvils	Mass [g]
511-501	45-100	12	500
511-502	100-160	13	570



The display can be rotated 320° and turned 90°. The handle can also be rotated 320°.



Up to 3 sets of reference values can be preset, including top/bottom tolerance limits.



Even during measurement with a 2 m extension the accuracy is secured, as measured-value transmission is electronic.



Functions	Series 511
PRESET (x3)	●
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
DATA/HOLD	●
MIN Value Hold	●

### Specifications

Accuracy	0,003 mm (excluding quantizing error)
Digital step	0,001 mm
Repeatability	±1 digit
Measuring force	≤5 N
Sampling Frequency	50 times/sec*
Power supply	2 batteries SR-44
Stroke of contact point	1,2 mm
Battery life	approx. 2000 hours
Display	LCD Character Height 7,5 mm

### Optional accessories

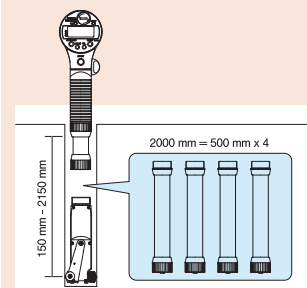
No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
21DZA089	Extension Rod, Series 511, 250mm
21DZA081	Extension Rod, Series 511, 500mm

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



The ABSOLUTE Digimatic Bore Gauge detects the minimum value (true diameter) and holds it automatically.



Four extension rods (500 mm each) connected together provide a 2 m extension.

\*if the detecting speed is > 50 µm/s the peak value may not be displayed correctly

# Bore Gauge Checker

## Specifications

Delivered | Delivery as complete set in soft box

## Standard accessories

No.	Description
940088	Receiver for Bore Gauge Checker, 18-35mm/35-60mm
940089	Receiver for Bore Gauge Checker, 50-100mm/100-160mm
940090	Receiver for Bore Gauge Checker, 100-250mm/250-400mm
630030	Flat Jaws for Bore Gauge Checker, 2 pcs.

## Series 515

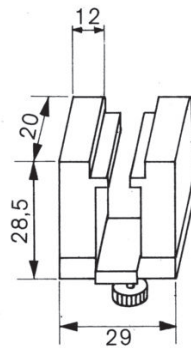
- For setting 2-point bore gauges series 511.
- The Bore Gauge Checker allows easy setting of dial bore gauges with ranges of 18 mm through 400 mm using gauge blocks.



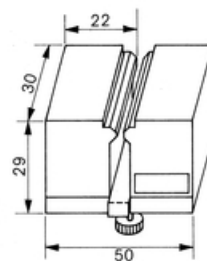
515-590  
+ gauge block (optional)

## Inch/Metric

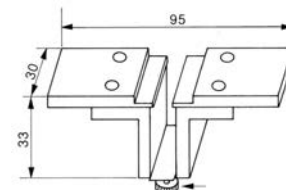
No.	Applicable Range	Mass [kg]
515-590	18-400 mm	4,51



940088



940089



940090

# Gauge Set

## Series 155 - Telescopic Gauge Set

- Self-centering and satin chrome finish.
- Constant spring force on to the measuring surface. Locked in position by knurled lockscrew.



155-905

### Metric

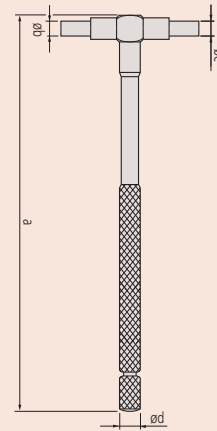
No.	Gauges included	Range	a [mm]	b [mm]	c [mm]	d [mm]	Mass
155-905	155-127	8-12,7 mm	110	4	3	5	15
	155-128	12,7-19 mm	110	5	3,5	5,5	25
	155-129	19-32 mm	110	5	3,5	5,5	35
	155-130	32-54 mm	150	7,5	6	8	75
	155-131	54-90 mm	150	7,5	6	8	80
	155-132	90-150 mm	150	7,5	6	8	100

### Specifications

Delivered | Including plastic wallet

### Specifications

Delivered | Including plastic wallet





# Setting Rings

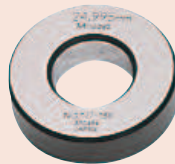
## Series 177

### Specifications

Cylindricity	1 µm for ø1-60 mm
	1,5 µm for ø62-90 mm
	2 µm for ø100-150 mm
	2,5 µm for ø175-225 mm
	3 µm for ø250-300 mm



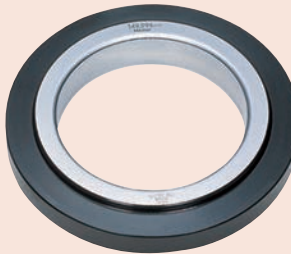
177-424



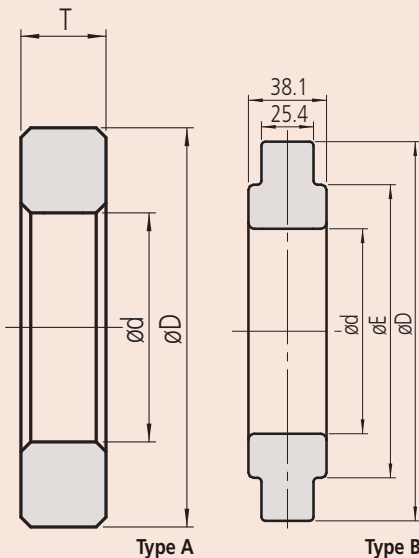
177-139



177-432



177-300



Tolerance from nominal diameter is  $\pm 0,01$  mm up to 45 mm, and  $\pm 0,02$  mm above. The calibrated diameter of each ring is marked on its upper face.

### Metric

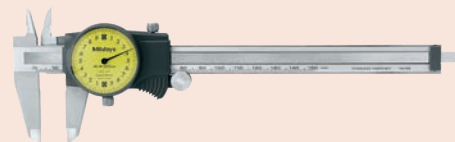
No.	Material	Nominal size ød	Type	Ø D [mm]	Ø E [mm]	T [mm]
177-220	Steel	1 mm	A	20		4
177-222	Steel	1,1 mm	A	20		4
177-225	Steel	1,2 mm	A	20		4
177-227	Steel	1,3 mm	A	20		4
177-230	Steel	1,4 mm	A	20		4
177-236	Steel	1,75 mm	A	25		5
177-239	Steel	2 mm	A	25		5
177-242	Steel	2,25 mm	A	25		5
177-208	Steel	2,5 mm	A	25		7
177-246	Steel	2,75 mm	A	25		7
177-248	Steel	3 mm	A	25		7
177-250	Steel	3,25 mm	A	25		7
177-252	Steel	3,5 mm	A	25		7
177-255	Steel	3,75 mm	A	25		7
177-204	Steel	4 mm	A	25		7
177-418	Ceramic	4 mm	A	25		7
177-257	Steel	4,5 mm	A	25		7
177-205	Steel	5 mm	A	25		7
177-263	Steel	5,5 mm	A	25		7
177-267	Steel	6 mm	A	25		7
177-420	Ceramic	6 mm	A	25		7
177-271	Steel	6,5 mm	A	25		7
177-275	Steel	7 mm	A	25		7
177-125	Steel	8 mm	A	32		10
177-423	Ceramic	8 mm	A	32		10
177-279	Steel	9 mm	A	32		10
177-126	Steel	10 mm	A	32		10
177-424	Ceramic	10 mm	A	32		10
177-284	Steel	12 mm	A	32		10
177-425	Ceramic	12 mm	A	32		10
177-132	Steel	14 mm	A	38		10
177-177	Steel	16 mm	A	45		10
177-427	Ceramic	16 mm	A	45		10
177-133	Steel	17 mm	A	45		10
177-285	Steel	18 mm	A	45		10
177-286	Steel	20 mm	A	45		10
177-429	Ceramic	20 mm	A	45		10
177-139	Steel	25 mm	A	53		15
177-430	Ceramic	25 mm	A	53		15
177-288	Steel	30 mm	A	71		15
177-431	Ceramic	30 mm	A	71		15
177-140	Steel	35 mm	A	71		15
177-432	Ceramic	35 mm	A	71		15
177-290	Steel	40 mm	A	71		15
177-433	Ceramic	40 mm	A	71		15
177-178	Steel	45 mm	A	85		15
177-434	Ceramic	45 mm	A	85		15
177-146	Steel	50 mm	A	85		20
177-292	Steel	60 mm	A	112		20
177-314	Steel	62 mm	A	112		20
177-147	Steel	70 mm	A	112		20
177-316	Steel	75 mm	A	125		25
177-294	Steel	80 mm	A	125		25
177-318	Steel	87 mm	A	140		25
177-148	Steel	90 mm	A	140		25
177-296	Steel	100 mm	A	160		25
177-298	Steel	125 mm	B	210	168	38,1
177-300	Steel	150 mm	B	235	187	38,1
177-302	Steel	175 mm	B	260	215	38,1
177-304	Steel	200 mm	B	311	244	38,1
177-306	Steel	225 mm	B	337	264	38,1
177-308	Steel	250 mm	B	362	290	38,1
177-310	Steel	275 mm	B	413	321	38,1
177-312	Steel	300 mm	B	438	340	38,1

## Calipers

**Absolute Digimatic Caliper**  
Page 167

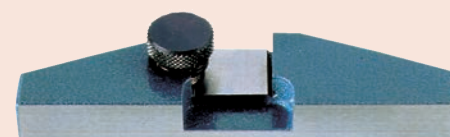


**Analog Caliper**  
Page 181



**Special Purpose Caliper**  
Page 188

**Caliper Accessories**  
Page 204



# ABSOLUTE Coolant Proof Caliper IP67



Functions	Series 500
ORIGIN (ABS-Zero)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●

### Specifications

Accuracy	≤ 200 mm : ±0,02 mm > 200 mm : ±0,03 mm (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 5 years under normal use
Display	LCD, Character Height 9 mm (150, 200 mm) 11 mm (300 mm)
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 150, 200mm range
050085-10	Depth Base Attachment for Caliper, 125mm width for 300mm Range

### Consumable spares

No.	Description
938882	Battery SR4A 1.5V



Beam 150 and 200 mm or 300 mm

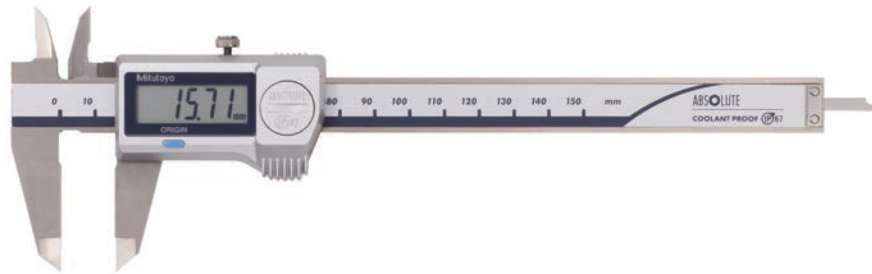


With Wireless System U-WAVE fit

### Series 500

This IP67 ABSOLUTE digimatic caliper allows reliable measurements in a wide range of situations and offers you the following benefits:

- Excellent resistance against water and dust (IP67 protection level) enabling use in machining situations that include splashing coolant fluid
- It is dustproof, complies with EN60529 and withstands temporary complete immersion in water without suffering any damage.
- Extraordinarily long battery life
- ABS (ABSOLUTE) scale requires no origin setting after power-on and has no limit to response speed.



500-706-20

### Metric

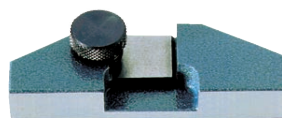
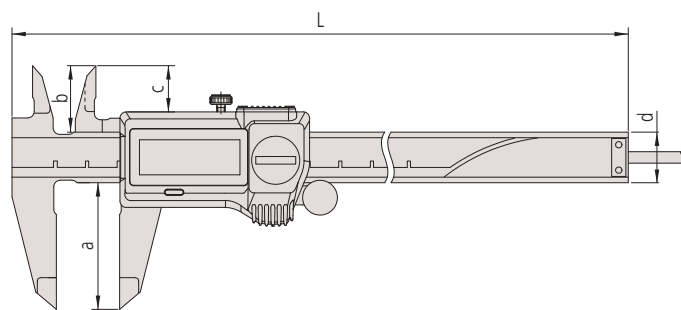
Without thumb roller

No.	Range [mm]	Depth bar	Data output	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-706-20	0-150	flat		233	40	21	16,5	16	164
500-709-20	0-150	∅ 1,9 mm		233	40	21	16,5	16	164
500-716-20	0-150	flat	●	233	40	21	16,5	16	164
500-707-20	0-200	flat		290	50	24,5	20	16	194
500-717-20	0-200	flat	●	290	50	24,5	20	16	194
500-708-20	0-300	flat		404	64	27,5	21,8	20	345
500-718-20	0-300	flat	●	404	64	27,5	21,8	20	345

### Metric

With thumb roller

No.	Range [mm]	Depth bar	Data output	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-702-20	0-150	flat		233	40	21	16,5	16	164
500-712-20	0-150	flat	●	233	40	21	16,5	16	164
500-719-20	0-150	∅ 1,9 mm	●	233	40	21	16,5	16	164
500-703-20	0-200	flat		290	50	24,5	20	16	194
500-713-20	0-200	flat	●	290	50	24,5	20	16	194
500-704-20	0-300	flat		404	64	27,5	21,8	20	345
500-714-20	0-300	flat	●	404	64	27,5	21,8	20	345



050083-10

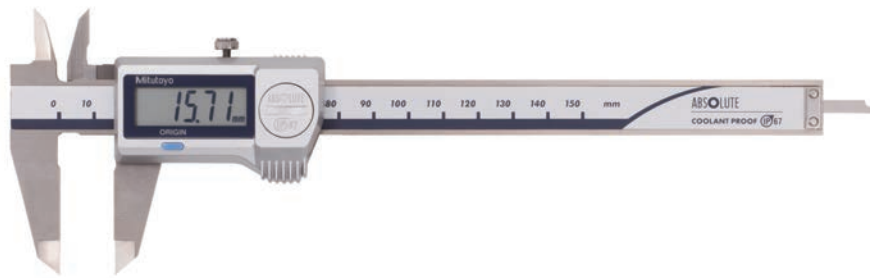
# ABSOLUTE Coolant Proof Caliper IP67 with Carbide Tipped Jaws

## Series 500

These robust calipers have carbide-tipped jaws and allow reliable measurements in a wide range of situations.

The ABSOLUTE Digimatic Carbide Caliper IP67 offers you the following benefits:

- Excellent resistance against water and dust (IP67 protection level) enabling use in machining situations that include splashing coolant fluid.
- Dustproof, complies with EN60529 withstands temporary complete immersion in water without suffering any damage
- Extraordinarily long battery life.



500-727-20

### Metric

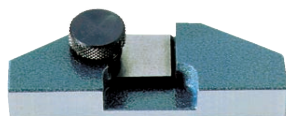
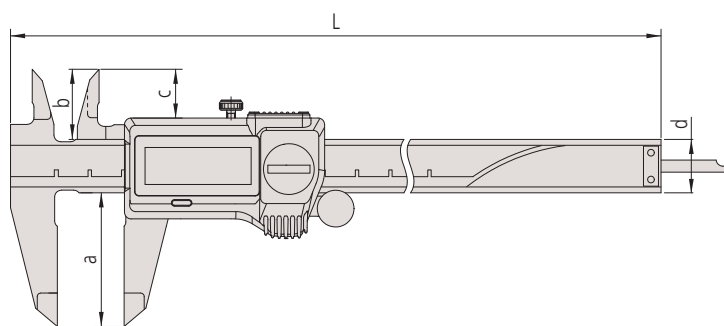
Carbide-tipped jaws for outside/inside measurement

No.	Range [mm]	Data output	Thumb roller	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-727-20	0-150	●		233	40	21	16,5	16	164
500-723-20	0-150	●	●	233	40	21	16,5	16	168
500-728-20	0-200	●		290	50	24,5	20	16	194
500-724-20	0-200	●	●	290	50	24,5	20	16	198

### Metric

Carbide-tipped jaws for outside measurement

No.	Range [mm]	Data output	Thumb roller	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-721-20	0-150	●	●	233	40	21	16,5	16	168
500-722-20	0-200	●	●	290	50	24,5	20	16	198



050083-10

Functions	Series 500
ORIGIN (ABS-Zero)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●

### Specifications

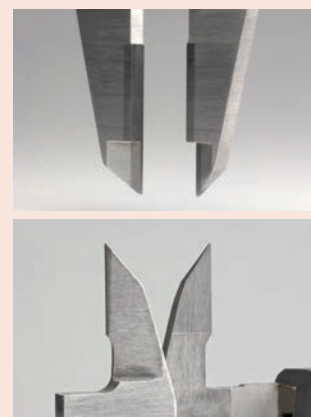
Accuracy	≤ 200 mm : ±0,02 mm > 200 mm : ±0,03 mm (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Depth bar	Flat
Battery life	appr. 5 years under normal use
Display	LCD, Character height 9 mm
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 100, 150, 200mm range
050085-10	Depth Base Attachment for Caliper, 125mm width for 300mm Range

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



Carbide-tipped jaws

# ABSOLUTE AOS Digimatic Caliper

ABSOLUTE®



Functions	Series 500
ORIGIN (ABS-Zero)	●
ZERO/ABS	●
ON/OFF	●
Low voltage alarm	●

## Specifications

Accuracy	≤ 200 mm : ±0,02 mm / > 200 mm : ±0,03 mm (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 18000 hours
Display	LCD, Character Height 9 mm (150, 200 mm) 11 mm (300 mm)
Delivered	In a case, including 1 battery

## Optional accessories

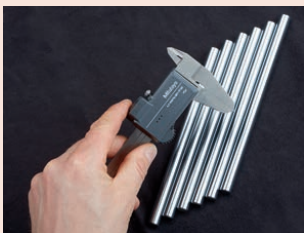
No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF300	Connection Unit, U-WAVE fit, Standard Type
959143	Data Hold Unit
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 150, 200mm range
050085-10	Depth Base Attachment for Caliper, 125mm width for 300mm Range

## Consumable spares

No.	Description
938882	Battery SR44 1.5V



Round depth bar type



Caliper with Wireless System U-WAVE fit



Scan QR Code with your mobile device and watch our product videos on YouTube

## Series 500

This digimatic caliper allows you to take reliable measurements and offers you the following benefits:

- AOS (Advanced Onsite Sensor) induction type encoder used in top-of-the-line ABS coolant-proof calipers
- Thanks to the adoption of the electromagnetic induction type ABS encoder, this caliper can be used without concern for contamination on the scale face during measurement. Detection signal is not affected by dirt (water, oil, etc.) on surface of a scale.
- The slider provides smooth, stable and comfortable operation.
- Character height: 9 mm (150 and 200 mm), 11 mm (300 mm)
- ABS (ABSOLUTE) scale requires no origin setting after power-on and has no limit to response speed.



500-181-30

## Metric

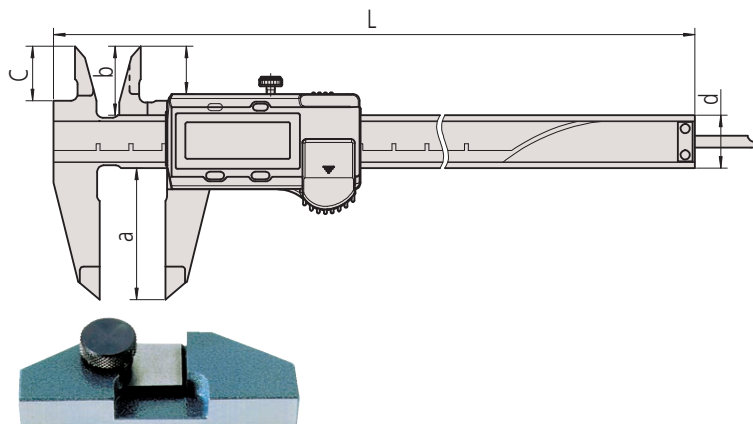
Without thumb roller

No.	Range [mm]	Depth bar	Data output	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-180-30	0-100	∅ 1,9 mm		182	40	21	16,5	16	142
500-201-30	0-100	∅ 1,9 mm	●	182	40	21	16,5	16	143
500-184-30	0-150	∅ 1,9 mm		233	40	21	16,5	16	164
500-203-30	0-150	∅ 1,9 mm	●	233	40	21	16,5	16	168
500-181-30	0-150	flat		233	40	21	16,5	16	164
500-161-30	0-150	flat	●	233	40	21	16,5	16	164
500-182-30	0-200	flat		290	50	24,5	20	16	194
500-162-30	0-200	flat	●	290	50	24,5	20	16	194
500-205-30	0-300	flat	●	404	64	27,5	22	20	350

## Metric

With thumb roller

No.	Range [mm]	Depth bar	Data output	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-150-30	0-100	∅ 1,9 mm	●	182	40	21	16,5	16	143
500-151-30	0-150	flat	●	233	40	21	16,5	16	164
500-158-30	0-150	∅ 1,9 mm	●	233	40	21	16,5	16	164
500-152-30	0-200	flat	●	290	50	24,5	20	16	194
500-153-30	0-300	flat	●	404	64	27,5	22	20	350



050083-10



# ABSOLUTE AOS Digimatic Caliper with Carbide Tipped Jaws

## Series 500

These Digimatic calipers have carbide-tipped jaws and allow you to take reliable measurements and offer you the following benefits:

- Thanks to the adoption of the electromagnetic induction type ABS encoder, this caliper can be used without concern for contamination on the scale face during measurement. Detection signal is not affected by dirt (water, oil, etc.) on surface of a scale.
- The slider provides smooth, stable and comfortable operation.
- Character height: 9 mm (alleviation of fatigue with the high-contrast LCD)
- The ABS (ABSOLUTE) scale requires no origin setting after power-on and also has no limit to response speed.
- Extraordinary battery life

ABSOLUTE®

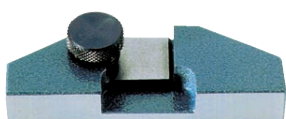
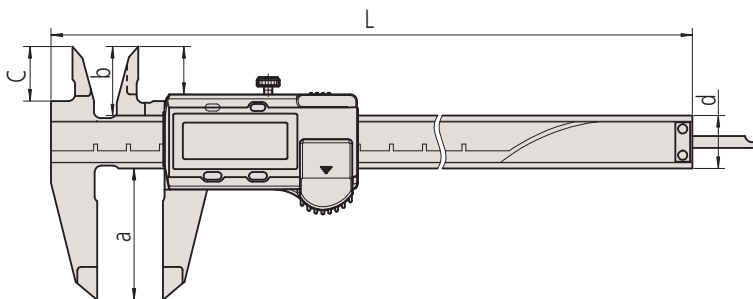


### Metric Carbide-tipped jaws for outside/inside measurement

No.	Range [mm]	Data output	Thumb roller	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-234-30	0-150	●		233	40	21	16,5	16	168
500-155-30	0-150	●	●	233	40	21	16,5	16	168
500-236-30	0-200	●		290	50	24,5	20	16	198
500-157-30	0-200	●	●	290	50	24,5	20	16	198

### Metric Carbide-tipped jaws for outside measurement

No.	Range [mm]	Data output	Thumb roller	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-233-30	0-150	●		233	40	21	16,5	16	168
500-154-30	0-150	●	●	233	40	21	16,5	16	168
500-235-30	0-200	●		290	50	24,5	20	16	198
500-156-30	0-200	●	●	290	50	24,5	20	16	198



050083-10

Functions	Series 500
ORIGIN (ABS-Zero)	●
ZERO/ABS	●
ON/OFF	●
Low voltage alarm	●
Depth bar	

### Specifications

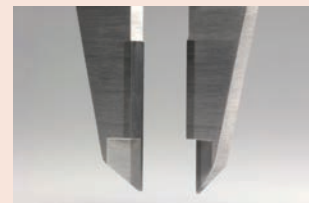
Accuracy	≤ 200 mm : ±0,02 mm > 200 mm : ±0,03 mm (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 18000 hours
Display	LCD, Character Height 9 mm
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF300	Connection Unit, U-WAVE fit, Standard Type
959143	Data Hold Unit
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 100, 150, 200mm range
050085-10	Depth Base Attachment for Caliper, 125mm width for 300mm Range


### Consumable spares

No.	Description
938882	Battery SR44 1.5V



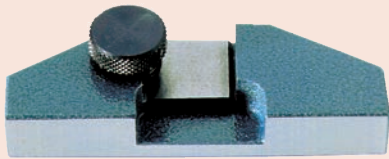
Carbide-tipped jaws

# ABSOLUTE Coolant Proof Solar Caliper IP67

<b>Functions</b>	<b>Series 500</b>
ORIGIN (ABS-Zero)	
<b>Specifications</b>	
Accuracy	±0,02 mm (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Power	Solar cell
Display	LCD, Character Height 7,5 mm
Delivered	In a case

**Optional accessories**

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790A	U-WAVE-T Connection Cable A, with Data Button IP Caliper Type, with Data Button IP Caliper Type
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 150, 200mm range



050083-10

**Series 500**



This IP67 solar-powered digimatic SuperCaliper with ABSOLUTE system is a robust, high performance model and offers you the following benefits:

- Waterproof reliability
- Impact resistance of the display unit for improved usability in workshop conditions
- It operates in only 60 lux ambient lighting.
- Even if the illumination is temporarily less than 60 lux measuring can be performed by charging a super capacitor.
- Excellent resistance against water and dust (IP67 protection level) enabling you to use it in machining situations that include splashing coolant fluid





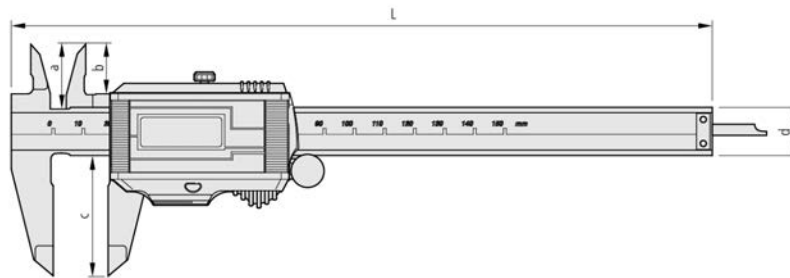
500-772

**Metric** Without thumb roller

No.	Range [mm]	Depth bar	Data output	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-772	0-150	flat		233	21	16,5	40	16	180
500-792	0-150	Ø 1,9 mm		233	21	16,5	40	16	180
500-778	0-150	flat		233	21	16,5	40	16	180
500-773	0-200	flat		290	24,5	20	50	16	210
500-779	0-200	flat		290	24,5	20	50	16	210

**Metric** With thumb roller

No.	Range [mm]	Depth bar	Data output	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-774	0-150	flat		233	21	16,5	40	16	180
500-776	0-150	flat		233	21	16,5	40	16	180
500-775	0-200	flat		290	24,5	20	50	16	210
500-777	0-200	flat		290	24,5	20	50	16	210



# ABSOLUTE Digimatic Solar Caliper

## Series 500

This ABSOLUTE digimatic solar caliper enables you to take reliable measurements and offers you the following benefits:

- You can operate it in just 60 lux ambient lighting.
- ABS (ABSOLUTE) scale requires no origin setting after power-on and has no limit to response speed.
- ABS (ABSOLUTE) scale requires no origin setting after power-on and has no limit to response speed.

ABSOLUTE®



Functions	Series 500
ORIGIN (ABS-Zero)	
Specifications	
Accuracy	±0,02 mm (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Power	Solar cell
Display	LCD, Character Height 7,5 mm
Delivered	In a case

### Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
959143	Data Hold Unit
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 100, 150, 200mm range



500-444



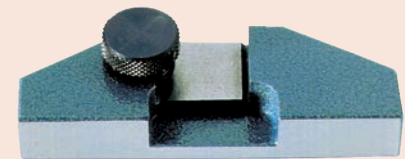
500-457

### Metric Without thumb roller

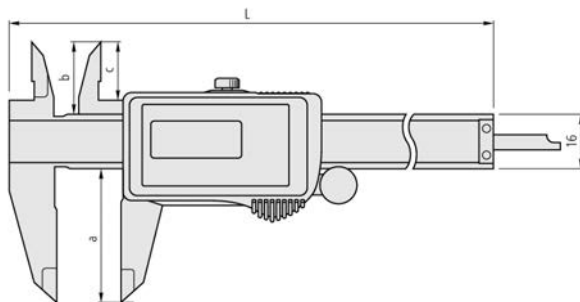
No.	Range [mm]	Depth bar	Data output	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
500-457	0-150	flat		233	40	21	16,5	150
500-458	0-200	flat		290	50	24	20	180

### Metric With thumb roller

No.	Range [mm]	Depth bar	Data output	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
500-453	0-100	Ø 1,9 mm		182	40	21	16,5	125
500-443	0-100	Ø 1,9 mm		182	40	21	16,5	145
500-454	0-150	flat		233	40	21	16,5	150
500-444	0-150	flat		233	40	21	16,5	170
500-455	0-200	flat		290	50	24	20	180
500-445	0-200	flat		290	50	24	20	200



050083-10



# ABSOLUTE Digimatic Caliper for Long Range

ABSOLUTE®

Functions	Series 500
ORIGIN (ABS-Zero)	●
ZERO/ABS	●
ON/OFF	●
Low voltage alarm	●
Data output	●

### Specifications

Accuracy	≤ 600 mm : ±0,05 mm ≤ 1000 mm : ±0,07 mm (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 20000 hours
Display	LCD, Character Height 10 mm
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790C	U-WAVE-T Connection Cable C, Straight, with Data Button
959143	Data Hold Unit

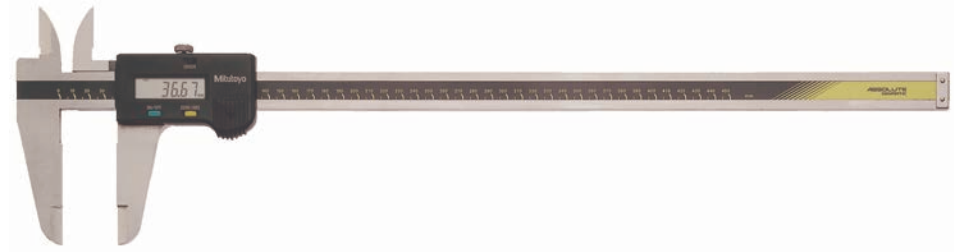
### Consumable spares

No.	Description
938882	Battery SR44 1.5V

### Series 500

This digimatic caliper allows you to take reliable measurements and offers you the following benefits:

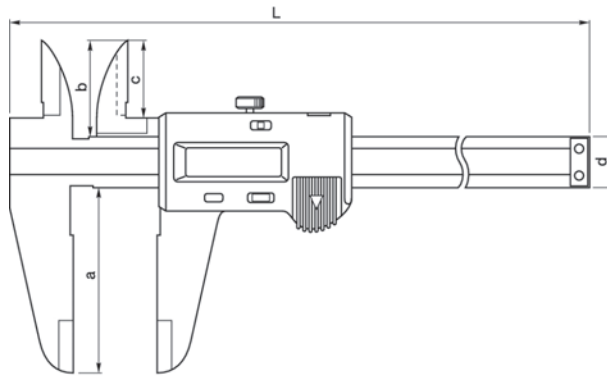
- It has a robust design (6 x 25 mm beam) for large measuring ranges.
- ABSOLUTE System delivers reliable measurements.
- The slider provides smooth, stable and comfortable operation.
- Character height: 10 mm



500-500-10

### Metric

No.	Range [mm]	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
500-500-10	0-450	630	90	47	38	25	1170
500-501-10	0-600	780	90	47	38	25	1350
500-502-10	0-1000	1240	130	61	50	32	3300



# ABSOLUTE Digimatic Caliper with Nib Style Jaws

## Series 550

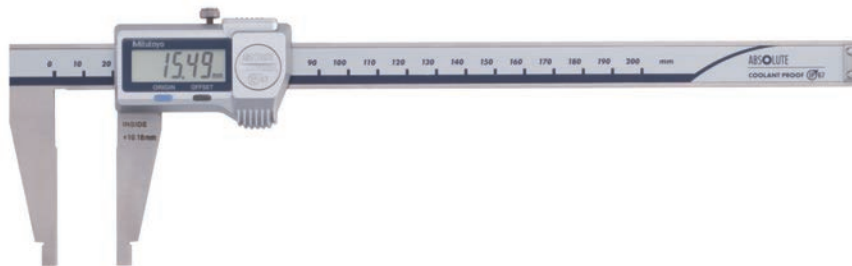
This is a Digimatic caliper with nib-style jaws that lets you measure inside dimensions.

It offers you the following benefits:

- Rounded measuring surfaces enable you to measure inside dimensions.
- ABSOLUTE System delivers reliable measurements.



200/300 mm



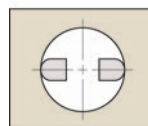
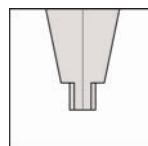
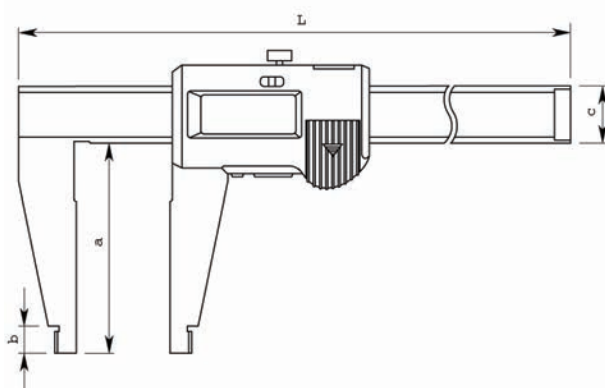
550-301-20

### Metric IP67 model

No.	Range [mm]	Remarks	Accuracy [mm]	Inside measuring from	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
550-301-20	0-200	IP67	±0,03	10,1 mm	290	60	8	16	180
550-331-10	0-300	IP67	±0,04	10,1 mm	403	75	12	20	380

### Metric Non IP67 model

No.	Range [mm]	Accuracy [mm]	Inside measuring from	L [mm]	a [mm]	b [mm]	c [mm]	Mass [g]
550-203-10	0-450	±0,05	20,1 mm	630	100	18	25	1110
550-205-10	0-600	±0,05	20,1 mm	780	100	18	25	1290
550-207-10	0-1000	±0,07	20,1 mm	1240	140	24	32	3350



Round surfaces of jaws for measuring inside dimensions



With Wireless System U-WAVE fit (0-200 mm and 0-300 mm only)

Functions	Series 550			
	550-203-10	up to 550-207-10	550-301-20	550-331-10
ORIGIN (ABS-Zero)	●	●	●	●
OFFSET*	●	●	●	●
ON/OFF	●	●	●	●
Auto Power OFF after 20 min. non use	●	●	●	●
Low voltage alarm	●	●	●	●
Data output	●	●	●	●
PRESET	●	●	●	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 5 years (200 mm), 1 year (300 mm), 3,5 years (>300 mm)
Display	LCD, Character Height 9 mm (200 mm) 10,2 mm (300 mm) 10 mm (>300 mm)
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790C	U-WAVE-T Connection Cable C, Straight, with Data Button
959143	Data Hold Unit

### Optional accessories for IP67

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V

\*10 mm



# ABSOLUTE Digimatic Caliper with Nib Style and Standard Jaws



200/300 mm



## Series 551

This is a Digimatic caliper with nib-style and standard jaws. It offers you the following benefits:

- Knife-shaped measuring surfaces allow you to take outside measurements.
- Rounded measuring surfaces enable you to measure inside dimensions.
- ABSOLUTE System delivers reliable measurements.

Series 551				
	551-204-10	551-207-10	551-301-20	551-331-10
<b>Functions</b>				
ORIGIN (ABS-Zero)	●	●	●	●
OFFSET* ON/OFF		●	●	●
Auto Power OFF after 20 min. non use			●	●
Low voltage alarm	●	●	●	●
Data output PRESET	●	●	●	●

## Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 5 years (200 mm), 1 years (300 mm), 3,5 year (>300 mm)
Display	LCD; Character Height 9 mm (200 mm) 10,2 mm (300 mm) 10 mm (>300 mm)
Delivered	In a case, including 1 battery

## Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790C	U-WAVE-T Connection Cable C, Straight, with Data Button
959143	Data Hold Unit

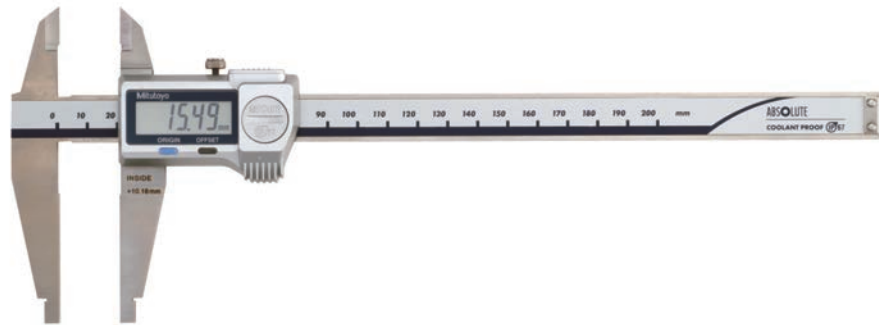
## Optional accessories for IP67

No.	Description
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V

\*10 mm



551-301-20

## Metric

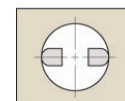
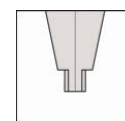
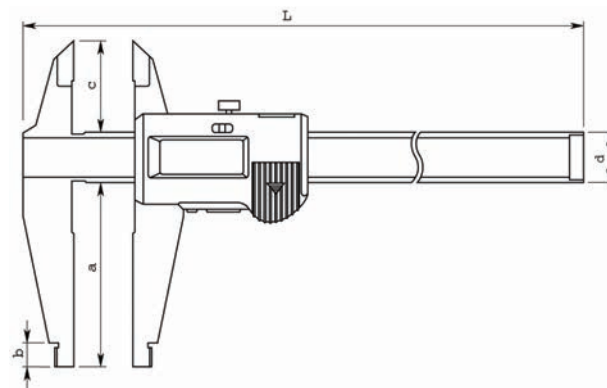
IP67 model

No.	Range [mm]	Inside measuring from	Remarks	Accuracy [mm]	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
551-301-20	0-200	10,1 mm	IP67	±0,03	290	60	8	30	16	190
551-331-10	0-300	10,1 mm	IP67	±0,04	403	90	10	40	20	420

## Metric

Non IP67 model

No.	Range [mm]	Inside measuring from	Accuracy [mm]	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
551-204-10	0-500	20,1 mm	±0,06	680	150	18	56	25	1060
551-206-10	0-750	20,1 mm	±0,06	963	150	18	56	25	1410
551-207-10	0-1000	20,1 mm	±0,07	1230	150	20	56	32	3430



Round surface of jaws for measuring inside dimensions



With Wireless System U-WAVE fit (0-200 mm and 0-300 mm only)

# ABSOLUTE Digimatic Carbon Fibre Caliper IP66

## Series 552

This is a lightweight standard model of Digimatic caliper with steel jaws.

It offers you the following benefits:

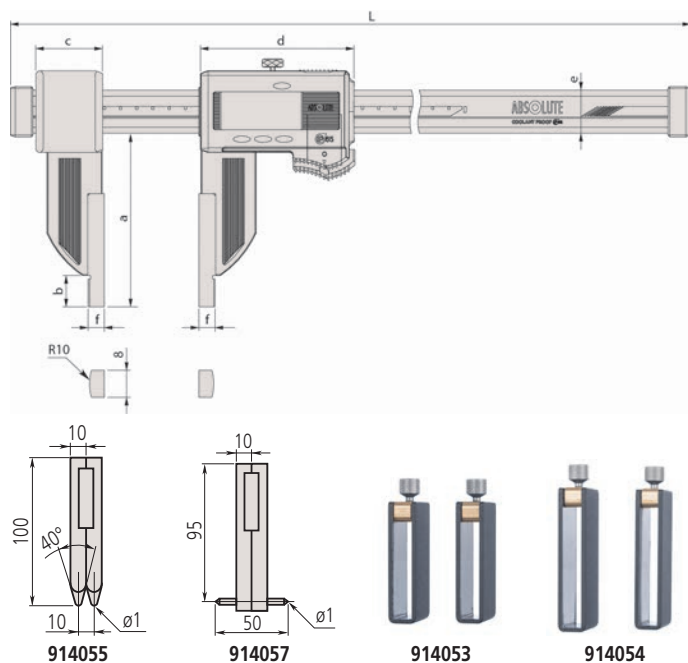
- Its ultra-lightweight design (with carbon fibre reinforced material) reduces total weight by up to 50%.
- It has excellent resistance against water and dust (IP66 protection level) enabling you to use it in machining situations that include splashing coolant fluid.
- Direct readout of inside measurements from the LCD (you can easily set the offset value by using the offset button).
- Preset function lets you set a desired starting point.



552-304-10

### Metric

No.	Range [mm]	Accuracy [mm]	Inside measuring from	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	Mass [g]
552-302-10	0-450	±0,04	20,1 mm	640	100	18	41,2	91,8	25	10	715
552-303-10	0-600	±0,04	20,1 mm	790	100	18	41,2	91,8	25	10	790
552-304-10	0-1000	±0,05	20,1 mm	1230	150	24	62,8	113,8	32	10	1760
552-305-10	0-1500	±0,09	20,1 mm	1740	150	24	62,8	113,8	32	10	2160
552-306-10	0-2000	±0,12	20,1 mm	2250	150	24	62,8	113,8	32	10	2560



Functions	Series 552
ORIGIN (ABS-Zero)	●
OFFSET*	●
DATA/HOLD	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●
PRESET	●

### Specifications

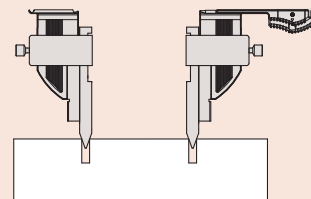
Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 5000 hours
Display	LCD, Character Height 10 mm
Delivered	In a case, including 1 battery

### Optional accessories

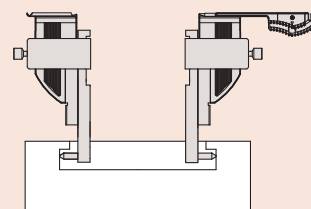
No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790A	U-WAVE-T Connection Cable A, with Data Button IP Caliper Type, with Data Button IP Caliper Type
914055	Center to Center Jaws Series 552, 2 pcs., (≥10,1mm) Metric
914057	Inside Groove Jaws Series 552, 2 pcs., Metric
914053	Holders (Clamps) Series 552, 2 pcs., 450 and 600mm Range
914054	Holders (Clamps) Series 552, 2 pcs., >600mm Range

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



hole center to center



inside groove diameter  
\* 20mm

# ABSOLUTE Digimatic Carbon Fibre Caliper IP66 with Ceramic Jaws



Functions	Series 552
ORIGIN (ABS-Zero)	●
OFFSET*	●
DATA/HOLD	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●
PRESET	●

## Specifications

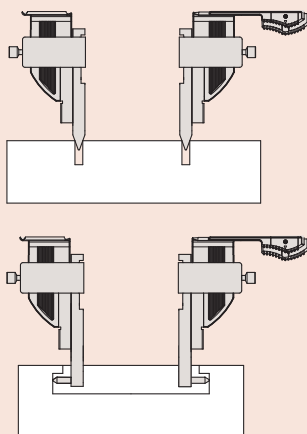
Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 5000 hours
Display	LCD, Character Height 10 mm
Delivered	In a case, including 1 battery

## Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790A	U-WAVE-T Connection Cable A, with Data Button IP Caliper Type, with Data Button IP Caliper Type
914055	Center to Center Jaws Series 552, 2 pcs., (≥10,1mm) Metric
914057	Inside Groove Jaws Series 552, 2 pcs., Metric
914053	Holder (Clamps) Series 552, 2 pcs., 450 and 600mm Range

## Consumable spares

No.	Description
938882	Battery SR44 1.5V



\* 20mm

## Series 552

This is a lightweight standard model of Digimatic caliper with ceramic jaws.

It offers you the following benefits:

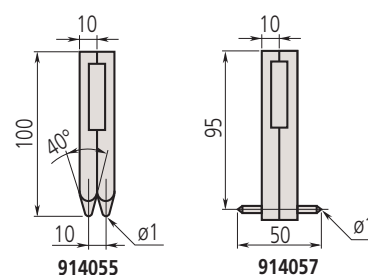
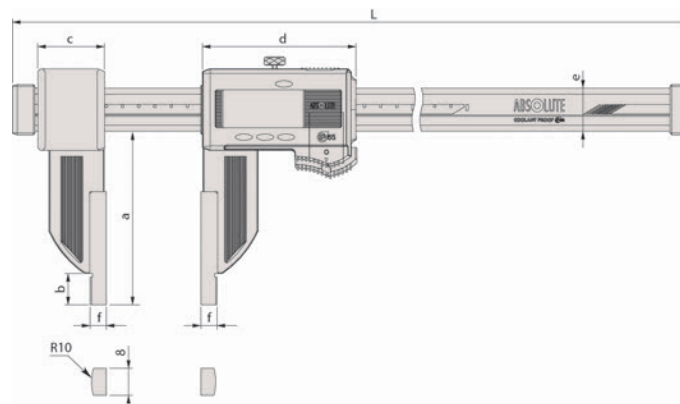
- Its ultra-lightweight design (with carbon fibre reinforced material) reduces total weight by up to 50%.
- It has excellent resistance against water and dust (IP66 protection level) enabling you to use it in machining situations that include splashing coolant fluid.
- Direct readout of inside measurements from the LCD (you can easily set the offset value by using the offset button).
- Preset function lets you set a desired starting point.



552-156-10

## Metric

No.	Range [mm]	Accuracy [mm]	Inside measuring from	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	Mass [g]
552-155-10	0-450	±0,04	20,1 mm	640	100	18	41,2	91,8	25	10	715
552-156-10	0-600	±0,04	20,1 mm	790	100	18	41,2	91,8	25	10	790



914053

# ABSOLUTE Digimatic Carbon Fibre Caliper IP66 with Extra Long Jaws

## Series 552

This is a lightweight standard model of Digimatic caliper with extra-long jaws.

It offers you the following benefits:

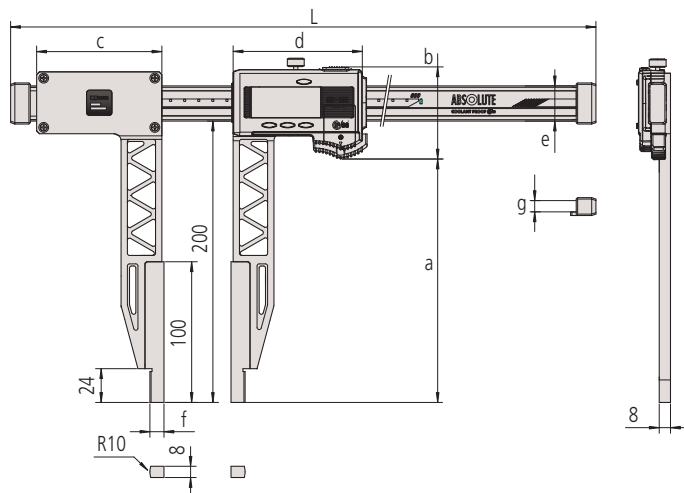
- Its ultra-lightweight design (with carbon fibre reinforced material) reduces total weight by up to 50%.
- It has excellent resistance against water and dust (IP66 protection level) enabling you to use it in machining situations that include splashing coolant fluid.
- Direct readout of inside measurements from the LCD (you can easily set the offset value by using the offset button).
- Preset function lets you set a desired starting point.



552-151-10

## Metric

No.	Range [mm]	Accuracy [mm]	Inside measuring from	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	g [mm]	Mass [g]
552-150-10	0-450	±0,06	20,1 mm	680	173	65,5	89	91,8	25	10	8	1215
552-151-10	0-600	±0,06	20,1 mm	830	173	65,5	89	91,8	25	10	8	1290
552-152-10	0-1000	±0,07	20,1 mm	1280	170,5	73	110	113,8	32	10	12	2090
552-153-10	0-1500	±0,11	20,1 mm	1790	170,5	73	110	113,8	32	10	12	2490
552-154-10	0-2000	±0,14	20,1 mm	2300	170,5	73	110	113,8	32	10	12	2890



Functions	Series 552
ORIGIN (ABS-Zero)	●
OFFSET*	●
DATA/HOLD	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●
PRESET	●

## Specifications

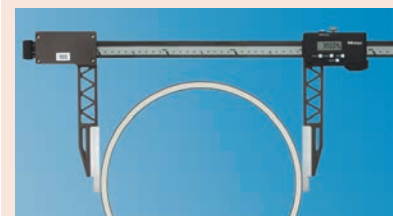
Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 5000 hours
Display	LCD, Character Height 10 mm
Delivered	In a case, including 1 battery

## Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
02AZD790A	U-WAVE-T Connection Cable A, with Data Button IP Caliper Type, with Data Button IP Caliper Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter

## Consumable spares

No.	Description
938882	Battery SR44 1.5V



*	metric
≤ 600mm	20mm
≤ 1000mm	20mm

# ABSOLUTE Digimatic Carbon Fibre Caliper IP66 for Interchangeable Jaws/ Scriber



Functions	Series 552
ORIGIN (ABS-Zero)	●
OFFSET	●
DATA/HOLD	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●
PRESET	●

## Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,01 mm
Max. response speed	Unlimited
Battery life	approx. 5000 hours
Display	LCD, Character Height 10 mm
Delivered	In a case, including 1 battery, scriber clamps (2pcs.)

## Standard accessories

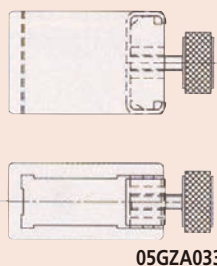
No.	Description
05GZA033	Scriber Clamp, 9x9mm

## Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790A	U-WAVE-T Connection Cable A, with Data Button IP Caliper Type, with Data Button IP Caliper Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V



05GZA033

## Series 552

This is a lightweight standard model of Digimatic caliper with optional interchangeable jaws.

It offers you the following benefits:

- Its ultra-lightweight design (with carbon fibre reinforced material) reduces total weight by up to 50%.
- It has excellent resistance against water and dust (IP66 protection level) enabling you to use it in machining situations that include splashing coolant fluid.
- Direct readout of inside measurements from the LCD (you can easily set the offset value by using the offset button).
- Preset function lets you set a desired starting point.



552-182-10  
with optional accessories 07CZA056

## Metric

No.	Range [mm]	Accuracy [mm]	Mass [g]
552-181-10	0-450	±0,04	650
552-182-10	0-600	±0,04	725
552-183-10	0-1000	±0,05	1480
552-184-10	0-1500	±0,09	1880
552-185-10	0-2000	±0,12	2280

Accuracy: without jaws

Standard contact point	Measuring range	0-450 mm / 0-18"	0-600 mm / 0-24"	0-1000 mm / 0-40"	0-1500 mm / 0-60"	0-2500 mm / 0-80"	
Inside Point type	Combination error	± 0,06 / ± 0.0025"	± 0,06 / ± 0.0025"	± 0,07 / ± 0.0030"	± 0,11 / ± 0.0045"	± 0,14 / ± 0.0055"	
	Measuring range (mm)	IN	50-500 mm	50-650 mm	50-1050 mm	50-1550 mm	50-2550 mm
		OUT	0-450 mm	0-600 mm	0-1000 mm	0-1500 mm	0-2500 mm
	Measuring range (in)	IN	50,8-500,8 mm / 2-20"	50,8-650,8 mm / 2-26"	50,8-1050,8 mm / 2-42"	50,8-1550,8 mm / 2-62"	50,8-2550,8 mm / 2-82"
OUT		0-450 mm / 0-18"	0-600 mm / 0-24"	0-1000 mm / 0-40"	0-1500 mm / 0-60"	0-2500 mm / 0-80"	
Centerline type	Combination error	± 0,09 mm / ± 0.0035"	± 0,09 mm / ± 0.0035"	± 0,10 mm / ± 0.0040"	± 0,14 mm / ± 0.0055"	± 0,17 mm / ± 0.0070"	
	Measuring range (mm)	30-480 mm	30-630 mm	30-1030 mm	30-1530 mm	30-2030 mm	
	Measuring range (in)	30,48-480,8 mm / 1,2-19,2"	30,48-630,48 mm / 1,2-25,2"	30,48-1030,48 mm / 1,2-41,2"	30,48-1530,48 mm / 1,2-61,2"	30,48-2030,48 mm / 1,2-81,2"	
Scriber type	Combination error	± 0,08 mm / ± 0.0030"	± 0,08 mm / ± 0.0030"	± 0,09 mm / ± 0.0035"	± 0,13 mm / ± 0.0055"	± 0,16 mm / ± 0.0065"	
	Measuring range (mm)	30-480 mm	30-630 mm	30-1030 mm	30-1530 mm	30-2030 mm	
	Measuring range (in)	30,48-480,8 mm / 1,2-19,2"	30,48-630,48 mm / 1,2-25,2"	30,48-1030,48 mm / 1,2-41,2"	30,48-1530,48 mm / 1,2-61,2"	30,48-2030,48 mm / 1,2-81,2"	
Surface Plate type + Scriber	Combination error	± 0,10 / ± 0.0040"	± 0,10 / ± 0.0040"	± 0,11 / ± 0.0045"	± 0,15 / ± 0.0060"	± 0,18 / ± 0.0070"	
	Measuring range	0-450 mm / 0-17"	0-600 mm / 0-23.7"	0-1000 mm / 0-39.4"	0-1500 mm / 0-59.4"	0-2500 mm / 0-79.6"	
Surface Plate type + Inside Point type	Combination error	± 0,10 / ± 0.0040"	± 0,10 / ± 0.0040"	± 0,11 / ± 0.0045"	± 0,15 / ± 0.0060"	± 0,18 / ± 0.0070"	
	Measuring range (mm)	25-475 mm	25-625 mm	25-1025 mm	25-1525 mm	25-2025 mm	
		0-450 mm	0-600 mm	0-1000 mm	0-1500 mm	0-2000 mm	
	Measuring range (in)	25,4-475,4 mm / 1-19"	25,4-625,4 mm / 1-24"	25,4-1025,4 mm / 1-41"	25,4-1525,4 mm / 1-62"	25,4-2025,4 mm / 1-81"	
0-450 mm / 0-18"		0-600 mm / 0-24"	0-1000 mm / 0-40"	0-1500 mm / 0-60"	0-2000 mm / 0-80"		
Surface Plate type + Center Line type	Combination error	± 0,12 mm / ± 0.0025"	± 0,12 mm / ± 0.0050"	± 0,13 mm / ± 0.0055"	± 0,17 mm / ± 0.0070"	± 0,20 mm / ± 0.0080"	
	Measuring range (mm)	15-465 mm	15-615 mm	15-1015 mm	15-1515 mm	15-2015 mm	
	Measuring range (in)	15,254-465,24 mm / 0,6-18,6"	15,24-615,24 mm / 0,6-24,6"	15,24-1015,24 mm / 0,6-40,6"	15,24-1515,24 mm / 0,6-60,6"	15,24-2015,24 mm / 0,6-80,6"	
Combination error	± 0,11 mm / ± 0.0045"	± 0,11 mm / ± 0.0045"	± 0,12 mm / ± 0.0050"	± 0,16 mm / ± 0.0066"	± 0,19 mm / ± 0.0075"		

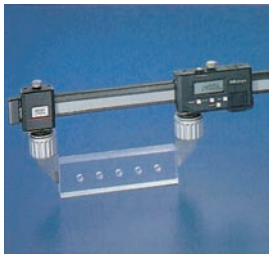
Accuracy with different Interchangeable Jaws



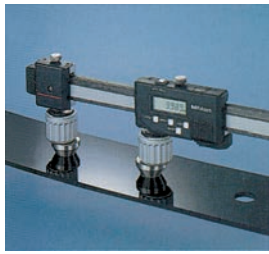
# ABSOLUTE Digimatic Carbon Fibre Caliper IP66 for Interchangeable Jaws/ Scriber

Series 552

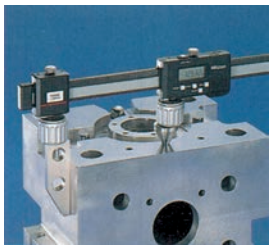
Interchangeable jaws (optional)



Standard type



Centreline type



Surface plate type



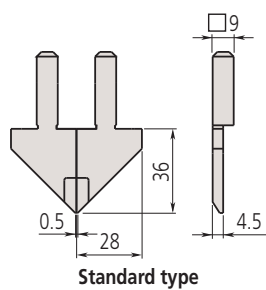
Inside point type



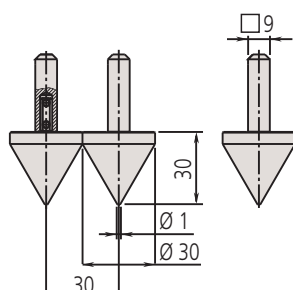
Scriber type

Metric

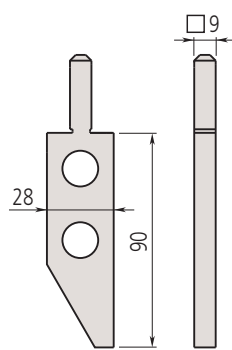
No.	Type	Mass [g]
07CZA056	Standard (pair)	90,6
07CZA057	Centreline (pair)	119,6
07CZA044	Surface plate (1 piece)	191,3
07CZA058	Inside point (pair)	98,8
07CZA055	Scriber (pair)	63,2
07GZA000.	Scriber for height gages	120



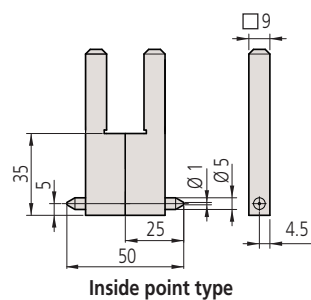
Standard type



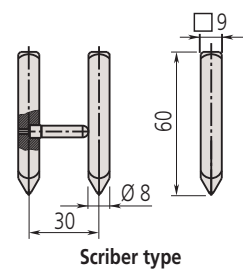
Centreline type



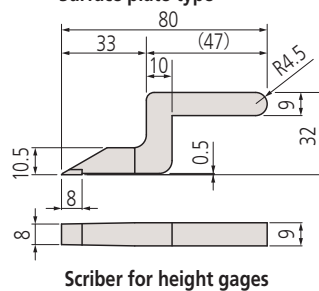
Surface plate type



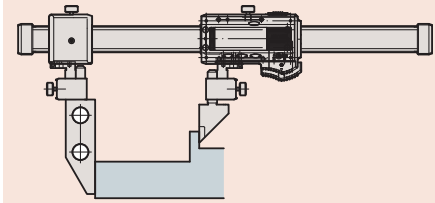
Inside point type



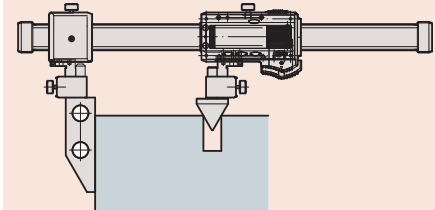
Scriber type



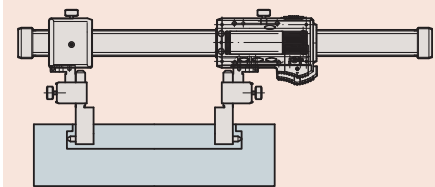
Scriber for height gages



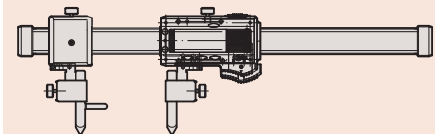
Surface plate type + Standard type



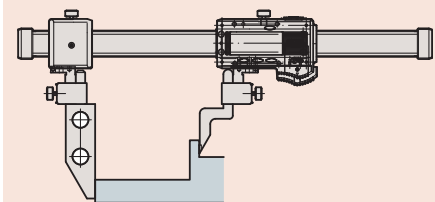
Surface plate type + Centerline type



Inside point type



Scriber type



Surface plate type + Scriber for height gages

# Vernier Caliper

## Series 530

This is a standard type of vernier caliper that offers you the following benefits:

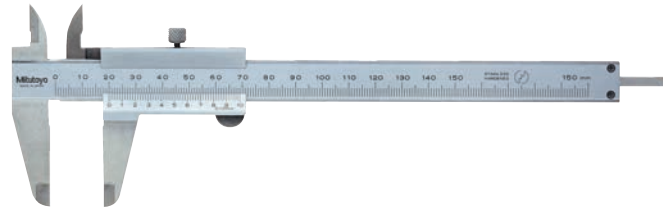
- Main scale and vernier scale satin chrome finish gives you high readability.
- Raised sliding surfaces

### Specifications

Accuracy	Refer to the list of specifications
Delivered	In a box

### Optional accessories

No.	Description
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 100, 150, 200mm range
050085-10	Depth Base Attachment for Caliper, 125mm width for 300mm Range



530-122

### Metric

Graduation 0,02 mm

No.	Range [mm]	Depth bar	Accuracy [mm]	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
530-122	0-150	flat	±0,03	229	40	21	17	16	143
530-123	0-200	flat	±0,03	288	50	24,5	20,5	16	180
530-124	0-300	flat	±0,04	404	64	27,5	22	20	355

### Metric

Graduation 0,05 mm

No.	Range [mm]	Depth bar	Accuracy [mm]	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
530-100	0-100	Ø 1,9 mm	±0,05	182	40	21,5	17	16	128
530-102	0-150	Ø 1,9 mm	±0,05	229	40	21	17	16	144
530-101	0-150	flat	±0,05	229	40	21	17	16	143
530-108	0-200	flat	±0,05	288	50	24,5	20,5	16	180
530-109	0-300	flat	±0,08	404	64	27,5	22	20	355
530-501	0-600	without	±0,1	780	90	47	38	25	1300
530-502	0-1000	without	±0,15	1240	130	60	50	32	3300

### Metric/Inch

Graduation 0,02 mm-1/1000"

No.	Range [inch]	Range [mm]	Accuracy	Depth bar	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
530-312	0-6	0-150	±0,03 mm/ 0,0015"	flat	229	40	21	17	16	143
530-118	0-8	0-200	±0,03 mm/ 0,0015"	flat	288	50	24,5	20,5	16	180
530-119	0-12	0-300	±0,04 mm/ 0,002"	flat	404	64	27,5	22	20	355

### Metric/Inch

Graduation 0,05 mm-1/128"

No.	Range [inch]	Range [mm]	Accuracy	Depth bar	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
530-104	0-6	0-150	±0,05 mm/ 0,002"	flat	229	40	21	17	16	143
530-316	0-6	0-150	±0,05 mm/ 0,002"	flat	229	40	21	17	16	145
530-114	0-8	0-200	±0,05 mm/ 0,002"	flat	288	50	24,5	20,5	16	180
530-115	0-12	0-300	±0,08 mm/ 0,003"	flat	404	64	27,5	22	20	355



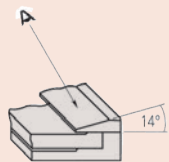
530-316

Clamping screw below the slider



530-104

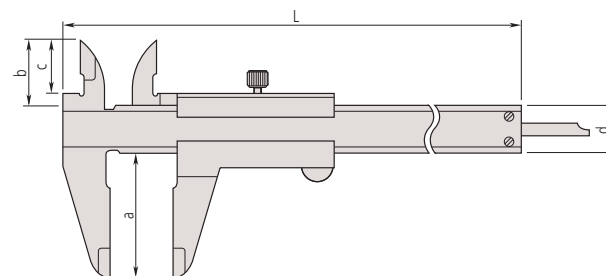
with metric/inch graduation



Easy reading due to vernier scales inclined by 14 degrees

Metr. ISO-Gew			
Nenn est. extr. φ mm	Stg. Passo Pas mm	Kern fond int. nucleo φ mm	Bohr trap meche broca φ mm
3	0,5	2,46	2,5
4	0,7	3,24	3,3
5	0,8	4,13	4,2
6	1	4,92	5
8	1,25	6,65	6,8
10	1,5	8,38	8,5
12	1,75	10,11	10,2
16	2	13,84	14
20	2,5	17,29	17,5
Whitworth			
φ in.	G9/in.	φ mm	φ mm
1/4	20	4,72	5,0
5/16	18	6,13	6,4
3/8	16	7,49	7,7
1/2	12	9,99	10,25
5/8	11	12,92	13,25
3/4	10	15,8	16,25
7/8	9	18,61	19
1	8	21,34	21,75
101995			

530-316 only

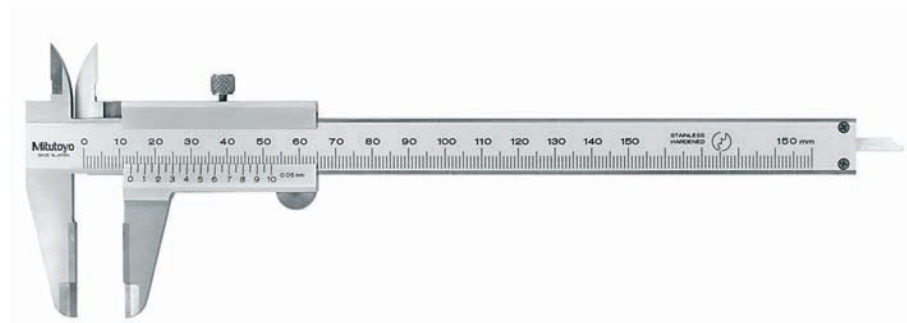


# Vernier Caliper with Carbide Tipped Jaws

## Series 530

This vernier caliper has carbide-tipped jaws and offers you the following benefits:

- Main scale and vernier scale satin chrome finish gives you high readability.
- Raised sliding surfaces.



530-320

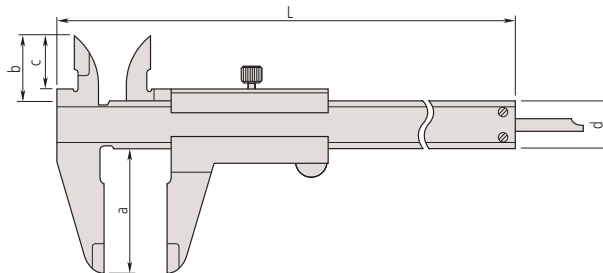
**Metric** Carbide-tipped jaws for outside/inside measurement

No.	Range [mm]	Accuracy	Depth bar	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
530-335	0-150	±0,05 mm	flat	229	40	21	17	16	145

**Metric** Carbide-tipped jaws for outside measurement

No.	Range [mm]	Accuracy	Depth bar	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
530-320	0-150	±0,05 mm	flat	229	40	21	17	16	145
530-321	0-200	±0,05 mm	flat	288	50	24,5	20,5	16	181
530-322	0-300	±0,08 mm	flat	404	64	27,5	22	20	355

Easy reading due to vernier scales inclined by 14 degrees

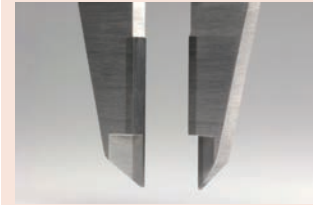


### Specifications

Graduation	0,05 mm
Accuracy	Refer to the list of specifications
Delivered	In a box

### Optional accessories

No.	Description
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 100, 150, 200mm range
050085-10	Depth Base Attachment for Caliper, 125mm width for 300mm Range



Carbide-tipped measuring surfaces

# Vernier Caliper with Thumb Clamp

## Series 531

This vernier caliper with thumb clamp only moves when you depress the spring-loaded thumb grip.



531-122

### Metric

No.	Range [mm]	Accuracy	Graduation	Depth bar	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
531-101	0-150	±0,05 mm	0,05 mm	flat	229	40	21,5	17	16	142
531-102	0-200	±0,05 mm	0,05 mm	flat	288	50	25	20,5	16	175
531-103	0-300	±0,08 mm	0,05 mm	flat	403	64	27,5	22	20	360

### Metric/Inch

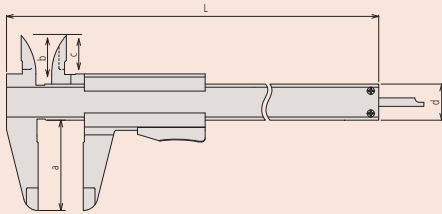
No.	Range [inch]	Range [mm]	Accuracy	Graduation	Depth bar	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
531-122	0-6	0-150	±0,05 mm/0,002"	0,05 mm-1/128"	flat	229	40	21,5	17	16	142
531-108	0-8	0-200	±0,05 mm/0,002"	0,05 mm-1/128"	flat	288	50	25	20,5	16	175
531-109	0-12	0-300	±0,08 mm/0,003"	0,05 mm-1/128"	flat	403	64	27,5	22	20	360

### Specifications

Accuracy	Refer to the list of specifications
Delivered	In a box

### Optional accessories

No.	Description
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 100, 150, 200mm range
050085-10	Depth Base Attachment for Caliper, 125mm width for 300mm Range

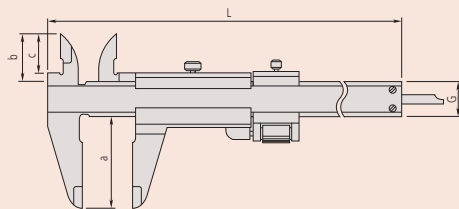


### Specifications

Graduation	0,02 mm
Accuracy	Refer to the list of specifications
Delivered	In a box

### Optional accessories

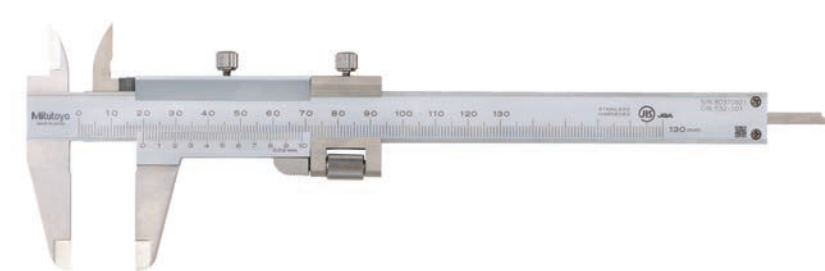
No.	Description
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 100, 150, 200mm range
050085-10	Depth Base Attachment for Caliper, 125mm width for 300mm Range



# Vernier Caliper with Fine Adjustment

## Series 532

This is a vernier Caliper with fine-adjustment to help you with slider positioning.



532-101

### Metric

No.	Range [mm]	Accuracy	Depth bar	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
532-101	0-130	±0,03 mm	flat	229	40	21,5	17	16	165
532-102	0-180	±0,03 mm	flat	288	50	25	20,5	16	202
532-103	0-280	±0,04 mm	flat	403	64	27,5	22	20	395

# Dial Caliper

## Series 505

This dial caliper allows you to take reliable measurements and offers you the following benefits:

- Ultra-smooth sliding and high shock protection
- Easy to read yellow dial with large character height

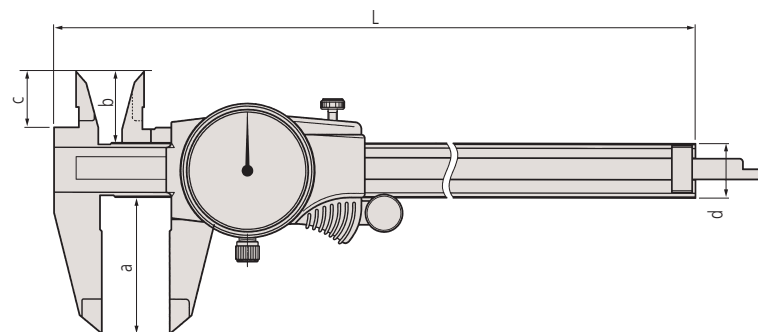


505-730



505-732

No.	Range [mm]	Graduation	Accuracy	Remarks	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
505-730	0-150	0,02 mm. 2 mm/rev	±0,03 mm		231	40	21	16,5	16	175
505-732	0-150	0,01 mm. 1 mm/rev	±0,02 mm		231	40	21	16,5	16	176
505-734	0-150	0,02 mm. 2 mm/rev	±0,03 mm	carbide tipped jaws for outside	231	40	21	16,5	16	175
505-735	0-150	0,02 mm. 2mm/rev	±0,03 mm	carbide tipped jaws for outside and inside	231	40	21	16,5	16	175
505-731	0-200	0,02 mm. 2 mm/rev	±0,03 mm		288	50	24,5	20	16	185
505-733	0-200	0,01 mm. 1 mm/rev	±0,03 mm		288	50	24,5	20	16	186
505-745	0-300	0,02 mm. 2 mm/rev	±0,04 mm		403	64	27,5	22	20	370

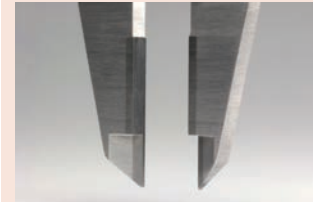


### Specifications

Accuracy	Refer to the list of specifications
Depth bar	flat
Delivered	In a case

### Optional accessories

No.	Description
050083-10	Depth Base Attachment for Caliper, 75mm width, for 100, 150, 200mm range
050084-10	Depth Base Attachment for Caliper, 100 mm width, for 100mm, 100, 150, 200mm range
050085-10	Depth Base Attachment for Caliper, 125mm width for 300mm Range



Carbide tipped jaws outside  
505-734



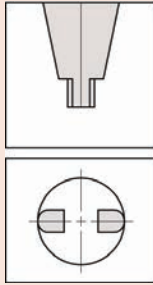
Carbide tipped jaws inside and outside  
505-735



# Vernier Caliper with Nib Style and Standard Jaws

## Specifications

Accuracy	Refer to the list of specifications
Delivered	In a box



Round surface of jaws for measuring inside dimensions

## Series 533

These vernier calipers with nib style and standard jaws let you take easy, metric measurements. They offer you the following benefits:

- You can read inside and outside measurements directly from the upper and lower vernier scales.
- Main scale and vernier scale satin chrome finish gives you high readability.



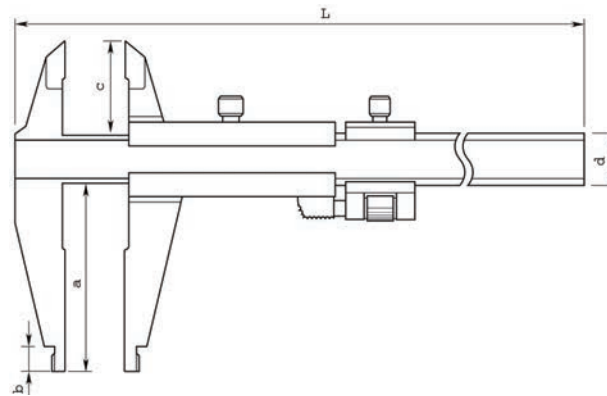
533-404  
Without fine adjustment

### Metric With fine adjustment

No.	Range [mm]	Accuracy	Graduation	Inside measuring from	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
533-504	0-500	±0,05 mm	0,02 mm	20,1 mm	680	150	15	56	25	1250
533-505	0-750	±0,07 mm	0,02 mm	20,1 mm	963	150	15	56	25	1550
533-506	0-1000	±0,08 mm	0,02 mm	20,1 mm	1230	150	20	56	32	3450

### Metric Without fine adjustment

No.	Range [mm]	Accuracy	Graduation	Inside measuring from	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
533-404	0-500	±0,1 mm	0,05 mm	20,1 mm	680	150	15	56	25	1200
533-405	0-750	±0,12 mm	0,05 mm	20,1 mm	963	150	15	56	25	1500
533-406	0-1000	±0,15 mm	0,05 mm	20,1 mm	1230	150	20	56	32	3300



# Vernier Caliper with Nib Style Jaws

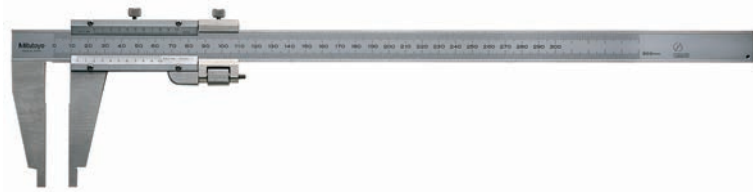
## Series 160

These vernier calipers with nib style jaws come with or without fine adjustment. They offer you the following benefits:

- The top offset vernier scale allows you to directly read the inside dimensions without having to add the jaw blade width.
- Main scale and vernier scale satin chrome finish gives you high readability.



160-101



160-127

### Metric With fine adjustment

No.	Range [mm]	Accuracy	Graduation	Inside measuring from
160-127	0-300	± 0,04 mm	0,02 mm	10,1 mm
160-128	0-450	±0,05 mm	0,02 mm	20,1 mm
160-101	0-600	±0,05 mm	0,02 mm	20,1 mm
160-104	0-1000	±0,07 mm	0,02 mm	20,1 mm
160-110	0-1500	±0,1 mm	0,02 mm	20,1 mm
160-113	0-2000	±0,12 mm	0,02 mm	20,1 mm

No.	L [mm]	R [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	Mass [g]
160-127	445	5	95	75	12	20	10	38	450
160-128	630	10	125	100	18	25	14,8	6	1200
160-101	780	10	125	100	18	25	14,8	6	1400
160-104	1240	10	172	140	24	32	17	10	3500
160-110	1800	10	212	180	30	32	19	10	4850
160-113	2300	10	220	180	30	40	23	12	10300

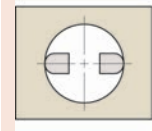
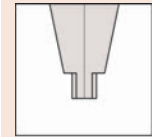
### Metric Without fine adjustment

No.	Range [mm]	Accuracy	Graduation	Inside measuring from
160-130	0-450	±0,1 mm	0,05 mm	20,1 mm
160-131	0-600	±0,1 mm	0,05 mm	20,1 mm
160-132	0-1000	±0,15 mm	0,05 mm	20,1 mm
160-133	0-1500	±0,22 mm	0,05 mm	20,1 mm
160-134	0-2000	±0,28 mm	0,05 mm	20,1 mm

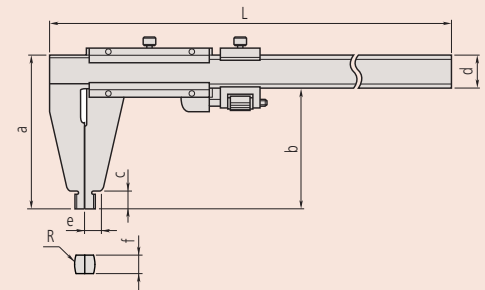
No.	L [mm]	R [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	Mass [g]
160-130	630	10	125	100	18	25	14,8	6	1100
160-131	780	10	125	100	18	25	14,8	6	1300
160-132	1240	10	172	140	24	32	17	10	3300
160-133	1800	10	212	180	30	32	19	10	4700
160-134	2300	10	220	180	30	40	23	12	9900

### Specifications

Accuracy	Refer to the list of specifications
Delivered	In a box



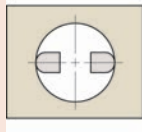
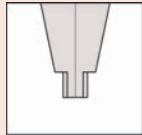
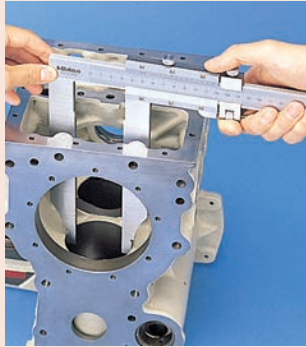
Rounded outside measuring surfaces for measuring inside dimensions



# Vernier Caliper with Long Jaws

## Specifications

Accuracy	Refer to the list of specifications
Delivered	In a box



Rounded outside measuring surfaces for measuring inside dimensions

## Series 534

These vernier calipers with long jaws come with or without fine adjustment and let you measure hard-to-reach features.

They offer you the following benefits:

- Long jaws enable you to measure hard-to-reach workpiece features.
- The top offset vernier scale allows you to directly read the inside dimensions without having to add the jaw blade width.



534-110

### Metric

With fine adjustment

No.	Range [mm]	Accuracy	Graduation	Inside measuring from
534-113	0-300	±0,04 mm	0,02 mm	10,1 mm
534-114	0-500	±0,06 mm	0,02 mm	20,1 mm
534-115	0-750	±0,08 mm	0,02 mm	20,1 mm
534-116	0-1000	±0,1 mm	0,02 mm	20,1 mm

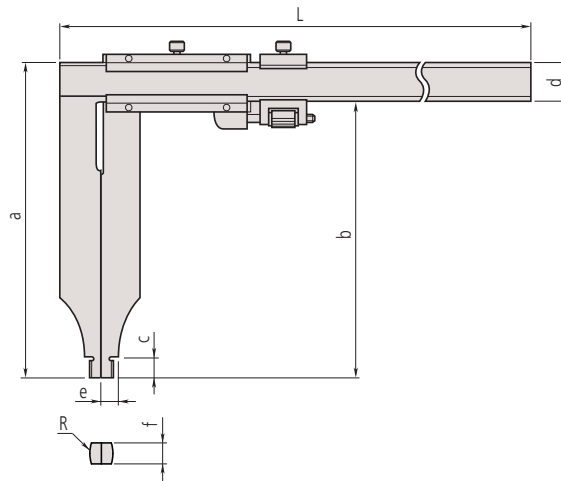
No.	L [mm]	R [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	Mass [g]
534-113	445	5	110	90	12	20	7	3,8	460
534-114	682	10	225	200	18,5	25	12	6	1500
534-115	995	10	232	200	18,5	32	12	8	2900
534-116	1230	10	232	200	18,5	32	12	8	3500

### Metric

Without fine adjustment

No.	Range [mm]	Accuracy	Graduation	Inside measuring from
534-109	0-300	±0,07 mm	0,05 mm	10,1 mm
534-110	0-500	±0,13 mm	0,05 mm	20,1 mm

No.	L [mm]	R [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	Mass [g]
534-109	445	5	110	90	12	20	7	3,8	400
534-110	682	10	225	200	18,5	25	12	6	1400



# ABSOLUTE Digimatic Caliper with Constant Measuring Force

## Series 573

These Digimatic calipers have a load cell and help you measure elastic workpieces. They offer you the following benefits:

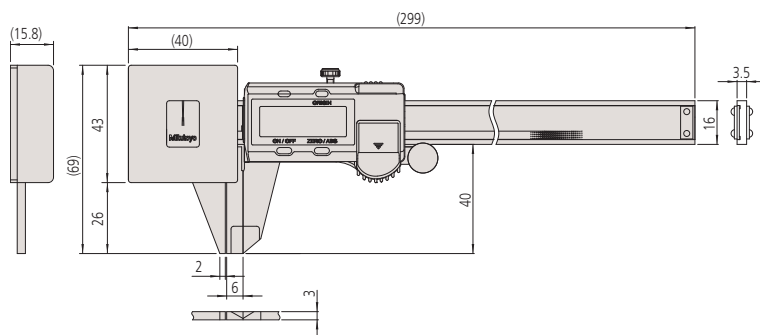
- Due to their low and constant measuring force these calipers are ideal for measuring elastic workpieces such as plastic and rubber parts that standard calipers cannot measure accurately.
- Now equipped with the same AOS (Advanced Onsite Sensor) induction type encoder used in top-of-the-line ABS coolant-proof calipers.
- Thanks to the adoption of the electromagnetic induction type ABS encoder, this caliper can be used without concern for contamination on the scale face during measurement. Detection signal is not affected by dirt (water, oil, etc.) on surface of a scale.
- Character height: 9 mm (alleviation of fatigue with the high-contrast LCD)
- The ABS (ABSOLUTE) scale requires no origin setting after power-on and also has no limit to response speed.
- Extraordinary battery life



573-191-30

### Metric

No.	Range [mm]	Accuracy	Mass [g]
573-191-30	0-180	±0,05 mm	253



## ABSOLUTE®

Functions	Series 573
ORIGIN (ABS-Zero)	●
ZERO/ABS	●
ON/OFF	●
Low voltage alarm	●
Data output	●

### Specifications

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Jaw retraction	0,3 mm
Max. response speed	Unlimited
Measuring force	0,5-1 N
Battery life	approx. 18000 hours
Display	LCD, Character Height 9 mm
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF300	Connection Unit, U-WAVE fit, Standard Type
959143	Data Hold Unit

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



A consistently low measuring force can be guaranteed by only taking measurements when the pointer is between the two fiducial lines.

# ABSOLUTE Digimatic Caliper for Tolerance Measurement

ABSOLUTE®

Functions	Series 573
ORIGIN (ABS-Zero)	●
ZERO/ABS	●
ON/OFF	●
Low voltage alarm	●
Data output	●

## Specifications

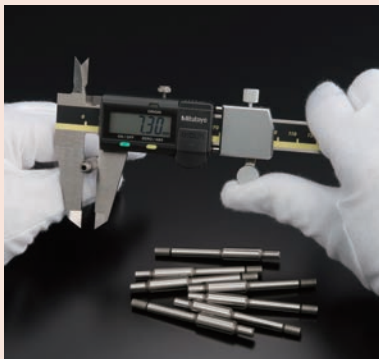
Digital step	0,01 mm
Accuracy	±0,02 mm (excluding quantizing error)
Jaw retraction	2 mm
Max. response speed	Unlimited
Measuring force	7-14 N
Battery life	approx. 18000 hours
Display	LCD, Character height 9 mm
Delivered	In a case, including 1 battery

## Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
959143	Data Hold Unit

## Consumable spares

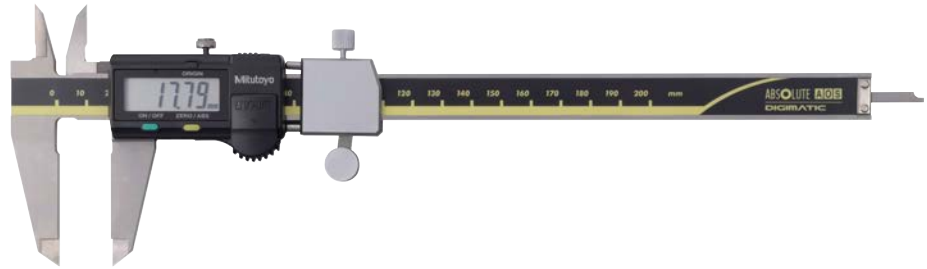
No.	Description
938882	Battery SR44 1.5V



## Series 573

The ABSOLUTE Digimatic snap caliper features a spring-loaded mechanism to allow quick and efficient GO/±NO-GO inspection for mass produced parts.

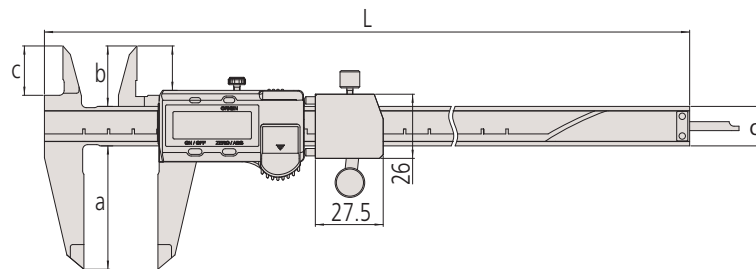
- Now equipped with the same AOS (Advanced Onsite Sensor) induction type encoder used in top-of-the-line ABS coolant-proof calipers.
- Thanks to the adoption of the electromagnetic induction type ABS encoder, this caliper can be used without concern for contamination on the scale face during measurement. Detection signal is not affected by dirt (water, oil, etc.) on surface of a scale.
- The slider provides smooth, stable and comfortable operation.
- Character height: 9 mm (alleviation of fatigue with the high-contrast LCD)
- The ABS (ABSOLUTE) scale requires no origin setting after power-on and also has no limit to response speed.
- Extraordinary battery life



573-182-30

## Metric

No.	Range [mm]	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
573-181-30	0-100	233	40	21	16,5	16	213
573-182-30	0-150	290	50	24,5	20	16	233





# Scribing Caliper with Carbide Tipped Jaws

## Series 573

These calipers are designed for scribing tasks. They offer you the following benefits:

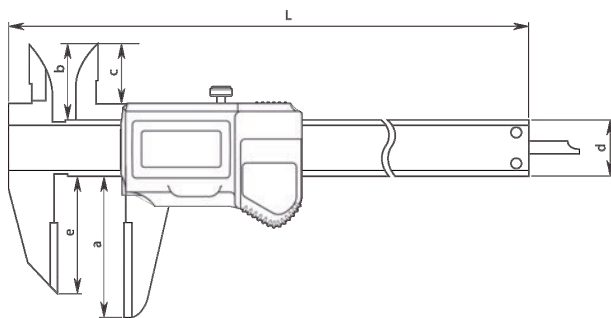
- Carbide-tipped jaws facilitate fine scribing on workpiece.
- With depth bar.



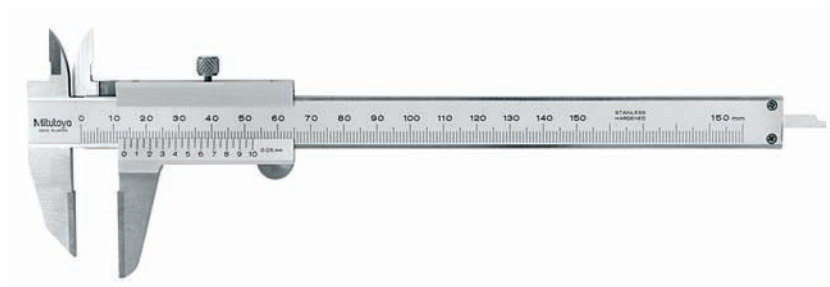
573-677-20

### Metric

No.	Range [mm]	Accuracy	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	Mass [g]
573-676-20	0-150	±0,02 mm	229	46	21,5	17	16	33	166
573-677-20	0-200	±0,02 mm	288	50	25	20,5	16	43	196
573-679	0-300	±0,03 mm	403	64	27,5	22	20	54	345



## Series 536



536-221

### Metric

No.	Range [mm]	Accuracy	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	Mass [g]
536-221	0-150	±0,05 mm	229	40	21,5	17	16	33	150
536-222	0-200	±0,05 mm	288	50	25	20,5	16	43	180
536-223	0-300	±0,08 mm	403	64	27,5	22	20	54	400

Functions	Series 573
ORIGIN (ABS-Zero)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●

### Specifications

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	approx. 5 years (150 mm, 200 mm) 5000 hours (300 mm)
Display	LCD, Character Height 9 mm (150, 200 mm) 10,2 mm (300 mm)
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

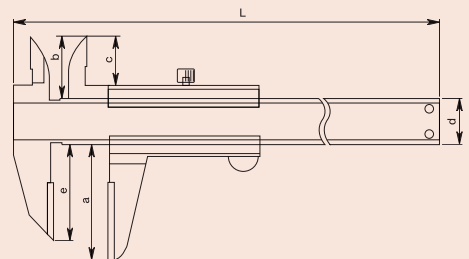
No.	Description
938882	Battery SR44 1.5V



### Sample application

### Specifications

Accuracy	Refer to the list of specifications
Graduation	0,05mm
Delivered	In a case





# Offset Caliper

## Series 573

These offset calipers enable you to measure stepped workpieces. They offer you the following benefits:

- You can adjust the beam-mounted jaw to facilitate measurement of stepped sections and hard-to-reach workpiece features.

Functions	Series 573
ORIGIN (ABS-Zero)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●

### Specifications

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	approx. 5 years (150 mm, 200 mm) 5000 hours (300 mm)
Display	LCD, Character Height 9 mm (150 mm, 200 mm) 10,2 mm (300 mm)
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



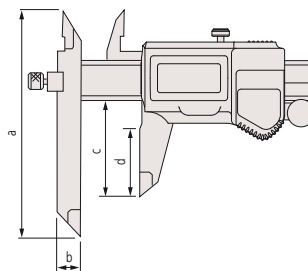
573-602-20

### Metric Without thumb roller

No.	Range [mm]	Accuracy	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
573-611-20	0-150	±0,02 mm	95	10	40	30	168
573-612-20	0-200	±0,02 mm	95	10	50	38,5	198
573-614	0-300	±0,03 mm	135	15	64	51	350

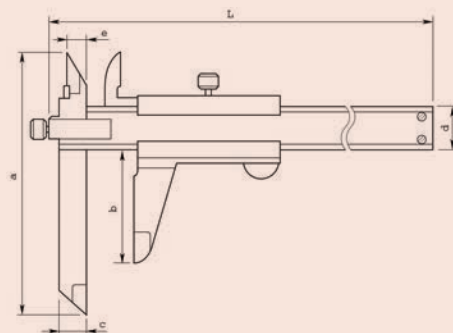
### Metric With thumb roller

No.	Range [mm]	Accuracy	a [mm]	b [mm]	c [mm]	d [mm]	Mass [g]
573-601-20	0-150	±0,02 mm	95	10	40	30	168
573-602-20	0-200	±0,02 mm	95	10	50	38,5	198
573-604	0-300	±0,03 mm	135	15	64	51	350

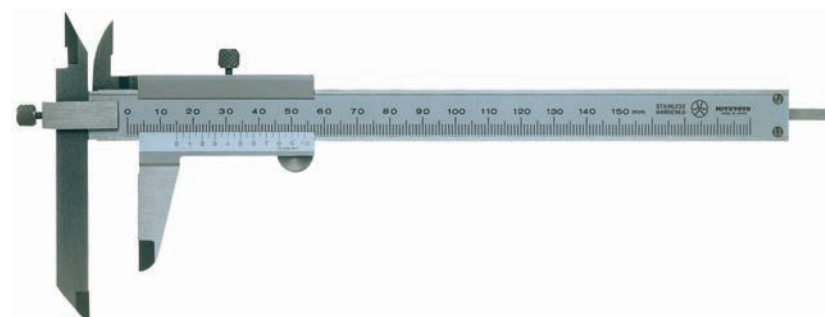


### Specifications

Accuracy	Refer to the list of specifications
Graduation	0,05 mm
Delivered	In a case



## Series 536



536-101

### Metric

No.	Range [mm]	Accuracy	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	Mass [g]
536-101	0-150	±0,05 mm	229	95	40	10	16	7,5	150
536-102	0-200	±0,05 mm	286	95	50	10	16	8,5	200
536-103	0-300	±0,08 mm	403	135	64	15	20	12	400

# Offset Centerline Caliper

## Series 573

These offset centreline calipers enable you to measure centre to centre distance.

They offer you the following benefits:

- Specially designed for hole centre-to-centre measurements in the same plane, or between offset planes.
- You can also measure from an edge to a hole centre.



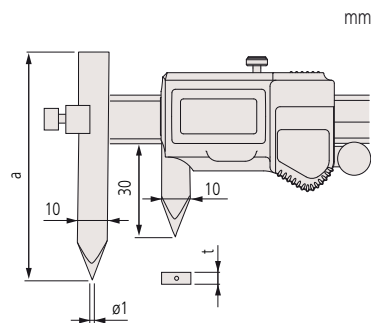
573-606-20

### Metric Without thumb roller

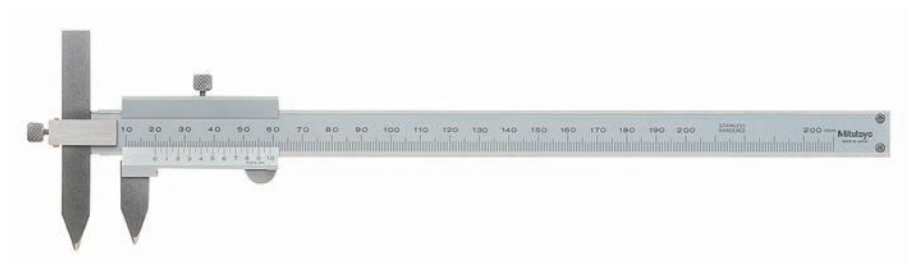
No.	Range [mm]	Accuracy	a [mm]	t [mm]	Mass [g]
573-615-20	10,1-160	±0,03 mm	75	3,5	157
573-616-20	10,1-210	±0,03 mm	75	3,5	177
573-618	10,1-310	±0,04 mm	100	3,8	320

### Metric With thumb roller

No.	Range [mm]	Accuracy	a [mm]	t [mm]	Mass [g]
573-605-20	10,1-160	±0,03 mm	75	3,5	157
573-606-20	10,1-210	±0,03 mm	75	3,5	177
573-608	10,1-310	±0,04 mm	100	3,8	320



## Series 536



536-106

### Metric

No.	Range [mm]	Accuracy	L [mm]	a [mm]	d [mm]	t [mm]	Mass [g]
536-105	10,1-150	±0,05 mm	229	75	16	3	140
536-106	10,1-200	±0,05 mm	282	75	16	3	160
536-107	10,1-300	±0,08 mm	383	100	20	3,8	320

Functions	Series 573
ORIGIN (ABS-Zero)	●
OFFSET*	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●
PRESET	●

### Specifications

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	approx. 5 years (150 mm , 200 mm) 5000 hours (300 mm)
Display	LCD, Character Height 9 mm (150 mm, 200 mm) 10,2 (300 mm)
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

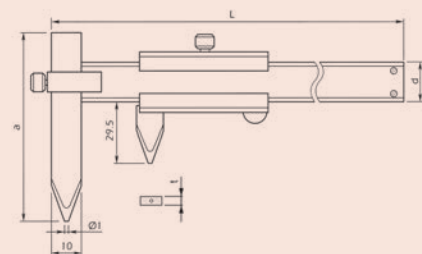
### Consumable spares

No.	Description
938882	Battery SR44 1.5V

\* 10 mm

### Specifications

Accuracy	Refer to the list of specifications
Graduation	0,05mm
Delivered	In a case



# Swivel Caliper

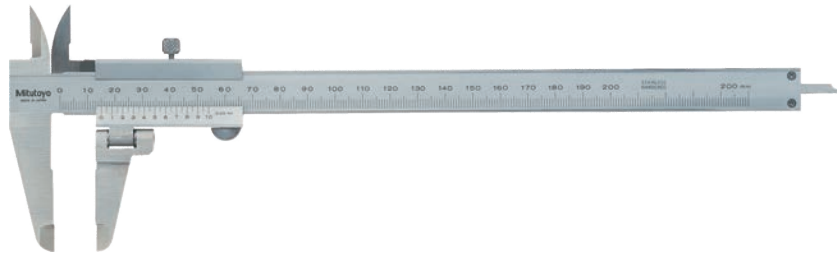
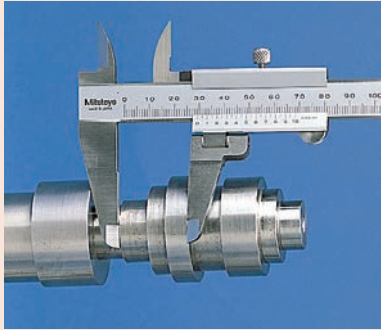
## Series 536

These vernier calipers have a swivelling jaw. They offer you the following benefits:

- You can rotate the moving jaw to measure sectioned shafts.
- With depth bar.

### Specifications

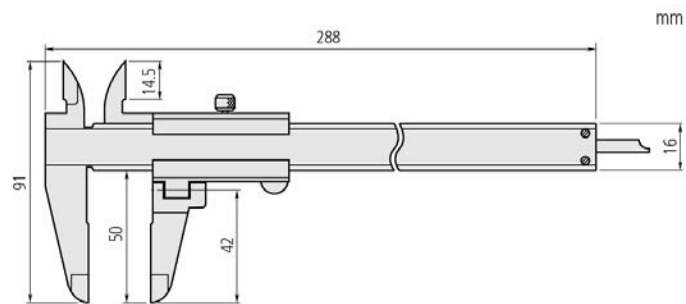
Accuracy	±0,05 mm
Graduation	0,05mm
Delivered	In a case



536-212

### Metric

No.	Range [mm]	Remarks	Mass [g]
536-212	0-200	Swivel range ±90°	190



# ABSOLUTE Digimatic Back-Jaw Centreline Caliper

## Series 573

These Digimatic back-jaw centreline calipers offer you the following benefits:

- Specially designed to allow you to measure hole centre-to-centre or edge-to-centre distances.
- You can read measurements more easily from above, thanks to the jaws being on the back of the slide.
- Direct reading of pitch measurements is also available due to the offset value setting function.

ABSOLUTE<sup>®</sup>

Functions	Series 573
ORIGIN (ABS-Zero)	●
ZERO/ABS	●
OFFSET*	●
ON/OFF	●
Low voltage alarm	●
Data output	●
PRESET	●

### Specifications

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	approx. 5000 hours
Display	LCD, Character Height 7 mm
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
02AZD790C	U-WAVE-T Connection Cable C, Straight, with Data Button
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



573-116-10  
Centre-to-centre type



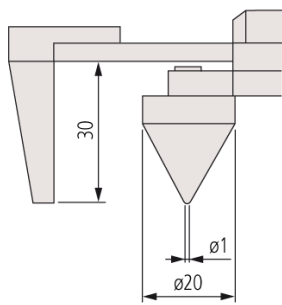
573-118-10  
Edge-to-centre type

### Metric Centre-to-centre type

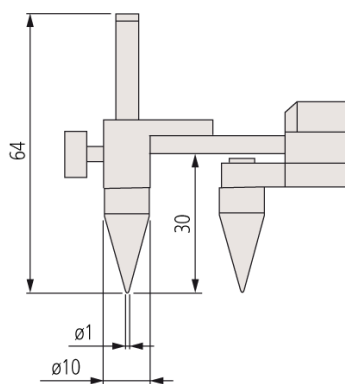
No.	Range [mm]	Accuracy	Mass [g]
573-116-10	10,1-200	±0,1 mm	485
573-117-10	10,1-300	±0,15 mm	580

### Metric Edge-to-centre type

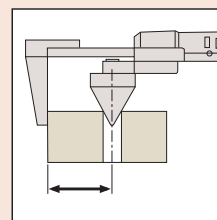
No.	Range [mm]	Accuracy	Mass [g]
573-118-10	10,1-200	±0,1 mm	490
573-119-10	10,1-300	±0,15 mm	585



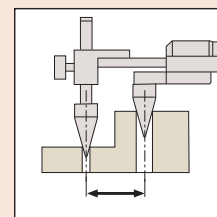
573-118-10  
573-119-10



573-116-10  
573-117-10



Edge-to-center type



Centre-to-centre type







# Point Caliper

Functions	Series 573
ORIGIN (ABS-Zero)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●

## Specifications

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	approx. 5 years
Display	LCD, Character Height 9 mm
Delivered	In a case, including 1 battery

## Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
02AZD790A	U-WAVE-T Connection Cable A, with Data Button IP Caliper Type, with Data Button IP Caliper Type
06ADV380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type

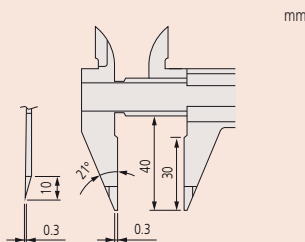
## Consumable spares

No.	Description
938882	Battery SR44 1.5V



## Specifications

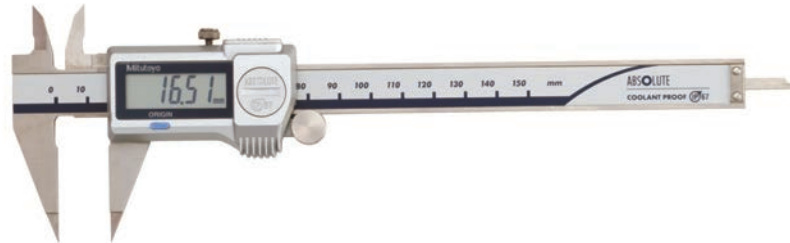
Accuracy	±0,05 mm
Graduation	0,05 mm
Delivered	In a case



## Series 573

These point calipers have extra fine ground measuring jaws. They offer you the following benefits:

- Narrow-tip jaws fit into very small grooves and tracks, making it much easier for you to obtain many previously difficult outside measurements.



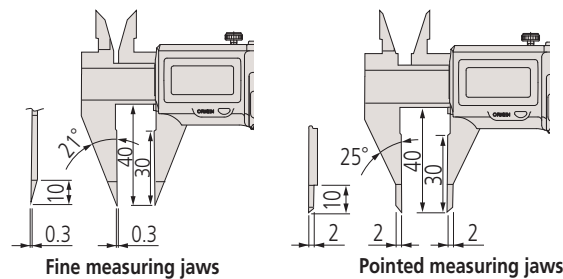
573-621-20  
Fine measuring jaws

## Metric Fine measuring jaws

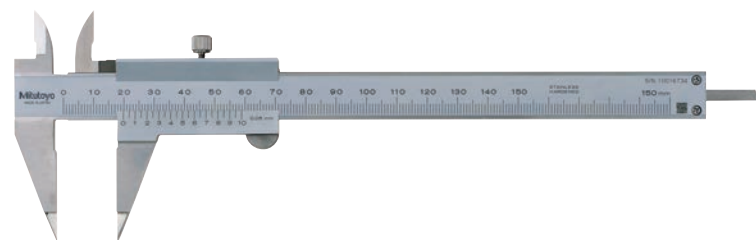
No.	Range [mm]	Accuracy	Thumb roller	Mass [g]
573-621-20	0-150	± 0,02 mm	●	163
573-622-20	0-150	± 0,02 mm		163

## Metric Pointed measuring jaws

No.	Range [mm]	Accuracy	Thumb roller	Mass [g]
573-625-20	0-150	± 0,02 mm	●	163
573-626-20	0-150	± 0,02 mm		163



## Series 536



536-121

## Metric

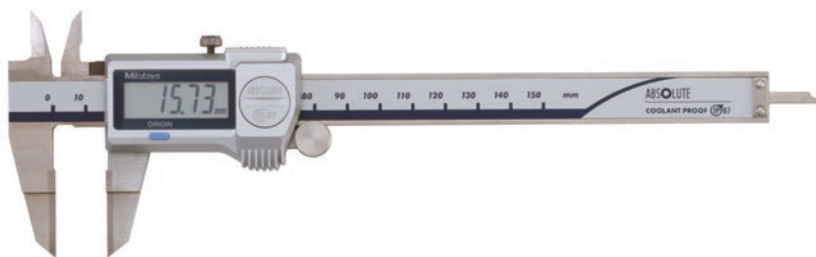
No.	Range [mm]	Mass [g]
536-121	0-150	150

# Blade Caliper

## Series 573

These blade calipers have thin measuring jaws. They offer you the following benefits:

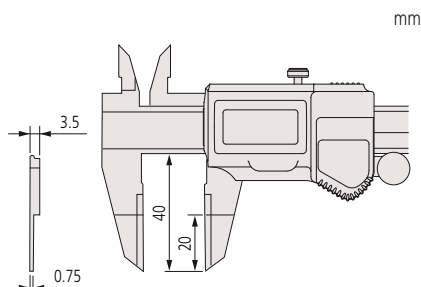
- The thin blade-type jaws fit into very small grooves making it much easier for you to obtain many previously difficult outside measurements.
- The outside measuring faces are carbide.



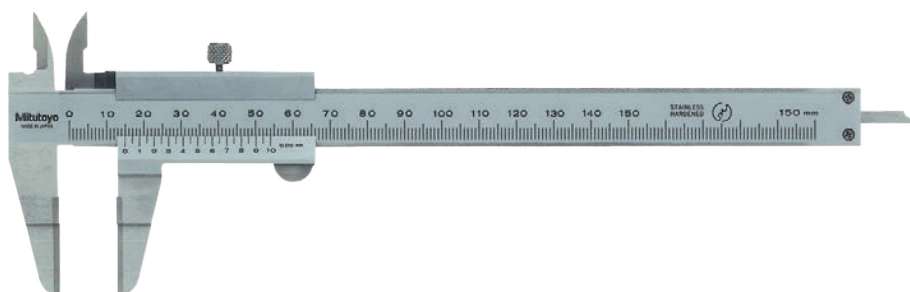
573-634-20

### Metric

No.	Range [mm]	Accuracy	Thumb roller	Mass [g]
573-634-20	0-150	±0,02 mm		168
573-635-20	0-150	±0,02 mm		168



## Series 536



536-134

### Metric

No.	Range [mm]	Accuracy	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	Mass [g]
536-134	0-150	±0,05 mm	229	20	40	0,75	16	3	140
536-135	0-200	±0,05 mm	286	25	50	0,75	16	3	180
536-136	0-300	±0,08 mm	403	30	64	1	16	3,8	420

Functions	Series 573
ORIGIN (ABS-Zero)	
Auto Power OFF after 20 min. non use	
Low voltage alarm	
Data output	

### Specifications

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	approx. 5 years
Display	LCD, Character Height 9 mm
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

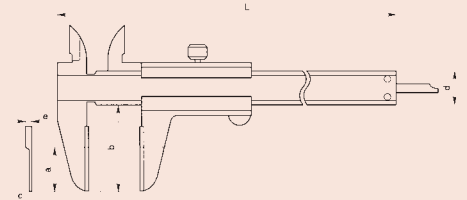
### Consumable spares

No.	Description
938882	Battery SR44 1.5V



### Specifications

Accuracy	Refer to the list of specifications
Graduation	0,05mm
Delivered	In a case



# ABSOLUTE Digimatic Neck Caliper



Functions	Series 573
ORIGIN (ABS-Zero)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●

### Specifications

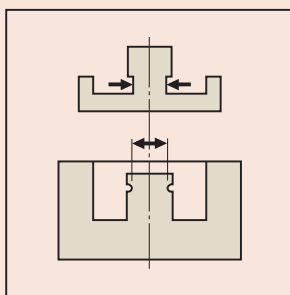
Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	aprox. 5 years
Display	LCD, Character Height 9 mm
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



### Series 573

These neck calipers enable measurements in hard to reach places. They offer you the following benefits:

- You can measure wall thickness inside bores and recesses.



573-651-20



573-652-20  
Point jaw type

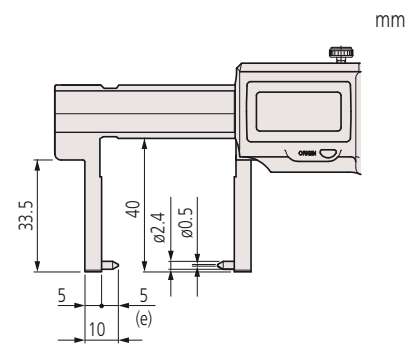
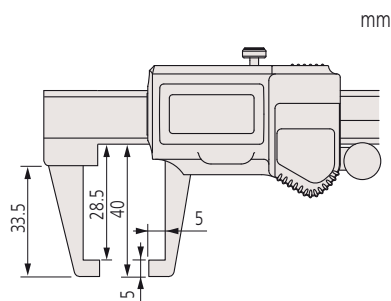
### Metric

No.	Range [mm]	Accuracy	Thumb roller	Mass [g]
573-651-20	0-150	±0,03 mm	●	157
573-653-20	0-150	±0,03 mm		157

### Metric

#### Point jaw type

No.	Range [mm]	Accuracy	Thumb roller	Mass [g]
573-652-20	0-150	±0,03 mm	●	157
573-654-20	0-150	±0,03 mm		157



Point jaw type

# Neck Caliper

## Series 536

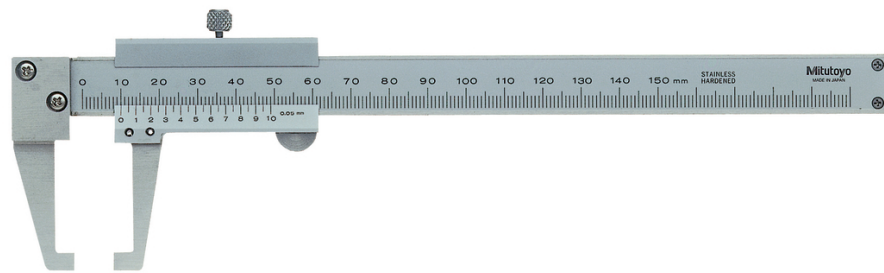
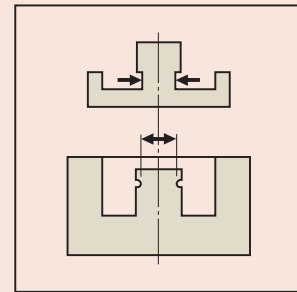
These neck calipers enable measurements in hard to reach places.

They offer you the following benefits:

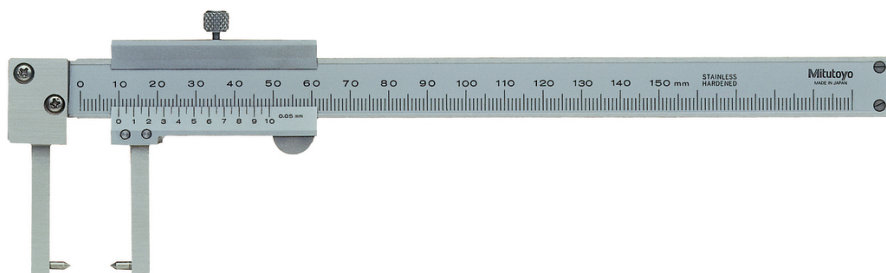
- You can measure wall thickness inside bores and recesses.

## Specifications

Accuracy	±0,05 mm
Graduation	0,05mm
Delivered	In a case



536-151



536-152  
Point jaw type

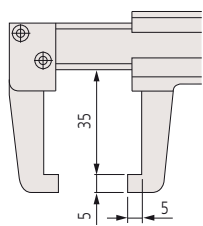
### Metric

No.	Range [mm]	Mass [g]
536-151	0-150	140

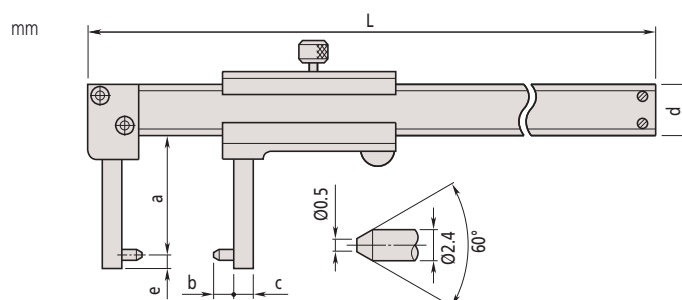
### Metric

#### Point jaw type

No.	Range [mm]	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	Mass [g]
536-152	0-150	229	38	5	5	16	2	140



536-151



536-152  
Point jaw type



Functions	Series 573
ORIGIN (ABS-Zero)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●

**Specifications**

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	approx. 5 years
Display	LCD, Character Height 9 mm
Delivered	In a case, including 1 battery

**Optional accessories**

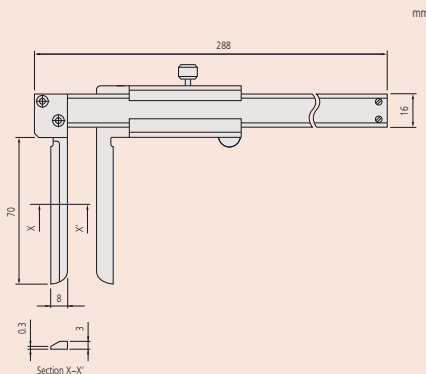
No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

**Consumable spares**

No.	Description
938882	Battery SR44 1.5V

**Specifications**

Accuracy	±0,12 mm
Graduation	0,05 mm
Delivered	In a case

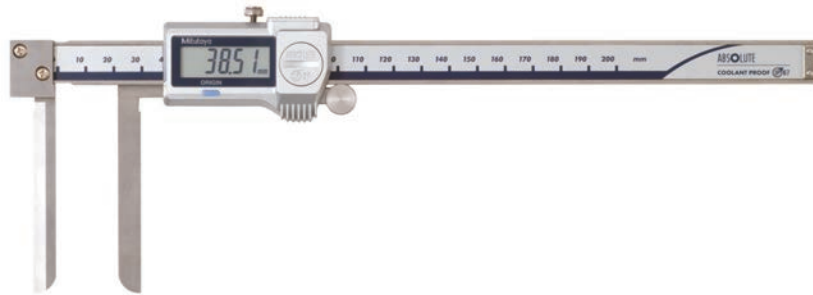


# Knife-Edge Caliper

## Series 573

These caliper are a knife-edge type and offer you the following benefits:

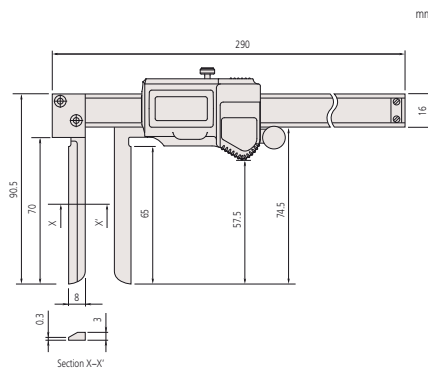
- Specially designed to let you take inside measurements in hard-to-reach places.
- With long narrow jaws.



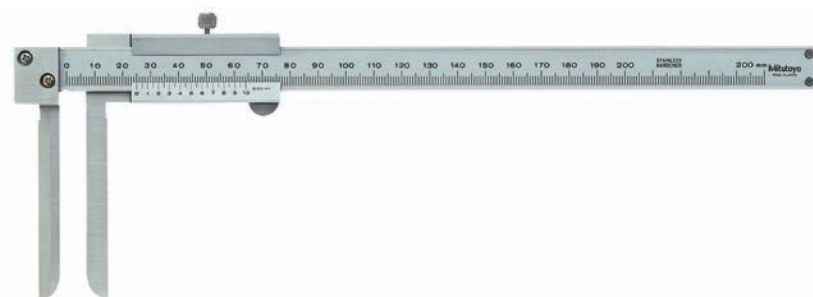
573-642-20

**Metric**

No.	Range [mm]	Accuracy	Thumb roller	Mass [g]
573-642-20	10,1-200	±0,05 mm	●	227
573-643-20	10,1-200	±0,05 mm		227



## Series 536



536-142

**Metric**

No.	Range [mm]	Mass [g]
536-142	10,1-200	210



# ABSOLUTE Digimatic Inside Caliper

## Series 573

- Specially designed for inside measurements in hard-to-reach places.



573-645-20



573-646-20  
Point jaw type

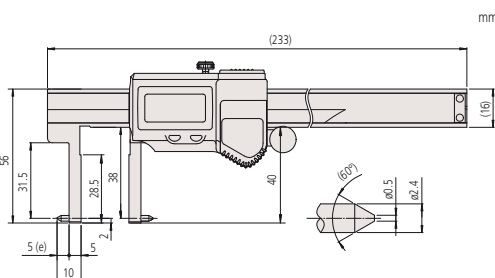
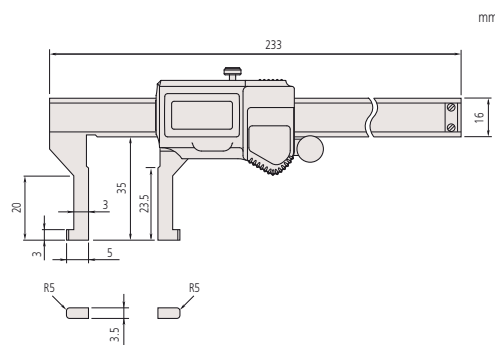
### Metric

No.	Range [mm]	Accuracy	Thumb roller	Mass [g]
573-645-20	10,1-160	±0,05 mm	●	147
573-647-20	10,1-160	±0,05 mm		147

### Metric

#### Point jaw type

No.	Range [mm]	Accuracy	Thumb roller	Mass [g]
573-646-20	20,1-170	±0,03 mm	●	157
573-648-20	20,1-170	±0,03 mm		157



Point jaw type

Functions	Series 573
ORIGIN (ABS-Zero)	●
OFFSET*	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●

### Specifications

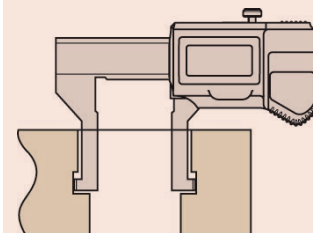
Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	approx. 5 years
Display	LCD, Character Height 9 mm
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V

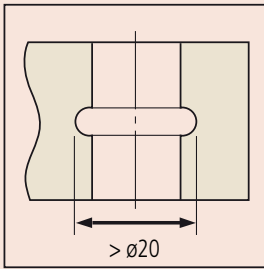
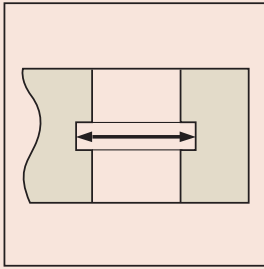


\* 20 mm

# Inside Caliper

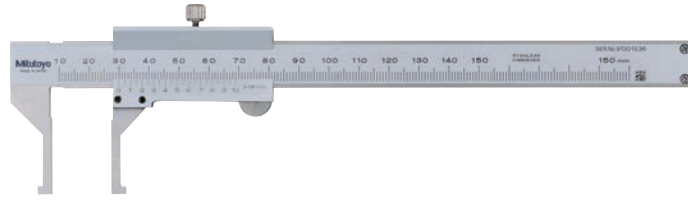
## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,05 mm
Delivered	In a case



## Series 536

- Specially designed for inside measurements in hard-to-reach places.



536-145



536-146  
Point jaw type

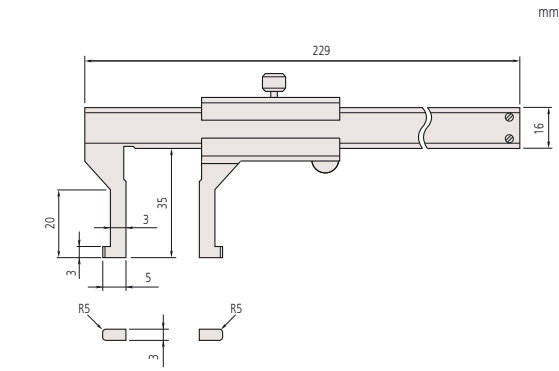
### Metric

No.	Range [mm]	Accuracy	Mass [g]
536-145	10,1-150	±0,05 mm	130

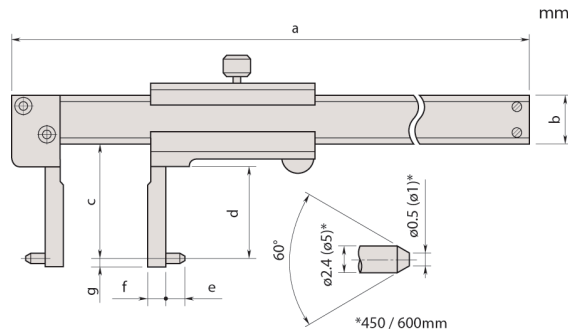
### Metric

#### Point jaw type

No.	Range [mm]	Accuracy	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	g [mm]	Mass [g]
536-146	20,1-150	±0,05 mm	229	16	38	31	5	5	2	140
536-147	30,1-300	±0,08 mm	403	20	98	89	5	10	2	370
536-148	70,1-450	±0,1 mm	610	25	145	136	10	25	5	1250
536-149	70,1-600	±0,12 mm	750	25	145	136	10	25	5	1430



536-145



Point jaw type

# Tube Thickness Caliper

## Series 573

These tube thickness calipers are designed especially for round-shaped workpieces.

They offer you the following benefits:

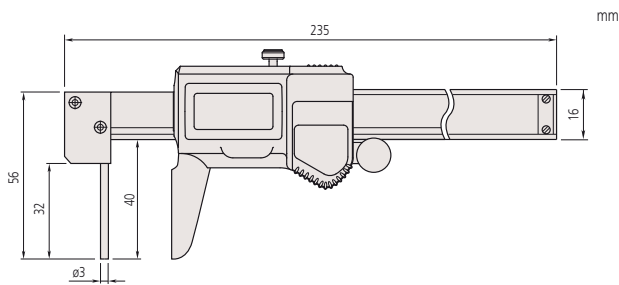
- The beam-mounted jaw is a round bar that lets you easily measure tube wall thickness.



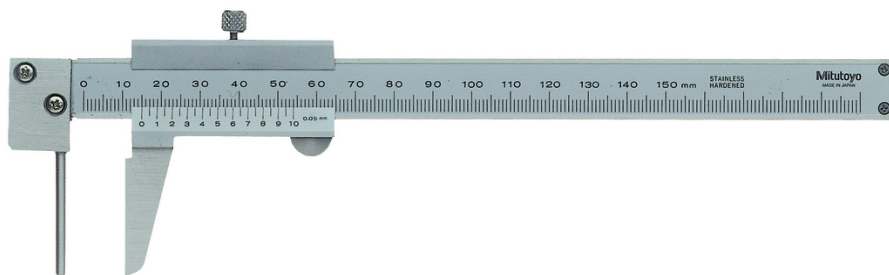
573-661-20

### Metric

No.	Range [mm]	Accuracy	Thumb roller	Mass [g]
573-661-20	0-150	±0,05 mm		167
573-662-20	0-150	±0,05 mm		167



## Series 536



536-161

### Metric

No.	Range [mm]	Mass [g]
536-161	0-150	150

Functions	Series 573
ORIGIN (ABS-Zero)	
Auto Power OFF after 20 min. non use	
Low voltage alarm	
Data output	

### Specifications

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Battery life	approx. 5 years
Display	LCD, Character Height 9 mm
Delivered	In a case, including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

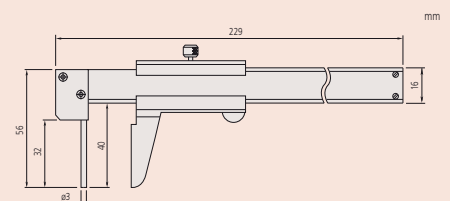
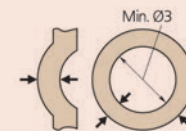
### Consumable spares

No.	Description
938882	Battery SR44 1.5V



### Specifications

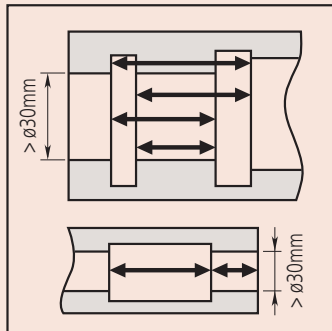
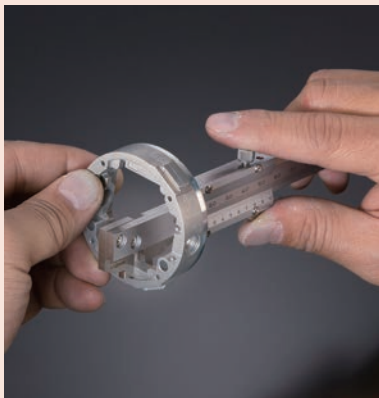
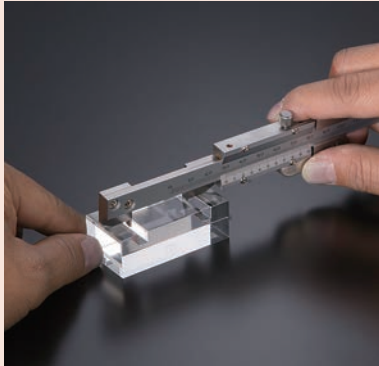
Accuracy	±0,05 mm
Graduation	0,05 mm
Delivered	In a case



# Vernier Hook Type Caliper

## Specifications

Accuracy	±0,03 mm
Graduation	0,02mm
Delivered	In a case



## Series 536

These vernier hook type calipers enable you to measure the width of grooves and lands inside bores and recesses.



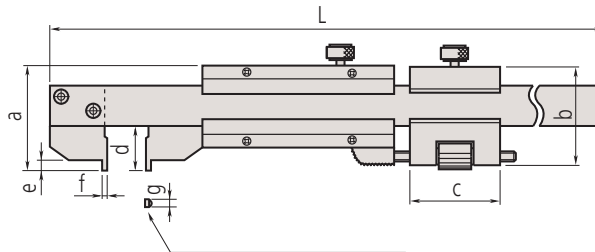
536-171



536-172

## Metric

No.	Range [mm]	Inside measuring from	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	g [mm]	Mass [g]
536-171	0-200	10,1 mm	320	28			12	4	5	3,5	170
536-172	0-200	2,1 mm	320	28	28,5	20	12	4	1	3,5	200



Measuring face  
536-171: Radius 5 mm  
536-172: flat

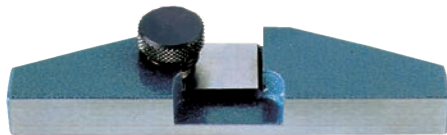
# Optional Accessory for Calipers

## Depth base attachment

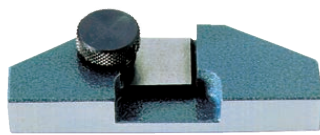
This is an optional depth base attachment for calipers.

It offers you the following benefits:

- For digital, vernier and dial calipers which have a depth measuring bar.
- Finely ground base surface.
- Secure locking clamp.



050084-10



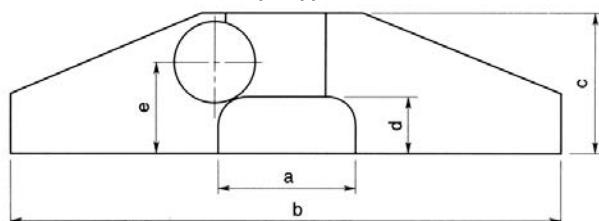
050083-10

### Metric

No.	Applicable measuring range of caliper	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	Mass [g]
050083-10	100, 150 and 200 mm	25	75	24,5	9	16	130
050084-10	100, 150 and 200 mm	25	100	24,5	9	16	160
050085-10	300 mm	30	125	28,5	11,5	20	270



Sample application





## Depth Measuring Instruments



**Depth Micrometer**  
Page 206



**Depth Gauge**  
Page 209



**Depth Gauge Accessories**  
Page 218

# Depth Micrometer

## Series 128

This micrometer allows you to measure depth and offers you the following features:

- $\varnothing 4$ mm measuring rod.
- Ratchet stop provides you with constant measuring force.
- Measuring rod lock.
- Carbide-tipped measuring rod model is available.



128-101

### Metric

No.	Range [mm]	Base (W x T)	Mass [g]
128-101	0-25	63,5 x 16 mm	200
128-102	0-25	101,6 x 16 mm	250

### Metric

Carbide-tipped measuring rod

No.	Range [mm]	Base (W x T)	Mass [g]
128-103	0-25	63,5 x 16 mm	200
128-104	0-25	101,6 x 16 mm	250

### Specifications

Graduation	0,01 mm
Measuring span	25 mm
Spindle pitch	0,5 mm with spindle lock
Micrometer Head Feed (0-25 mm)	$\pm 3 \mu\text{m}$
Flatness of reference surface (base)	1,3 $\mu\text{m}$ (63,5 mm) 2 $\mu\text{m}$ (101,6 mm)
Flatness of measuring face (rod)	0,3 $\mu\text{m}$
Parallelism between measuring face (rod) and reference surface (base)	$(4+L/50) \mu\text{m}$ L=max. measuring length (mm)
Measuring surfaces	Hardened, precision ground, micro-lap finish
Base	Hardened tool steel
Scale	thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring force	5-10 N
Delivered	Including box and key



# Depth Micrometer with Interchangeable Rods

## Specifications

Graduation	0,01 mm
Measuring span	25 mm
Spindle pitch	0,5 mm, with spindle lock
Micrometer Head Feed (0-25 mm)	$\pm 3 \mu\text{m}$
Zero point errors of rods	$\pm 4 \mu\text{m}$ (0-150 mm) $\pm 6 \mu\text{m}$ (0-300 mm)
Flatness of reference surface (base)	1,3 $\mu\text{m}$ for 63,5 mm 2 $\mu\text{m}$ for 101,6 mm
Flatness of measuring face (rod)	0,3 $\mu\text{m}$
Parallelism between measuring face (rod) and reference surface (base)	$(4 + L/50) \mu\text{m}$ L=max. measuring length (mm)
Measuring surfaces	Hardened, precision ground, micro-lap finish
Base	Hardened tool steel
Scale	Thimble and sleeve satin chrome finish $\varnothing 18$ mm
Measuring force	5-10 N
Delivered	Including box and key



## Series 129

This interchangeable rod type micrometer can be used for wide range measurements. It offers you the following benefits:

- $\varnothing 4$ mm interchangeable rods, with lapped measuring surfaces, enable you to make wide-range measurement
- The ratchet stop provides constant measuring force.
- Measuring rod lock.



129-112

### Metric

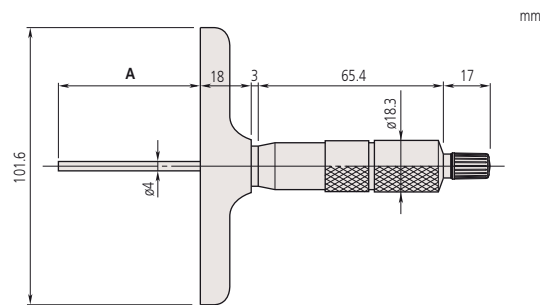
Base 101,6 x 16 mm

No.	Range [mm]	Number of rods	Mass [g]
129-155	0-25		290
129-113	0-50	2	310
129-114	0-75	3	330
129-115	0-100	4	355
129-116	0-150	6	410
129-153	0-300	12	640

### Metric

Base 63,5 x 16 mm

No.	Range [mm]	Number of rods	Mass [g]
129-154	0-25		240
129-109	0-50	2	260
129-110	0-75	3	280
129-111	0-100	4	310
129-112	0-150	6	370
129-152	0-300	12	600



A = Range

# Digimatic Depth Micrometer with Interchangeable Rod

## Series 329

This interchangeable rod type micrometer can be used for wide range measurements. It offers you the following benefits:

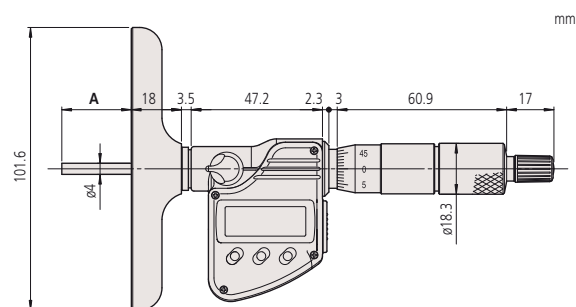
- $\varnothing 4$ mm interchangeable rods, with lapped measuring surfaces, enable you to make wide-range measurement
- The ratchet stop provides constant measuring force.
- Measuring rod lock.



329-250-30

### Metric

No.	Range [mm]	Base (W x T)	Number of rods	Mass [g]
329-250-30	0-150	101,6 x 16 mm	6	540
329-251-30	0-300	101,6 x 16 mm	12	790



A = Range

Functions	Series 329
ZERO/ABS	●
DATA/HOLD	●
Lock function	●
Auto Power OFF after 20 min. non use	●
2 x PRESET	●
Low voltage alarm	●
Data output	●

### Specifications

Digital step	0,001 mm
Scale	Thimble and sleeve satin chrome finish, $\varnothing 18$ mm
Measuring span	25 mm
Spindle pitch	0,5 mm with spindle lock
Zero point errors of rods	$\pm 4 \mu\text{m}$ (0-150 mm) $\pm 6 \mu\text{m}$ (0-300 mm)
Micrometer Head Feed (0-25 mm) (excluding quantizing error)	$\pm 3 \mu\text{m}$
Flatness of reference surface (base)	2 $\mu\text{m}$
Flatness of measuring face (rod)	0,3 $\mu\text{m}$
Parallelism between measuring face (rod) and reference surface (base)	$(4+L/50) \mu\text{m}$ L = max. measuring length (mm)
Measuring surfaces	Hardened, precision ground, micro-lap finish
Base	Hardened tool steel
Measuring force	5-10 N
Battery life	approx. 2,4 years
Delivered	Including box, key and 1 battery

### Optional accessories

No.	Description
05CZA662	Digimatic Cable with Data Button IP Type, 1m, Micrometer Type
05CZA663	Digimatic Cable with Data Button IP Type, 2m, Micrometer Type
06AFM380B	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Micrometer Type
264-622	U-WAVE fit, IP67 Type, Wireless Transmitter for Micrometer
264-623	U-WAVE fit, Buzzer Type, Wireless Transmitter for Micrometer
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V

# ABSOLUTE Digimatic Indicator Depth Gauge

ABSOLUTE®

Functions	Series 547
ZERO/ABS	●
GO/±NG judgement	●
Digimatic data output	●
DATA/HOLD	●
Lock function	●
PRESET	●
Calculation function	●
Counting direction switchable	●

## Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Stroke	12,7 mm
Contact point	Carbide ball
Alarm	Low voltage, counting value composition error, overflow error, tolerance limit setting error
Scale	Capacitance type ABSOLUTE linear encoder
Power supply	1 battery SR-44
Battery life	approx. 7000 hours
Measuring force	≤ 1,5 N
Delivered	Including Box and extensions 10, 20, 30 (2 pcs.), 100 mm

## Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V
21AZB149	Lifting Lever, S-Type Series 2,3,4 (up to 10mm)
21JAA224	Contact Element Ball Point, 14mm Length, Carbide, Metric

## Series 547

This ABSOLUTE Digimatic Indicator Depth Gauge offers you the following benefits:

- It is equipped with the ABSOLUTE Digimatic Indicator ID-C.
- It has a hardened, precision ground and micro-lapped reference face on its base.



547-211

## Metric

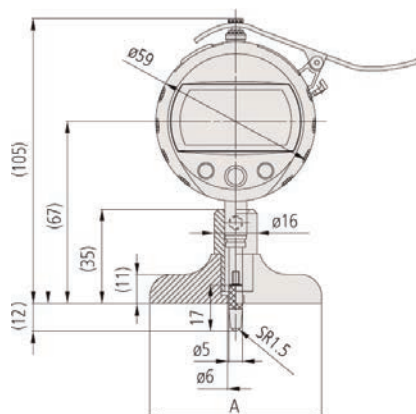
With indicator No. 543-390BD

No.	Range [mm]	Accuracy	Base flatness	Base size [mm]	Mass [g]
547-251	0-200	± 5 µm	2 µm	63,5 x 16	290
547-252	0-200	± 5 µm	2 µm	101,6 x 16	340

## Metric

With indicator No. 543-400BD

No.	Range [mm]	Accuracy	Base flatness	Base size [mm]	Mass [g]
547-211	0-200	± 20 µm	5 µm	63,5 x 16	290
547-212	0-200	± 20 µm	5 µm	101,6 x 16	340



547-211, 547-251 A=63.5 mm  
547-212, 547-252 A=101.6 mm



# Dial Indicator Depth Gauge

## Series 7

This rectangular base dial indicator depth gauge offers you the following benefits:

- Rectangular base.
- It has a hardened, precision ground and micro-lapped reference face on its base.



7211



7214



7231

**Metric** With horizontal indicator No. 1162

No.	Range [mm]	Accuracy	Stroke [mm]	Base flatness [μm]	Measuring force [N]	Base size [mm]	Probe tip	Extension rods	Mass [g]
7231	0-200	±15 μm	5	5	≤ 1,4	63,5 x 16	Ball R = 1,5 mm	10, 20, 30, 30, 100 mm	200

**Metric** With indicator No. 2902SB

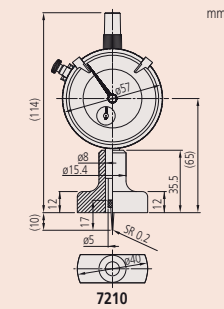
No.	Range [mm]	Accuracy	Stroke [mm]	Base flatness [μm]	Measuring force [N]	Base size [mm]	Probe tip	Extension rods	Mass [g]
7210	0-10	±15 μm	10	5	≤ 1,4	40 x 16	Needle R = 0,2 mm		200
7211	0-200	±15 μm	10	5	≤ 1,4	63,5 x 16	Ball R = 1,5 mm	10, 20, 30, 30, 100 mm	245
7212	0-200	±15 μm	10	5	≤ 1,4	101,6 x 16	Ball R = 1,5 mm	10, 20, 30, 30, 100 mm	295
7220	0-200	±15 μm	10	5	≤ 1,4	100 x 18	Ball R = 1,5 mm	10, 20, 30, 30, 100 mm	374
7221	0-200	±15 μm	10	5	≤ 1,4	150 x 18	Ball R = 1,5 mm	10, 20, 30, 30, 100 mm	820

**Metric** With indicator No. 2952SB

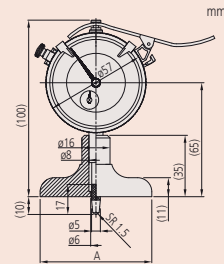
No.	Range [mm]	Accuracy	Stroke [mm]	Base flatness [μm]	Measuring force [N]	Base size [mm]	Probe tip	Extension rods	Mass [g]
7213	0-210	±30 μm	30	5	≤ 2,5	63,5 x 16	Ball R = 1,5 mm	30, 60, 90 mm	265
7214	0-210	±30 μm	30	5	≤ 2,5	101,6 x 16	Ball R = 1,5 mm	30, 60, 90 mm	315

## Specifications

Graduation | 0,01 mm

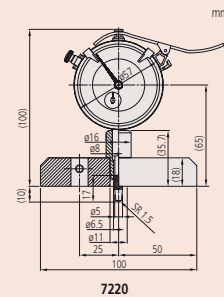


7210

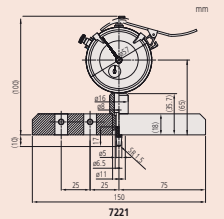


7211 A= 63.5mm

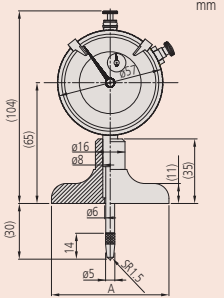
7212 A= 101.6mm



7220

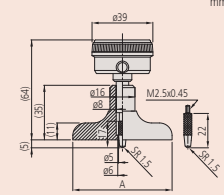


7221



7213 A= 63.5mm

7214 A= 101.6mm



7231 A= 63.5mm

# Dial Indicator Depth Gauge

## Specifications

Graduation 0,01 mm

## Consumable spares

No.	Description
137413	Contact Element Needle, R 0,2mm, 17mm Length, Steel, Metric
21JAA224	Contact Element Ball Point, 14mm Length, Carbide, Metric
21JAA226	Contact Element Ball Point, 22mm Length, Carbide, Metric

## Series 7

This round base type dial indicator depth gauge offers you the following benefits:

- Round base type
- It has a hardened, precision ground and micro-lapped reference face on its base.



7222

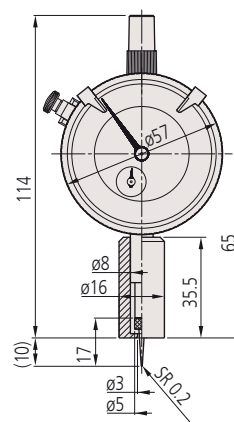


7224

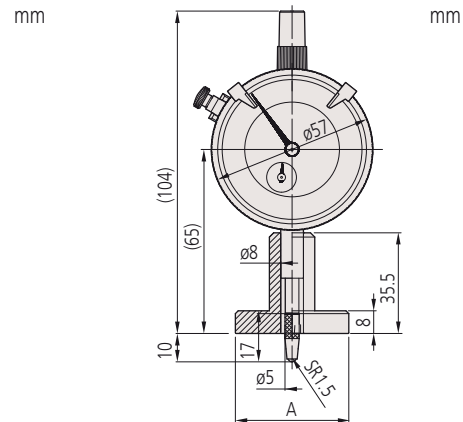
## Metric

Circular base with indicator No. 2902SB.

No.	Range [mm]	Accuracy	Stroke [mm]	Base flatness [μm]	Measuring force [N]	Base size [mm]	Probe tip	Mass [g]
7222	10	±15 μm	10	5	≤ 1,4	ø 16	Needle R = 0,2 mm	165
7223	10	±15 μm	10	5	≤ 1,4	ø 25	Ball R = 1,5 mm	180
7224	10	±15 μm	10	5	≤ 1,4	ø 40	Ball R = 1,5 mm	195



7222



7223 A = ø25mm  
7224 A = ø40mm

# ABSOLUTE Digimatic Depth Gauge

## Series 571

This is a standard model depth gauge that lets you take accurate measurements. It offers you the following benefits:

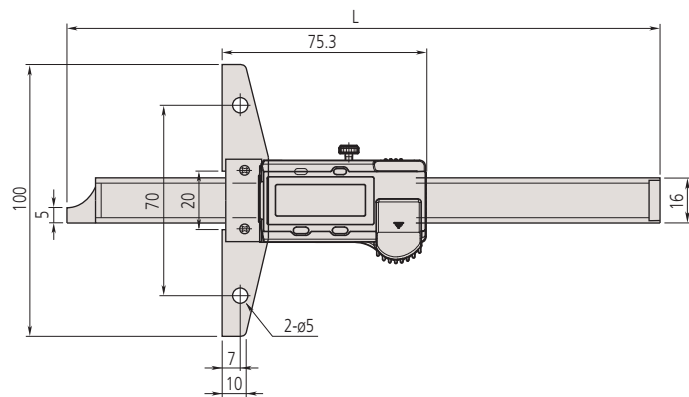
- ABSOLUTE System gives you reliable measurements.
- Its base and measuring faces are hardened and micro-lapped for robustness.
- Large character height of 9 mm makes measurements easy to read.
- Exceptional battery life.



571-201-30

### Metric

No.	Range [mm]	Accuracy	L [mm]	Base (W x T)	Mass [g]
571-201-30	0-150	±0,02 mm	239	100 x 6 mm	207
571-202-30	0-200	±0,02 mm	289	100 x 6 mm	227
571-203-20	0-300	±0,03 mm	403	100 x 6 mm	257
571-204-10	0-450	±0,05 mm	635	250 x 10 mm	1270
571-205-10	0-600	±0,05 mm	785	250 x 10 mm	1400
571-206-10	0-750	±0,06 mm	935	250 x 10 mm	1530
571-207-10	0-1000	±0,07 mm	1200	250 x 10 mm	1760



Up to 300 mm range

Functions	Series 571
ORIGIN (ABS-Zero)	●
ZERO/ABS	●
ON/OFF	●
Low voltage alarm	●
Data output	●

### Specifications

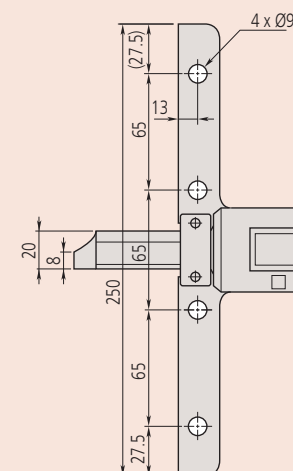
Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Repeatability	0,01 mm
Battery life	approx. 18000 hours (150, 200 mm) approx. 20000 hours (>200 mm)
Display	LCD, character height 9 mm (150/200/300 mm), 10 mm (>300 mm)
Delivered	In a box including 1 battery

### Optional accessories

No.	Description
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF300	Connection Unit, U-WAVE fit, Standard Type
959143	Data Hold Unit
900370	Extension Base, Depth Gauge, 180mm width for up to 300mm range
900371	Extension Base, Depth Gauge, 260mm width for up to 300mm range
900372	Extension Base, Depth Gauge, 320mm width for up to 300mm range

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



> 300 mm range

# ABSOLUTE Digimatic Depth Gauge



Functions	Series 571
ORIGIN (ABS-Zero)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●

### Specifications

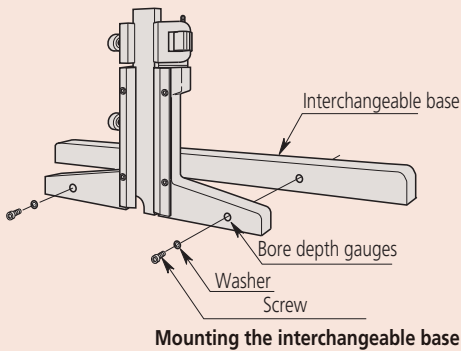
Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Repeatability	0,01 mm
Battery life	approx. 5 years (150, 200 mm) 5000 hours (300 mm)
Display	LCD, Character Height 9 mm (150, 200 mm) 10,2 mm (300 mm)
Delivered	In a box including 1.0 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
900370	Extension Base, Depth Gauge, 180mm width for up to 300mm range
900371	Extension Base, Depth Gauge, 260mm width for up to 300mm range
900372	Extension Base, Depth Gauge, 320mm width for up to 300mm range

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



### Series 571

This depth gauge is IP67 coolant proof and offers you the following benefits:

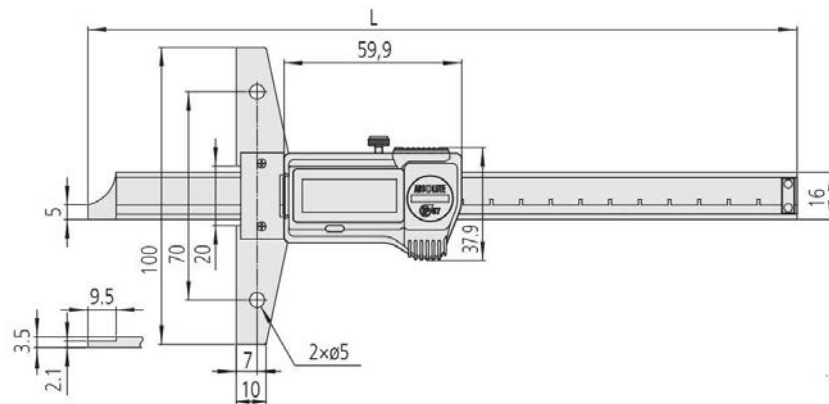
- ABSOLUTE System gives you reliable measurements.
- Its base and measuring faces are hardened and micro-lapped for robustness.
- It has excellent resistance against water and dust (IP67 protection level) enabling you to use it in machining situations that include splashing coolant fluid.
- Extremely resistant to both coolants and lubricants.



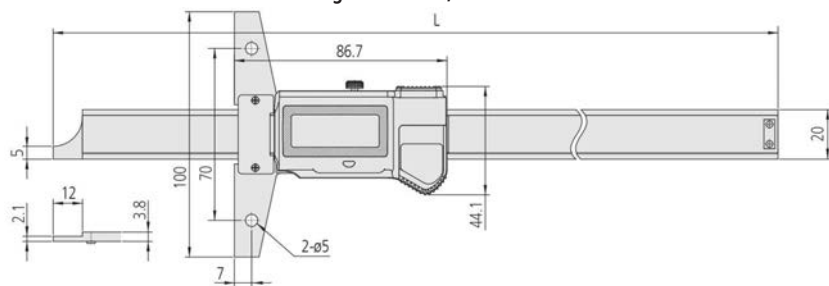
571-252-20

### Metric

No.	Range [mm]	Accuracy	L [mm]	Base (W x T)	Mass [g]
571-251-20	0-150	±0,02 mm	239	100x 6 mm	199
571-252-20	0-200	±0,02 mm	289	100 x 6 mm	219
571-253-10	0-300	±0,03 mm	404	100 x 6,3 mm	357



Range: 0-150 mm, 0-200 mm



Range: 0-300 mm

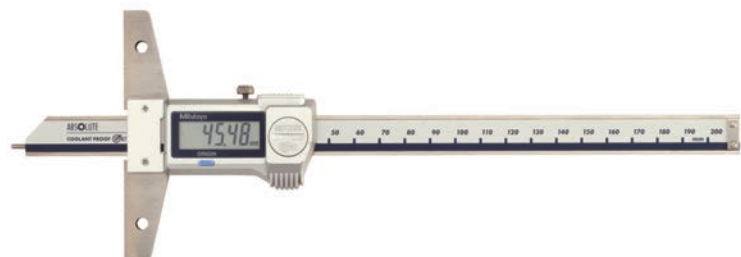
# ABSOLUTE Digimatic Depth Gauge IP67 Hook/Pin Type

## Series 571

- Direct reading for either measuring surface is obtained by pressing the OFFSET function, which compensates for the 10 mm width of the hook.



571-255-20



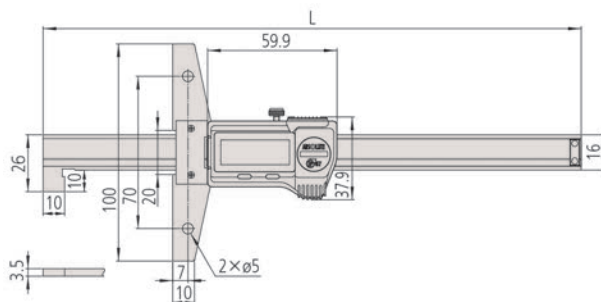
571-302-20

### Metric Hook Type

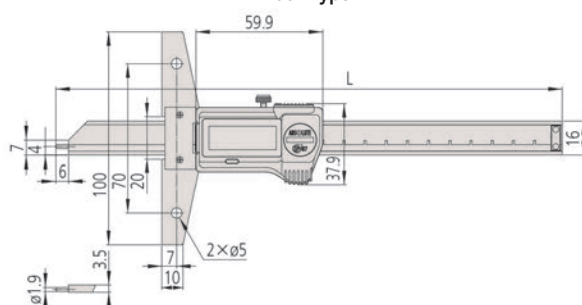
No.	Depth range	Hook range	Base (W x T)	L [mm]	Mass [g]
571-254-20	10,1-160 mm	0-150 mm	100 x 6 mm	249	216
571-255-20	10,1-210 mm	0-200 mm	100 x 6 mm	299	236

### Metric Pin Type

No.	Range [mm]	Base (W x T)	L [mm]	Mass [g]
571-301-20	0-150	100 x 6 mm	249	207
571-302-20	0-200	100 x 6 mm	299	227



Hook Type



Pin Type

Functions	Series 571	
	571-254-20	571-255-20
ORIGIN (ABS-Zero)	●	●
OFFSET	●	●
Auto Power OFF after 20 min. non use	●	●
Low voltage alarm	●	●
Data output	●	●

### Specifications

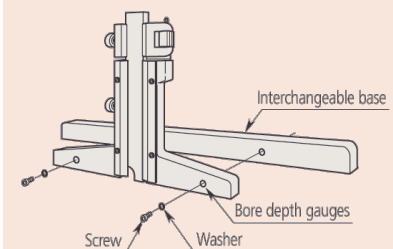
Digital step	0,01 mm
Accuracy	±0,03 mm (excluding quantizing error)
Max. response speed	Unlimited
Repeatability	0,01 mm
Battery life	approx. 5 years
Display	LCD, Character Height 9 mm
Delivered	In a case including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type
900370	Extension Base, Depth Gauge, 180mm width for up to 300mm range
900371	Extension Base, Depth Gauge, 260mm width for up to 300mm range
900372	Extension Base, Depth Gauge, 320mm width for up to 300mm range

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



Mounting the interchangeable base



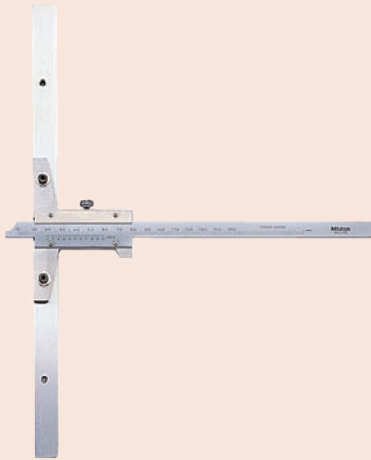
# Vernier Depth Gauge

## Specifications

Accuracy Refer to the list of specifications

## Optional accessories

No.	Description
900370	Extension Base, Depth Gauge, 180mm width for up to 300mm range
900371	Extension Base, Depth Gauge, 260mm width for up to 300mm range
900372	Extension Base, Depth Gauge, 320mm width for up to 300mm range

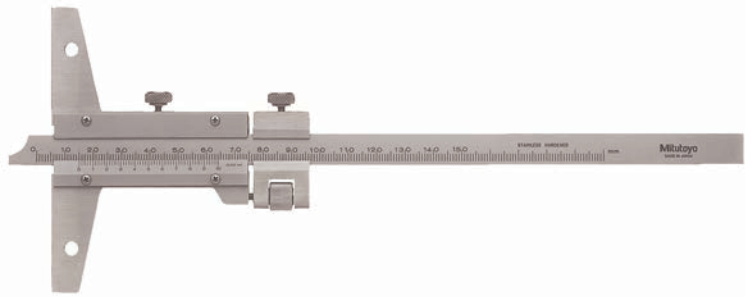


527-201 with 900372

## Series 527

This vernier depth gauge offers you the following benefits:

- Its base and measuring faces are hardened and micro-lapped for robustness.
- Fine adjustment models available



527-101

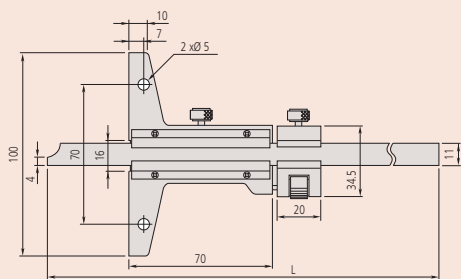
## Metric

No.	Range [mm]	Accuracy	Graduation	Base (W x T)	L [mm]	Mass [g]
527-201	0-150	±0,05 mm	0,05 mm	100 x 6,5 mm	260	240
527-121	0-150	±0,03 mm	0,02 mm	100 x 6,5 mm	260	215
527-202	0-200	±0,05 mm	0,05 mm	100 x 6,5mm	310	260
527-122	0-200	±0,03 mm	0,02 mm	100 x 6,5mm	310	230
527-203	0-300	±0,08 mm	0,05 mm	100 x 6,5 mm	410	300
527-123	0-300	±0,04 mm	0,02 mm	100 x 6,5mm	410	265
527-204	0-600	±0,1 mm	0,05 mm	250 x 10 mm	800	1510
527-205	0-1000	±0,15 mm	0,05 mm	250 x 10mm	1200	1880

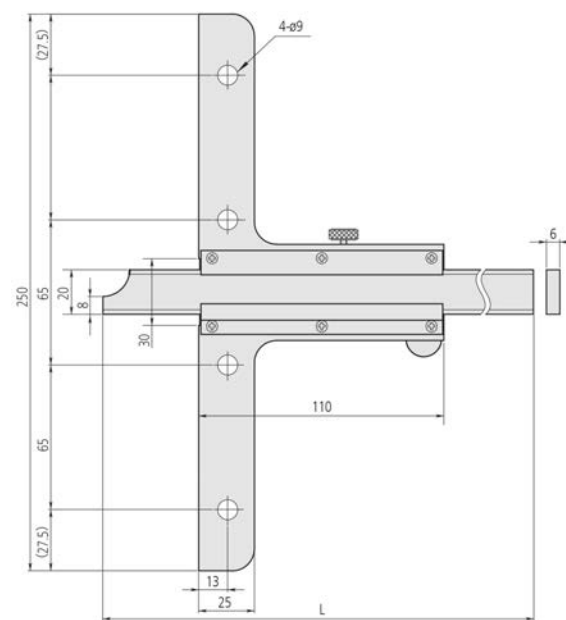
## Metric

With fine adjustment

No.	Range [mm]	Accuracy	Graduation	Base (W x T)	L [mm]	Mass [g]
527-101	0-150	±0,03 mm	0,02 mm	100 x 6,5mm	260	280
527-102	0-200	±0,03 mm	0,02 mm	100 x 6,5mm	310	300
527-103	0-300	±0,04 mm	0,02 mm	100 x 6,5mm	410	350
527-104	0-600	±0,05 mm	0,02 mm	250 x 10mm	800	1510
527-105	0-1000	±0,07 mm	0,02 mm	250 x 10mm	1200	1880



Range: 0-150 mm, 0-200 mm, 0-300 mm



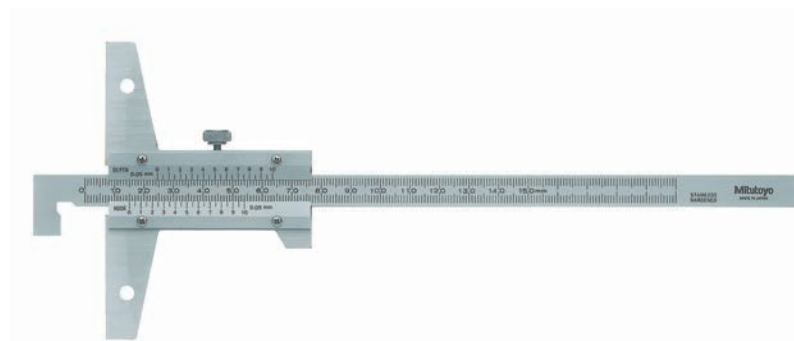
Range: 0-600 mm, 0-1000 mm

# Vernier Depth Gauge Hook Type

## Series 527

This hook type vernier depth gauge offers you the following benefits:

- The end of the beam is hook-shaped so you can take depth and thickness measurements of a projected portion or lip in a hole, as well as standard depth measurements.
- Fine adjustment models are available.



527-401

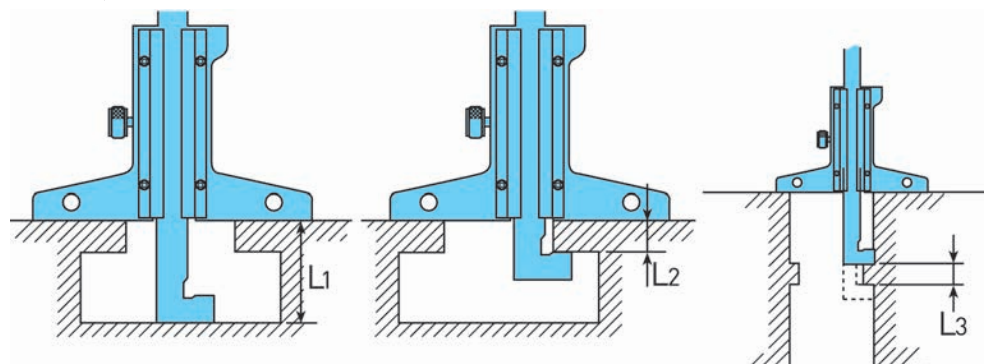
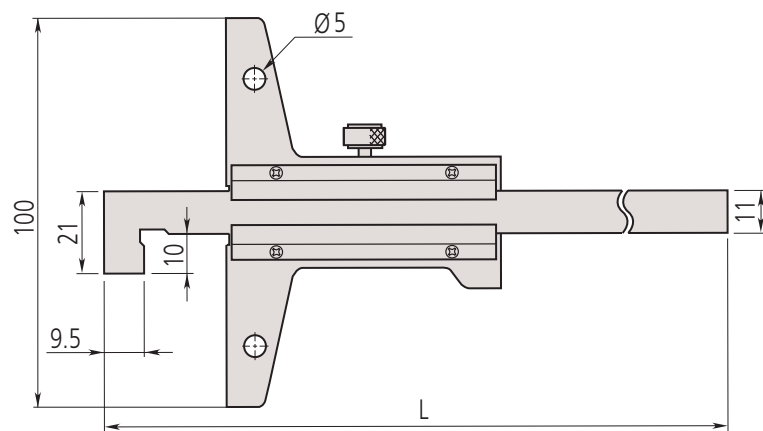
### Metric

No.	Accuracy	Depth range	Hook range	Graduation	L [mm]	Mass [g]
527-401	±0,05 mm	10,1-150 mm	0-150 mm	0,05 mm	260	240
527-402	±0,05 mm	10,1-200 mm	0-200 mm	0,05 mm	310	240
527-403	±0,08 mm	10,1-300 mm	0-300 mm	0,05 mm	410	270

### Metric

With fine adjustment

No.	Accuracy	Depth range	Hook range	Graduation	L [mm]	Mass [g]
527-411	±0,03 mm	10,1-150 mm	0-150 mm	0,02 mm	260	280
527-412	±0,03 mm	10,1-200 mm	0-200 mm	0,02 mm	310	300
527-413	±0,04 mm	10,1-300 mm	0-300 mm	0,02 mm	410	350



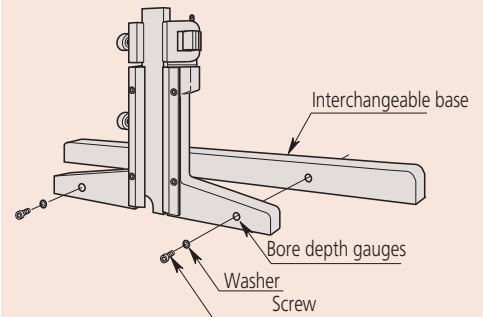
L1 = depth-vernier reading / L2 = hook-vernier reading / L3 = (depth-vernier reading) - (hook-vernier reading)

### Specifications

Accuracy Refer to the list of specifications

### Optional accessories

No.	Description
900370	Extension Base, Depth Gauge, 180mm width for up to 300mm range
900371	Extension Base, Depth Gauge, 260mm width for up to 300mm range
900372	Extension Base, Depth Gauge, 320mm width for up to 300mm range



Mounting the interchangeable base

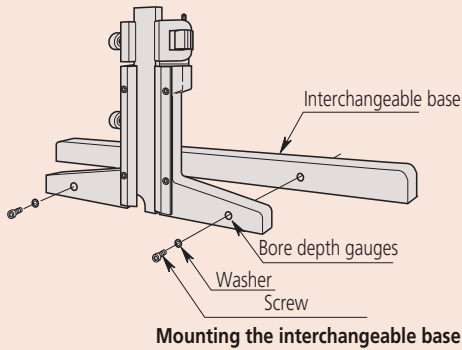
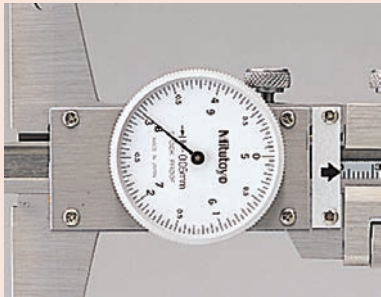
# Dial Depth Gauge

## Specifications

Accuracy	Refer to the list of specifications
Graduation	0,05 mm
Base size	100 x 6,5 mm (W x T) mm

## Optional accessories

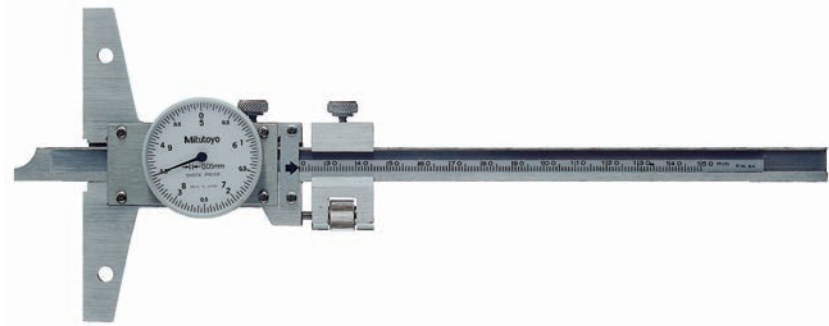
No.	Description
900370	Extension Base, Depth Gauge, 180mm width for up to 300mm range
900371	Extension Base, Depth Gauge, 260mm width for up to 300mm range
900372	Extension Base, Depth Gauge, 320mm width for up to 300mm range



## Series 527

This dial depth gauge offers you the following benefits:

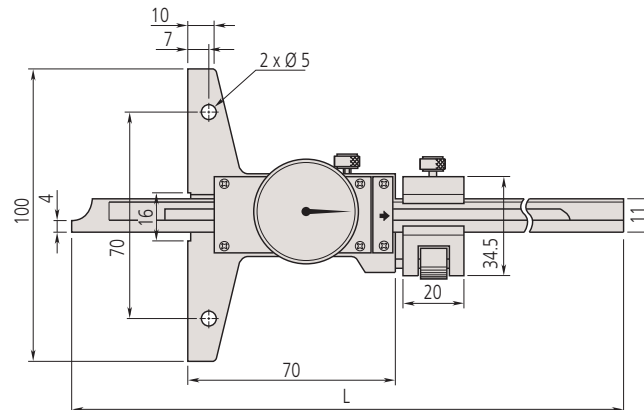
- The dial is very easy-to-read.
- Its base and measuring faces are hardened and micro-lapped for robustness.
- You can make fine adjustments.



527-301-50

## Metric

No.	Range [mm]	Accuracy	L [mm]	Mass [g]
527-301-50	0-150	±0,05 mm	260	280
527-302-50	0-200	±0,05 mm	310	300
527-303-50	0-300	±0,08 mm	410	340



# Tyre Tread Depth Gauge

## Series 571

This is designed to measure tyre tread depth and offers you the following benefits:

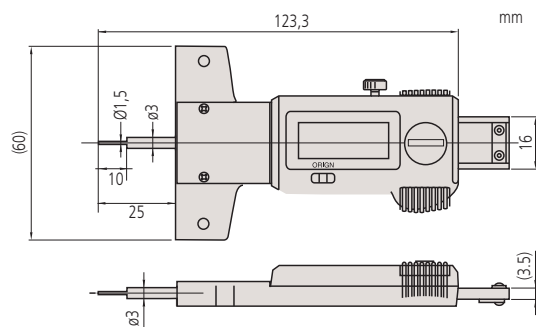
- The ABSOLUTE feature of this gauge keeps track of the origin point (once set) for the entire life of the battery.
- It gives you SPC data output.



571-100-20

### Metric

No.	Range [mm]	Accuracy	Mass [g]
571-100-20	0-25	±0,02 mm	160



## Optional Accessories for Depth Gauge

### Extension bases

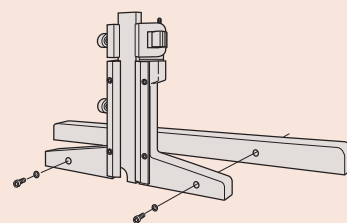
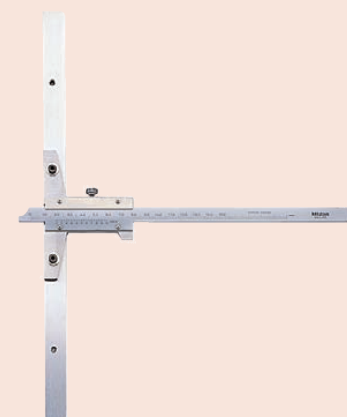
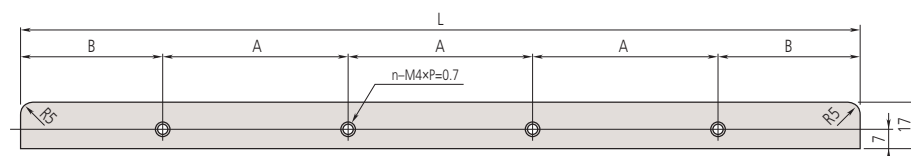
These optional extension bases can be fitted to depth gauge models up to 0-300 mm range. They cannot be attached to 0-600mm or 0-1000 mm range models.



900372

### Metric

No.	L [mm]	A [mm]	B [mm]	Number of holes	Mass [g]
900370	180	70	55	2	200
900371	260	35	60	5	270
900372	320	70	55	4	345



Attaching the extension base

Functions	Series 571
ORIGIN (ABS-Zero)	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●

### Specifications

Digital step	0,01 mm
Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	unlimited
Repeatability	0,01 mm
Battery life	approx. 5 years
Display	LCD, Character height 9 mm
Delivered	Including 1 battery

### Optional accessories

No.	Description
05CZA624	Digimatic Cable with Data Button IP Type, 1m, Caliper Type
05CZA625	Digimatic Cable with Data Button IP Type, 2m, Caliper Type
06AFM380A	USB Input Tool Direct (Digimatic USB), Digi/Digi2, With Data Button IP Caliper Type
264-620	U-WAVE fit, IP67 Type, Wireless Transmitter for Caliper
264-621	U-WAVE fit, Buzzer Type, Wireless Transmitter for Caliper
02AZF310	Connection Unit, U-WAVE fit, Waterproof Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V

## Height Gauges



**Height Gauge**  
Page 220



**Height Gauge Accessories**  
Page 227



**Height Gauge with Data Processing Unit**  
Page 229

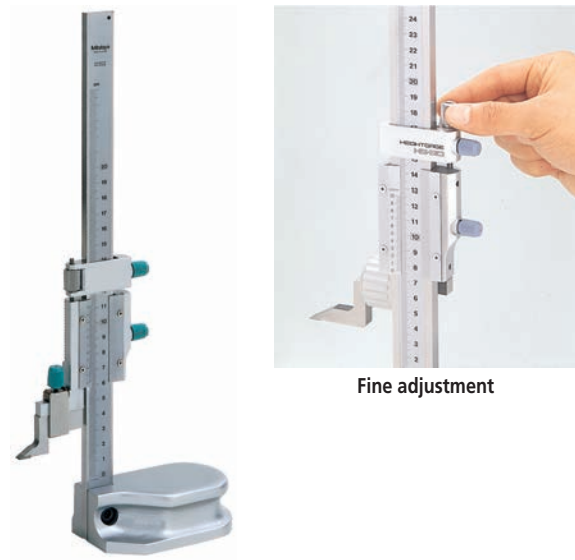


# Lightweight Vernier Height Gauge

## Series 506

This vernier height gauge offers you the following benefits:

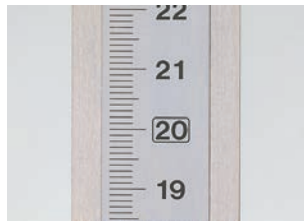
- You can take accurate and fast readings thanks to the satin chrome finished main and vernier scales.
- A carbide-tipped scriber is provided.



506-207



Fine adjustment



Large digit

### Metric

No.	Range [mm]	Accuracy	Mass [kg]
506-207	0-200	±0,03 mm	1,4

### Specifications

Graduation	0,02 mm
Accuracy	Refer to the list of specifications.
Delivered	Including scriber and scriber clamp

### Standard accessories

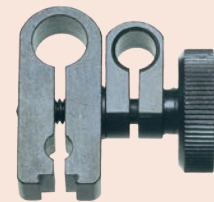
No.	Description
07GZA004	Scriber Clamp with Plastic Screw, for Height Gauge
900173	Carbide Tipped Scriber, 6,35x12,7mm, 47mm Length

### Optional accessories

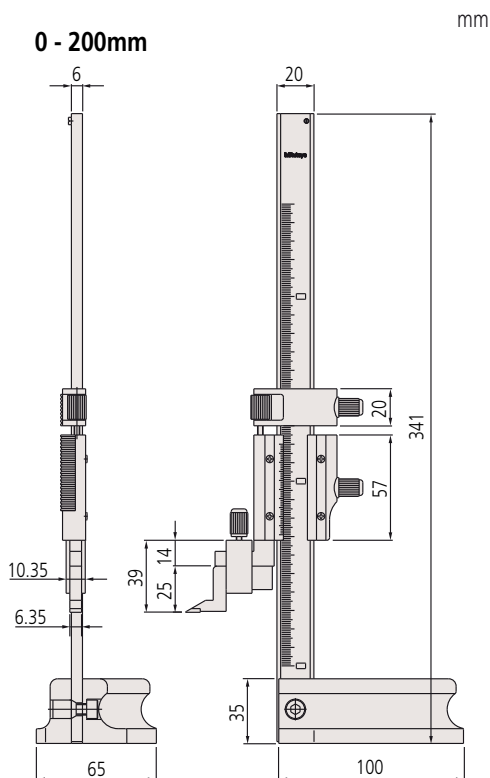
No.	Description
953639	Holding Bar for Swivel Clamp, 6,25x12,7mm, 50mm Length
900321	Swivel Clamp, for Ø4/8mm, Dovetail



953639



900321



# Vernier Height Gauge

## Series 514

This vernier height gauge offers you the following benefits:

- You can take accurate and fast readings thanks to the satin chrome finished main and vernier scales.
- A carbide-tipped scriber is provided.

### Specifications

Graduation	0,02 mm
Accuracy	Refer to the list of specifications.
Scale adjustment	15 mm for models up to 600 mm 25 mm for models 1.000 and 1.500 mm
Delivered	Including scriber, scriber clamp and cover

### Standard accessories

No.	Description
05GZA033	Scriber Clamp, 9x9mm
07GZA000	Carbide Tipped Scriber, 9x9mm, 80mm Length
905200	Carbide-tipped Scriber, 9x9mm, 150mm Length
905008	Scriber Clamp, for 16x10mm
900390	Carbide Tipped Scriber, 10x16mm, 144mm Length

05GZA033: for all except 514-170

07GZA000: 514-102, 514-104, 514-106

905200: 514-108, 514-109

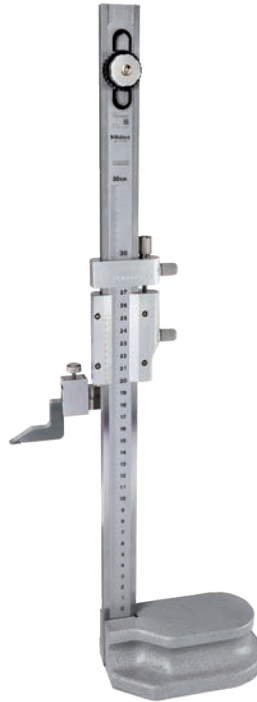
905008: 514-170, 514-103, 514-105, 514-107

900390: 514-170

### Optional accessories

No.	Description
953638	Holding Bar for Swivel Clamp, 9x9mm, 50mm Length
900209	Holding Bar for Swivel Clamp, 9x9mm, 100mm Length
900321	Swivel Clamp, for Ø4/8mm, Dovetail
07GZA003	Magnifier for Vernier Height Gauge, 300, 450, 600mm
07GZA015	Magnifier for Vernier Height Gauge, 1000mm

953638: except 514-170



514-102



953638

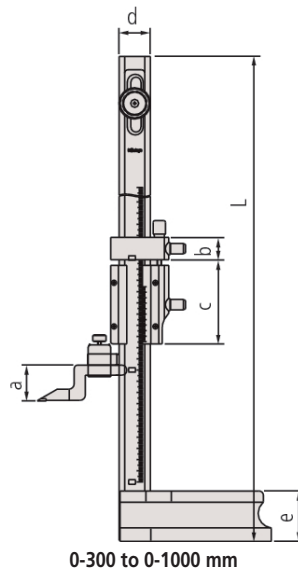


900321

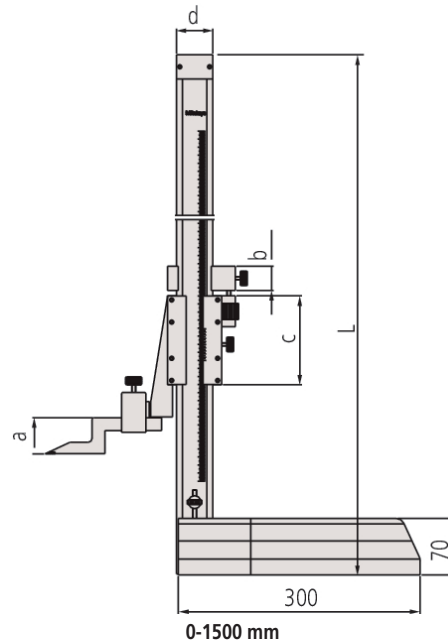


### Metric

No.	Range [mm]	Accuracy	Remarks	Fine adjustment	L [mm]	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	Mass [kg]
514-102	0-300	±0,04 mm		4 mm	525	32	20	70	28	45	3,1
514-104	0-450	±0,05 mm		4 mm	675	32	20	70	28	45	3,4
514-106	0-600	±0,05 mm		7 mm	870	32	24	85	35	54	7,4
514-108	0-1000	±0,07 mm		6 mm	1340	42	30	110	45	65	20
514-170	0-1500	±0,18 mm	Delivered with magnifier	20 mm	1760	45	30	110,5	45	70	26



0-300 to 0-1000 mm



0-1500 mm

# Dial Height Gauge

## Series 192

This dial height gauge offers you the following benefits:

- It allows you easy and error-free reading with both up and down digital counters as well as a dial.
- It comes with a hand wheel so you can easily make rough adjustments.
- A carbide-tipped scriber is provided.



192-130



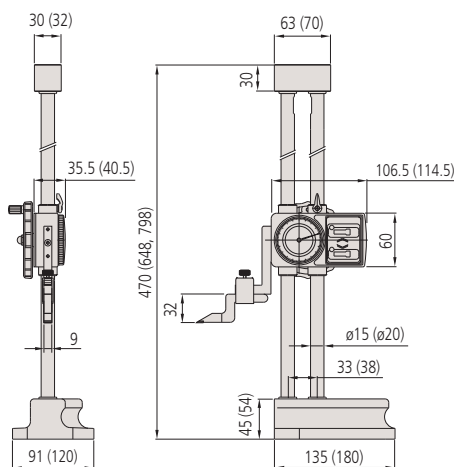
192-132



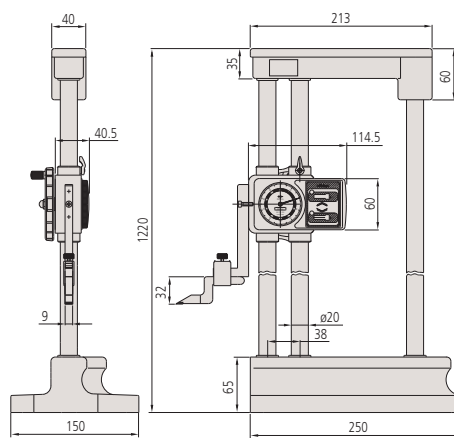
192-133

### Metric

No.	Range [mm]	Accuracy	Mass [kg]
192-130	0-300	±0,03 mm	4,2
192-131	0-450	±0,05 mm	9,2
192-132	0-600	±0,05 mm	9,8
192-133	0-1000	±0,07 mm	17



0 - 300 mm (0 - 450 mm, 0 - 600 mm)



0 - 1000 mm

### Specifications

Graduation	0,01 mm
Accuracy	Refer to the list of specifications
Delivered	Including scriber, scriber clamp and cover

### Standard accessories

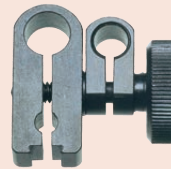
No.	Description
05GZA033	Scriber Clamp, 9x9mm
07GZA000	Carbide Tipped Scriber, 9x9mm, 80mm Length

### Optional accessories

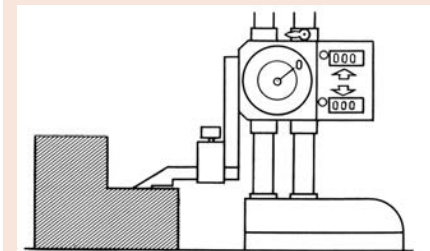
No.	Description
953638	Holding Bar for Swivel Clamp, 9x9mm, 50mm Length
900321	Swivel Clamp, for Ø4/8mm, Dovetail



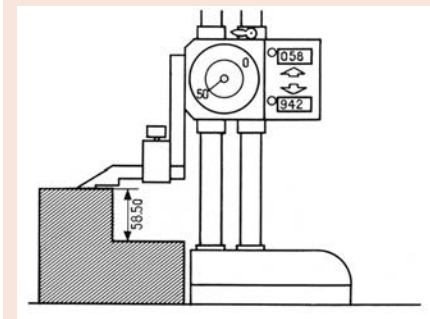
953638



900321



### Reset



### Reading off

Counter : 58,00 mm  
Dial Gauge : 0,50 mm

Result : 58,50 mm

# ABSOLUTE Digimatic Height Gauge

ABSOLUTE®

Functions	Series 570
ORIGIN	●
ZERO/ABS	●
±SWITCHING	●
ON/OFF	●
DATA/HOLD	●
Low voltage alarm	●
Data output	●
PRESET	●

## Specifications

Accuracy	Refer to the list of specifications. (excluding quantizing error)
Digital step	0,01 mm
Scale	ABSOLUTE electrostatic linear encoder
Max. response speed	Unlimited
Battery life	approx. 5000 hours
Display	LCD, 6-digit
Delivered	Including 1 battery, scriber and scriber clamp

## Standard accessories

No.	Description
901338	Scriber Clamp, 6,35x12,7mm
900173	Carbide Tipped Scriber, 6,35x12,7mm, 47mm Length
05GZA033	Scriber Clamp, 9x9mm
905200	Carbide-tipped Scriber, 9x9mm, 150mm Length

901338, 900173: 570-227, 570-244  
05GZA033, 905200: 570-230

## Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
953639	Holding Bar for Swivel Clamp, 6,25x12,7mm, 50mm Length
953638	Holding Bar for Swivel Clamp, 9x9mm, 50mm Length
900209	Holding Bar for Swivel Clamp, 9x9mm, 100mm Length
900321	Swivel Clamp, for Ø4/8mm, Dovetail

953639: 570-227  
953638, 900209: 570-230

## Consumable spares

No.	Description
938882	Battery SR44 1.5V



953638



900321

## Series 570

This Digimatic height gauge is very precise and reliable, and offers you the following benefits:

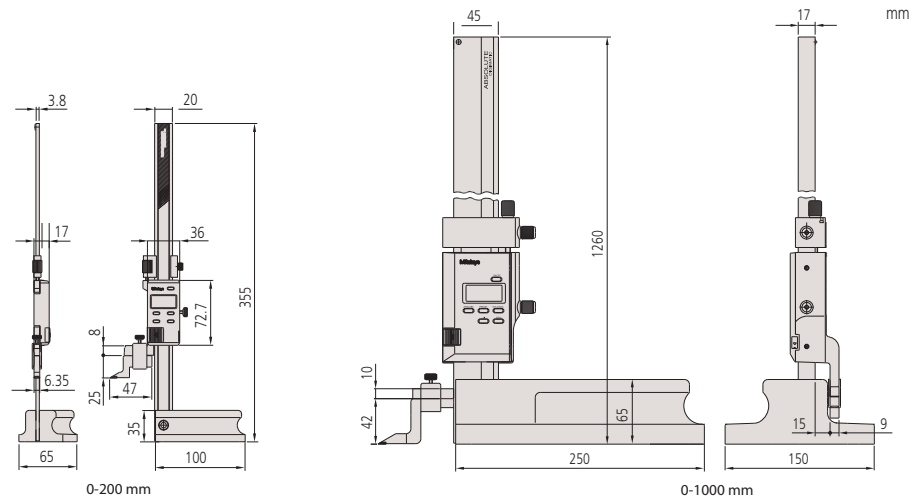
- Its built-in ABSOLUTE linear encoder means you don't have to set the reference point at every power-on, improving reliability as over-speed errors cannot occur.
- Fine-adjustment gives you precise positioning.
- It comes with large and smooth-acting slider hand wheel for coarse- and fine-adjustments (570-3xx only).
- A carbide-tipped scriber is provided.
- SPC data output.



570-227

## Metric

No.	Range [mm]	Accuracy	Remarks	Mass [kg]
570-227	0-200	±0,03 mm	2 x PRESET	1,3
570-230	0-1000	±0,07 mm		16,8



# ABSOLUTE Digimatic Height Gauge

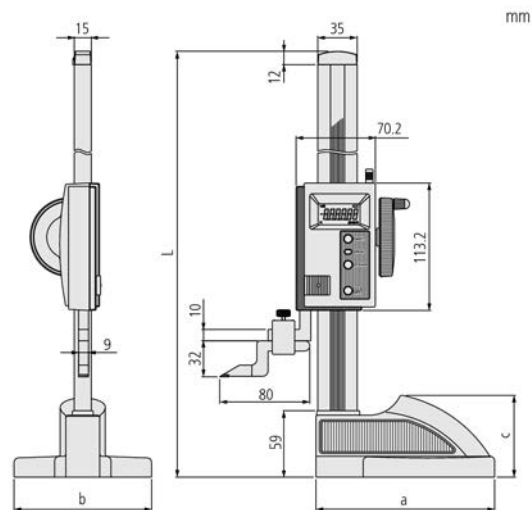
## Series 570

This Digimatic height gauge is very precise and reliable, and offers you the following benefits:

- Its built-in ABSOLUTE linear encoder means you don't have to set the reference point at every power-on, improving reliability as over-speed errors cannot occur.
- It comes with large and smooth-acting slider hand wheel
- A carbide-tipped scriber is provided.
- SPC data output.



570-302



### Metric

No.	Range [mm]	Accuracy	L [mm]	A [mm]	B [mm]	C [mm]	Mass [kg]
570-302	0-300	±0,03 mm	507	160	122	72,6	4,6
570-304	0-600	±0,05 mm	812	181	142	74,1	6,4



Large smooth slider handwheel



Fits the hand comfortably



Large clamp lever

## ABSOLUTE<sup>+</sup>

Functions	Series 570
ORIGIN	●
ZERO/ABS	●
ON/OFF	●
DATA/HOLD	●
Low voltage alarm	●
Data output	●

### Specifications

Accuracy	Refer to the list of the specifications. (excluding quantizing error)
Digital step	0,01 mm
Scale	ABSOLUTE electrostatic linear encoder
Max. response speed	Unlimited
Battery life	approx. 20000 hours
Display	LCD, Character Height 10 mm
Delivered	Including 1 battery, scriber and scriber clamp

### Standard accessories

No.	Description
05GZA033	Scriber Clamp, 9x9mm
07GZA000	Carbide Tipped Scriber, 9x9mm, 80mm Length

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
953638	Holding Bar for Swivel Clamp, 9x9mm, 50mm Length
900321	Swivel Clamp, for Ø4/8mm, Dovetail

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



953638



900321





# Digimatic Height Gauge Double Column Type

Functions	Series 192
ZERO/ABS	●
PRESET (2 values)	●
±SWITCHING	●
ON/OFF	●
DATA/HOLD	●
Low voltage alarm	●
Data output	●

## Specifications

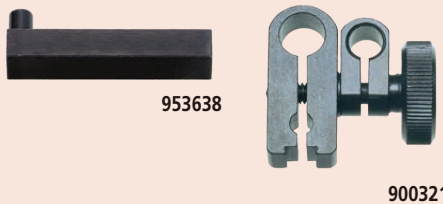
Accuracy	Refer to the list of specifications. (excluding quantizing error)
Digital step	0,01/0,005 mm
Max. response speed	500 mm/s
Battery life	approx. 3500 hours
Display	LCD, Character Height: 11 mm
Delivered	Including scriber, scriber holder, 1 battery and cover

## Standard accessories

No.	Description
05GZA033	Scriber Clamp, 9x9mm
07GZA000	Carbide Tipped Scriber, 9x9mm, 80mm Length
450291	Vinyl Cover Series 192, 300mm
450292	Vinyl Cover Series 192, 600mm
450290	Vinyl Cover Series 192, 1000mm

## Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
953638	Holding Bar for Swivel Clamp, 9x9mm, 50mm Length
900321	Swivel Clamp, for Ø4/8mm, Dovetail



## Series 192

This is a high accuracy height gauge which offers you the following benefits:

- Its double-column structure ensures high measuring accuracy.
- Carbide-tipped scriber provided
- Large character height of 11 mm provides good readability.
- SPC data output

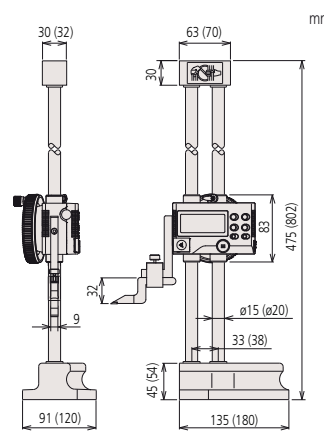


192-613-10

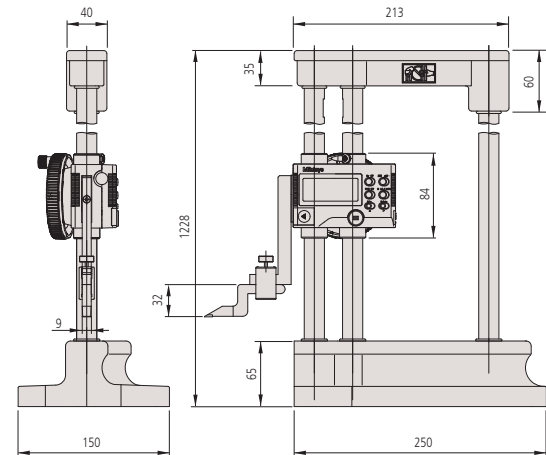


## Metric

No.	Range [mm]	Accuracy	Mass [kg]
192-613-10	0-300	±0,02 mm	4,7
192-614-10	0-600	±0,05 mm	8,3
192-615-10	0-1000	±0,07 mm	15,7



0-300 mm  
(0-600 mm)



0-1000 mm

# Digimatic Height Gauge Double Column Type with Touch Trigger Probe Connector

## Series 192

- Carbide-tipped long scriber is provided.
- Double-column structure ensures high measuring accuracy
- Bidirectional touch-trigger probe is an optional accessory. It can quickly and accurately measure steps as well as inside and outside dimensions.

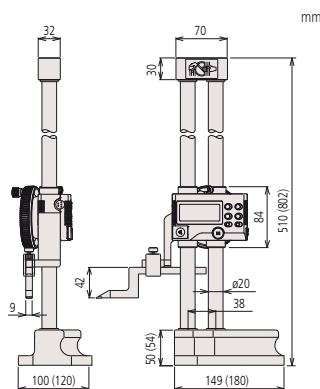


192-663-10

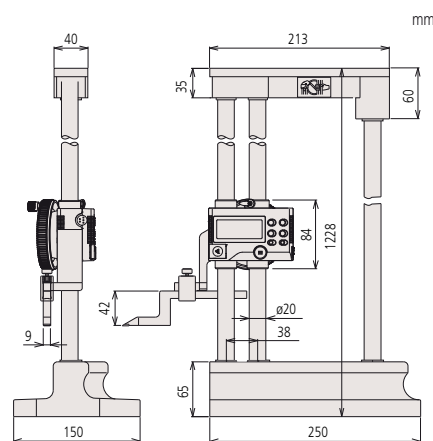


### Metric

No.	Range [mm]	Accuracy	Mass [kg]
192-663-10	0-300	±0,02 mm	5,7
192-664-10	0-600	±0,04 mm	8,3
192-665-10	0-1000	±0,06 mm	15,7



0-300 mm  
(0-600 mm)



0-1000 mm

Functions	Series 192
ZERO/ABS	●
PRESET (2 values)	●
±SWITCHING	●
ON/OFF	●
DATA/HOLD	●
Stylus tip diameter compensation	●
Touch-trigger probe	●
Low voltage alarm	●
Data output	●

### Specifications

Accuracy	Refer to the list of specifications. (excluding quantizing error)
Digital step	0,01/0,005 mm
Max. response speed	500 mm/s
Repeatability	0,01 mm
Battery life	approx. 3500 hours
Display	LCD, Character Height: 11 mm
Delivered	Including scriber, scriber holder, 1 battery and cover

### Standard accessories

No.	Description
05GZA033	Scriber Clamp, 9x9mm
905200	Carbide-tipped Scriber, 9x9mm, 150mm Length
450291	Vinyl Cover Series 192, 300mm
450292	Vinyl Cover Series 192, 600mm
450290	Vinyl Cover Series 192, 1000mm

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
192-007	Bi-Directional Touch Trigger Probe, for Series 192, Metric
953638	Holding Bar for Swivel Clamp, 9x9mm, 50mm Length
900209	Holding Bar for Swivel Clamp, 9x9mm, 100mm Length
900321	Swivel Clamp, for Ø4/8mm, Dovetail

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



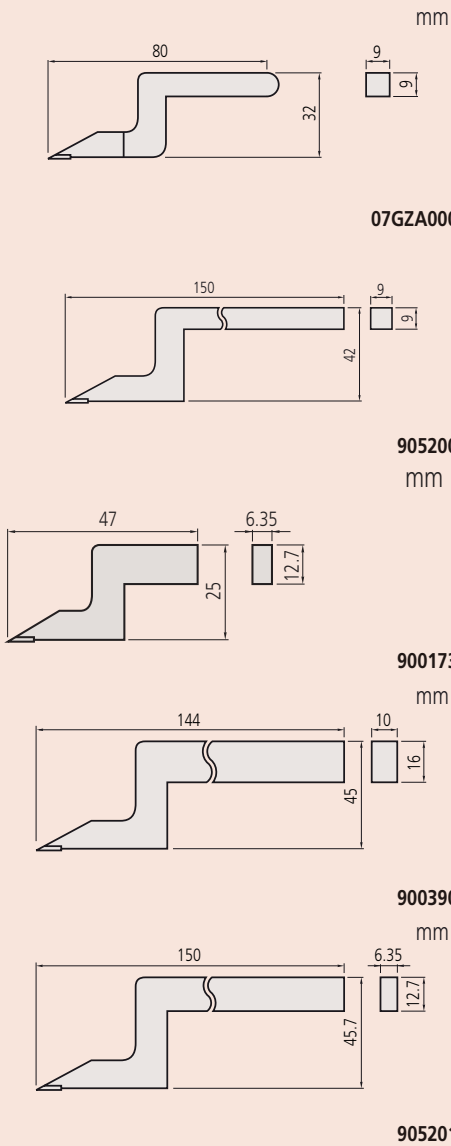
192-007

# Spare Parts for Height Gauges

## Standard accessories for Height Gauges

These are optional accessories and spare parts for height gauges, that you can use for different tasks.

- Various accessories are available for using height gauges in different applications.
- Hard-wearing carbide-tipped scribers are available for all height gauges.



### Carbide-tipped scribers

No.	Applicable height gauges	Description
<b>07GZA000</b>	192-130, 192-131, 192-132, 192-133 192-613-10, 192-614-10, 192-615-10 514-102, 514-104, 514-106 570-302, 570-304	Carbide tipped scriber (9 x 9 mm) 80 mm length
<b>905200</b>	192-663-10, 192-664-10, 192-665-10 514-108 570-230	Carbide tipped scriber (9 x 9 mm) 150 mm length
<b>900173</b>	570-227 506-207	Carbide tipped scriber (12,7 x 6,35 mm) 47 mm length
<b>900390</b>	514-170	Carbide tipped scriber (16 x 10 mm) 144 mm length

### Scriber clamps

No.	Applicable height gauges	Description
<b>905008</b>	514-170	Scriber clamp (16 x 10 mm)
<b>05GZA033</b>	192-130, 192-131, 192-132, 192-133 192-613-10, 192-614-10, 192-615-10 192-663-10, 192-664-10, 192-665-10 514-102, 514-104, 514-106, 514-108 570-230 570-302, 570-304	Scriber clamp (9 x 9 mm)
<b>07GZA004</b>	570-227, 570-244, 506-207	Scriber clamp with plastic screw (12,7 x 6,35 mm)

# Optional Accessories for Height Gauges

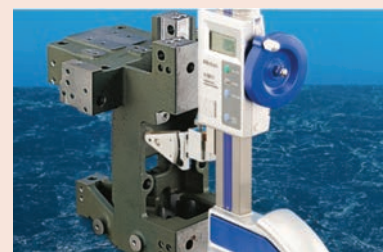
## Optional accessories for Height Gauges

These are optional accessories and spare parts for height gauges, that you can use for different tasks.

- Various accessories are available for using height gauges in different applications.
- Hard-wearing carbide-tipped scribers are available for all height gauges.

### Center master

No.	Remarks	Applicable height gauges
900581	Center master (12,7 x 6,35 mm)	570-227, 570-244 506-207
		192-630-10, 192-631-10, 192-632-10, 192-633-10 570-248
951144	Center master (9 x 9 mm)	192-130, 192-131, 192-132, 192-133
		192-613-10, 192-614-10, 192-632-10, 192-633-10 570-312, 570-313, 570-314 192-670-10, 192-671-10, 192-672-10, 192-673-10 514-108, 514-109



Center master



Depth Gage Attachment

### Depth measurement attachment

No.	Remarks	Applicable height gauges
900764	Depth measurement attachment	192-130, 192-131, 192-132, 192-133 192-613-10, 192-614-10, 192-615-10
		514-102, 514-103, 514-104, 514-105, 514-106, 514-107 570-302, 570-304 192-663-10, 192-664-10, 192-665-10 514-108, 514-109
900878	Depth measurement attachment (12,7 mm x 6,35 mm)	570-227, 570-244 506-207
		192-630-10, 192-631-10, 192-632-10, 192-633-10 570-248

### Electrical contact sensor

No.	Applicable height gauges
900872	For all height gauges on a granite surface plate. For electroconductive parts with a sufficient contact surface.



Electrical contact sensor  
900872

# QM-Height

## Series 518

This is a high precision ABSOLUTE digital height gauge that offers you the following benefits:

- It has a high accuracy, high resolution ABSOLUTE linear encoder for position detection.
- Types with and without pneumatic drive mechanism
- Automatic running of prelearnt part programs
- You can easily implement frequently used measurements, such as inside/outside diameter and pitch calculations, by icon-based commands that also support easy one-key operation.
- Extraordinary battery life
- GO/±NG judgement is performed by setting the upper and lower tolerances.
- Display is mounted fixed to the housing for more comfortable usage. Probe moves independently during measurements.

### Specifications

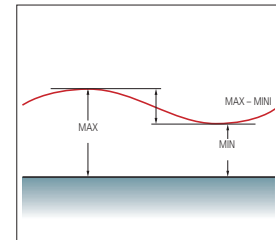
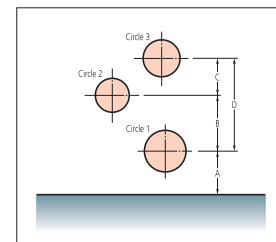
Digital step	0,001 mm/0,005 mm
Accuracy	±(2,4+2,1L/600) μm L = Measuring length (mm)
Repeatability (±2σ)	1,8 μm
Scale	ABSOLUTE electromagnetic inductive
Measuring force	1,5 ± 0,5 N
Drive method	Manual
Guiding method	Roller bearing
Power supply	Alkaline battery size AA LR6 (4pcs.), rechargeable battery size AA Ni-MH (4pcs.), AC-Adapter (optional)
Battery life	Approx. 1200 h (without air floating) Approx. 90 h (with air floating)
Display	TN monochrome LCD
Measuring function	1D measurement: height diameter, pitch, Max/Min/TIR (Max-Min), tolerance, preset, data memory

### Standard accessories

No.	Description
011037	Battery LR6 (AA) 4x
12AAA715	Setting Block Linear Height/QM-Height, Probe Calibration
05HZA148	Ball Offset Probe QM-Height, Ø5mm, Standard Accessory

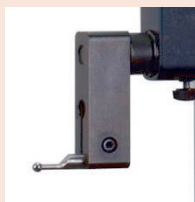
### Optional accessories

No.	Description
936937	Digimatic Cable, Flat 10-Pin Type, 1m
965014	Digimatic Cable, Flat 10-Pin Type, 2m
06AFM380D	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat 10-Pin Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790D	U-WAVE-T Connection Cable D, Flat 10-Pin Type
02AZE990	U-WAVE-T Mounting Plate
06AEG180D	AC-Adapter, 6V 2A, CEE Type

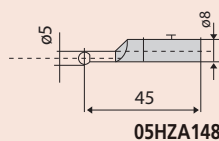


No.	Range	Perpendicularity	Air floating	Mass [kg]
518-240	0-350/0-465*	7 μm	no	25
518-242	0-600/0-715*	12 μm	no	26
518-244	0-350/0-465*	7 μm	yes	29
518-246	0-600/0-715*	12 μm	yes	30

\*Range with probe turned to upward position



05HZA148



05HZA148



02AZE990 for U-WAVE (wireless system)



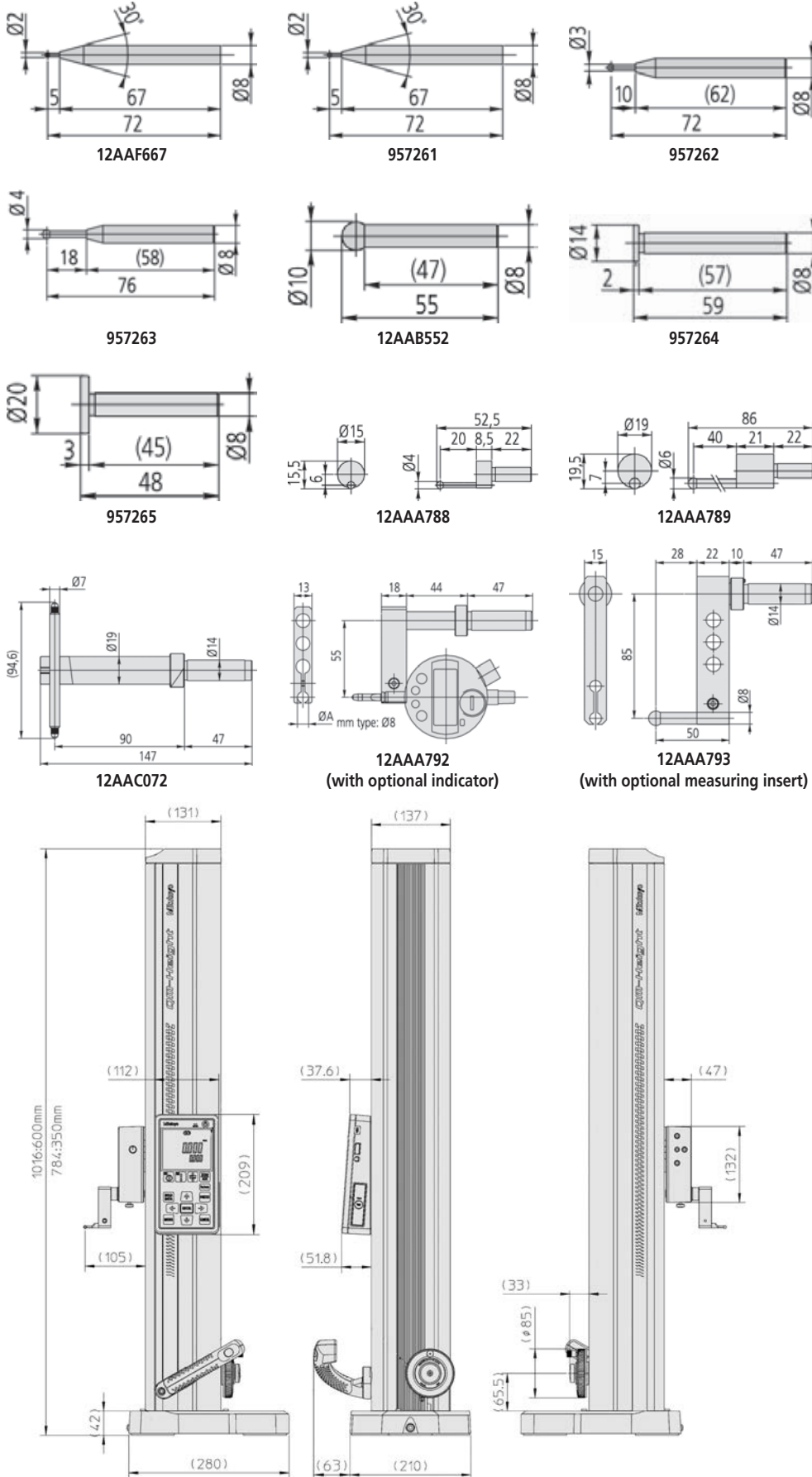
Scan QR Code with your mobile device and watch our product videos on YouTube





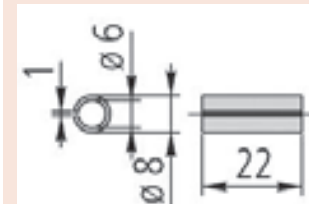
# Optional Accessories for QM-Height

## Series 518 - Optional Accessories for QM-Height



### Optional accessories

No.	Description
12AAF667	Ball Probe Coaxial Type, Ø2mm, Ruby, 72mm Length
957261	Ball Probe Coaxial Type, Ø2mm, 72mm Length
957262	Ball Probe Coaxial Type, Ø3mm, 72mm Length
957263	Ball Probe Coaxial Type, Ø4mm, 76mm Length
12AAB552	Ball Probe, Coaxial Type, Ø10mm, 50mm Length
957264	Disk Probe Coaxial Type, Ø14mm, 59mm Length
957265	Disk Probe Coaxial Type, Ø20mm, 48mm Length
12AAA788	Ball Probe Eccentric Type Ø4mm
12AAA789	Ball Probe Eccentric Type Ø6mm
12AAC072	Depth Probe
12AAA792	Indicator Holder LH-600, QM-Height, for 8mm Stem
12AAA793	Probe Extension Holder LH-600, QM-Height, 85mm
226116	Collar 6mm to 8mm



226116



Inside diameter



Outside diameter

# Linear Height LH-600E/EG

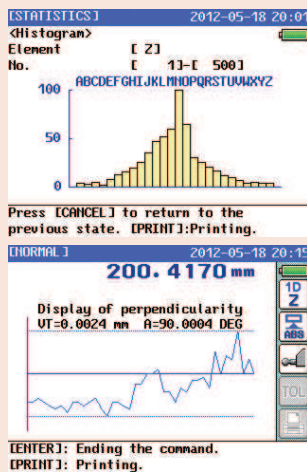


## Specifications

Slider stroke	600 mm
Digital step	0,0001/0,001/0,01/0,1 mm
Accuracy	(1,1 + 0,6L/600) μm L = length (mm)
Perpendicularity	5 μm (after compensation)
Straightness	4 μm (mechanical)
Language for display	English/German/French/Spanish/ Italian/Dutch/Portuguese/ Swedish/Turkish/Czech/ Hungarian/Slovenian/Polish/ Traditional Chinese (optional)/ Japanese
Drive method	Manual/motor (5-40 mm/s, 7 steps)
Suspension method	Full/semi-floating with built-in air compressor
Balancing method	Counter balance
Number of stored programs	50 programs (max.)
Number of stored data	60.000 (max.)
Battery operation time	approx. 5 hours
Probes	See specific chapter on Probes
Measuring force	1 N
Display	Graphic LCD 320x240 dots (with back light)

## Standard accessories

No.	Description
12AAA715	Setting Block Linear Height/QM-Height, Probe Calibration
12AAF634	Eccentric Probe LH-600, Standard Accessory, Ø5mm
12AAF712	Battery Pack, LH-600, Standard Accessory
223587	Dust Cover LH-600
357651	AC adapter 12V, for SJ-210/SJ-310/LH-600



Linear Height LH-600 brochure on request



Scan QR Code with your mobile device and watch our product videos on YouTube

## Series 518

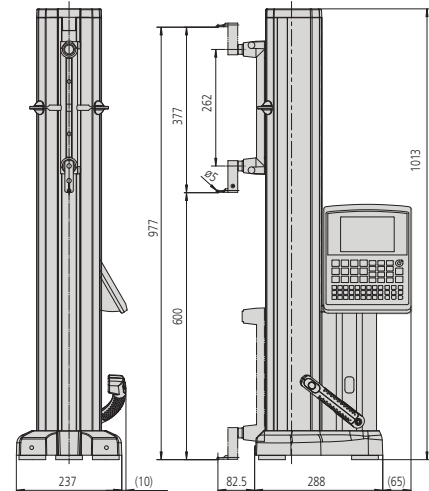
This is a high performance 2D measurement system.

The Linear Height Gauge LH-600E/EG offers you a huge range of features, including:

- Excellent accuracy.
- Pneumatic drive mechanism.
- Self-explanatory control pad with menu control in display.
- Easy-to-read LCD display.
- Automatic running of pre-learned part programs.
- GO/± NG display at each measurement.
- Mains-independent operation with rechargeable battery.
- Easy handling with low weight.
- RS-232C data output port.
- USB Data output (for storing data only).
- DIGIMATIC data input for when using a digital indicator (e.g. when testing perpendicularity).
- Statistic processing.



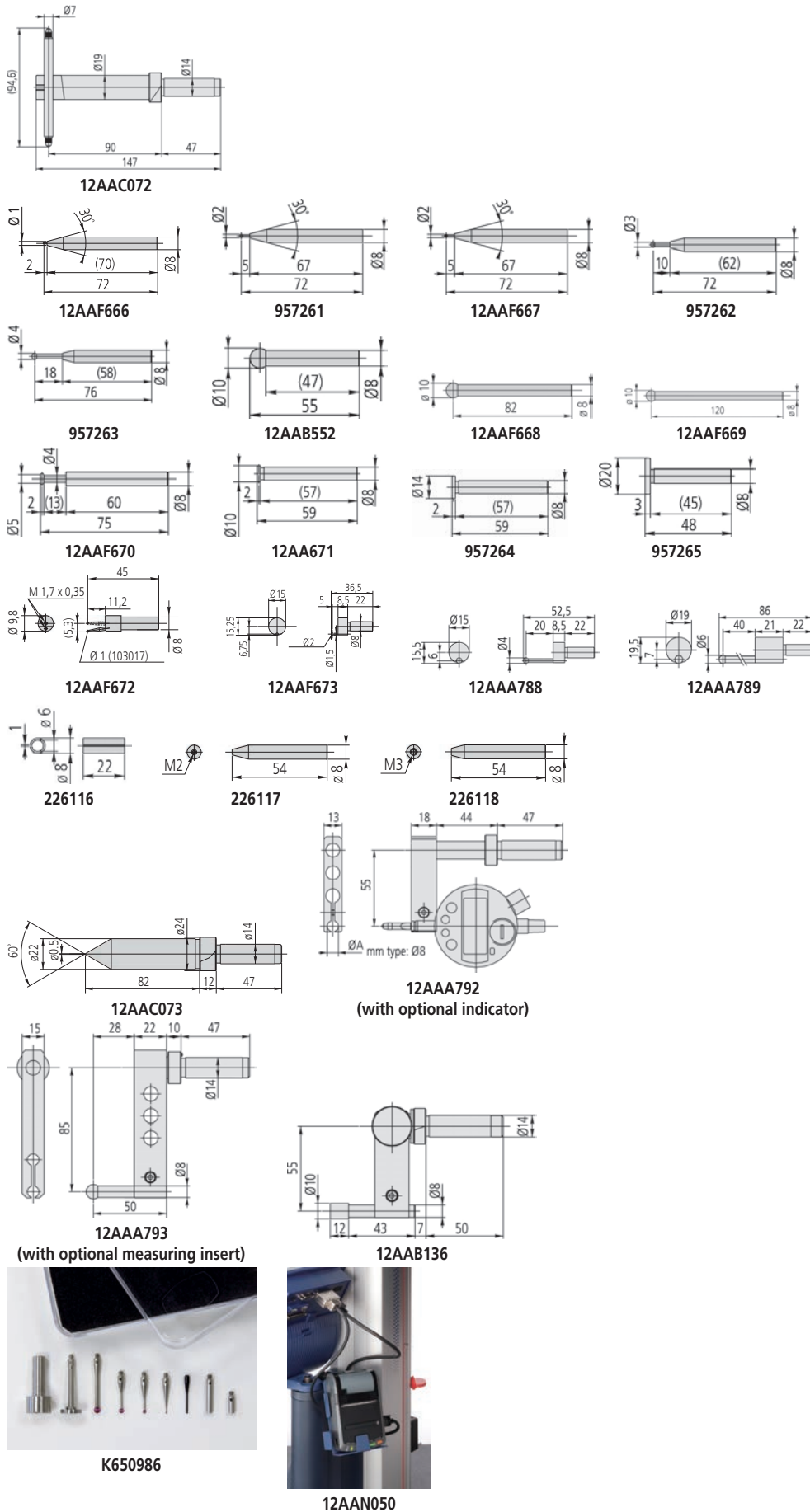
518-351D-21 518-352D-21



No.	Range [mm]	Remarks	Mass [kg]
518-351D-21	0-972		24
518-352D-21	0-972	Power grip pre-installed	24

# Optional Accessories for Linear Height

## Series 518



## Optional accessories

No.	Description
<b>1. Probe diameter calibration block</b>	
12AAA787	Setting Block Linear Height/QM-Height, Probe Calibration, Taper Probe also
<b>2. Depth measurement</b>	
12AAC072	Depth Probe
<b>3. Interchangeable measuring insert (or stylus) for eccentric probe (standard accessory)</b>	
12AAF666	Ball Probe Coaxial Type, Ø1mm, 72mm Length
957261	Ball Probe Coaxial Type, Ø2mm, 72mm Length
12AAF667	Ball Probe Coaxial Type, Ø2mm, Ruby, 72mm Length
957262	Ball Probe Coaxial Type, Ø3mm, 72mm Length
957263	Ball Probe Coaxial Type, Ø4mm, 76mm Length
12AAB552	Ball Probe, Coaxial Type, Ø10mm, 50mm Length
12AAF668	Ball Probe Coaxial Type, Ø10mm, 82mm Length
12AAF669	Ball Probe Coaxial Type, Ø10mm, 120mm Length
12AAF670	Disk Probe Coaxial Type, Ø5mm, 75mm Length
12AAF671	Disk Probe Coaxial Type, Ø10mm, 59mm Length
957264	Disk Probe Coaxial Type, Ø14mm, 59mm Length
957265	Disk Probe Coaxial Type, Ø20mm, 48mm Length
12AAF672	Ball Probe Eccentric Type Ø1mm
12AAF673	Ball Probe Eccentric Type Ø2mm
12AAA788	Ball Probe Eccentric Type Ø4mm
12AAA789	Ball Probe Eccentric Type Ø6mm
226116	Collar 6mm to 8mm
226117	CMM Stylus Adapter M2
226118	CMM Stylus Adapter M3
<b>4. Special holder, special probe</b>	
12AAC073	Tapered Measuring Insert, Ø22mm
12AAA792	Indicator Holder LH-600, QM-Height, for 8mm Stem
12AAA793	Probe Extension Holder LH-600, QM-Height, 85mm
12AAB136	Cylindrical Probe, Ø10mm
<b>5. Others</b>	
12AAF674	Auxiliary Weight, LH-600, 1 pcs.
K650986	Stylus Kit M3 "Linear Height"
<b>6. Printer and interface</b>	
12AAN052	Printer Paper for 12AAN050, 10 pcs.
12AAA804	Printer Cable 2m, for Page Printer
12AAA807D	Cable RS-232C 2m
12AAN050	Receipt Printer for LH-600E/EG, CEE Type
<b>7. Battery</b>	
12AAF712	Battery Pack, LH-600, Standard Accessory

Recommended model for A4 printer: EPSON LQ-590  
 K650986: holder M3/disk probe Ø 12 mm/  
 ruby ball probe Ø 1, 2, 3, 4 mm/extension 10, 20 mm



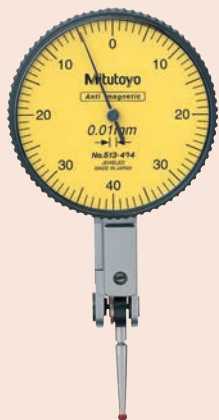
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**Dial Indicator**  
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**Accessories for Indicator**  
Page 266



**Dial Test Indicator**  
Page 275



**Accessories for Dial Test Indicators**  
Page 286



**Thickness Gauge, Caliper Gauge**  
Page 288



# ABSOLUTE Digimatic Solar Indicator ID-SS

## Series 543

This solar-powered, standard model is environmentally friendly and very easy to use.

The ABSOLUTE Digimatic Solar Indicator ID-SS offers you the following benefits:

- The ABSOLUTE sensor means you don't have to carry out origin setting every time you power it on, saving you time and hassle.
- There's no battery to change.
- The solar cell operates from just 40 Lux.
- Super-capacitor charge storage enables you to work in low-level lighting conditions of less than 40 Lux.
- You can access all functions by using the large, user-friendly buttons on the front of the indicator.
- Large character height of 9 mm provides good readability.



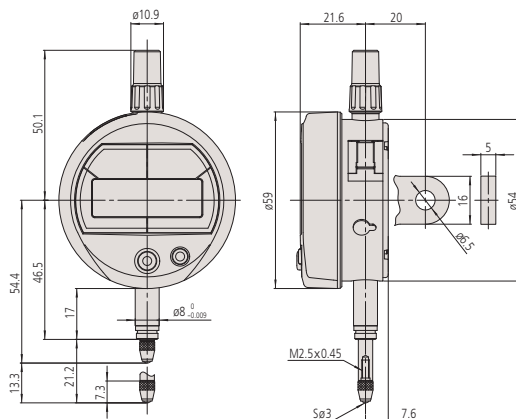
543-500B

543-505B

### Metric

No.	No. Lug back plate	Range	Digital step	Max. permissible error of indication	Hysteresis	Repeatability	Measuring force [N]	Mass lug/plain [g]
543-500B	543-500	12,7 mm	0,001 mm	0,003 mm	0,002 mm	0,002 mm	≤ 1,5	150/140
543-505B	543-505	12,7 mm	0,01 mm	0,02 mm	0,02 mm	0,01 mm	≤ 1,5	150/140

No. with "B": Flat back plate



Functions	Series 543
ORIGIN (ABS-Zero)	●
Digimatic data output	●
Counting direction switchable	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Capacitance type, absolute linear encoder
Max. response speed	Unlimited
Stem Ø	8 mm
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Counting value composition error
Power supply	Solar cell usable from 40 Lux illumination
Display	LCD character height 9 mm

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
21EZA198	Spindle Lifting Lever, for 12,7mm Range
540774	Spindle Lifting Cable, 500mm
21EZA105	Spindle Lifting Knob, for 12,5mm, Metric

For USB Input Tool Direct cable: a footswitch (no. 937179T), a USB- footswitch adapter (no. 06ADV384) and USB-ITPAK Software (no. 06AEN846) are required.

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

### Illuminance

2000 Lux	engraving invisible mending
1500 Lux	clockmaker electronic workshop
750-1000 Lux	technical drawing precision mechanic work
500 Lux	bureau
200-300 Lux	working with manufacturing machines
150 Lux	passages with vehicles loading zone
100 Lux	lunch room, passages
50 Lux	warehouse storage room



# ABSOLUTE Digimatic Indicator ID-S

Functions	Series 543
ORIGIN (ABS-Zero)	
Digimatic data output	
ON/OFF	
Counting direction switchable	

## Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Capacitance type, ABSOLUTE linear encoder
Max. response speed	Unlimited
Stem Ø	8 mm
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Low voltage, counting value composition error
Power supply	1 battery SR-44
Battery life	approx. 18000 hours (0.001 mm type) approx. 20000 hours (0.01 mm type)
Display	LCD, character height 9 mm

## Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
21EZA198	Spindle Lifting Lever, for 12,7mm Range
540774	Spindle Lifting Cable, 500mm
21EZA105	Spindle Lifting Knob, for 12,5mm, Metric
238774	Silicon rubber boot for ID-C, ID-N, ID-S

For USB Input Tool Direct cable: a footswitch (no. 937179T), a USB-footswitch adapter (no. 06ADV384) and USB-ITPAK Software (no. 06ADV386) are required. 238774 only for 543-794B

## Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
938882	Battery SR44 1.5V
02ACA376	NBR Rubber Boot, for ID-C, ID-N, ID-S

02ACA376 only for 543-794B



21EZA198



540774



21EZA105

## Series 543

This is a standard model of indicator that is reliable and easy to use. The ABSOLUTE Digimatic Indicator ID-S offers you the following benefits:

- The ABSOLUTE sensor means you don't have to carry out origin setting every time you power it on, saving you time and hassle.
- You can access all functions by using the large, user-friendly buttons on the front of the indicator.
- Large character height of 9 mm provides good readability.
- Exceptional battery life.



543-781B



543-790B

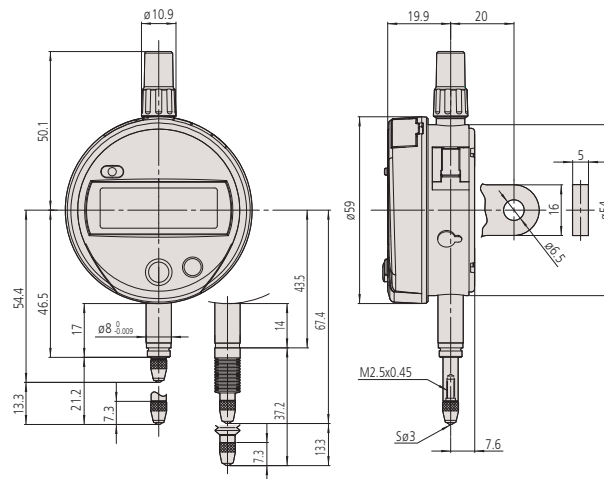


543-794B

## Metric

No.	No. Lug back plate	Range	Digital step	Max. permissible error of indication	Hysteresis	Repeatability	Measuring force [N]	Remarks	Mass Lug/flat [g]
543-781B	543-781	12,7 mm	0,01 mm	0,02 mm	0,02 mm	0,01 mm	≤ 1,5	IP42	140/150
543-790B	543-790	12,7 mm	0,001 mm	0,003 mm	0,002 mm	0,002 mm	≤ 1,5	IP42	140/150
543-794B	543-794	12,7 mm	0,001 mm	0,003 mm	0,002 mm	0,002 mm	≤ 2,5	IP53	140/150

No. with "B": Flat back plate



# ABSOLUTE Digimatic Indicator ID-U

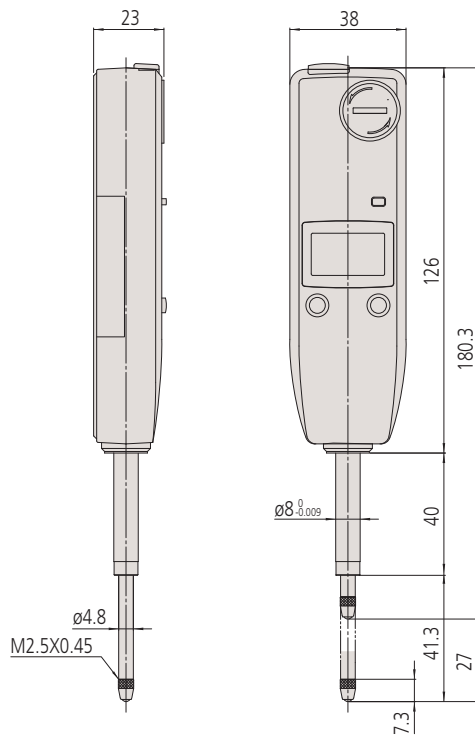
## Series 575

This is a slim type of digital indicator with a 25 mm range.  
The ABSOLUTE Digimatic Indicator ID-U offers you the following benefits:

- The ABSOLUTE sensor means you don't have to carry out origin setting every time you power it on, saving you time and hassle.
- Its compact design makes it ideal for installing into measuring fixtures.
- Exceptional battery life.



575-121



### Metric

No.	Range	Max. permissible error of indication	Measuring force [N]	Mass [g]
575-121	25,4 mm	0,02 mm	≤ 1,8	140



Functions	Series 575
ORIGIN (ABS-Zero)	●
Digimatic data output	●
ON/OFF	●
Counting direction switchable	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,01 mm
Scale	Capacitance type, ABSOLUTE linear encoder
Stem Ø	8 mm
Max. response speed	Unlimited
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Low voltage, counting value composition error
Power supply	1 battery SR-44
Battery life	approx. 20000 hours
Display	LCD, character height 8,5 mm

### Standard accessories

No.	Description
137693	Spindle Lifting Handle

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
540774	Spindle Lifting Cable, 500mm

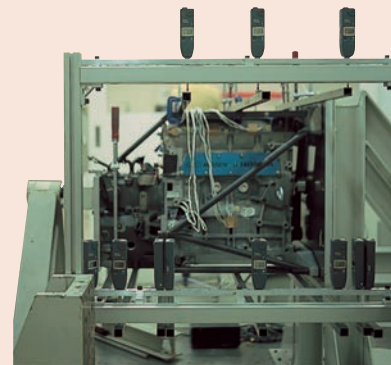
540774: moving measuring range max. 12mm

For USB Input Tool Direct cable:

a footswitch (no. 937179T), a USB- footswitch adapter (no. 06ADV384) and USB-ITPAK Software (no. 06ADV386) are required.

### Consumable spares

No.	Description
938882	Battery SR44 1.5V
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric



# ABSOLUTE Digimatic Indicator ID-C

## Series 543

This is a multifunction indicator that is reliable and easy to use. The ABSOLUTE Digimatic Indicator ID-C offers you the following benefits:

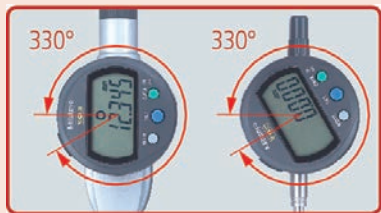
- The ABSOLUTE sensor means you don't have to carry out origin setting every time you power it on, saving you time and hassle.
- GO/±NG judgement is performed by setting the upper and lower tolerances.
- You can make simple calculations by a user-definable factor using the formula Ax (,'x' is spindle displacement).
- Large character height of 11mm provides good readability.
- Display 330° rotatable.
- A function lock protects the display against unauthorised use.

**ABSOLUTE®**  
**IP42**



Calculation :  $f(x) = Ax$

Mounting the ID-C on a measuring fixture and setting the multiplying factor "A" (between 0,0001 and 99,9999) allows direct measurement without using a conversion table and improves measurement efficiency



**330° rotary display**

The display can be rotated 330°, allowing use at a position where you can easily read the measurement value



**Function locking**

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



**Large LCD**

The large LCD incorporates 11 mm characters making measurement values much easier to read



**Tolerance function**

2 kinds of tolerance visualisation



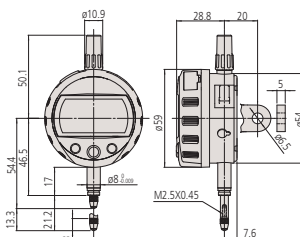
12,7 mm range model



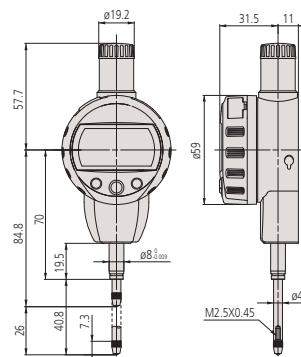
25,4 mm range model



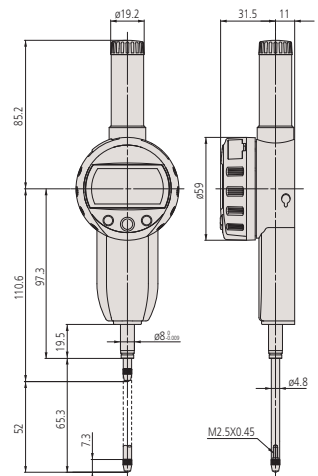
50,8 mm range model



12,7 mm range models



25,4 mm range models



50,8 mm range models

# ABSOLUTE Digimatic Indicator ID-C

## Series 543

Metric

No.	No. Lug back plate	Range	Digital step	Max. permissible error of indication	Hysteresis	Repeatability	Measuring force [N]	Remarks	Mass [g]
543-390B	543-390	12,7	0,001 mm	0,003 mm	0,002 mm	0,002 mm	≤ 1,5		170
543-394B	543-394	12,7	0,001 mm	0,003 mm	0,002 mm	0,002 mm	0,4 - 0,7	Low force	170
543-400B	543-400	12,7	0,01 mm	0,02 mm	0,02 mm	0,01 mm	≤ 0,9		170
543-404B	543-404	12,7	0,01 mm	0,02 mm	0,02 mm	0,01 mm	0,2 - 0,5	Low force	170
543-470B		25,4	0,001 mm	0,003 mm	0,002 mm	0,002 mm	≤ 1,8		190
543-474B		25,4	0,01 mm	0,02 mm	0,02 mm	0,01 mm	≤ 1,8		190
543-490B		50,8	0,001 mm	0,005 mm	0,002 mm	0,002 mm	≤ 2,3		260
543-494B		50,8	0,01 mm	0,04 mm	0,02 mm	0,01 mm	≤ 2,3		260

No. with "B": Flat back plate  
Specification low measuring force models : see below



Spindle lifting handle



Spindle lifting lever



Spindle lifting lever



Spindle lift knob



Spindle lifting cable 500 mm



Spindle lifting cable 300 mm

## Setting measuring force on low measuring force models

### •543-404/404B

Spindle orientation	Spring	Weight (approximately 0.1N)	Maximum measuring force
Pointing vertically downward	Yes	Yes	0.5N
	Yes	No	0.4N
	No	Yes	0.3N
	No	No	0.2N
Horizontal	Yes	No	0.2N

### •543-394/394B

Spindle orientation	Spring	Weight (approximately 0.1N)	Maximum measuring force
Pointing vertically downward	Yes	Yes	0.7N
	Yes	No	0.6N
	No	Yes	0.4N
	No	No	Not defined
Horizontal	Not defined		

Functions	Series 543
ZERO/ABS	●
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
DATA/HOLD	●
Lock function	●
PRESET	●
Calculation function	●
Counting direction switchable	●
Selectable resolution*	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Capacitance type, ABSOLUTE linear encoder
Max. response speed	Unlimited
Stem Ø	8 mm
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Low voltage, counting value composition error, overflow error, tolerance limit setting error
Power supply	1 battery SR-44
Battery life	approx. 7000 hours
Display	LCD character height 11 mm Rotatable 330°

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
21EZA198	Spindle Lifting Lever, for 12,7mm Range
540774	Spindle Lifting Cable, 500mm
901975	Spindle Lifting Cable Auto-Stop, 300mm
21EZA105	Spindle Lifting Knob, for 12,5mm, Metric
21EZA197	Spindle Lifting Knob, for 25,4mm Range
21EZA200	Spindle Lifting Knob, for 50,8mm Range
137693	Spindle Lifting Handle
02ACA571	Auxiliary Spindle Spring, for 25,4mm Range
02ACA773	Auxiliary Spindle Spring, for 50mm Range

02ACA571 and 02ACA773 : required when orienting the indicator upside down

21EZA105 : not available for low measuring force models

540774 : moving measuring range max. 28 mm

### Consumable spares

No.	Description
938882	Battery SR44 1.5V
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

\*0,001 mm type



# ABSOLUTE Digimatic Indicator Max/Min/RANGE ID-C

ABSOLUTE®  
IP42



Functions	Series 543
PRESET (x3)	●
ZERO/ABS	●
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
Analogue measuring range switchable	●
MAX/MIN/RANGE	●
Lock function	●
Fast measurement mode	●
Calculation function	●
Counting direction switchable	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Measuring force	≤ 1,5 N
Scale	Capacitance ABSOLUTE linear encoder
Max. response speed	Unlimited
Stem Ø	8 mm
Measurement frequency	Standard mode: 10 times/s "Fast" mode: 50 times/s*
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Low voltage, ABS composition error, overflow error, tolerance limit setting error
Power supply	1 battery CR-2032
Battery life	Standard mode: approx. 1 year "Fast" mode: approx. 4.5 month
Display	LCD, character height: 8 mm Rotatable 330°

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
21EZA198	Spindle Lifting Lever, for 12,7mm Range
540774	Spindle Lifting Cable, 500mm
21EZA313	USB Interface for PC Setup, ID-C Indicator

### Consumable spares

No.	Description
05SAA217D	Lithium battery CR-2032, 1 pcs.
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric



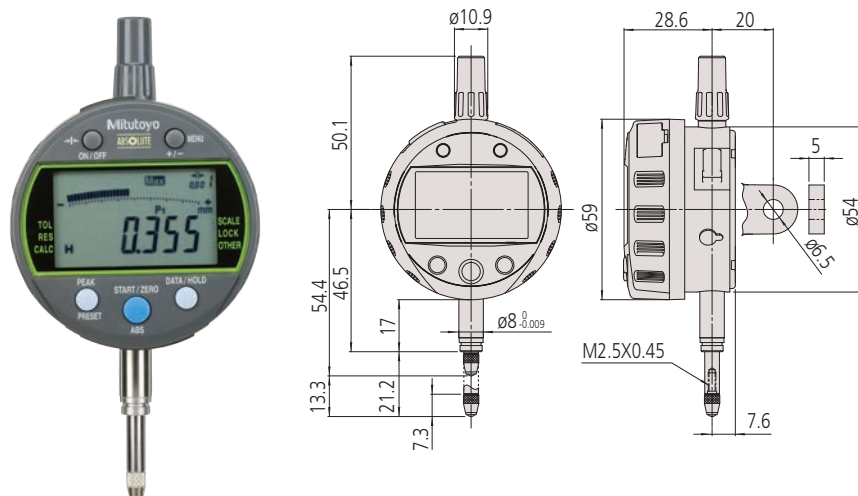
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\*if the plunger speed is > 50 µm/s the peak value may not be displayed correctly

### Series 543

This indicator is the MAX/MIN/RANGE value holding function model. It offers the following benefits:

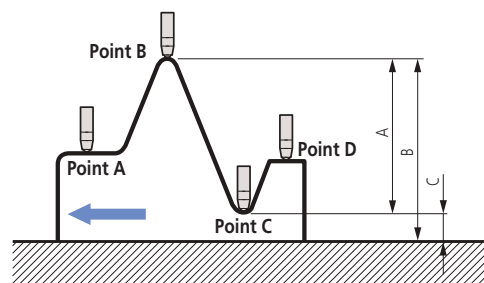
- The MAX/MIN/RANGE (run-out value) can be measured
- A fast measurement frequency mode (detection cycle 20 ms or 50 times/s) is selectable to measure in the peak detection mode (MAX/MIN/RANGE) more reliably
- Easy indicator setup via a setup menu
- Analogue bar graph in the display (12 different scales switchable)
- GO/±NG tolerance judgement function
- This indicator enables the use of a calculation function for the measured value Ax
- Coefficient A is freely definable and x = displacement of the plunger
- A USB interface box can be used to set up the indicator from PC via dedicated software



543-300B

### Metric

No.	No. Lug back plate	Range	Digital step	Max. permissible error of indication	Hysteresis	Repeatability	Mass [g]
543-300B	543-300	12,7 mm	0,001 mm	0,003 mm	0,002 mm	0,002 mm	170



### Difference/Runout measurement

Example : Indicator travel from points A to D : Difference (or Total Runout) is displayed as A. Dimensions B (maximum value) and C (minimum value) can be measured with a simple key sequence.



543-300B  
7001-10



# ABSOLUTE Digimatic Indicator Calculator ID-C

## Series 543

This indicator allows you to use a calculation function for the measured value  $Ax+B+Cx^{-1}$

- The integrated calculation formula is useful in a variety of applications (e.g. roll diameter measurement)
- Coefficients A,B and C are freely definable. X = displacement of the plunger
- Analogue bar graph in the display (14 different scales switchable)
- GO/±NG tolerance judgement function
- MAX/MIN/RANGE function to measure peak values
- A fast measurement frequency mode (detection cycle 20 ms or 50 times/s) is selectable to measure in the peak detection mode (MAX/MIN/RANGE) more reliably
- Easy indicator setup via a setup menu
- A USB interface box can be used to set up the indicator from PC via dedicated software

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Functions	Series 543
PRESET (x3)	●
ZERO/ABS	●
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
DATA/HOLD	●
Analogue measuring range switchable	●
MAX/MIN/RANGE	●
Lock function	●
Selectable resolution	●
Fast measurement mode	●
Calculation function	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,0002/ 0,0005/ 0,001/ 0,002/ 0,005/ 0,01/ 0,02/ 0,05/ 0,1/ 0,2/ 0,5/ 1 mm or non-unit (scale resolution is 0,001 mm)
Scale	Capacitance type, ABSOLUTE linear encoder
Max. response speed	Unlimited
Stem Ø	8 mm
Measurement frequency	Standard mode: 10 times/s "Fast" mode: 50 times/s
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Low voltage, ABS composition error, overflow error, tolerance limit setting error
Power supply	1 battery CR-2032
Battery life	Standard mode: approx. 1 year "Fast" mode: approx. 4.5 month
Display	LCD, character height 8 mm Rotatable 330°

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
21EZA198	Spindle Lifting Lever, for 12,7mm Range
540774	Spindle Lifting Cable, 500mm
21EZA313	USB Interface for PC Setup, ID-C Indicator
21FAJ394	Angle Plate for Calc. ID-C, Radius: 25-70mm
K541281	Angle Plate for Calc. ID-C, Radius: 50-100mm
K541282	Angle Plate for Calc. ID-C, Radius: 100-200mm
21FAJ395	Roll Type Base, Outside: 45-140mm, Inside: 65-100mm

### Consumable spares

No.	Description
055AA217D	Lithium battery CR-2032, 1 pcs.
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric



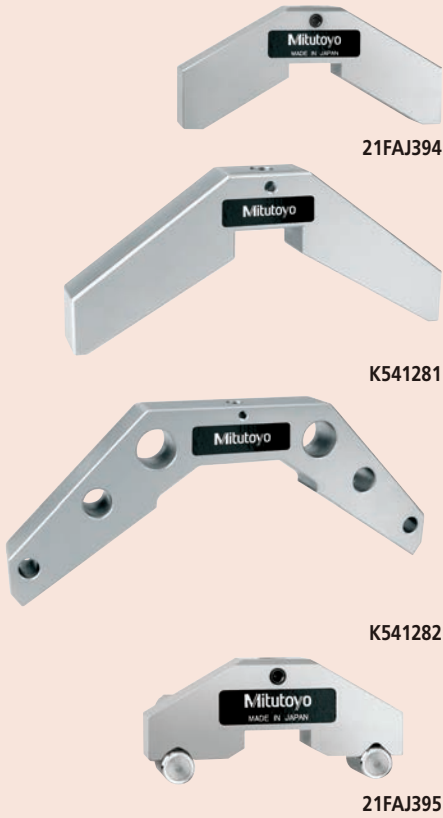
### Metric

No.	Range	Max. permissible error of indication	Hysteresis	Repeatability	Measuring force [N]	Mass [g]
543-340B	12,7 mm	0,003 mm	0,002 mm	0,002 mm	≤ 1,5	170
543-590B	25,5 mm	0,003 mm	0,002 mm	0,002 mm	≤ 1,8	190
543-595B	50,8 mm	0,006 mm	0,002 mm	0,002 mm	≤ 2,3	260

No.	R [µm]
21FAJ394	25 - 70 mm
K541281	50 - 100 mm
K541282	100 - 200 mm
21FAJ395	outside : 45-140 mm / inside : 65-100 mm

The accuracy of a radial measurement using the measuring bridges depends on the size of the radius to be measured and the form error of the workpiece.

# ABSOLUTE Digimatic Indicator Calculator ID-C

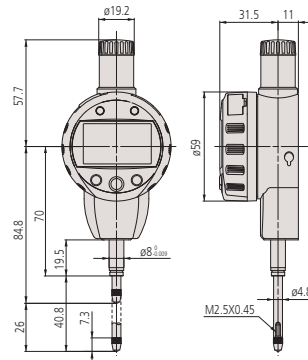
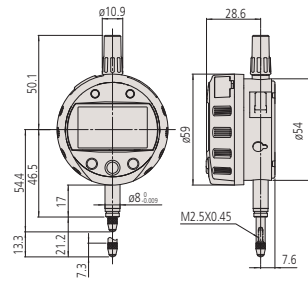


21FAJ394

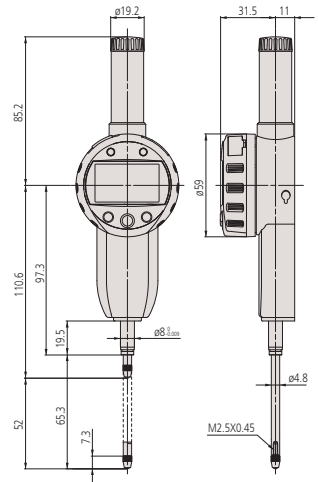
K541281

K541282

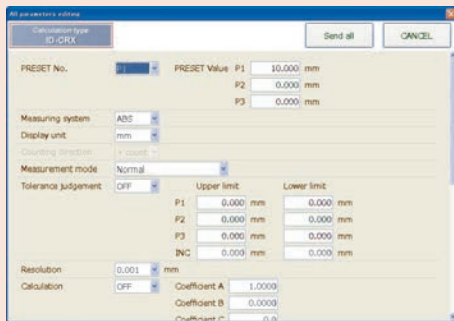
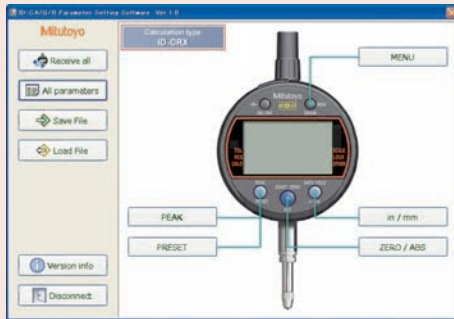
21FAJ395



25,4 mm range models



50,8 mm range models



Setup software available for download at [www.mitutoyo.eu](http://www.mitutoyo.eu) (Registration is required) (optional USB Interface 21EZA313 is necessary)



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K541282



Custom-made solution



Custom-made solution



21FAJ395 (similar)



21FAJ395 (similar)

# ABSOLUTE Digimatic Indicator Bore Gauge ID-C

## Series 543

This indicator is designed for inside diameter measurement applications on bore gauges

It offers the following benefits:

- Minimum value holding function that allows you to easily detect a hole diameter
- Analogue bar graph in the display (12 different scales switchable)
- The analogue bar graph enhances usability by adding a dial gauge "feel" to digital measurement
- GO/±NG tolerance judgement function
- A fast measurement frequency mode (detection cycle 20ms or 50times/s) is selectable to measure in the peak detection mode more reliably
- Easy indicator setup via a setup menu
- A USB interface box can be used to set up the indicator from PC via dedicated software

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Functions	Series 543
PRESET (x3)	●
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
DATA/HOLD	●
Analogue measuring range switchable	●
MIN Value Hold	●
Lock function	●
Fast measurement mode	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Max. response speed	Unlimited
Measurement frequency	Standard mode: 10 times/s "Fast" mode: 50 times/s*
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Low voltage, composition error, overflow error, tolerance limit setting error
Scale	Capacitance ABSOLUTE linear encoder
Power supply	1 Battery CR-2032
Stem Ø	8 mm
Battery life	Standard mode: approx. 1 year "Fast" mode: approx. 4.5 month
Display	LCD character height: 8 mm Rotatable 330°

### Optional accessories

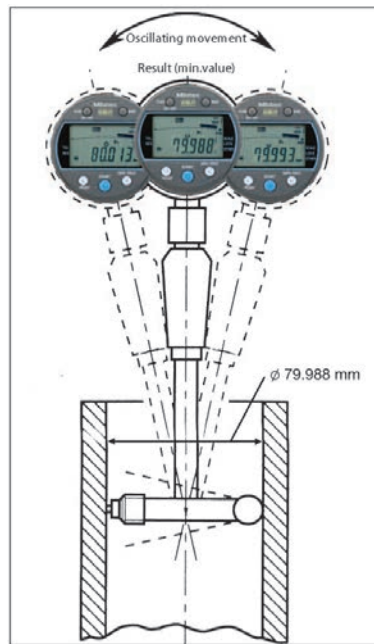
No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
21EZA313	USB Interface for PC Setup, ID-C Indicator

### Consumable spares

No.	Description
05SAA217D	Lithium battery CR-2032, 1 pcs.
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric



543-310B



### Metric

No.	Range	Digital step	Max. permissible error of indication	Hysteresis	Repeatability	Measuring force [N]	Mass [g]
543-310B	12,7 mm	0,001/0,01 mm	0,003 mm	0,002 mm	0,002 mm	≤ 1,5	170



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\* if the detecting speed is > 50 µm/s the peak value may not be displayed correctly.

# ABSOLUTE Digimatic Indicator Signal ID-C



Functions	Series 543
Signal output: (+NG, OK, -NG)	●
Signal input: No-voltage input, (PRESET_RECALL/ZERO, HOLD_RESET)	●
PRESET (x3)	●
ZERO/ABS	●
GO/±NG judgement	●
ON/OFF	●
Analogue measuring range switchable	●
GO/±NG judgement via LED	●
Function lock	●
Calculation function	●
GO/±NG judgement on LCD	●
Counting direction switchable	●
MAX/MIN/RANGE	●

## Specifications

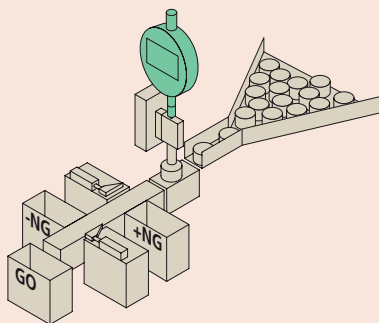
Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Capacitance type, ABSOLUTE linear encoder
Max. response speed	Unlimited
Stem Ø	8 mm
Measurement frequency	100 times/s (If the plunger speed >0,1 mm/s the peak value could not be displayed correctly.)
Contact point	Carbide ball, thread M 2,4 x 0,45 mm
Alarm	Counting value composition error, overflow error, tolerance limit setting error
Power supply	DC 5 - 24 V
Display	LCD, character height 8 mm
Delivered	With signal cable 4 m. One end is fixed to the main unit. no connector is supplied for the other end.

## Optional accessories

No.	Description
21EZA198	Spindle Lifting Lever, for 12,7mm Range
540774	Spindle Lifting Cable, 500mm
21EZA105	Spindle Lifting Knob, for 12,5mm, Metric
238774	Silicon rubber boot for ID-C, ID-N, ID-S

## Consumable spares

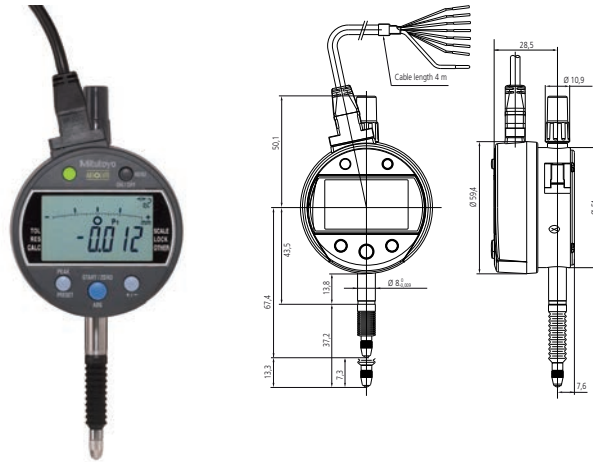
No.	Description
02ACA376	NBR Rubber Boot, for ID-C, ID-N, ID-S
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric



## Series 543

This is an externally-powered Digimatic Indicator with a N-ch open drain -NG, OK, +NG output.

- Dust-protected and protected against splashing water, complying with IEC 60529 (equivalent to IP54)
- Measures MAX/MIN/RANGE (run-out value).
- Saves three different Preset and Tolerance settings.
- Fast measurement frequency mode (detection cycle 50 times/s) for reliable measurement in the peak detection mode (MAX/MIN/RANGE)
- Calculation function Ax. Coefficient A freely definable, x = displacement of the plunger
- Analogue bar graph in the display (12 different scales switchable)
- GO/±NG tolerance judgment function



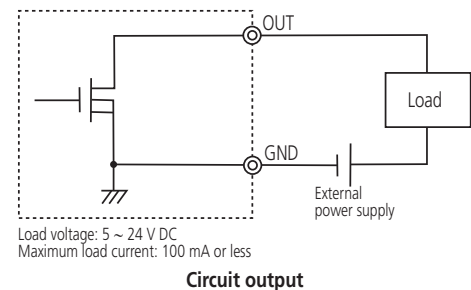
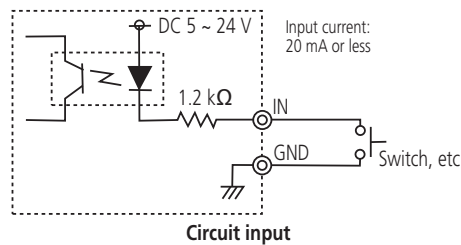
543-350B

## Metric

No.	No. Lug back plate	Range	Digital step	Max. permissible error of indication	Hysteresis	Repeatability	Measuring force	Mass [g]
543-350B	543-350	12,7 mm	0,001 mm	0,003 mm	0,002 mm	0,002 mm	≤2.5N	285

Logic of output signal	Signal name	Tolerance judgment results			Sensor signal synthesizing error Overflow error of display value
		-NG	OK	+NG	
Negative logic	-NG (Orange)	Low	High	High	High
	OK (Green)	High	Low	High	High
	+NG (Brown)	High	High	Low	High
Positive logic	-NG (Orange)	High	Low	Low	Low
	OK (Green)	Low	High	Low	Low
	+NG (Brown)	Low	Low	High	Low

## Normal mode, Maximum value detection mode, Minimum value detection mode





# ABSOLUTE Digimatic Indicator ID-N

## Series 543

This is a slim back-plunger model that is highly resilient and robust. The ABSOLUTE Digimatic Indicator ID-N offers you the following benefits:

- It slim body design is ideal for multi-point measurements.
- The ABSOLUTE sensor means you don't have to carry out origin setting every time you power it on, saving you time and hassle.
- It has excellent resistance against water and dust (IP66 protection level) allowing you to use it in machining situations that include splashing coolant fluid.
- Switchable display orientation gives you more mounting options.
- You can perform GO/±NG judgement by setting the upper and lower tolerances.



Functions	Series 543
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
DATA/HOLD	●
External PRESET/ZERO	●
PRESET	●
Counting direction switchable	●
Selectable resolution*	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Capacitance type, ABSOLUTE linear encoder
Max. response speed	Unlimited
Stem Ø	8 mm
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Low voltage, counting value composition error, overflow error, tolerance limit setting error
Power supply	1 battery SR-44
Battery life	approx. 7000 hours
Display	LCD, character height: 6,2 mm

### Optional accessories

No.	Description
21EAA194	Digimatic Cable for ID-N/ ID-B 1m
21EAA190	Digimatic Cable for ID-N/ ID-B 2m
06AFM380G	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight IP Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790G	U-WAVE-T Connection Cable G, Flat Straight IP Type
21EAA210	Digital Cable for External Preset Series, Zero, 1 m
21EAA211	Digital Cable for External Preset Series, Zero, 2 m
238774	Silicon rubber boot for ID-C, ID-N, ID-S
21EZA145	Back Plate with Centre Lug, for ID-N/ID-B Indicator, Metric
21EZA105	Spindle Lifting Knob, for 12,5mm, Metric

### Consumable spares

No.	Description
938882	Battery SR44 1.5V
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
02ACA376	NBR Rubber Boot, for ID-C, ID-N, ID-S



21EAA194



194EAA210

\* 0,001 mm type



543-575

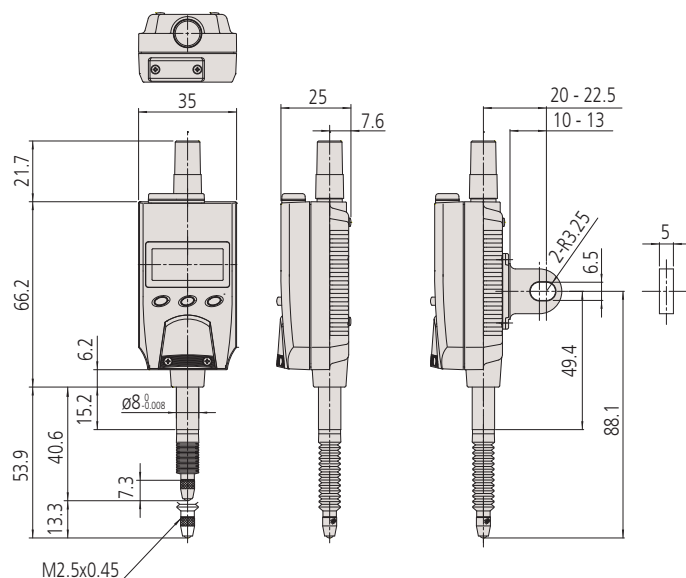
Flexible installation options switchable display orientation (overhead use)



Width of 35 mm instead of 60 as standard Digimatic indicators

### Metric

No.	Range	Digital step	Max. permissible error of indication	Measuring force [N]	Mass [g]
543-570	12,7 mm	0,01 mm	0,02 mm	≤ 2,5	130
543-575	12,7 mm	0,001 mm	0,003 mm	≤ 2,5	130





# ABSOLUTE Digimatic Indicator ID-B



Functions	Series 543
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
DATA/HOLD	●
External PRESET/ZERO	●
PRESET	●
Counting direction switchable	●
Selectable resolution*	●

## Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Scale	Capacitance type, ABSOLUTE linear encoder
Stem Ø	8 mm
Max. response speed	Unlimited
Alarm	Low voltage, counting value composition error, overflow error, tolerance limit setting error
Power supply	1 battery SR-44
Battery life	approx. 7000 hours
Display	LCD, character height: 6,2 mm

## Optional accessories

No.	Description
21EAA194	Digimatic Cable for ID-N/ ID-B 1m
21EAA190	Digimatic Cable for ID-N/ ID-B 2m
06AFM380G	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight IP Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790G	U-WAVE-T Connection Cable G, Flat Straight IP Type
21EAA210	Digital Cable for External Preset Series, Zero, 1 m
21EAA211	Digital Cable for External Preset Series, Zero, 2 m
21EAA212	Silicon Rubber Boot, for ID-B, Series 1/2
21EZA145	Back Plate with Centre Lug, for ID-N/ID-B Indicator, Metric

## Consumable spares

No.	Description
938882	Battery SR44 1.5V
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
125317	NBR Rubber Boot, for ID-B, IP64 Series 2



21EAA194



21EAA210

\*0,001 mm type

## Series 543

This is a slim back-plunger model that is highly resilient and robust. The ABSOLUTE Digimatic Indicator ID-B offers you the following features:

- It is a back plunger type, with the display viewed from above.
- Its slim body design is ideal for multi-point measurements.
- The ABSOLUTE sensor means you don't have to carry out origin setting every time you power it on, saving you time and hassle.
- It has excellent resistance against water and dust (IP66 protection level) allowing you to use it in machining situations that include splashing coolant fluid.
- Switchable display orientation gives you more mounting options.
- You can perform GO/±NG judgement.



543-580



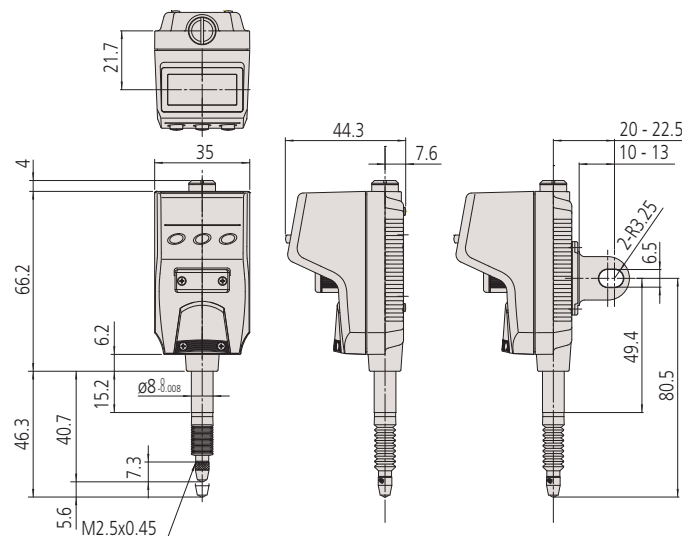
Flexible installation options with switchable display orientation (overhead use)



IP66

## Metric

No.	Range	Digital step	Max. permissible error of indication	Measuring force [N]	Mass [g]
543-580	5,08 mm	0,01 mm	0,02 mm	≤ 2	130
543-585	5,08 mm	0,001 mm	0,003 mm	≤ 2	130



# Digimatic Indicator ID-H

## Series 543

This is a superior multi-function indicator that gives you high accuracy and high resolution of 0,0005mm.

The Digimatic Indicator ID-H offers you the following benefits:

- 2-colour LCD backlight (green and red) provides you with visual GO/±NG tolerance judgement and analogue bar-graph display.
- You can display the maximum, minimum or range (runout value).
- Lifting mechanism over 30mm with cable release (optional).
- You can carry out zero-setting and presetting with the optional remote controller, without having to touch the indicator.
- The remote control system can be implemented in advance with the built-in RS-232 interface and a PC.
- External power supply via AC-Adapter.



543-561D

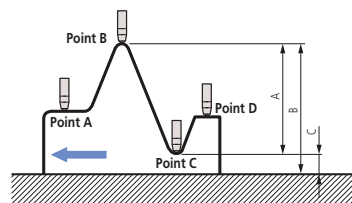
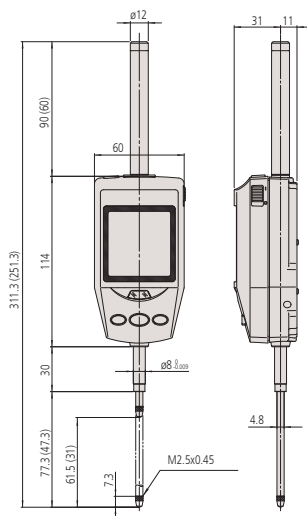
21EZA099:  
Data export  
Reset Max/Min/TIR  
Max/Min/TIR switchover  
Call PRESET value



The display switches from green to red backlight if the upper or lower tolerance limit is exceeded

### Metric

No.	Range	Max. permissible error of indication	Measuring force [N]	Mass [g]
543-561D	30,4 mm	0,0015 mm	≤ 2	290
543-563D	60,9 mm	0,0025 mm	≤ 2,5	305



### Difference/Runout measurement

Example : indicator travel from points A to D.

Difference (or Total Runout) is displayed as A. Dimensions B (maximum value) and C (minimum value) can be recalled from memory with a simple key sequence.

Functions	Series 543
ZERO	●
GO/±NG judgement	●
Digimatic data output	●
Digimatic data input	●
ON/OFF	●
DATA/HOLD	●
RS-232C Output*	●
Analogue measuring range switchable	●
Max/Min/Runout value	●
RS-232C Input*	●
Lock function	●
Selectable resolution	●
PRESET	●
Counting direction switchable	●

### Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm/0,0005 mm
Scale	Photoelectric linear encoder
Stem Ø	8 mm
Max. response speed	1000 mm/s
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Counting value composition error, overflow error, tolerance setting error
Power supply	AC adapter 6 V DC, 2A
Display	LCD, character height: 9,5 mm

### Standard accessories

No.	Description
06AEG180D	AC-Adapter, 6V 2A, CEE Type
137693	Spindle Lifting Handle

### Optional accessories

No.	Description
936937	Digimatic Cable, Flat 10-Pin Type, 1m
965014	Digimatic Cable, Flat 10-Pin Type, 2m
06AFM380D	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat 10-Pin Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790D	U-WAVE-T Connection Cable D, Flat 10-Pin Type
21EAA130	Cable RS-232C for ID-H Indicator 1m
21EAA131	Cable RS-232C for ID-H Indicator 2m
21EZA099	Remote Controller, for ID-H Indicator
540774	Spindle Lifting Cable, 500mm
21EZA101	Spindle Lifting Knob, for ID-H Indicator

540774 : moving measuring range max. 30 mm

### Consumable spares

No.	Description
011511-1	Battery LR03 (AAA), 4x
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

### \* RS-232 Input/Output

Connect this instrument with an external device such as a PC using the RS-232 dedicated cable (optional accessory). With this connection it is possible to perform initial setup of the instrument, control of switching a measurement mode, etc., and processing such as measurement data transfer.



Scan QR Code with your mobile device and watch our product videos on YouTube

# ABSOLUTE Digimatic Indicator ID-F

ABSOLUTE®

Functions	Series 543
ZERO/ABS	●
GO/±NG judgement	●
Digimatic data output	●
Digimatic data input	●
ON/OFF	●
Analogue measuring range switchable	●
Max/Min/Runout value	●
Lock function	●
Function lock	●
Selectable resolution	●
PRESET	●
Counting direction switchable	●

## Specifications

Accuracy	Refer to the list of specifications (excluding quantizing error)
Digital step	0,001 mm/0,01 mm
Scale	Capacitance type, ABSOLUTE linear encoder
Stem Ø	8 mm
Max. response speed	Unlimited
Contact point	Carbide ball, thread M 2,5 x 0,45 mm
Alarm	Counting value composition error, overflow error, tolerance limit setting error
Power supply	AC adapter 9V DC, 500mA
Display	LCD character height 8,5 mm

## Standard accessories

No.	Description
06AEG302D	AC-Adapter, 9V 500mA, CEE Type
137693	Spindle Lifting Handle

## Optional accessories

No.	Description
936937	Digimatic Cable, Flat 10-Pin Type, 1m
965014	Digimatic Cable, Flat 10-Pin Type, 2m
06AFM380D	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat 10-Pin Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790D	U-WAVE-T Connection Cable D, Flat 10-Pin Type
540774	Spindle Lifting Cable, 500mm
02ACA571	Auxiliary Spindle Spring, for 25,4mm Range
02ACA773	Auxiliary Spindle Spring, for 50mm Range

540774 : moving measuring range max.12mm  
02ACA571 and 02ACA773 : required when orienting the indicator upside down

For USB Input Tool Direct cable: a footswitch (no. 937179T), a footswitch adapter (no. 06ADV384) and USB-ITPAK Software (no. 06AEN846) are required.

## Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

## Series 543

This is a superior multifunction indicator.

The ABSOLUTE Digimatic Indicator ID-F offers you the following benefits:

- 2-colour LCD backlight (green and red) provides you with visual GO/±NG tolerance judgement and analogue bar-graph display.
- You can display the maximum, minimum or range (runout value) during measurement.
- External power supply via AC-Adapter.



543-551D

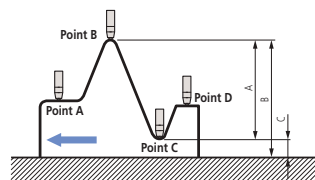
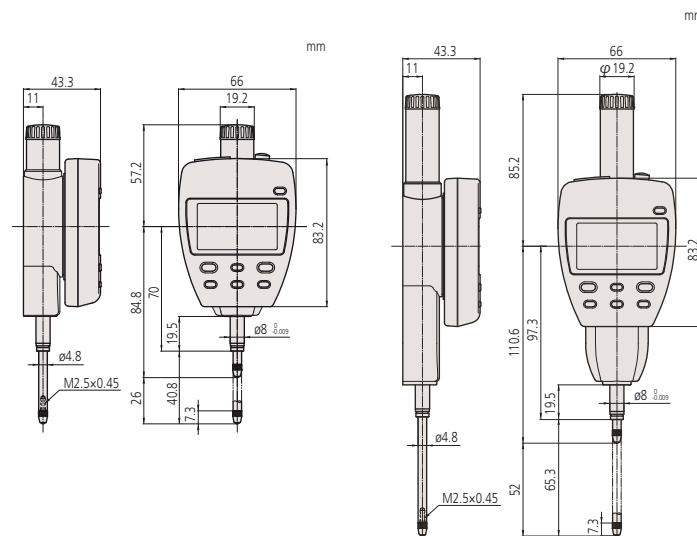
543-553D



Visual tolerance-monitoring

## Metric

No.	Range	Max. permissible error of indication	Measuring force [N]	Mass [g]
543-551D	25,4 mm	0,003 mm	≤ 1,8	240
543-557D	50,8 mm	0,003 mm	≤ 2,3	330
543-553D	50,8 mm	0,006 mm	≤ 2,3	330



## Difference/Runout measurement

Example : indicator travel from points A to D.

Difference (or Total Runout) is displayed as A. Dimensions B (maximum value) and C (minimum value) can be measured with a simple key sequence.

# Dial Indicator Series 1

## Series 1

This is a compact, metric dial indicator. It offers you the following benefits:

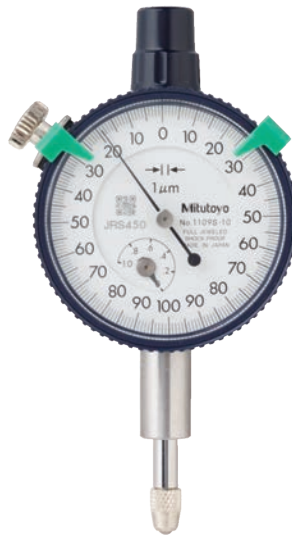
- It is ideal for use in applications where space is limited.
- Balanced dial



1913T-10



1003TB



1109S-10

### Metric

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
1913TB-10	1913T-10	0,5	0,2 mm	0,002 mm	0-100-0	0,3 - 1,8
1109SB-10	1109S-10	1	0,2 mm	0,001 mm	0-100-0	0,4 - 1,5
1013SB-10	1013S-10	1	0,2 mm	0,002 mm	0-100-0	0,4 - 1,5
1911TB-10	1911T-10	2,5	1 mm	0,01 mm	0-50-0	0,3 - 1,8
1124SB	1124S	3,5	0,5 mm	0,005 mm	0-50 (50-0)	0,4 - 1,4
1003TB	1003T	4	1 mm	0,01 mm	0-50-0	0,3 - 1,4

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]
1913TB-10	50/46	15,5	39,4	31	12,5	19,4	15,2	8,9	30	6
1109SB-10	95/75	32,5	49	40	14,5	20	13,8	15,2	38	6,6
1013SB-10	95/75	32,5	49	40	14,5	20	13,8	15,2	38	6,6
1911TB-10	50/46	15,5	42	31	12,5	19,4	15,1	11,5	30	6
1124SB	90/70	32,5	46	40	14,5	20	13,8	12,2	38	6,6
1003TB	51/48	18	40,3	36	13	15	9,5	12,8	32	6

No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
1913TB-10	2,5	4,5	5	6	1	2,5
1109SB-10	2,5	4	4,5	5	1	2
1013SB-10	2,5	4	4,5	6	1	2
1911TB-10	6,5	10	11	13	3	3,5
1124SB	5	8	9	12	3	3
1003TB	6	9	10	14	3	3,5

	Series 1					
	1003TB	1911TB-10	1913TB-10	1013SB-10	1109SB-10	1124SB
<b>Functions</b>						
Balanced dial	●	●	●	●	●	●
Continuous dial						●
Shockproof				●	●	
Jeweled bearing		●	●	●	●	

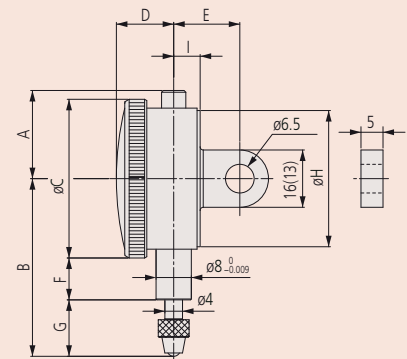
### Consumable spares

No.	Description
21AZA319	Contact Element Ball Point, 8,3mm Length, Metric
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

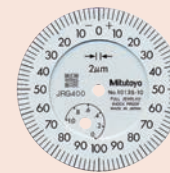
901312 : for 1109S-10 / 1013S-10 / 1124S

21AZA319 : for 1913T-10 / 1911T-10 / 1003T-10

For accessories and contact points, see end of dial indicators section



1911T-10



1013S-10



1124S



# Dial Indicator Series 1



**IP63**  
10445(B)-60

Series 1					
	1040SB	1041SB	1044SB-60	1044SB-15	1045SB
<b>Functions</b>					
Balanced dial					
Continuous dial	●	●	●	●	●
Jeweled bearing			●	●	
IP63			●	●	
Double scale spacing	●				●

**Consumable spares**

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
136838	NBR Rubber Boot, IP63 Series 1
902119	Contact Element Ball Point, 8,3mm Length, Waterproof Type, Metric

136838 and 902119 : for 10445-60 (IP model)

For accessories and contact points, see end of dial indicators section

**Series 1**

This is a compact, metric dial indicator with 0,01 mm scale graduation, bezel Ø 40 mm and 5 mm range. It offers you the following benefits:

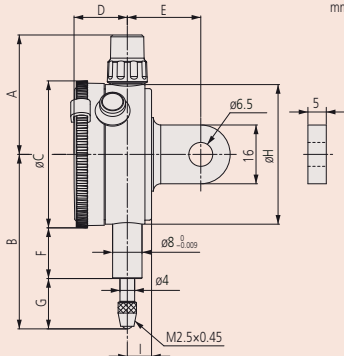
- It is ideal for use in applications where space is limited.
- Green limit markers are a standard accessory.



10445-60  
IP63



10445-15



**Metric**

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
1040SB	1040S	3,5	0,5 mm	0,01 mm	0-50 (50-0)	0,4 - 1,4
1041SB	1041S	3,5	0,5 mm	0,01 mm	0-25-0	0,4 - 1,4
1044SB	1044S	5	1 mm	0,01 mm	0-100 (100-0)	0,4 - 1,4
1044SB-15	1044S-15	5	1 mm	0,01 mm	0-100 (100-0)	0,1 - 0,4
1044SB-60	1044S-60	5	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2
1045SB	1045S	5	1 mm	0,01 mm	0-50-0	0,4 - 1,4

1044SB-15: Low measuring force model. Use in vertical position only (contact point downward)

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]
1040SB	90/70	32,5	46	40	14,5	20	13,8	12,2	38	6,6
1041SB	90/70	32,5	46	40	14,5	20	13,8	12,2	38	6,6
1044SB	90/70	32,5	47,5	40	14,5	20	13,8	13,7	38	6,6
1044SB-15	90/70	32,5	47,5	40	14,5	20	13,8	13,7	38	6,6
1044SB-60	90/70	32,5	57	40	14,5	20	12,2	24,8	38	6,6
1045SB	90/70	32,5	47,5	40	14,5	20	13,8	13,7	38	6,6

No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
1040SB	5	8	9	12	3	3
1041SB	5	8	9	12	3	3
1044SB	5	9	10	12	3	3
1044SB-15	5	9	10	12	3	3
1044SB-60	5	9	10	12	3	3
1045SB	5	9	10	12	3	3

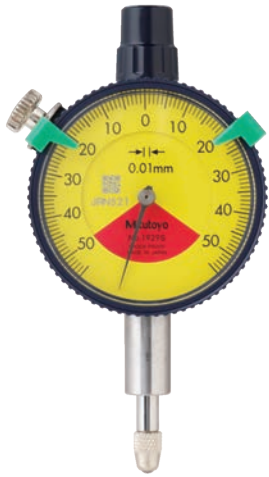


# One Revolution Dial Indicator Series 1

## Series 1

This is a compact, metric dial indicator. It offers you the following benefits:

- It is ideal for use in applications where space is limited.
- It eliminates the possibility of reading errors due to miscounting multiple revolutions.
- Green limit markers as a standard accessory



1929S



1929S-62



1900S-72

### Metric

No.	No. with Lug back plate	Range	Range per rev.	Graduation	Scale	Measuring force [N]
1929SB	1929S	1 (plunger stroke:3.5)	1,4 mm	0,01 mm	50-0-50	0,4 - 1,4
1929SB-62	1929S-62	1 (plunger stroke: 3.5)	1,4 mm	0,01 mm	50-0-50	0,4 - 1,4
1900SB-72	1900S-72	0,1 (plunger stroke: 2)	0,14 mm	0,001 mm	50-0-50	0,4 - 1,4

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	G [mm]	I [mm]
1929SB	90/70	32,5	47,5	40	14,5	20	13,8	38	13,7	6,6
1929SB-62	90/70	32,5	47,5	40	14,5	20	13,8	38	13,7	6,6
1900SB-72	95/75	32,5	53,5	40	14,5	20	16,8	38	16,7	6,6

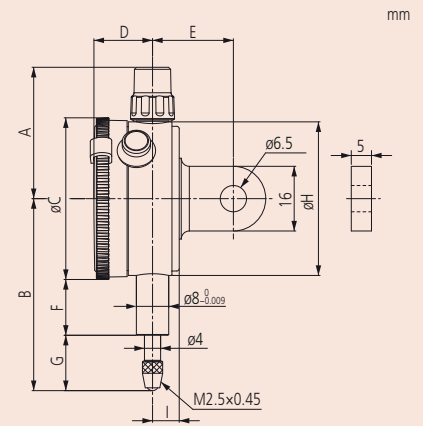
No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
1929SB	5			9	3	3
1929SB-62	5			9	3	3
1900SB-72	2			4	1	2

	Series 1		
	1900SB-72	1929SB	1929SB-62
<b>Functions</b>			
Balanced dial	●	●	●
One revolution	●	●	●
Shockproof	●	●	●
Jeweled bearing	●		
IP52	●		●

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

For accessories and contact points, see end of dial indicators section.



# Dial Indicator Series 2



**IP64**  
2044S(B)-60

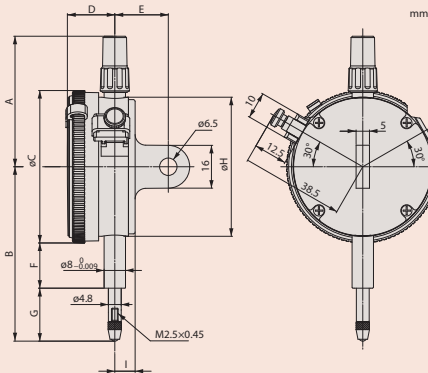
Series 2				
	2044SB	2044SB-60	2044SB-09	2045SB
<b>Functions</b>				
Balanced dial				●
Continuous dial	●	●	●	
Shockproof			●	
IP64		●		

**Consumable spares**

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
902119	Contact Element Ball Point, 8,3mm Length, Waterproof Type, Metric
125317	NBR Rubber Boot, for ID-B, IP64 Series 2

902119 and 125317 : for 2044S-60 (IP model)

For accessories and contact points, see end of dial indicators section



**Series 2**

This is a standard, metric dial indicator. It offers you the following benefits:

- Bezel clamp and lifting lever (optional) can be attached to either right or left side. They can be easily installed and removed without tools.
- No through screw holes on the frame and secure adhesion between the bezel and the crystal as well as the use of an O-ring prevents water or oil penetration.



**Metric**

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
2044SB	2044S	5	1 mm	0,01 mm	0-100 (100-0)	0,4 - 1,4
2044SB-09	2044S-09	5	1 mm	0,01 mm	0-100 (100-0)	0,4 - 1,4
2044SB-60	2044S-60	5	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2,5
2045SB	2045S	5	1 mm	0,01 mm	0-50-0	0,4 - 1,4

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	G [mm]	I [mm]
2044SB	145/136	48,8	65,2	57	17,7	20	16,9	52	19,8	7,6
2044SB-09	147/138	48,8	65,2	57	17,7	20	16,9	52	19,8	7,6
2044SB-60	147/138	48,8	70	57	17,7	20	12,3	52	29,2	7,6
2045SB	145/136	48,8	65,2	57	17,7	20	16,9	52	19,8	7,6

No.	EN ISO 463						
	Errors of indication over a range of					Repeatability µm	Hysteresis error µm
	Any 1/10 revolution µm	Any 1/2 revolution µm	Any 1 revolution µm	Range µm	Range µm		
2044SB	5	9	10	12	3	3	
2044SB-09	5	9	10	12	3	3	
2044SB-60	5	9	10	12	3	3	
2045SB	5	9	10	12	3	3	

# Dial Indicator Series 2

## Series 2

This is a standard, metric dial indicator. It offers you the following benefits:

- Bezel clamp and lifting lever (optional) can be attached to either right or left side. They can be easily installed and removed without tools.
- No through screw holes on the frame and secure adhesion between the bezel and the crystal as well as the use of an O-ring prevents water or oil penetration.



### Metric

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
2046SB	2046S	10	1 mm	0,01 mm	0-100 (100-0)	0,4 - 1,4
2046SB-09	2046S-09	10	1 mm	0,01 mm	0-100 (100-0)	0,4 - 1,4
2046SB-60	2046S-60	10	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2,5
2310SB-10	2310S-10	10	1 mm	0,01 mm	0-100 (100-0)	0,4 - 1,4
2902SB	2902S	10	1 mm	0,01 mm	100-0	0,4 - 1,4
2047SB	2047S	10	1 mm	0,01 mm	0-50-0	0,4 - 1,4

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	G [mm]	I [mm]
2046SB	144/135	48,8	65,2	57	17,7	20	16,9	52	19,8	7,6
2046SB-09	146/137	48,8	65,2	57	17,7	20	16,9	52	19,8	7,6
2046SB-60	146/137	48,8	70	57	17,7	20	12,3	52	29,2	7,6
2310SB-10	146/137	48,8	65,2	57	17,7	20	16,9	52	19,8	7,6
2902SB	144/135	48,8	65,2	57	17,7	20	16,9	52	19,8	7,6
2047SB	144/135	48,8	65,2	57	17,7	20	16,9	52	19,5	7,6

No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
	µm	µm	µm	µm	µm	µm
2046SB	5	9	10	13	3	3
2046SB-09	5	9	10	15	3	3
2046SB-60	5	9	10	13	3	3
2310SB-10	5	9	10	15	3	3
2902SB	5	9	10	13	3	3
2047SB	5	9	10	13	3	3

Functions	Series 2					
	2046SB	2046SB-60	2310SB-10	2046SB-09	2902SB	2047SB
Balanced dial						●
Continuous dial	●	●	●	●	●	
Reverse reading					●	
Shockproof				●		
Jeweled bearing			●			
IP64		●				
Coaxial revolution counter			●			

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
902119	Contact Element Ball Point, 8,3mm Length, Waterproof Type, Metric
125317	NBR Rubber Boot, for ID-B, IP64 Series 2

902119 and 125317 : for 2046S-60 (IP model)

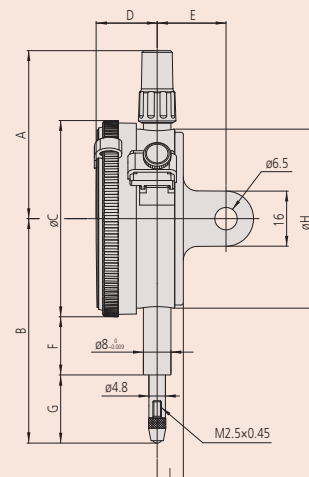
For accessories and contact points, see end of dial indicators section



2046S-60



2310S-10



## Dial Indicator Series 2



**IP64**  
2109S-70  
2110S-70

### Series 2

This is a standard, metric dial indicator. It offers you the following benefits:

- Bezel clamp and lifting lever (optional) can be attached to either right or left side. They can be easily installed and removed without tools.
- No through screw holes on the frame and secure adhesion between the bezel and the crystal as well as the use of an O-ring prevents water or oil penetration.

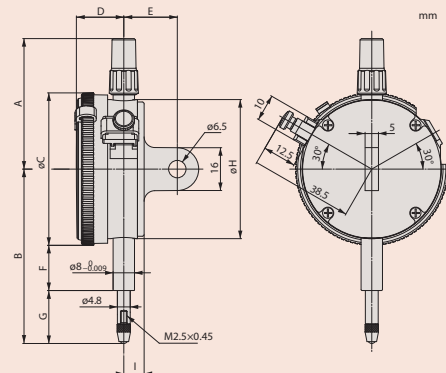
Series 2				
	2109SB-10	2109SB-70	2110SB-10	2110SB-70
<b>Functions</b>				
Balanced dial	●	●		
Continuous dial			●	●
Shockproof	●	●	●	●
Jeweled bearing	●	●	●	●
IP64		●		●
Double scale spacing			●	●

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
21AZA320	Contact Element Ball Point, 12,1mm Length, Waterproof Type, Metric
902119	Contact Element Ball Point, 8,3mm Length, Waterproof Type, Metric
125317	NBR Rubber Boot, for ID-B, IP64 Series 2

902119 : for 2110S-70  
21AZA320 and 136838 : for 2109S-70

For accessories and contact points, see end of dial indicators section.



### Metric

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
2110SB-10	2110S-10	1	0,1 mm	0,001 mm	0-100 (100-0)	0,9 - 1,5
2110SB-70	2110S-70	1	0,1 mm	0,001 mm	0-100 (100-0)	0,9 - 2
2109SB-10	2109S-10	1	0,2 mm	0,001 mm	0-100-0	0,9 - 1,5
2109SB-70	2109S-70	1	0,2 mm	0,001 mm	0-100-0	0,9 - 2

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	G [mm]	I [mm]
2110SB-10	149/140	48,8	66,5	57	17,7	20	16,9	52	21,2	7,6
2110SB-70	150/141	48,8	67,5	57	17,7	20	12,3	52	26,7	7,6
2109SB-10	148/139	48,8	60,5	57	17,7	20	16,9	52	15,1	7,6
2109SB-70	149/140	48,8	65,5	57	17,7	20	12,3	52	24,5	7,6

No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
2110SB-10	2,5	4	4,5	5	1	2
2110SB-70	2,5	4	4,5	5	1	2
2109SB-10	2,5	4	4,5	5	1	2
2109SB-70	2,5	4	4,5	5	1	2



# Dial Indicator Series 2

## Series 2

This is a standard, metric dial indicator. It offers you the following benefits:

- Bezel clamp and lifting lever (optional) can be attached to either right or left side. They can be easily installed and removed without tools.
- No through screw holes on the frame and secure adhesion between the bezel and the crystal as well as the use of an O-ring prevents water or oil penetration.



### Metric

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
2113SB-10	2113S-10	2	0,2 mm	0,001 mm	0-100-0	0,4 - 1,5
2118SB-10	2118S-10	5	0,2 mm	0,001 mm	0-100-100	0,4 - 1,5
2119SB-10	2119S-10	5	0,2 mm	0,001 mm	0-100-0	0,4 - 1,5
2124SB-10	2124S-10	5	0,5 mm	0,005 mm	0-50 (50-0)	0,4 - 1,5

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	G [mm]	I [mm]	Mass [g]
2113SB-10	148/139	48,8	61	57	17,7	20	16,9	52	15,6	7,6	139
2118SB-10	146/137	48,8	60,3	57	17,7	20	16,9	52	14,9	7,6	137
2119SB-10	146/137	48,8	60,3	57	17,7	20	16,9	52	14,9	7,6	137
2124SB-10	146/137	48,8	60,3	57	17,7	20	16,9	52	14,9	7,6	137

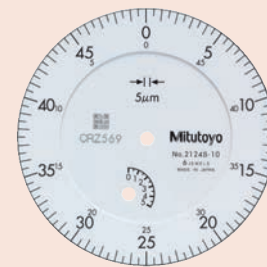
No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
2113SB-10	2,5	4	4,5	7	1	2
2118SB-10	4	6	6,5	10	1,5	2,5
2119SB-10	4	6	6,5	10	1,5	2,5
2124SB-10	5	9	10	11	2	3

	Series 2			
	2113SB-10	2119SB-10	2118SB-10	2124SB-10
<b>Functions</b>				
Balanced dial	●	●		●
Continuous dial				●
Shockproof	●			
Jeweled bearing	●	●	●	●

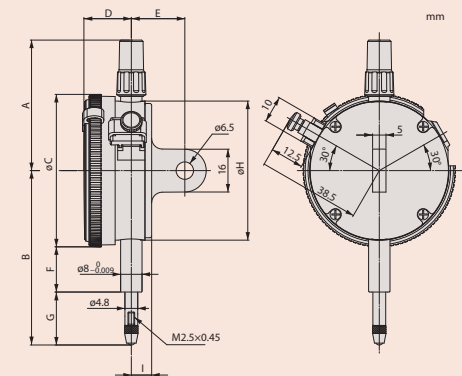
### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

For accessories and contact points, see end of dial indicators section.



2124S





# Dial Indicator with 20 mm Stroke Series 2



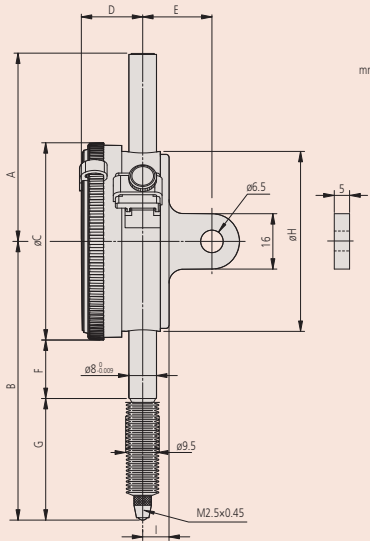
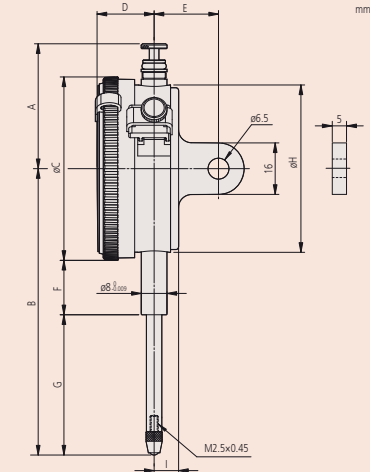
		Series 2			
		2050SB	2320SB-10	2050SB-60	2050SB-19
<b>Functions</b>					
	Continuous dial	●	●	●	●
	Shockproof	●	●	●	●
	Jeweled bearing	●	●	●	●
	IP64			●	●
	Cushioned end point	●	●	●	●
	Coaxial revolution counter		●		

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
21AZA321	Contact Element Ball Point, 19,3mm Length, Waterproof Type, Metric
136071	NBR Rubber Boot, IP64 Series 2

21AZA321 and 136071 : for 2050S-60 (IP model)

For accessories and contact points, see end of dial indicators section.



2050SB-60

### Series 2

This is a standard, metric dial indicator. It offers you the following benefits:

- Bezel clamp and lifting lever (optional) can be attached to either right or left side. They can be easily installed and removed without tools.
- No through screw holes on the frame and secure adhesion between the bezel and the crystal as well as the use of an O-ring prevents water or oil penetration.



2050S



2320S-10

### Metric

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
2050SB	2050S	20	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2
2050SB-60	2050S-60	20	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2,5
2050SB-19	2050S-19	20	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2
2320SB-10	2320S-10	20	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	G [mm]	I [mm]
2050SB	149/140	38,8	75,2	57	17,7	20	16,9	52	29,8	7,6
2050SB-60	155/146	38,8	75,2	57	17,7	20	12,3	52	29,8	7,6
2050SB-19	149/140	38,8	75,2	57	17,7	20	16,9	52	29,8	7,6
2320SB-10	150/141	38,8	75,2	57	17,7	20	16,9	52	29,8	7,6

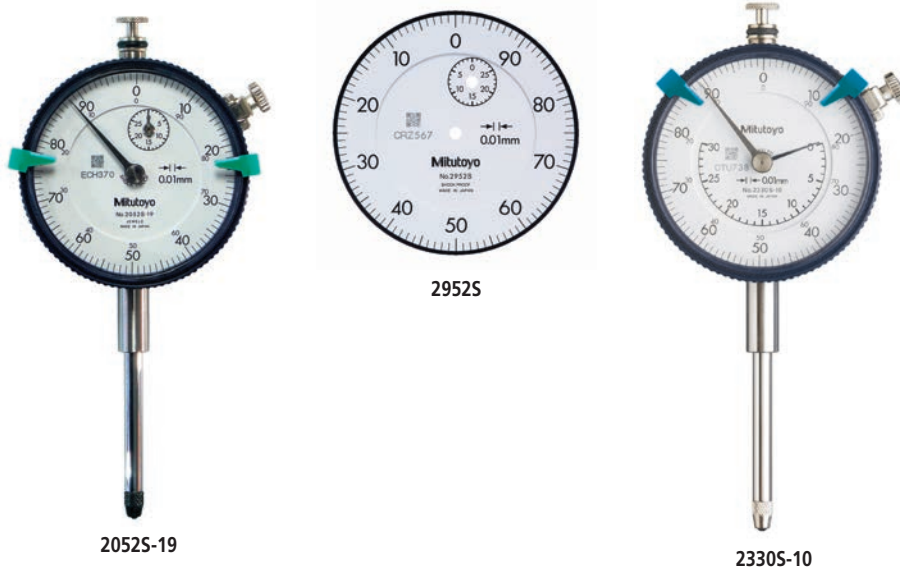
No.	EN ISO 463						
	Errors of indication over a range of					Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range	μm		
2050SB	6	10	11	20	3	4	
2050SB-60	6	10	11	20	3	4	
2050SB-19	6	10	11	20	3	4	
2320SB-10	6	10	11	20	3	4	

# Dial Indicator with 30 mm Stroke Series 2

## Series 2

This is a standard, metric dial indicator. It offers you the following benefits:

- Bezel clamp and lifting lever (optional) can be attached to either right or left side. They can be easily installed and removed without tools.
- No through screw holes on the frame and secure adhesion between the bezel and the crystal as well as the use of an O-ring prevents water or oil penetration.



### Metric

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
2052SB	2052S	30	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2,5
2052SB-19	2052S-19	30	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2,5
2330SB-10	2330S-10	30	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2,5
2952SB	2952S	30	1 mm	0,01 mm	100-0	0,4 - 2,5

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	G [mm]	I [mm]
2052SB	152/143	38,8	88,7	57	17,7	20	16,9	52	43,3	7,6
2052SB-19	152/143	38,8	88,7	57	17,7	20	16,9	52	43,3	7,6
2330SB-10	150/141	38,8	88,7	57	17,7	20	16,9	52	43,3	7,6
2952SB	152/143	38,8	88,7	57	17,7	20	16,9	52	43,3	7,6

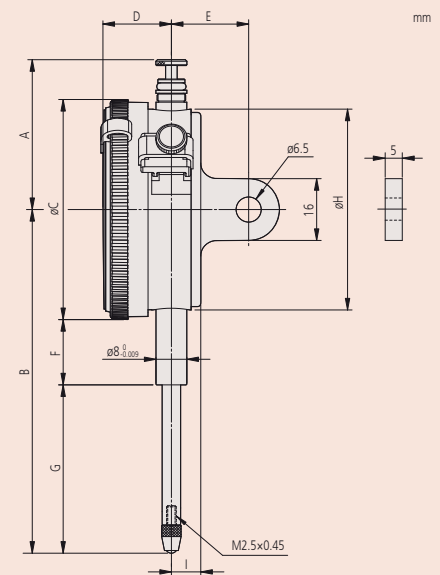
No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	
2052SB	7	11	12	25	3	5
2052SB-19	7	11	12	25	3	5
2330SB-10	7	11	12	25	3	5
2952SB	7	11	12	25	3	5

Functions	Series 2			
	2052SB	2330SB-10	2052SB-19	2952SB
Continuous dial	●	●	●	●
Reverse reading				●
Shockproof			●	
Jeweled bearing	●	●	●	●
Cushioned end point	●	●	●	●
Coaxial revolution counter		●		

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

For accessories and contact points, see end of dial indicators section.





# Special Dial Indicator Series 2

## Series 2

This is a dial indicator with a special design that offers you the following benefits:

- Standard size
- Bezel Ø 57mm, Graduation 0,01

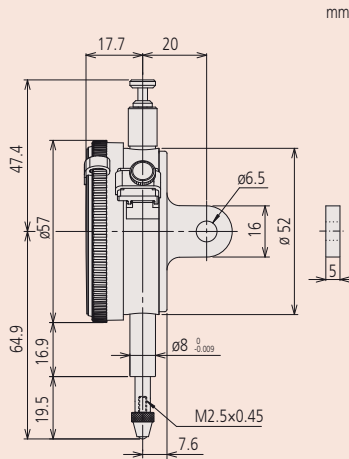
Series 2		2046SB-80	2048SB-10
<b>Functions</b>			
Balanced dial		●	●
Continuous dial		●	●
Jeweled bearing		●	●
Peak retaining		●	●
Coaxial revolution counter		●	●
Adjustable pointer		●	●

### Consumable spares

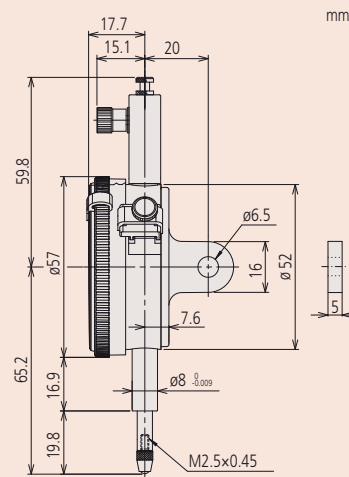
No.	Description
21AZA319	Contact Element Ball Point, 8,3mm Length, Metric
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

901312 : for 2046S-80  
21AZA319 : for 2048S-10

For accessories and contact points, see end of dial indicators section.



2048S-10



2046S-80



2048S-10



2046S-80

### Metric

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]	Mass lug/plain [g]
2048SB-10	2048S-10	10	1 mm	0,01 mm	0-100 (100-0)	0,4 - 1,4	144/135
2046SB-80	2046S-80	10	1 mm	0,01 mm	0-100 (100-0)	0,4 - 5	158/149

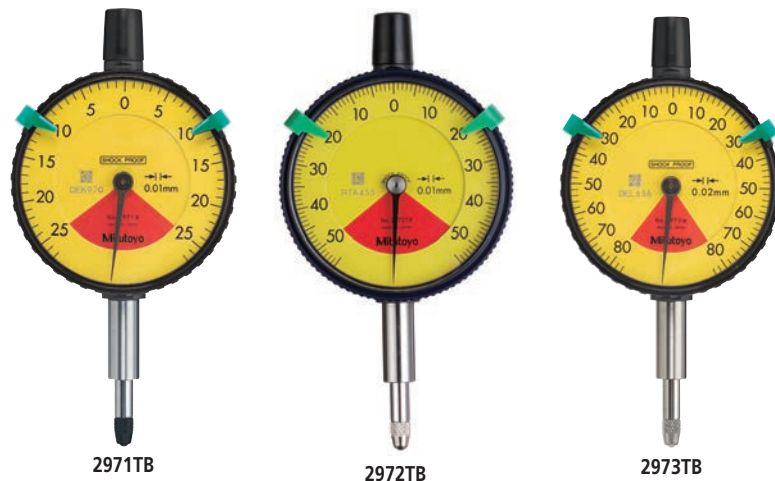
No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
2048SB-10	5 μm	9 μm	10 μm	15 μm	3 μm	3 μm
2046SB-80	5 μm	9 μm	10 μm	15 μm		

# One Revolution Dial Indicator Series 2

## Series 2

This is a one revolution metric dial indicator. It offers you the following benefits:

- Excellent water and drip-proof characteristics
- Lightweight type
- It eliminates the possibility of reading errors due to miscounting multiple revolutions.



### Metric

No.	Range	Range per rev.	Graduation	Scale	Measuring force [N]
2971TB	0,5 (plunger stroke: 3,5)	0,7 mm	0,01 mm	25-0-25	0,4 - 1,4
2972TB	1 (plunger stroke: 3,5)	1,4 mm	0,01 mm	50-0-50	0,4 - 1,4
2973TB	1.6 (plunger stroke: 3.5)	2 mm	0,02 mm	80-0-80	0,4 - 1,4

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	F [mm]	G [mm]	H [mm]	I [mm]
2971TB	75	43,2	65,6	57	16,5	20,3	16,8	55	7,6
2972TB	75	43,2	66	57	16,5	20,3	17,2	55	7,6
2973TB	75	43,2	66,3	57	16,5	20,3	17,5	55	7,6

No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
2971TB	5			7	3	3
2972TB	5			7	3	3
2973TB	8			16	5	4

## Series 2

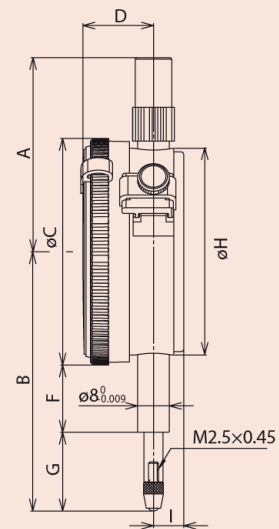
### Functions

<input checked="" type="checkbox"/> One revolution	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Cushioned end point	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> IP52	<input checked="" type="checkbox"/>

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

For accessories and contact points, see end of dial indicators section.



# One Revolution Dial Indicator Series 2



**IP64**  
2929S(B)-60

Series 2			
	2928SB up to 2959SB	2929SB-62	2929SB-60
<b>Functions</b>			
One revolution	●	●	●
Shockproof	●	●	●
IP64			●
IP52		●	

## Series 2

This is a one revolution metric dial indicator. It offers you the following benefits:

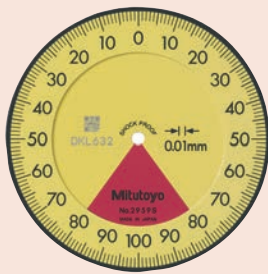
- Bezel clamp and lifting lever (optional) can be attached to either right or left side. They can be easily installed without tools.
- No through screw holes on the frame and secure adhesion between the bezel and the crystal as well as the use of an O-ring prevents water or oil penetration.
- It eliminates the possibility of reading errors due to miscounting multiple revolutions.

## Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
902119	Contact Element Ball Point, 8,3mm Length, Waterproof Type, Metric
125317	NBR Rubber Boot, for ID-B, IP64 Series 2

902119 and 125317 : for 2929S-60 (IP model)

For accessories and contact points, see end of dial indicators section.

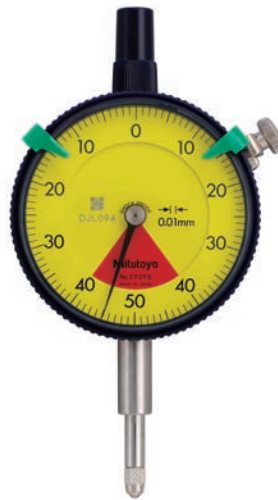
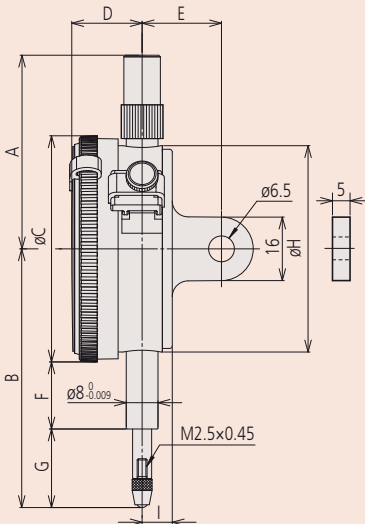


2959S

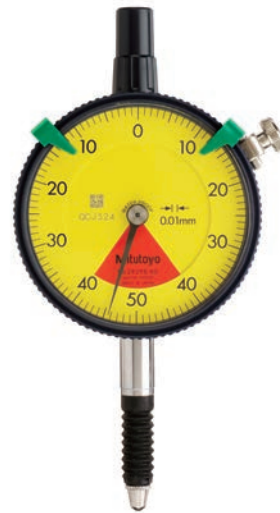


2928S

mm



2929S



2929S-60

## Metric

No.	No. with Lug back plate	Range	Range per rev.	Graduation	Scale	Measuring force [N]
2929SB	2929S	0,8 (plunger stroke: 5)	1 mm	0,01 mm	40-0-40	0,4 - 1,4
2929SB-60	2929S-60	0,8 (plunger stroke: 5)	1 mm	0,01 mm	40-0-40	0,4 - 2
2929SB-62	2929S-62	0,8 (plunger stroke: 5)	1 mm	0,01 mm	40-0-40	0,4 - 2
2959SB	2959S	1,6 (plunger stroke: 5)	2 mm	0,01 mm	80-0-80	0,4 - 1,4
2928SB	2928S	4 (plunger stroke: 10)	5 mm	0,1 mm	2-0-2	0,4 - 1,4

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]
2929SB	145/136	48,8	65,2	57	17,7	20	16,9	19,8	52	7,6
2929SB-60	146/137	48,8	70	57	17,7	20	12,3	29,2	52	7,6
2929SB-62	145/136	48,8	65,2	57	17,7	20	16,9	19,8	52	7,6
2959SB	145/136	48,8	65,2	57	17,7	20	16,9	19,8	52	7,6
2928SB	145/136	48,8	65,2	57	17,7	20	16,9	19,8	52	7,6

No.	EN ISO 463						
	Errors of indication over a range of					Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range			
2929SB	5			7	3	3	
2929SB-60	5			7	3	3	
2929SB-62	5			7	3	3	
2959SB	5			9	3	4	
2928SB	15			25	20	12	



# One Revolution Dial Indicator Series 2

## Series 2

This is a one revolution metric dial indicator. It offers you the following benefits:

- Bezel clamp and lifting lever (optional) can be attached to either right or left side. They can be easily installed and removed without tools.
- No through screw holes on the frame and secure adhesion between the bezel and the crystal as well as the use of an O-ring prevents water or oil penetration.
- It eliminates the possibility of reading errors due to miscounting multiple revolutions.



2900S-10



2900S-70



2901S-10

### Metric

No.	No. with Lug back plate	Range	Range per rev.	Graduation	Scale	Measuring force [N]
2900SB-10	2900S-10	0,08 (plunger stroke: 4,5)	0,1 mm	0,001 mm	40-0-40	0,4 - 1,4
2900SB-70	2900S-70	0,08 (plunger stroke: 4,5)	0,1 mm	0,001 mm	40-0-40	0,4 - 2
2900SB-72	2900S-72	0,08 (plunger stroke: 4,5)	0,1 mm	0,001 mm	40-0-40	0,4 - 2
2901SB-10	2901S-10	0,16 (plunger stroke: 4,5)	0,2 mm	0,001 mm	80-0-80	0,4 - 1,4

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]
2900SB-10	149/140	48,8	66	57	17,7	20	16,9	20,6	52	7,6
2900SB-70	150/141	48,8	67	57	17,7	20	12,3	26,2	52	7,6
2900SB-72	149/140	48,8	66	57	17,7	20	16,9	20,6	52	7,6
2901SB-10	149/140	48,8	66,1	57	17,7	20	16,9	20,7	52	7,6

No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
2900SB-10	2			3	1	2
2900SB-70	2			3	1	2
2900SB-72	2			3	1	2
2901SB-10	2			4	1	2

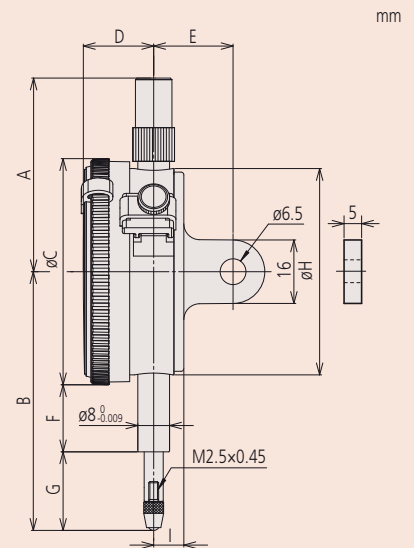
Functions	Series 2			
	2900SB-10	2901SB-10	2900SB-72	2900SB-70
One revolution	●	●	●	●
Shockproof	●	●	●	●
Jeweled bearing	●	●	●	●
IP64				●
IP52			●	

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
902119	Contact Element Ball Point, 8,3mm Length, Waterproof Type, Metric
125317	NBR Rubber Boot, for ID-B, IP64 Series 2

902119 and 125317 : for 2900S-70 (IP model)

For accessories and contact points, see end of dial indicators section.



# Dial Indicator Series 3

## Series 3

This is a metric dial indicator that offers you the following benefits:

- Bezel  $\varnothing$  78mm.
- 10mm range with graduation 0,01mm and 1mm range with graduation 0,001mm.

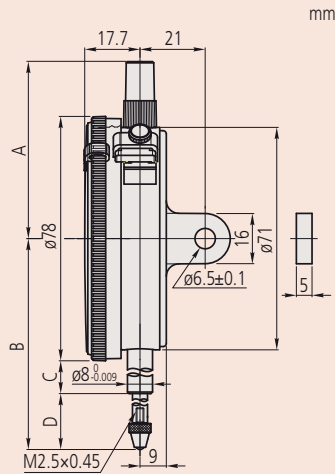


Series 3		3046SB	3047SB	3109SB-10
<b>Functions</b>				
	Balanced dial			
	Continuous dial			
	Shockproof			
	Jeweled bearing			

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

For accessories and contact points, see end of dial indicators section.



### Metric

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
3046SB	3046S	10	1 mm	0,01 mm	0-100 (100-0)	0,4 - 1,4
3047SB	3047S	10	1 mm	0,01 mm	0-50-0	0,4 - 1,4
3109SB-10	3109S-10	1	0,2 mm	0,001 mm	0-100-0	0,4 - 1,5

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]
3046SB	252/237	61,2	75,5	15,9	20,6
3047SB	252/237	61,2	75,5	15,9	20,6
3109SB-10	270/255	61,2	75,5	25,9	14,1

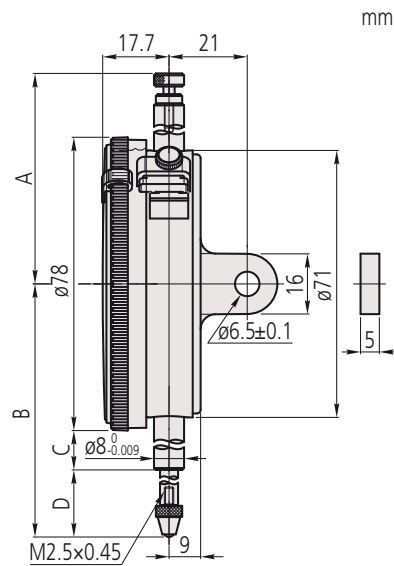
No.	EN ISO 463					
	Errors of indication over a range of				Repeatability $\mu$ m	Hysteresis error $\mu$ m
Any 1/10 revolution $\mu$ m	Any 1/2 revolution $\mu$ m	Any 1 revolution $\mu$ m	Range $\mu$ m			
3046SB	5	9	10	15	3	3
3047SB	5	9	10	15	3	3
3109SB-10	2,5	4	4,5	5	1	2

# Dial Indicator with Large Diameter Scale Series 3

## Series 3

This is a standard, metric dial indicator. It offers you the following benefits:

- Large-diameter dial face for easy reading
- Supplied with limit markers and a bezel clamp as standard



		Series 3	
		3050SB	3052SB-19 up to 3062SB-19
<b>Functions</b>			
	Continuous dial	●	●
	Shockproof	●	●
	Jeweled bearing	●	●
	Cushioned end point	●	●
	Coaxial revolution counter		●

### Consumable spares

No.	Description
21AZA319	Contact Element Ball Point, 8,3mm Length, Metric
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

901312 : for 3050S

21AZA319 : for 3052S-19 / 3058S-19 / 3060S-19 / 3062S-19

For accessories and contact points, end of dial indicators section.



3058S-19

### Metric

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]
3050SB	3050S	20	1 mm	0,01 mm	0-100 (100-0)	0,4 - 2
3052SB-19	3052S-19	30	1 mm	0,01 mm	0-100 (0-100)	0,4 - 2,5
3058SB-19	3058S-19	50	1 mm	0,01 mm	0-100 (100-0)	0,4 - 3
3060SB-19	3060S-19	80	1 mm*	0,01 mm	0-100 (0-100)	0,4 - 3
3062SB-19	3062S-19	100	1 mm*	0,01 mm	0-100 (100-0)	0,4 - 3,2

\*3060S-19 and 3062S-19 : use in a vertical position only.

No.	Mass lug/plain [g]	A [mm]	B [mm]	C [mm]	D [mm]
3050SB	272/257	52,6	94	25,9	29,1
3052SB-19	285/270	72,9	104,3	25,9	39,4
3058SB-19	298/283	81,9	142,3	43,9	59,4
3060SB-19	314/299	120,9	202,3	73,9	89,4
3062SB-19	332/317	141,9	243,3	94,9	109,4

No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
3050SB	8	10	11	20	3	4
3052SB-19	10	11	12	25	3	5
3058SB-19	10	12	13	30	3	6
3060SB-19	10	14	15	45	3	9
3062SB-19	12	17	20	50	3	9



# Dial Indicator Series 4

Series 4

**Functions**

Continuous dial

**Consumable spares**

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric

For accessories and contact points, see end of dial indicators section.

**Series 4**

- Bezel  $\varnothing$  92 mm

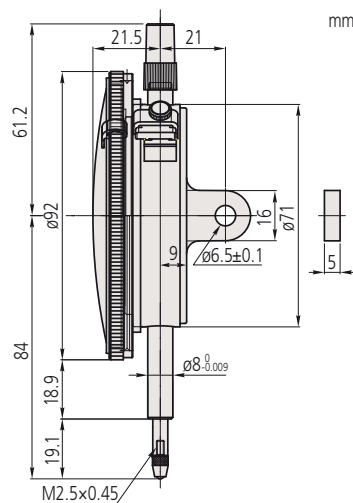


40465

**Metric**

No.	No. with Lug back plate	Range [mm]	Range per rev.	Graduation	Scale	Measuring force [N]	Mass lug/plain [g]
40465B	40465	10	1 mm	0,01 mm	0-100 (100-0)	0,4 - 1,4	345/330

No.	EN ISO 463					
	Errors of indication over a range of				Repeatability $\mu$ m	Hysteresis error $\mu$ m
Any 1/10 revolution $\mu$ m	Any 1/2 revolution $\mu$ m	Any 1 revolution $\mu$ m	Range $\mu$ m			
40465B	5	9	10	15	3	3



# Dial Indicator Back Plunger Type Series 1

## Series 1

This is a back plunger dial indicator with bezel  $\varnothing 39$  mm. It offers you the following benefits:

- It is ideal for use in applications where space is limited.
- Green limit markers are a standard accessory.



1960T



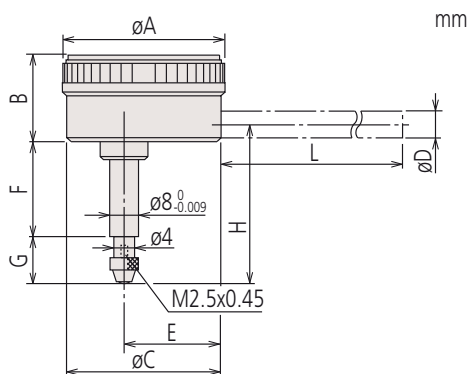
1160T

### Metric

No.	Range	Range per rev.	Graduation	Scale	Measuring force [N]
1960T	1 (plunger stroke: 4,5)	1,27 mm	0,01 mm	50-0-50	0,4 - 1,4
1160T	5	1 mm	0,01 mm	0-100	0,4 - 1,4
1162T	5	1 mm	0,01 mm	100-0	0,4 - 1,4

No.	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Mass [g]
1960T	40	22,1	35	22	28,7	12,8	46	80
1160T	40	22,1	35	22	25	13,8	43,3	80
1162T	40	22,1	35	22	25	13,8	43,3	80

No.	EN ISO 463					
	Errors of indication over a range of				Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range		
1960T	7				3	3,5
1160T	7	11	12	18	3	4
1162T	7	11	12	18	3	4



Series 1			
	1160T	1162T	1960T
<b>Functions</b>			
Balanced dial			●
Continuous dial	●	●	●
Reverse reading		●	
One revolution			●
Shockproof			●

### Specifications

Delivered      Delivered with factory certificate

### Optional accessories

No.	Description
136568	Holding Bar for Back Plunger Indicator, $\varnothing 8$ mm, 81mm Length
21AAA168	Holding Bar for Back Plunger Indicator, $\varnothing 8$ mm, 42mm Length
136567	Holding Bar for Back Plunger Indicator, $\varnothing 6$ mm, 81mm Length
21AAA166	Holding Bar for Back Plunger Indicator, $\varnothing 6$ mm, 42mm Length

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
21AZA319	Contact Element Ball Point, 8,3mm Length, Metric

901312 : for 1960  
21AZA319 : for 1160 and 1162

For accessories and contact points, see end of dial indicators section.



With optional holding bar



# Dial Indicator Back Plunger Type Series 2

## Series 2

This is a back plunger type dial indicator with bezel  $\varnothing 55 - 58\text{mm}$



Series 2		2960T	2990T-10
<b>Functions</b>			
	One revolution	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Shockproof	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Jeweled bearing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

### Specifications

Delivered | Delivered with factory certificate

### Optional accessories

No.	Description
136568	Holding Bar for Back Plunger Indicator, $\varnothing 8\text{mm}$ , 81mm Length
21AAA168	Holding Bar for Back Plunger Indicator, $\varnothing 8\text{mm}$ , 42mm Length
136567	Holding Bar for Back Plunger Indicator, $\varnothing 6\text{mm}$ , 81mm Length
21AAA166	Holding Bar for Back Plunger Indicator, $\varnothing 6\text{mm}$ , 42mm Length

### Consumable spares

No.	Description
901312	Contact Element Ball Point, 7,3mm Length, Carbide, Metric
21AZA319	Contact Element Ball Point, 8,3mm Length, Metric

901312 : for 2990T-10  
21AZA319 : for 2960T

For accessories and contact points, see end of dial indicators section.



With optional holding bar



2990T-10

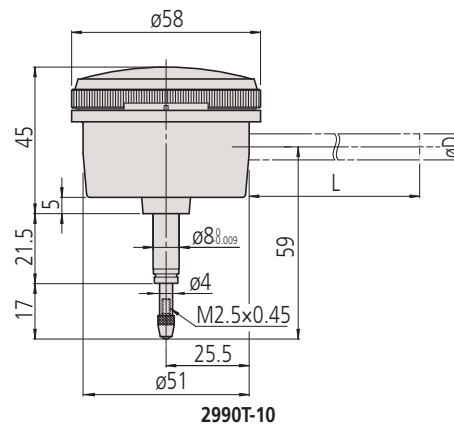


2960T

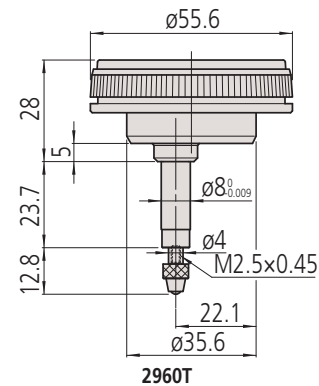
### Metric

No.	Range	Range per rev.	Graduation	Scale	Measuring force [N]	Mass [g]
2990T-10	0,1 (plunger stroke: 4)	0,14 mm	0,001 mm	50-0-50	0,4 - 1,5	220
2960T	1 (plunger stroke: 4,5)	1,27 mm	0,01 mm	50-0-50	0,4 - 1,4	215

No.	EN ISO 463						
	Errors of indication over a range of					Repeatability	Hysteresis error
	Any 1/10 revolution	Any 1/2 revolution	Any 1 revolution	Range	Range		
$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	
2990T-10	2			4	1	2	
2960T	7			15	3	3,5	



2990T-10



2960T

# Contact Points

## Ball Point



902119

Metric

A: M2,5 x 0,45

L [mm]	Carbide	Carbide waterproof type	Plastic	Ruby	Sapphire
	No.	No.	No.	No.	No.
12,1	—	21AZA320	—	—	—
14	21JAA225	—	—	—	—
15	120049	—	—	120051	120050
17	21JAA224	—	—	—	—
19,3	—	21AZA321	—	—	—
20	137391	—	—	137392	—
22	21JAA226	—	—	—	—
25	120053	—	—	120055	120054
30	21AAA252	—	—	21AAA253	—
7,3	901312	—	901994	120047	—
8	120045	—	—	—	120046
8,3	21AZA319	902119	—	—	—

## Ball Point



101122

Metric

A: M2,5 x 0,45

No.	Material	D Ø [mm]
21AAA349	Carbide	1
21AAA350	Carbide	1,5
101122	Steel	1,8
21AAA351	Carbide	2,5
21AAA352	Carbide	4

## Shell Type Point - Steel

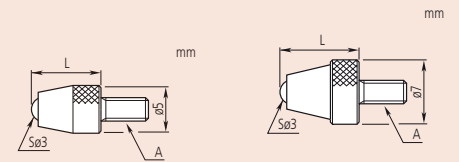


101118

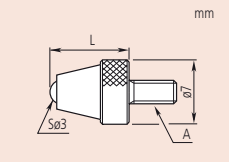
Metric

A: M2,5 x 0,45

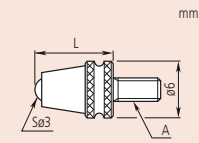
No.	L [mm]
101386	5
101118	10
137393	15
101387	20
101388	25
21AAA254	30



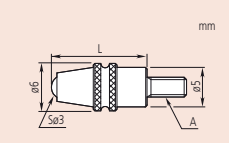
901312



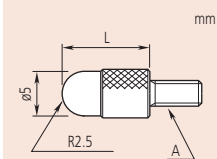
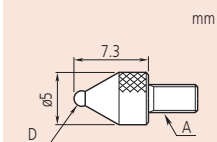
21AZA319



902119



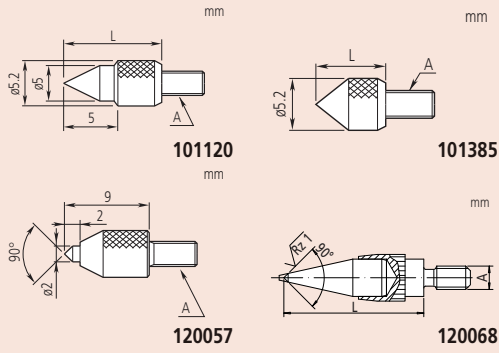
21AZA320



For all drawings  
A = M 2,5 x 0,45 mm (metric)

# Contact Points

## Conical Point

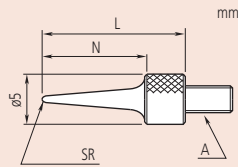


101385

Metric A: M2,5 x 0,45

No.	Material	Tip angle	L [mm]
101385	Steel	90°	5
101120	Steel	60°	10
120057	Carbide	90°	9
120068	Carbide	90°	15

## Needle Point - Steel

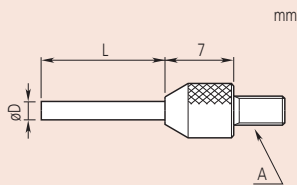


101121

Metric A: M2,5 x 0,45

No.	N [mm]	SR [mm]	L [mm]
101121	11	0,4	15
137413	13	0,2	17
21AAA255	21	0,4	25
21AAA256	31	0,4	35

## Cylinder Point - Carbide



137257

Metric A: M2,5 x 0,45

No.	L [mm]	D Ø [mm]
120066	3	0,45
21AAA329	5	0,45
120065	3	1
21AAA330	5	1
21AAA331	8	1
21AAA332	10	1
21AAA333	20	1
21AAA334	40	1
21AAA335	5	1,5
21AAA336	10	1,5
120064	13	1,5
21AAA337	20	1,5
21AAA338	40	1,5
137257	8	2
21AAA257	18	2
21AAA258	28	2
21AAA339	40	2

For all drawings  
A = M 2,5 x 0,45 mm (metric)

# Contact Points

## Spherical Point



120059

Metric A: M2,5 x 0,45

No.	Material	SR [mm]	L [mm]	D Ø [mm]
111460	Steel	5	3	5,5
120059	Carbide	7	10	7,5
125258	Steel	5	5	7,9
101119	Steel	7	5	10
120060	Carbide	10	10	10,5

## Flat Point - Steel



131365

Metric A: M2,5 x 0,45

No.	Flatness [µm]	L [mm]	D Ø [mm]
131365	3	8	5
21AAA340	3	10	5
101117	5	10	10
21AAA341	5	10	15
21AAA342	5	10	20
21AAA343	5	10	25
21AAA344	5	10	30

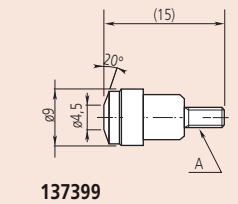
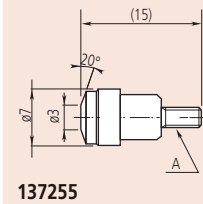
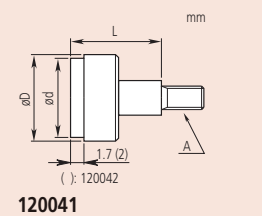
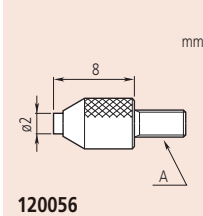
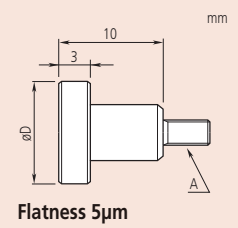
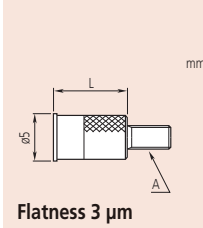
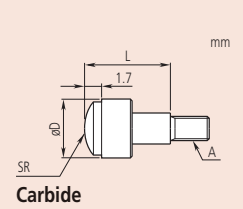
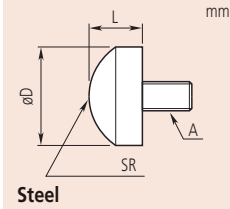
## Flat Point - Carbide



120056

Metric A: M2,5 x 0,45

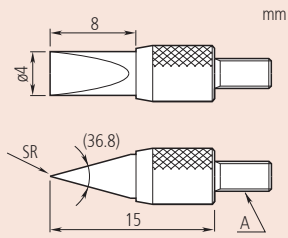
No.	Flatness [µm]	L [mm]	D Ø [mm]	Ø d [mm]
120056	3	8	5	2
120041	3	5	5,2	4,3
120042	3	10	7	6,5
120043	3	10	10,5	9,5
21AAA345	5	10	17	15
21AAA346	5	10	22	20
21AAA347	5	10	27	25
21AAA348	5	10	32	30
137255		10	7	6,4
137399		10	9	8



For all drawings  
A = M 2,5 x 0,45 mm (metric)

# Contact Points

## Knife Edge Point - Carbide

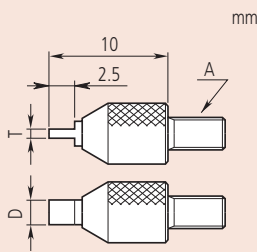


120067

Metric A: M2,5 x 0,45

No.	SR [mm]
120067	0,2

## Blade Point - Carbide

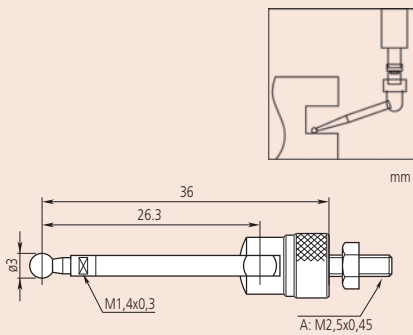


120062

Metric A: M2,5 x 0,45

No.	D [mm]	T [mm]
120061	2	0,4
120062	2	0,6
120063	4	1

## Lever Point - Steel

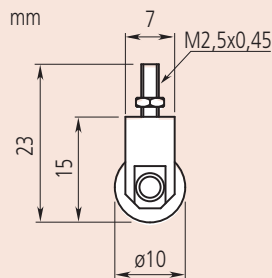


900391

Metric A: M2,5 x 0,45

No.
900391

## Roller Point - Steel



901954

Metric A: M2,5 x 0,45

No.
901954

For all drawings  
A = M 2,5 x 0,45 mm (metric)



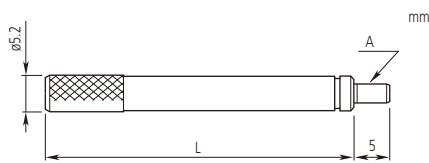
## Contact Points



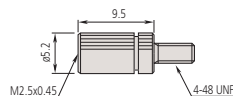
Metric A: M2,5 x 0,45

No.	Remarks
7822	Set with 6 contact points included

## Extension Rods



A = M 2,5 x 0,45 mm (metric)



21AAA011  
Adapter Metric

Metric

No.	L [mm]
303611	10
21AAA259A	15
303612	20
21AAA259B	25
303613	30
21AAA259C	35
21AAA259D	40
21AAA259E	45
21AAA259F	50
21AAA259G	55
304146	60
21AAA259H	65
21AAA259L	75
21AAA259J	70
21AAA259M	80
304147	90
303614	100

No.	Remarks	L
21AAA011	Adapter Inch/Metric	9,5 mm

## Bases for Indicators



902162

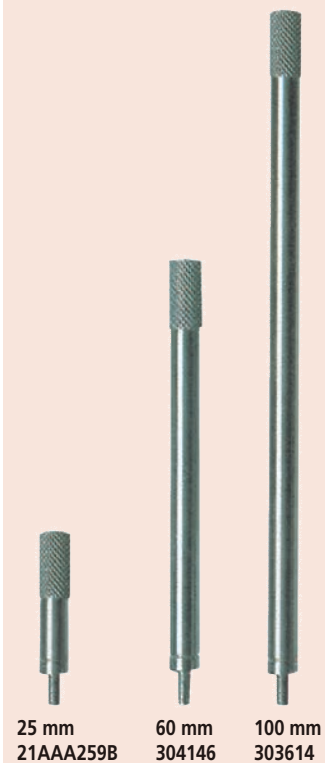


902163

No.	Remarks	Length [mm]
902162	Delivered without fixing screw	63,5
902163	Delivered without fixing screw	101,6

### Standard accessories

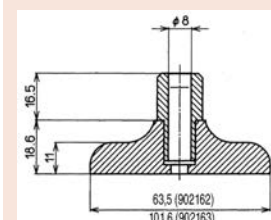
No.	Description
131365	Contact Element Flat, 5mm, Steel, Metric
101117	Contact Element Flat, 10mm, Steel, Metric
101121	Contact Element Needle, R 0,4mm, Steel, Metric
101119	Contact Element Spherical, R 7mm, Steel, Metric
101118	Contact Element Shell, R 2,5mm, Steel, Metric
101387	Contact Element Shell, R 2,5mm, Steel, Metric



25 mm 21AAA259B  
60 mm 304146  
100 mm 303614

### Optional accessories

No.	Description
21JAA269	Set Screw for Base (Indicator)



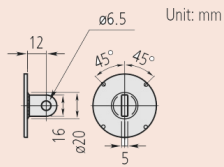
Thickness : 16 mm

# Interchangeable Backs

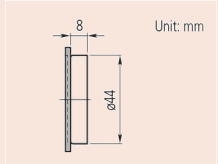
Unit: mm



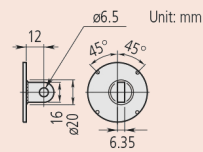
Flat back plate



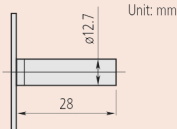
With centre lug



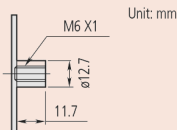
With magnet



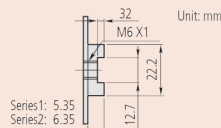
With laterally offset back lug



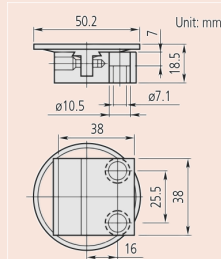
With post



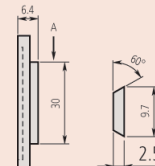
With screw mount



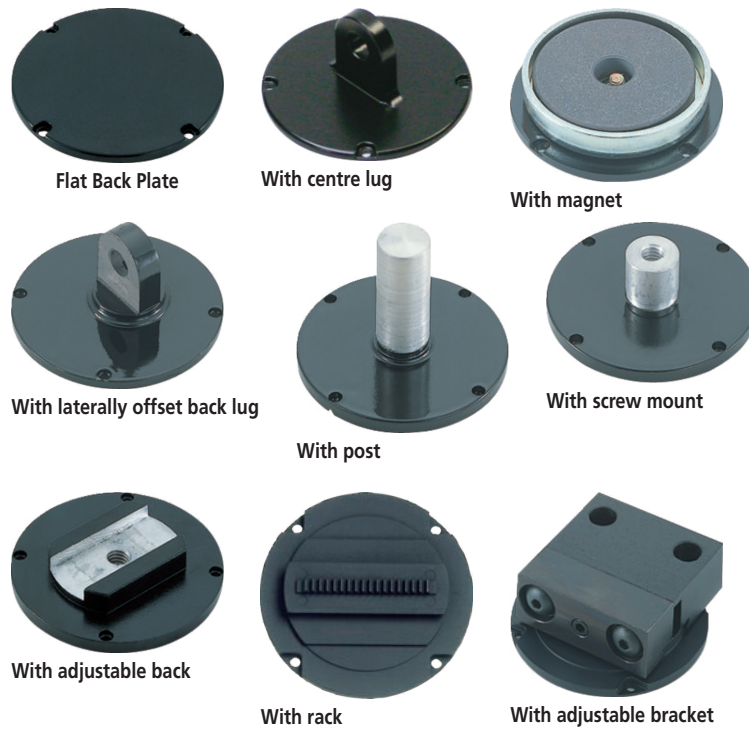
With adjustable stem



With adjustable bracket



With dovetail



No.	Description	For Series	Dimensions [mm]
191559	Flat Back Plate	1 <sup>(1)</sup>	a = 1 mm
101211	Flat Back Plate	1	a = 2,2 mm
136872	Flat Back Plate	1 (waterproof)	a = 1,5 mm
137906	Flat Back Plate	1.003	a = 1 mm
101039	Flat Back Plate	2/ ID-C/ ID-S/ ID-SS	a = 2,5 mm
21AZB231	Flat Back Plate	2 (waterproof S type)	a = 2,5 mm
100836	Flat Back Plate	3/4	a = 3 mm
190561	Back Plate with centre lug	1 <sup>(1)</sup>	a = 5 mm
101210	Back Plate with centre lug	1	a = 5 mm
137905	Back Plate with centre lug	for 1.003	a = 5 mm
101040	Back Plate with centre lug	2/ ID-C/ ID-F/ ID-H/ ID-S/ ID-SS	a = 5 mm
21AZB230	Back Plate with centre lug	2 (waterproof S type)	a = 5 mm
100691	Back Plate with centre lug	3/4	a = 5 mm
21EZA145	Back Plate with centre lug	ID-N, ID-B, LGS <sup>(2)</sup>	5 mm
900928	Back Plate with magnet	2/ ID-C/ ID-F/ ID-H/ ID-S/ ID-SS	
900929	Back Plate with magnet	3/4	
101167	Back Plate with laterally offset back lug	2/ ID-C/ ID-F/ ID-H/ ID-S/ ID-SS	
100837	Back Plate with laterally offset back lug	3/4	
193172	Back Plate with post	1	
101169	Back Plate with post	2/ ID-C/ ID-F/ ID-H/ ID-S/ ID-SS	
100839	Back Plate with post	3/4	
193173	Back Plate with screw mount	1	M 6 x 1
136023	Back Plate with screw mount	2/ ID-C/ ID-F/ ID-H/ ID-S/ ID-SS	M 6 x 1
136024	Back Plate with screw mount	3/4	M 6 x 1
136025	Back Plate with adjustable back	1	M 6 x 1
136026	Back Plate with adjustable back	2/ ID-C/ ID-F/ ID-H/ ID-S/ ID-SS	M 6 x 1
136027	Back Plate with adjustable back	3/4	M 6 x 1
129902	Back Plate with rack	2/ ID-C/ ID-F/ ID-H/ ID-S/ ID-SS	
901963	Back Plate with adjustable bracket	2/ ID-C/ ID-F/ ID-H/ ID-S/ ID-SS	
900008	Back Plate with dovetail	2/ ID-C/ ID-F/ ID-H/ ID-S/ ID-SS	

<sup>(1)</sup> for 1911, 1913-10, 1921, 1923, 1925-10, 1927-10

<sup>(2)</sup> for LGS 575-303, 575-304, 575-313

For old indicator models, please contact Mitutoyo

# Spindle Lifting Accessories

- The spindle lifting lever is attached to the top end of the spindle for improved inspection efficiency when using a dial indicator mounted on a stand.



### Spindle lifting cable

No.	Description
901975	With auto-stop function 300 mm length
540774	Without auto-stop function 500 mm length

No high grade IP-Protection (e.g. IP-64)

### Spindle lifting handle

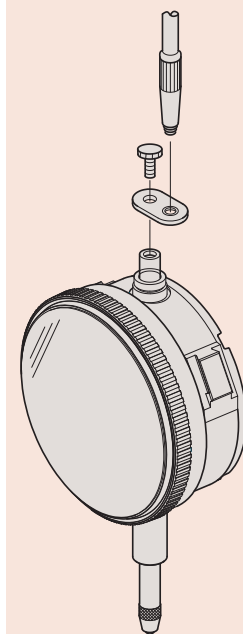
No.	Description
137693	Suitable for 4,8 mm spindle diameter

No high grade IP-Protection (e.g. IP-64)

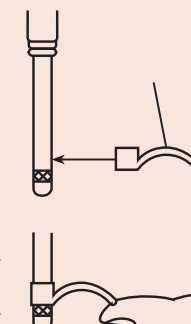
### Spindle lifting lever

No.	Use for
902100	S type Series 1 F type Series 2 (former model) (up to 5 mm range)
21AZB149	S type Series 2, 3 and 4 (up to 10 mm range)
21AZB150	S type Series 2 and 3 (from 10 mm up to 20 mm range)
21AZB151	S type No. 7322 / 7323
902011	ID-C: 543-280(B), 543-281(B), 543-282, 543-283(B)
21EZA198	Indicators ID-C (up to 12 mm range) ID-S, ID-SS

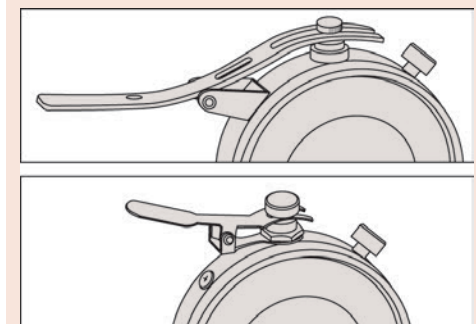
No high grade IP-Protection (e.g. IP-64)



Application 901975



Application 137693



Application spindle lifting lever

## Other Accessories for Dial Indicator

### Colour-coded Spindle Caps

- 9 colour-coded spindle caps are available for dial indicators with a range of 10 mm or less.
- With the exception of 2971 / 2972 / 2973 / 2976 / 2977 / 2978.



Colour	Standard	Water-resistant
	No.	No.
Black	193051	193595
Blue	193051B	193595B
Dark blue	193051S	193595S
Green	193051G	193595G
Orange	193051D	193595D
Pink	193051P	193595P
Red	193051R	193595R
White	193051W	193595W
Yellow	193051Y	193595Y

### Limit Stickers

- Tolerance markings.
- For dial indicators, Series 2 Ø 55,6 mm or 57 mm.
- 10 pieces per set.



136420



136421



136422



No.	Colour
136420	Red
136421	Green
136422	Yellow

# Other Accessories for Dial Indicator

## Crystal setter and assorted thrust pads

These crystal setters and thrust pads are used to make it easy to insert round dial glasses, and offer you the following benefits:

- You can use them to insert round dial glasses.
- Assorted thrust pads for diameters: 19,5/22,5/25,5/28,5/32,5/35/38/50mm.



7000

No.
7000

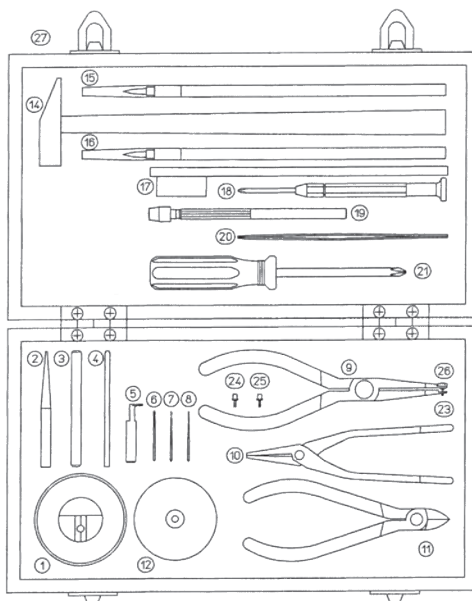
## Tool set

- For repairing analogue dial indicators.



7823EU

No.	Remarks
7823EU	Set with different tools included



## Specifications

Delivered In a wooden case

## Standard accessories

No.	Description
129730	Spindle-Rest (V-Anvil)/7823
129732	Pin Remover/7823
129733	Punch/7823
129734	Metal Bearing Adjuster/7823
129735	Pinion Set/7823
129736	Reamer Ø1mm/7823
193702	Reamer Ø0,6mm/7823
21JAA273	Reamer Ø0,5mm, 1/20 taper/7823
126628	Pointer removing tool/7823
901180	Pliers/7823
901179	Nippers/7823
129731	Pin rest/7823
901178	Hammer/7823
21JAA314	Stick/7823
901177	Brush/7823
901176	Brush/7823
901174	Phillips & Plain Screwdrivers
901175	Pin-vise/7823
129729	Tweezers/7823
901173	Phillips Screwdriver
126630	Pointer removing tip Ø0,8mm/7823
126630B	Hand Remover Pin 0,5mm 7823
126630C	Pointer removing tip Ø1,6mm/7823
100699	Adjustable Nut/7823



# Dial Test Indicator Lever Type

## Lever Indicator Overview



### Choices of dial position

Our product lineup offers four models, each with a different dial orientation on the frame to allow best readability in any situation.

- Horizontal type: standard model - with dial on the top of the frame
- Vertical type: dial on the end of the frame
- Horizontal (20° tilted face) type: dial on top of the frame, tilted backward by 20°
- Parallel type: dial on the side of the frame



### Stylus length is on the dial face

The length of the applied stylus affects the indicator's scale factor.

The appropriate length is indicated on the dial face to assist a customer when ordering the correct replacement stylus.



### ø8 stem to fit dovetails is a standard accessory

A ø8mm plain stem (21CAB104) for the Metric models that attaches to any dovetail on the frame is supplied as a standard accessory. Other sizes of stem to fit the dovetails are available as optional accessories:  
 ø4mm stem: 21CAB106  
 ø6mm stem: 21CAB103



### Attachable limit hands

Limit hands (optional) can be attached to the bezel as for dial indicators, allowing easy identification of the upper and lower limits of tolerance.



### Improved stylus bearing

The conventional method of mounting the stylus pivot bearing screw in the frame is prone to allowing looseness to develop with prolonged use.

A unique sub-plate structure to house this screw has now been incorporated in all models and eliminates this drawback.

# Lever Indicator Horizontal Type - 0,01 mm

## Series 513

This is a dial test indicator (lever type) which offers you the following benefits:

- Drastically enhanced durability, sensitivity and visibility
- Glare-free flat crystal face allows easy reading of graduations.
- O-ring seal on the bezel has the effect of providing smooth rotation and prevents dust and oil from penetrating through to the dial face.
- Multi-layer coatings on the crystal



513-466-10E



513-424-10E



513-414-10E



513-464-10E



513-404-10E



513-415-10E



513-426-10E



513-466-10E



513-424-10E



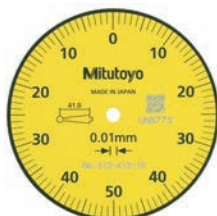
513-414-10E



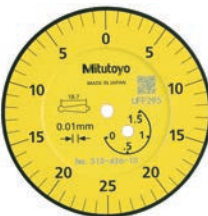
513-464-10E



513-404-10E



513-415-10E



513-426-10E

Series 513									
	513-404-10E	up to 513-474-10E	513-415-10E	513-477-10E	513-464-10E	513-414-10E	513-424-10E	513-466-10E	513-426-10E
<b>Functions</b>									
Double scale spacing									
Coaxial revolution counter									
Compact type									
Long stylus									
Anti-magnet									

### Specifications

Contact point | Thread M 1,7 x 0,35

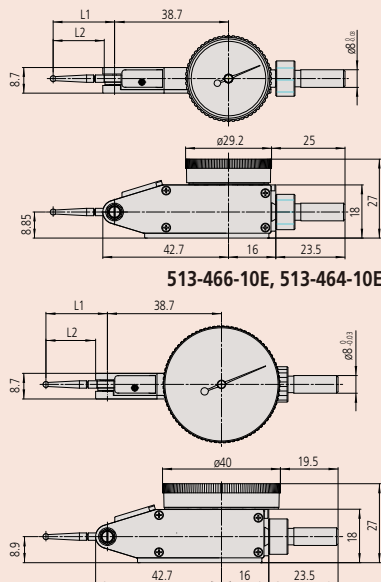
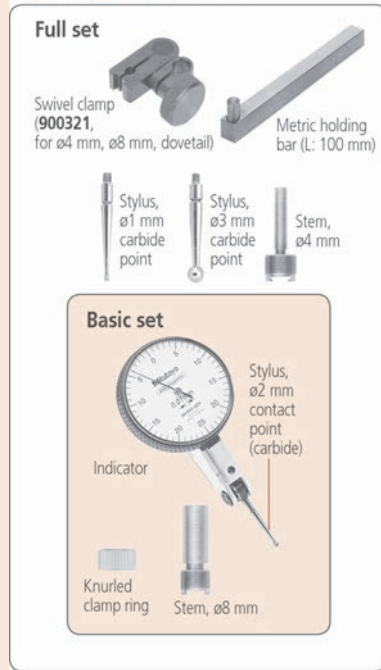
For optional accessories, see end of lever indicators section.

### Optional accessories

No.	Description
21AAB363	Limit Hands (Green) 2 pcs., Dial Indicator Series 1, Test Indicator

# Lever Indicator Horizontal Type - 0,01 mm

## Set Configuration: Metric



513-466-10E, 513-464-10E

513-404-10E, 513-404-10T, 513-414-10E, 513-414-10T, 513-415-10E, 513-415-10T, 513-424-10E, 513-424-10T, 513-426-10E, 513-474-10E, 513-477-10E, 513-478-10E

## Metric Basic set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip ø2 mm No.	Ø D [mm]	L1 [mm]	L2 [mm]	Mass [g]
513-466-10E	0,5	0,01 mm	0-25-0	0,01-0,3	137557	29,2	22,2	18,7	41
513-424-10E	0,5	0,01 mm	0-25-0	0,01-0,3	137557	40	22,2	18,7	45
513-414-10E	0,5	0,01 mm	0-25-0	0,01-0,2	131324	40	37,4	33,9	45
513-464-10E	0,8	0,01 mm	0-40-0	0,01-0,3	103006	29,2	20,9	17,4	41
513-404-10E	0,8	0,01 mm	0-40-0	0,01-0,3	103006	40	20,9	17,4	45
513-415-10E	1	0,01 mm	0-50-0	0,01-0,2	136013	40	44,5	41	45
513-426-10E	1,5	0,01 mm	0-25-0	0,01-0,4	137557	40	22,2	18,7	45

## Metric Basic set - Ruby contact point

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Ruby stylus tip ø2 mm No.	Ø D [mm]	L1 [mm]	L2 [mm]	Mass [g]
513-478-10E	0,5	0,01 mm	0-25-0	0,01-0,3	21CZA210	40	22,2	18,7	45
513-474-10E	0,8	0,01 mm	0-40-0	0,01-0,3	21CZA201	40	20,9	17,4	45
513-477-10E	1	0,01 mm	0-50-0	0,01-0,3	21CZA211	40	44,5	41	45

## Metric Full set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip ø2 mm No.	Ø D [mm]	L1 [mm]	L2 [mm]	Mass [g]
513-424-10T	0,5	0,01 mm	0-25-0	0,01-0,3	137557	40	22,2	18,7	45
513-414-10T	0,5	0,01 mm	0-25-0	0,01-0,2	131324	40	37,4	33,9	45
513-404-10T	0,8	0,01 mm	0-40-0	0,01-0,3	103006	40	20,9	17,4	45
513-415-10T	1	0,01 mm	0-50-0	0,01-0,2	136013	40	44,5	41	45

No.	DIN 2270 (2016)				EN ISO 9493 (2010)				
	Error of indication over a range of		Hysteresis	Repeatability	Error of indication over a range of			Hysteresis	Repeatability
	MPE any 10 scale divisions	MPE measuring range			MPE any 10 scale divisions	MPE any half revolution	MPE any one revolution		
513-466-10E	5	5	3	3	5		5	3	3
513-424-10E	5	5	3	3	5		5	3	3
513-414-10E	5	10	4	3	5		10	4	3
513-464-10E	5	8	3	3	5	6	8	3	3
513-404-10E	5	8	3	3	5	6	8	3	3
513-415-10E					5	8	10	4	3
513-426-10E					5	10	16	4	3
513-478-10E	5	5	3	3	5		5	3	3
513-474-10E	5	8	3	3	5	6	8	3	3
513-477-10E					5	8	10	4	3
513-424-10T	5	5	3	3	5		5	3	3
513-414-10T	5	10	4	3	5		10	4	3
513-404-10T	5	8	3	3	5	6	8	3	3
513-415-10T					5	8	10	4	3

# Lever Indicator - Horizontal Type - 0,001/0,002 mm

## Series 513

This is a dial test indicator (lever type) which offers you the following benefits:

- Drastically enhanced durability, sensitivity and visibility
- Glare-free flat crystal face allows easy reading of graduations.
- O-ring seal on the bezel has the effect of providing smooth rotation and prevents dust and oil from penetrating through to the dial face.
- Multi-layer coatings on the crystal



### Metric Basic set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip ø2 mm No.	Ø D [mm]	L1 [mm]	L2 [mm]	Mass [g]
513-401-10E	0,14	0,001 mm	0-70-0	0,01-0,3	103010	40	14,7	11,2	45
513-465-10E	0,2	0,002 mm	0-100-0	0,01-0,3	103011	29,2	18,7	15,2	41
513-405-10E	0,2	0,002 mm	0-100-0	0,01-0,3	103011	40	18,7	15,2	45
513-425-10E	0,6	0,002 mm	0-100-0	0,01-0,4	103011	40	18,7	15,2	45

### Metric Basic set - Ruby contact point

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Ruby stylus tip ø2 mm No.	Ø D [mm]	L1 [mm]	L2 [mm]	Mass [g]
513-475-10E	0,2	0,002 mm	0-100-0	0,01-0,3	21CZB68	40	18,7	15,2	45

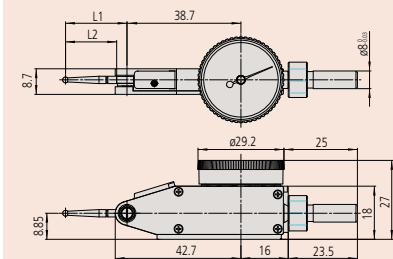
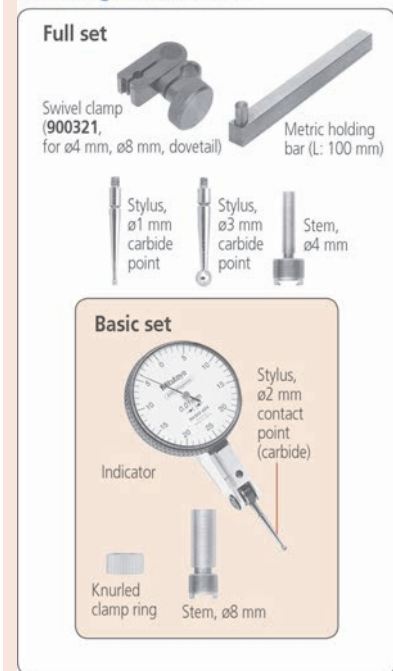
### Metric Full set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip ø2 mm No.	Ø D [mm]	L1 [mm]	L2 [mm]	Mass [g]
513-405-10T	0,2	0,002 mm	0-100-0	0,01-0,3	103011	40	18,7	15,2	45

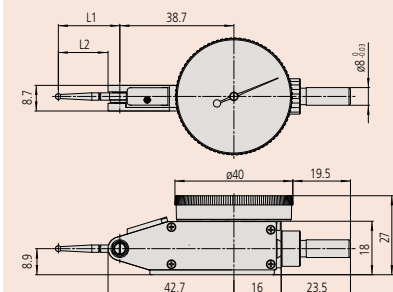
No.	DIN 2270 (2016)				EN ISO 9493 (2010)					
	Error of indication over a range of		Hysteresis	Repeatability	Error of indication over a range of				Hysteresis	Repeatability
	MPE any 10 scale divisions	MPE measuring range			MPE any 10 scale divisions	MPE any half revolution	MPE any one revolution	MPE measuring range		
513-401-10E					2	3		3	2	1
513-465-10E	2	3	2	1	2	3		3	2	1
513-405-10E	2	3	2	1	2	3		3	2	1
513-425-10E					2	3	5	7	4	1
513-475-10E	2	3	2	1	2	3		3	2	1
513-405-10T	2	3	2	1	2	3		3	2	1

Series 513		513-401-10E	513-465-10E	513-405-10E	513-425-10E
<b>Functions</b>					
	Coaxial revolution counter				●
	Compact type			●	●
	Anti-magnet	●	●	●	●
<b>Specifications</b>					
Contact point	Thread M 1,7 x 0,35				
For optional accessories, see end of lever indicators section.					
<b>Optional accessories</b>					
No.	Description				
21AAB363	Limit Hands (Green) 2 pcs., Dial Indicator Series 1, Test Indicator				

### Set Configuration: Metric



513-465-10E



513-401-10E, 513-405-10E, 513-425-10E, 513-475-10E



# Lever Indicator and Magnet Stand

## Series 513

This is a dial test indicator (lever type) including mini magnet stand. It offers you the following benefits:

- It contains various accessories including a mini magnet stand, a swivel clamp and a stem with a knurled clamp ring.
- Easy to use



513-908-10E

### Indicator

Centered, bi-directional action for automatic reversal of measuring direction.

Jewelled bearings and precision gears and pinions for smooth, accurate movement and quick response.

### Stand

Magnetic force : 150 N.

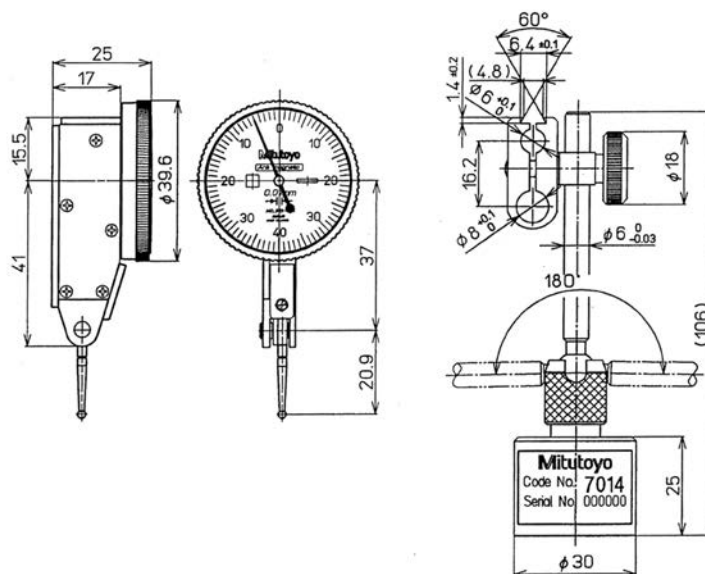
Mass : 180 g.



513-908-10E

### Metric

No.	Contents include	Mass [g]
513-908-10E	513-404-10E : Lever Indicator 7014-10 : Mini Magnetic Stand 902804 : Stem with knurled clamp ring	222





# Lever Indicator Horizontal (20° Tilted Face) Type

## Series 513

This is a dial test indicator (lever type) which offers you the following benefits:

- Drastically enhanced durability, sensitivity and visibility
- Glare-free flat crystal face allows easy reading of graduations.
- O-ring seal on the bezel has the effect of providing smooth rotation and prevents dust and oil from penetrating through to the dial face.
- Multi-layer coatings on the crystal



513-445-10E



513-445-10E



513-444-10E



513-444-10E

### Metric Basic set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip ø2 mm No.	L1 [mm]	L2 [mm]	Mass [g]
513-445-10E	0,4	0,002 mm	0-100-0	0,01-0,3	103011	18,7	15,2	48
513-444-10E	1,6	0,01 mm	0-40-0	0,01-0,3	103006	20,9	17,4	48

### Metric Full set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip ø2 mm No.	L1 [mm]	L2 [mm]	Mass [g]
513-445-10T	0,4	0,002 mm	0-100-0	0,01-0,3	103011	18,7	15,2	48
513-444-10T	1,6	0,01 mm	0-40-0	0,01-0,3	103006	20,9	17,4	48

No.	DIN 2270 (2016)				EN ISO 9493 (2010)					
	Error of indication over a range of		Hysteresis	Repeatability	Error of indication over a range of				Hysteresis	Repeatability
	MPE any 10 scale divisions	MPE measuring range			MPE any 10 scale divisions	MPE any half revolution	MPE any one revolution	MPE measuring range		
513-445-10E					2	3	5	6	4	1
513-444-10E	5	16	4	3	5	8	10	16	4	3
513-445-10T					2	3	5	6	4	1
513-444-10T	5	16	4	3	5	8	10	16	4	3

Series 513	
<b>Functions</b>	
Coaxial revolution counter	<input checked="" type="checkbox"/>
Anti-magnet	<input checked="" type="checkbox"/>

### Specifications

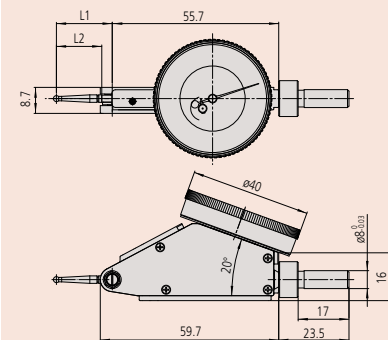
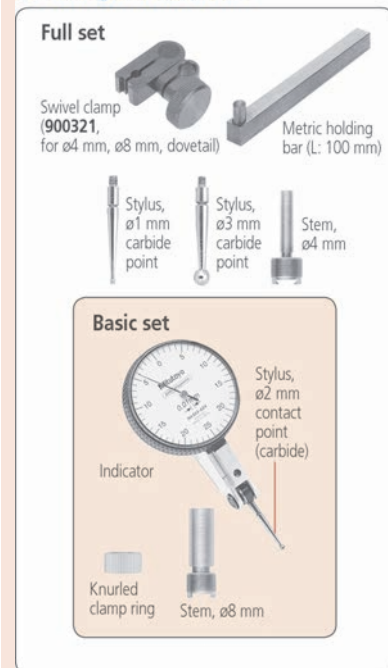
Contact point Thread M 1,7 x 0,35

For optional accessories, see end of lever indicators section.

### Optional accessories

No.	Description
21AAB363	Limit Hands (Green) 2 pcs., Dial Indicator Series 1, Test Indicator

### Set Configuration: Metric



# Lever Indicator Vertical Type

Series 513

## Functions

Anti-magnet

## Specifications

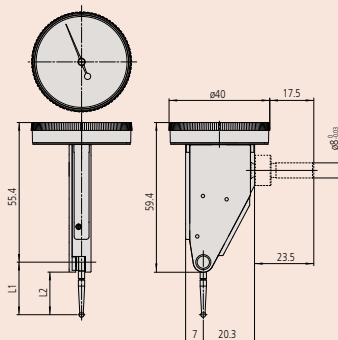
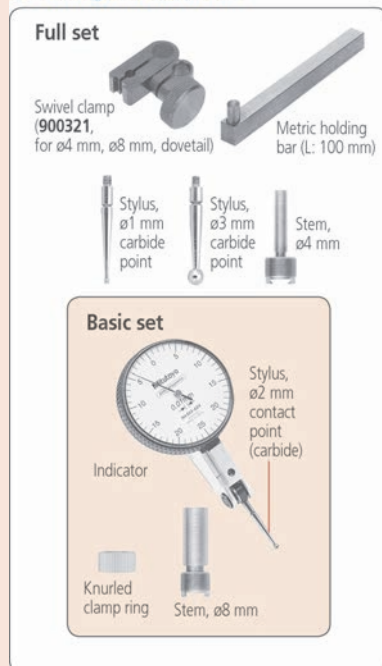
Contact point Thread M 1,7 x 0,35

For optional accessories, see end of lever indicators section.

## Optional accessories

No.	Description
21AAB363	Limit Hands (Green) 2 pcs., Dial Indicator Series 1, Test Indicator

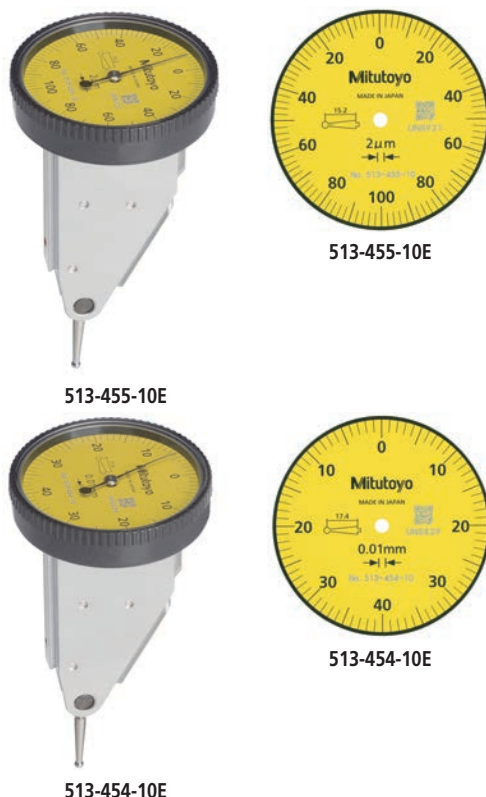
### Set Configuration: Metric



## Series 513

This is a dial test indicator (lever type) which offers you the following benefits:

- Drastically enhanced durability, sensitivity and visibility
- Glare-free flat crystal face allows easy reading of graduations.
- O-ring seal on the bezel has the effect of providing smooth rotation and prevents dust and oil from penetrating through to the dial face.
- Multi-layer coatings on the crystal



### Metric Basic set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip ø2 mm No.	L1 [mm]	L2 [mm]	Mass [g]
513-455-10E	0,2	0,002 mm	0-100-0	0,01-0,3	103011	18,7	15,2	46
513-454-10E	0,8	0,01 mm	0-40-0	0,01-0,3	103006	20,9	17,4	46

### Metric Full set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip ø2 mm No.	L1 [mm]	L2 [mm]	Mass [g]
513-455-10T	0,2	0,002 mm	0-100-0	0,01-0,3	103011	18,7	15,2	46
513-454-10T	0,8	0,01 mm	0-40-0	0,01-0,3	103006	20,9	17,4	46

No.	DIN 2270 (2016)				EN ISO 9493 (2010)					
	Error of indication over a range of		Hysteresis	Repeatability	Error of indication over a range of				Hysteresis	Repeatability
	MPE any 10 scale divisions	MPE measuring range			MPE any 10 scale divisions	MPE any half revolution	MPE any one revolution	MPE measuring range		
513-455-10E	2	3	2	1	2	3	3	2	1	
513-454-10E	5	8	3	3	5	6	8	3	3	
513-455-10T	2	3	2	1	2	3	3	2	1	
513-454-10T	5	8	3	3	5	6	8	3	3	

# Lever Indicator Parallel Type

## Series 513

- Drastically enhanced durability, sensitivity and visibility.
- Glare-free flat crystal face allows easy reading of graduations.



513-484-10E



513-484-10E

### Metric Basic set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip $\varnothing 2$ mm No.	L1 [mm]	L2 [mm]	Mass [g]
513-484-10E	0,8	0,01 mm	0-40-0	0,01-0,3	103006	20,9	17,4	53

### Metric Full set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip $\varnothing 2$ mm No.	L1 [mm]	L2 [mm]	Mass [g]
513-484-10T	0,8	0,01 mm	0-40-0	0,01-0,3	103006	20,9	17,4	53

No.	DIN 2270 (2016)				EN ISO 9493 (2010)					
	Error of indication over a range of		Hysteresis	Repeatability	Error of indication over a range of				Hysteresis	Repeatability
	MPE any 10 scale divisions	MPE measuring range			MPE any 10 scale divisions	MPE any half revolution	MPE any one revolution	MPE measuring range		
513-484-10E	5	8	3	3	5	6	8	3	3	
513-484-10T	5	8	3	3	5	6	8	3	3	

## Series 513

### Functions

Anti-magnet

### Specifications

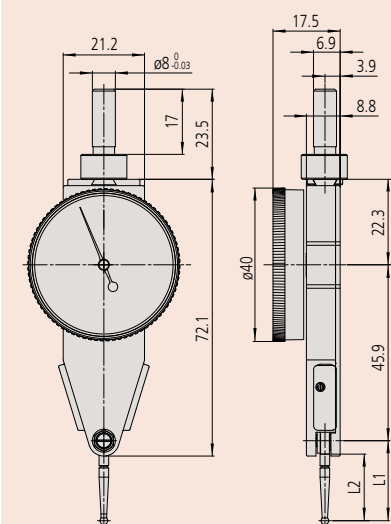
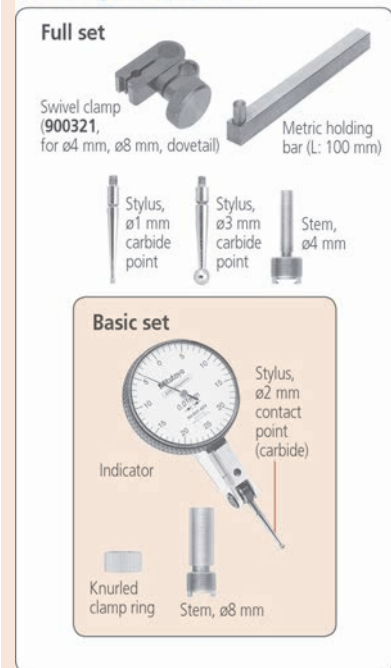
Contact point Thread M 1,7 x 0,35

For optional accessories, see end of lever indicators section.

### Optional accessories

No.	Description
21AAB363	Limit Hands (Green) 2 pcs., Dial Indicator Series 1, Test Indicator

### Set Configuration: Metric



# Lever Indicator Universal Type

Series 513

**Functions**

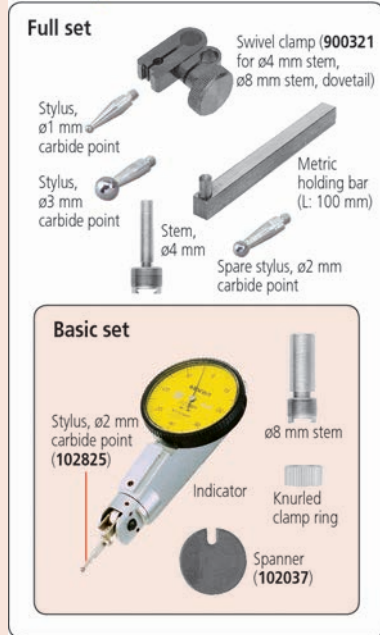
- Jeweled bearing

**Specifications**

Contact point Thread M 1,4 x 0,3

For optional accessories, see end of lever indicators section.

**Set Configuration: Metric**



**Series 513**

This level indicator makes reading much easier as you can rotate its measuring head through 360°.

- Centered, bi-directional action for automatic reversal of measuring direction.
- Jewelled bearings and precision gears and pinions for smooth, accurate movement and quick response.



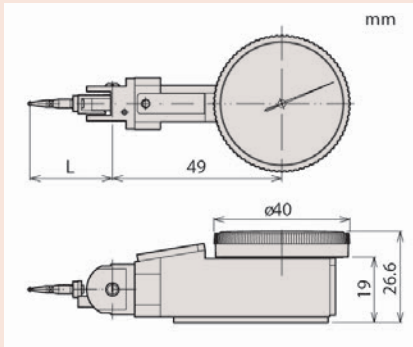
513-304-10E

**Metric Basic set**

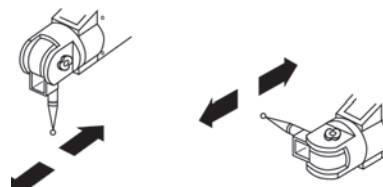
No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip $\varnothing 2$ mm No.	L [mm]	Mass [g]
513-304-10E	0,8	0,01 mm	0-40-0	$\leq 0,3$	102825	24	80

**Metric Full set**

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip $\varnothing 2$ mm No.	L [mm]	Mass [kg]
513-304-10T	0,8	0,01 mm	0-40-0	$\leq 0,3$	102825	24	80



No.	DIN 2270 (2016)				EN ISO 9493 (2010)					
	Error of indication over a range of		Hysteresis	Repeatability	Error of indication over a range of				Hysteresis	Repeatability
	MPE any 10 scale divisions	MPE measuring range			MPE any 10 scale divisions	MPE any half revolution	MPE any one revolution	MPE measuring range		
513-304-10E	5	8	3	3	5	6	8	3	3	
513-304-10T	5	8	3	3	5	6	8	3	3	



Stylus can be set at any angle while keeping the dial stationary

# Lever Indicator Small Type

## Series 513

This is a small type dial test indicator (lever type) which offers you the following benefits:

- Reversible measuring direction (clutch type)
- Jeweled bearings assure higher sensitivity and accuracy.



### Metric Basic set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip $\varnothing 2$ mm No.	C [mm]	L1 [mm]	L2 [mm]	Mass [g]
513-501E	0,14	0,001 mm	0-70-0	$\leq 0,4$	136104	41,1	12,1	8,6	41
513-503E	0,2	0,002 mm	0-100-0	$\leq 0,4$	103010	43,7	14,7	11,2	41
513-514E	0,5	0,01 mm	0-25-0	$\leq 0,3$	131324	66,8	36,8		41
513-517E	0,8	0,01 mm	0-40-0	$\leq 0,3$	103006	49,9	20,9	17,4	41
513-517WE	0,8	0,01 mm	0-40-0	$\leq 0,3$	21CZA097	49,9	20,9	17,4	41
513-527E	0,8	0,01 mm	0-40-0	$\leq 0,3$	103010		14,7	11,2	36

### Metric Full set

No.	Range [mm]	Graduation	Scale	Measuring force [N]	Carbide stylus tip $\varnothing 2$ mm No.	C [mm]	L1 [mm]	L2 [mm]	Mass [g]
513-501T	0,14	0,001 mm	0-70-0	$\leq 0,4$	136104	41,1	12,1	8,6	41
513-503T	0,2	0,002 mm	0-100-0	$\leq 0,4$	103010	43,7	14,7	11,2	41
513-514T	0,5	0,01 mm	0-25-0	$\leq 0,3$	131324	66,8	36,8		41
513-517T	0,8	0,01 mm	0-40-0	$\leq 0,3$	103006	49,9	20,9	17,4	41
513-517WT	0,8	0,01 mm	0-40-0	$\leq 0,3$	21CZA097	49,9	20,9	17,4	41
513-527T	0,8	0,01 mm	0-40-0	$\leq 0,3$	103010		14,7	11,2	36
513-515T	1	0,01 mm	0-50-0	$\leq 0,3$	136013	73,5	44,5	41	41

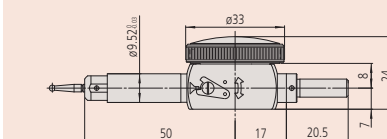
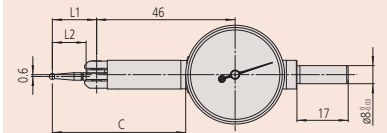
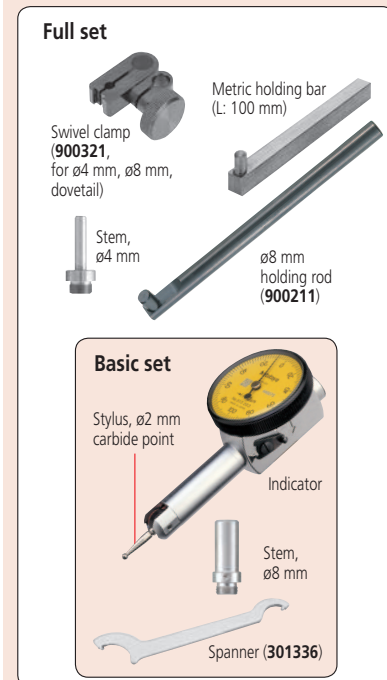
Functions	Series 513		513-514E up to 513-515T	513-527T	513-527E
	513-517WE	513-517WT			
Jeweled bearing					
Compact type					
Long stylus					
Dustproof					

### Specifications

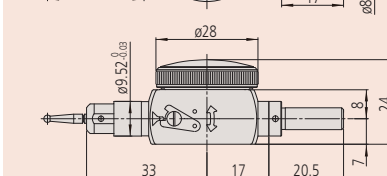
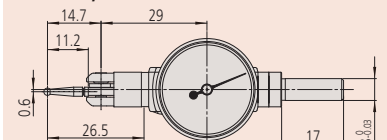
Contact point Thread M 1,7 x 0,35

For optional accessories, see end of lever indicators section.

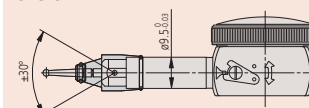
### Set Configuration: Metric



513-501E, 513-501T, 513-503T, 513-514E, 513-514T, 513-515T, 513-517T



513-527



The stylus angle should be restricted within the range  $\pm 30^\circ$  (as shown above) for dustproof models 513-517WE/T.

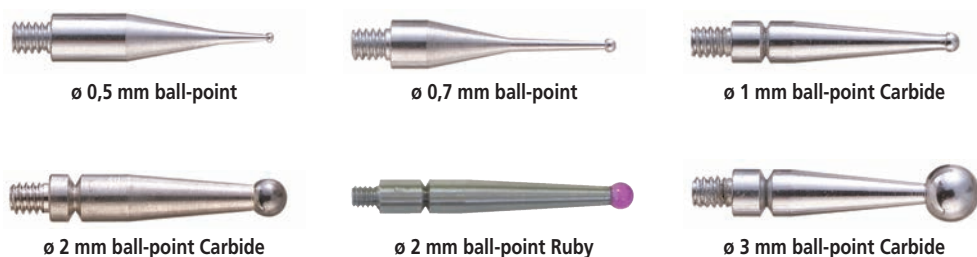


# Lever Indicator Small Type

No.	DIN 2270 (2016)				EN ISO 9493 (2010)					
	Error of indication over a range of		Hysteresis	Repeatability	Error of indication over a range of				Hysteresis	Repeatability
	MPE any 10 scale divisions	MPE measuring range			MPE any 10 scale divisions	MPE any half revolution	MPE any one revolution	MPE measuring range		
513-501E					2	3		3	2	1
513-503E	2	3	2	1	2	3		3	2	1
513-514E	5	10	4	3	5			10	4	3
513-517E	5	8	3	3	5	6		8	3	3
513-517WE	5	8	3	3	5	6		8	3	3
513-527E	5	8	3	3	5	6		8	3	3
513-501T	2	3	2	1	2	3		3	2	1
513-503T	2	3	2	1	2	3		3	2	1
513-514T	5	10	4	3	5			10	4	3
513-517T	5	8	3	3	5	6		8	3	3
513-517WT	5	8	3	3	5	6		8	3	3
513-527T	5	8	3	3	5	6		8	3	3
513-515T	5	10	4	3	5	8		10	4	3

# Styli, Stems and Holders

Stylus length affects the scale factor of an indicator, and the styli provided to you as standard give a scale factor of unity.



## Styli (for Metric Models)

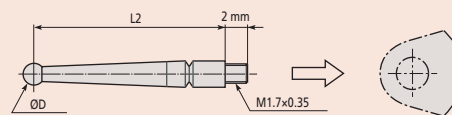
No.	Standard models	Small type models	L2 [mm]	Ø ball point
190547	●	●	11,2	0,5 mm steel
190549	●	●	17,4	0,5 mm steel
190654	●		18,7	0,5 mm steel
190656	●	●	41	0,5 mm steel
190548	●	●	11,2	0,7 mm steel
190550	●	●	17,4	0,7 mm steel
190653	●		18,7	0,7 mm steel
190655	●	●	41	0,7 mm steel
136756		●	8,6	1 mm carbide
21CZA044	●		9,4	1 mm carbide
103017	●	●	11,2	1 mm carbide
131314	●		15,2	1 mm carbide
103013	●	●	17,4	1 mm carbide
21CZA098		●	17,4	1 mm carbide*3
137558	●		18,7	1 mm carbide
102824	●		6,5	1 mm carbide*2
131316	●		33,9	1 mm carbide
136235	●	●	41	1 mm carbide
136104		●	8,6	2 mm carbide
21CZA036	●		9,4	2 mm carbide
103010	●	●	11,2	2 mm carbide
103011	●		15,2	2 mm carbide
103006	●	●	17,4	2 mm carbide
21CZA097		●	17,4	2 mm carbide*3
137557	●		18,7	2 mm carbide
102825	●		6,5	2 mm carbide*2
131324	●		33,9	2 mm carbide
136013	●	●	41	2 mm carbide
21CZA212	●		9,4	2 mm ruby
21CZA209	●	●	11,2	2 mm ruby
21CZB068	●		15,2	2 mm ruby
21CZA201	●	●	17,4	2 mm ruby
21CZA210	●		18,7	2 mm ruby
21CZA211	●	●	41	2 mm ruby
136758		●	8,6	3 mm carbide
21CZA045	●		9,4	3 mm carbide
103018	●	●	11,7	3 mm carbide
131315	●		15,2	3 mm carbide
103014	●	●	17,4	3 mm carbide
21CZA099		●	17,4	3 mm carbide*3
137559	●		18,7	3 mm carbide
102826	●		6,5	3 mm carbide*2
131317	●		33,9	3 mm carbide
136236	●	●	41	3 mm carbide

\*2 : Used extension 209829 for 513-304-10E, 513-304-10T

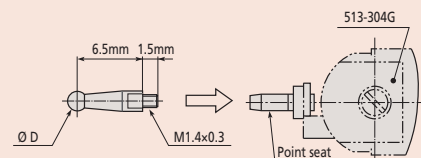
\*3 : For 513-517W models

## Optional accessories

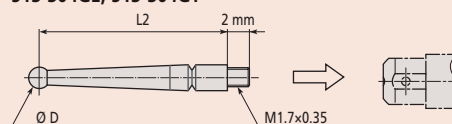
No.	Description
209829	Stylus Extension for Universal Type, Series 513



Styli for standard models



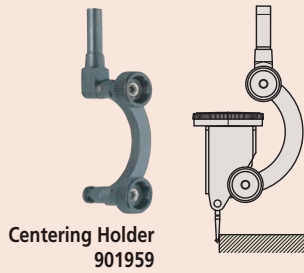
Styli for universal type  
513-304GE, 513-304GT



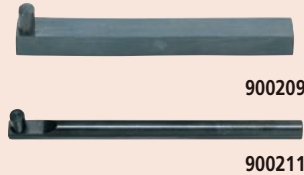
Styli for small type models

# Styli, Stems and Holders

## Styli, Stems and Holders

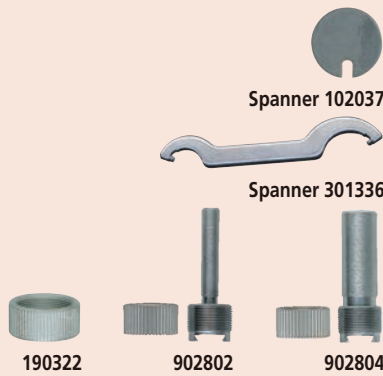


Centering Holder  
901959



900209

900211



Spanner 102037

Spanner 301336



190322

902802

902804



102822

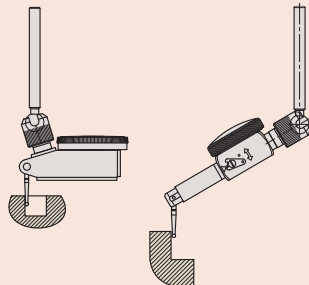
102389



900321



Universal Holder



Universal holder with standard type (left)  
Universal holder with small type (right)

### Centering Holder

No.	Standard models	Stem
901959	●	ø 8 mm

### Holding Bars

No.	Standard models	Small type models	L	Description
953638.	●	●	50 mm	9 x 9 mm
900209.	●	●	100 mm	9 x 9 mm
900211	●	●	115 mm	ø 8 mm

### Spanner

No.	Standard models	Small type models
102037	●	
301336		●

### Stems

No.	Standard models	Small type models	Diameter	Description
21CZB131	●		4 mm	Stem with knurled clamp ring
21CZB128	●		6 mm	Stem with knurled clamp ring
21CZB129	●		8 mm	Stem with knurled clamp ring
21CZB130	●		9,5 mm	Stem with knurled clamp ring
21CZB132	●		4 mm, 8 mm	2 stems with knurled clamp ring
21CZB133	●		4 mm, 9,5 mm	2 stems with knurled clamp ring
190322	●			Knurled clamp ring
21CAB106	●		4 mm	Stem
21CAB103	●		6 mm	Stem
21CAB104	●		8 mm	Stem
102036		●	4 mm	Stem
102389		●	6 mm	Stem
102822		●	8 mm	Stem

### Swivel Clamps

No.	Standard models	Small type models	Description
900321	●	●	For ø 4, 8 mm stems and dovetail

### Universal Holder

No.	Standard models	Small type models	Stem
21CZA229	●		ø 6 mm
21CZA233	●		ø 8 mm
21CZA230		●	
21CZA234		●	ø 8 mm

# ABSOLUTE Digimatic Thickness Gauge

## Series 547

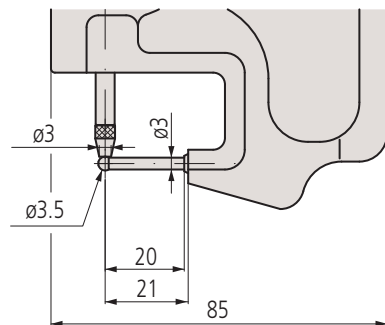
This ABSOLUTE Digimatic Thickness Gauge enables you to measure tube wall thickness.



547-360

Metric With indicator ID-C No. 543-400BS

No.	Range [mm]	Digital step	Indicator No.	Max. measuring depth [mm]	Mass [g]
547-360	0-10	0,01 mm	543-400BS (ID-C)	20	240



Functions	Series 547
ZERO/ABS	●
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
DATA/HOLD	●
Lock function	●
PRESET	●
Calculation function	●
Counting direction switchable	●

### Specifications

Accuracy	±10 μm (excluding quantizing error)
Measuring force	≤ 1,5 N
Scale	Capacitance type ABSOLUTE linear encoder
Max. response speed	Unlimited
Contact point	Carbide ball M 2,5 x 0,45 mm
Alarm	Low voltage, counting value composition error, overflow error, tolerance limit setting error (only ID-C)
Power supply	1 battery SR-44
Battery life	approx. 7000 hours

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type

### Consumable spares

No.	Description
938882	Battery SR44 1.5V
21EZA198	Spindle Lifting Lever, for 12,7mm Range

# ABSOLUTE Digimatic Thickness Gauge

ABSOLUTE®  
**IP42**

Functions	Series 547
ZERO/ABS	●
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
DATA/HOLD	●
Lock function	●
PRESET	●
Calculation function	●
Counting direction switchable	●

## Specifications

Accuracy	±10 µm (excluding quantizing error)
Measuring force	≤ 1,5 N
Scale	Capacitance type ABSOLUTE linear encoder
Parallelism	10 µm
Max. response speed	Unlimited
Contact point	M 2,5 x 0,45 mm (ISO/JIS type)
Alarm	Low voltage, counting value composition error, overflow error, tolerance limit setting error (ID-C only)
Power supply	1 battery SR-44
Battery life	approx. 7000 hours

## Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V
21EZA198	Spindle Lifting Lever, for 12,7mm Range



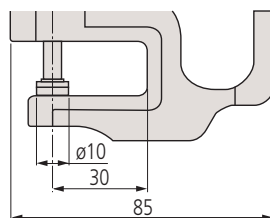
## Series 547



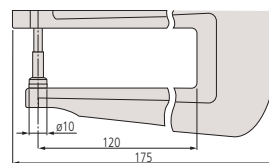
## Metric

With indicator ID-C No. 543-400BS

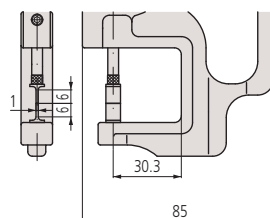
No.	Range [mm]	Digital step	Max. measuring depth [mm]	Type	Mass [g]
547-301	0-10	0,01 mm	30	Ceramic disc contact points	255
547-321	0-10	0,01 mm	120	Ceramic disc contact points and large jaw capacity	425
547-313	0-10	0,01 mm	30	Adjustable anvil	275
547-315	0-10	0,01 mm	30	Blade steel contact point	270



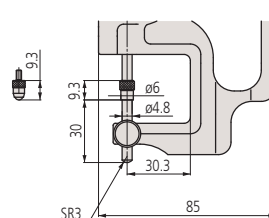
547-301



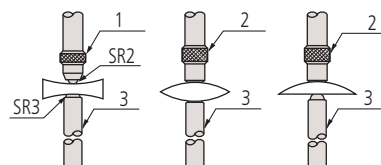
547-321



547-315



547-313



Concave lens    Convex lens    Plano-convex lens  
1: Ballpoint; 2: Flatpoint; 3: Anvil

(only for 547-313)



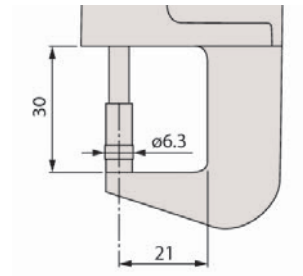
# ABSOLUTE Digimatic Thickness Gauge

Series 547

For measuring film, paper, etc., with a resolution of 0,001 mm.



547-401



## Metric

No.	Range [mm]	Digital step	Indicator No.	Max. measuring depth [mm]	Mass [g]
547-401	0-12	0,01 mm/0,001 mm	543-390BS (ID-C)	21	290



Functions	Series 547
ZERO/ABS	●
GO/±NG judgement	●
Digimatic data output	●
ON/OFF	●
DATA/HOLD	●
Lock function	●
PRESET	●
Calculation function	●
Counting direction switchable	●

## Specifications

Accuracy	±3 μm (excluding quantizing error)
Measuring force	≤ 3,5 N
Scale	Capacitance type ABSOLUTE linear encoder
Parallelism	3 μm
Max. response speed	Unlimited
Contact point	M 2,5 x 0,45 mm (ISO/JIS type) carbide tip
Alarm	Low voltage, counting value composition error, overflow error, tolerance limit setting error
Power supply	1 battery SR-44
Battery life	approx. 7000 hours

## Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type

## Consumable spares

No.	Description
938882	Battery SR44 1.5V
21AZB149	Lifting Lever, S-Type Series 2,3,4 (up to 10mm)

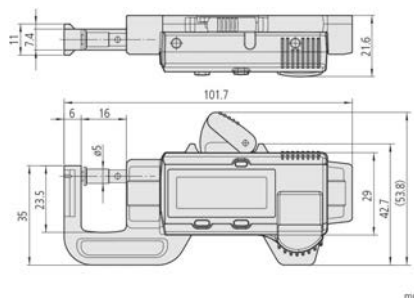
# Quick Mini Thickness Gauge

Series 700

This is a lightweight, palm-sized thickness gauge.



700-119-30



Functions	Series 700
ORIGIN	●
ZERO/ABS	●
ON/OFF	●

## Specifications

Accuracy	±0,02 mm (excluding quantizing error)
Power supply	Battery SR-44
Measuring force	2 N
Battery life	approx. 5 years
Display	LCD, character height 9 mm
Delivered	In case

## Consumable spares

No.	Description
938882	Battery SR44 1.5V

# Dial Indicator Thickness Gauge

## Series 7

This metric dial indicator thickness gauge 7331S has a lightweight design.

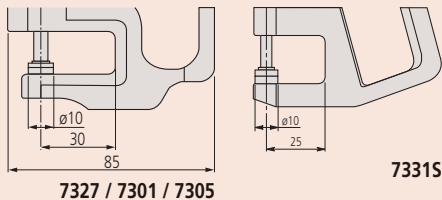
### Specifications

Accuracy	Refer to the list of specifications
Parallelism	5 μm

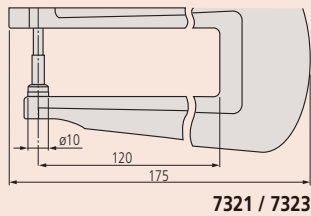
### Consumable spares

No.	Description
21AZB149	Lifting Lever, S-Type Series 2,3,4 (up to 10mm)
21AZB150	Lifting Lever, S-Type Series 2,3 (10-20mm)

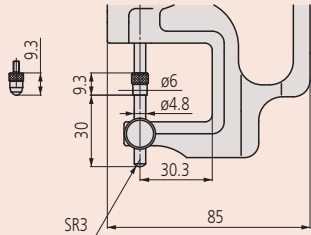
21AZB149 : for 7301/7327/7321/7313/7315/7360  
 21AZB150 : for 7305/7323



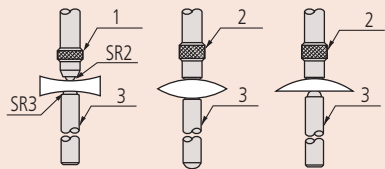
7327 / 7301 / 7305



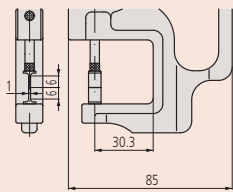
7321 / 7323



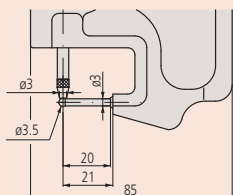
7313



1: Ballpoint; 2: Flatpoint; 3: Anvil



7315



7360



### Metric Adjustable anvil

No.	Range [mm]	Graduation	Accuracy	Measuring force [N]	Indicator No.	Max. measuring depth	Mass [g]
7313	0-10	0,01 mm	±0,015 mm	≤ 1,4	2046SB	30 mm	215

### Metric Ceramic disc contact points

No.	Range [mm]	Graduation	Accuracy	Measuring force [N]	Indicator No.	Max. measuring depth	Mass [g]
7327	0-1	0,001 mm	±0,005 mm	≤ 1,5	2109SB-10	30 mm	225
7301	0-10	0,01 mm	±0,015 mm	≤ 1,4	2046SB	30 mm	205
7331S	0-10	0,01 mm	±0,02 mm	≤ 1,4		25 mm	140
7305	0-20	0,01 mm	±0,02 mm	≤ 2	2050SB	30 mm	220

### Metric Knife-edge contact point

No.	Range [mm]	Graduation	Accuracy	Measuring force [N]	Indicator No.	Max. measuring depth	Mass [g]
7315	0-10	0,01 mm	±0,015 mm	≤ 1,4	2046SB	30 mm	220

### Metric Large jaw capacity and ceramic disc contact points

No.	Range [mm]	Graduation	Accuracy	Measuring force [N]	Indicator No.	Max. measuring depth	Mass [g]
7321	0-10	0,01 mm	±0,015 mm	≤ 1,4	2046SB	120 mm	355
7323	0-20	0,01 mm	±0,022 mm	≤ 2	2050SB	120 mm	355

### Metric Tube thicknesses - Minimum inside diameter 3,5 mm

No.	Range [mm]	Graduation	Accuracy	Measuring force [N]	Indicator No.	Max. measuring depth	Mass [g]
7360	0-10	0,01 mm	±0,015 mm	≤ 1,4	2046SB	20 mm	200

# Internal Dial Caliper Gauge

Series 209



209-901

**Metric** Measuring contacts : Carbide ball  $\varnothing 0,6$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-301	5-15	0,015 mm	0,8-1,2 N	0,005	2,3	0,8	35	Fig. 4	160

**Metric** Measuring contacts : Carbide ball  $\varnothing 1,0$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-302	10-30	0,03 mm	1,1-1,6 N	0,01	5,2	1,2	85	Fig. 4	180
209-303	20-40	0,03 mm	1,1-1,6 N	0,01	7	1,2	85	Fig. 2	180
209-304	30-50	0,03 mm	1,1-1,6 N	0,01	7	1,2	85	Fig. 2	185
209-305	40-60	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 3	195
209-306	50-70	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 3	195
209-307	60-80	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 3	200
209-308	70-90	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 3	200
209-309	80-100	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 3	200

**Metric** Measuring contacts : Carbide ball  $\varnothing 1,5$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-901	15-65	0,05 mm	0,9-1,9 N	0,05	5,5	1,9	188	Fig. 4	355

**Metric** Measuring contacts : Carbide ball  $\varnothing 2,0$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-902	40-90	0,05 mm	0,9-1,9 N	0,05	8,3	2,4	192	Fig. 3	370
209-903	70-120	0,05 mm	0,9-1,9 N	0,05	8,3	2,4	192	Fig. 3	380

**Metric** Measuring contacts : Carbide bevel (radius 0,1 mm)

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-300	2,5-12,5	0,015 mm	0,8-1,2 N	0,005	0,7	0,4	12	Fig. 1	155

**Metric** Measuring contacts : Interchangeable, carbide ball  $\varnothing 1,0$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-310	50-100	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 5	220
209-311	90-140	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 5	230
209-312	130-180	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 5	230

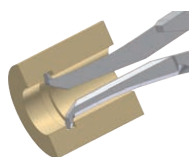


Figure 1

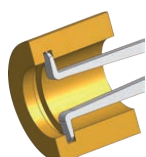


Figure 2

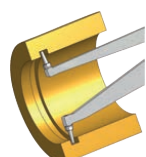


Figure 3

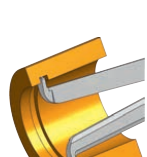
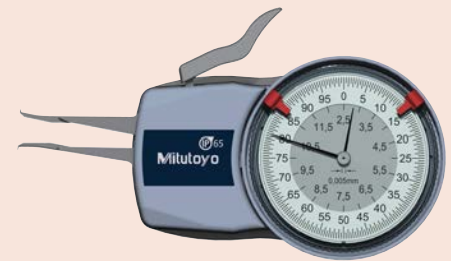


Figure 4



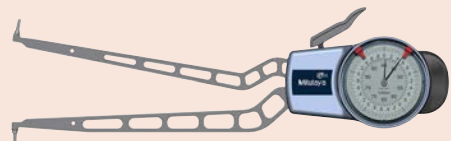
Figure 5



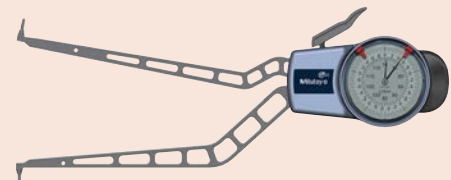
209-300



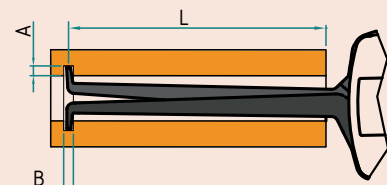
209-305



209-902



209-903



- (1) Maximum reach of contact arms over workpiece
- (2) Maximum groove depth
- (3) Minimum groove width

# Internal Digimatic Caliper Gauge

## Series 209



Functions	Series 209
SET key	●
DATA key	●
Max. reading	●
Min. reading	●
ABS/INC switchable	●
HOLD function	●
Data output	●
Tolerance LED (green/red)	●
Tolerance judgement	●
Counting direction switchable	●

### Specifications

Power supply	2 batteries AAA
Delivered	Including battery and inspection certificate

### Optional accessories

No.	Description
011551	Digimatic Data Output Series 209, For series 209
937387	Digimatic Cable, Round 6-Pin Type, 1m
965013	Digimatic Cable, Round 6-Pin Type, 2m
06AFM380E	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Round 6-Pin Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790E	U-WAVE-T Connection Cable E, Round 6-Pin Type
011530	Holder for Digital Caliper Gauge, 8mm stem for gauge stand

### Consumable spares

No.	Description
011511-1	Battery LR03 (AAA), 4x

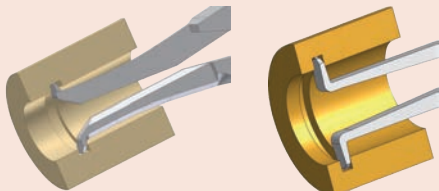


Figure 1

Figure 2

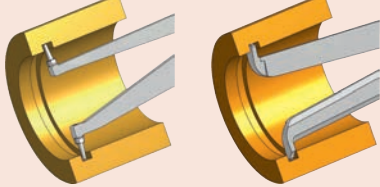
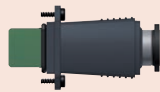


Figure 3

Figure 4



011551



011530



209-905

**Metric/Inch** Measuring contacts : Carbide ball  $\phi 0,6$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-551	5-15	0,015 mm	0,8-1,2 N	0,005	2,3	0,8	35	Fig. 4	230

**Metric/Inch** Measuring contacts : Carbide ball  $\phi 1,0$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-552	10-30	0,03 mm	1,1-1,6 N	0,01	5,2	1,2	85	Fig. 4	250
209-553	20-40	0,03 mm	1,1-1,6 N	0,01	7	1,2	85	Fig. 2	250
209-554	30-50	0,03 mm	1,1-1,6 N	0,01	7	1,2	85	Fig. 2	255
209-555	40-60	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 3	265
209-556	50-70	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 3	265
209-557	60-80	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 3	270
209-558	70-90	0,03 mm	1,1-1,6 N	0,01	8,3	1,2	85	Fig. 3	270

**Metric/Inch** Measuring contacts : Carbide ball  $\phi 1,3$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-904	13-43	0,04 mm	1,2-1,7 N	0,02	5,7	1,5	127	Fig. 2	360

**Metric/Inch** Measuring contacts : Carbide ball  $\phi 1,5$  mm

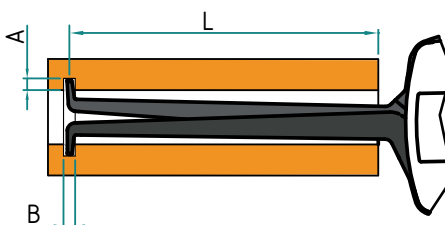
No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-905	15-65	0,06 mm	1-1,8 N	0,02	5,5	1,9	188	Fig. 2	415
209-906	30-60	0,04 mm	1,2-1,7 N	0,02	6,2	1,8	132	Fig. 3	370

**Metric/Inch** Measuring contacts : Carbide ball  $\phi 2,0$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-907	50-80	0,04 mm	1,2-1,7 N	0,02	8,3	2,4	132	Fig. 3	370
209-908	70-100	0,04 mm	1,2-1,7 N	0,02	8,3	2,4	132	Fig. 3	375
209-909	90-120	0,04 mm	1,2-1,7 N	0,02	8,3	2,4	132	Fig. 3	380
209-910	40-90	0,06 mm	1-1,8 N	0,02	8,3	2,4	192	Fig. 3	420

**Metric/Inch** Measuring contacts : Carbide bevel (radius 0,1 mm)

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	A <sup>(2)</sup> [mm]	B <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-550	2,5-12,5	0,015 mm	0,8-1,2 N	0,005	0,7	0,4	12	Fig. 1	225



- <sup>(1)</sup> Maximum reach of contact arms over workpiece
- <sup>(2)</sup> Maximum groove depth
- <sup>(3)</sup> Minimum groove width



# External Dial Caliper Gauge

Series 209



**Metric** Measuring contacts: bevel radius: 0,4 mm (209-405), 0,75 (209-921)

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	Hf <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-405	0-20	0,03 mm	1,1-1,6 N	0,01	24,6	24,6	85	Fig. 1	210
209-921	0-50	0,05 mm	0,8-1,7 N	0,05	30	30	167	Fig. 2	430

**Metric** Measuring contacts: Carbide ball Ø 1,5 mm, Ø 3 mm (209-911)

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	Hf <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-911	0-50	0,05 mm	0,8-1,7 N	0,05	30	30	167	Fig. 2	430
209-402	0-10	0,015 mm	0,8-1,2 N	0,005	19,1	18,6	35	Fig. 2	170
209-404	0-20	0,03 mm	1,1-1,6 N	0,01	24,7	24,6	85	Fig. 2	210
209-407	0-20	0,03 mm	1,1-1,6 N	0,01	24,7	2,5	85	Fig. 4	200

**Metric** Measuring contacts : Carbide ball ø 1,5 mm / bevel radius 0,4 mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-401	0-10	0,015 mm	0,8-1,2 N	0,005	18,8	35	Fig. 8	165
209-406	0-20	0,03 mm	1,1-1,6 N	0,01	24,7	80	Fig. 3	200

**Metric** Measuring contacts : Carbide ball ø2 mm / hardened steel radius 0,5 mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-603	0-10	0,1 mm	0,3-1,3 N	0,1	5	36	Fig. 5	40

**Metric** Measuring contacts : Carbide ball ø3 mm (209-912), ø2 mm (209-843)

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	Hf <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-912	0-50	0,05 mm	0,8-1,7 N	0,05	30	4,3	169	Fig. 4	400
209-843	0-10	0,1 mm	0,3-1,3 N	0,1	5	5	36	Fig. 7	40

**Metric** Measuring contacts : Disc measuring faces ø6 mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	Hf <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-403	0-10	0,02 mm	0,8-1,2 N	0,005	21,7	14,8	36	Fig. 6	175

## Optional accessories

No.	Description
011530	Holder for Digital Caliper Gauge, 8mm stem for gauge stand

Except 209-603, 209-843



209-402



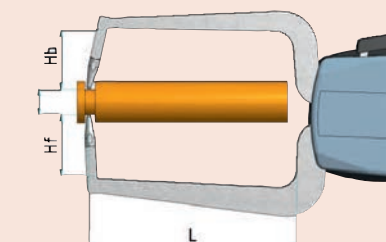
209-405



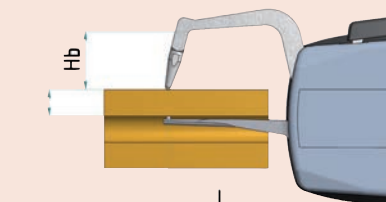
209-406



209-843

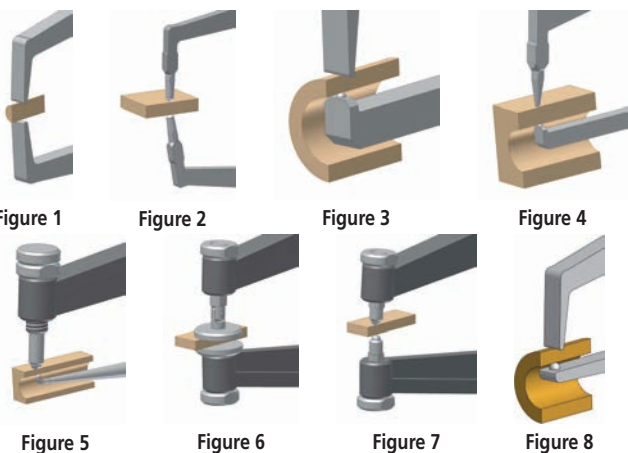


Figures 1/2/6/7



Figures 3/4/5/8

(1) Maximum reach of contact arms over workpiece  
 (2) Maximum penetration depth of upper contact  
 (3) Maximum penetration depth of lower contact





# External Digimatic Caliper Gauge



Functions	Series 209
SET key	●
DATA key	●
Max. reading	●
Min. reading	●
ABS/INC switchable	●
HOLD function	●
Data output	●
Tolerance LED (green/red)	●
Tolerance judgement	●
Counting direction switchable	●

## Specifications

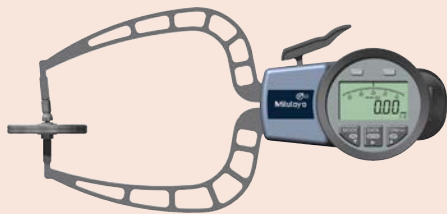
Power supply	2 batteries AAA
Delivered	Including battery and certificate of inspection

## Optional accessories

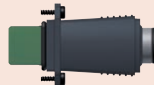
No.	Description
011551	Digimatic Data Output Series 209, For series 209
937387	Digimatic Cable, Round 6-Pin Type, 1m
965013	Digimatic Cable, Round 6-Pin Type, 2m
06AFM380E	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Round 6-Pin Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790E	U-WAVE-T Connection Cable E, Round 6-Pin Type
011530	Holder for Digital Caliper Gauge, 8mm stem for gauge stand

## Consumable spares

No.	Description
011511-1	Battery LR03 (AAA), 4x



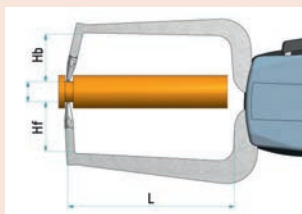
209-915



011551



011530



- (1) Maximum reach of contact arms over workpiece
- (2) Maximum penetration depth of upper contact
- (3) Maximum penetration depth of lower contact

## Series 209



209-572



209-913

Measuring contacts : Carbide ball  $\phi 1,5$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	Hf <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-570	0-10	0,015 mm	0,8-1,2 N	0,005	19,1	18,6	35	Fig. 1	240
209-572	0-20	0,03 mm	1,1-1,6 N	0,01	24,7	24,6	85	Fig. 1	280
209-573	0-20	0,03 mm	1,1-1,6 N	0,01	24,7	2,5	80	Fig. 2	270

Measuring contacts : Carbide ball  $\phi 3,0$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	Hf <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-913	0-30	0,04 mm	0,9-1,6 N	0,02	30	30	114	Fig. 1	430
209-914	0-30	0,04 mm	0,9-1,6 N	0,02	30	4	116	Fig. 2	410

Measuring contacts : Disc measuring faces  $\phi 10$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	Hf <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-571	0-10	0,02 mm	0,8-1,2 N	0,005	21,7	14,8	35	Fig. 3	245

Measuring contacts : Disc measuring faces  $\phi 50$  mm

No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb <sup>(2)</sup> [mm]	Hf <sup>(3)</sup> [mm]	L <sup>(1)</sup> [mm]	Type	Mass [g]
209-915	0-30	0,04	0,9-1,6 N	0,02	36	24	116	Fig. 4	430



Figure 1

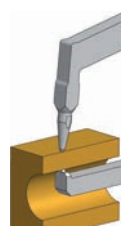


Figure 2



Figure 3

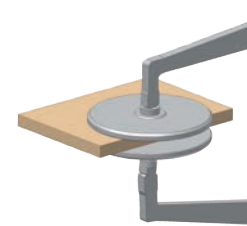
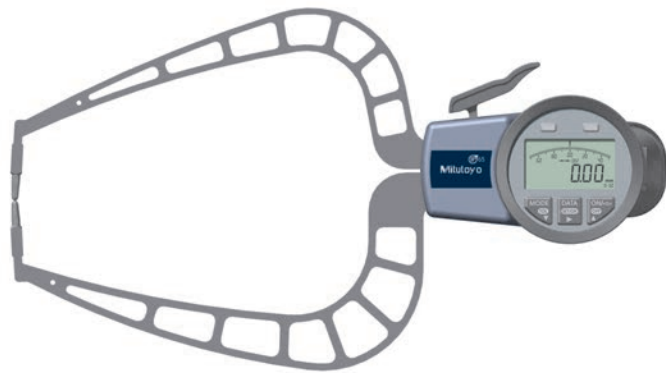


Figure 4

# External Digimatic Caliper Gauge

Series 209



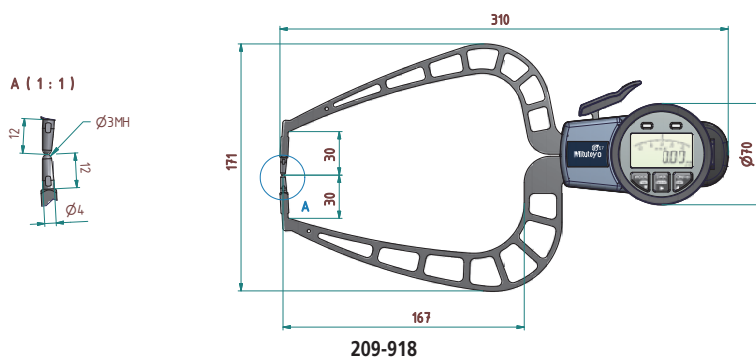
209-918

Measuring contacts : Carbide ball  $\varnothing 3$  mm

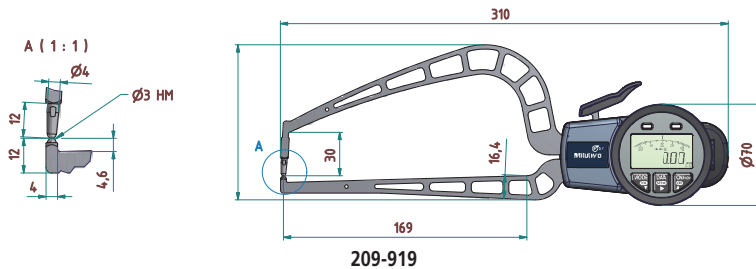
No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb (2) [mm]	Hf (3) [mm]	L (1) [mm]	Type	Mass [g]
209-918	0-50	0,06 mm	0,8-1,7 N	0,02	30	30	167	Fig. 1	490
209-919	0-50	0,06 mm	0,8-1,7 N	0,02	30	4,3	169	Fig. 2	460

Measuring contacts : Disc measuring faces  $\varnothing 50$  mm

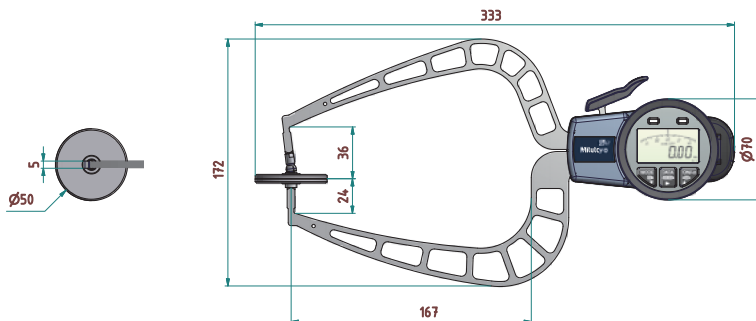
No.	Range [mm]	Accuracy	Measuring force	Graduation [mm]	Hb (2) [mm]	Hf (3) [mm]	L (1) [mm]	Type	Mass [g]
209-920	0-50	0,08 mm	0,8-1,7 N	0,02	36	24	167	Fig. 3	500



209-918



209-919



209-920

Functions	Series 209
SET key	●
DATA key	●
Max. reading	●
Min. reading	●
ABS/INC switchable	●
HOLD function	●
Data output	●
Tolerance LED (green/red)	●
Tolerance judgement	●
Counting direction switchable	●

### Specifications

Power supply	2 batteries LR3 AAA
Delivered	Including battery and certificate of inspection

### Optional accessories

No.	Description
937387	Digimatic Cable, Round 6-Pin Type, 1m
965013	Digimatic Cable, Round 6-Pin Type, 2m
06AFM380E	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Round 6-Pin Type
02AZD790E	U-WAVE-T Connection Cable E, Round 6-Pin Type
011530	Holder for Digital Caliper Gauge, 8mm stem for gauge stand
011551	Digimatic Data Output Series 209, For series 209

### Consumable spares

No.	Description
011511-1	Battery LR03 (AAA), 4x

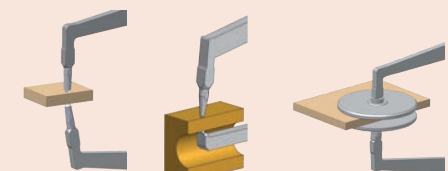
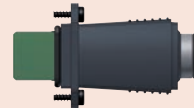


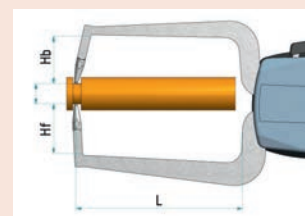
Figure 1

Figure 2

Figure 3



011530



- (1) Maximum reach of contact arms over workpiece
- (2) Maximum penetration depth of upper contact
- (3) Maximum penetration depth of lower contact

# Internal / External Digimatic Caliper Gauge



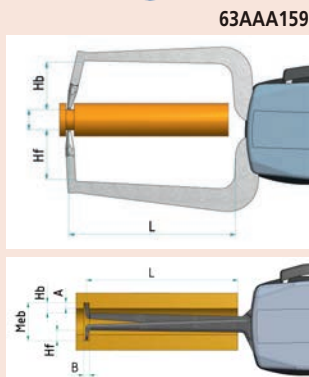
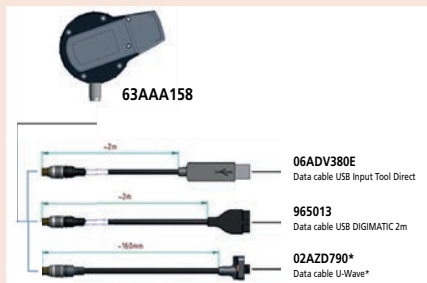
Functions	Series 209
SET key	●
DATA key	●
ABS/INC switchable	●
Function lock	●
Data output	●
HOLD	●
mm / inch switching	●
DATA-Logger (100 measured values)	●
Max/Min value	●
Tolerance LED (green/red)	●
Counting direction switchable	●
Auto Power OFF	●
after 1/5/10 min. non use	●

## Specifications

Power supply	Lithium-Polymer power pack
Delivered	Including certificate of inspection and wireless recharge charging pad
Resolution	0,001 / 0,002 / 0,005 / 0,01 mm

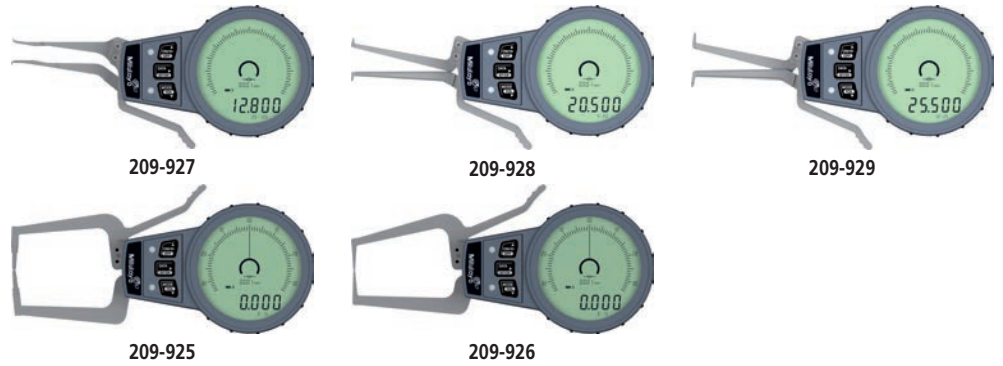
## Optional accessories

No.	Description
63AAA158	Digimatic Interface Adapter, Series 209
937387	Digimatic Cable, Round 6-Pin Type, 1m
965013	Digimatic Cable, Round 6-Pin Type, 2m
06AFM380E	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Round 6-Pin Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790E	U-WAVE-T Connection Cable E, Round 6-Pin Type
63AAA159	Power Supply Pad for Series 209



- (1) Maximum reach of contact arms over workpiece
- (2) Maximum penetration depth of upper contact
- (3) Maximum penetration depth of lower contact

## Series 209



### 1. Measuring contacts : Carbide R 0,12 mm

No.	Range [mm]	Accuracy	Measuring force	A (2) [mm]	B (3) [mm]	L (1) [mm]	Type	Mass [g]
209-927	2,5-12,5	0,01 mm	0,8-1,3 N	0,7	0,6	12	Fig. 4	160

### 2. Measuring contacts : Carbide ball ø0,6 mm

No.	Range [mm]	Accuracy	Measuring force	A (2) [mm]	B (3) [mm]	L (1) [mm]	Type	Mass [g]
209-928	5-20	0,01 mm	0,8-1,3 N	2,2	0,8	44	Fig. 3	160

### 3. Measuring contacts : Carbide ball ø1,0 mm

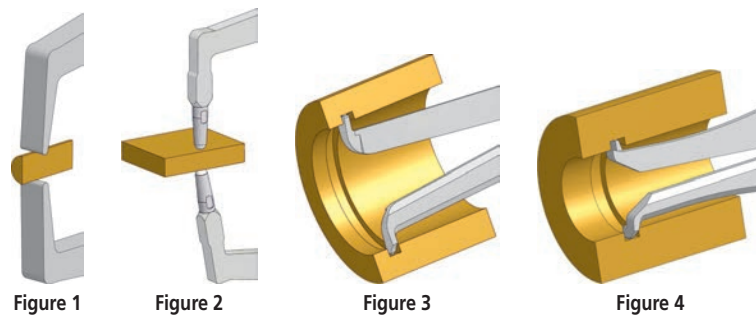
No.	Range [mm]	Accuracy	Measuring force	A (2) [mm]	B (3) [mm]	L (1) [mm]	Type	Mass [g]
209-929	10-25	0,01 mm	0,8-1,3 N	4	1,5	46	Fig. 3	160

### 4. Measuring contacts : Carbide ball ø1,5 mm

No.	Range [mm]	Accuracy	Measuring force	Hb (2) [mm]	Hf (3) [mm]	L (1) [mm]	Type	Mass [g]
209-925	0-15	0,01 mm	1,3 - 1,5 N	17	17	45	Fig. 2	170

### 5. Measuring contacts : Carbide R 0,4 mm

No.	Range [mm]	Accuracy	Measuring force	Hb (2) [mm]	Hf (3) [mm]	L (1) [mm]	Type	Mass [g]
209-926	0-15	0,015 mm	1,3 - 1,5 N	12	12	45	Fig. 1	170



# Spring Balance

## Series 546

This spring balance has a range of applications, offering you the following benefits:

- You can set micro switches, relay springs and valves.
- It enables you testing the measuring force of dial indicators.
- You can also use it for adjusting tension and compression springs.
- A divided dial plate allows you to make measurements in both directions.



546-112



546-137

### Peak Hold

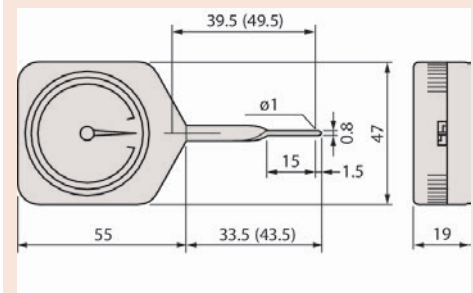
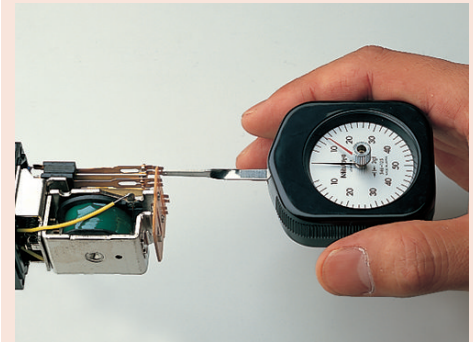
No.	Range	Graduation
546-133	10-100 mN	5 mN
546-134	30-300 mN	10 mN
546-135	0,06-0,5 N	0,02 N
546-136	0,1-1 N	0,05 N
546-137	0,15-1,5 N	0,05 N
546-138	0,3-3 N	0,1 N
546-139	0,6-5 N	0,2 N

### Standard

No.	Range	Graduation
546-112	6-50 mN	2 mN
546-113	10-100 mN	5 mN
546-114	30-300 mN	10 mN
546-115	0,06-0,5 N	0,02 N
546-116	0,1-1 N	0,05 N
546-117	0,15-1,5 N	0,05 N
546-118	0,3-3 N	0,1 N
546-119	0,6-5 N	0,2 N

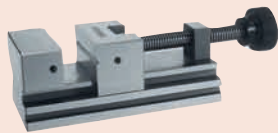
### Specifications

Accuracy	1/2 graduation
Mass	56 g



Dimensions in brackets refer to No. 546-112, 546-113, 546-133

## Auxiliary Equipment and Miscellaneous



**Stands, Bench Tools, Vices, V-Blocks, Plates,  
Protectors, Levels, Squares, Rules, Spring Calipers  
Page 300**



# Gauge Stand with Hardened Steel Anvil

Series 7

Standard version



7001-10

7002-10



519-109-10

No.	Effective table dimensions [mm]	Column Ø [mm]	Max. measurement height [mm]	Measuring table	Stem hole ø [mm]	Mass [kg]
7001-10	Ø 58	30	95	Serrated (101462)	ø 3/8" / 9,53 mm, 8 mm with bush (standard accessory)	4
7002-10	Ø 58	30	95	Flat (101461)	ø 3/8" / 9,53 mm, 8 mm with bush (standard accessory)	4
519-109-10	Ø 58	30	318	Serrated (101462)	ø 3/8" / 9,53 mm, 8 mm with bush (standard accessory)	6

## Specifications

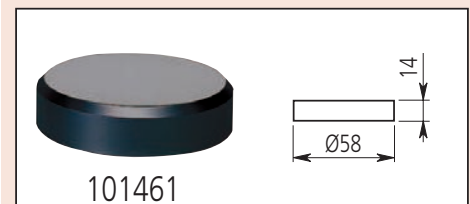
Fine adjustment	1 m
Perpendicularity table-stem hole	0,4/100 mm/mm
Table flatness	1,3 µm µm

## Standard accessories

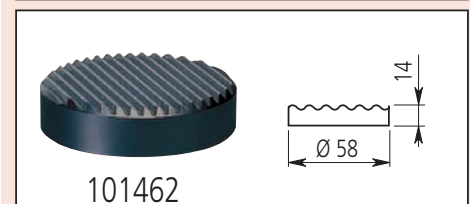
No.	Description
101461	Flat Anvil for Gauge Stand, Ø58mm
101462	Serrated Anvil for Gauge Stand, Ø58mm
21JAA316	Stem Bush for Gauge Stand, 9,53mm to 8mm

## Optional accessories

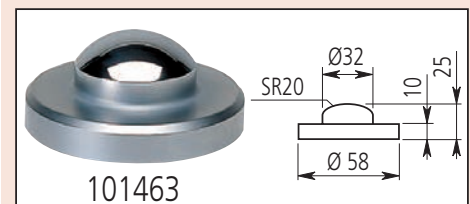
No.	Description
101463	Convex Anvil for Gauge Stand, Ø58mm



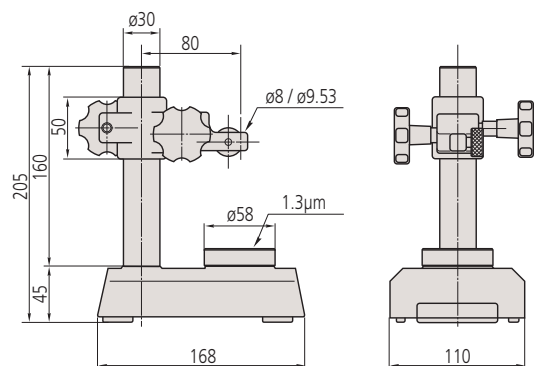
101461



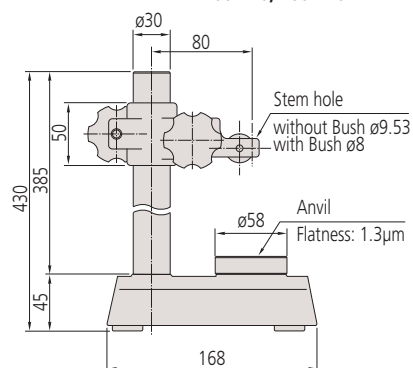
101462



101463



7001-10, 7002-10



519-109-10

# Gauge Stand with Hardened Steel Anvil

Series 215, Series 7

## Specifications

Fine adjustment	1 mm (215-505-10: screw on column)
Perpendicularity table-stem hole	0,4/100 mm/mm
Table flatness	1,3 μm (7007-10) 2,3 μm (215-405-10, 215-505-10) μm

## Standard accessories

No.	Description
21JAA316	Stem Bush for Gauge Stand, 9,53mm to 8mm
21JAA329	Stem Bush for Gauge Stand, 20mm to 8mm
21JAA330	Stem Bush for Gauge Stand, 20mm to 9,53mm

21JAA316 only for 7007-10 + 215-405-10  
21JAA329 and 21JAA330 only for 215-505-10

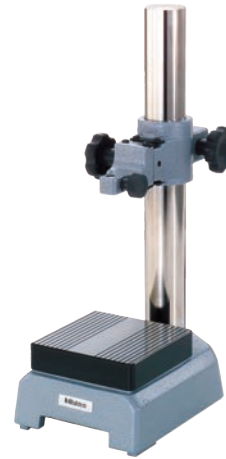
## Optional accessories

No.	Description
21JAA331	Stem Bush for Gauge Stand, 20mm to 15mm

21JAA331 : only for 215-505-10



7007-10

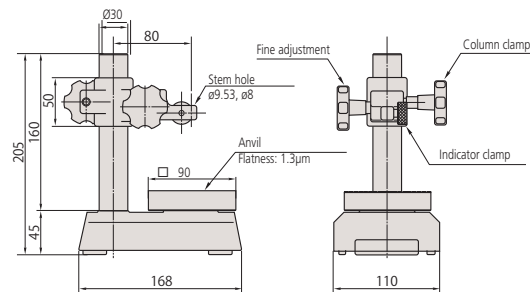


215-405-10

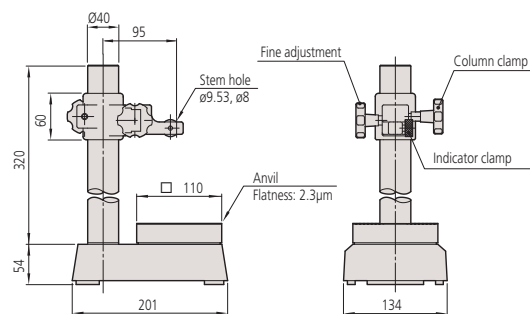


215-505-10 with Linear Gauge (optional)

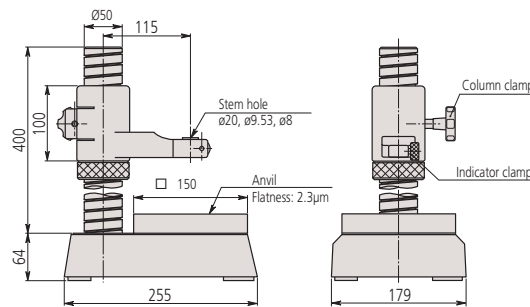
No.	Effective table dimensions [mm]	Column Ø [mm]	Max. measurement height [mm]	Stem hole ø [mm]	Mass [kg]
7007-10	90 x 90	30	90	ø 3/8" / ø 9,53 mm (ø 8 mm with bush)	5
215-405-10	110 x 110	40	235	ø 3/8" 9,53 mm (ø 8 mm with bush)	10,9
215-505-10	150 x 150	50	275	ø 20 mm (ø 3/8" / 9,53 mm 8 mm with bush)	19,7



7007-10



215-405-10



215-505-10

# Gauge Stand with Hardened Steel Anvil

Series 913

Standard version

- Simple standard version.



913-101



913-102

No.	Effective table dimensions [mm]	Max. measurement height [mm]	Stem hole $\phi$ [mm]
913-101	$\phi$ 50	100	8 mm
913-102	60 x 70	100	8 mm

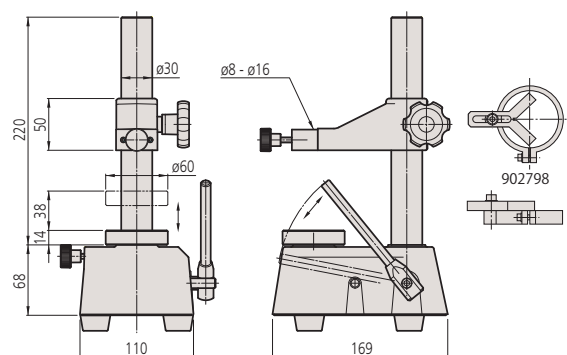
# Stand for Precision Bore Gauge

Series 215

- For batch-measurement of small parts.



215-120-10



No.	Maximum measuring height [mm]	Measuring stroke [mm]	Effective table dimensions [mm]	Mass [kg]
215-120-10	110	max. 38	$\phi$ 60	6,5

## Specifications

Column  $\phi$  | 22 mm

## Optional accessories

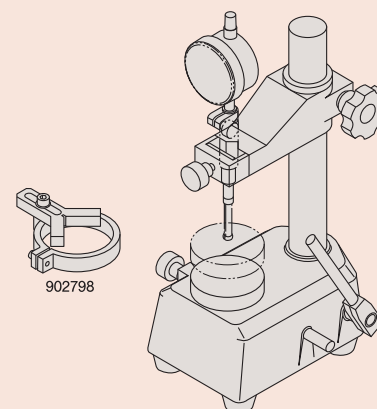
No.	Description
913-201	Horizontal Holder, for 913-101, 913-102



913-201

## Optional accessories

No.	Description
902798	V-Attachment for 215-120-10, Stand for Bore Gauge



# Gauge Stand with Granite Base

## Series 912

This gauge stand comes with a wear-resistant black granite table.



912-101

No.	Base size [mm]	Effective table dimensions [mm]	Column Ø [mm]	Max. measurement height [mm]	Throat [mm]	Arm ø [mm]	Stem hole ø [mm]	Table flatness [µm]	Mass [kg]
912-101	150 x 100 x 40	100 x 100	16	180	150	16	8	2	2,8

## Series 912

- Black granite, fine diamond-lapped measuring table.
- Arm with 120 mm projection.



912-105

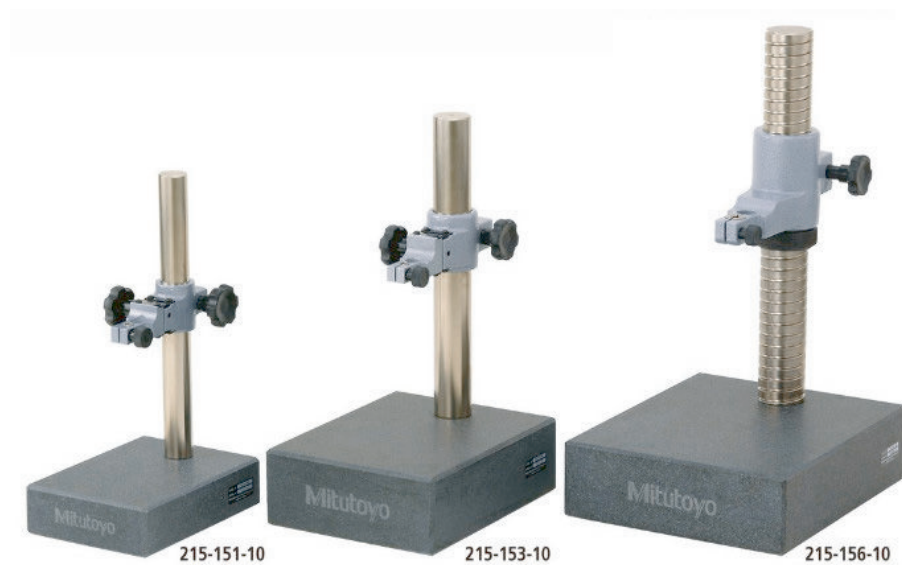
No.	Base size [mm]	Effective table dimensions [mm]	Column Ø [mm]	Max. measurement height [mm]	Throat [mm]	Fine adjustment	Stem hole ø [mm]	Table flatness [µm]	Mass [kg]
912-105	260 x 140 x 50	200 x 140	35	180	120	8 mm	8	2	9,5

# Gauge Stand with Granite Base

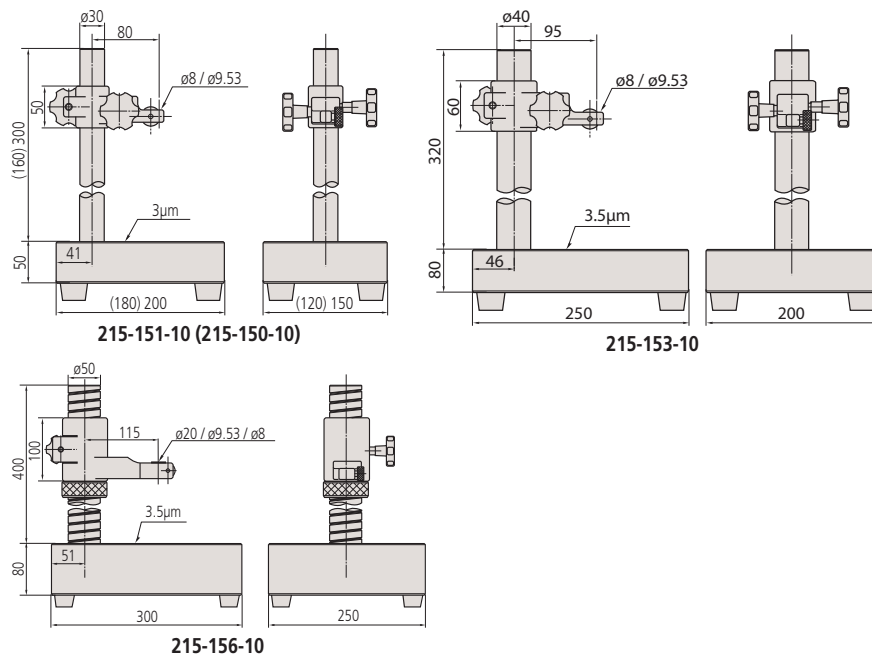
## Series 215

This jointed magnetic stand offers you the following benefits:

- It comes with a mechanical locking system and allows fine adjustment.
- You can also fix a dial indicator in any position by mechanically clamping the articulated arm.



No.	Column Ø [mm]	Max. measurement height [mm]	Fine adjustment [mm]	Stem hole ø [mm]	Table flatness [µm]	Perpendicularity table-stem hole [mm/mm]	Mass [kg]
215-150-10	30	120	1	ø 3/8" / ø 9,53mm (Ø 8 mm with bush)	3	0,2/100	5,4
215-151-10	30	260	1	ø 3/8" / ø 9,53mm (ø 8 mm with bush)	3	0,2/100	7,5
215-153-10	40	250	1	ø 3/8" / ø 9,53mm (ø 8 mm with bush)	3,5	0,2/100	16
215-156-10	50	300	1	ø 20 mm (ø 3/8" / 9,53 mm, 8 mm with bush)	3,5	0,2/100	27,5



### Standard accessories

No.	Description
21JAA316	Stem Bush for Gauge Stand, 9,53mm to 8mm
21JAA329	Stem Bush for Gauge Stand, 20mm to 8mm
21JAA330	Stem Bush for Gauge Stand, 20mm to 9,53mm

21JAA316 for 215-150-10, 215-151-10, 215-153-10  
21JAA329 and 21JAA330 for 215-156-10

### Optional accessories

No.	Description
21JAA331	Stem Bush for Gauge Stand, 20mm to 15mm

only for 215-156-10



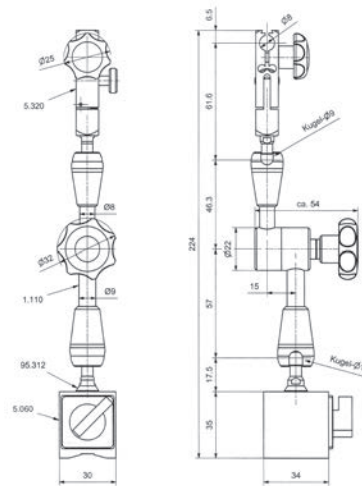
# Jointed Magnetic Stand

## Series 011

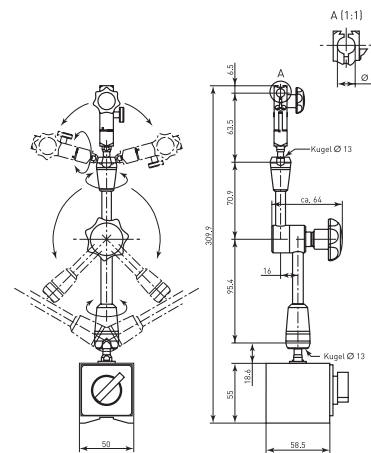
- With mechanical locking system and fine adjustment
- Allows a dial indicator to be fixed in any position by mechanically clamping the articulated arm.



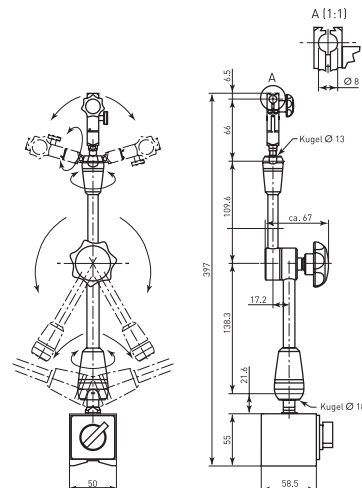
No.	Clamping device	Magnetic force (vertical) [N]	Base size (LxWxH) [mm]	Total height [mm]	Stem hole $\phi$ [mm]	Working radius [mm]	Thread Arm/Base	Mass [kg]
011533	magnetic	300	34 x 30 x 35	220	8	130	M6 x 1	0,45
011358	magnetic	750	60 x 50 x 55	310	8	200	M8 x 1,25	1,55
011359	magnetic	750	60 x 50 x 55	397	8	280	M8 x 1,25	1,85
011360	magnetic	900	75 x 50 x 55	517	8	400	M8 x 1,25	2,1



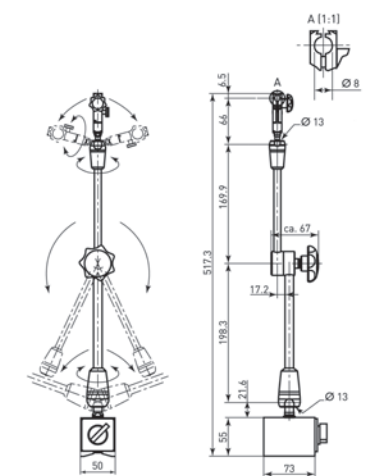
011533



011358



011359



011360

# Jointed Magnetic Stand

## Series 7

This jointed magnetic stand offers you the following benefits:

- It comes with a mechanical locking system and allows fine adjustment.
- You can also fix a dial indicator in any position by mechanically clamping the articulated arm.



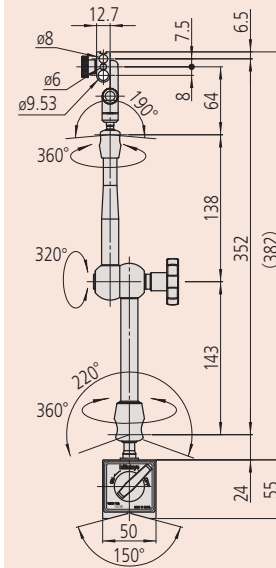
7031B



7032B



7033B



7033B

No.	Clamping device	Magnetic force (vertical) [N]	Base size (LxWxH) [mm]	Fine adjustment °	Total height [mm]	Stem hole ø [mm]	Working radius [mm]	Thread Arm/Base	Mass [kg]
7031B	magnetic	300	36 x 30 x 36	±4	214	6, 8, 3/8" / 9,53 mm	159	M5 x 0,8	0,59
7032B	magnetic	600	59 x 50 x 55	±4	345	6, 8, 3/8" / 9,53 mm	260	M8 x 1,25	1,6
7033B	magnetic	600	59 x 50 x 55	±4	425	6, 8, 3/8" / 9,53 mm	352	M8 x 1,25	1,75

# Flexible Jointed Arm

## Series 011 / 56A



56AAK793  
Mechanical clamping  
Dimensions: see 7033B



011361  
Mechanical clamping  
Dimensions : see 011359



011362  
Mechanical clamping  
Dimensions : see 011358

No.	Working radius [mm]	Stem hole ø [mm]
011361	±200	8
011362	±280	8
011363	±400	8
56AAK793	±320	6 mm, 8 mm, 3/8" / 9,53 mm

### Specifications

Thread | M 8 x 1,25 mm

# Magnetic Base

Series 011 / 7

- V-block base type.



56AAL200

No.	Base size (LxWxH) [mm]	Threaded bore	Magnetic force (vertical) [N]	Mass [kg]
56AAL200	59 x 50 x 55	M 8 x 1,25 mm	600	1
011364	75 x 50 x 55	M 8 x 1,25 mm	900	1,25

# Magnetic Stand

Series 7

- V-block base type.

### Specifications

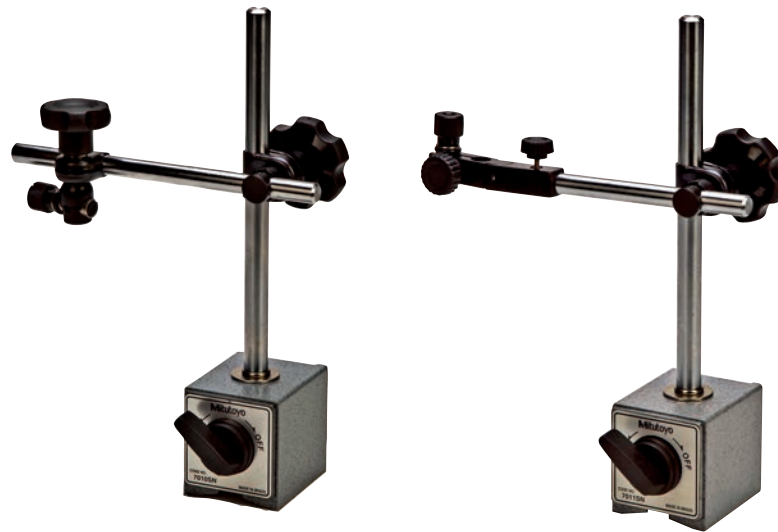
Base size (LxWxH)	59 x 50 x 55 mm
Stem hole $\phi$	$\phi 8$ mm with stem bush mm

### Standard accessories

No.	Description
02AZC291	Stem Bush for Magnet Stand, 9,53mm to 8mm

### Optional accessories

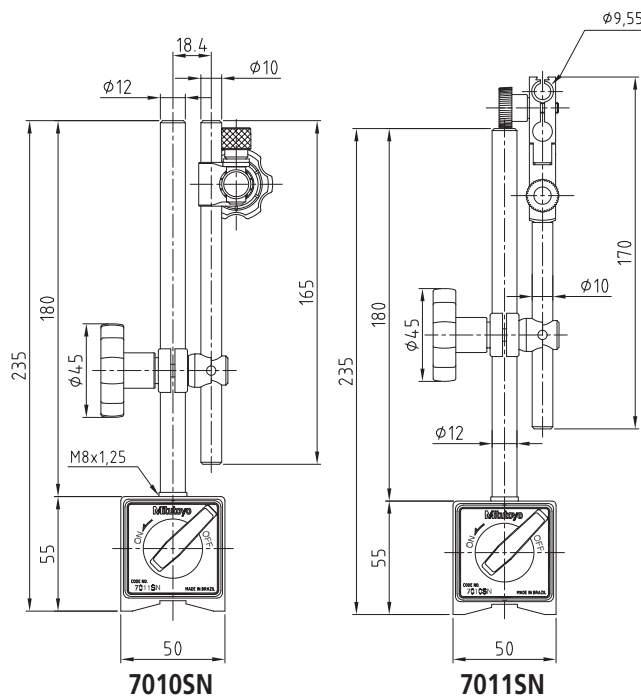
No.	Description
02AZC282	Cross arm for Magnet Stand, 300mm



7010SN

7011SN

No.	Clamping device	Fine adjustment [mm]	Total height [mm]	Working radius [mm]	Mass [kg]	Thread Arm/Base
7010SN	magnetic	None	235	150	1,25	M8 x 1,25
7011SN	magnetic	yes	235	160	1,45	M8 x 1,25



7010SN

7011SN

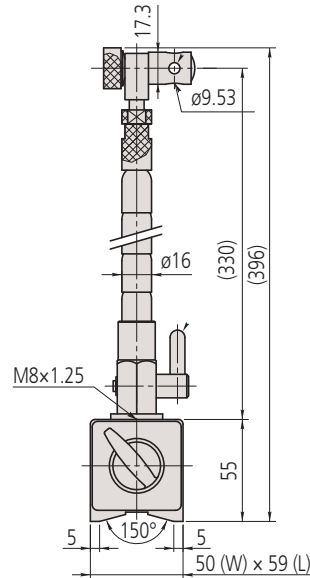
# Magnetic Stand

## Series 7

With V-block base and flexible arm.



7012-10



No.	Clamping device	Total height [mm]	Working radius [mm]	Mass [kg]	Thread Arm/Base
7012-10	magnetic	396	250	1,5	M8 x 1,25

## Series 7

This is a mini type of magnetic stand that offers you the following benefits:

- Mini measuring stand without magnet ON/OFF.
- It is designed to accept dial test indicators with 6mm or 8mm diameter stems, or dovetail.



7014

No.	Clamping device	Magnetic force (vertical) [N]	Total height [mm]	Working radius [mm]	Mass [g]
7014-10	magnetic	150	106	68	170

### Specifications

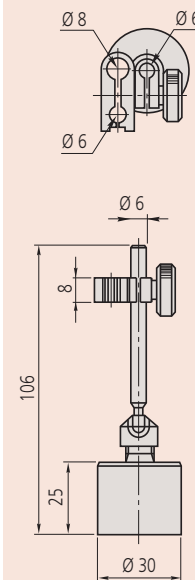
Base size (LxWxH)	59 x 50 x 55 mm
Stem hole $\phi$	$\phi$ 8 mm with stem bush mm

### Standard accessories

No.	Description
02AZC291	Stem Bush for Magnet Stand, 9,53mm to 8mm

### Specifications

Base size (LxWxH)	$\phi$ 30 mm
Stem hole $\phi$	6 / 8 mm



# Precision Bench Centre

## Specifications

Stem hole  $\varnothing$  |  $\varnothing$  8 mm with stem bush mm

## Standard accessories

No.	Description
02AZA292	Stem Bush for Bench Centre, 9,53mm to 8mm
56AAM331	Rod Assembly for Bench Center, 150mm, Series 967
56AAK960R	Rod Assembly for Bench Centre, 300mm, Series 967

## Series 967

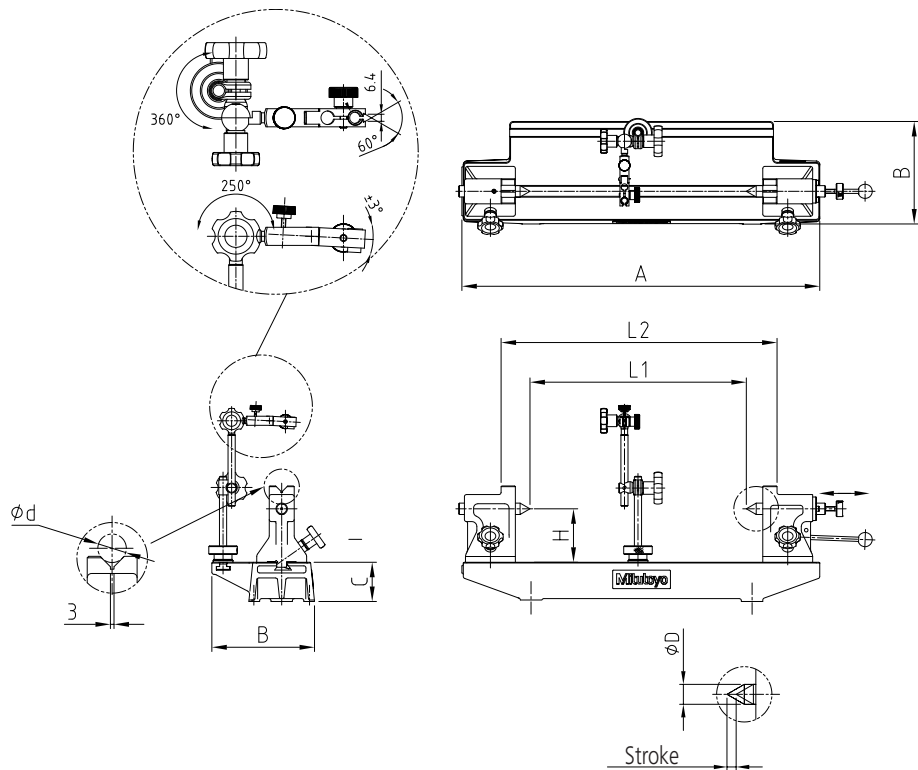
These precision bench centres are used for cylindrical and tapered parts. They offer you the following benefits:

- You can make fast and precise checks of runout on cylindrical/tapered parts.
- The base and centre-stocks are manufactured from stress-relieved and aged cast iron.
- The centres are made from hardened and precision ground steel.



967-201-10

No.	Max. work-piece weight [kg]	Stand No.	$\varnothing d$ Min-Max [mm]	L1 [mm]	L2 [mm]	A [mm]	B [mm]	C [mm]	H [mm]	$\varnothing D$ [mm]	Stroke [mm]	Mass [kg]
967-203-10	7 kg	56AAM331	22	150	220	310	113	40	50	16	10	7
967-201-10	16 kg	56AAM331	22	300	400	500	144	55	75	16	12	13
967-202-10	30 kg	56AAK960R	30	600	730	900	222	100	125	20	15	70

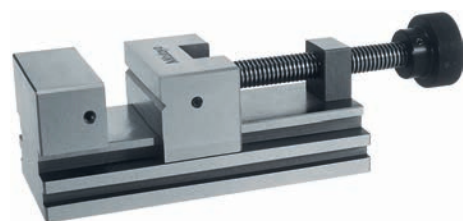




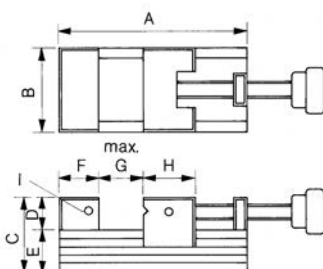
# Precision Vice

## Series 930

- It is made of tool steel, hardened and precision ground.
- It has a horizontally ground V-groove in the movable jaw.



930-602



No.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	Mass [kg]
930-611	90	60	50	25	25	25	30	30	M 5	1,6
930-601	160	70	62	30	32	33	80	45	M 6	4
930-602	210	90	80	40	40	40	120	50	M 6	7,6
930-612	285	120	90	40	50	55	150	70	M 6	17,4

### Specifications

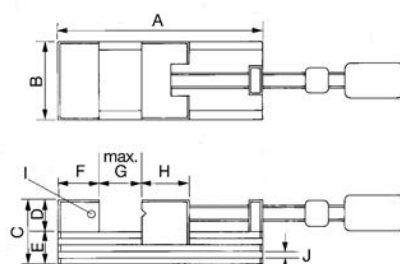
Parallelism	0,002 mm / 100 mm
Squareness	0,005 mm / 100 mm

## Series 930

- It is made of tool steel, hardened and precision ground.
- It includes one key bar with hydraulic amplification of the clamping force.
- It has a horizontally ground V-groove in the movable jaw.



930-616



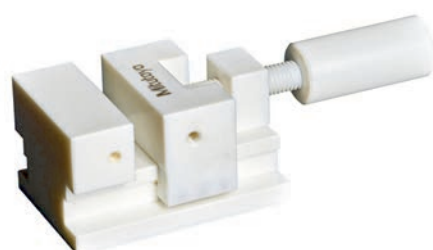
No.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G max. [mm]	H [mm]	I [mm]	J Height x Depth [mm]	Mass [kg]
930-616	285	120	90	40	50	55	150	70	M 6	10 x 7	17,7

### Specifications

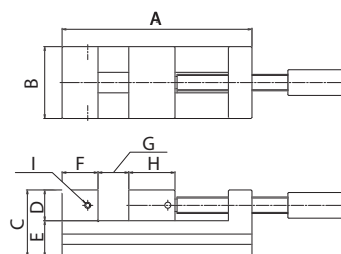
Parallelism	0,002 mm / 100 mm
Squareness	0,03 mm / 100 mm

## Series 930

- It is made of PET plastics, light weight, and protecting workpieces from scratches.



930-641



No.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G max. [mm]	H [mm]	I [mm]	Mass [kg]
930-641	90	60	50	25	25	25	30	30	M 5	0,35
930-642	160	70	62	30	32	33	80	45	M 6	0,7

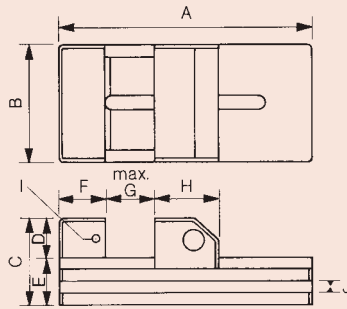
### Specifications

Parallelism	0,02 mm
Squareness	0,03 mm (930-641), 0,05 mm (930-642)

# Precision Vice

### Specifications

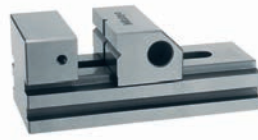
Parallelism	0,002 mm / 100 mm
Squareness	0,005 mm / 100 mm



### Series 930

This precision vice has a pull-down clamping action and offers you the following benefits:

- It gives you high accuracy for precision grinding, milling, measuring and eroding.
- It is made of tool steel, hardened and precision ground.



930-607



930-632

With horizontally ground V-groove in the movable jaw

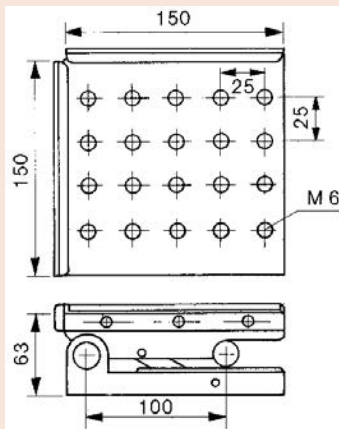
No.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G max. [mm]	H [mm]	I [mm]	J Height x Depth [mm]	Mass [kg]
930-630	70	30	35	15	20	20	25	25	M4	-	0,35
930-631	110	45	45	20	25	25	50	35	M5	8 x 6	1
930-632	285	120	90	40	50	60	150	70	M6	12 x 7	13,5
930-633	370	175	95	45	50	60	200	110	M8	12 x 10	28,7

With quick adjustment and vertically and horizontally ground V-groove in the movable jaw

No.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G max. [mm]	H [mm]	I [mm]	J Height x Depth [mm]	Mass [kg]
930-606	160	70	62	30	32	33	80	45	M 6	8 x 7	3
930-607	210	90	80	40	40	40	120	50	M 6	10 x 7	5,8

### Specifications

Parallelism	0,002 mm / 100 mm
Squareness	0,005 mm / 100 mm
Setting accuracy at 45°	±15"



# Precision Sine Plate

### Series 930

This is a front axis sine vice that offers you the following benefits:

- It is made of tool steel, hardened and precision ground.
- Its bearing and holding bolt is hardened and ground.
- Using the clamping device you can lock the vice in any angular position within the adjustment range.
- Accurate angle setting is made by gauge blocks, max. 46°.



930-626

No.	Mass [kg]
930-626	7,6

# Precision Sine Plate

## Series 930

This is a Precision Sine Plate made of alloyed tool steel that offers you the following benefits:

- It is made of alloyed tool steel, hardened and precision ground.
- Its bearing and holding bolt is hardened and ground.
- Using the clamping device you can lock the vice in any angular position within the adjustment range.
- Accurate angle setting is made by gauge blocks, max. 46°.

## Specifications

Parallelism	0,002 mm / 100 mm
Squareness	0,005 mm / 100 mm
Setting accuracy at 45°	± 15"



930-628



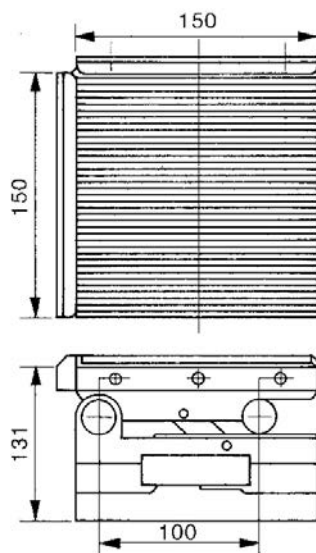
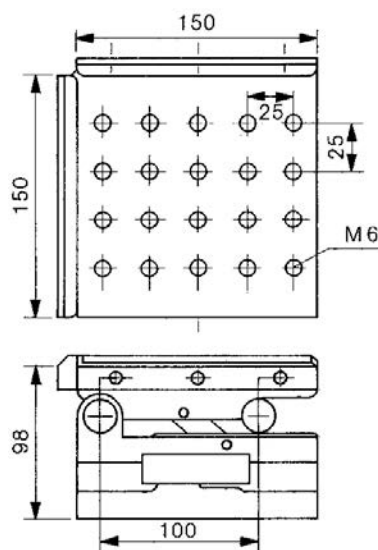
930-629

Compound-axis type  
With M6 clamping holes

No.	Mass [kg]
930-628	11,3

Compound-axis type  
With lever-operated magnetic chuck

No.	Mass [kg]
930-629	20



## Cast Iron V-Block

### Specifications

Parallelism between V-groove and base surface	16 µm
Hardness	180-250 HBW
Difference of the height of the pair	16 µm
Delivered	in pairs

### Series 910

- Made of dense special cast iron, highly wear resistant.
- The 90° V-block cutting angle is parallel to the base and isometric in pairs.
- For scribing, adjusting and testing cylindrical parts.



910-112

No.	Length [mm]	Width [mm]	Height [mm]	Max. workpiece ø [mm]	Mass [kg]
910-111	100	40	30	6-40	1,5
910-112	150	50	40	8-50	3,5
910-113	200	70	50	8-70	6,5
910-114	250	85	60	12-85	10
910-115	300	100	70	12-100	15

## Cast Iron V-Block

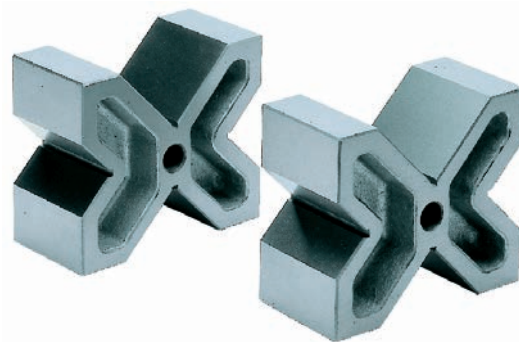
### Specifications

Parallelism between V-groove and base surface	16 µm
Hardness	180-250 HBW
Difference of the height of the pair	16 µm
Delivered	in pairs

### Series 911

These are quadruple-V type V-Blocks, that offer you the following benefits:

- 90° V-blocks enable you to scribe, adjust and test cylindrical parts.
- There are two V-blocks per set.



911-111

No.	Length [mm]	Width [mm]	Height [mm]	Max. workpiece ø [mm]	Mass [kg]
911-111	60	120	100	8-90	6,5
911-112	75	150	130	8-110	13,5
911-113	90	200	170	8-150	23

# Hardened Steel V-Block

## Series 181

These Hardened Steel V-Blocks have clamp brackets and offer you the following benefits:

- There are two V-blocks per set.
- The feature V-angle 90° clamping brackets.
- Contact faces are ground and lapped.
- Designed as a fixture to enable you to check cylindrical precision machined parts.



181-903-10



Sample application

No.	Length [mm]	Width [mm]	Height [mm]	Max. workpiece ø [mm]	Mass [kg]
181-902-10	41	31,8	31,8	25	0,75
181-903-10	75	58	58	50	3,6

# Magnetic V-Block

## Series 181

These Magnetic V-Blocks are a regular-length type and offer you the following benefits:

- Contact faces are ground and lapped.
- They are of regular length with two differently sized, 90° V-grooves.
- You can use them for holding ferromagnetic cylindrical parts for scribing, adjusting, testing, etc.



181-946

No.	Length [mm]	Width [mm]	Height [mm]	Max. receiver for workpiece V-groove 1 Ø [mm]	Max. receiver for workpiece V-groove 2 Ø [mm]	Magnetic force [N]	Mass [kg]
181-246	98	70	95	50,8	25,4	980	4
181-947	98	70	95	50,8	25,4	980	8
181-946	64	58	79	50,8	25,4	490	3,8

### Specifications

Parallelism between V-groove and all side surfaces	6 µm
Perpendicularity between V-grooves and back surface	9 µm
Hardness	58-63 HRC
Difference of the height of the pair	12 µm
Symmetry of the V-grooves	6 µm
Delivered	In pairs

### Specifications

Parallelism between V-groove and all side surfaces	10 µm
Perpendicularity between V-grooves and back surface	181-246 21 µm 181-947 21 µm 181-946 11 µm
Difference of the height of the pair	10 µm
Symmetry of the V-grooves	10 µm
Delivered	In pairs (181-946 and 181-947) Individually (181-246)



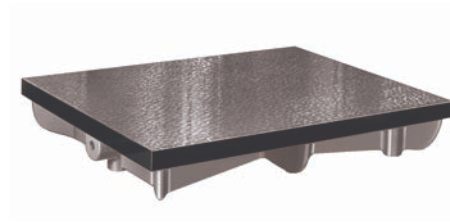
# Cast Iron Surface Plate

## Specifications

Accuracy	According to DIN 876 Grade 1 : fine scraped Grade 3 : fine planed
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## Series 902

- A ribbed design gives you rigidity with minimum weight, and a special cast iron confers a high degree of wear resistance.



902-304

No.	Dimensions L x W x H [mm]	Remarks	Mass [kg]
902-301	300 x 300 x 85	Accuracy Grade 1	15
902-302	400 x 400 x 90	Accuracy Grade 1	35
902-303	500 x 400 x 100	Accuracy Grade 1	40
902-304	600 x 500 x 120	Accuracy Grade 1	65
902-305	800 x 500 x 140	Accuracy Grade 1	95
902-306	1000 x 750 x 170	Accuracy Grade 1	210
902-307	1200 x 800 x 180	Accuracy Grade 1	230
902-308	1500 x 1000 x 200	Accuracy Grade 1	490
902-309	2000 x 1000 x 220	Accuracy Grade 1	780
902-101	300 x 300 x 85	Accuracy Grade 3	15
902-102	400 x 400 x 90	Accuracy Grade 3	35
902-103	500 x 400 x 100	Accuracy Grade 3	40
902-104	600 x 500 x 120	Accuracy Grade 3	65
902-105	800 x 500 x 140	Accuracy Grade 3	95
902-106	1000 x 750 x 170	Accuracy Grade 3	210
902-107	1200 x 800 x 180	Accuracy Grade 3	230
902-108	1500 x 1000 x 200	Accuracy Grade 3	490
902-109	2000 x 1000 x 220	Accuracy Grade 3	780

# Granite Square 90°

## Specifications

Accuracy	Grade 00
Flatness	DIN 876
Perpendicularity	DIN 875
Delivered	With certificate of inspection

## Series 972

- It is made of natural hard stone, with two sides precision ground.



972-106

No.	Width [mm]	Length [mm]	Mass [kg]
972-106	50	300 x 200	6,5
972-107	50	400 x 250	10
972-108	60	500 x 300	17
972-109	70	600 x 400	30

# Granite Surface Plate DIN 876

## Series 901

These Granite Surface Plates offer you the following benefits:

- Delivery is without a stand but with steel ball inserts.



### Specifications

Vickers hardness	HV 850-900
Accuracy	According to DIN 876
Flexural strength	13-22 N/mm <sup>2</sup>
Compressive strength	Approx. 280 N/mm <sup>2</sup>
Linear coefficient of expansion	(5 to 7,5) x 10 <sup>-6</sup> x K <sup>-1</sup>



Granite plate and stand (optional)

### 1. Accuracy Grade 00

No.	Dimensions L x W x H [mm]	Max. workpiece load [kg]	Mass [kg]
901-131	400 x 250 x 50	50	15
901-132	400 x 400 x 50	60	25
901-133	630 x 400 x 70	65	53
901-134	630 x 630 x 70	75	83
901-135	1000 x 630 x 100	150	189
901-136	1000 x 1000 x 100	250	300
901-137	1200 x 800 x 160	600	460
901-138	1600 x 1000 x 160	650	768
901-139	2000 x 1000 x 220	750	1320

### 2. Accuracy Grade 0

No.	Dimensions L x W x H [mm]	Max. workpiece load [kg]	Mass [kg]
901-121	400 x 250 x 50	100	15
901-122	400 x 400 x 50	120	25
901-123	630 x 400 x 70	130	53
901-124	630 x 630 x 70	150	83
901-125	1000 x 630 x 100	300	189
901-126	1000 x 1000 x 100	500	300
901-127	1200 x 800 x 160	1200	460
901-128	1600 x 1000 x 160	1300	768
901-129	2000 x 1000 x 220	1500	1320

### 3. Accuracy Grade 1

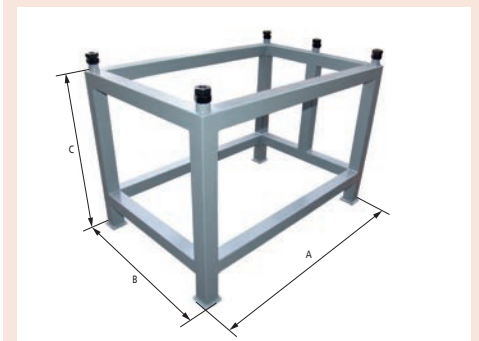
No.	Dimensions L x W x H [mm]	Max. workpiece load [kg]	Mass [kg]
901-111	400 x 250 x 50	100	15
901-112	400 x 400 x 50	120	25
901-113	630 x 400 x 70	130	53
901-114	630 x 630 x 70	150	83
901-115	1000 x 630 x 100	300	189
901-116	1000 x 1000 x 100	500	300
901-117	1200 x 800 x 160	1200	460
901-118	1600 x 1000 x 160	1300	768
901-119	2000 x 1000 x 220	1500	1320

### 4. Accuracy Grade 2

No.	Dimensions L x W x H [mm]	Max. workpiece load [kg]	Mass [kg]
901-101	400 x 250 x 50	100	15
901-102	400 x 400 x 50	120	25
901-103	630 x 400 x 70	130	53
901-104	630 x 630 x 70	150	83
901-105	1000 x 630 x 100	300	189
901-106	1000 x 1000 x 100	500	300
901-107	1200 x 800 x 160	1200	460
901-108	1600 x 1000 x 160	1300	768
901-109	2000 x 1000 x 220	1500	1320

### Stand

No.	Dimensions L x W x H [mm]	A [mm]	B [mm]	C [mm]	Mass [kg]
901-931	630 x 400 x 70	550	350	770	22
901-932	630 x 630 x 70	550	550	770	25
901-933	1000 x 630 x 100	750	550	740	28
901-934	1000 x 1000 x 100	750	750	740	30
901-935	1200 x 800 x 160	900	600	680	30
901-936	1600 x 1000 x 160	1050	750	680	35
901-937	2000 x 1000 x 220	1450	750	620	40



Dimensions for stand

# Universal Bevel Protractor

## Specifications

Graduation	5' (0° - 90° - 0°)
Circle division	4 x 90°
Delivered	In a box

## Standard accessories

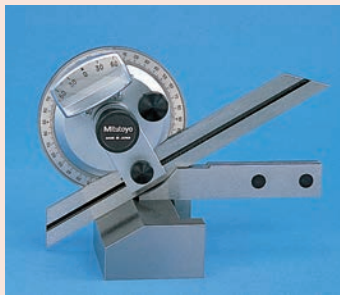
No.	Description
187-106	Steel Rule, 150mm/6", Metric/Inch
187-107	Steel Rule, 300mm/12", Metric/Inch
950750	Holder for Mounting on Height Gauges, Metric, Series 187

187-106 for 187-901, 187-908  
 187-107 for 187-901, 187-907  
 950750 for Height Gage with 9x9 mm scriber shaft

## Optional accessories

No.	Description
187-105	Acute angle attachment, for Series 187

187-105 standard accessory for 187-901



## Series 187

This universal bevel protector offers you the following benefits:

- Its high-precision angle gauge enables you to take accurate angle measurements of machines, moulds and jigs.
- You can attach it to height gauges.
- It comes with a magnifying glass.



187-901

## Metric

No.	Blade edge angle	Blade length	Mass [g]
187-901	w/60°, 45° and 30° edges	150, 300 mm	390
187-907	w/60° and 45° edges	150 mm	284
187-908	w/60° and 45° edges	300 mm	318

## Specifications

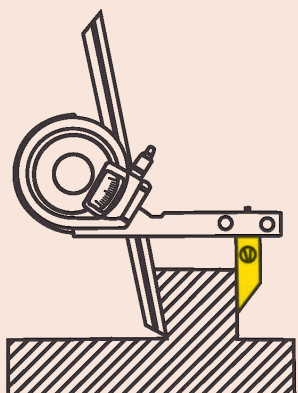
Graduation	5'
Circle division	4 x 90°
Delivered	in a box with acute angle attachment

## Standard accessories

No.	Description
187-105	Acute angle attachment, for Series 187

## Optional accessories

No.	Description
952624	Holder for Mounting on Height Gauges, Metric, 187-201



Application with acute angle attachment

## Series 187



187-201

No.	Fixed blade length [mm]	Adjustable blade length [mm]	Mass [g]
187-201	135	150	212

# Digimatic Universal Protractor

## Series 187

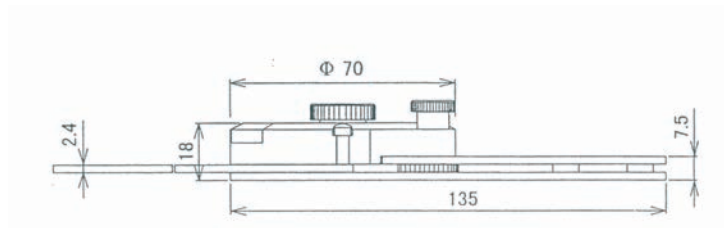
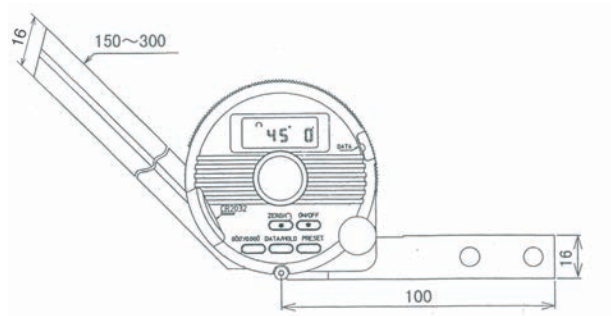
This is a Digimatic Universal Protractor with data output that offers you the following features:

- It has an easy-to-read digital display.
- It automatically turns off after 10 minutes, and gives you fixed reference points for easy adjustment.
- You can slide and clamp the measuring blade over the entire length.
- You can make fine adjustments to precisely adjust arbitrary angle dimensions.
- It comes with a mounting facility on height gauges and tracers of series 192 via holder.



### Metric

No.	Blade length	Mass [g]
187-501	150 mm	624
187-502	300 mm	662



Functions	Series 187
ON/OFF	●
DATA/HOLD	●
Data output	●
ZERO SET	●
PRESET	●
Angle sexagesimal/decimal	●

### Specifications

Digital step	1' (0,01°)
Max. permissible error	2' (0,03°)
Repeatability	1' (0,01°)
Battery life	approx. 2000 hours
Display	LCD with Character Height 6,5 mm
Delivered	in a box including battery

### Standard accessories

No.	Description
187-106	Steel Rule, 150mm/6", Metric/Inch
187-107	Steel Rule, 300mm/12", Metric/Inch
950750	Holder for Mounting on Height Gauges, Metric, Series 187

187-106 for 187-501  
 187-107 for 187-502  
 950750 for 187-501, 187-502

### Optional accessories

No.	Description
905338	Digimatic Cable, Flat Straight Type, 1m
905409	Digimatic Cable, Flat Straight Type, 2m
06AFM380F	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Flat Straight Type
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790F	U-WAVE-T Connection Cable F, Flat Straight Type
187-105	Acute angle attachment, for Series 187

### Consumable spares

No.	Description
05SAA217D	Lithium battery CR-2032, 1 pcs.

## Precision Level

### Specifications

Accuracy	DIN 2267
Vee angle	140°
Dimensions (WxDxH)	200 x 44 x 39,3 mm
Delivered	In a wooden case

### Series 960

- For use in setting machined surfaces precisely horizontal



960-601

No.	Sensibility (mm/m per division)	Sensibility " (Arcsecond)	Max. Permissible Error (indication accuracy)	Flatness of reference face (bottom) [μm]	Mass [kg]
960-601	0,1	20"	20% of sensibility	5	1,57
960-602	0,05	10"	20% of sensibility	5	1,57
960-603	0,02	4"	5 μm/m	5	1,57

## Precision Frame Level

### Specifications

Accuracy	DIN 2267
Vee angle	140°
Dimensions (WxDxH)	200 x 44 x 200 mm
Delivered	In a wooden case

### Series 960

This Precision Frame Level offers you the following benefits:

- You can set machined surfaces to precisely horizontal or vertical.
- It has 2 vee and 2 flat reference faces, and is precision ground.
- It features graduated main (longitudinal) and auxiliary (transverse) vials.



960-701

No.	Sensibility (mm/m per division)	Sensibility " (Arcsecond)	Max. Permissible Error (indication accuracy) [mm/m]	Flatness of reference faces [μm]	Parallelism of reference faces [μm]	Perpendicularity of reference faces [μm]	Mass [kg]
960-701	0,1	20	20% of sensibility	5	5	5	4
960-702	0,05	10	20% of sensibility	5	5	5	4
960-703	0,02	4	5 μm/m	3	3	3	4



# Digital Precision Level

## Series 950

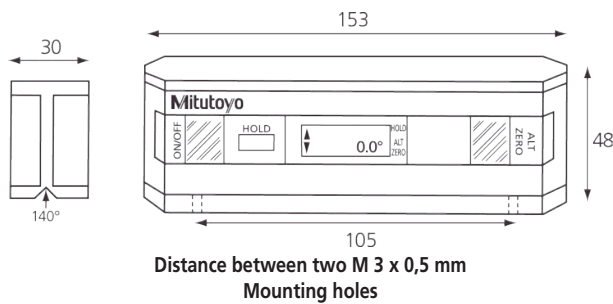
This Digital Precision Level offers you the following benefits:

- You can measure flatness, squareness and angularity.
- Precision support surfaces in aluminium frame provide you with high rigidity and low weight.



950-318

No.	Max. permissible error (degrees)	Repeatability (degrees)	Data output	Sensitivity (degrees)	Mass [g]
950-318	0,05 (0 to 10)	0,05		0,01 (0 to 9,99)	300
	0,1 (80 to 90)			0,1 (10 to 90)	
	0,2 (10 to 80)				



# Thickness Gauge

## Series 184 - Thickness Gauge

This thickness gauge is ideal for a variety of measuring tasks and offers you the following benefits:

- Size clearly stamped on each leaf
- Leaves are easy to remove and can be individually locked open.



184-3045

### Metric

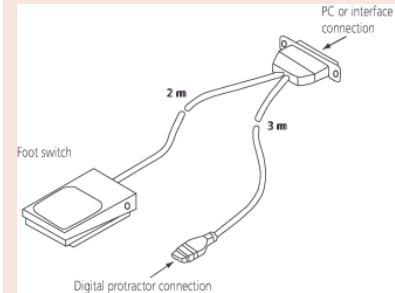
No.	Range	Accuracy	Number of leaves	Leaf length [mm]
184-3045	0,05-1 mm by 0,05 mm step	0,05 up to 0,15 mm : ±0,005 mm	20	150
		0,2 up to 0,5 mm : ±0,012 mm		
		0,55 up to 1 mm : ±0,02 mm		

### Specifications

Range	360° (4 x 90°)
Power supply	Standard battery (9 V) 6LR61
Battery life	ca. 500 hours
Delivered	Including box

### Optional accessories

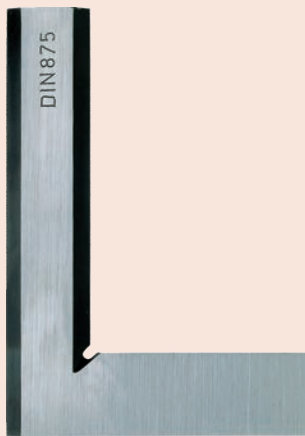
No.	Description
50AAA983A	RS-232C Output Cable, for series 950



# 90° Steel Square

## Specifications

Accuracy According to DIN 875



Bevelled-edge square



Try square



Try square with shoulders

## Series 916

This 90° Steel Square offers you the following benefits:

- Three types of square are available.
- It is hardened, and has precision ground edges.

### Bevelled-edge square

No.	Length [mm]	Cross section [mm]	Remarks	Grade
916-105	50x40	14x4	stainless steel	00
916-106	75x50	15x4	stainless steel	00
916-107	100x70	20x5	stainless steel	00
916-108	150x100	25x6	stainless steel	00
916-109	200x130	30x7	stainless steel	00

### Try square

No.	Length [mm]	Cross section [mm]	Remarks	Grade
916-202	75x50	15x5	stainless steel	0
916-203	100x70	20x5	stainless steel	0
916-204	150x100	25x5	stainless steel	0
916-205	200x130	30x6	stainless steel	0
916-206	250x165	35x7	stainless steel	0
916-207	300x200	40x8	stainless steel	0
916-208	400x265	45x10	stainless steel	0
916-209	500x330	50x10	stainless steel	0
916-222	75x50	15x5	steel	1
916-223	100x70	20x5	steel	1
916-224	150x100	25x5	steel	1
916-225	200x130	30x6	steel	1
916-226	250x165	35x7	steel	1
916-227	300x200	40x8	steel	1
916-228	400x265	45x10	steel	1
916-229	500x330	50x10	steel	1
916-232	75x50	15x5	steel	2
916-233	100x70	20x5	steel	2
916-234	150x100	25x5	steel	2
916-235	200x130	30x6	steel	2
916-236	250x165	35x7	steel	2
916-237	300x175	35x7	steel	2
916-238	400x100	35x7	steel	2
916-239	500x150	40x8	steel	2

### Try square with shoulders

No.	Length [mm]	Cross section [mm]	Remarks	Grade
916-311	75x50	15x5	stainless steel	0
916-312	100x70	20x5	stainless steel	0
916-313	150x100	25x5	stainless steel	0
916-314	200x130	30x6	stainless steel	0
916-315	250x165	35x7	stainless steel	0
916-316	300x200	40x8	stainless steel	0
916-317	400x265	45x10	stainless steel	0
916-318	500x330	50x10	stainless steel	0
916-321	75x50	15x5	steel	1
916-322	100x70	20x5	steel	1
916-323	150x100	25x5	steel	1
916-324	200x130	30x6	steel	1
916-325	250x165	35x7	steel	1
916-326	300x200	40x8	steel	1
916-327	400x265	45x10	steel	1
916-328	500x330	50x10	steel	1
916-332	100x70	20x5	steel	2
916-333	150x100	25x5	steel	2
916-334	200x130	30x6	steel	2
916-335	250x165	35x7	steel	2
916-336	300x175	35x7	steel	2
916-337	400x200	35x7	steel	2
916-338	500x250	40x8	steel	2

# Knife Edge Straight Edge

## Series 528

This Knife Edge Straight Edge offers you the following benefits:

- Its straight edges are especially suited to testing the flatness of surfaces.
- It has a hardened, ground and micro lapped measuring edge.



Series 528

No.	Range [mm]	Accuracy	Remarks
528-101	75	DIN 874-2	-
528-100	50	DIN 874-2	-
528-102	100	DIN 874-2	-
528-110	125	DIN 874-2	-
528-103	150	DIN 874-2	-
528-104	200	DIN 874-2	-
528-105	300	DIN 874-2	Supplied in a wooden case
528-106	400	DIN 874-2	Supplied in a wooden case
528-107	500	DIN 874-2	Supplied in a wooden case

## Steel Rules

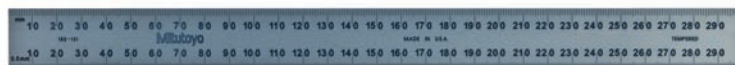
### Series 182

These are rigid and fully-flexible rules that offer you the following benefits:

- They have clear graduations on satin-chrome finish.
- The rules are stainless tempered.



182-211



182-131

#### Metric Fully-flexible rule

No.	Range [mm]	Graduation	Width	Thickness
182-211	150	1 mm / 0,5 mm (on both faces)	12 mm	0,4 mm
182-231	300	1 mm / 0,5 mm (on both faces)	12 mm	0,4 mm
182-251	450	1 mm / 0,5 mm (on both faces)	18 mm	0,4 mm
182-271	600	1 mm / 0,5 mm (on both faces)	18 mm	0,4 mm

#### Metric Wide rigid rule

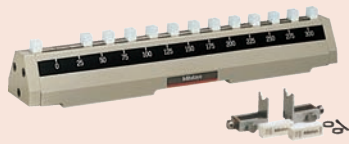
No.	Range [mm]	Graduation	Width	Thickness
182-111	150	1 mm / 0,5 mm (on both faces)	19 mm	1,2 mm
182-131	300	1 mm / 0,5 mm (on both faces)	25 mm	1,2 mm
182-151	450	1 mm / 0,5 mm (on both faces)	30 mm	1,2 mm
182-171	600	1 mm / 0,5 mm (on both faces)	30 mm	1,2 mm

## Specifications

Section	60°
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**Height Master**  
Page 324



**Check Master**  
Page 328



**Calibration Tools**  
Page 333

# Digital Height Master

## Series 515

This is a standard model with a digital display, that offers you the following benefits:

- It gives you all the essential specifications required for a versatile height standard.
- You can use it to calibrate and set height gauges and other measuring instruments.
- Models have two measuring faces on the same level, one facing up and the other down.



515-374

### Metric

No.	Range [mm]	Feed error	Retrace error	Total height [mm]	Mass [kg]
515-374	10-310	±2 μm	2 μm	480	9,5
515-376	10-460	±2 μm	2 μm	630	13,6
515-378	10-610	±2,5 μm	2,5 μm	785	16

Functions	Series 515
ZERO/ABS	●
DATA/HOLD	●
Auto Power OFF after 20 min. non use	●
Low voltage alarm	●
Data output	●
PRESET	●

### Specifications

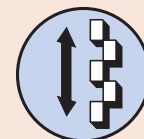
Digital step	0,001 mm
Graduation	0,002 mm
Block arrangement	Staggered
Block step	20 mm
Micrometer adjustment	20 mm
Micrometer feed	0,5 mm
Block pitch accuracy	0 < range ≤ 310 mm : ±1,5 μm 310 < range ≤ 450 mm : ±2,5 μm 450 < range ≤ 610 mm : ±3,5 μm
Parallelism of blocks	0 < range ≤ 310 mm : 2 μm 310 < range ≤ 610 mm : 2,5 μm
Battery life	approx. 1,8 years

### Optional accessories

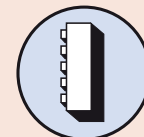
No.	Description
515-111	Auxiliary Block Kit for Bore Gauge, for 515-374/515-376/515-378
959149	Digimatic Cable, Straight, Data Button, 1m
959150	Digimatic Cable with Data Button, 2m
06AFM380C	USB Input Tool Direct (Digimatic USB), Digi/Digi2, Straight, with Data Button
02AZD880G	U-WAVE-T, Buzzer Type, Wireless Transmitter
02AZD730G	U-WAVE-T, IP67 Type, Wireless Transmitter
02AZD790C	U-WAVE-T Connection Cable C, Straight, with Data Button

### Consumable spares

No.	Description
938882	Battery SR44 1.5V



Staggered 20 mm blocks (movable)



Vertical orientation



Riser block (optional)





# Height Master

## Series 515

This height master offers you the following benefits:

- You can use it to calibrate and set height gauges and other measuring instruments.
- Models with the staggered arrangement of blocks have two measuring faces on the same level, one facing up and the other down.
- It is supplied in a fitted wooden case.

### Specifications

Graduation	0,001 mm
Block arrangement	Straight
Block step	10 mm
Micrometer adjustment	20mm
Block pitch accuracy	0 < range ≤ 310mm: ±1.5µm 310 < range ≤ 610mm: ±2.5µm 610 < range ≤ 1010mm: ±3.5µm
Micrometer feed	0,5mm
Parallelism of blocks	0 < range ≤ 610mm: 1.5µm 610 < range ≤ 1010mm: 2µm

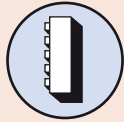
### Optional accessories

No.	Description
900574	Supporting Base for Vertical Operation, for Height Master
515-110	Auxiliary Block Kit for Bore Gauge, for 515-520/515-523

900574 : supplied as a standard for 515-523



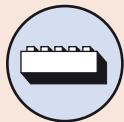
Single-row 10 mm blocks (movable)



Vertical orientation



Riser block (optional)



Horizontal orientation



900574 (optional)  
Supporting base for vertical operation



515-520



Using in horizontal orientation

### Metric

No.	Range [mm]	Feed error	Retrace error	Mass [kg]
515-520	5-610	±1,2 µm	1,2 µm	45
515-523	5-1010	±1,5 µm	1,5 µm	63,5

# Universal Height Master

## Series 515

This Universal Height Master offers you the following benefits:

- It is designed for both vertical and horizontal orientations, enabling you to carry out a wide range of applications such as accuracy checking of machine tool table movements.
- It is supplied in a fitted wooden case.

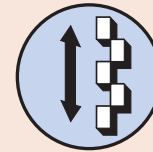


### Specifications

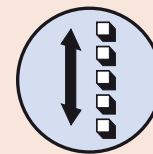
Graduation	0,001 mm
Block arrangement	Staggered
Micrometer adjustment	20 mm
Micrometer feed	0,5 mm
Block pitch accuracy	±1,5 μm
Parallelism of blocks	1 μm

### Optional accessories

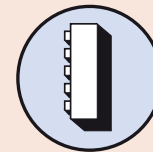
No.	Description
515-112	Auxiliary Block Kit for Bore Gauge, for 515-322



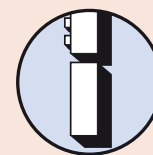
Staggered 20 mm blocks (movable)



Single-row 10 mm blocks (movable)  
515-310



Vertical orientation



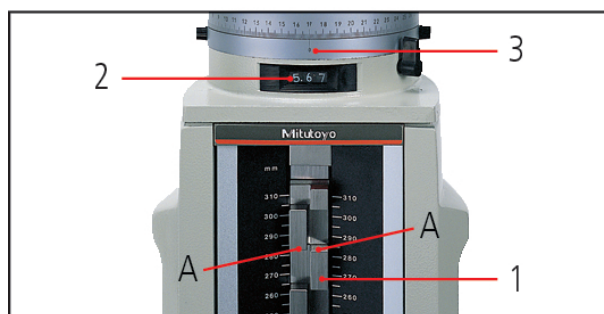
Riser block (optional)



515-322

### Metric

No.	Range [mm]	Block step	Feed error	Retrace error	Mass [kg]
515-322	5-310	20 mm (staggered)	±1 μm	1 μm	23

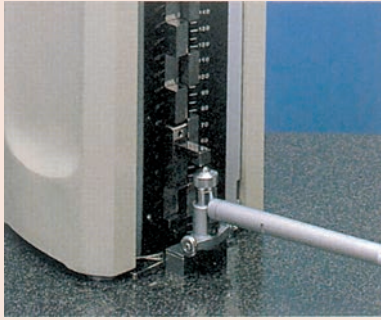


Height A

1. Scale 280.000 mm
2. Counter 5.670 mm
3. Thimble 0.000 mm

285.670 mm

## Optional Accessories for Height Master



Bore gage reference setting

### Series 515

This is an auxiliary block kit that allows you to efficiently carry out reference-setting of dial bore gauges and tubular inside micrometers (18-150mm).



#### Metric

No.	Suitable for Height Master	Mass [g]
515-110	515-520 / 515-523	140
515-111	515-374 / 515-376 / 515-378	142
515-112	515-322	142

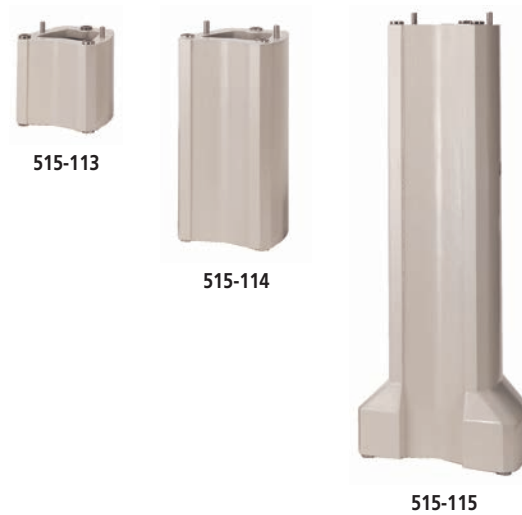


Sample application

### Series 515

These riser blocks offer you the following benefits:

- You can extend the measuring range up to 900mm by using 150, 300 or 600mm riser blocks.
- They can be used with both standard and digital Height Masters.



#### Metric

No.	Accuracy	Height [mm]	Parallelism	Mass [kg]
515-113	$\pm 0,6 \mu\text{m}$	150 mm	$0,6 \mu\text{m}$	5,7
515-114	$\pm 1 \mu\text{m}$	300 mm	$0,8 \mu\text{m}$	11,3
515-115	$\pm 2 \mu\text{m}$	600 mm	$1 \mu\text{m}$	31

# Depth Micro Checker

## Series 515

This Depth Micro Checker offers you the following benefits:

- The Depth Micro Checker is designed to let you check and help set the range-end points of a depth micrometer.
- A 25mm carbide gauge block is provided as the reference surface.



### Specifications

Anvil block accuracy	$\pm 0,5 \mu\text{m}$
Block pitch accuracy	$\pm (1+L/150) \mu\text{m}$ L= length to check (mm)

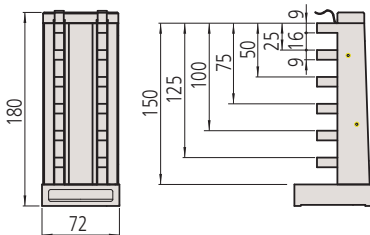


515-571

### Metric

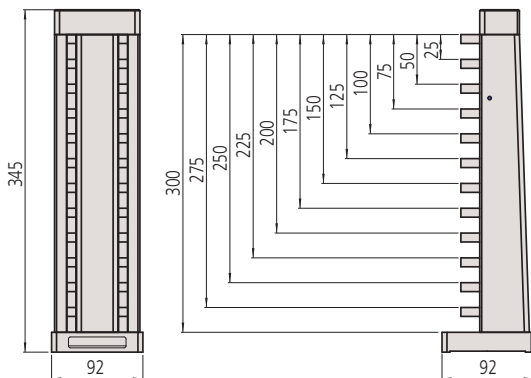
No.	Range [mm]	Reference length	Mass [kg]
515-570	0-150	25, 50, 75, 100, 125, 150 mm	3
515-571	0-300	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300 mm	17

mm



515-570

mm



515-571



# CERA Caliper Checker

## Series 515

This CERA Caliper Checker offers you the following benefits:

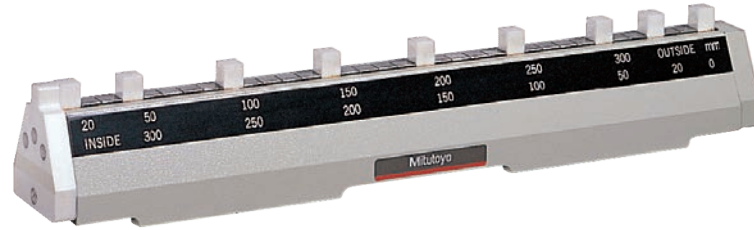
- You can set and inspect caliper and height gauges.
- It comes with ceramic gauge blocks.

### Specifications

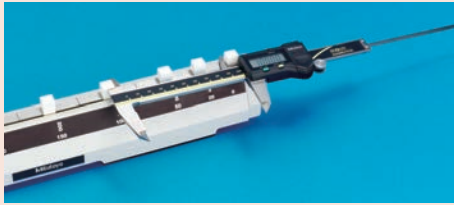
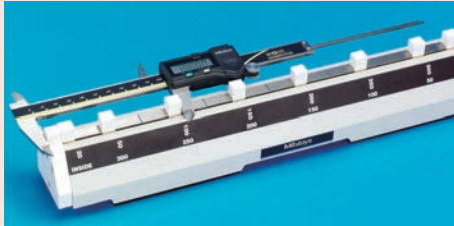
Block pitch accuracy	Range ≤ 300 mm : ±0,005 mm Range ≤ 600 mm : ±0,007 mm
Parallelism of blocks	Range ≤ 300 mm : 0,002 mm Range ≤ 600 mm : 0,004 mm

### Optional accessories

No.	Description
602162	Wooden Case (300 mm), for Caliper Checker
602164	Wooden Case (600 mm), for Caliper Checker



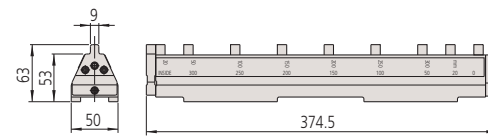
515-555



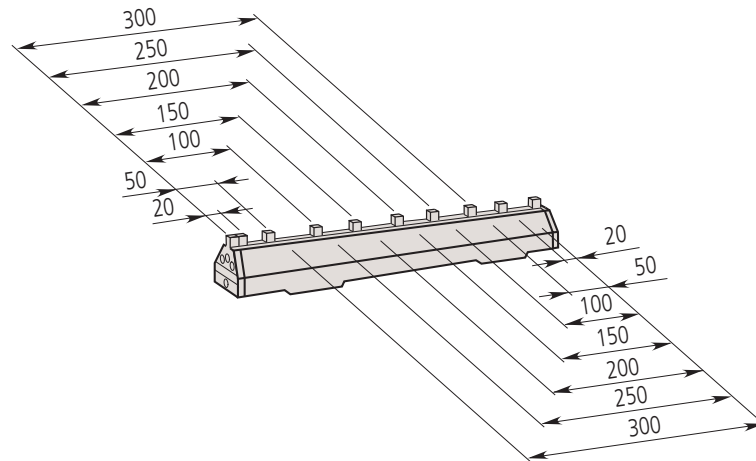
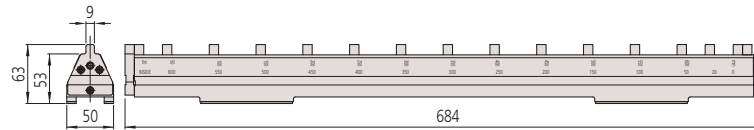
### Metric

No.	Range [mm]	Reference checking lengths available for outside/inside measurement	Mass [kg]
515-555	0-300	20, 50, 100, 150, 200, 250 and 300 mm	4
515-556-2	0-600	20, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550 and 600 mm	8,5

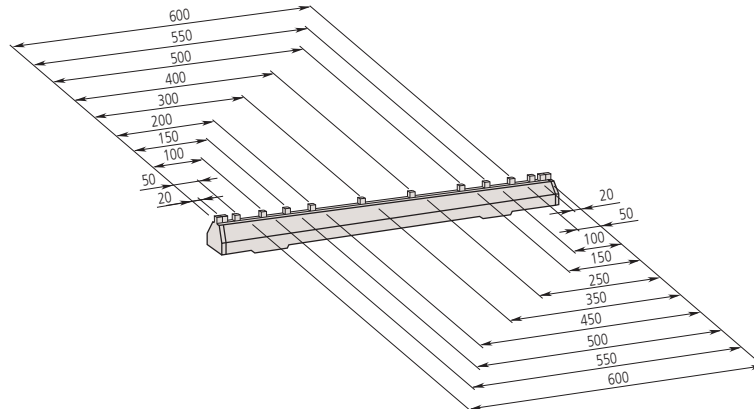
515-555



515-556-2



515-555



515-556-2



# Inside Micro Checker

## Series 515

This Inside Micro Checker offers you the following benefits:

- Applicable for Series 133 only!
- It designed to act as a setting standard for inside micrometers.
- It comes with ceramic gauge blocks.



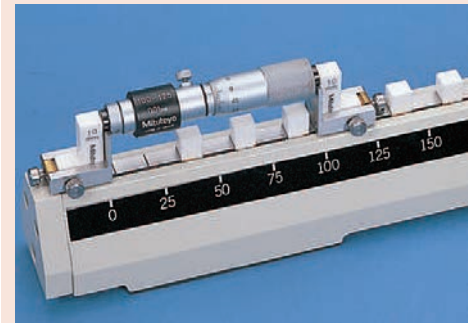
### Specifications

Block pitch accuracy	$\pm(1+L/150) \mu\text{m}$ L = Length to check (mm)
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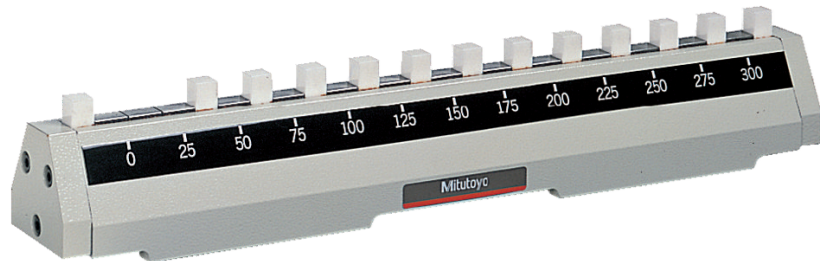
Delivered	With accessory set
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### Optional accessories

No.	Description
602160	Wooden Case, for Inside Micro Checker
602163	Wooden Case, 515-586



Application with Series 133 only.

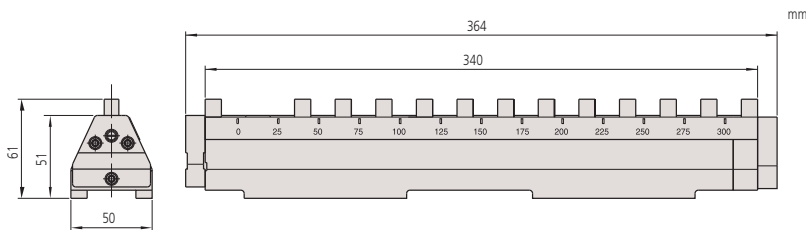


515-585

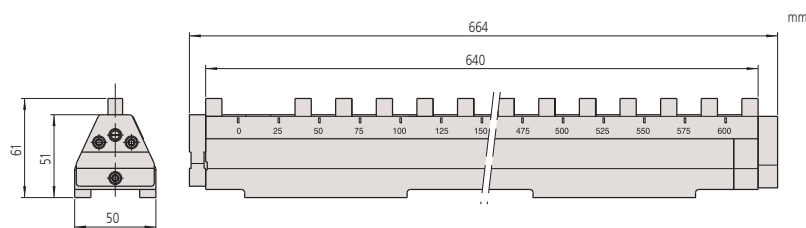


### Metric

No.	Range [mm]	Reference length	Mass [kg]
515-585	25-300	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300 mm	3,9
515-586	25-600	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, 350, 375, 400, 425, 450, 475, 500, 525, 550, 575, 600 mm	7



515-585



515-586



# Check Master

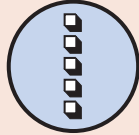
## Series 515

This Check Master allows you to test precision tool and coordinate measuring machines, and offers you the following benefits:

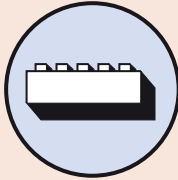
- You can test the X, Y and Z-coordinate axes of precision tool machines and coordinate measuring machines.
- It consists of rigidly clamped gauge blocks with a step of 10mm.
- It is supplied in a fitted wooden case.

### Specifications

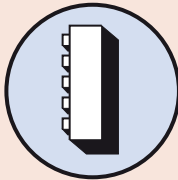
Block step	10 mm
Block pitch accuracy	0 < range ≤ 310 mm : ±2,5 μm 310 < range ≤ 610 mm : ±3,5 μm 610 < range ≤ 1010 mm : ±5,0 μm 1010 < range ≤ 1510 mm : ±8,0 μm
Parallelism of blocks	0 < range ≤ 310 mm : 1,2 μm 310 < range ≤ 610 mm : 1,5 μm 610 < range ≤ 1010 mm : 2,0 μm 1010 < range ≤ 1510 mm : 2,5 μm
Hardness	More than 64 HRC
Delivered	In wooden box



Single-row 10 mm blocks



Horizontal orientation



Vertical orientation



515-722

### Metric

No.	Range [mm]	Mass [kg]
515-720	0-300	7
515-721	0-450	10
515-722	0-600	13
515-723	0-1000	22
515-724	0-1500	30



515-724

515-723

515-722

# High Accuracy Check Master

## Series 515

This High Accuracy Check Master offers you the following benefits:

- You can use it to check the accuracy of table movements of machine tools and calibrate CMMs.
- It features a permanently wrung stack of gauge blocks housed in a rigid frame.
- You can use it in either vertical or horizontal orientation.
- With the Ceramic Check Master, each measuring block is made of zirconia-based ceramic that requires no anti-corrosion treatment for measuring faces.



515-743

515-742

515-740

### Metric Ceramic blocks

No.	Range [mm]	Mass [kg]
515-760	300	3,4
515-761	450	5,2
515-762	600	6,9
515-763	1000	11,5
515-764	1500	17,3

### Metric Steel blocks

No.	Range [mm]	Mass [kg]
515-740	300	3,6
515-741	450	5,4
515-742	600	7,2
515-743	1000	12
515-744	1500	18

### Specifications

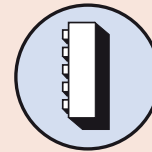
Block step	10 mm
Block pitch accuracy	0 < range ≤ 310 mm : ±1,2 μm 310 < range ≤ 610 mm : ±1,8 μm 610 < range ≤ 1010 mm : ±2,5 μm 1010 < range ≤ 1510 mm : ±4,0 μm
Parallelism of blocks	0 < range ≤ 450 mm : 1,0 μm 450 < range ≤ 1010 mm : 1,5 μm 1010 < range ≤ 1510 mm : 2,0 μm
Delivered	In a wooden box

### Optional accessories

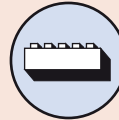
No.	Description
601167	Supporting Base for Vertical Operation, for Check Master



Single-row 10 mm blocks



Vertical orientation



Horizontal orientation



601167 (optional)  
Supporting base for vertical operation

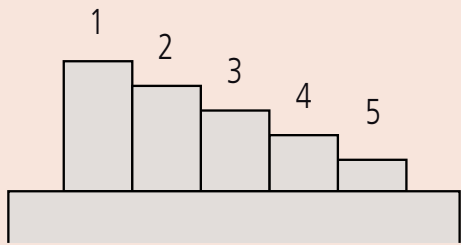


# Step Master

## Series 516

The Step Master is a gauge that provides you with four small increments in height and offers you the following benefits:

- It is constructed from an assembly of five highly accurate, steel or ceramic gauge blocks.
- Each adjacent step is calibrated to a resolution of 0,01  $\mu\text{m}$  by using an interferometer with an accuracy tolerance of  $\pm 0,2 \mu\text{m}$ .
- Both steel and ceramic types are available.



	1/2	2/3	3/4	4/5
Step value				
516-198, 516-498	10 $\mu\text{m}$	5 $\mu\text{m}$	2 $\mu\text{m}$	1 $\mu\text{m}$
516-199, 516-499	300 $\mu\text{m}$	100 $\mu\text{m}$	50 $\mu\text{m}$	20 $\mu\text{m}$



516-199 Ceramic type



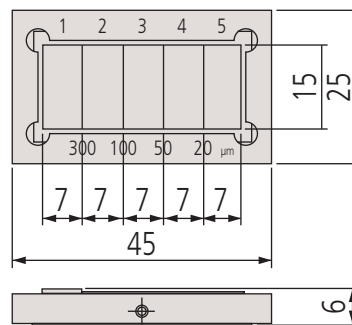
516-499 Steel type



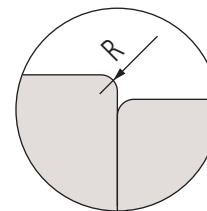
Delivered in a wooden case

### Metric

No.	Block step	Material	Remarks
516-198	10, 5, 2, 1 $\mu\text{m}$	Steel	With certificate of inspection
516-198-24	10, 5, 2, 1 $\mu\text{m}$	Steel	With JCSS calibration certificate
516-199	300, 100, 50, 20 $\mu\text{m}$	Steel	With certificate of inspection
516-199-24	300, 100, 50, 20 $\mu\text{m}$	Steel	With JCSS calibration certificate
516-498	10, 5, 2, 1 $\mu\text{m}$	Ceramic	With certificate of inspection
516-498-24	10, 5, 2, 1 $\mu\text{m}$	Ceramic	With JCSS calibration certificate
516-499	300, 100, 50, 20 $\mu\text{m}$	Ceramic	With certificate of inspection
516-499-24	300, 100, 50, 20 $\mu\text{m}$	Ceramic	With JCSS calibration certificate



mm



# Glass Scales

## Series 182

These high precision glass scales offer you the following benefits:

- They are manufactured using Mitutoyo's leading-edge Linear Scale production technology.
- They are ideal for checking the magnification accuracy of profile projectors and microscopes, as well as the table feed accuracy of measuring equipment.



### Specifications

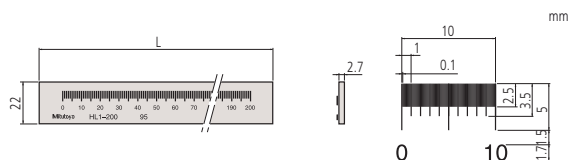
Accuracy	(1,5+2L/1.000) μm L = measured length (mm)
Material	Sodium glass
Thermal expansion coefficient	(8±1) x 10 <sup>-6</sup> /K



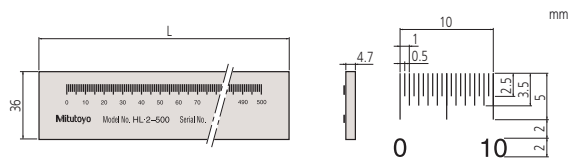
182-525-10 / 182-523-10 / 182-522-10 / 182-513-10

### Metric

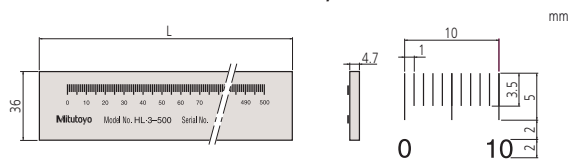
No.	Range [mm]	Graduation [mm]	Thickness of graduation line [μm]	L [mm]	Mass [kg]
182-511-10	50	0,1	20	75	0,23
182-512-10	100	0,1	20	125	0,24
182-521-10	100	0,5	50	130	0,27
182-513-10	150	0,1	20	175	0,35
182-514-10	200	0,1	20	225	0,36
182-522-10	200	0,5	50	230	0,32
182-531-10	250	1	100	280	0,55
182-523-10	300	0,5	50	330	0,57
182-524-10	400	0,5	50	430	0,71
182-525-10	500	0,5	50	530	0,86
182-532-10	500	1	100	530	0,86
182-533-10	750	1	100	780	1,22
182-534-10	1000	1	100	1030	1,54



Graduation : 0,1 mm



Graduation : 0,5 mm



Graduation : 1 mm



# Low Expansion Glass Scales

## Specifications

Accuracy	$(0,5+L/1.000) \mu\text{m}$ L = measured length (mm)
Graduation	1 mm
Thickness of graduation line	4 $\mu\text{m}$
Material	Low expansion glass
Thermal expansion coefficient	$(0\pm 0,02) \times 10^{-6}/\text{K}$

## Series 182

These high precision glass scales offer you the following benefits:

- They are manufactured using Mitutoyo's leading-edge Linear Scale production technology.
- You can use them as a standard for calibrating graduating scales, with high accuracy.

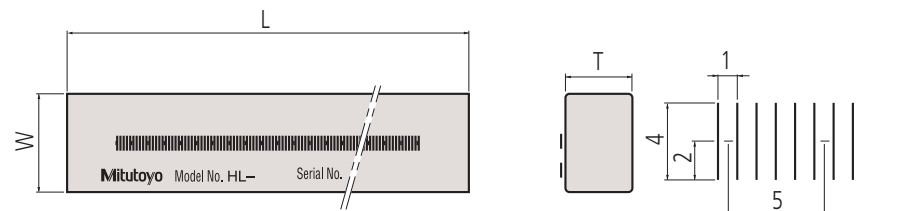


182-502-60  
182-501-60

## Metric

No.	Range [mm]	L [mm]	T [mm]	W [mm]	Mass [kg]
182-501-60	250	280	10	20	0,75
182-502-50	500	530	20	30	1,8
182-502-60	500	530	20	30	1,8

-60 : with JCSS certificate



mm

# Calibration Tester

## Series 170

This Calibration Tester offers you the following benefits:

- It enables you to test dial indicators, lever gauges and bore gauges with 0,01mm scale graduation.
- Bore gauges can be supported both horizontally and vertically.



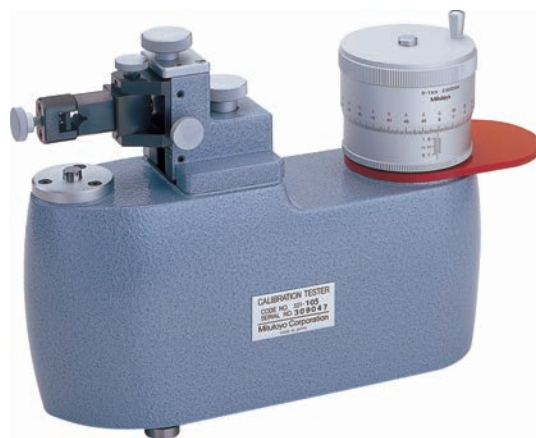
170-102-12

### Metric

No.	Range [mm]	Accuracy	Mass [kg]
170-102-12	0-25	±2 μm	7,5

## Series 521

This allows the calibration of digital and analogue indicators, lever gauges and measuring probes with a maximum measuring span of 5mm.



521-105

### Metric

No.	Range [mm]	Accuracy	Mass [kg]
521-103	0-1	±0,2 μm	7
521-105	0-5	±0,8 μm	7,5

### Specifications

Graduation	0,001 mm
Measuring face	Carbide tipped, rotating

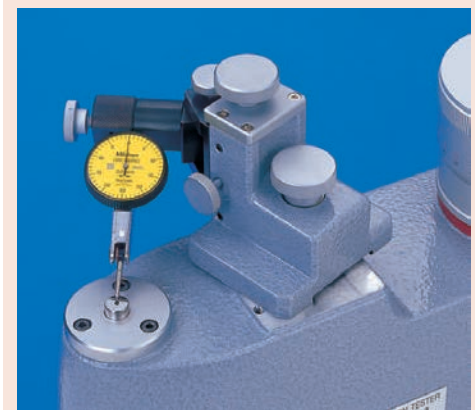
### Optional accessories

No.	Description
12AAK824	Horizontal Holder for Bore Gauge, For Series 170



### Specifications

Graduation	0,0002 mm
Repeatability	0,2 μm
Clamping range	Ø 4-10 mm



# Calibration Tester i-Checker 2000

## Series 170



### Specifications

Digital step	0,01 $\mu\text{m}$
Scale	Linear encoder
Drive method	Motor drive, semi automatic, fully automatic only for indicator with data output
Power supply	100VAC to 240VAC $\pm 10\%$ , 50/60Hz
Dimensions (WxDxH)	196 x 205,5 x 599,5 mm
Max. drive speed	10 mm/s
Delivered	With $\varnothing 8$ mm stem bush, software i-Pak, certificate of inspection
PC connection	USB

### Optional accessories

No.	Description
02ASK000	Test Indicator Accessory Set, I-Checker, For $\varnothing 6$ mm Stem
02ASK180	Test Indicator Accessory Set, I-Checker, For $\varnothing 8$ mm Stem
02ASK040	Stem Bush for I-Checker, For $\varnothing 6$ mm Stem
02ASL150	Stem Bush for I-Checker, For $\varnothing 10$ mm Stem
02ASK060	Stem Bush for I-Checker, For $\varnothing 12$ mm Stem
02ASK070	Stem Bush for I-Checker, For $\varnothing 15$ mm Stem
02ASK080	Stem Bush for I-Checker, For $\varnothing 20$ mm Stem
02ASK710	Stem Bush for I-Checker, For $\varnothing 28$ mm Stem
02ASK090	Stem Bush for I-Checker, For $\varnothing 9,525$ mm (3/8") Stem
02ASU162	Cylinder Gauge Set, IC-2000

- i-Checker is specially designed to calibrate dial indicators, dial test indicators, bore gauges, electronic digital indicator gauges and other electronic gauges.
- Inspection can be performed 2,5 times faster compared to the previous model.
- This instrument achieves the high accuracy and therefore guarantees ultra-reliable inspection results.
- Digital indicators equipped with a data output function are checked very efficiently due to spindle positioning at the inspection points and recording of measurement results being under fully automatic control.
- Analog type indicators are inspected in semi-automatic mode with the pointer of the indicator being manually adjusted at each measuring point with automatic transfer of inspection results and movement to the next measuring point.



Calibration of Dial Test Indicator (Lever Type) with optional accessories



170-402D with optional accessories

### Metric

No.	Range [mm]	Accuracy	Remarks	Mass
170-402D	100	$\pm(0,1+0,4L/100) \mu\text{m}$ L = measured length (mm)	I-Pak software confirms ISO, DIN, VDI/VDE/DGQ, JIS, JMAS, ANSI, ASME	20 kg



# Gauge Block Comparator GBCD-250

## Series 565

This Manual Comparator with Dual Gauge Heads offers you the following benefits:

- It performs gauge block calibration according to EN ISO 3650.
- You can easily compare gauge blocks between 0,1mm and 250mm with reference gauge blocks.
- The upper and lower gauging heads give you of easy, high-accuracy measurement.



No.	Resolution	Range [mm]	Measuring unit	Measuring force
565-151D-01	0,000001 mm (0,001 μm)	0,1-250	Linear Gauge (upper, lower)	0,4 N (upper) 0,2 N (lower)

# Cylindrical Measuring Pin

## Series 926

This is a complete incremental set of plug (or pin) gauges, that offers you the following benefits:

- It includes 91 or 273 pieces that you can use in the inspection room, or on the shop floor in tool and fixture making.



Set of 273 pieces

No.	Accuracy grade	Remarks
926-210	1	1-10 mm, rising by 0,1mm 0mm (size); +0,01mm (oversize) and -0,01mm (undersize)
926-212	2	1-10 mm, rising by 0,1mm 0mm (size); +0,01mm (oversize) and -0,01mm (undersize)

Set of 91 pieces

No.	Accuracy grade	Remarks
926-220	1	1-10mm, rising by 0,1mm
926-222	2	1-10mm, rising by 0,1mm

## Optional accessories

No.	Description
02ASQ953	GBPAK-ME V4.0, Software for GBCD-250
02ASP422	RS-232C Cable
937179T	Footswitch for SPC
02ASF040	Heat Protection Shield, For GBCD-250
601644	Cerastone for Gauge Blocks, 150x50x20mm
158-120	Optical Flat, 15mm, Ø60mm, 0,1 μm
516-650E	Maintenance Kit for Gauge Blocks
02ASD130	Square Gauge Block Holder, For GBCD-210
516-145-E2	Calibration Master for GB-Comparator, 11pcs., Refer to EA-10/02,

## Specifications

Finish	Very fine ground, from Ø 3 mm inscribed
Accuracy	DIN 2269
Hardness	HRC 60-62
Roughness	RA ≤ 0,1 μm
Length [mm]	up to Ø 6 mm = 50 mm over Ø 6 mm = 70 mm
Delivered	In a wooden box

## Gauge Blocks



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**Steel individual Gauge Blocks**  
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**CERA Gauge Block Sets**  
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**CERA Individual Gauge Blocks**  
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**Accessories for Gauge Blocks**  
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# Gauge Blocks Overview

## Series 516

Precision gauge blocks are the primary standards vital to dimensional quality control in the manufacture of parts. Mitutoyo offers an extensive selection of gauge blocks available in a choice of rectangular or square, metric or inch, and steel or ceramic types.

### Accuracy

Gauge blocks offered by Mitutoyo have such a high accuracy that users can use them complete confidence. Needless to say, Mitutoyo has established a traceability system for our measurement products, up to the Metrology Management Center of the National Institute of Advanced Industrial Science and Technology (AIST) and we have been certified by the Japanese government as an accredited laboratory.

### Wringing

The lapping technique is one of Mitutoyo's specialties. Our advanced technique, developed over more than a half century, enables us to achieve the best flatness and surface roughness needed for gauge blocks and thus maximize the wringing force.

### Abrasion Resistance and Dimensional Stability of Steel blocks

High-carbon high-chrome steel is employed to satisfy a variety of the material characteristics required for gauge blocks. Our advanced heat treatment technology for steel blocks, which involves repeated high and low temperature cycles, simultaneously achieves excellent abrasion resistance and reduces change in length over time to the minimum.

### CERA Blocks

CERA blocks are made of a ceramic material with a superior surface finish, created by Mitutoyo's ultra-precision machining techniques, that provides a premium quality block.

#### 1. Corrosion Resistant

Anti-corrosion treatment is not required when handled normally (i.e. with fingers), resulting in simple maintenance and storage.

#### 2. No Burrs Caused by Dents, etc.

Since the CERA Block is very hard, it will not scratch and is highly resistant to burrs. If a burr is formed, it can easily be removed with a ceramic deburring stone (Ceraston).

#### 3. Abrasion Resistant

CERA Blocks have 10 times the abrasion resistance of steel gauge blocks.

#### 4. Dimensionally Stable

CERA Blocks are free from dimensional change over time.

#### 5. Sizes Clearly Marked

Black characters, indicating the nominal length, are inscribed by laser and are clearly visible against the white surface of the block.

#### 6. Non-magnetic Nature Prevents Steel Swarf Contamination

#### 7. High Wringing Force

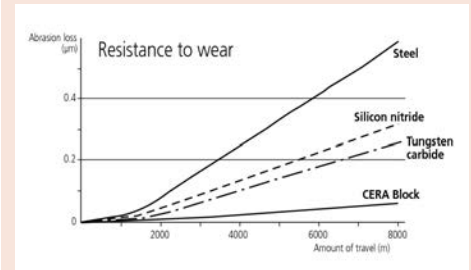
Superior flatness and surface finish

#### 8. Superior Material Characteristics of CERA Block

Property	Material	CERA Block (ZrO <sub>2</sub> )	Steel (Fe)	Carbide (WC-Co)	Silicon nitride (Si <sub>3</sub> N <sub>4</sub> )
Hardness (HV)		1350	800	1650	1500
Coefficient of thermal expansion (10 <sup>-6</sup> /K)		9,3±0,5	10,8±0,5	5,5±1,0	2
Flexural strength (MPa)		1270	1960	1960	580
Fracture toughness K <sub>1c</sub> (MPa·m <sup>1/2</sup> )		7	120	12	6,5
Young's modulus x10 <sup>4</sup> (MPa)		20,6	20,6	61,8	28,4
Poisson's ratio		0,3	0,3	0,2	0,3
Specific gravity		6,0	7,8	14,8	3,2
Thermal conductivity (W/m·k)		2,9	54,4	79,5	16,7



CERA Blocks



CERA Blocks - Abrasion Resistant



CERA Blocks - Non magnetic

### Selecting Gauge Blocks

Gauge blocks are designed to offer the construction of practically any size, within the range of a set, using the minimum number of blocks. Long block sets are available if a longer length is required than is provided by the standard sets.

Gauge block sets should be selected in accordance with the minimum length step required. Wear block sets should be used if the application is likely to involve rapid wear of the end blocks in a stack (and the minimum sizes required allow this). This will preserve the life of the set by confining wear to the wear blocks, whose cost of replacement is far less than that of a complete set.

If a set containing a large number of gauge blocks is selected, the number of gauge blocks required for any particular length may be reduced and the number of combinations is increased. Accuracy will be retained and wear will be reduced.

Dedicated gauge block sets for micrometer inspection and caliper inspection are available.

# Gauge Blocks Overview

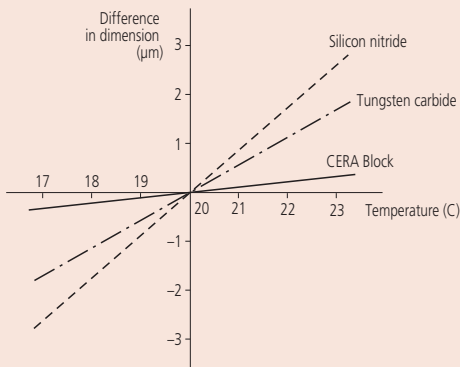
## Series 516

### 9. Closest Expansion Coefficient to Steel

The thermal expansion coefficient of a CERA Block is quite similar to that of a steel gauge block.

### 10. Highly Resistant to Dropping and Impact

The CERA Block material is one of the toughest ceramics. It is extremely difficult to crack a CERA block in normal use.



Differences in the dimension between some materials and steel that are obtained when measuring testpieces with a length of 100 mm at each temperature.

### Grade and Application

The following information can be used to select the gauge block grade according to usage (specified by DIN861, BS4311, JIS B 7506 and EN ISO 3650).

#### Grade 2:

These gauge blocks are intended for shop floor use to set and calibrate fixtures as well as precision instruments.

#### Grade 1:

This grade is used within an inspection area to verify the accuracy of plug and snap gauges as well as for setting electronic measuring devices.

#### Grade 0:

These higher accuracy gauges are intended for use within a controlled environment by skilled inspection staff. Mainly used as reference standards for setting high precision measuring equipment and for the calibration of lower grade gauge blocks.

#### Grade K:

Gauge blocks of this accuracy are intended for use within a temperature controlled inspection room or calibration laboratory. They should be used as masters with certificates against other gauge blocks which are calibrated by comparison.

### Certificates

#### ILAC

The International Laboratory Accreditation Cooperation is an international cooperation of laboratory and inspection accreditation bodies. The member bodies signed the ILAC Mutual Recognition Arrangement (MRA) which ensures a cross approval of certificates from accredited laboratories from other countries. The Signatories to the ILAC arrangement are almost all European countries.

#### JCSS

Mitutoyo Gauge Block Sets can be delivered with a JCSS Certificate of Calibration (Japan Calibration Service System). A JCSS Certificate of Calibration is comparable with e.g. DAkkS, COFRAC, RvA or UKAS Certificate of Calibration. Refer to ILAC this calibration result may be accepted internationally.

# Steel Gauge Block Set - 1 mm Base

## Series 516 - 1 Base

This table shows the most popular configurations for this type of set. For details of other configurations available please contact Mitutoyo.

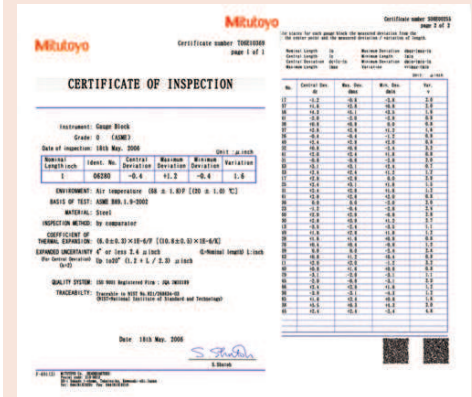


Inspection certificate

### Specifications

Accuracy

EN ISO 3650



Inspection Certificate



Steel 47-block set



Steel 112-block set



Steel 103-block set

Blocks per Set	No.	Grade	Block allocation		
			Size	Step	Quantity
122	516-597-10	0	1,0005	-	1
	516-598-10	1	1,001 - 1,009	0,001	9
	516-599-10	2	1,01 - 1,49	0,01	49
			1,6 - 1,9	0,1	4
			0,5 - 24,5	0,5	49
			30 - 100	10	8
		25, 75	-	2	
112	516-938-10	0	1,0005	-	1
	516-939-10	1	1,001 - 1,009	0,001	9
	516-940-10	2	1,01 - 1,49	0,01	49
			0,5 - 24,5	0,5	49
		25 - 100	25	4	
103	516-942-10	0	1,005	-	1
	516-943-10	1	1,01 - 1,49	0,01	49
	516-944-10	2	0,5 - 24,5	0,5	49
			25 - 100	25	4
87	516-946-10	0	1,001 - 1,009	0,001	9
	516-947-10	1	1,01 - 1,49	0,01	49
	516-948-10	2	0,5 - 9,5	0,5	19
			10 - 100	10	10
47	516-958-10	0	1,005	-	1
	516-959-10	1	1,01 - 1,09	0,01	9
	516-960-10	2	1,1 - 1,9	0,1	9
			1 - 24	1	24
		25 - 100	25	4	
47	516-962-10	0	1,005	-	1
	516-963-10	1	1,01 - 1,19	0,01	19
	516-964-10	2	1,2 - 1,9	0,1	8
			1 - 9	1	9
		10 - 100	10	10	
46	516-995-10	0	1,001 - 1,009	0,001	9
	516-996-10	1	1,01 - 1,09	0,01	9
	516-997-10	2	1,1 - 1,9	0,1	9
			1 - 9	1	9
		10 - 100	10	10	
32	516-966-10	0	1,005	-	1
	516-967-10	1	1,01 - 1,09	0,01	9
	516-968-10	2	1,1 - 1,9	0,1	9
			1 - 9	1	9
		10 - 30	10	3	
		60	-	1	
8	516-115-10	0	25 - 200	25	8
	516-116-10	1			
	516-117-10	2			

# Steel Gauge Block Set - 1 mm Base with JCSS Certificate

## Specifications

Accuracy

EN ISO 3650

## Series 516 - 1 Base



Calibration certificate



Steel 47-block set



Steel 112-block set



Steel 103-block set



JCSS Calibration Certificate

These Gauge Block Sets are delivered with a JCSS Calibration Certificate (Japan Calibration Service System).

A JCSS Certificate of Calibration is comparable with e.g. DAKKS COFRAC, RVA or UKAS Certificate of Calibration.

This calibration result is accepted internationally.

Blocks per Set	No.	Grade	Block allocation		
			Size	Step	Quantity
122	516-596-60	K	1,0005	-	1
	516-597-60	0	1,001 - 1,009	0,001	9
	516-598-60	1	1,01 - 1,49	0,01	49
	516-599-60	2	1,6 - 1,9	0,1	4
			0,5 - 24,5	0,5	49
		30 - 100	10	8	
		25, 75	-	2	
112	516-937-60	K	1,0005	-	1
	516-938-60	0	1,001 - 1,009	0,001	9
	516-939-60	1	1,01 - 1,49	0,01	49
	516-940-60	2	0,5 - 24,5	0,5	49
25 - 100			25	4	
103	516-941-60	K	1,005	-	1
	516-942-60	0	1,01 - 1,49	0,01	49
	516-943-60	1	0,5 - 24,5	0,5	49
	516-944-60	2	25 - 100	25	4
87	516-945-60	K	1,001 - 1,009	0,001	9
	516-946-60	0	1,01 - 1,49	0,01	49
	516-947-60	1	0,5 - 9,5	0,5	19
	516-948-60	2	10 - 100	10	10
47	516-957-60	K	1,005	-	1
	516-958-60	0	1,01 - 1,09	0,01	9
	516-959-60	1	1,1 - 1,9	0,1	9
	516-960-60	2	1 - 24	1	24
			25 - 100	25	4
47	516-961-60	K	1,005	-	1
	516-962-60	0	1,01 - 1,19	0,01	19
	516-963-60	1	1,2 - 1,9	0,1	8
	516-964-60	2	1 - 9	1	9
10 - 100			10	10	
46	516-994-60	K	1,001 - 1,009	0,001	9
	516-995-60	0	1,01 - 1,09	0,01	9
	516-996-60	1	1,1 - 1,9	0,1	9
	516-997-60	2	1 - 9	1	9
			10 - 100	10	10
32	516-965-60	K	1,005	-	1
	516-966-60	0	1,01 - 1,09	0,01	9
	516-967-60	1	1,1 - 1,9	0,1	9
	516-968-60	2	1 - 9	1	9
			10 - 30	10	3
		60	-	1	
8	516-701-60	K	125 - 175	25	3
	516-702-60	0	200 - 250	50	2
	516-703-60	1	300 - 500	100	3
	516-704-60	2			
8	516-115-60	0	25 - 200	25	8
	516-116-60	1			
	516-117-60	2			



# Steel Gauge Block Set - Thin Blocks

## Series 516

- Thin block set, 0,001 mm step, 0,05 mm step

Ordering example: To order an ISO Standard 18-block grade 1 set with calibration certificate, choose No. 516-975-60.



Inspection Certificate



Calibration Certificate

Blocks per Set	No.	Standard / grade available and Suffix No. *	Block allocation		
			ISO/DIN/JIS	Size	Step
18	516-974	(Grade 0): -X0	0,991 - 0,999	0,001	9
	516-975	(Grade 1): -X0			
	516-976	(Grade 2): -X0			
9	516-981	(Grade K): -X0	1,001 - 1,009	0,001	9
	516-982	(Grade 0): -X0			
	516-983	(Grade 1): -X0			
	516-984	(Grade 2): -X0			
9	516-985	(Grade K): -X0	0,991 - 0,999	0,001	9
	516-986	(Grade 0): -X0			
	516-987	(Grade 1): -X0			
	516-988	(Grade 2): -X0			
9	516-990	(Grade 0): -X0	0,1 - 0,5	0,05	9
	516-991	(Grade 1): -X0			
	516-992	(Grade 2): -X0			

## Specifications

Accuracy | EN ISO 3650



Steel 18-block set

### Suffix No. (-X) for Selecting Certificate Provided

ISO/DIN/JIS	Suffix No. (-X)	
	Inspection Certificate	Calibration Certificate JCSS
1	○	—
6	○	○

# Carbide Wear Block Set

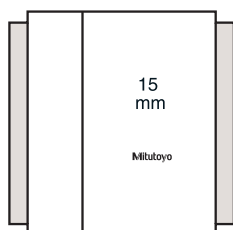
## Series 516 - Carbide Wear Block sets



Inspection Certificate



Carbide 2-block set

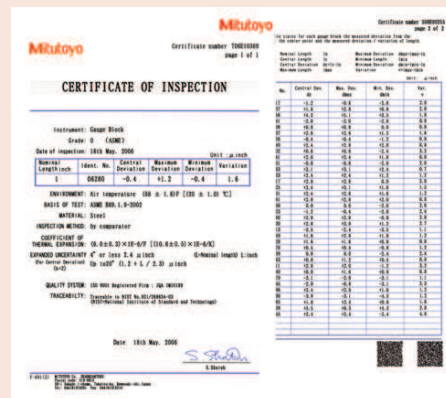


Protection gauge blocks (highlighted in grey above) are placed at each end of the gauge block stack to absorb the wear caused by contact with workpieces.

Blocks per Set	No.	Grade	Block allocation		
			Size	Step	Quantity
2	516-807-10	0	1	-	2
	516-806-10	1	-	-	-
2	516-803-10	0	2	-	2
	516-802-10	1	-	-	-

## Specifications

Accuracy | EN ISO 3650



Inspection Certificate



# Steel Micrometer Inspection Gauge Block Set

## Series 516



Calibration certificate



Inspection certificate

### Specifications

Accuracy | EN ISO 3650



516-107-10



Micro checker  
(See separate entry later in this chapter for a detailed description)

With calibration certificate

Blocks per Set	No.	Grade	Calibration/Standard applications	Block allocation
10	516-580-60	0	For Micrometer with 2 mm spindle pitch. (QuantuMike)	2,2/ 4,8/ 7,8/ 10,4/ 12/ 15,2/ 17,4/ 19,6/ 22,6/ 25 mm
	516-581-60	1		
	516-582-60	2		
10	516-106-60	0	EN ISO 3611 DIN 863 (1999) VDI/VDE/DGQ 2618	2,5/ 5,1/ 7,7/ 10,3/ 12,9/ 15/ 17,6/ 20,2/ 22,8/ 25 mm, optical parallel (thickness = 12 mm)
	516-107-60	1		
	516-108-60	2		
10	516-135-60	0	EN ISO 3611 DIN 863 (1999) VDI/VDE/DGQ 2618	2,5/ 5,1/ 7,7/ 10,3/ 12,9/ 15/ 17,6/ 20,2/ 22,8/ 25 mm, Micro Checker, optical parallel (thickness = 12 mm)
	516-136-60	1		
	516-137-60	2		

With inspection certificate

Blocks per Set	No.	Grade	Calibration/Standard applications	Block allocation
10	516-580-10	0	For Micrometer with 2 mm spindle pitch. (QuantuMike)	2,2/ 4,8/ 7,8/ 10,4/ 12/ 15,2/ 17,4/ 19,6/ 22,6/ 25 mm
	516-581-10	1		
	516-582-10	2		
10	516-106-10	0	EN ISO 3611 DIN 863 (1999) VDI/VDE/DGQ 2618	2,5/ 5,1/ 7,7/ 10,3/ 12,9/ 15/ 17,6/ 20,2/ 22,8/ 25 mm, optical parallel (thickness = 12 mm)
	516-107-10	1		
	516-108-10	2		
10	516-135-10	0	EN ISO 3611 DIN 863 (1999) VDI/VDE/ DGQ 2618	2,5/ 5,1/ 7,7/ 10,3/ 12,9/ 15/ 17,6/ 20,2/ 22,8/ 25 mm, Micro Checker, optical parallel (thickness = 12 mm)
	516-136-10	1		
	516-137-10	2		

# Steel Caliper Inspection Gauge Block Set

## Series 516



Inspection certificate



516-526-10



516-124-10

Blocks per Set	No.	Grade	Mass	Calibration/Standard applications	Block allocation
4	516-526-10	1	1,72	EN ISO 13385-1	4 blocks : 10, 30, 50, 125 mm, setting ring with inspection certificate (Ø4 mm, Ø10 mm), pin gauge (Ø 10 mm), glove
	516-527-10	2	1,72		
3	516-124-10	1	1,72	DIN 862 (1988) VDI/VDE/DGQ 2618	3 blocks : 30, 41,3, 131,4 mm, setting ring without inspection certificate (Ø4 mm, Ø25 mm), glove
	516-125-10	2	1,72		

# Micrometer Inspection Gauge Block Stand

## Series 516 - Micro Checker

This micro checker offers you the following benefits

- For securely holding a stack of gauge blocks to be used for micrometer inspection.
- Can be used vertically and horizontally.
- Parallelism of micrometer measuring faces is checked by optical parallel which can be attached to the stand for convenience in handling.



516-607 with optional gauge blocks

Metric Micro Checker (stand only)

No.	Applicable gauge block sets	Applicable gauge block size [mm]
516-607	516-106-xx, 516-107-xx, 516-108-xx, 516-156-xx, 516-157-xx, 516-158-xx	2,5/ 5,1/ 7,7/ 10,3/ 12,9/ 15/ 17,6/ 20,2/ 22,8/ 25

# Steel Metric Individual Gauge Block

Metric Blocks ≤ 1,19 mm

Ordering example: To order a 0,1mm ISO Standard grade 1 block with JCSS calibration certificate, choose No. 611821-036.



Calibration Certificate



Inspection Certificate

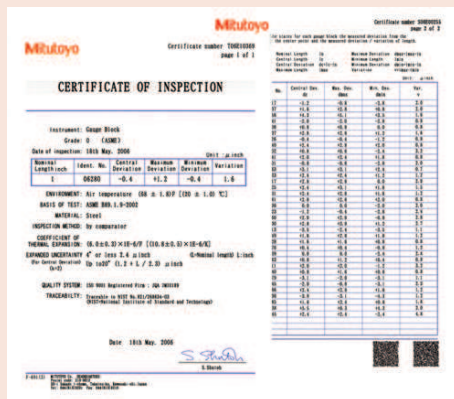
## Specifications

Accuracy	EN ISO 3650
Delivered	Foamed material 0,1-500 mm in a wooden case 600-1000 mm

## Suffix No. (-XXX) for Selecting Certificate Provided

### ISO/DIN/JIS

Suffix No.	Grade	Inspection Certificate	Calibration Certificate
			JCSS
-016	K	○	○
-021	0	○	—
-026	0	○	○
-031	1	○	—
-036	1	○	○
-041	2	○	—
-046	2	○	○



Inspection Certificate



JCSS Calibration Certificate

These Gauge Block Sets are delivered with a JCSS Certificate of Calibration (Japan Calibration Service System).

A JCSS Certificate of Calibration is comparable with e.g. DAKKS COFRAC, RVA or UKAS Certificate of Calibration.

This calibration result is accepted internationally.

Length [mm]	No.	Length [mm]	No.	Length [mm]	No.
0,1	611821	0,53	611894	0,96	611937
0,11	611860	0,54	611895	0,97	611938
0,12	611861	0,55	611896	0,98	611939
0,13	611862	0,56	611897	0,99	611940
0,14	611863	0,57	611898	0,991	611551
0,15	611822	0,58	611899	0,992	611552
0,16	611864	0,59	611900	0,993	611553
0,17	611865	0,6	611901	0,994	611554
0,18	611866	0,61	611902	0,995	611555
0,19	611867	0,62	611903	0,996	611556
0,2	611823	0,63	611904	0,997	611557
0,21	611868	0,64	611905	0,998	611558
0,22	611869	0,65	611906	0,999	611559
0,23	611870	0,66	611907	1	611611
0,24	611871	0,67	611908	1,005	611520
0,25	611824	0,68	611909	1,001	611521
0,26	611872	0,69	611910	1,002	611522
0,27	611873	0,7	611911	1,003	611523
0,28	611874	0,71	611912	1,004	611524
0,29	611875	0,72	611913	1,005	611525
0,3	611825	0,73	611914	1,006	611526
0,31	611876	0,74	611915	1,007	611527
0,32	611877	0,75	611916	1,008	611528
0,33	611878	0,76	611917	1,009	611529
0,34	611879	0,77	611918	1,01	611561
0,35	611826	0,78	611919	1,02	611562
0,36	611880	0,79	611920	1,03	611563
0,37	611881	0,8	611921	1,04	611564
0,38	611882	0,81	611922	1,05	611565
0,39	611883	0,82	611923	1,06	611566
0,4	611827	0,83	611924	1,07	611567
0,41	611884	0,84	611925	1,08	611568
0,42	611885	0,85	611926	1,09	611569
0,43	611886	0,86	611927	1,1	611570
0,44	611887	0,87	611928	1,11	611571
0,45	611828	0,88	611929	1,12	611572
0,46	611888	0,89	611930	1,13	611573
0,47	611889	0,9	611931	1,14	611574
0,48	611890	0,91	611932	1,15	611575
0,49	611891	0,92	611933	1,16	611576
0,5	611506	0,93	611934	1,17	611577
0,51	611892	0,94	611935	1,18	611578
0,52	611893	0,95	611936	1,19	611579

For prices please refer to the online catalogue

For prices please refer to the online catalogue

For prices please refer to the online catalogue

For prices please refer to the online catalogue

# Steel Metric Individual Gauge Block

Metric Blocks ≤ 1000 mm

Ordering example: To order a 1,2 mm ISO Standard grade K block with JCSS calibration certificate, choose 611580-016.



Inspection certificate



Calibration certificate

Length [mm]	No.
1,2	611580
1,21	611581
1,22	611582
1,23	611583
1,24	611584
1,25	611585
1,26	611586
1,27	611587
1,28	611588
1,29	611589
1,3	611590
1,31	611591
1,32	611592
1,33	611593
1,34	611594
1,35	611595
1,36	611596
1,37	611597
1,38	611598
1,39	611599
1,4	611600
1,41	611601
1,42	611602
1,43	611603
1,44	611604
1,45	611605
1,46	611606
1,47	611607
1,48	611608
1,49	611609
1,5	611641
1,6	611516
1,7	611517
1,8	611518
1,9	611519
2	611612
2,0005	611690
2,001	611691
2,002	611692
2,003	611693
2,004	611694
2,005	611695
2,006	611696
2,007	611697
2,008	611698
2,009	611699
2,01	611701
2,02	611702
2,03	611703
2,04	611704
2,05	611705
2,06	611706
2,07	611707
2,08	611708
2,09	611709
2,1	611710
2,11	611711
2,12	611712
2,13	611713
2,14	611714

For prices please refer to the online catalogue

Length [mm]	No.
2,15	611715
2,16	611716
2,17	611717
2,18	611718
2,19	611719
2,2	611720
2,21	611721
2,22	611722
2,23	611723
2,24	611724
2,25	611725
2,26	611726
2,27	611727
2,28	611728
2,29	611729
2,3	611730
2,31	611731
2,32	611732
2,33	611733
2,34	611734
2,35	611735
2,36	611736
2,37	611737
2,38	611738
2,39	611739
2,4	611740
2,41	611741
2,42	611742
2,43	611743
2,44	611744
2,45	611745
2,46	611746
2,47	611747
2,48	611748
2,49	611749
2,5	611642
2,6	611750
2,7	611751
2,8	611752
2,9	611753
3	611613
3,5	611643
4	611614
4,5	611644
5	611615
5,1	611850
5,5	611645
6	611616
6,5	611646
7	611617
7,5	611647
7,7	611851
8	611618
8,5	611648
9	611619
9,5	611649
10	611671
10,3	611852
10,5	611650
11	611621

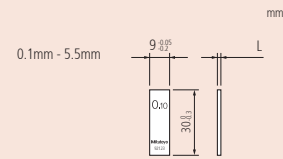
For prices please refer to the online catalogue

Length [mm]	No.
11,5	611651
12	611622
12,5	611652
12,9	611853
13	611623
13,5	611653
14	611624
14,5	611654
15	611625
15,5	611655
16	611626
16,5	611656
17	611627
17,5	611657
17,6	611854
18	611628
18,5	611658
19	611629
19,5	611659
20	611672
20,2	611855
20,5	611660
21	611631
21,5	611661
22	611632
22,5	611662
22,8	611856
23	611633
23,5	611663
24	611634
24,5	611664
25	611635
25,25	611754
30	611673
35	611755
40	611674
41,3	611857
45	611756
50	611675
60	611676
70	611677
75	611801
80	611678
90	611679
100	611681
125	611802
131,4	611858
150	611803
175	611804
200	611682
250	611805
300	611683
400	611684
500	611685
600	611840
700	611841
750	611842
800	611843
900	611844
1.000	611845

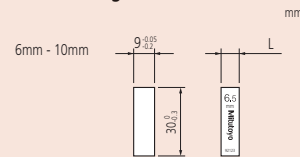
For prices please refer to the online catalogue

## Suffix No. (-XXX) for Selecting Certificate Provided

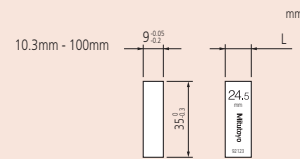
ISO/DIN/JIS Suffix No.	Grade	Inspection Certificate	Calibration Certificate
			JCSS
-016	K	○	○
-021	0	○	—
-026	0	○	○
-031	1	○	—
-036	1	○	○
-041	2	○	—
-046	2	○	○



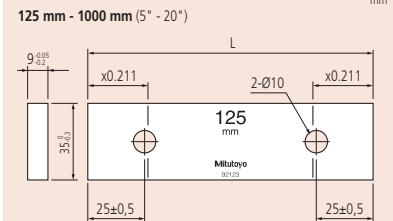
Nominal length: 0.1 mm - 5.5 mm



Nominal length: 6 mm - 10 mm



Nominal length: 10.3 mm - 100 mm



Nominal length: 125 mm - 1000 mm

# CERA Gauge Block Set

## Specifications

Accuracy | EN ISO 3650

### Suffix No. (-X) for Selecting Certificate Provided

ISO/DIN/JIS		
Suffix No.	Inspection Certificate	Calibration Certificate
1	○	JCSS
6	○	—

Suffix No. 1: Not available for Grade K sets.



CERA 112-block set



CERA 56-block set



CERA 32-block set

## Series 516 - 1 Base

Ordering example: To order an ISO Standard 112-block grade 1 set with JCSS calibration certificate choose 516-339-60.



Calibration certificate



Inspection certificate

Blocks per Set	No.	Standard / grade available and Suffix No. * ISO/DIN/JIS	Block allocation		
			Size	Step	Quantity
112	516-337	(Grade K): -X0	1,0005	-	1
	516-338	(Grade 0): -X0	1,001 - 1,009	0,001	9
	516-339	(Grade 1): -X0	1,01 - 1,49	0,01	49
	516-340	(Grade 2): -X0	0,5 - 24,5 25 - 100	0,5 25	49 4
103	516-341	(Grade K): -X0	1,005	-	1
	516-342	(Grade 0): -X0	1,01 - 1,49	0,01	49
	516-343	(Grade 1): -X0	0,5 - 24,5	0,5	49
	516-344	(Grade 2): -X0	25 - 100	25	4
88	516-370	(Grade 0): -X0	1,0005	-	1
	516-371	(Grade 1): -X0	1,001 - 1,009	0,001	9
	516-372	(Grade 2): -X0	1,01 - 1,49	0,01	49
			0,5 - 9,5	0,5	19
10 - 100	10	10			
87	516-345	(Grade K): -X0	1,001 - 1,009	0,001	9
	516-346	(Grade 0): -X0	1,01 - 1,49	0,01	49
	516-347	(Grade 1): -X0	0,5 - 9,5	0,5	19
	516-348	(Grade 2): -X0	10 - 100	10	10
76	516-349	(Grade K): -X0	1,005	-	1
	516-350	(Grade 0): -X0	1,01 - 1,49	0,01	49
	516-351	(Grade 1): -X0	0,5 - 9,5	0,5	19
	516-352	(Grade 2): -X0	10 - 40	10	4
			50 - 100	25	3
56	516-353	(Grade K): -X0	0,5	-	1
	516-354	(Grade 0): -X0	1,001 - 1,009	0,001	9
	516-355	(Grade 1): -X0	1,01 - 1,09	0,01	9
	516-356	(Grade 2): -X0	1,1 - 1,9	0,1	9
			1 - 24	1	24
25 - 100	25	4			
47	516-357	(Grade K): -X0	1,005	-	1
	516-358	(Grade 0): -X0	1,01 - 1,09	0,01	9
	516-359	(Grade 1): -X0	1,1 - 1,9	0,1	9
	516-360	(Grade 2): -X0	1 - 24	1	24
			25 - 100	25	4
47	516-361	(Grade K): -X0	1,005	-	1
	516-362	(Grade 0): -X0	1,01 - 1,19	0,01	19
	516-363	(Grade 1): -X0	1,2 - 1,9	0,1	8
	516-364	(Grade 2): -X0	1 - 9	1	9
			10 - 100	10	10
46	516-394	(Grade K): -X0	1,001 - 1,009	0,001	9
	516-395	(Grade 0): -X0	1,01 - 1,09	0,01	9
	516-396	(Grade 1): -X0	1,1 - 1,9	0,1	9
	516-397	(Grade 2): -X0	1 - 9	1	9
			10 - 100	10	10
34	516-178	(Grade K): -X0	1,0005	-	1
	516-179	(Grade 0): -X0	1,001 - 1,009	0,001	9
	516-180	(Grade 1): -X0	1,01 - 1,09	0,01	9
	516-181	(Grade 2): -X0	1,1 - 1,9	0,1	9
			1 - 5	1	5
	10	-	1		
32	516-365	(Grade K): -X0	1,005	-	1
	516-366	(Grade 0): -X0	1,01 - 1,09	0,01	9
	516-367	(Grade 1): -X0	1,1 - 1,9	0,1	9
	516-368	(Grade 2): -X0	1 - 9	1	9
			10 - 30	10	3
60	-	1			
8	516-731	(Grade K): -X0	125 - 175	25	3
	516-732	(Grade 0): -X0	200 - 250	50	2
	516-733	(Grade 1): -X0	300 - 500	100	3
	516-734	(Grade 2): -X0			



# CERA Gauge Block Set - Thin Blocks

## Series 516 - 0.001 step

These block sets offer you the following benefits:

- Thin block set, 0,001mm step.
- Ordering example: To order an ISO Standard 18-block grade 1 set with calibration certificate, choose 516-375-60.



Calibration certificate



Inspection certificate

### Specifications

Accuracy | EN ISO 3650

### Suffix No. ( -X ) for Selecting Certificate Provided

ISO/DIN/JIS		
Suffix No.	Inspection Certificate	Calibration Certificate
1	○	—
6	○	○

Suffix No. 1: Not available for Grade K sets.



CERA 18-block set

CERA 9-block

Blocks per Set	No.	Standard / grade available and Suffix No. *	Block allocation		
			ISO/DIN/JIS	Size	Step
18	516-373	(Grade K): -X0	0,991 - 0,999	0,001	9
	516-374	(Grade 0): -X0			
	516-375	(Grade 1): -X0			
	516-376	(Grade 2): -X0			
9	516-381	(Grade K): -X0	1,001 - 1,009	0,001	9
	516-382	(Grade 0): -X0			
	516-383	(Grade 1): -X0			
	516-384	(Grade 2): -X0			
9	516-385	(Grade K): -X0	0,991 - 0,999	0,001	9
	516-386	(Grade 0): -X0			
	516-387	(Grade 1): -X0			
	516-388	(Grade 2): -X0			

# CERA Wear Block Set

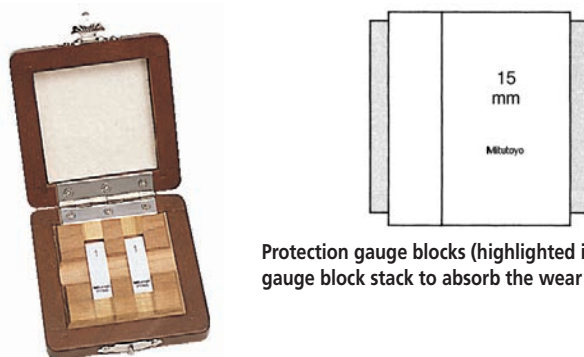
## Series 516 - Cera Wear block sets



Inspection certificate

### Specifications

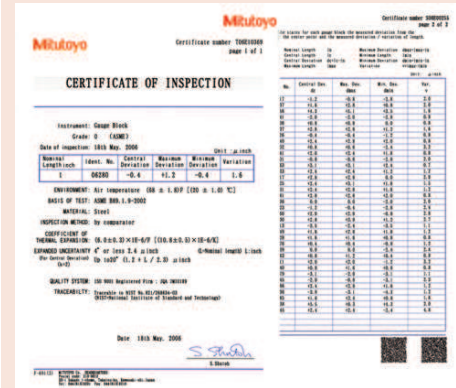
Accuracy | EN ISO 3650



CERA 2-block set

Protection gauge blocks (highlighted in grey above) are placed at each end of the gauge block stack to absorb the wear caused by contact with workpieces.

Blocks per Set	No.	Grade	Block allocation		
			Size	Step	Quantity
2	516-832-10	0	1	-	2
	516-833-10	1	-	-	-
2	516-830-10	0	2	-	2
	516-831-10	1	-	-	-



Mitutoyo Gauge Blocks and Inspection Certificates

A Inspection Certificate is furnished with all Mitutoyo gauge blocks with a serial number on the box (in the case of sets) and an identification number on each block. The deviation of each block from nominal length, at the time of inspection, is stated. For this inspection, each gauge block is measured relative to the upper level master using a gauge block comparator. Grade K gauge blocks are measured by a primary measurement method using an interferometer.

# CERA Micrometer Inspection Gauge Block Set

## Specifications

Accuracy | EN ISO 3650



516-391-10



Micro checker 516-607  
applicable gauge block sets  
516-156, 516-157, 516-158

## Series 516



Calibration  
certificate



Inspection  
certificate

With calibration certificate

Blocks per Set	No.	Grade	Calibration/Standard applications	Block allocation
10	516-390-60	0	Especially for Micrometer with 2 mm spindle pitch (QuantuMike)	2,2/ 4,8/ 7,8/ 10,4/ 12/ 15,2/ 17,4/ 19,6/ 22,6/ 25 mm
	516-391-60	1		
	516-392-60	2		
10	516-156-60	0	EN ISO 3611 DIN 863 (1999) VDI/VDE/DGQ 2618	2,5/ 5,1/ 7,7/ 10,3/ 12,9/ 15/ 17,6/ 20,2/ 22,8/ 25 mm, optical parallel (thickness = 12 mm)
	516-157-60	1		
	516-158-60	2		
10	516-185-60	0	EN ISO 3611 DIN 863 (1999) VDI/VDE/DGQ 2618	2,5/ 5,1/ 7,7/ 10,3/ 12,9/ 15/ 17,6/ 20,2/ 22,8/ 25 mm, Micro Checker, optical parallel (thickness = 12 mm)
	516-186-60	1		
	516-187-60	2		

With inspection certificate

Blocks per Set	No.	Grade	Calibration/Standard applications	Block allocation
10	516-390-10	0	Especially for Micrometer with 2 mm spindle pitch. (QuantuMike)	2,2/ 4,8/ 7,8/ 10,4/ 12/ 15,2/ 17,4/ 19,6/ 22,6/ 25 mm
	516-391-10	1		
	516-392-10	2		
10	516-156-10	0	EN ISO 3611 DIN 863 (1999) VDI/VDE/DGQ 2618	2,5/ 5,1/ 7,7/ 10,3/ 12,9/ 15/ 17,6/ 20,2/ 22,8/ 25 mm, optical parallel (thickness = 12 mm)
	516-157-10	1		
	516-158-10	2		
10	516-185-10	0	EN ISO 3611 DIN 863 (1999) VDI/VDE/DGQ 2618	2,5/ 5,1/ 7,7/ 10,3/ 12,9/ 15/ 17,6/ 20,2/ 22,8/ 25 mm, Micro Checker, optical parallel (thickness = 12 mm)
	516-186-10	1		
	516-187-10	2		

# CERA Caliper Inspection Gauge Block Set

## Series 516



Inspection  
certificate



516-566-10

Blocks per Set	No.	Grade	Calibration/Standard applications	Block allocation
4	516-566-10	1	EN ISO 13385-1	4 blocks : 10, 30, 50, 125 mm, setting ring with inspection certificate (Ø4 mm, Ø10 mm), pin gauge (Ø 10 mm), glove
	516-567-10	2		
3	516-150-10	1	DIN 862 (1988) VDI/VDE/DGQ 2618	3 blocks : 30, 41,3, 131,4 mm, setting ring without inspection certificate (Ø4 mm, Ø25 mm), glove
	516-151-10	2		

# CERA Individual Gauge Block

## Metric Blocks

Ordering example: To order a 0,5mm ISO Standard grade 1 block with JCSS calibration certificate, choose 613506-036.



Calibration certificate



Inspection certificate



Length [mm]	No.	Length [mm]	No.	Length [mm]	No.
0,5	613506	1,3	613590	12,9	613853
0,991	613551	1,31	613591	13	613623
0,992	613552	1,32	613592	13,5	613653
0,993	613553	1,33	613593	14	613624
0,994	613554	1,34	613594	14,5	613654
0,995	613555	1,35	613595	15	613625
0,996	613556	1,36	613596	15,5	613655
0,997	613557	1,37	613597	16	613626
0,998	613558	1,38	613598	16,5	613656
0,999	613559	1,39	613599	17	613627
1	613611	1,4	613600	17,5	613657
1,0005	613520	1,41	613601	17,6	613854
1,001	613521	1,42	613602	18	613628
1,002	613522	1,43	613603	18,5	613658
1,003	613523	1,44	613604	19	613629
1,004	613524	1,45	613605	19,5	613659
1,005	613525	1,46	613606	20	613672
1,006	613526	1,47	613607	20,2	613855
1,007	613527	1,48	613608	20,5	613660
1,008	613528	1,49	613609	21	613631
1,009	613529	1,5	613641	21,5	613661
1,01	613561	1,6	613516	22	613632
1,02	613562	1,7	613517	22,5	613662
1,03	613563	1,8	613518	22,8	613856
1,04	613564	1,9	613519	23	613633
1,05	613565	2	613612	23,5	613663
1,06	613566	2,5	613642	24	613634
1,07	613567	3	613613	25	613635
1,08	613568	3,5	613643	25,25	613754
1,09	613569	4	613614	30	613673
1,1	613570	4,5	613644	35	613755
1,11	613571	5	613615	40	613674
1,12	613572	5,1	613850	41,3	613857
1,13	613573	5,5	613645	45	613756
1,14	613574	6	613616	50	613675
1,15	613575	6,5	613646	60	613676
1,16	613576	7	613617	70	613677
1,17	613577	7,5	613647	75	613801
1,18	613578	7,7	613851	80	613678
1,19	613579	8	613618	90	613679
1,2	613580	8,5	613648	100	613681
1,21	613581	9	613619	125	613802
1,22	613582	9,5	613649	131,4	613858
1,23	613583	10	613671	150	613803
1,24	613584	10,3	613852	175	613804
1,25	613585	10,5	613650	200	613682
1,26	613586	11	613621	250	613805
1,27	613587	11,5	613651	300	613683
1,28	613588	12	613622	400	613684
1,29	613589	12,5	613652	500	613685

For prices please refer to the online catalogue

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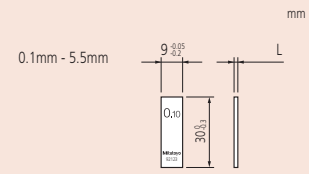
For prices please refer to the online catalogue

## Specifications

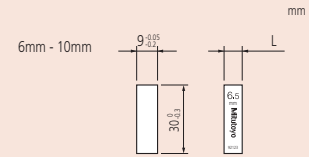
Accuracy	EN ISO 3650
Delivered	Foamed material 0,5-100 mm in a wooden case 125-500 mm

### Suffix No. ( -XXX ) for Selecting Certificate Provided

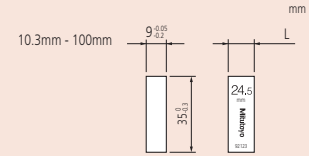
ISO/DIN/JIS			
Suffix No.	Grade	Inspection Certificate	Calibration Certificate JCSS
-016	K	○	○
-021	0	○	—
-026	0	○	○
-031	1	○	—
-036	1	○	○
-041	2	○	—
-046	2	○	○



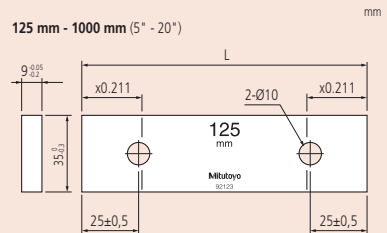
Nominal length: 0.1 mm - 5.5 mm



Nominal length: 6 mm - 10 mm



Nominal length: 10.3 mm - 100 mm



Nominal length: 125 mm - 1000 mm



# Gauge Blocks with a Calibrated CTE

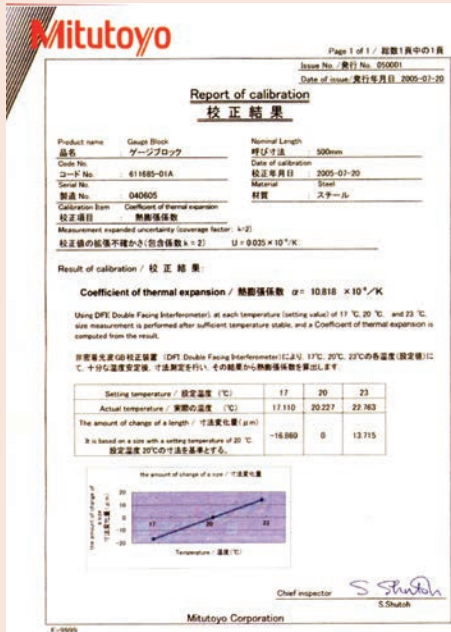
## Gauge Blocks with a Calibrated Coefficient of Thermal Expansion

These are metric gauge blocks with a calibrated coefficient of thermal expansion. They offer you the following benefits:

- Mitutoyo offers top-level gauge blocks (steel and ceramic) which are superior to K class blocks, with their quality supported by Mitutoyo's best technologies.
- They feature an accurately calibrated thermal expansion coefficient measured with a proprietary double-faced interferometer (DFI).
- Each gauge block is calibrated for length on a highly accurate gauge block interferometer (GBI) system.
- Uncertainty of thermal expansion coefficient:  $0,035 \times 10^{-6} / K$  ( $k=2$ ).
- Uncertainty of length measurement: 30 nm ( $k=2$ ), for 100mm blocks.



Calibration Certificate



To each final dimension a factory certificate is supplied.



### Ceramic

No.	Accuracy
613681-01B	Grade K JIS/DIN/ISO
613802-01B	Grade K JIS/DIN/ISO
613803-01B	Grade K JIS/DIN/ISO
613804-01B	Grade K JIS/DIN/ISO
613682-01B	Grade K JIS/DIN/ISO
613805-01B	Grade K JIS/DIN/ISO
613683-01B	Grade K JIS/DIN/ISO
613684-01B	Grade K JIS/DIN/ISO
613685-01B	Grade K JIS/DIN/ISO

### Steel

No.	Accuracy
611681-01B	Grade K JIS/DIN/ISO
611802-01B	Grade K JIS/DIN/ISO
611803-01B	Grade K JIS/DIN/ISO
611804-01B	Grade K JIS/DIN/ISO
611682-01B	Grade K JIS/DIN/ISO
611805-01B	Grade K JIS/DIN/ISO
611683-01B	Grade K JIS/DIN/ISO
611684-01B	Grade K JIS/DIN/ISO
611685-01B	Grade K JIS/DIN/ISO



# ZERO CERA Blocks

## Ultra-low Expansion Ceramic Gauge Blocks

These are ultra-low expansion ceramic gauge blocks. The ZERO CERA Blocks offer you the following benefits:

- Thermal expansion at 20 ±1°C is less than 1/500 that of steel.
- There is almost no secular change either in the dimension or coefficient of thermal expansion.
- You will find them light and easy to handle.
- They are rust free.
- They are magnetisation free.



Calibration certificate

### Specifications

Material	Ultra-low thermal expansion fine ceramic 826HV10*2
Grade*1	K
Standard accessories	Inspection certificate, Calibration certificate and custom-made aluminium case
Coefficient of thermal expansion	0 ± 0,02 x 10 <sup>-6</sup> /K (at 20°C)*2
Density*2	2,5 g/cm <sup>3</sup>

\*1

If you require a grade other than K, please contact Mitutoyo.

\*2

Value claimed by the material supplier.



No.	Accuracy	Length [mm]
617673-016	Grade K ISO/JIS/DIN	30
617675-016	Grade K ISO/JIS/DIN	50
617681-016	Grade K ISO/JIS/DIN	100
617682-016	Grade K ISO/JIS/DIN	200
617683-016	Grade K ISO/JIS/DIN	300
617684-016	Grade K ISO/JIS/DIN	400
617685-016	Grade K ISO/JIS/DIN	500
617840-016	Grade K ISO/JIS/DIN	600
617841-016	Grade K ISO/JIS/DIN	700
617843-016	Grade K ISO/JIS/DIN	800
617844-016	Grade K ISO/JIS/DIN	900
617845-016	Grade K ISO/JIS/DIN	1000
516-771-60	Grade K ISO/JIS/DIN	Above set

### Characteristics comparison of gauge block materials

	ZERO CERA BLOCK	Low expansion glass	CERA BLOCK	Steel	Tungsten carbide
Coefficient of thermal expansion (10 <sup>-6</sup> /K)	0 ± 0,02 *2) *3)	0 ± 0,02 *2) *3)	9,3 ± 0,5	10,8 ± 0,5	5,5 ± 1
Thermal conductivity (W/m*K)	3,7	1,7	2,9	54,4	79,5
Specify gravity	2,5	2,55	6	7,8	14,8
Young modulus (GPa)	130	90	206	206	618
Poisson ratio	0,3	0,25	0,3	0,3	0,2
Flexural strength (3 points) (MPa)	210	143	1270	1960	1960
Fracture toughness (MPa*m <sup>1/2</sup> )	1,2	0,69 *4)	7	120	12
Vickers hardness (HV)	826 *3)	680	1350	800	1650

1) Material for Mitutoyo Products

2) Value at 20°C

3) Claimed value by the material supplier

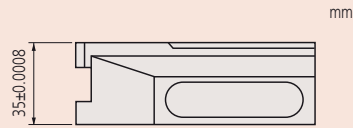
4) Value measured by the material supplier (reference)



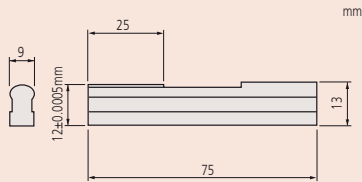
# Gauge Block Accessories

## Series 516

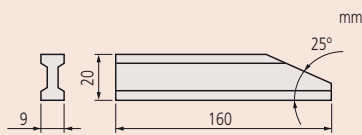
Specially designed for long gauge blocks over 100 mm which have two coupling holes on the body.



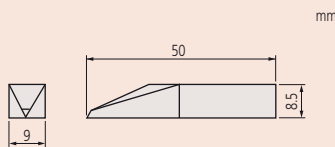
Holder base : 619009



Half-round jaw : 619013



Plain jaw : 619018



Scriber point : 619019

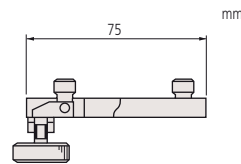


516-605

No.	Included in set
516-605	Holder A (619031)-1 pc
	Holder B (619032)-1 pc
	Holder C (619033)-1 pc
	Holder D (619034)-1 pc
	Holder E (619035)-1 pc
	Adapter (619036)-3 pcs
	Holder base 35mm (619009)-1 pc
	Half-round jaw 12mm (619013)-2 pcs
	Plain jaw (619018)-2 pcs
	Scriber point (619019)-1 pc



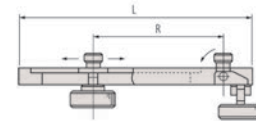
Holder A : 619031  
Used for coupling two long gauge blocks.



619031



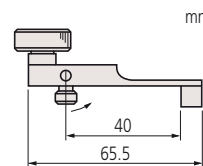
Holder B and C :  
Used for coupling two long gauge blocks together with other gauge blocks up to 35 mm (Holder B) or 140 mm Holder C). Also used for attaching jaws with two adapters.  
Holder B : 619032 (R max.= 90 mm- L= 126 mm)  
Holder C : 619033 (R max.= 200 mm- L= 236 mm)



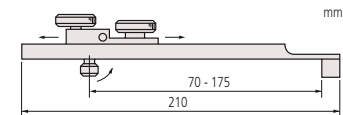
619032 / 619033



Holder D : 619034  
Used for attaching to the holder base.



619034



Holder E : 619035  
Used for attaching to the holder base together with other gauge blocks up to 125 mm. Used for attaching jaws with one adapter.

# Gauge Block Accessories

## Series 619

These accessories are specially designed for long gauge blocks over 100mm which have two coupling holes on the body.



516-601J



516-602J

### 1. Set

No.	Included in set
516-601J	(1 x 619003; 1 x 619004; 1 x 619005; 1 x 619009; 2 x 619010; 2 x 619011; 2 x 619012; 2 x 619013; 2 x 619014; 2 x 619018; 1 x 619019; 1 x 619020; 2 x 619021; 1 x 619022; 1 x 619023)
516-602J	(1 x 619002; 1 x 619003; 1 x 619004; 1 x 619005; 1 x 619009; 2 x 619010; 2 x 619011; 2 x 619012; 1 x 619019; 1 x 619020; 1 x 619022)

### 2. Holder

No.	L [mm]
619002	15-60
619003	5-100
619004	15-160
619005	20-250

### 3. Holder base

No.	Description
619009	35 mm

### 4. Half-round jaw

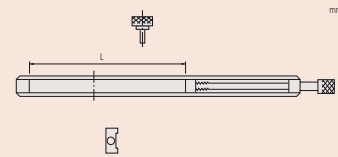
No.	Size	A [mm]	B [mm]	C [mm]	H [mm]
619010	Half-round jaw 2 mm	5,5	40	7,5	2 ±0,0005
619011	Half-round jaw 5 mm	14	45	7,5	5 ±0,0005
619012	Half-round jaw 8 mm	18,5	50	8,5	8 ±0,0005
619013	Half-round jaw 12 mm	25	75	13	12 ±0,0005
619014	Half-round jaw 20 mm	25	125	20,5	20 ±0,0005

### 5. Miscellaneous jaws

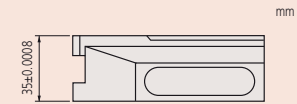
No.	Description
619018	Plain jaw
619019	Scriber point
619020	Centre point
619021	Tram point

### 6. Triangular straight edge

No.	A [mm]
619022	16
619023	19,5



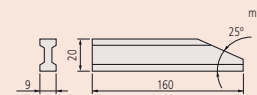
**Holder : 619002 to 619005**  
Used to clamp plain jaws, a scriber point, etc., to a gauge block stack.



**Holder base 35 mm : 619009**  
Acts as base for a stack of gauge blocks that carry one of the many types of point.

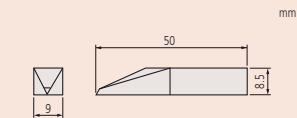


**Half round jaw : 619010 to 619014**  
Used for gauging an outside or inside diameter if used when a pair of jaws in a holder.



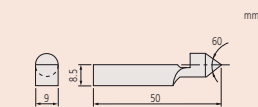
**Plain jaw : 619018**

Gauges outside and inside dimensions (not inside diameters) when used as a pair of jaws in a holder.



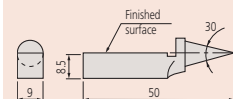
**Scriber point : 619019**

Scribes a straight line on a workpiece a known distance from a datum plane if used in a holder and holder base.



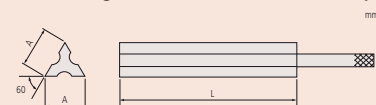
**Centre point : 619020**

Pushed into a small hole, or conical punch mark, this point provides the pivot for scribing a circular line with a gauge block trammel assembly.



**Tram point : 619021**

For checking distances between lines and points.



**Triangular straight edge : 619022/619023**  
Can be used to indicate parallelism.

# Ceraston

## Accessory for Gauge Block Maintenance

This accessory for gauge block maintenance offers you the following benefits:

- Alumina-ceramic abrasive stone lets you remove burrs from hard materials such as ceramics, that ordinary stones cannot handle.
- You can use them for both steel gauge blocks and CERA Blocks.



Removing burrs

- 1 Wipe any dust and oil films from the gauge block and the Ceraston (or Arkansas stone) using a solvent.
- 2 Place the gauge block on the Ceraston so that the measuring face that has burrs is on the abrasive surface of the stone. While applying light pressure, move the gauge block to and fro about ten times (Fig. 1). Use a block rubber for thin gauge blocks to apply even pressure (Fig. 2).
- 3 Check the measuring face for burrs with an optical flat. If the burrs have not been removed, repeat step 2. If burrs are too large, they may not be removed with an abrasive stone. If so, discard the gauge block.



**Note:** The abrasive surface of a Ceraston must be made flat by lapping it from time to time. After lapping the ceraston, the lapping powder must be completely removed from the surface of the stone to prevent the gauge block from being scratched. Mitutoyo does not offer Arkansas stones.



601644

601645

No.	Dimensions (WxDxH)	Mass [g]
601645	100 x 25 x 12 mm	110
601644	150 x 50 x 20 mm	530

### Consumable spares

No.	Description
601645	Cerastone for Gauge Blocks, 100x25x12mm
600004	Tweezer for Gauge Blocks
600005	Blower Brush for Gauge Blocks
600006	Cleaning Paper for Gauge Blocks
600007	Artificial Leather Mat for Gauge Blocks
600008	Reagent Bottle, 100 ml
600009D	Cotton Gloves, White
158-117	Optical Flat, 12mm, Ø45mm, 0,2µm

### Series 516

This is a maintenance kit for gauge blocks that offers you the following benefits:

- It includes all maintenance tools needed for the daily care and storage of gauge blocks.
- It is supplied in a fitted wooden case for portable use.



No.	Tools and accessories included
516-650E	<p>Ceraston (601645): Used for removing burrs on the measuring surface.</p> <p>Tweezers (600004): Used for handling thin gauge blocks.</p> <p>Blower brush (600005): Used for blowing dust off the measuring surface.</p> <p>Cleaning paper (600006): Used for wiping off rust preventive oil and contamination.</p> <p>Artificial leather mat (600007): Used as a gauge block mat.</p> <p>Reagent bottle (600008): Bottle for wiping solution (100 ml). Solution not included.</p> <p>Gloves (600009D)</p> <p>Optical flat (158-117)</p>