TRIMOS

2D Height Gauges



1.

What is a 2D Height Gauge?

A height gauge is a dimensional measuring instrument with a single vertical axis used on a granite table. It is used universally for the measurement of mechanical parts. Its preferred location is the workshop, close to the machining center, or the measuring room. It provides **accurate**, **fast** and **easy** measurement of parts in production, directly by the operator.

The measurement of distances, diameters and center distances are the basic functions of a height gauge. The most sophisticated models (2D) offer advanced functionalities such as 2-dimensional measurement, statistics or programming, but also measurement of perpendicularity, angle, flatness and temperature compensation.

The height gauge is positioned between the hand tools and the 3D measuring machines (CMMs). It offers the following advantages :

- Measuring accuracy similar to the best CMMs
- Universal measuring instrument, substitutes for most hand tools
- Extremely fast and simple measurement
- Autonomous operation on rechargeable batteries
- Use close to the machining center, no bottlenecks in metrology
- Time savings compared to a CMM for equivalent measurements
- Allows measurements that were previously only possible on CMMs, e.g. 2D
- Allows you to reserve CMM time for the most complex tasks
- Considering the above points, the return on investment is very fast.



Complements all hand tools

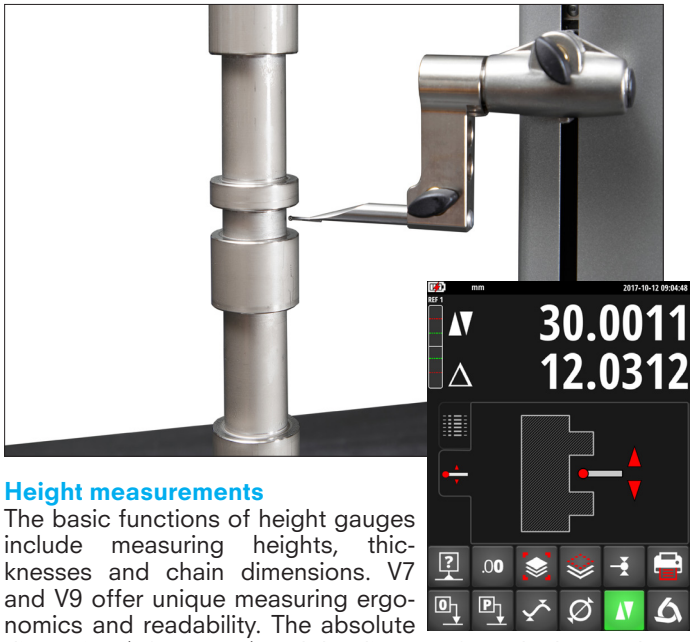




Eliminates your metrology bottlenecks

2.

What is the Purpose of a 2D Height Gauge?



Height measurements

The basic functions of height gauges include measuring heights, thicknesses and chain dimensions. V7 and V9 offer unique measuring ergonomics and readability. The absolute dimension (=from zero) and the distance from the last probe are displayed at the same time for each measurement. This allows a very efficient measurement of chain dimensions. All results are displayed in the buffer as a list. The toleranced dimensions are displayed in colour according to the result.



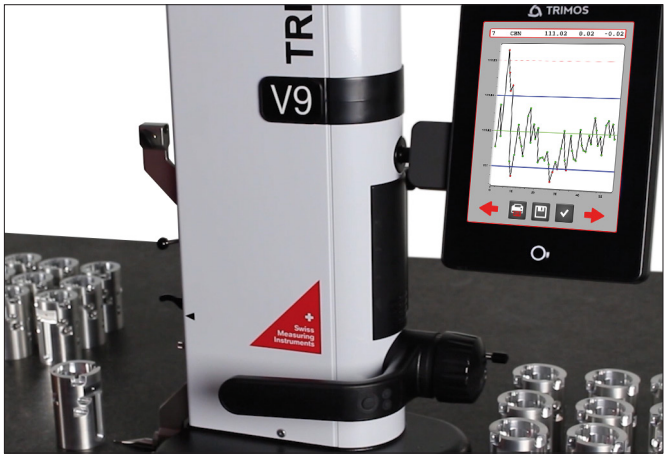
Diameter measurements

Diameters have never been easier to measure.
In manual mode, simply engage the measuring force and move the part sideways to pass the reversal point. No need to hold the crank handle during this operation. In motorized mode, diameter measurement is performed automatically in a single operation. The reversal points is clearly indicated by audible and visual signals. The user is thus guided precisely during diameter measurement, which results in a significant increase in speed and reliability of the result.



Measurement in 2 coordinates (2D)

The display of V7 and V9 offers possibilities of graphic visualization never before achieved on a height gauge. The large screen size makes it possible to display the part in 2D in a very comfortable way. Simply measure the part as normal, rotate it and measure it again in the 2nd axis. The results appear immediately on the screen in 2 dimensions. It is then very easy and intuitive to measure distances, angles, regression circles etc. by clicking directly on the various bores displayed.



Measurement of series of workpieces

Programming is very useful for repetitive series of parts. Simply measure the part normally to make a program. User comments can be added for greater clarity of the tasks to be performed. In motorized mode the user only has to follow the program steps and move the part to be measured. The instrument manages the rest automatically.
The statistical analysis of the results is carried out directly by the SPC software integrated in the display.

3.
Presentation

In order to ensure the highest precision and reliability we use only the best measuring systems on the market.

2nd probe holder for measuring range extension.

Interchangeable insert and insert holder.
Inserts up to **400 mm** in length are available as standard (V7) with breathtaking repeatability. The very robust mechanics of the V7 allows the use of probes up to 400 g.



Tablet-type display consisting of a touch screen that has proven itself in many industrial applications. Its size (8 ") offers exceptional reading comfort. The uncompromising ergonomics of the interface have been designed to ensure ease of use in workshop conditions. Only the functions useful for the measurement in progress are displayed, which reduces the number of buttons and simplifies use. The display can be rotated in any direction

Cast iron base with hard nickel plating providing excellent corrosion and wear resistance.

Horizontal movement handle with air cushion engagement button and 2 programmable function buttons for the most frequently used functions.

Handwheel for moving the measuring carriage: The motorised mode can be switched on at any time by pulling the crank handle outwards. In manual mode, it is not necessary to hold it in position during measurement. This ensures a constant measuring force and makes diameter measurements much easier.

4.

TRIMOS 2D INSTRUMENTS

V7 : Accessible to everyone in the workshop



The V7 are available with measuring ranges from 400 to 1800 mm. They have been designed for use in the workshop. Their special feature is an extremely robust mechanics allowing the use of probes of various lengths and masses.

V9 : Focus on precision



The V9 are available in 3 different sizes: 400, 700 and 1100 mm. Their mechanical design has made no compromise on precision. This is what allows them to be positioned as the most accurate height gauge on the market.

5.
Display



Clear interface

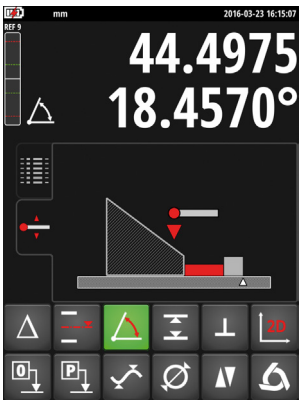
The graphical interface is organised according to a very strict logic. Ergonomics, button positions, colours and menu sequences are based on the experience of 7 generations of height gauges and proven ergonomic principles. The result speaks for itself :

- Very sober display
- No «pollution» of the screen with unnecessary information and small print
- Maximum contrast for easy reading even in difficult lighting conditions
- The size of the screen (8 ") allows the display of very large characters with very wide viewing angles in all directions (IPS panel).
- The flexibility offered by the touch screen allows only the necessary functions to be displayed.
- Intuitive and easy operation
- Quick and direct access to all important functions
- Integrated graphical help



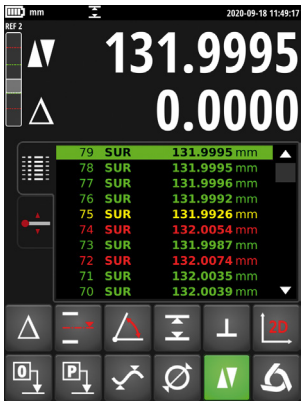
Perpendicularity

The perpendicularity measurements made with the electronic probe are displayed graphically together with all relevant parameters. The curve is drawn in real time during the measurement and clearly indicates the workpiece defect.



Angles

The angle and cone measurements are interactively carried out with the help of graphical support. At each step, the user is guided on the action to be carried out. There is therefore no risk of error.



Tolerances

The dimensions can be toleranced when measuring series of parts. For each measurement, the value is displayed in colour depending on whether or not the specified tolerance is met.



Data backup

All measurement results can be saved on a USB stick or in the display itself. They can be recalled from the display at any time or exported to a PC for analysis.

6.
Data Management

Embedded intelligence

The V7 and V9 are well equipped to meet the challenges of Industry 4.0. Thanks to their communication interfaces, these instruments can be integrated into any industrial environment.

3 Interfaces

The display has 5 USB ports. These allow individual or group measurements to be sent to a PC, connected to a USB printer or saved on a USB stick. The connection is made with a standard USB A-B cable.

RS232 interfaces are still widely used in workshops. This means that an existing height gauge can be replaced as is without changing its connection parameters.

Trimos offers a reliable and simple solution for wireless data transmission (available as an accessory). Connection to a PC is possible via the free **TrimosDataTransfer** software. The solution is also compatible with the Sylvac Sylcom and Vmux software.

Numerous possibilities to exploit the data

Sending data to a PC:
Sending data to a PC via USB, RS232 or wireless is child's play. The free TrimosDataTransfer software allows you to send data to any application.



Sending to a USB printer:
The majority of USB printers on the market can be connected to the instrument. Customised reports can be configured directly on the display. This makes it possible to publish results professionally, quickly, easily and without the need for a PC.



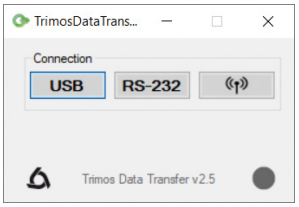
Backup to USB key:
All the data produced by the instrument (measurements, programmes, statistics, perpendicularity, 2D etc.) can be saved on a USB key. This is also the case for measurement reports which are saved in PDF format. The saved files can easily be used with standard PC programs.



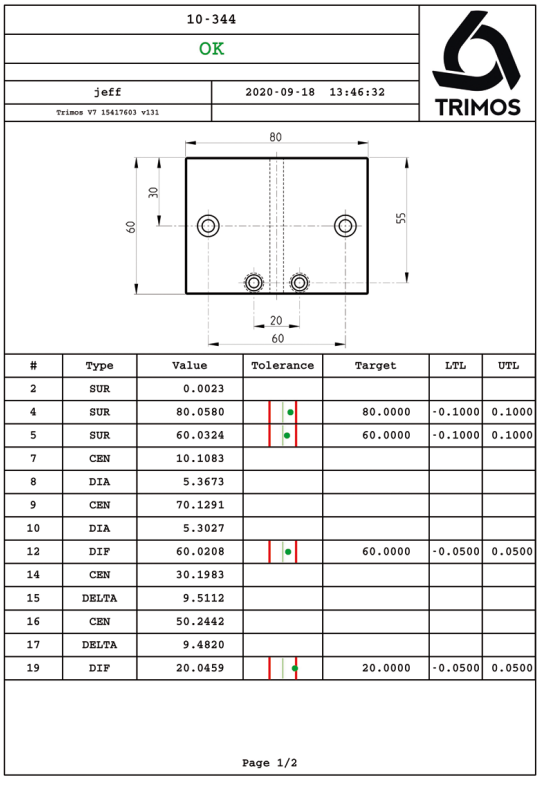
Printing on a thermal printer:
A thermal printer is part of the standard accessories. It is mounted directly on the back of the display as an integral part of the instrument. It allows you to export each measured value one by one.



Communication software TrimosDataTransfer:



Professionnal measurement reports:



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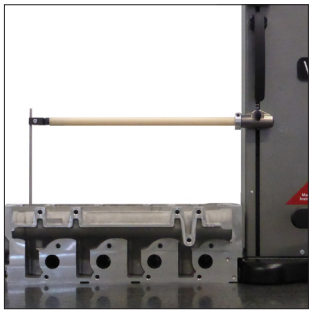
Trimos V7 15417603 v131

TRIMOS

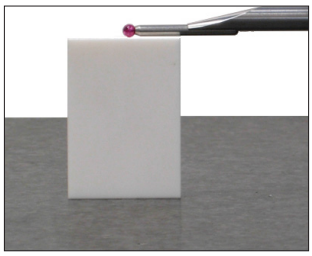
#	Type	Value	Tolerance	Target	LTL	UTL
2	SUR	0.0023				
4	SUR	80.0580		80.0000	-0.1000	0.1000
5	SUR	60.0324		60.0000	-0.1000	0.1000
7	CEN	10.1083				
8	DIA	5.3673				
9	CEN	70.1291				
10	DIA	5.3027				
12	DIF	60.0208		60.0000	-0.0500	0.0500
14	CEN	30.1983				
15	DELTA	9.5112				
16	CEN	50.2442				
17	DELTA	9.4820				
19	DIF	20.0459		20.0000	-0.0500	0.0500

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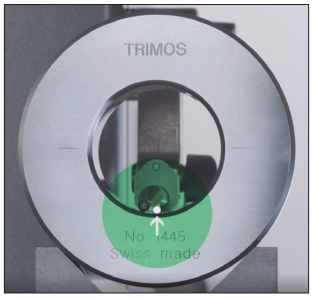
7.
Key Points



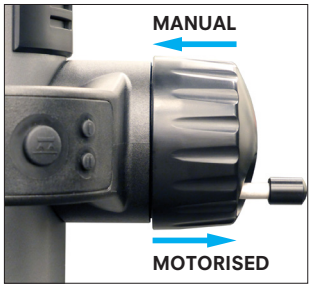
Long probes
The highly robust construction of the Trimos V7 height gauges allows the use of a wide variety of probes up to 400 mm in length with breathtaking repeatability. Adjustment of the balance to compensate for the weight of the probe is carried out simply by means of a thumbwheel and requires no tools.



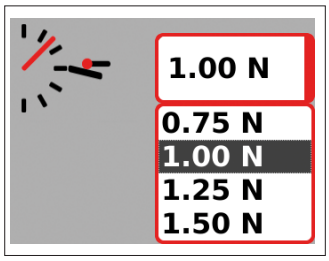
Accuracy
The V9 have been developed for the most demanding users. Laboratories and workshops for which measurement reliability is crucial will fully appreciate their exceptional level of accuracy.



SmartReverse
SmartReverse technology makes diameter measurement very efficient by clearly indicating the passage of reversal points with audible and visual signals. This provides the user with precise guidance when measuring diameters, resulting in a significant increase in measurement speed and reliability.



Manual and motorised movement
The V7 and V9 are equipped with a revolutionary handwheel that allows the user to move the measuring carriage either manually or motorised. Each of these modes is uncompromising, meaning that the user who prefers a manual instrument will not notice any difference compared to a conventional manual instrument, and the same goes for a motorised movement. This innovation avoids making a difficult choice when acquiring an instrument and makes it possible to satisfy multiple potential users of the same instrument.



Electronically adjustable measuring force
The measuring force can become an important criterion depending on the material being measured and in particular its modulus of elasticity. If the material deforms during probing, the measurement result will be affected. For this reason, the measuring force of V7 and V9 can be adjusted with a simple click.



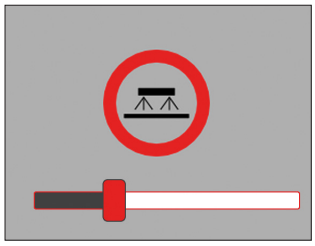
Ergonomics

Hand tools (calipers or micrometers of all kinds) are designed to be operated with the right hand while holding the piece in the left hand. This natural configuration is found on the Trimos height gauge. The crank handle on the right side of the instrument allows the user to maintain control of the measurement at all times with a comfortable position of the hand on the crank handle. The left hand is dedicated to the movement of the workpiece to be measured. The orientation of the screen ensures perfect readability in all configurations.



Adjusting the display position

The display can be rotated in all directions. It has been designed for optimum legibility in all lighting conditions. Clear graphics and information displayed in white on a black background ensure maximum reading comfort. The font size has been chosen for simple, safe and efficient reading of the measurement results.



Air cushion

The air cushion under the base allows the instrument to be moved effortlessly. It is electronically adjustable to suit all types and qualities of measuring tables.



Accessories

The range of accessories available covers almost all applications. The unique probe weight compensation system also allows the use of specific probes up to 400 g.



Remote control

All functions and movements of the instrument can be controlled remotely (wired or wireless). This allows the automation of measuring procedures in the context of high quality requirements.

8.
Technical Data

V7		400	700	1100	1800
Measuring range	mm (in)	407 (16)	711 (28)	1110 (44)	1810 (71)
Application range	mm (in)	719 (28)	1023 (40)	1422 (56)	2122 (83)
Max. permissible errors, B_{MPE}	µm	2 + L(mm)/400			2.5 + L(mm)/300
Repeatability, R_{MPE} (2s)	µm	1 (Ø: 2)			
Perpendicularity deviation (frontal), S_{MPE}	µm	5	8	11	25
Max. resolution	mm (in)	0.0001 (.00001)			
Measuring force	N	0.75 ÷ 1.5			
Autonomy	h	12			
Data output		USB / RS232 / wireless (option)			
Air cushion		Yes			
Weight	kg	22	25	34	41

The above values have been determined according to ISO 13225 with the standard insert (TA-MI-101).

V9		400	700	1100
Measuring range	mm (in)	406 (16)	710 (28)	1109 (43)
Application range	mm (in)	724 (28)	1028 (40)	1427 (56)
Max. permissible errors, B_{MPE}	µm	1.2 + L(mm)/1000		
Repeatability, R_{MPE} (2s)	µm	0.4 (Ø: 1)		
Perpendicularity deviation (frontal), S_{MPE}	µm	5	8	11
Max. resolution	mm (in)	0.0001 (0.00001)		
Measuring force	N	0.75 ÷ 1.5		
Autonomy	h	12		
Data output		USB / RS232 / wireless (option)		
Air cushion		Yes		
Weight	kg	21	24	33

The above values have been determined according to ISO 13225 with the standard insert (TA-MI-119).

Functions

- Heights, thicknesses
- Chain dimensions
- Diameters
- Centre distances
- Minimum, maximum
- Flatness
- Perpendicularity
- Zero, Preset
- 9 references
- mm/in
- Calculation between values
- Angles and cones
- Tolerances
- Inversion of measuring direction
- Measurements in 2 coordinates (2D)
- Measurement sequences
- Statistical analysis
- USB, RS232 & wireless data transfer
- Backup to USB key
- Screenshots
- Remote control
- Adjustable measuring force

9.

Quality and Tradition

Almost 50 years ago, Trimos was the first manufacturer to offer height gauges. Today we are proud to still be leaders in the field with innovative solutions at the cutting edge of technology.



V7 and V9 are part of the 8th generation of height gauges developed by Trimos. By acquiring one of our products, you benefit from all this experience.

Trimos height gauges are designed for the most extreme workshop conditions. They are developed and manufactured in Switzerland in our own workshops on state-of-the-art machining centres. Trimos instruments are built to last for many years. This is why we can offer an unconditional 3-year guarantee.

Our philosophy is to offer products and solutions that help our customers improve their productivity. We achieve this goal by adhering to 3 fundamental principles: **ease of use** through simple interfaces, **reliability** through the use of proven components and **precision** by integrating the best measuring systems.

Thanks to our network of exclusive agents, we are able to offer the following services worldwide:

- Technical support close to you and in your own language
- Training by highly qualified personnel
- Maintenance and repair service far beyond the legal requirements
- Calibration service

Resolutely forward-looking, the latest generation of Trimos height gauge is ready to meet the challenges of the next industrial revolution.

Swiss Measuring Instruments

www. height-gauge.com

V7

V9

Vidéo

www.trimos.com

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V7



INTRODUCTION

The series of V7 height gauges combines technological innovation with tradition. With a full touch display and proven lateral probe holders for decades, the V7s are positioned as universal instruments for the workshop.

Although it has been completely redesigned, the interface retains the philosophy of Trimos instruments and the user will have no difficulty in handling it quickly. The touch screen simplifies the use to the maximum because no superfluous information is displayed and the number of function buttons can be limited to the strictest necessary. Functions commonly considered complex such as 2D, programming, statistics become child's play. The result is unmatched ease of use and therefore a significant increase in productivity.

The 2 lateral probe holders are from generations of instruments that have forged the reputation of Trimos. Their robustness and flexibility allow the use of very varied inserts up to 400 mm in length with breathtaking repeatability.

The V7s are equipped with the revolutionary displacement handwheel allowing the user to choose the manual or motorized movement mode.

MEASURING RANGES FROM 400 TO 1800 MM
SIMPLE AND CONVIVIAL GRAPHIC INTERFACE
ELECTRONICALLY ADJUSTABLE MEASURING FORCE
MANUAL OR MOTORIZED DISPLACEMENT
2D, PROGRAMMING, STATISTICS
VAST RANGE OF ACCESSORIES
ALL POSSIBLE ADJUSTMENTS WITHOUT TOOLS
RS232 AND USB INTERFACES

DESCRIPTION

Heights
Diameters
Centreline distances
Min / Max / Delta
9 references
Perpendicularity
e
nce
and cones
ation function
ces
de
ms
cs
rature comp.
orts
ports
s communication



Upper probe holder

Floating probe suspension adjustment

Interchangeable insert and insert holder

ch display with intuitive function keys

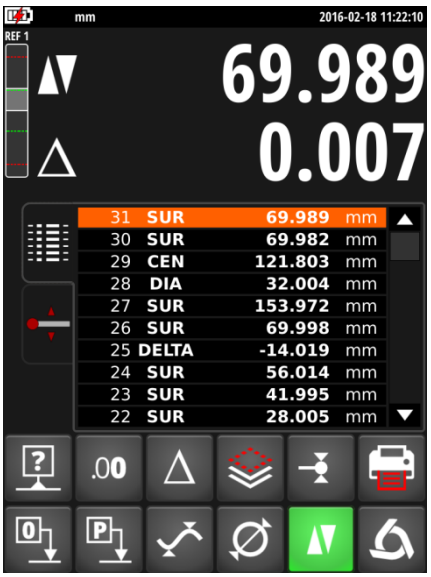
Handwheel for carriage displacement (manual/motorized)

Handle for instrument displacement with ammable function keys and air cushion button

Cast iron base for optimum stability

DISPLAY/SOFTWARE

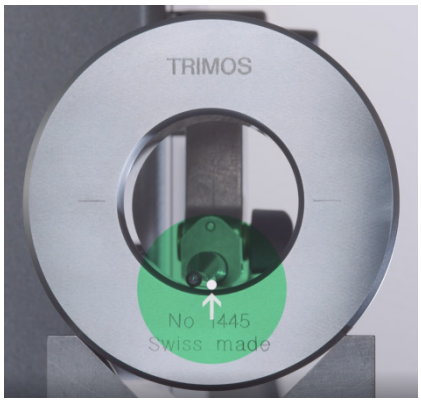
The tablet-type display and the graphical interface correspond to the most modern industrial standards. The great flexibility offered by the touch screen allows easy and fast handling.
The Smart Reverse function significantly improves diameter measurements.



- VERY SIMPLE INTERFACE
- GRAPHIC HELP FOR MEASUREMENT
- MEASUREMENTS IN 2D MODE
- PROGRAMMING MEASUREMENT SEQUENCES
- STATISTICAL ANALYSIS OF RESULTS
- TEMPERATURE COMPENSATION
- SMART REVERSE DIAMETER MEASUREMENT

SMART REVERSE: Diameter measurement faster, more accurate and simpler

SMART REVERSE Technology



SmartReverse technology is the result of an intense collaboration between Trimos height gauge users and our R&D team in order to optimize diameter measurements.

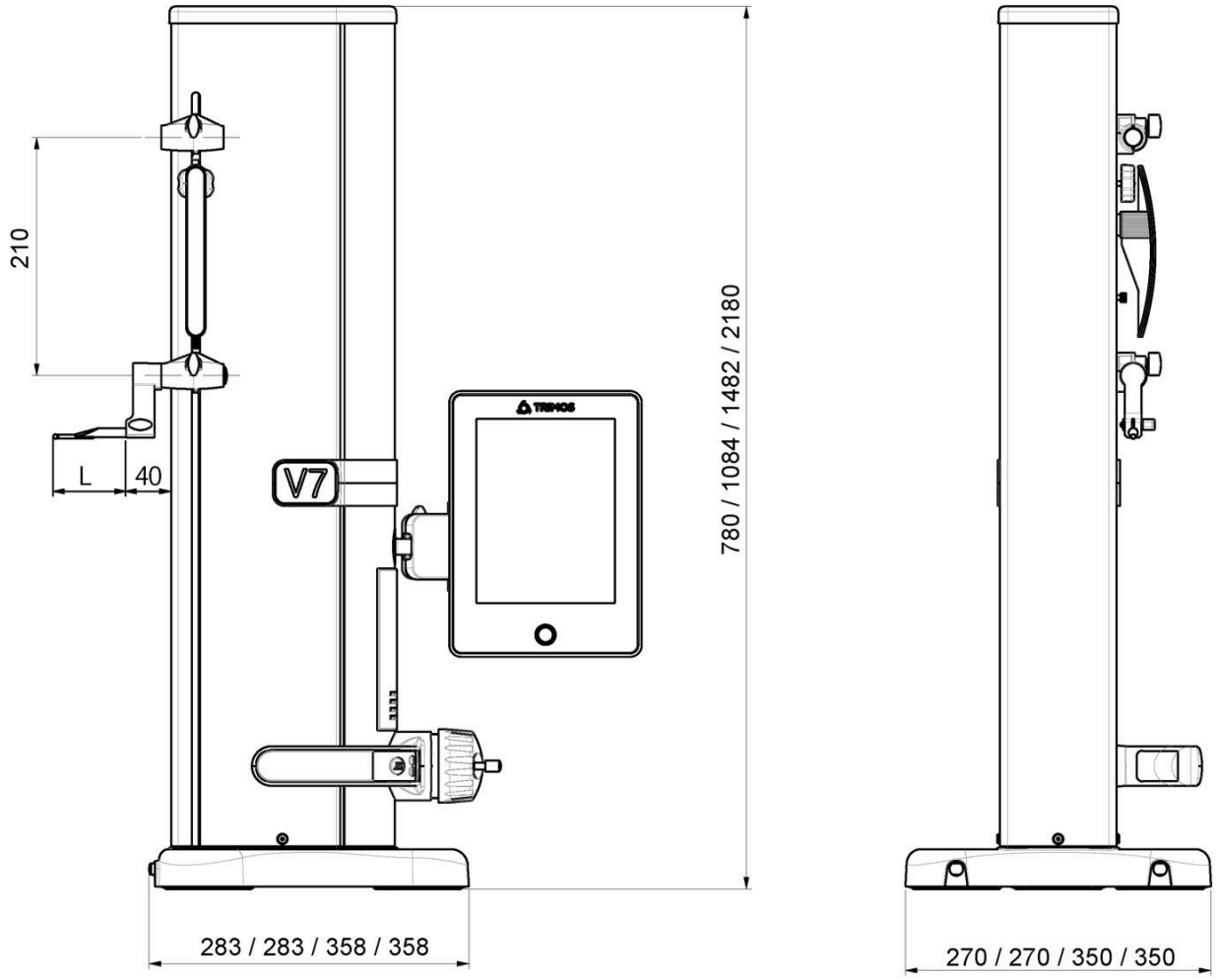
SmartReverse makes the measurement of diameters very effective by clearly indicating the passage of the reversal points by audible and visual signals. The user is guided precisely during the measurement of diameters, which generates a significant gain in speed and reliability of the measurement.

TECHNICAL SPECIFICATIONS

V7		400	700	1100	1800
Measuring range	mm (in)	407 (16)	711 (28)	1110 (44)	1810 (71)
Application range	mm (in)	719 (28)	1023 (40)	1422 (56)	2122 (83)
Max. permissible errors, B_{MPE}	µm	2 + L(mm)/400			2.5 + L(mm)/300
Repeatability, R_{MPE} (2s)	µm	1 (Ø: 2)			
Perpendicularity deviation (frontal), S_{MPE}	µm	5	8	11	25
Max. resolution	mm (in)	0.0001 (0.000005)			
Measuring force	N	0.75 ÷ 1.5			
Autonomy	h	12			
Data output		USB / RS232 / Wireless (optional)			
Air cushion		Yes			
Weight	kg	22	25	34	41

The above values have been determined according to ISO 13225 with the standard measuring insert (TA-MI-101).

DIAGRAM



L: depends on the measuring insert used

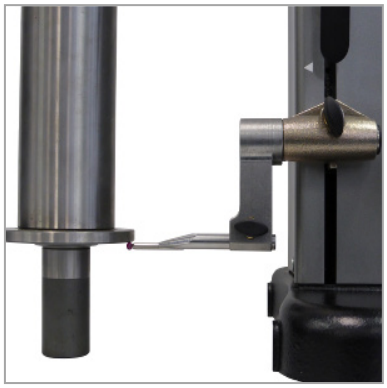
STANDARD INSTRUMENT

The V7 are supplied as follows	
Instrument according to specifications	Charging unit (TA-EL-133)
Measuring insert with ruby ball Ø 4 mm (TA-MI-101)	Setting gauge (TA-MG-104)
Protection cover (TA-TO-114/115/116/117)	User's manual (750 50 0042 03)
Calibration certificate	

ORDER NUMBERS

V7		
V7-400	700 110 10 07	Measuring range 400 mm
V7-700	700 110 20 07	Measuring range 700 mm
V7-1100	700 110 30 07	Measuring range 1100 mm
V7-1800	700 110 50 07	Measuring range 1800 mm

APPLICATIONS



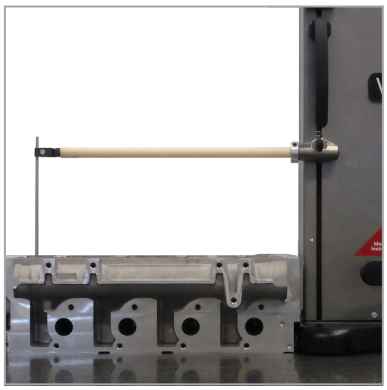
Measurements of height, thickness and chain of dimensions (TA-IH-135, TA-MI-101)



Simultaneous display of diameter and centreline (TA-IH-135, TA-MI-101)



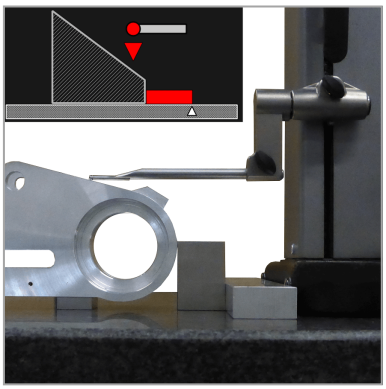
Measurement of perpendicularity with electronic probe (TA-IH-136, TA-MS-101)



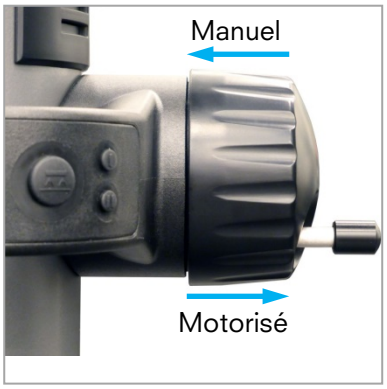
Standard measuring inserts up to 400 mm, with excellent repeatability (TA-IH-131, TA-AD-105, TA-IH-115, V-50.4)



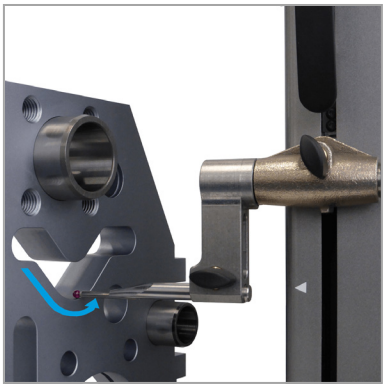
Very large range of accessories for any type of application (TA-SE-106, TA-SE-102, TA-SE-105, TA-SE-107)



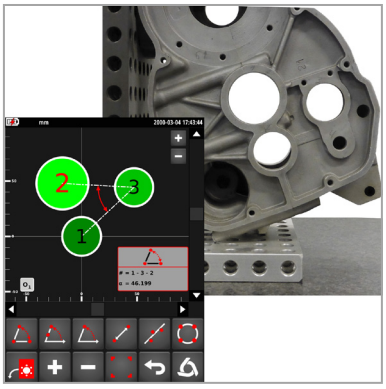
Measurement of angles and cones graphically assisted (TA-IH-135, TA-MI-105)



Instant switch from the manual to the motor-driven mode



The motorization guarantees a perfectly constant measuring force (TA-IH-135, TA-MI-101).



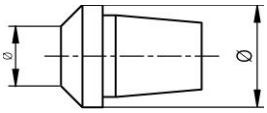
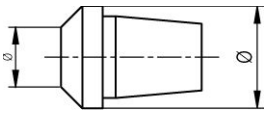
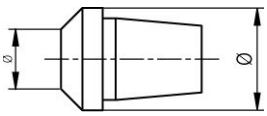
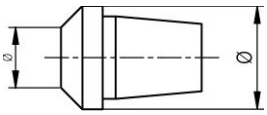
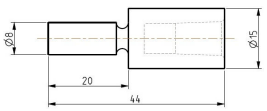
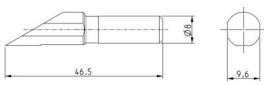
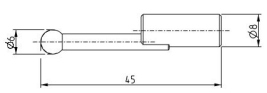
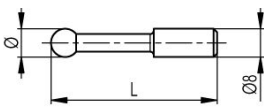
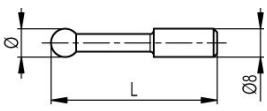
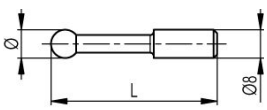
2D measurement extremely simple thanks to the graphical visualisation of the bores

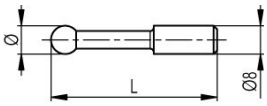
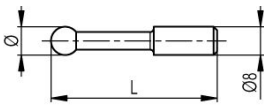
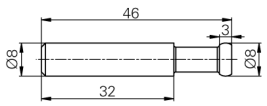
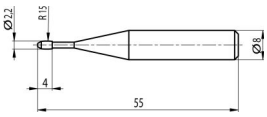
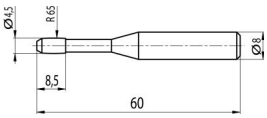
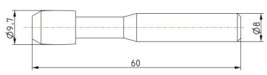
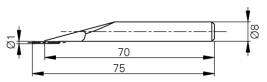
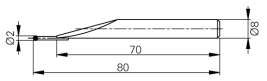
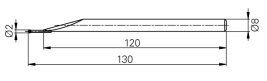
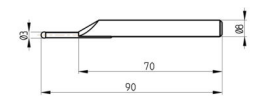
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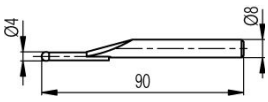
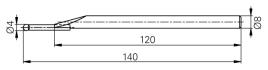
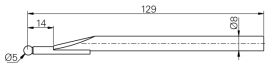
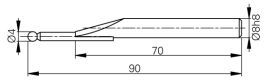
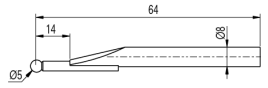
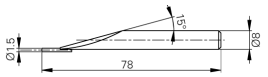
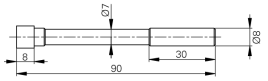
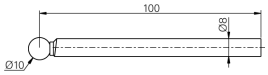
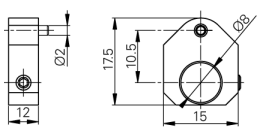
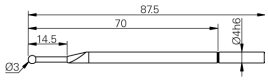
Accessoires | Zubehör | Accessories

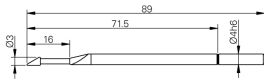
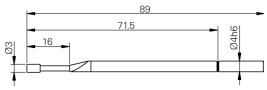
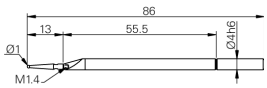
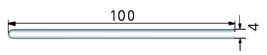
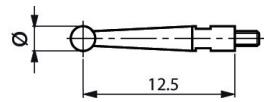
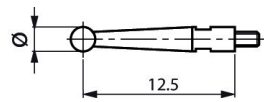
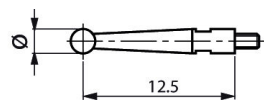
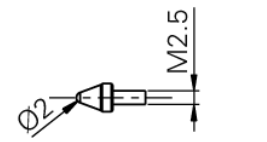
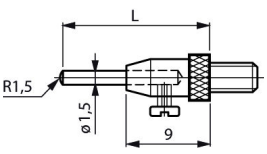
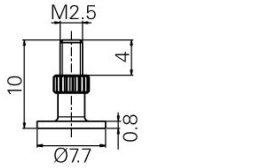
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Height gauges
Höhenmessgeräte

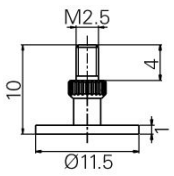
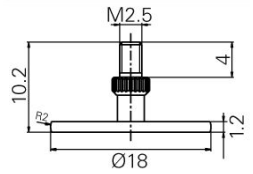
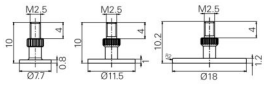
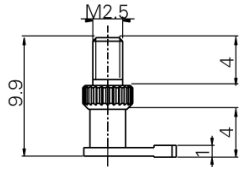
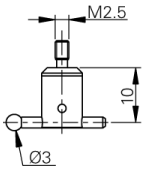
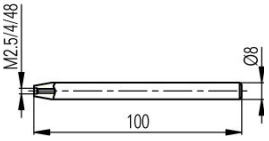
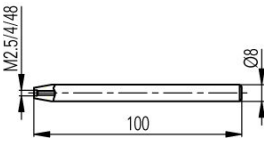
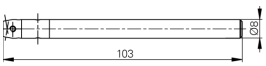
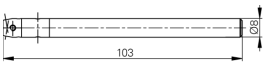
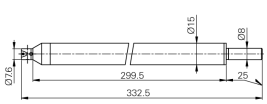
Swiss Measuring Instruments

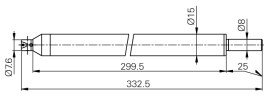
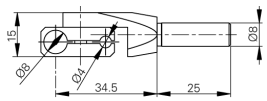
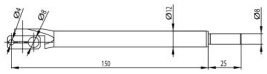
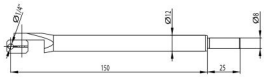
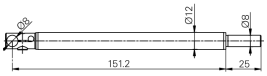
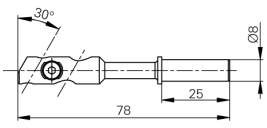
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	**TV2S2** 779 901007 002	Cône Ø0-15 mm Konus Ø0-15 mm Cone Ø0-15 mm	■								
	**TV2S3** 779 901007 003	Cône Ø13-20.5 mm Konus Ø13-20.5 mm Cone Ø13-20.5 mm	■								
	**TV2S4** 779 901007 004	Cône Ø17-24.5 mm Konus Ø17-24.5 mm Cone Ø17-24.5 mm	■								
	**TV2S5** 779 901007 005	Cône Ø23-30.5 mm Konus Ø23-30.5 mm Cone Ø23-30.5 mm	■								
	**TA-IH-138** 712 12 20 0010	Support de cônes Konushalter Cone support	■								
	**TA-MI-122** 709 12 10 0003	Traceur pour V1 Anreissnadel für V1 Scriber for V1	■								
	**TA-MI-121** 709 05 20 0124	Touche bille MD Ø6 mm pour V1+ Messeinsatz mit HM-Kugel Ø6 mm für V1+ Measuring insert with TC-Ball Ø6 mm for V1+	■								
	**TVM2.4** 709 05 20 0009	Touche à bille Ø2 mm, L=41.6 mm Kugel-Messeinsatz Ø2 mm, L=41.6 mm Ball insert Ø2 mm, L=41.6 mm	■								
	**TVM2.3** 709 05 20 0014	Touche à bille Ø3 mm, L=42.5 mm Kugel-Messeinsatz Ø3 mm, L=42.5 mm Ball insert Ø3 mm, L=42.5 mm	■								
	**TVM2.2** 709 05 20 0025	Touche à bille Ø4 mm, L=43.5 mm Kugel-Messeinsatz Ø4 mm, L=43.5 mm Ball insert Ø4 mm, L=43.5 mm	■								

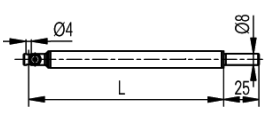
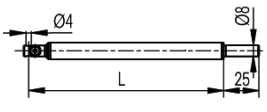
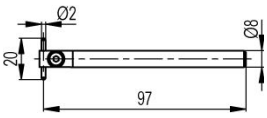
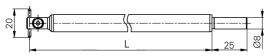
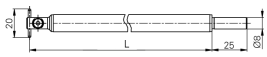
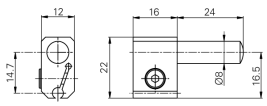
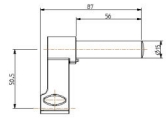
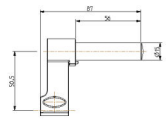
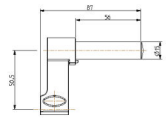
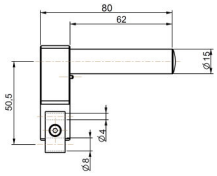
			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**TVM2.6** 709 05 20 0031	Touche à bille Ø5 mm, L=43.9 mm Kugel-Messeinsatz Ø5 mm, L=43.9 mm Ball insert Ø5 mm, L=43.9 mm	■								
	**TVM2** 709 05 20 0051	Touche à bille Ø8 mm, L=47.3 mm Kugel-Messeinsatz Ø8 mm, L=47.3 mm Ball insert Ø8 mm, L=47.3 mm	■								
	**TVM2.5** 709 05 20 0059	Touche à plateau Ø8 mm Zylindrischer Messeinsatz Ø8 mm Disc shaped insert Ø8 mm	■								
	**TVA9.1** 509 05 20 0011	Touche en tonneau M3-M16, L=55 mm Balliger Messeinsatz M3-M16, L=55 mm Barrel-shaped insert M3-M16, L=55 mm		■	■	■	■	■	■	■	■
	**TVA9.2** 509 05 20 0029	Touche en tonneau M6-M48, L=60 mm Balliger Messeinsatz M6-M48, L=60 mm Barrel-shaped insert M6-M48, L=60 mm		■	■	■	■	■	■	■	■
	**TVA9.3** 509 05 20 0062	Touche en tonneau M12-M150, L=60 mm Balliger Messeinsatz M12-M150, L=60 mm Barrel-shaped insert M12-M150, L=60 mm		■	■	■	■	■	■	■	■
	**TA-MI-111** 509 05 20 0078	Touche à bille métal dur Ø1 mm, L=75 mm Messeinsatz mit Hartmetall-Kugel Ø1 mm, L=75 mm Measuring insert with tungst. carb. ball, Ø1 mm, L=75 mm		■	■	■	■	■	■	■	■
	**TA-MI-110** 509 05 20 0077	Touche à bille en métal dur Ø2 mm, L=80 mm Messeinsatz mit Hartmetall-Kugel Ø2 mm, L=80 mm Measuring insert with tungst. carb. ball Ø2 mm, L=80 mm		■	■	■	■	■	■	■	■
	**TA-MI-104** 509 05 20 0080	Touche à bille métal dur Ø2 mm, L=130 mm Messeinsatz mit Hartmetall-Kugel Ø2 mm, L=130 mm Measuring insert with tungst. carb. ball Ø2mm, L=130 mm			■	■	■	■	■	■	■
	**TA-MI-120** SP509 05 20 0086	Touche à bille rubis Ø3 mm, L=90mm Messeinsatz mit Rubin-Kugel Ø3 mm, L=90mm Measuring insert with ruby ball Ø3 mm, L=90mm		■	■	■	■	■	■	■	■

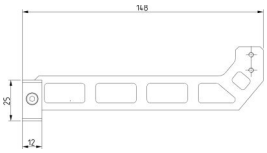
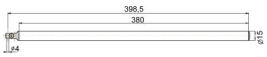
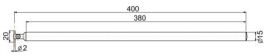
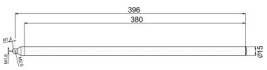
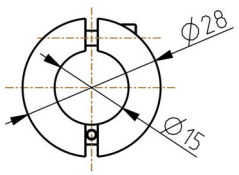
			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**TA-MI-102** 509 05 20 0075	Touche à bille métal dur Ø4mm, L=90 mm Messeinsatz mit Hartmetall-Kugel Ø4 mm, L=90 mm Measuring insert with tungst. carb. ball Ø4 mm, L=90 mm	■	■	■	■	■	■	■	■	■
	**TA-MI-105** 509 05 20 0079	Touche à bille métal dur, Ø4 mm, L=140 mm Messeinsatz mit Hartmetall-Kugel Ø4 mm, L=140 mm Measuring insert with tungst. carb. ball Ø4 mm, L=140 mm			■	■	■	■	■	■	■
	**TA-MI-106** 279 918011 004	Touche à bille rubis Ø5 mm, L=129 mm Messeinsatz mit Rubin-Kugel Ø5 mm, L=129 mm Measuring insert with ruby ball Ø5 mm, L=129 mm			■	■	■	■	■	■	■
	**TA-MI-101** 509 05 20 0074	Touche à bille rubis Ø4 mm, L=90 mm Messeinsatz mit Rubin-Kugel Ø4 mm, L=90 mm Measuring insert with ruby ball Ø4 mm, L=90 mm	■	■	■	■	■	■	■		
	**TA-MI-119** SP279 918011 005	Touche à bille rubis Ø5 mm, L=64 mm Messeinsatz mit Rubin-Kugel Ø5 mm, L=64 mm Measuring insert with ruby ball Ø5 mm, L=64 mm								■	■
	**TA-MI-107** 509 05 20 0081	Touche à goupille métal dur Ø1.5 mm, L=78 mm Zylindrischer Messeinsatz Ø1.5 mm, L=78 mm Measuring insert with pin Ø1.5 mm, L=78 mm		■	■	■	■	■	■	■	■
	**TA-MI-112** 509 05 20 0082	Touche à surfaces planes, 10 x 10 mm, L=90 mm Messeinsatz mit Parallel-Messflächen, 10 x 10 mm, L=90 mm Measuring insert with parallel faces, 10 x 10 mm, L=90 mm			■	■	■	■	■	■	■
	**TA-MI-108** 279 918011 002	Touche à bille rubis Ø10 mm, L=100 mm Messeinsatz mit Rubin-Kugel Ø10 mm, L=100 mm Measuring insert with ruby ball Ø10 mm, L=100 mm	■	■	■	■	■	■	■	■	■
	**TA-AD-101** 603 11 001	Bague de positionnement de touche Ø8 mm Positionierhalter für Messeinsatz Ø8 mm Positioning holder for measuring insert Ø8 mm		■	■	■	■	■	■	■	■
	**TA-MI-109** 279 918011 003	Touche à bille rubis Ø3 mm, L=87.5 mm Messeinsatz mit Rubin-Kugel Ø3 mm, L=87.5 mm Measuring insert with ruby ball Ø3 mm, L=87.5 mm			■	■	■	■	■	■	■

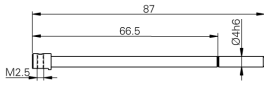
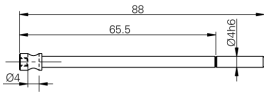
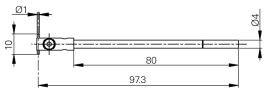
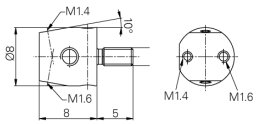
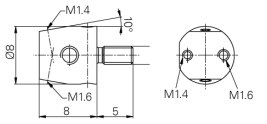
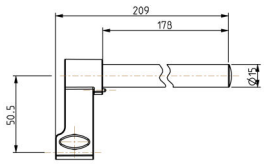
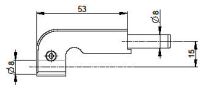
			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**V-50.10** 279 918007 001	Touche biseautée Abgeschrägter Messeinsatz Knife-edge insert			■	■	■	■	■	■	■
	**V-50.11** 279 918013 001	Touche en tonneau Ø3 x 5 mm, L = 89 mm Balliger Messeinsatz Ø3 x 5 mm, L = 89 mm Barrel-shaped insert Ø3 x 5 mm, L = 89 mm			■	■	■	■	■	■	■
	**V-50.12** 279 918012 001	Touche à bille Ø1 mm avec porte-touche, L=86 mm Kugel-Messeinsatz Ø1 mm mit Halter, L=86 mm Measuring insert Ø1 mm with holder, L=86 mm			■	■	■	■	■	■	■
	**TA-MI-114** 506 22 20 0063	Goupille, 1 face hémisphérique et 1 face plane, L=100 mm Stift, 1 halbkugelförmige und 1 flache Messfläche, L=100 mm Pin, 1 hemispheric and 1 plane face, L=100 mm	■	■	■	■	■	■	■	■	■
	**TA-MI-115** 279 901001 001	Touche M1.4 avec bille Ø1 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø1 mm, L=12,5 mm Measuring insert M1.4 with ball Ø1 mm, L=12.5 mm			■	■	■	■	■	■	■
	**TA-MI-116** 279 901001 002	Touche M1.4 avec bille Ø2 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø2 mm, L=12.5 mm Measuring insert M1.4 with ball Ø2 mm, L=12.5 mm			■	■	■	■	■	■	■
	**TA-MI-117** 279 901001 003	Touche M1.4 avec bille Ø3 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø3 mm, L=12.5 mm Measuring insert M1.4 with ball Ø3 mm, L=12.5 mm			■	■	■	■	■	■	■
	**V-50.4** 279 918010 001	Touche hémisphérique M2,5 Messeinsatz M2.5 mit kugelförmiger Messfläche Measuring insert M2,5 with ball contact	■	■	■	■	■	■	■	■	■
	**TA-MI-118** 279 901003 001	Touche M2.5 à 4 goupilles interchangeables, L=16/26/36/46 mm Messeinsatz M2.5 mit 4 wechselbaren Stiften, L=16/26/36/46 mm Measuring insert M2.5 with 4 interchangeable pins, L=16/26/36/46 mm	■	■	■	■	■	■	■	■	■
	**V-50.2.1** 279 918005 002	Touche à disque M2.5, Ø7.7 mm Diskförmiger Messeinsatz M2.5, Ø7.7 mm Disc-shaped inserts M2.5, Ø7.7 mm	■	■	■	■	■	■	■	■	■

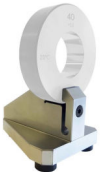
			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**V-50.2.2** 279 918005 003	Touche à disque M2.5, Ø11.5 mm Diskförmiger Messeinsatz M2.5, Ø11.5 mm Disc-shaped insert M2.5, Ø11.5 mm	■	■	■	■	■	■	■	■	■
	**V-50.2.3** 279 918005 004	Touche à disque M2.5, Ø18 mm Diskförmiger Messeinsatz M2.5, Ø18 mm Disc-shaped inserts M2.5, Ø18 mm	■	■	■	■	■	■	■	■	■
	**V-50.2** 279 918005 001	Jeu de 3 touches à disque M2.5, Ø 7.7 / 11.5 / 18 mm Satz mit 3 Diskusförmigen Messeinsätzen M2.5, Ø 7.7 / 11.5 / 18 mm Set of 3 disc-shaped inserts M2.5, Ø 7.7 / 11.5 / 18 mm	■	■	■	■	■	■	■	■	■
	**V-50.3** 279 918008 001	Touche à pied M2.5 L-förmiger Messeinsatz M2.5 Corner insert M2.5	■	■	■	■	■	■	■	■	■
	**V-50.1** 279 918009 001	Touche M2.5 à bille rubis orientable Ø3 mm Messeinsatz M2.5 mit Rubin-Kugel Ø3 mm Measuring insert M2.5 with ruby ball Ø3 mm			■	■	■	■	■	■	■
	**TVM6** 512 11 20 0018	Porte-touche Ø8 mm pour touches M2.5 Halter Ø8 mm für Messeinsätze M2.5 Holder Ø8 mm for measuring inserts M2.5	■	■	■	■	■	■	■	■	■
	**TVM6E** 512 11 20 0019	Porte-touche Ø8 mm pour touches 4-48 Halter Ø8 mm für Messeinsätze 4-48 Holder Ø8 mm for measuring inserts 4-48	■	■	■	■	■	■	■	■	■
	**TA-IH-101** 612 11 045	Porte-touche M2.5, L=103 mm Messeinsatz-Halter M2.5, L=103 mm Measuring insert holder M2.5, L=103 mm	■	■	■	■	■	■	■	■	■
	**TA-IH-103** 612 11 047	Porte-touche 4-48, L=103 mm Messeinsatz-Halter 4-48, L=103 mm Measuring insert holder 4-48, L=103 mm	■	■	■	■	■	■	■	■	■
	**TA-IH-102** 612 11 046	Porte-touche M2.5, L=300 mm Messeinsatz-Halter M2.5, L=300 mm Measuring insert holder M2.5, L=300 mm								■	■

			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**TA-IH-119** 612 11 048	Porte-touche (")4-48, L=300mm Messeinsatz-Halter (")4-48, L=300mm Measuring insert holder (")4-48, L=300mm								■	■
	**TA-IH-104** 612 11 053	Porte-touche orientable Ø4 et Ø8 mm Orientabler Messeinsatz-Halter Ø4 und Ø8 mm Swivel holder Ø4 and Ø8 mm		■						■	■
	**TA-IH-105** 612 11 051	Porte-touche orientable Ø4 et Ø8 mm, L=150 mm Orientabler Messeinsatz-Halter Ø4 und Ø8 mm, L=150 mm Swivel holder Ø4 and Ø8 mm, L=150 mm								■	■
	**V-2E/D1/4/L1** 612 11 013	Porte-touche orientable Ø1/4 ", L=150 mm Orientabler Messeinsatz-Halter Ø1/4 ", L=150 mm Swivel holder Ø1/4 ", L=150 mm								■	■
	**TA-IH-106** 612 11 039	Porte-touche orientable Ø4 et Ø8 mm, L=300 mm Orientabler Messeinsatz-Halter Ø4 und Ø8 mm, L=300 mm Swivel holder Ø4 and Ø8 mm, L=300 mm								■	■
	**TA-IH-107** 612 11 055	Porte-touche à 90°, Ø8 mm Messeinsatz-Halter 90°, Ø8 mm Insert holder 90°, Ø8 mm			■	■	■	■	■	■	■
	**TA-IH-108** 612 11 052	Porte-touche à 90°, Ø8 mm, L=150 mm Messeinsatz-Halter 90°, Ø8 mm, L=150 mm Insert holder 90°, Ø8 mm, L=150 mm			■	■	■	■	■	■	■
	**TA-IH-129** 612 11 040	Porte-touche orienté à 90°, Ø 8mm, L=300mm Messeinsatz-Halter, 90° geschwenkt, Ø 8mm, L=300mm Holder at 90°, Ø 8mm, L=300mm								■	■
	**TA-IH-109** 612 11 054	Porte-touche à 90°, Ø4 mm Messeinsatz-Halter 90°, Ø4 mm Insert holder 90°, Ø4 mm	■	■	■	■	■	■	■	■	■
	**V-4** 612 11 011	Porte-touche à 30°, Ø4 mm Messeinsatz-Halter 30°, Ø4 mm Insert holder 30°, Ø4 mm			■	■	■	■	■	■	■

			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**TA-IH-111** 612 11 041	Porte-touche à 90°, Ø4 mm, L=150 mm Messeinsatz-Halter 90°, Ø4 mm, L=150 mm Insert holder 90°, Ø4 mm, L=150 mm								■	■
	**TA-IH-112** 612 11 042	Porte-touche à 90°, Ø4 mm, L=300 mm Messeinsatz-Halter 90°, Ø4 mm, L=300 mm Insert holder 90°, Ø4 mm, L=300 mm								■	■
	**TVA4** 609 05 007	Porte-touche à tige Ø2 x 20 mm Messeinsatz-Halter mit Stift Ø 2 x 20 mm Insert holder with pin Ø2 x 20 mm	■	■	■	■	■	■	■	■	■
	**TA-IH-113** 612 11 043	Porte-touche à tige Ø2 x 20 mm, L=200 mm Messeinsatz mit Stift Ø2 x 20 mm, L=200 mm Insert holder with pin Ø2 x 20 mm, L=200 mm								■	■
	**TA-IH-114** 612 11 044	Porte-touche à tige Ø2 x 20 mm, L=300 mm Messeinsatz mit Stift Ø2 x 20 mm, L=300 mm Insert holder with pin Ø2 x 20 mm, L=300 mm								■	■
	**V-5** 612 11 012	Réduction Ø 8 / 4 mm Reduktion Ø 8 / 4 mm Reduction Ø 8 / 4 mm								■	■
	**TA-IH-135** 612 11 065	Porte-touche standard Ø8 mm Standard Messeinsatz-Halter Ø8 mm Standard insert holder Ø8 mm			■	■	■	■	■		
	**TA-IH-128** 612 11 067	Porte-touche Ø4 mm Messeinsatz-Halter Ø4 mm Measuring insert holder Ø4 mm			■	■	■	■	■		
	**TA-IH-137** SP612 11 065 01	Porte-touche Ø6 mm Messeinsatz-Halter Ø6 mm Measuring insert holder Ø6 mm			■	■	■	■	■		
	**TA-IH-130** 612 11 072	Porte-touche orientable Ø4 et Ø8 mm Orientabler Messeinsatz-Halter Ø4 und Ø8 mm Swivel holder Ø4 and Ø8 mm			■	■	■	■	■		

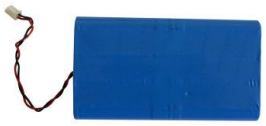
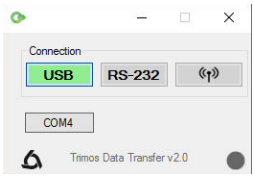
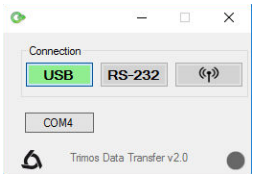
			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**TA-IH-139** 712 11 089	Porte-touche orientable Ø4 et Ø8 mm, L=148 mm Orientabler Messeinsatz-Halter Ø4 und Ø8 mm, L=148 mm Swivel holder Ø4 and Ø8 mm, L=148 mm	■								
	**TA-IH-127** 612 11 066	Porte-touche Ø8 mm, L=400 mm Messeinsatz-Halter Ø8 mm, L=400 mm Insert holder Ø8 mm, L=400 mm			■	■	■	■	■		
	**TA-IH-131** 612 11 068	Porte-touche orientable Ø4 et Ø8 mm, L=400 mm Orientabler Messeinsatz-Halter Ø4 und Ø8 mm, L=400 mm Swivel holder Ø4 and Ø8 mm, L=400 mm			■	■	■	■	■		
	**TA-IH-132** 612 11 069	Porte-touche 90°, Ø4 mm, L=400 mm Messeinsatz-Halter 90°, Ø4 mm, L=400 mm Insert holder 90°, Ø4 mm, L=400 mm			■	■	■	■	■		
	**TA-IH-133** 612 11 070	Porte-touche à tige Ø2 x 20 mm, L=400 mm Messeinsatz-Halter mit Stift Ø 2 x 20 mm, L=400 mm Insert holder with pin Ø2 x 20 mm, L=400 mm			■	■	■	■	■		
	**TA-IH-134** 612 11 071	Porte-touche M2.5, L=400 mm Messeinsatz-Halter M2.5, L=400 mm Measuring insert holder M2.5, L=400 mm			■	■	■	■	■		
	**TA-AD-105** 603 11 003	Bague de positionnement de touche Ø15 mm Positionierhalter für Messeinsatz Ø15 mm Positioning holder for measuring insert Ø15 mm			■	■	■	■	■		
	**V-50.6** 279 918002 002	Porte-touche M2.5, L=80 mm Messeinsatz-Halter M2.5, L=80 mm Measuring insert holder M2.5, L=80 mm	■	■	■	■	■	■	■	■	■
	**V-50.5** 279 918002 001	Porte-touche M2.5, L=124 mm Messeinsatz-Halter M2.5, L=124 mm Measuring insert holder M2.5, L=124 mm	■	■	■	■	■	■	■	■	■
	**TA-IH-115** 279 918002 003	Porte-touche M2.5, L=200 mm Messeinsatz-Halter M2.5, L=200 mm Measuring insert holder M2.5, L=200 mm			■	■	■	■	■	■	■

			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**V-50.7** 279 918001 002	Porte-touche à 90°, M2.5 Messeinsatz-Halter 90°, M2.5 Insert holder 90°, M2.5			■	■	■	■	■	■	■
	**V-50.8** 279 918001 001	Porte-touche à 90°, Ø4 mm Messeinsatz-Halter 90°, Ø4 mm Insert holder 90°, Ø4 mm			■	■	■	■	■	■	■
	**TA-IH-116** 279 918001 003	Porte-touche à tige, Ø1 x 10 mm, L=80 mm Messeinsatz mit Stift, Ø1 x 10 mm, L=80 mm Measuring insert holder, Ø1 x 10 mm, L=80 mm			■	■	■	■	■	■	■
	**TA-IH-117** 512 11 20 0012	Porte-touche pour touches M2.5, M1.6, M1.4 Halter für Messeinsätze M2.5, M1.6, M1.4 Holder for measuring inserts M2.5, M1.6, M1.4			■	■	■	■	■	■	■
	**TA-IH-118** 512 11 20 0013	Porte-touche pour touches 4-48, M1.6, M1.4 Halter für Messeinsätze 4-48, M1.6, M1.4 Holder for measuring inserts 4-48, M1.6, M1.4			■	■	■	■	■	■	■
	**TA-IH-136** 712 11 073	Porte-touche Ø8 mm, L=200 mm, Support pour palpeur de perpendicularité Messeinsatz-Halter Ø8 mm, L=200 mm, Halter für Rechtwinkligkeitstaster Insert holder Ø8 mm, L=200 mm, Holder for perpendicularity probe			■	■	■	■	■		
	**TA-IH-126** 612 07 006	Support pour palpeur de perpendicularité Halter für Rechtwinkligkeitstaster Holder for perpendicularity probe								■	■
	**TA-MS-101** 276 940001 001	Palpeur de perpendicularité pour V6/V7/V8/V9-400/700, (sans support - V6/V7: TA-IH-136 & Rechtwinkligkeitstaster für V6/V7/V8/V9-400/700, (ohne Halter - V6/V7: TA-IH-136 & V8/V9: TA-IH-126) Perpendicularity probe for V6/V7/V8/V9-400/700, (without support - V6/V7: TA-IH-136 & V8/V9: TA-IH-						■	■	■	■
	**TA-MS-102** 276 940001 002	Palpeur de perpendicularité pour V6/V7/V8/V9-1100, (sans support - V6/V7: TA-IH-136 & V8/V9: Rechtwinkligkeitstaster für V6/V7/V8/V9-1100, (ohne Halter - V6/V7: TA-IH-136 & V8/V9: TA-IH-126) Perpendicularity probe for V6/V7/V8/V9-1100, (without support - V6/V7: TA-IH-136 & V8/V9: TA-IH-						■	■	■	■
	**TA-MS-104** 609 02 021	Palpeur de perpendicularité pour V7-1800, (sans support TA-IH-136) Rechtwinkligkeitstaster für V7-1800, (ohne Halter TA-IH-136) Perpendicularity probe for V7-1800, (without support TA-IH-136)							■		

			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**TA-SU-101** 740 02 001	Paire de vis d'appui pour base V4 ÷ V9 Paar Stützschrauben für Gerätebasis V4 ÷ V9 Pair of abutment screw for instrument base V4 ÷ V9				■	■	■	■	■	■
	**TA-SE-106** 605 01 022	Jeux d'accessoires "Macro" (16 pcs) Zubehörsatz "Macro" (16 Stk.) Set of accessories "Macro" (16 pcs)			■	■	■	■	■	■	■
	**TA-SE-102** 605 01 008	Jeux d'accessoires "Micro" (20 pcs) Zubehörsatz "Micro" (20 Stk.) Set of accessories "Micro" (20 pcs)								■	■
	**TA-SE-105** 605 01 023	Jeux d'accessoires "Micro" (20 pcs) Zubehörsatz "Micro" (20 Stk.) Set of accessories "Micro" (20 pcs)			■	■	■	■	■		
	**TA-SE-107** 605 01 024	Jeux d'accessoires "Eco" (7 pcs) Zubehörsatz "Eco" (7 Stk.) Set of accessories "Eco" (7 pcs)			■	■	■	■	■	■	■
	**TA-MG-104** 609 01 032	Jauge d'étalonnage 25 mm Einstellehre 25 mm Setting gauge 25 mm			■	■	■	■	■	■	■
	**TA-MG-105** SP609 01 032 02	Bloc d'étalonnage avec hauteur et diamètre, H=100 mm Einstell-Lehre mit Höhe und Durchmesser, H=100 mm Setting gauge with height and diameter, H=100 mm		■	■	■	■	■	■	■	■
	**TA-MG-107** 709 01 037	Jauge d'étalonnage 4 mm Einstellehre 4 mm Setting gauge 4 mm	■	■							
	**TA-SU-102** SP609 40 040 03	Support pour mesure de bague-étalon TA-MG-001, (sans bague) Messständer für Einstellring TA-MG-001, (ohne Ring) Measuring stand for master ring gauge TA-MG-001, (without ring)	■	■	■	■	■	■	■	■	■
	**TA-TO-102** 614 00 007	Pièce de démonstration Vorführungsteil Demonstration piece	■	■	■	■	■	■	■	■	■

			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**V-60** 712 12 045	Support de rangement pour accessoires Zubehör-Ablagefach Wooden accessories support	■	■	■	■	■	■	■	■	■
	**V-50.13** 290 918001 001	Clé pour touche comparateur à levier Schlüssel für Fühlhebelmesseinsatz Wrench for measuring inserts			■	■	■	■	■	■	■
	**TA-TO-118** 705 05 10 0009	Housse de protection pour V1/V1+ 300 mm Schutzhülle für V1/V1+ 300 mm Protection cover for V1/V1+ 300 mm	■								
	**TA-TO-119** 705 05 10 0011	Housse de protection pour V1/V1+ 600 mm Schutzhülle für V1/V1+ 600 mm Protection cover for V1/V1+ 600 mm	■								
	**TA-TO-114** 505 05 10 0041	Housse de protection pour V2 ÷ V9 - 400 Schutzhaube für V2 ÷ V9 - 400 Protection cover for V2 ÷ V9 - 400		■	■	■	■	■	■	■	■
	**TA-TO-115** 505 05 10 0042	Housse de protection pour V2 ÷ V9 - 700 Schutzhaube für V2 ÷ V9 - 700 Protection cover for V2 ÷ V9 - 700		■	■	■	■	■	■	■	■
	**TA-TO-116** 505 05 10 0043	Housse de protection pour V5 ÷ V9 - 1100 Schutzhaube für V5 ÷ V9 - 1100 Protection cover for V5 ÷ V9 - 1100					■	■	■	■	■
	**TA-TO-117** 505 05 10 0044	Housse de protection pour V7 - 1800 Schutzhaube für V7 - 1800 Protection cover for V7 - 1800							■		
	**TA-EL-112** 716 20 001	Câble pour connexion RS232-PC Kabel für RS232-PC-Verbindung Cable for RS232-PC connection	■	■	■	■	■	■	■	■	■
	**TA-EL-013** 332 02 0001	Câble de liaison USB A-B, L=1.8 m Verbindungskabel, USB A-B, L=1.8 m USB A-B connection cable, L=1.8 m							■		■

			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**TA-EL-014** 332 02 0002	Câble de liaison USB A-Mini B, L=1.8m Verbindunskabel, USB A-Mini B, L=1.8m USB A-Mini B connection cable, L=1.8m		■	■	■	■	■		■	
	**TA-EL-022** 716 35 008	Système de transmission de données sans fil, 1 x dongle pour l'Instrument & 1 x dongle USB pour PC Drahtloses Datenübertragungssysstem, 1 x Dongle für das Instrument & 1 x USB-Dongle für PC Wireless data transmission system, 1 x dongle for the instrument & 1 x USB dongle for PC				■	■	■	■	■	■
	**TA-EL-032** 756 0018	Imprimante thermique avec support, chargeur et câble RS232, (Pour V3 ÷ V6) Thermodrucker mit Halter, Ladegerät und RS232-Kabel, (für V3 ÷ V6) Thermal printer with holder, AC adapter and RS232 cable, (for V3 ÷ V6)		■	■	■	■	■		■	
	**TA-EL-033** 756 0020	Imprimante thermique avec support, chargeur et câble RS232, (Pour V7 & V9) Thermodrucker mit Halter, Ladegerät und RS232-Kabel, (für V7 & V9) Thermal printer with holder, AC adapter and RS232 cable, (for V7 & V9)							■		■
	**V-30.7** 788 000001 001	Rouleaux de papier (5 pces) pour imprimante thermique Papierrollen (5 Stk.) für Thermodrucker Paper rolls (5 pces) for thermal printer		■	■	■	■	■	■	■	■
	**TA-EL-063** 3704 0024	Batterie pour imprimante TA-EL-032 & TA-EL-033 Batteriesatz für Drucker TA-EL-032 & TA-EL-033 Battery pack for printer TA-EL-032 & TA-EL-033		■	■	■	■	■	■	■	■
	**TA-EL-016** 332 08 0001	Câble de connection instrument-affichage 0.23 m (HDMI) Verbindungskabel Instrument-Anzeige 0.23 m (HDMI-Stecker) Connection cable Instrument-Display 0.23 m (HDMI)		■	■	■	■	■	■	■	■
	**TA-EL-132** 716 70 010	Convertisseur AC/DC 240/24V - 3,0 A (36 W) AC/DC-Wandler 240/24V - 3,0 A (36 W) Converter AC/DC 240/24V - 3,0 A (36 W)		■	■	■	■	■		■	
	**TA-EL-133** 716 70 009	Convertisseur AC/DC 100-240V/12V - 2.5A (avec adaptateur) Netzgerät AC/DC 100-240V/12V - 2.5A (mit adapter) Adapter AC/DC 100-240V/12V - 2.5A (with adapter)							■		■
	**TA-EL-060** 3704 0021	Accumulateur pour V2, V3, V4, V5, V6 & V8, (Li-ion 7,2V - 2600mA/h) Batteriesatz für V2, V3, V4, V5, V6 & V8, (Li-ion 7,2V - 2600mA/h) Battery pack for V2, V3, V4, V5, V6 & V8, (Li-ion 7,2V - 2600mA/h)		■	■	■	■	■		■	

			V1	V2	V3	V4	V5	V6	V7	V8	V9
	**TA-EL-061** 3704 0022	Accumulateur pour V7 & V9, (Li-ion 7,2V - 10,4A/h) Batteriesatz für V7 & V9, (Li-ion 7,2V - 10,4A/h) Battery pack for V7 & V9, (Li-ion 7,2V - 10,4A/h)							■		■
	**TA-EL-062** 3705 0005	Pile de sauvegarde (CR1632) Pufferbatterie (CR1632) Back-up battery (CR1632)							■		■
	**BAT-TVM.OPT** 3705 0002	Pile (CR2032) Batterie (CR2032) Battery (CR2032)	■								
	**TA-SW-002** 394 1 0051	Logiciel de communication (TrimosDataTransfer) Software für Datenübertragung (TrimosDataTransfer) Software for data transfer (TrimosDataTransfer)		■	■	■	■	■	■	■	■
	**TA-SW-003** 394 1 0052	Logiciel de communication (TrimosDataTransfer Advanced), avec création de port COM virtuel Software für Datenübertragung (TrimosDataTransfer Advanced), mit virtueller Software for data transfer (TrimosDataTransfer Advanced), with virtual COM-port creation				■	■	■	■	■	■

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Contenu des jeux d'accessoires
Inhalt der Zubehörsätze
Content of Accessory Sets

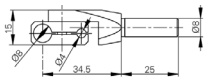
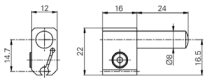
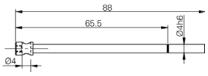
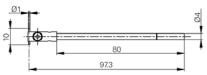
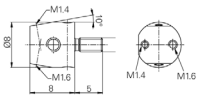
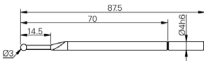
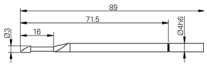
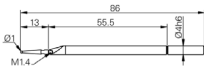
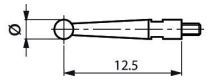
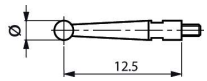
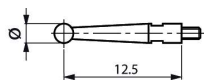
V3 ÷ V9



TA-SE-102
605 01 008

Jeux d'accessoires "Micro" (20 pcs)
Zubehörsatz "Micro" (20 Stk.)
Set of accessories "Micro" (20 pcs)

V3 V4 V5 V6 V7 V9
■

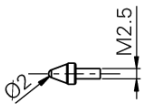
	**TA-IH-104** 612 11 053	Porte-touche orientable Ø4 et Ø8 mm Orientabler Messeinsatz-Halter Ø4 und Ø8 mm Swivel holder Ø4 and Ø8 mm
	**V-5** 612 11 012	Reduction Ø 8 / 4 mm Reduktion Ø 8 / 4 mm Reduction Ø 8 / 4 mm
	**V-50.6** 279 918002 002	Porte-touche M2.5, L=80 mm Messeinsatz-Halter M2.5, L=80 mm Measuring insert holder M2.5, L=80 mm
	**V-50.8** 279 918001 001	Porte-touche à 90°, Ø4 mm Messeinsatz-Halter 90°, Ø4 mm Insert holder 90°, Ø4 mm
	**TA-IH-116** 279 918001 003	Porte-touche à tige, Ø1 x 10 mm, L=80 mm Messeinsatz mit Stift, Ø1 x 10 mm, L=80 mm Measuring insert holder, Ø1 x 10 mm, L=80 mm
	**TA-IH-117** 512 11 20 0012	Porte-touche pour touches M2.5, M1.6, M1.4 Halter für Messeinsätze M2.5, M1.6, M1.4 Holder for measuring inserts M2.5, M1.6, M1.4
	**TA-MI-109** 279 918011 003	Touche à bille rubis Ø3 mm, L=87.5 mm Messeinsatz mit Rubin-Kugel Ø3 mm, L=87.5 mm Measuring insert with ruby ball Ø3 mm, L=87.5 mm
	**V-50.10** 279 918007 001	Touche biseautée Abgeschrägter Messeinsatz Knife-edge insert
	**V-50.12** 279 918012 001	Touche à bille Ø1 mm avec porte-touche, L=86 mm Kugel-Messeinsatz Ø1 mm mit Halter, L=86 mm Measuring insert Ø1 mm with holder, L=86 mm
	**TA-MI-115** 279 901001 001	Touche M1.4 avec bille Ø1 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø1 mm, L=12,5 mm Measuring insert M1.4 with ball Ø1 mm, L=12.5 mm
	**TA-MI-116** 279 901001 002	Touche M1.4 avec bille Ø2 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø2 mm, L=12.5 mm Measuring insert M1.4 with ball Ø2 mm, L=12.5 mm
	**TA-MI-117** 279 901001 003	Touche M1.4 avec bille Ø3 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø3 mm, L=12.5 mm Measuring insert M1.4 with ball Ø3 mm, L=12.5 mm



TA-SE-102
605 01 008

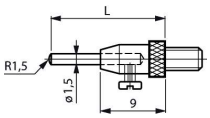
Jeux d'accessoires "Micro" (20 pcs)
Zubehörsatz "Micro" (20 Stk.)
Set of accessories "Micro" (20 pcs)

V3	V4	V5	V6	V7	V9
					■



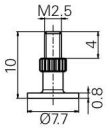
V-50.4
279 918010 001

Touche hémisphérique M2,5
Messeinsatz M2.5 mit kugelförmiger Messfläche
Measuring insert M2,5 with ball contact



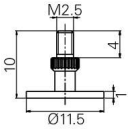
TA-MI-118
279 901003 001

Touche M2.5 à 4 goupilles interchangeables, L=16/26/36/46 mm
Messeinsatz M2.5 mit 4 wechselbaren Stiften, L=16/26/36/46 mm
Measuring insert M2.5 with 4 interchangeable pins, L=16/26/36/46 m



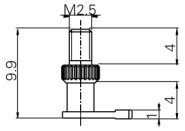
V-50.2.1
279 918005 002

Touche à disque M2.5, Ø7.7 mm
Diskförmiger Messeinsatz M2.5, Ø7.7 mm
Disc-shaped inserts M2.5, Ø7.7 mm



V-50.2.2
279 918005 003

Touche à disque M2.5, Ø11.5 mm
Diskförmiger Messeinsatz M2.5, Ø11.5 mm
Disc-shaped insert M2.5, Ø11.5 mm



V-50.3
279 918008 001

Touche à pied M2.5
L-förmiger Messeinsatz M2.5
Corner insert M2.5



V-50.13
290 918001 001

Clé pour touche comparateur à levier
Schlüssel für Fühlhebelmesseinsatz
Wrench for measuring inserts



TA-TO-003
290 000911 003

Clé coudée pour vis à 6 pans intérieurs 1.5 mm
Inbusschlüssel 1.5 mm
Allen key 1.5 mm



V-50.15
290 000911 005

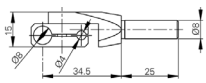
Clé coudée pour vis à 6 pans intérieurs 2.5 mm
Inbusschlüssel 2.5 mm
Allen key 2.5 mm



TA-SE-105
605 01 023

Jeux d'accessoires "Micro" (20 pcs)
Zubehörsatz "Micro" (20 Stk.)
Set of accessories "Micro" (20 pcs)

V3	V4	V5	V6	V7	V9
■	■	■	■	■	



TA-IH-104
612 11 053

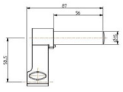
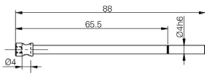
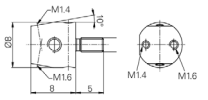
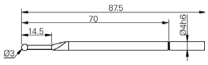
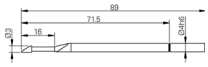
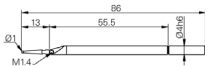
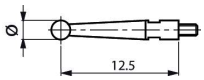
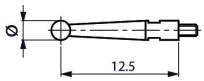
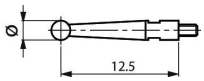
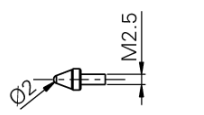
Porte-touche orientable Ø4 et Ø8 mm
Orientabler Messeinsatz-Halter Ø4 und Ø8 mm
Swivel holder Ø4 and Ø8 mm



TA-SE-105
605 01 023

Jeux d'accessoires "Micro" (20 pcs)
Zubehörsatz "Micro" (20 Stk.)
Set of accessories "Micro" (20 pcs)

V3	V4	V5	V6	V7	V9
■	■	■	■	■	

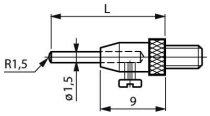
	**TA-IH-128** 612 11 067	Porte-touche Ø4 mm Messeinsatz-Halter Ø4 mm Measuring insert holder Ø4 mm
	**V-50.6** 279 918002 002	Porte-touche M2.5, L=80 mm Messeinsatz-Halter M2.5, L=80 mm Measuring insert holder M2.5, L=80 mm
	**V-50.8** 279 918001 001	Porte-touche à 90°, Ø4 mm Messeinsatz-Halter 90°, Ø4 mm Insert holder 90°, Ø4 mm
	**TA-IH-116** 279 918001 003	Porte-touche à tige, Ø1 x 10 mm, L=80 mm Messeinsatz mit Stift, Ø1 x 10 mm, L=80 mm Measuring insert holder, Ø1 x 10 mm, L=80 mm
	**TA-IH-117** 512 11 20 0012	Porte-touche pour touches M2.5, M1.6, M1.4 Halter für Messeinsätze M2.5, M1.6, M1.4 Holder for measuring inserts M2.5, M1.6, M1.4
	**TA-MI-109** 279 918011 003	Touche à bille rubis Ø3 mm, L=87.5 mm Messeinsatz mit Rubin-Kugel Ø3 mm, L=87.5 mm Measuring insert with ruby ball Ø3 mm, L=87.5 mm
	**V-50.10** 279 918007 001	Touche biseautée Abgeschrägter Messeinsatz Knife-edge insert
	**V-50.12** 279 918012 001	Touche à bille Ø1 mm avec porte-touche, L=86 mm Kugel-Messeinsatz Ø1 mm mit Halter, L=86 mm Measuring insert Ø1 mm with holder, L=86 mm
	**TA-MI-115** 279 901001 001	Touche M1.4 avec bille Ø1 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø1 mm, L=12,5 mm Measuring insert M1.4 with ball Ø1 mm, L=12.5 mm
	**TA-MI-116** 279 901001 002	Touche M1.4 avec bille Ø2 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø2 mm, L=12.5 mm Measuring insert M1.4 with ball Ø2 mm, L=12.5 mm
	**TA-MI-117** 279 901001 003	Touche M1.4 avec bille Ø3 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø3 mm, L=12.5 mm Measuring insert M1.4 with ball Ø3 mm, L=12.5 mm
	**V-50.4** 279 918010 001	Touche hémisphérique M2,5 Messeinsatz M2.5 mit kugelförmiger Messfläche Measuring insert M2,5 with ball contact



TA-SE-105
605 01 023

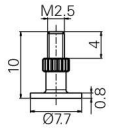
Jeux d'accessoires "Micro" (20 pcs)
Zubehörsatz "Micro" (20 Stk.)
Set of accessories "Micro" (20 pcs)

V3	V4	V5	V6	V7	V9
■	■	■	■	■	



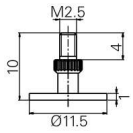
TA-MI-118
279 901003 001

Touche M2.5 à 4 goupilles interchangeables, L=16/26/36/46 mm
Messeinsatz M2.5 mit 4 wechselbaren Stiften, L=16/26/36/46 mm
Measuring insert M2.5 with 4 interchangeable pins, L=16/26/36/46 m



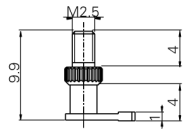
V-50.2.1
279 918005 002

Touche à disque M2.5, Ø7.7 mm
Diskförmiger Messeinsatz M2.5, Ø7.7 mm
Disc-shaped inserts M2.5, Ø7.7 mm



V-50.2.2
279 918005 003

Touche à disque M2.5, Ø11.5 mm
Diskförmiger Messeinsatz M2.5, Ø11.5 mm
Disc-shaped insert M2.5, Ø11.5 mm



V-50.3
279 918008 001

Touche à pied M2.5
L-förmiger Messeinsatz M2.5
Corner insert M2.5



V-50.13
290 918001 001

Clé pour touche comparateur à levier
Schlüssel für Fühlhebelmesseinsatz
Wrench for measuring inserts



TA-TO-003
290 000911 003

Clé coudée pour vis à 6 pans intérieurs 1.5 mm
Inbusschlüssel 1.5 mm
Allen key 1.5 mm



V-50.15
290 000911 005

Clé coudée pour vis à 6 pans intérieurs 2.5 mm
Inbusschlüssel 2.5 mm
Allen key 2.5 mm



TA-SE-106
605 01 022

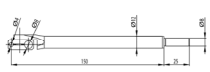
Jeux d'accessoires "Macro" (16 pcs)
Zubehörsatz "Macro" (16 Stk.)
Set of accessories "Macro" (16 pcs)

V3	V4	V5	V6	V7	V9
■	■	■	■	■	■



TA-IH-101
612 11 045

Porte-touche M2.5, L=103 mm
Messeinsatz-Halter M2.5, L=103 mm
Measuring insert holder M2.5, L=103 mm



TA-IH-105
612 11 051

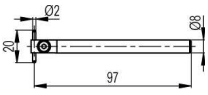
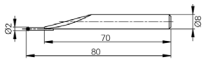
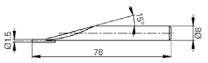
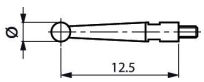
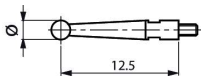
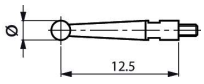
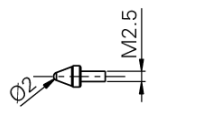
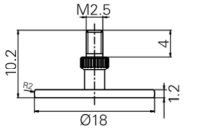
Porte-touche orientable Ø4 et Ø8 mm, L=150 mm
Orientabler Messeinsatz-Halter Ø4 und Ø8 mm, L=150 mm
Swivel holder Ø4 and Ø8 mm, L=150 mm



TA-SE-106
605 01 022

Jeux d'accessoires "Macro" (16 pcs)
Zubehörsatz "Macro" (16 Stk.)
Set of accessories "Macro" (16 pcs)

V3	V4	V5	V6	V7	V9
■	■	■	■	■	■

	**TA-IH-109** 612 11 054	Porte-touche à 90°, Ø4 mm Messeinsatz-Halter 90°, Ø4 mm Insert holder 90°, Ø4 mm
	**TVA4** 609 05 007	Porte-touche à tige Ø2 x 20 mm Messeinsatz-Halter mit Stift Ø 2 x 20 mm Insert holder with pin Ø2 x 20 mm
	**V-50.5** 279 918002 001	Porte-touche M2.5, L=124 mm Messeinsatz-Halter M2.5, L=124 mm Measuring insert holder M2.5, L=124 mm
	**TA-IH-115** 279 918002 003	Porte-touche M2.5, L=200 mm Messeinsatz-Halter M2.5, L=200 mm Measuring insert holder M2.5, L=200 mm
	**TA-MI-110** 509 05 20 0077	Touche à bille en métal dur Ø2 mm, L=80 mm Messeinsatz mit Hartmetall-Kugel Ø2 mm, L=80 mm Measuring insert with tungst. carb. ball Ø2 mm, L=80 mm
	**TA-MI-105** 509 05 20 0079	Touche à bille métal dur, Ø4 mm, L=140 mm Messeinsatz mit Hartmetall-Kugel Ø4 mm, L=140 mm Measuring insert with tungst. carb. ball Ø4 mm, L=140 mm
	**TA-MI-107** 509 05 20 0081	Touche à goupille métal dur Ø1.5 mm, L=78 mm Zylindrischer Messeinsatz Ø1.5 mm, L=78 mm Measuring insert with pin Ø1.5 mm, L=78 mm
	**TA-MI-115** 279 901001 001	Touche M1.4 avec bille Ø1 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø1 mm, L=12,5 mm Measuring insert M1.4 with ball Ø1 mm, L=12.5 mm
	**TA-MI-116** 279 901001 002	Touche M1.4 avec bille Ø2 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø2 mm, L=12.5 mm Measuring insert M1.4 with ball Ø2 mm, L=12.5 mm
	**TA-MI-117** 279 901001 003	Touche M1.4 avec bille Ø3 mm, L=12.5 mm Fühlhebelmesseinsatz M1.4 mit Kugel Ø3 mm, L=12.5 mm Measuring insert M1.4 with ball Ø3 mm, L=12.5 mm
	**V-50.4** 279 918010 001	Touche hémisphérique M2,5 Messeinsatz M2.5 mit kugelförmiger Messfläche Measuring insert M2,5 with ball contact
	**V-50.2.3** 279 918005 004	Touche à disque M2.5, Ø18 mm Diskförmiger Messeinsatz M2.5, Ø18 mm Disc-shaped inserts M2.5, Ø18 mm



TA-SE-106
605 01 022

Jeux d'accessoires "Macro" (16 pcs)
Zubehörsatz "Macro" (16 Stk.)
Set of accessories "Macro" (16 pcs)

V3	V4	V5	V6	V7	V9
■	■	■	■	■	■



V-50.13
290 918001 001

Clé pour touche comparateur à levier
Schlüssel für Fühlhebelmesseinsatz
Wrench for measuring inserts



V-50.15
290 000911 005

Clé coudée pour vis à 6 pans intérieurs 2.5 mm
Inbusschlüssel 2.5 mm
Allen key 2.5 mm



TA-SE-107
605 01 024

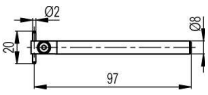
Jeux d'accessoires "Eco" (7 pcs)
Zubehörsatz "Eco" (7 Stk.)
Set of accessories "Eco" (7 pcs)

V3	V4	V5	V6	V7	V9
■	■	■	■	■	■



TA-IH-109
612 11 054

Porte-touche à 90°, Ø4 mm
Messeinsatz-Halter 90°, Ø4 mm
Insert holder 90°, Ø4 mm



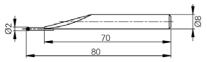
TVA4
609 05 007

Porte-touche à tige Ø2 x 20 mm
Messeinsatz-Halter mit Stift Ø 2 x 20 mm
Insert holder with pin Ø2 x 20 mm



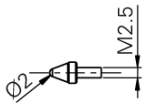
V-50.5
279 918002 001

Porte-touche M2.5, L=124 mm
Messeinsatz-Halter M2.5, L=124 mm
Measuring insert holder M2.5, L=124 mm



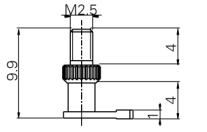
TA-MI-110
509 05 20 0077

Touche à bille en métal dur Ø2 mm, L=80 mm
Messeinsatz mit Hartmetall-Kugel Ø2 mm, L=80 mm
Measuring insert with tungst. carb. ball Ø2 mm, L=80 mm



V-50.4
279 918010 001

Touche hémisphérique M2,5
Messeinsatz M2.5 mit kugelförmiger Messfläche
Measuring insert M2,5 with ball contact



V-50.3
279 918008 001

Touche à pied M2.5
L-förmiger Messeinsatz M2.5
Corner insert M2.5



V-50.15
290 000911 005

Clé coudée pour vis à 6 pans intérieurs 2.5 mm
Inbusschlüssel 2.5 mm
Allen key 2.5 mm