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HEIGHT GAUGES

HORIZONTAL MEASURING INSTRUMENTS

SURFACE ANALYSIS INSTRUMENTS

PRESENTATION

TRIMOS GENERAL CATALOG

Dear Customer, dear Reader,

In an industrial world where quality control becomes more and more important, Trimos is proud to be able to offer a large range of solutions responding to dimensional measurement needs. Each instrument has its specific application and definitely solves all required tasks. Our products combine high precision, innovation, advanced design and ease of use.

Since 1972, Trimos has managed to position itself as the leader in its fields of activity and guarantees a "Swiss Made" manufacturing quality level.

Trimos is focused on 3 segments in the dimensional metrology field:

- Height gauges
- Horizontal measuring instruments
- Surface analysis instruments

We offer «turnkey» solutions based on the following modular items:

- Instruments
- Large range of accessories
- Hardware
- Software and driver programs

Trimos distributes its products in more than 40 countries through a network of agents. With their help, we can offer a large number of services as qualified technical support for selling new instruments, perfect after-sales services and technical training.

If quality is your objective, Trimos is your partner.

Patrice Kemper, CEO

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QUALITY

Quality has always been Trimos' main concern. Our company, certified ISO9000 for several years, aims to offer its customers blue chip products and services.

All instruments are developed and produced in our workshops by highly qualified professionals. Therefore, the quality of our products is thoroughly mastered.

By choosing a Trimos instrument, you will benefit of almost 40 years of experience in the metrology field. Hence your certainty to acquire a top-of-the-range instrument bearing the "Swiss Made" label.

Swiss Measuring Instruments

LABORATORY

In order to ensure the highest performances of its instruments, Trimos is equipped with a control laboratory provided with the latest technologies.

Thanks to our exclusive **Trimos® Environment Control System,** the control of environmental conditions is fulfilled. Therefore, a faultless follow-up of temperature, humidity and pressure is guaranteed 24/7.

Specifications:
Temperature: 20 °C ± 0.2
Humidity: 50% ± 5

SERVICES

In parallel with the sales of instruments, Trimos and its agents offer a wide range of services allowing the most profitable exploitation of its products:

- Technical support
- Training (at Trimos or on site)
- After-sales service
- Repair of instruments
- Upgrade of old instruments
- Calibration
- Customized instruments and accessories
- Software and drivers
- Maintenance contract

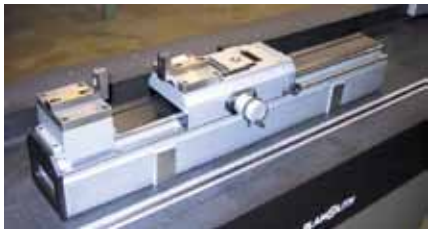
Examples of instruments that we can repair:

TELMA

TVA

Instruments subject to upgrade:

TEL



TELMN

WEBSITE

Our website www.trimos.ch is at your disposal. You will find there the latest information in relation with our firm, our products as well as our sales network.

Do not hesitate to contact us.

TRIMOS

TVM

TVM

INTRODUCTION

The TVM instruments are perfect for height measurements and scribing work and reliable in all kinds of workshop conditions. The result of an unique, compact design of the instrument is great mobility and extreme stability.

Because of its advanced measuring system, the self-contained working time of the TVM is one year. Therefore it can be used for multiple applications in the workshop area. The simplicity of manipulation allows constant change of the user without any time-consuming training.

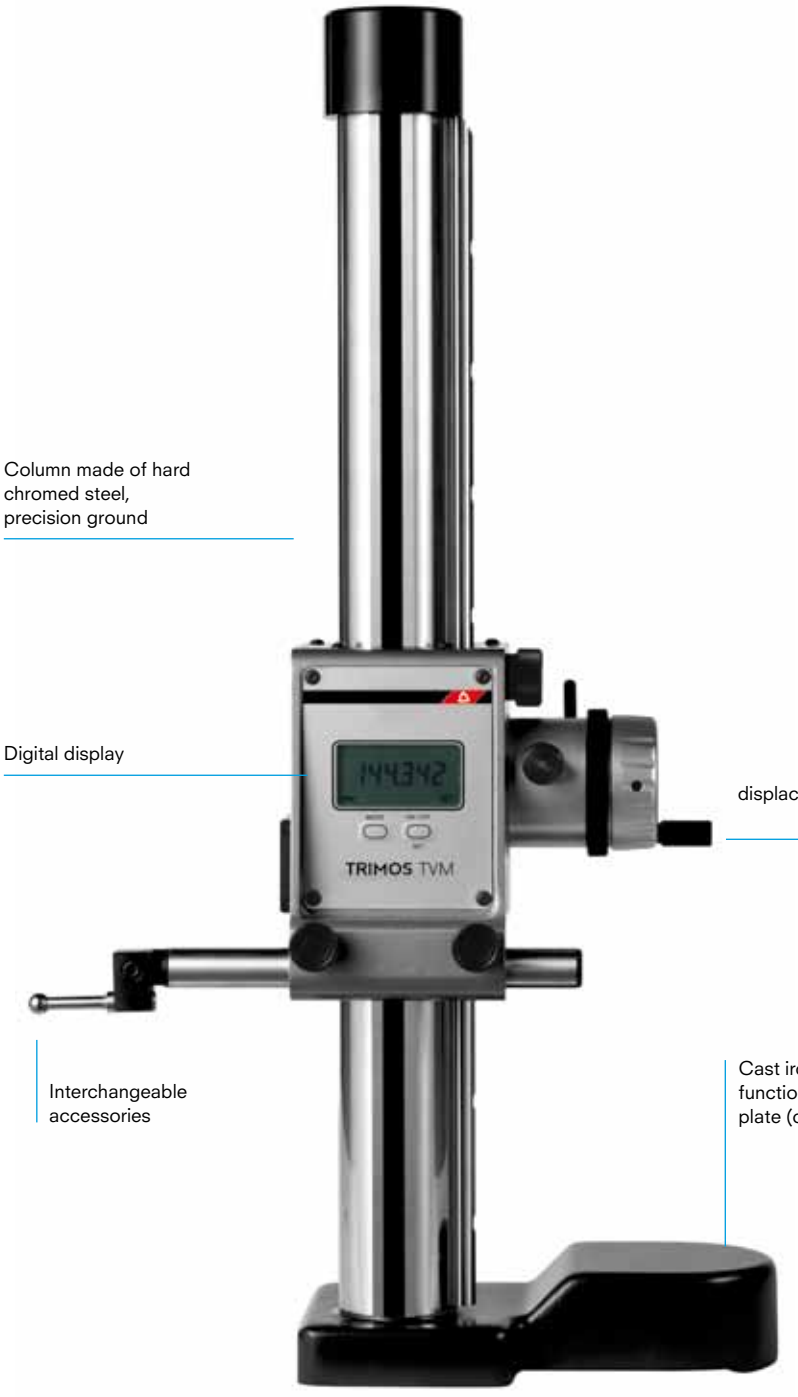
The success of the TVM among competitive gauges is outstanding. More than 14'000 instruments are in use worldwide.

Three models are available: with application range from 300 to 1000 mm. A large range of accessories for all kinds of measuring applications is available.

- ROBUST AND COMPACT CONSTRUCTION
- PERFECT FOR USE IN PRODUCTION AREA
- ACCURATE AND RELIABLE MEASUREMENTS
- USER FRIENDLY
- OPTO-RS232 DATA OUTPUT
- RECHARGEABLE BATTERY PACK
- TWO MODELS: CAST IRON BASE OR A GRANITE BASE

DESCRIPTION

- Surfaces
- 2 references
- Internal / external diameters
- Tolerances
- Min/Max/Delta

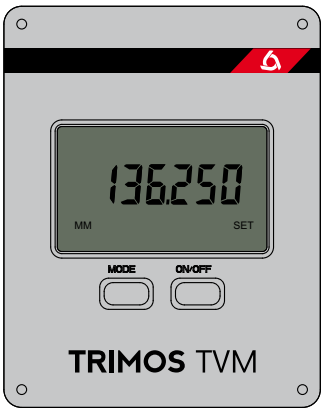


TVM

DISPLAY / SOFTWARE

The clearly defined functions of the display unit allow to collect all height measuring values.

- MIN / MAX FUNCTION INDICATOR
- 2 REFERENCES
- END OF BATTERY LIFE WARNING INDICATION
- PRESET SELECTION
- MEASURING UNIT (MM / IN) INDICATOR
- TOLERANCE MODE INDICATOR



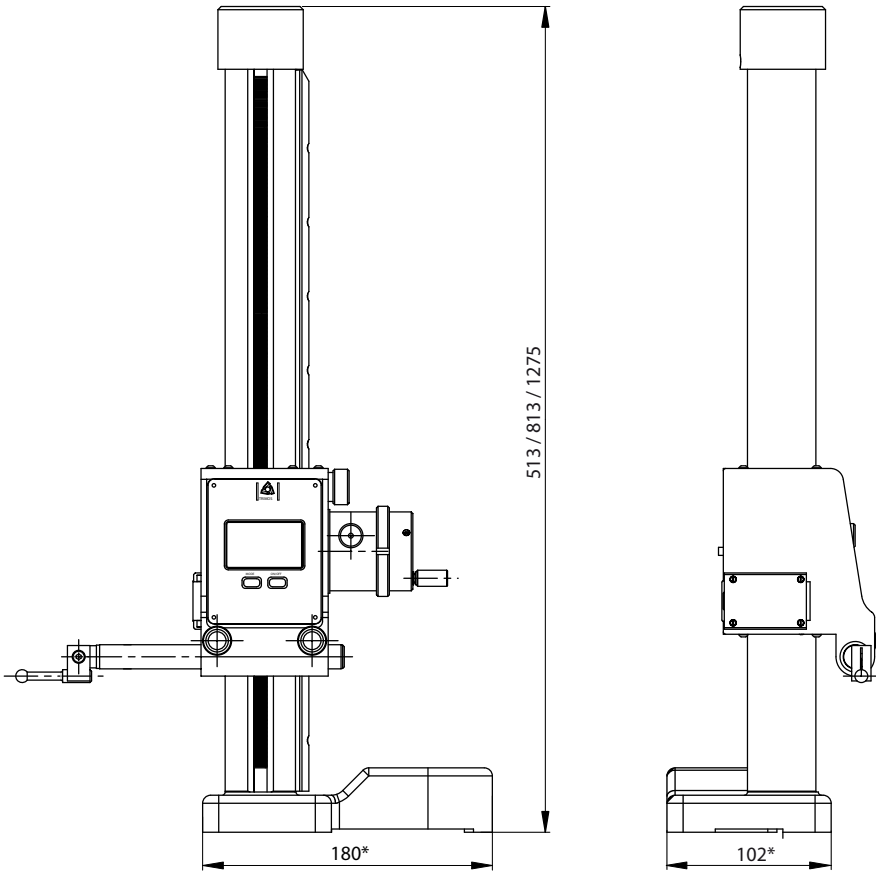
sylvac system

TECHNICAL SPECIFICATIONS

TVM		302	602	1002
Measuring range	mm (in)	320 (12)	620 (24)	1020 (40)
Max. permissible errors [1]	mm	0.02	0.03	0.04
Repeatability (2s) [1]	mm		0.005	
Frontal squareness deviation	mm	0.02	0.03	0.03
Resolutions	mm (in)		0.01 / 0.001 (.0005 / .00005)	
Measuring force	N		3	
Max. manual carriage displacement speed	mm / s		1500	
Autonomy	h		2000	
Data output			Opto RS232	
Operational temperature	°C		+10 ÷ +40	
Temperature of storage	°C		-10 ÷ +40	
Weight (cast iron base)	kg	6	10	24
Weight (granite base)	kg	14	18	

[1] Values valid with measuring insert and holder (TVM1 / 1.1 / 2) at temperature of 20 ± 0.5°C and relative humidity of 50 ± 5 %.

DIAGRAM



STANDARD INSTRUMENT

The TVM instruments are supplied as follows:	
TVM 300- 600	**TVM1000**
Instrument according to specifications	Instrument according to specifications
Measuring insert and holder (TVM1 / 1.1 / 2)	Measuring insert and holder (TVA1)
Lithium battery, 3 V (BAT-TVM.OPTO)	Lithium battery, 3 V (BAT-TVM.OPTO)
Protection cover (TVM.HO300/600)	User's manual (750 50 0018 03)
User's manual (750 50 0018 03)	Test certificate
Test certificate	

CODE NUMBERS

Cast iron base	**Granit base**	
TVM302 700 102 10 11	**TVM302G** 700 102 10 14	Measuring range 300 mm
TVM602 700 102 20 11	**TVM602G** 700 102 20 14	Measuring range 600 mm
TVM1002 700 102 30 11		Measuring range 1000 mm

* TVM 302 and 602 only

TVM

APPLICATIONS

Height and depth measurements (TVM1/1.1/2)

Diameter measurements (TVM4)

Measuring of centerline distances (TVM5)

Scribing (TVM1/TVM3)

Ease of handling

V / V Plus

V / V Plus

INTRODUCTION

Talking about the V and V Plus series means looking at a height measuring instrument of universal use.

The new ergonomic and compact design has been well accepted from the industry worldwide. Ease of use and quick performance of all measuring tasks are given by the clearly defined function keys.

The updated measuring system combined with a powerful display unit guarantees high precision and maintains an incomparable self-containment of use in any manufacturing conditions.

The adjustable measuring force of V Plus models between 0.7 N and 1.6 N (0.3 N on request) allows the performance of measurements on components of delicate material.

The result of a modular instrument concept is a complete series with application ranges from 300 mm to 1235 mm at very competitive prices.

A wide range of accessories makes it possible to solve all required measuring tasks.

- PERFECT FOR USE IN THE WORKSHOP AREA
- EXTREMELY EASY TO OPERATE
- AUTONOMOUS USE WITH RECHARGEABLE BATTERY PACK
- AIR CUSHION STANDARD ON C VERSION (V PLUS)
- CLEAR DEFINITION OF ALL MEASURING FUNCTIONS
- EXTREMELY LARGE DISPLAY OF VALUES
- ACCEPTANCE OF A MEASURED VALUE BY ACOUSTIC SIGNAL
- DIRECT RS232C DATA OUTPUT (BI-DIRECTIONAL)
- ADJUSTABLE MEASURING FORCE

DESCRIPTION

- Surfaces
- Internal / external diameters
- Centerline distances
- Min/Max/Delta
- 2 references
- Squareness measurements
- Calculation mode

Interchangeable measuring inserts

Integrated electronic display unit

Handwheel for the displacement of the measuring carriage

V Plus: with locking and fine adjustment

Operating handle for displacement of the instrument

Button to activate the air cushion (option only available on V Plus)

V / V Plus

DISPLA / SOFTWARE

The clearly defined functions of the display unit allow quick performance of all required height measurements.

- SURFACE AND CENTERLINE DISTANCE MEASUREMENTS
- ZERO SETTING OF THE DISPLAY OR PRESET VALUE SETTING
- DATA TRANSFER (RS 232)
- SELECTION OF MEASURING UNIT MM OR INCH
- SELECTOR KEY TO OBTAIN A MIN / MAX / DELTA VALUE
- MEASURING USING TWO REFERENCES
- ADJUSTMENT OF THE ACOUSTIC SIGNAL

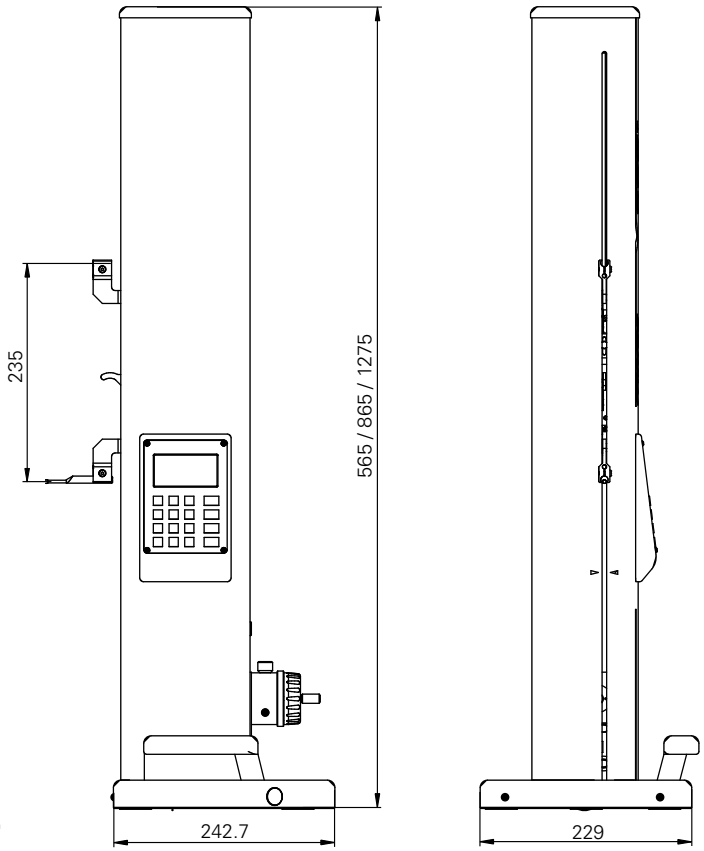
TECHNICAL SPECIFICATIONS

V		300	600
Measuring range	mm (in)	300 (12)	600 (24)
Application range	mm (in)	535 (21)	835 (32)
Max. permissible errors [1]	µm	8	10
Repeatability (2s) [1]	µm	2 (Ø:4)	
Frontal squareness deviation	µm	10	15
Resolutions	mm (in)	0.01/0.001 (.0001/.00005)	
Measuring force	N	1	
Max. manual carriage displacement speed	mm/s	1500	
Autonomy	h	100	
Data output		RS232	
Operational temperature	°C	+10 ÷ +40	
Temperature of storage	°C	-10 ÷ +40	
Weight	kg	10	12

V Plus		300	600	1000
Measuring range	mm(in)	300 (12)	600 (24)	1000 (40)
Application range	mm(in)	535 (21)	835 (32)	1235 (48)
Max. permissible errors [1]	µm	2.5 + L (mm) / 300		
Repeatability (2s) [1]	µm	2		
Frontal squareness deviation	µm	5	8	12
Resolutions	mm(in)	0.01 / 0.001 (.0001/.00005)		
Measuring force (adjustable)	N	0.7 ÷ 1.6 (V305: 0.3 ÷ 1.2)		
Max. manual carriage displacement speed	mm / s	1500		
Autonomy (without/with air cushion)	h	100 / 30		
Data output		RS232		
Operational temperature	°C	+10 ÷ +40		
Temperature of storage	°C	-10 ÷ +40		
Weight	kg	10	12	15

[1] Values valid with standard ball probe (TA-MI-101) at temperature of 20 ± 0.5°C and relative humidity of 50 ± 5 %.

SCHEMA



STANDARD INSTRUMENT

The V instruments are supplied as follows:	
Instrument according to specifications	User's manual (750 50 0004 00)
Charging unit (TA-EL-131)	Test certificate
Measuring insert with ruby ball Ø 4 mm (TA-MI-101)	Hex screw driver 2 mm (TA-TO-002)
Setting gauge (TA-MG-103)	Hex screw wrench 2.5 mm (V-50.15)

The V Plus instruments are supplied as follows:	
Instrument according to specifications	User's manual (750 50 0004 00)
Charging unit (TA-EL-131)	Test certificate
Measuring insert with ruby ball Ø 4 mm (TA-MI-101)	Hex screw driver 2 mm (TA-TO-002)
Setting gauge (TA-MG-103)	Hex screw wrench 2.5 mm (V-50.15)
Protection cover (V.HO300 / V.HO600 / V.HO1000)	

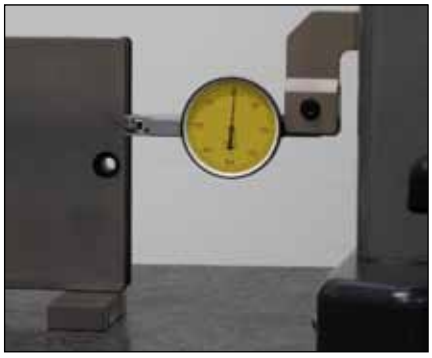
CODE NUMBERS

V	**V Plus**		
Without air cushion	**Without air cushion**	**With air cushion**	
VL300 700 105 10 41	**V304** 700 105 10 01	**V304C** 700 105 10 02	Measuring range 300 mm
	V305 700 105 10 10	**V305C** 700 105 10 11	Measuring range 300 mm [1)]
VL600 700 105 20 41	**V604** 700 105 20 01	**V604C** 700 105 20 02	Measuring range 600 mm
		V1004C 700 105 30 02	Measuring range 1000 mm

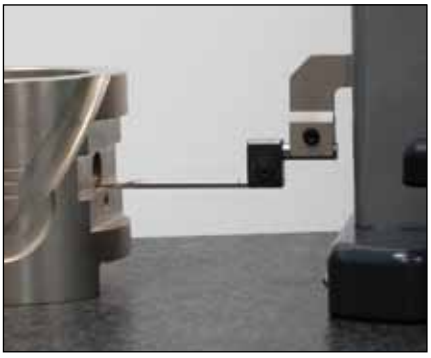
[1)] The instruments V305 and V305C are with low measuring force (0.3-1.2 N)

V / V Plus

APPLICATIONS

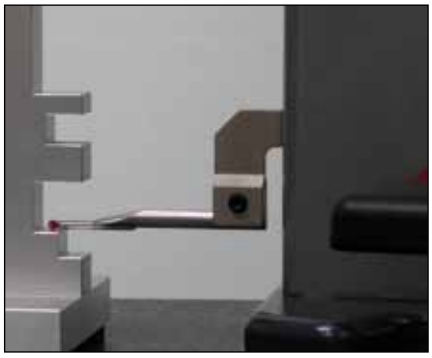


Checking of squareness deviation



Tiny Surface, diameter and centerline distance measurements (V-5/V50.9)

Depth measurement (TA-IH-109/V-50.5/V-50.4)



Checking of surface distances (TA-MI-101)

Thickness measurements (TA-MI-101)

Min/max measurements (TA-MI-101)

TRIMOS

VECTRA-TOUCH

VECTRA-TOUCH

INTRODUCTION

The "Vectra-Touch" height measuring instruments are of universal use in any production field. They are the result of 40 years of experience in development and manufacturing. This experience makes it possible to introduce a product that combines ergonomic design with new technology. Its reliable concept is a reference for durability. Ease of use and quick performance of all required measuring tasks allow unlimited applications in any manufacturing area.

The distinctive design of the Vectra-Touch, as well as its exceptional functionalities, offer the user an ease of use unequalled on the market. The display unit is identical for all models and gathers all assets for a rational use in the workshop. A limited number of keys (19) makes the instrument accessible to any user, whatever his level of training. The robust colour touch screen offers great ease of use. Only essential information will be provided to the user. A graphic assistance guides the execution of all measurements.

Ease of use has been an absolute priority in the requirements, thus resulting in functions, usually considered as complex, such as 2D, programming, statistics, becoming child's play.

- CLEAR DISPLAY WITH LARGE DIGITS
- GRAPHIC HELP FOR MEASURING
- PRINTING OF REPORTS ON USB PRINTER
- BACKUP ON EXTERNAL SUPPORT (USB KEY)
- MEASURING RANGE FROM 300 MM TO 2000 MM
- AVAILABLE IN MANUAL OR MOTORIZED VERSION
- WORKING ON ACCUMULATOR
- LARGE RANGE OF ACCESSORIES

DESCRIPTION

- Surfaces
- Internal / external diameters
- Centerline distances
- Graphic help “EasyScan“
- Min/Max/Delta
- 9 references
- Sqareness measurements
- Angle measurements
- Calculation mode
- Tolerances
- 2D measuring mode
- Measurement sequences
- Statistical analysis
- Temperature compensation
- Online help
- USB ports
- RS232 ports
- Wireless communication
- Automatic displacement

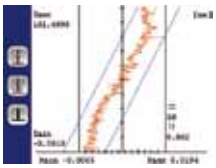
VECTRA-TOUCH

DISPLAY / SOFTWARE

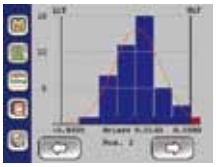
The colour display facilitates the reading of all measuring parameters. The functions are easily and directly accessible. The display unit is identical for all models.

- VERY SIMPLE GRAPHIC INTERFACE
- DATE AND TIME DISPLAY
- DISPLAY OF ENVIRONMENTAL TEMPERATURE
- ACOUSTIC AND GRAPHIC PROBING INDICATOR
- GRAPHIC DISPLAY OF SQUARENESS
- COLOR TOUCH SCREEN
- MEASURING IN 2D MODE
- PROGRAMMING OF MEASURING SEQUENCES
- STATISTICAL ANALYSIS
- TEMPERATURE COMPENSATION FEATURE
- INTEGRATED ON LINE HELP
- BUFFER WITH 999 VALUES

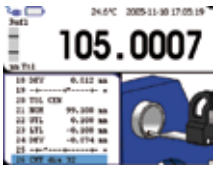
Touch-screen with intuitive interface



Graphic display of squareness



Statistical analysis of measurement results



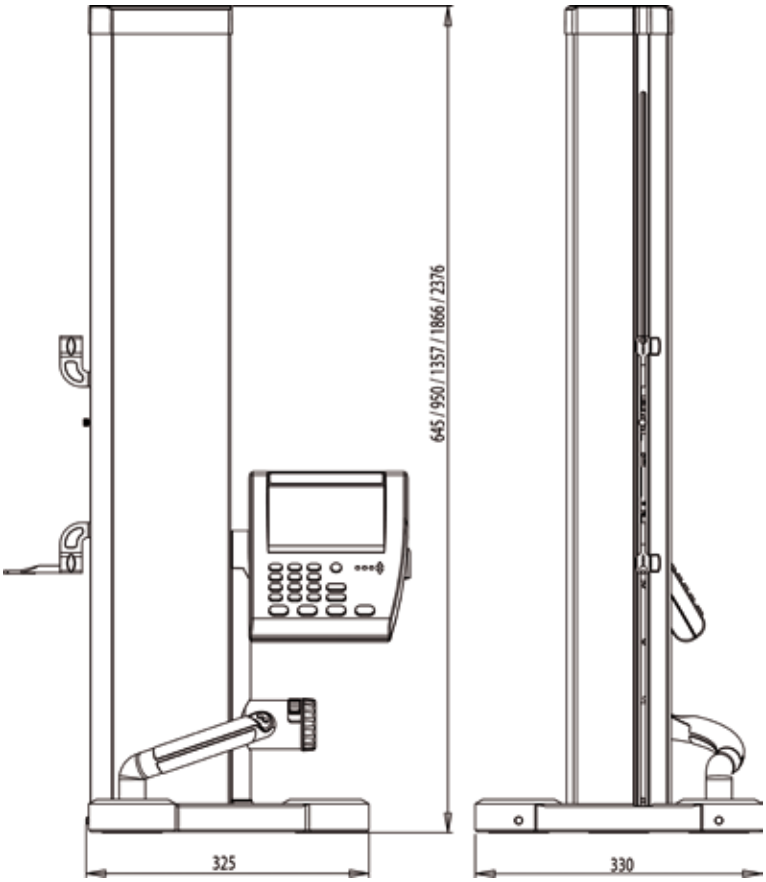
Graphic help for each function

TECHNICAL SPECIFICATIONS

Vectra-Touch		300	600	1000	1500	2000
Measuring range	mm(in)	305 (12)	610 (24)	1016 (40)	1524 (60)	2034 (80)
With second probe holder	mm(in)	567 (22)	872 (34)	1278 (50)	1786 (70)	2296 (90)
Max. permissible errors [1]	µm	2+ L(mm)/400			2.5 + L(mm)/300	
Repeatability (2s) [1]	µm	1 (Ø:2)				
Resolutions	mm(in)	0.01/0.001/0.0001 (.001/.0001/.00001)				
Manual carriage displacement speed	mm / s	1000				
Motorized carriage displacement speed	mm / s	150				
Measuring force (adjustable)	N	0.5 ÷ 1.8				
Frontal squareness deviation	µm	4	6	10	15	25
Autonomy	h	> 8				
Data output		2 x RS232 C and 2 x USB (A et B)				
Operational temperature	°C	+10 ÷ +40				
Temperature of storage	°C	-10 ÷ +40				
Weight	kg	22	25	29	39	44

[1] Values valid with standard ball probe (TA-MI-101) at temperature of 20 ± 0.5°C and relative humidity of 50 ± 5 %.

SCHEMA



STANDARD INSTRUMENT

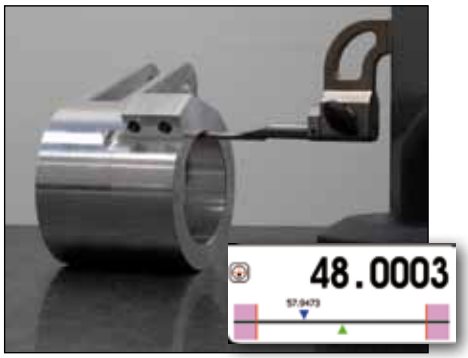
The Vectra-Touch instruments are supplied as follows:	
Instrument according to specifications	User's manual (750 50 0002 03)
Charging unit (TA-EL-130)	Test certificate
Measuring insert with ruby ball Ø 4 mm (TA-MI-101)	Hex screw driver 2 mm (TA-TO-002)
Setting gauge (TA-MG-101)	Hex screw wrench 5 mm (TA-TO-001)
Protection cover (TA-TO-109 / 110 / 111 / 112 / 113)	Touch screen pen (LABC-30.3)

CODE NUMBERS

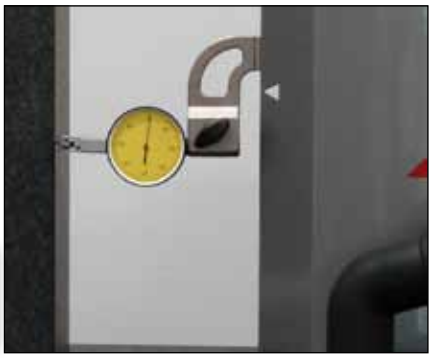
Manual	**Motorized**	
VT300MA 700 107 10 01	**VT300MO** 700 107 10 02	Measuring range 300 mm
VT600MA 700 107 20 01	**VT600MO** 700 107 20 02	Measuring range 600 mm
VT1000MA 700 107 30 01	**VT1000MO** 700 107 30 02	Measuring range 1000 mm
VT1500MA 700 107 40 01		Measuring range 1500 mm
VT2000MA 700 107 50 01		Measuring range 2000 mm

VECTRA-TOUCH

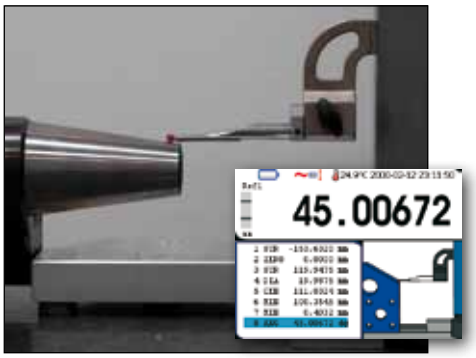
APPLICATIONS



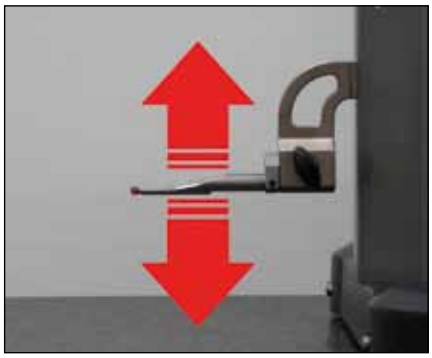
Diameter measurement with graphic help "EasyScan" (TA-MI-101/TA-AD-101)



Squareness mechanically adjusted on all instruments



Measurement of angles and cones with graphic help display (TA-MI-101/TA-AD-101)



Measurement with automatic displacement in programming mode

Checking of squareness using an additional electronic probe and colour print-out of the curve (TA-MS-101)

Measurement using temperature compensation system with optional external sensor (TA-EL-120)

Storage of all data to an external memory, e.g. USB Memory Stick (TA-EL-140)

Wireless communication by Bluetooth or Wi-Fi (optional) (TA-EL-123/4)

Standard probes up to 320 mm. (here optional 550 mm)

MESTRA + TOUCH

MESTRA+TOUCH

INTRODUCTION

The "Mestra" height measuring instruments are classified among the most accurate ones worldwide. This new instrument line is the result of 40 years of experience, which makes it possible to offer a product having advanced technologies combined with ergonomic design.

The result of the well designed instrument concept incorporating an entire new measuring system is an optimum accuracy level. The extreme ease of use allows unrestricted application in production areas as well as in measuring laboratory environment.

Two specific models are available, "Mestra" and "Mestra-Touch". The difference between these two models is the layout of the display unit as well as the available measuring functions. The "Mestra" has a display unit incorporating all basic functions such as checking of heights, depths, diameters and centerline distances, squareness deviation, angles and tolerance limits indication. In addition the "Mestra-Touch" offers a colour touch screen and functions such as the 2-coordinate system, programming of measuring sequences, statistical analysis of memorized values and display of environmental temperature.

- EXTREME ACCURACY LEVEL
- GRAPHIC HELP FOR MEASURING
- PRINTING OF REPORTS ON USB PRINTER
- BACKUP ON EXTERNAL SUPPORT (USB KEY)
- MEASURING RANGE FROM 300 MM TO 1000 MM
- AVAILABLE IN MANUAL OR MOTORIZED VERSION
- WORKING ON ACCUMULATOR
- LARGE RANGE OF ACCESSORIES

DESCRIPTION

MESTRA + MESTRA-TOUCH

- Surfaces
- Internal / external diameters
- Centerline distances
- Graphic help "EasyScan"
- Min/Max/Delta
- 9 references
- Sqareness measurements
- Angle measurements
- Calculation mode
- Tolerances
- USB ports
- RS232 ports
- Wireless communication
- Automatic displacement

MESTRA-TOUCH

- 2D measuring mode
- Measurement sequences
- Statistical analysis
- Temperature compensation
- Online help

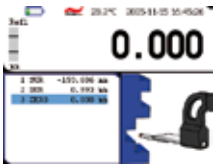
MESTRA +TOUCH

DISPLAY / SOFTWARE

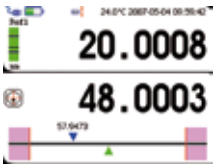
The colour display facilitates the reading of all measuring parameters. The functions are easily and directly accessible.

- INTERACTIVE HELP
- DATE AND TIME DISPLAY
- ACOUSTIC AND GRAPHIC PROBING INDICATOR
- MEASURING OF VALUES WITH TOLERANCE INDICATION
- GRAPHIC DISPLAY OF SQUARENESS
- TOUCH SCREEN (MESTRA-TOUCH)
- MEASURING IN 2D MODE (MESTRA-TOUCH)
- MEASURING SEQUENCES (MESTRA-TOUCH)
- STATISTICAL ANALYSIS (MESTRA-TOUCH)
- TEMPERATURE COMPENSATION FEATURE (MESTRA-TOUCH)
- INTEGRATED ON LINE HELP (MESTRA-TOUCH)

Touch-screen with intuitive interface (Mestra-Touch)



Easy identification of each measuring function



Graphical help for diameter measurements

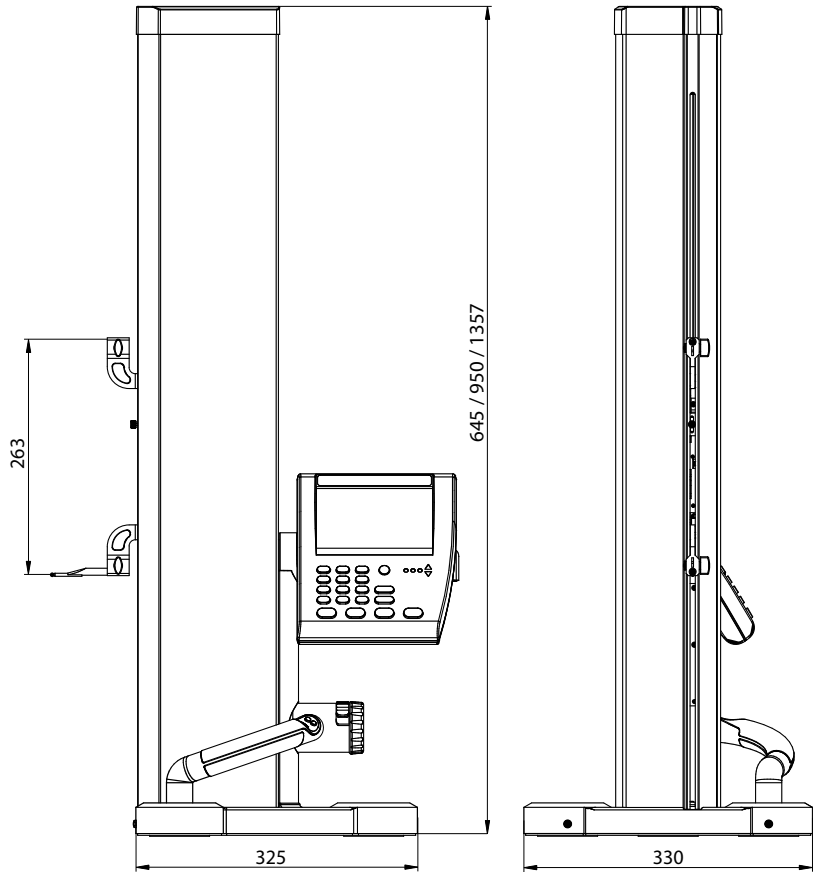
Clear indication of part conformity

TECHNICAL SPECIFICATIONS

Mestra/Mestra-Touch		300	600	1000
Measuring range	mm (in)	305 (12)	610 (24)	1016 (40)
With second probe holder	mm (in)	567 (22)	872 (34)	1278 (50)
Max. permissible errors [1]	µm	1.2+ L(mm)/1000		
Repeatability (2s) [1]	µm	0.5 (Ø:1)		
Resolutions	mm (in)	0.01/0.001/0.0001 (.001/.0001/.00001)		
Manual carriage displacement speed	mm / s	1000		
Motorized carriage displacement speed	mm / s	150		
Measuring force (adjustable)	N	0.5 ÷ 1.8		
Frontal squareness deviation	µm	4	6	10
Autonomy	h	> 8		
Data output		2 x RS232 C and 2 x USB (A et B)		
Operational temperature	°C	+10 ÷ +40		
Temperature of storage	°C	-10 ÷ +40		
Weight	kg	22	25	29

[1] Values valid with ball probe TA-MI-119 at temperature of 20 ± 0.5°C and relative humidity of 50 ± 5 %.

SCHEMA



STANDARD INSTRUMENT

The Maestra and Maestra-Touch instruments are supplied as follows:	
Instrument according to specifications	User's manual (750 50 0002 03)
Charging unit (TA-EL-130)	Test certificate
Measuring insert with ruby ball Ø 5 mm (TA-MI-119)	Hex screw driver 2 mm (TA-TO-002)
Setting gauge (TA-MG-101)	Hex screw wrench 5 mm (TA-TO-001)
Protection cover (TA-TO-109 / 110 / 111)	Touch screen pen (LABC-30.3)

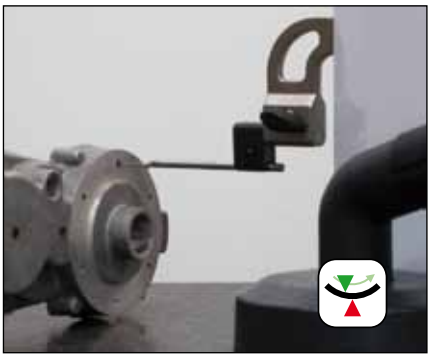
CODE NUMBERS

Mestra		**Mestra-Touch**		
Manual	**Motorized**	**Manual**	**Motorized**	
M300MA 700 107 10 03	**M300MO** 700 107 10 04	**MT300MA** 700 107 10 05	**MT300MO** 700 107 10 06	Measuring range 300 mm
M600MA 700 107 20 03	**M600MO** 700 107 20 04	**MT600MA** 700 107 20 05	**MT600MO** 700 107 20 06	Measuring range 600 mm
M1000MA 700 107 30 03	**M1000MO** 700 107 30 04	**MT1000MA** 700 107 30 05	**MT1000MO** 700 107 30 06	Measuring range 1000 mm

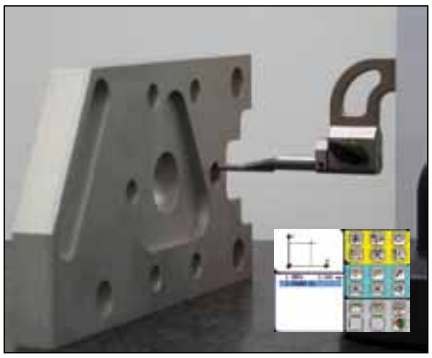
MESTRA +TOUCH

APPLICATIONS

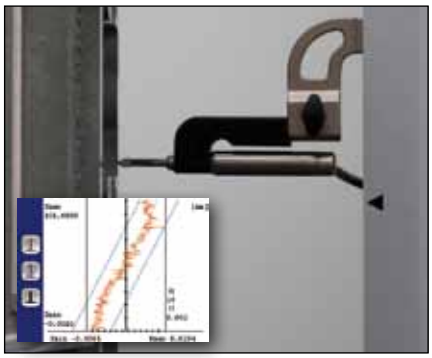
Height measurement of a small board (TA-IH-109/V-50.5/TA-MI-118)



Checking of a small diameter using the adequate measuring insert (V-5/V-50.9)

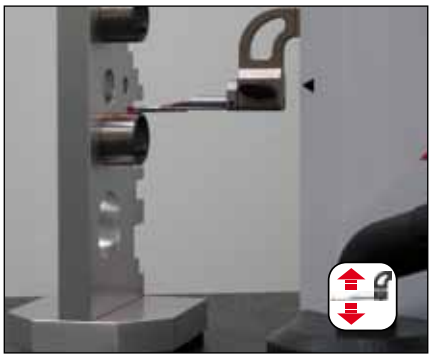


2-coordinate measurement with standard graphic help (TA-MI-101/TA-AD-101)

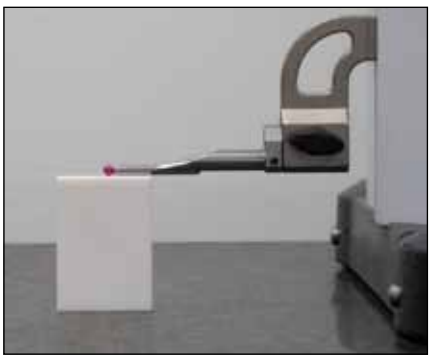


Checking of squareness deviation using an additional electronic probe and colour print-out of the curve (TA-MS-101)

Measurement of a groove using a 90° angled measuring insert holder and an L-shaped insert (TA-IH-105/V.50.5/V-50.3)



Automatic measurement of an external diameter performed with "TRIMOS® NC movement" (TA-MI-101/TA-AD-101)

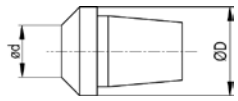


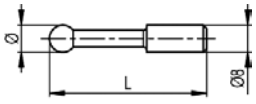
The complete digital measuring system offers an extremely high accuracy (TA-MI-101/TA-AD-101)

An USB data output allows the storage of all data on an USB Memory Stick as well as the printing of protocols (TA-EL-140)

Wireless communication by Bluetooth or Wi-Fi (optional) (TA-EL-123/4)

ACCESSORIES





		TVM	V/V Plus	VT	M/MT
TV2S2 279 901007 010	Cone Ø 0-15 mm	●			
TV2S3 279 901007 003	Cone Ø 13-20.5 mm	●			
TV2S4 509 05 20 0001	Cone Ø 17-24.5 mm	●			
TV2S5 279 901007 005	Cone Ø 23-30.5 mm	●			
TV2S6 279 901007 006	Cone Ø 26-35.5 mm	●			
TV2S7 279 901007 007	Cone Ø 32-39 mm	●			
TV2S8 279 901007 008	Cone Ø 36-45 mm	●			
TV2S9 279 901007 009	Cone Ø 41-50 mm	●			
TV2S10 279 901007 010	Cone Ø 46-55 mm	●			
TV2S11 279 901007 011	Cone Ø 51-60 mm	●			
TVM2.9 509 05 20 0001	Ball insert Ø 0.5 mm	●			
TVM2.8 509 05 20 0003	Ball insert Ø 1 mm	●			
TVM2.4 509 05 20 0009	Ball insert Ø 2 mm	●			
TVM2.3 509 05 20 0014	Ball insert Ø 3 mm	●			
TVM2.2 509 05 20 0025	Ball insert Ø 4 mm	●			
TVM2.6 509 05 20 0031	Ball insert Ø 5 mm	●			
TVM2.1 509 05 20 0037	Ball insert Ø 6 mm	●			
TVM2.7 509 05 20 0045	Ball insert Ø 7 mm	●			
TVM2 509 05 20 0051	Ball insert Ø 8 mm	●			

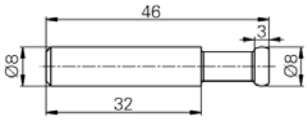
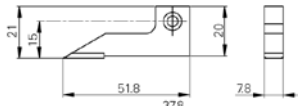
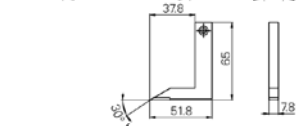
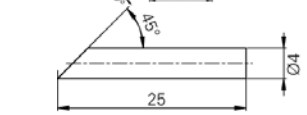
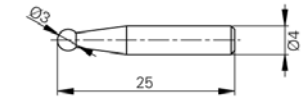
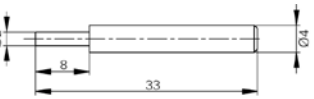
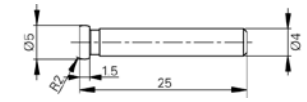
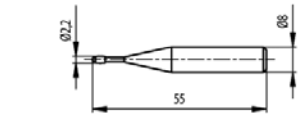
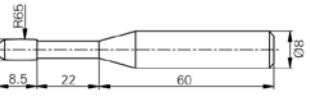
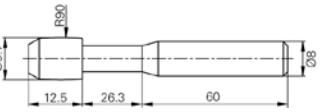
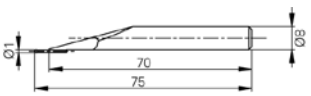
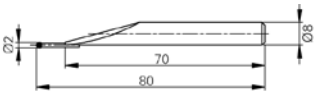
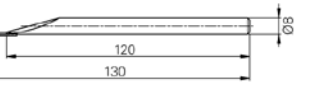
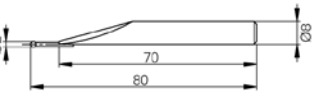

TVM


V / V Plus

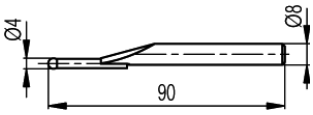
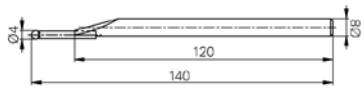
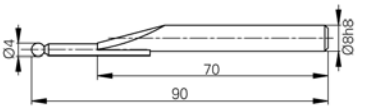
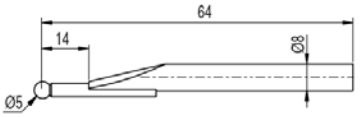
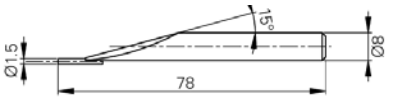
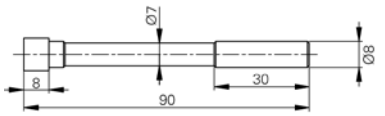
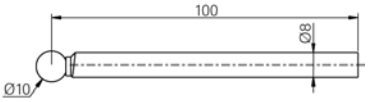
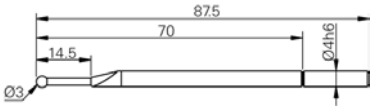
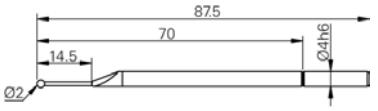
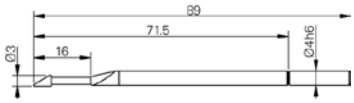
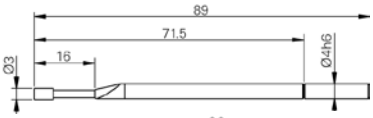
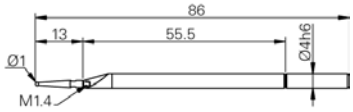

VT


M/MT

ACCESSORIES

			TVM	V/V Plus	VT	M/MT
	**TVM2.5** 509 05 20 0059	Disc shaped insert Ø 8 mm	●			
	**TVM3** 609 12 003	Scriber	●			
	**TVM1003** 609 12 002	Scriber for TVM1000	●			
	**TV7.1** 609 05 023	Knife-edge insert		●		
	**TV7.2** 609 05 022	Ball insert Ø 3 mm		●		
	**TV7.3** 609 05 020	Pin chaped insert Ø 2 mm		●		
	**TV7.4** 609 05 019	Disc shaped insert Ø 5 mm		●		
	**TVA9.1** 509 05 20 0011	barrel-shaped insert M3-M16		●	●	●
	**TVA9.2** 509 05 20 0029	barrel-shaped insert M6-M48		●	●	●
	**TVA9.3** 509 05 20 0062	barrel-shaped insert M12-M150		●	●	●
	**TA-MI-111** 509 05 20 0078	Measuring insert with tungst. carb. ball, Ø 1 mm		●	●	●
	**TA-MI-110** 509 05 20 0077	Measuring insert with tungst. carb. ball Ø 2 mm		●	●	●
	**TA-MI-104** 509 05 20 0080	Measuring insert with tungst. carb. ball Ø 2mm		●	●	●
	**TA-MI-103** 509 05 20 0076	Measuring insert with ruby ball Ø 2 mm		●	●	●

ACCESSORIES

		TVM	V/V Plus	VT	M/MT
	**TA-MI-102** 509 05 20 0075	Measuring insert with tungst. carb. ball Ø 4 mm		●	●	●
	**TA-MI-105** 509 05 20 0079	Measuring insert with tungst. carb. ball Ø 4 mm		●	●	●
	**TA-MI-106** 279 918011 004	Measuring insert with ruby ball Ø 5 mm		●	●	●
	**TA-MI-101** 509 05 20 0074	Measuring insert with ruby ball Ø 4 mm		●	●	
	**TA-MI-119** SP279 918011 005	Measuring insert with ruby ball Ø 5 mm				●
	**TA-MI-107** 509 05 20 0081	Measuring insert with pin Ø 1.5 mm		●	●	●
	**TA-MI-112** 509 05 20 0082	Measuring insert with parallel faces		●	●	●
	**TA-MI-108** 279 918011 002	Measuring insert with ruby ball Ø 10 mm		●	●	●
	**TA-MI-109** 279 918011 003	Measuring insert with ruby ball Ø 3 mm		●	●	●
	**V-50.9** 279 918011 001	Measuring insert with ruby ball Ø 2 mm		●	●	●
	**V-50.10** 279 918007 001	Knife-edge insert		●	●	●
	**V-50.11** 279 918013 001	barrel-shaped insert Ø 3 x 5 mm		●	●	●
	**V-50.12** 279 918012 001	Measuring insert Ø 1 mm with holder		●	●	●
	**TA-MI-114** 506 22 20 0063	Pin, 1 hemispheric and 1 plane face		●	●	●

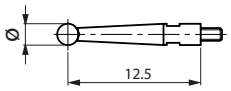
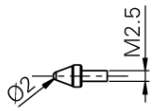
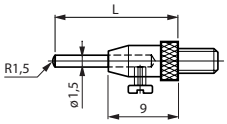
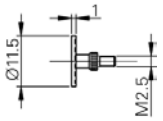
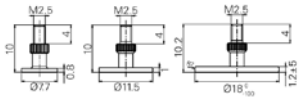
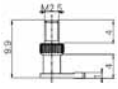
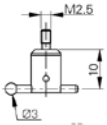
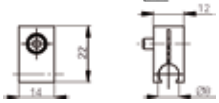
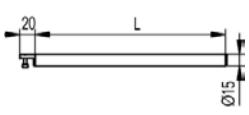

TVM


V / V Plus

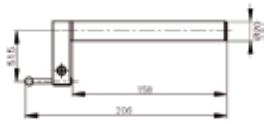
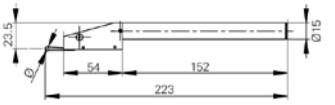
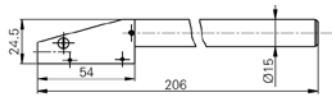
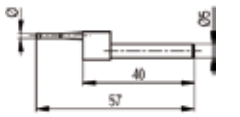
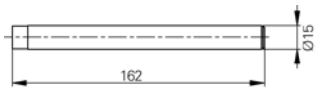
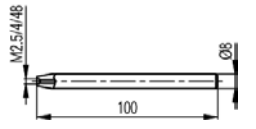
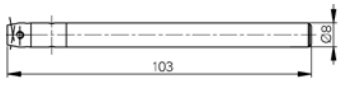
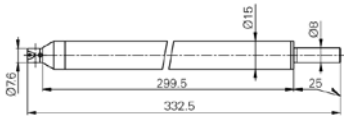

VT


M/MT

ACCESSORIES

			TVM	V/V Plus	VT	M/MT
	**TA-MI-115** 279 901001 001	Measuring insert M1.4 with ball Ø 1 mm		●	●	●
	TA-MI-116 279 901001 002	Measuring insert M1.4 with ball Ø 2 mm		●	●	●
	TA-MI-117 279 901001 003	Measuring insert M1.4 with ball Ø 3 mm		●	●	●
	**V-50.4** 279 918010 001	Measuring insert M2,5 with ball contact		●	●	●
	**TA-MI-118** 279 901003 001	Measuring insert M2.5 with 4 interchangeable pins L=16/26/36/46 mm		●	●	●
	**V-50.2.1** 279 918005 002	Disc-shaped inserts M2.5, Ø 7.7 mm		●	●	●
	V-50.2.2 279 918005 003	Disc-shaped inserts M2.5, Ø 11.5 mm		●	●	●
	V-50.2.3 279 918005 004	Disc-shaped inserts M2.5, Ø 18 mm		●	●	●
	**V-50.2** 279 918005 001	Set of 3 disc-shaped inserts M2.5		●	●	●
	**V-50.3** 279 918008 001	Corner insert M2.5		●	●	●
	**V-50.1** 279 918009 001	Measuring insert M2.5 with ruby ball Ø 3 mm		●	●	●
	**TVM1.1** 502 02 10 0015	Clamping device Ø 8 mm	●			
	TVM1 612 11 007	Standard insert holder for TVM, L=154 mm	●			
	**TVM1/L250** 612 11 061	Insert holder, L=250 mm	●			
	TVM1/L300 612 11 062	Insert holder, L=300 mm	●			
	TVM1/L350 612 11 063	Insert holder, L=350 mm	●			

ACCESSORIES

			TVM	V/ V Plus	VT	M/MT
	**TVM1/1.1/2** 609 05 061	Measuring insert + holder (TVM1 + 1.1 + 2)	●			
	**TVA1** 612 11 028	Measuring insert + holder for TVM1000	●			
	**TVM4** 609 05 074	Bi-directional probe Ø4 mm	●			
	TVM4.1/4.2 609 05 075	Bi-directional probe Ø2 mm	●			
	**TVM4.1** 612 11 030	Support pour touche bidirectionnelle	●			
	**TVM4.2** 609 05 021	Measuring insert Ø2 mm for bi-directional probe	●			
	TVM4.3 609 05 024	Measuring insert Ø4 mm for bi-directional probe	●			
	**TVM5.1** 609 05 054	Cone holder	●			
	**TVM5** 709 05 054	Set of cones with holder (TV2S2/3/4/5 + TVMS2)	●			
	**TVM6** 512 11 20 0018	Holder Ø8 mm for measuring inserts M2.5	●			
	TVM6E 512 11 20 0019	Holder Ø8 mm for measuring inserts 4-48	●			
	**TA-IH-101** 612 11 045	Measuring insert holder M2.5		●	●	●
	TA-IH-103 612 11 047	Measuring insert holder 4-48		●	●	●
	**TA-IH-102** 612 11 046	Measuring insert holder M2.5		●	●	●

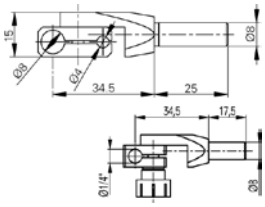
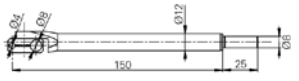
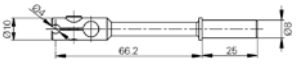
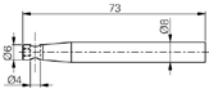
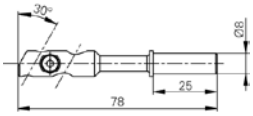
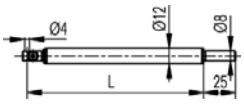
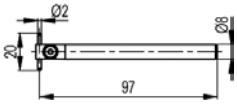
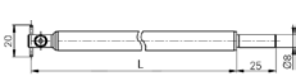

TVM


V / V Plus

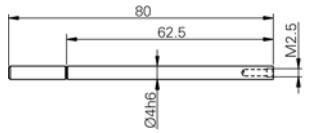
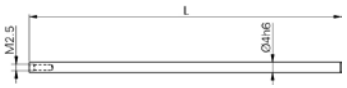
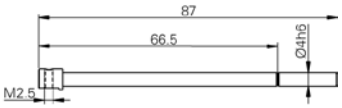
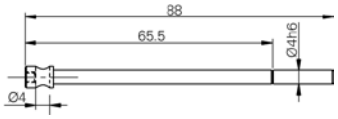
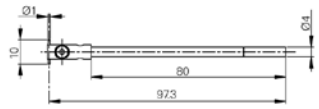
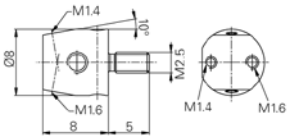
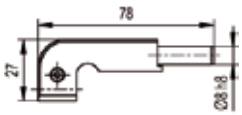
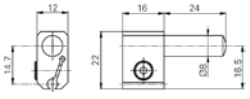

VT


M/MT

ACCESSORIES

			TVM	V/V Plus	VT	M/MT
	**TA-IH-104** 612 11 053	Swivel holder Ø 4 and 8 mm		●	●	●
	V-2E 612 11 023	Swivel holder Ø 1/4 "		●		
	**TA-IH-105** 612 11 051	Swivel holder Ø 4 and 8 mm		●	●	●
	V-2E/D1/4/L150 612 11 013	Swivel holder Ø 1/4"		●	●	●
	**TA-IH-106** 612 11 039	Swivel holder Ø 4 and 8 mm		●	●	●
	**TA-IH-107** 612 11 055	Insert holder 90°, Ø 8 mm		●	●	●
	**TA-IH-108** 612 11 052	Insert holder 90°, Ø 8 mm		●	●	●
	**TA-IH-109** 612 11 054	Insert holder 90°, Ø 4 mm		●	●	●
	**TA-IH-110** 279 918103 001	Insert holder 90°, Ø 4 mm		●	●	●
	**V-4** 612 11 011	Insert holder 30°, Ø 4 mm		●	●	●
	**TA-IH-111** 612 11 041	Insert holder 90°, Ø 4 mm, L=150 mm		●	●	●
	TA-IH-112 612 11 042	Insert holder 90°, Ø 4 mm, L=300 mm		●	●	●
	**TVA4** 609 05 007	Insert holder with pin Ø 2 x 20 mm		●	●	●
	**TA-IH-113** 612 11 043	Insert holder with pin Ø 2 x 20 mm, L=200 mm		●	●	●
	TA-IH-114 612 11 044	Insert holder with pin Ø 2 x 20 mm, L=300 mm		●	●	●

ACCESSORIES

			TVM	V/V Plus	VT	M/MT
	**V-50.6** 279 918002 002	Measuring insert holder M2.5		●	●	●
	**V-50.5** 279 918002 001	Measuring insert holder M2.5, L=124 mm		●	●	●
	TA-IH-115 279 918002 003	Measuring insert holder M2.5, L=200 mm		●	●	●
	**V-50.7** 279 918001 002	Insert holder 90°, M2.5		●	●	●
	**V-50.8** 279 918001 001	Insert holder 90°, Ø 4 mm		●	●	●
	**TA-IH-116** 279 918001 003	Measuring insert holder Ø 1 x 10 mm		●	●	●
	**TA-IH-117** 512 11 20 0012	Holder for measuring inserts M2.5, M1.6, M1.4		●	●	●
	TA-IH-118 512 11 20 0013	Holder for measuring inserts 4-48, M1.6, M1.4		●	●	●
	**TA-IH-126** 612 07 006	Holder for squareness probe			●	●
	**TA-MS-101** 276 940001 001	Squareness probe for VT/M/MT 300/600			●	●
	TA-MS-102 276 940001 002	Squareness probe for VT/M/MT 1000			●	●
	TA-MS-103 609 02 020	Squareness probe for VT1500			●	
	TA-MS-104 609 02 021	Squareness probe for VT2000			●	
	**TVM1010** 603 12 005	Reduction sleeve Ø 20 / 15 mm (TVM1000)	●			
	**V-5** 612 11 012	Reduction Ø 8 / 4 mm		●	●	●

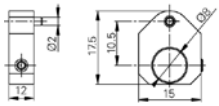
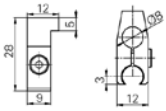
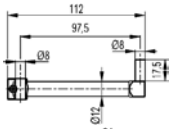
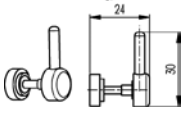
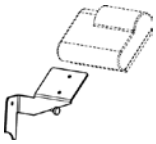

TVM


V / V Plus


VT


M/MT

ACCESSORIES

			TVM	V/V Plus	VT	M/MT
	**TA-AD-101** 603 11 001	Positioning holder for measuring insert VT/MT			●	●
	**TA-AD-102** 603 11 002	Positioning holder for measuring insert V+		●		
	**TA-AD-104** SP612 05 014 01	Mobile support for diplay VT/MT			●	●
	**V-7/H100** 612 11 025	Extension for probe holder 100 mm		●		
	**V-20** 606 00 029	Quick clamp for insert holder		●		
	**V-32** 612 06 001	Printer holder for V+		●		
	V-32/SP SP612 06 001 01	Printer holder for VT/MT (factory mounted only)			●	●
	**TA-SE-101** 605 01 007	Set of accessories "Macro" (16 pcs)		●	●	●
	**TA-SE-102** 605 01 008	Set of accessories "Micro" (20 pcs)		●	●	●
	**TA-MG-103** 609 01 026	Setting gauge		●		
	**TA-MG-101** 609 01 024	Setting gauge25 mm			●	●
	TA-MG-102 609 01 025	Setting gauge 1"			●	●
	**V-60** 612 12 045	Wooden accessories support		●	●	●
	**V-50.13** 290 918001 001	Wrench for measuring inserts		●	●	●

ACCESSORIES

		TVM	V/V Plus	VT	M/MT
V-50.15 290 000911 005	Allen key 2.5 mm		●		
TA-TO-001 290 000911 009	Allen key 5 mm			●	●
TA-TO-002 290 920001 001	Hex Screwdriver 2 mm		●	●	●
LABC-30.3 3708 0002	Touch screen pen			●	●
TVM.HO300 505 05 10 0009	Protection cover for TVM301, TC401	●			
TVM.HO600 505 05 10 0011	Protection cover for TVM601, TC601	●			
TVM.HO1000 505 05 10 0013	Protection cover for TVM1000	●			
V.HO300 505 05 10 0020	Protection cover for V300		●		
V.HO600 505 05 10 0021	Protection cover for V600		●		
V.HO1000 505 05 10 0022	Protection cover for V1000		●		
TA-TO-109 505 05 10 0005	Protection cover for VT/M/MT 300			●	●
TA-TO-110 505 05 10 0006	Protection cover for VT/M/MT 600			●	●
TA-TO-111 505 05 10 0007	Protection cover for VT/M/MT 1000			●	●
TA-TO-112 505 05 10 0008	Protection cover for VT 1500			●	
TA-TO-113 505 05 10 0037	Protection cover for VT 2000			●	


TVM


V / V Plus


VT


M/MT

ACCESSORIES

		TVM	V/V Plus	VT	M/MT
	**BAT-TVM.OPTO** 3705 0002	Battery	●			
	**TELMA31** 3706 0002	Foot pedal		●		
	**TA-EL-101** 3706 0006	Foot pedal (VT/MT)			●	●
	**LABC-40** 356 0010	Laser printer (USB)			●	●
	**TA-EL-030** 356 0016	Inkjet printer (USB)			●	●
	**V-30** 356 0007	Printer (RS232)		●	●	●
	**TVM.O-PC/AT.9P** 333 9 0003	Cable Opto-PC / AT 9 P/F 2 m	●			
	**V-31** 333 0 0003	Cable for RS232 printer		●		
	**CABL.RS.1/1-9P** 332 01 0001 **TA-EL-110** 332 01 0012	Cable RS232 m/f, 1.8 m (VT/M/MT: Printer & V / V Plus / H: PC) Cable RS232 f/f, 1.8 m (PC)		●	● ●	● ●
	**TA-EL-013** 332 02 0001	USB A-B connection cable, L=1.8 m			●	●
	**TA-EL-011** 358 0006	USB-RS232 Converter	●	●	●	●
	**TA-EL-131** 334 0020	Universal AC adapter, 9 V (without cable)		●		

ACCESSORIES

			TVM	V/V Plus	VT	M/MT
	**TA-EL-130** 357 0100	Universal AC adapter, 28 V (without cable)			●	●
	**TA-EL-001** 332 10 0011	Power cable, 2 poles, Europe		●	●	●
	**TA-EL-002** 332 10 0013	Power cable, 2 poles, USA/Japan		●	●	●
	**TA-EL-003** 332 10 0016	Power cable, 2 poles, Australia		●	●	●
	**TA-EL-004** 332 10 0014	Power cable, 2 poles, UK		●	●	●
	**TA-EL-005** 616 20 003	Power cable, 2 poles, Korea		●	●	●
	**V-30.7** 788 000001 001	Paper rolls (5 pces)		●		
	**TA-EL-120** 609 50 005	Temperature compensation system			●	
	**TA-EL-121** 616 70 001	Wireless communication system "Wi-Fi"			●	●
	**TA-EL-122** 616 70 002	Wireless communication system "Bluetooth"			●	●
	**TA-EL-123** 609 50 006	Temperature compensation system "Wi-Fi"			●	
	**TA-EL-124** 609 50 007	Temperature compensation system "Bluetooth"			●	
	**TA-EL-140** 358 0008	USB memory stick			●	●
	**TA-SW-001** 394 1 0050	Software for data transfer WinDDE	●	●	●	●


TVM


V / V Plus


VT


M/MT

ACCESSORIES

		TVM	V/V Plus	VT	M/MT
TA-SE-101 605 01 007	**Set of accessories Macro (16 pieces):** **TA-MI-105** Measuring insert with tungst. carb. ball Ø4 mm, L=140 mm **TA-MI-110** Measuring insert with tungst. carb. ball Ø2 mm, L=80 mm **TA-MI-107** Measuring insert with pin Ø1.5 mm, L=78 mm **TA-IH-105** Swivel holder Ø4 and Ø8 mm, L=150 mm **TA-IH-109** Insert holder 90°, Ø4 mm **TVA4** Insert holder with pin Ø2 x 20 mm **TA-IH-101** Measuring insert holder M2.5, L=103 mm **V-50.5** Measuring insert holder M2.5, L=124 mm **TA-IH-115** Measuring insert holder M2.5, L=200 mm **V-50.4** Measuring insert M2,5 with ball contact **V-50.2.3** Disc-shaped inserts M2.5, Ø18 mm **TA-MI-115** Measuring insert M1.4 with ball Ø1 mm, L=12.5 mm **TA-MI-116** Measuring insert M1.4 with ball Ø2 mm, L=12.5 mm **TA-MI-117** Measuring insert M1.4 with ball Ø3 mm, L=12.5 mm **V-50.13** Wrench for measuring inserts **V-50.15** Allen key 2.5 mm		•	•	•

TA-SE-102 605 01 008	**Set of accessories Micro (20 pieces):** **V-50.4** Measuring insert M2,5 with ball contact **TA-MI-118** Measuring insert M2.5 with 4 interchangeable pins **V-50.2.1** Disc-shaped inserts M2.5, Ø7.7 mm **V-50.2.2** Disc-shaped insert M2.5, Ø11.5 mm **V-50.3** Corner insert M2.5 **TA-MI-115** Measuring insert M1.4 with ball Ø1 mm, L=12.5 mm **TA-MI-116** Measuring insert M1.4 with ball Ø2 mm, L=12.5 mm **TA-MI-117** Measuring insert M1.4 with ball Ø3 mm, L=12.5 mm **TA-IH-117** Holder for measuring inserts M2.5, M1.6, M1.4 **V-50.6** Measuring insert holder M2.5 **V-50.8** Insert holder 90°, Ø4 mm **TA-IH-116** Measuring insert holder, Ø1 x 10 mm, L=80 mm **V-50.9** Measuring insert with ruby ball Ø2 mm, L=88 mm **V-50.12** Measuring insert Ø1 mm with holder, L=86 mm **V-50.10** Knife-edge insert **V-5** Reduction Ø 8 / 4 mm **TA-IH-104** Swivel holder Ø4 and Ø8 mm **V-50.13** Wrench for measuring inserts **TA-TO-003** Allen key 1.5 mm **V-50.15** Allen key 2.5 mm		•	•	•

TRIMOS

TELS

TELS

INTRODUCTION

The Mini-Horizontal TELS is the ideal instrument for checking small dimensions. It is part of the horizontal instruments family.

The instrument is mainly used for checking internal and external dimensions, such as ring gauges, plug gauges, thread plug gauges and for measuring precision production parts.

The reliable concept is easily suitable for the use in workshop environment.

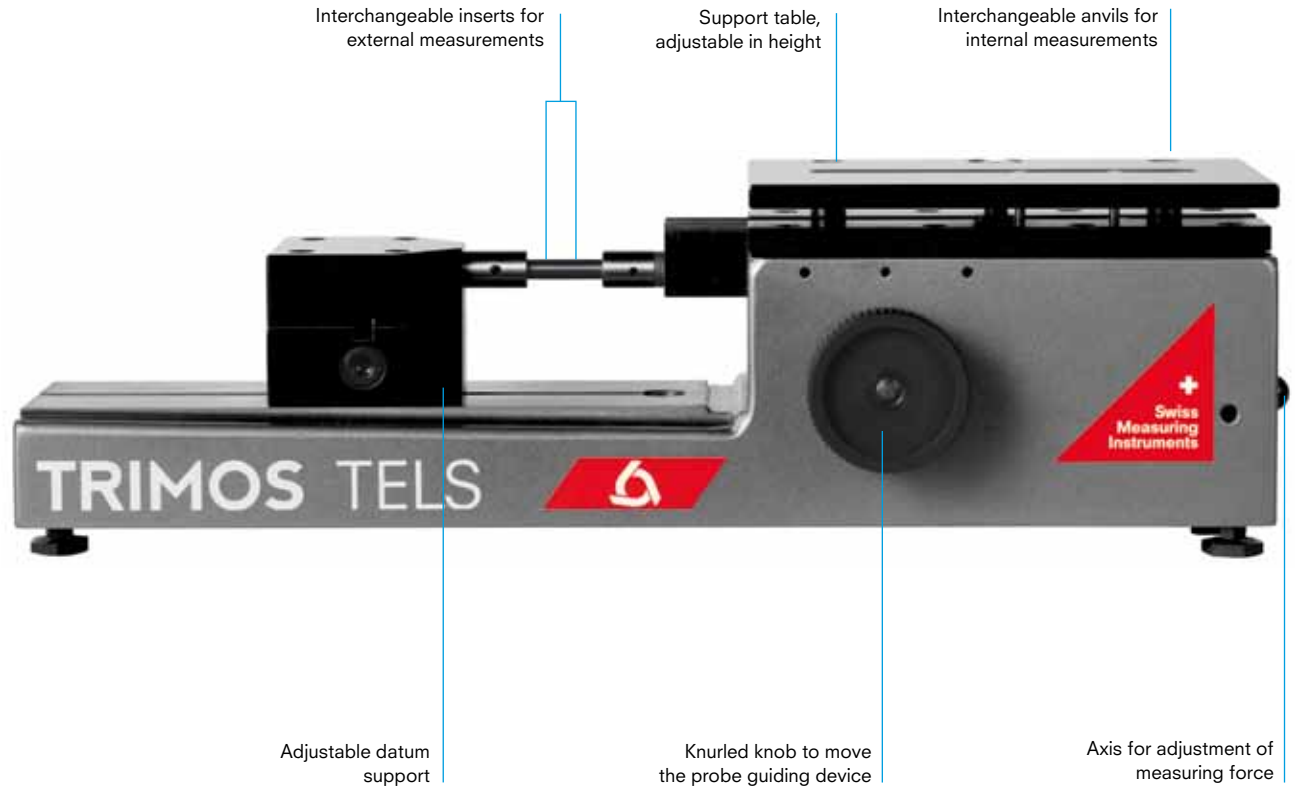
An electronic probe and digital display unit or simply a dial indicator can be applied to perform all measurements. The selection of the measuring system depends on the required accuracy.

The range for internal measurements from 10 to 100 mm and external measurements from 0 to 100 mm covers a large number of applications. The absolute measuring range is 25 mm and a preset setting is necessary to obtain an entire length.

A wide range of accessories are available.

- IDEAL FOR CHECKING SMALL DIMENSIONS
- EASY MANIPULATION
- SUITABLE FOR USE IN WORKSHOP AREA
- WIDE SELECTION OF ACCESSORIES

DESCRIPTION



TELS

DISPLAY / SOFTWARE

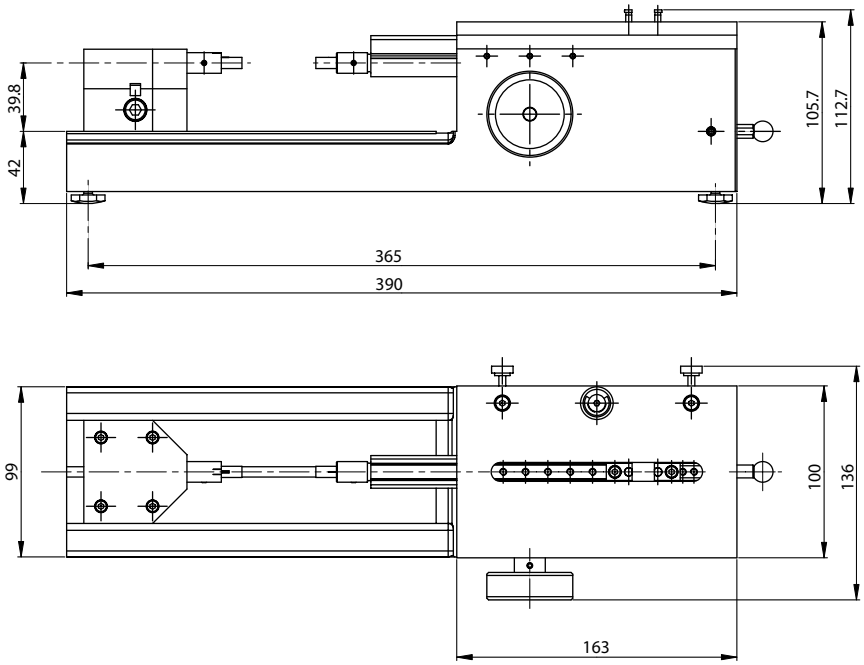
FUNCTIONS OF SYLVAC DISPLAY UNIT:
SELECTION OF THE MEASURING UNIT MM/INCH
ANALOG DISPLAY
INPUT AND DISPLAY OF TOLERANCE LIMITS
CLASSIFICATION (2 - 6 CLASSES)
INPUT AND SETTING OF PRESET VALUES
INVERSION OF MEASURING DIRECTION (+/-)
CHANNEL SELECTION
VALUE HOLD
LOCKING OF THE KEYBOARD AND THE MM/INCH SELECTION
EXTERNAL CONTACT FUNCTION USING FOOT PEDAL OR COMPUTER
PRINT-OUT OF VALUE AND STATISTICAL ANALYSIS

TECHNICAL SPECIFICATIONS

TELS		
Absolute measuring range	mm (in)	25 (1)
Application range (external measurements)	mm (in)	100 (4)
Application range (internal measurements)	mm (in)	100 (4)
Max. permissible errors (according to measuring probe) [1)]	µm	1.5
Repeatability (2s) [1)]	µm	0.1
Resolutions [1)]	mm (in)	0.1 ÷ 0.0001 (.001÷ 00001)
Measuring force (adjustable)	N	3-8
Operational temperature	°C	+10 ÷ +40
Temperature of storage	°C	-10 ÷ +40
Weight	Kg	15

[1)] Depends on measuring probe. Values valid with probe P25 at temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5 %.

SCHEMA



STANDARD INSTRUMENT

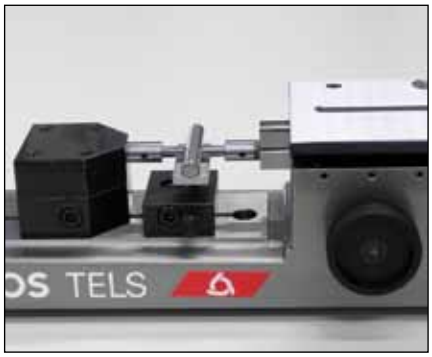
The TELS instruments are supplied as follows:	
Instrument according to specifications	User's manual (750 50 0019 03)
Measuring inserts for external measurement (TELS50)	Lapping plate (TA-TO-301)
Measuring anvils for internal measurements (TELS10)	Test certificate

CODE NUMBERS

TELS	
TELS	700 205 00 01

TELS

APPLICATIONS



Checking of external diameters
(TELS50, TELS5, TELS5.1)

Checking of internal diameters
(TELS10)

Checking of internal grooves
(TELS10)

Checking of lengths
(TELS50, TELS5, TELS5.1)

ALESTA

ALESTA

INTRODUCTION

The Alesta family is a product that simplifies the setting of 2-point bore gauges. It replaces the traditional way using a lot of different rings.

Thanks to innovative adapters, a positioning error will be eliminated and the speed of measurements increased. You just input the dimension into the key board and the required mobile carriage will position itself automatically onto this position. The mobile carriage system will always stay in the desired position even when applying a force on the anvils.

The stable granite base combined with a high precision measuring system guarantees excellent measuring results. Using a tolerance table the carriage can be positioned to the selected tolerance range. This table can be tailor-made to customer's requirements. This product achieves a typical return on investment of 2 years. The acquisition of new rings and their calibration will be eliminated. The instrument range includes 3 models: 300, 500 and 1000 mm.

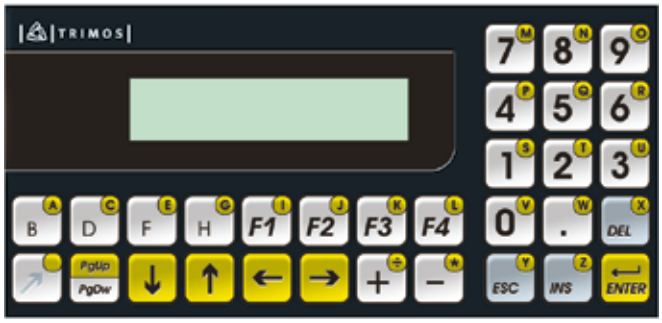
- IDEAL FOR USE IN THE WORKSHOP AREA
- VERY SIMPLE MANIPULATION
- MOTORIZED CARRIAGE MOVEMENT
- STABLE GRANITE BASE
- HIGH PRECISION MEASURING SYSTEM (HEIDENHAIN)
- TOLERANCE DATA BASE
- WIDE SELECTION OF ADAPTERS AND ACCESSORIES
- INTERNAL AND EXTERNAL MEASUREMENT POSSIBLE

DESCRIPTION

ALESTA

DISPLAY / SOFTWARE

- PROGRAMMING OF 100 TOLERANCED DIMENSIONS
- MANUAL OR AUTOMATIC DISPLACEMENT
- PROGRAM IN ITALIAN, ENGLISH, FRENCH, PORTUGUESE, GERMAN, SPANISH
- INTERNAL AND EXTERNAL MEASUREMENT

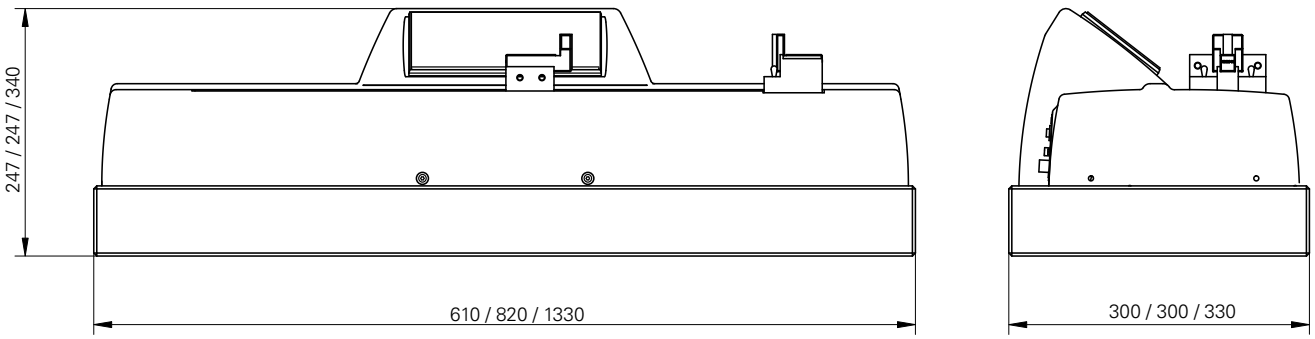


TECHNICAL SPECIFICATIONS

Alesta		300	500	1000
Application range (external measurements)	mm (in)	300 (12)	500 (20)	1000 (40)
Application range (internal measurements)	mm (in)	40 ÷ 340 (1.6 ÷ 13.5)	40 ÷ 540 (1.6 ÷ 21.5)	40 ÷ 1040 (1.6 ÷ 41)
Max. permissible errors [1]	µm	1.5 + L(mm) / 300		
Repeatability (2s) [1]	µm	< 1		
Resolutions	mm (in)	0.001 (.00001)		
Holding force	N	240		
Interfaces		RS232 et USB		
Operational temperature	°C	+10 ÷ +40		
Temperature of storage	°C	-10 ÷ +40		
Weight	Kg	62	77	200

[1] Values valid at temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5%.

SCHEMA



STANDARD INSTRUMENT

The Alesta instruments are supplied as follows:	
Instrument according to specifications	User's manual (750 50 0022 00)
	Test certificate

CODE NUMBERS

Alesta	
ALE300P 700 204 00 02	Measuring range 300 mm
ALE500P 700 204 10 02	Measuring range 500 mm
ALE1000P 700 204 20 02	Measuring range 1000 mm

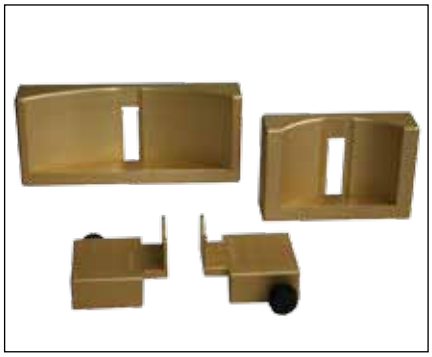
ALESTA

APPLICATIONS

Setting of two-point bore gauges

No need to have a lot of different setting rings. They are replaced by one single instrument

Checking of calipers



Wide range of adapters to fit most two-point bore gauges and garantee of easy / quick setting

Quick positioning using pre-programmed data

HORIZON + Granite

HORIZON + Granite

INTRODUCTION

The «Horizon» instruments respond to the current requirements for quality inspection in manufacturing areas. They allow a quick, precise checking and setting.

The instruments are perfect for setting all kinds of comparative measuring equipment and for checking length, internal and external diameters, thread gauges etc.

The new innovative concept with incorporated measuring system and display unit ensures excellent results by easy manipulation and is the answer to various demands in the field of production. Simplicity of use is an additional valuable advantage.

The instrument range comprises several models, from 500 mm up to 2000 mm (Granite 3000 - 8000 mm). A wide selection of easy interchangeable accessories completes the application possibilities.

- IDEAL FOR USE IN THE WORKSHOP AREA
- VERY SIMPLE MANIPULATION
- PRECISE CHECKING AND SETTING MADE EASY
- SELF-CONTAINED OPERATION OF APPROX. 100 HOURS
- WIDE SELECTION OF ACCESSORIES

DESCRIPTION

HORIZON

HORIZON GRANITE

HORIZON + Granite

DISPLAY / SOFTWARE

HORIZON

- SELECTION OF VALUE: NORMAL / MIN / MAX
- ZERO SETTING OF THE DISPLAY AND PRESET INPUT
- RS232 DATA OUTPUT
- TWO REFERENCES
- SELECTION OF THE RESOLUTION 0.01 MM - 0.001 MM
- SELECTION OF MEASURING UNIT MM/INCH (DIRECT CONVERSION)

sylvac system

HORIZON GRANITE
Heidenhain ND287 or ND1100

- LINEAR MEASUREMENT DISPLAY AND MIN. / MAX. VALUE HOLD
- DIGITAL DISPLAY
- ZERO SETTING OF THE DISPLAY AND PRESET INPUT
- PARAMETER SETTINGS
- INITIALIZATION OF THE DISPLAY USING EXTERNAL FUNCTION
- RS232 DATA OUTPUT

Heidenhain ND287

Heidenhain ND1100

PC with software WinDHI

- GRAPHIC HELP FOR MEASURING FUNCTIONS
- SELECTION OF THE MEASURING UNIT MM / INCH
- DIRECT DISPLAY OF ALL LENGTH MEASURING VALUES AND MIN. / MAX. VALUE HOLD
- INPUT OF 9 PRESET VALUES
- INVERSION OF MEASURING DIRECTION SIGN (+/-)
- DATA TRANSFER USING A FOOT PEDAL

TECHNICAL SPECIFICATIONS

Horizon		H501	H1001	H1501	H2001
Measuring range	mm (in)	520 (20)	1020 (40)	1520 (60)	2020 (80)
Max. permissible errors [1)]	µm	2.5 + L/300			
Repeatability (2s) [1)]	µm	1			
Resolutions	mm (in)	0.01/0.001 (.0001 / .00005)			
Max. displacement speed	mm / s	1500			
Measuring force	N	3			
Autonomy	h	100			
Interface		RS232			
Operational temperature	°C	+10 ÷ +40			
Temperature of storage	°C	-10 ÷ +40			
Weight	Kg	94	126	158	190

[1)] Values valid at temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5%.

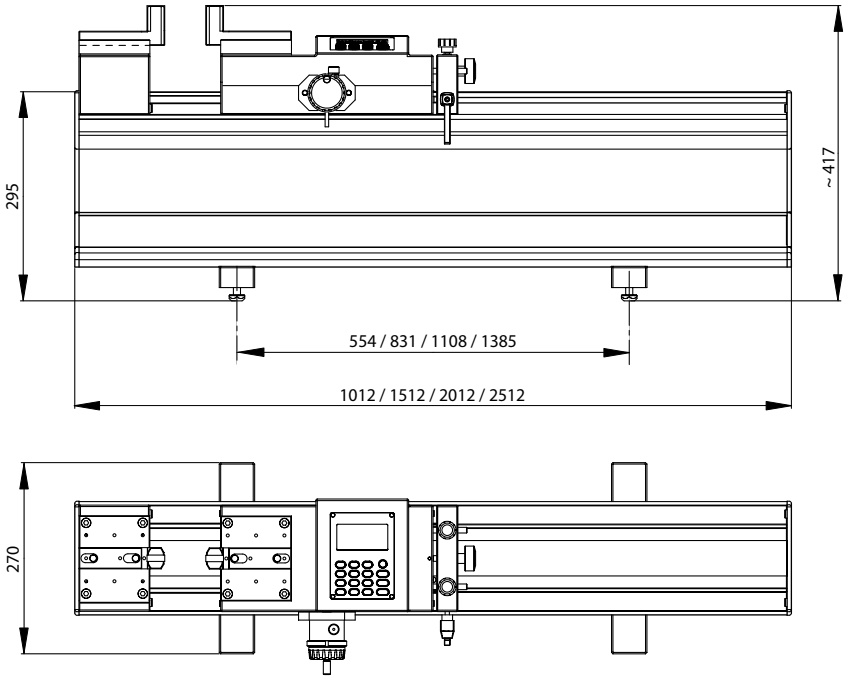
Horizon Granite		HG3000	HG4000	HG5000	HG6000	HG8000
Measuring range	mm (in)	3000 (118)	4000 (157)	5000 (196)	6000 (236)	8000 (315)
Max. permissible errors [1)]	µm	0.7 + L/750				
Repeatability (2s) [1)]	µm	0.5				
Resolutions	mm (in)	0.01 / 0.001 / 0.0001 (.001 / .0001 / .00001)				
Max. displacement speed	mm / s	2000				
Measuring force	N	3				
Interfaces		RS232/USB				
Operational temperature	°C	+10 ÷ +40				
Temperature of storage	°C	-10 ÷ +40				
Relative humidity	%	20 ÷ 80				
Weight	Kg	1060	1980	3200	3700	4600

[1)] Values valid at temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5%.

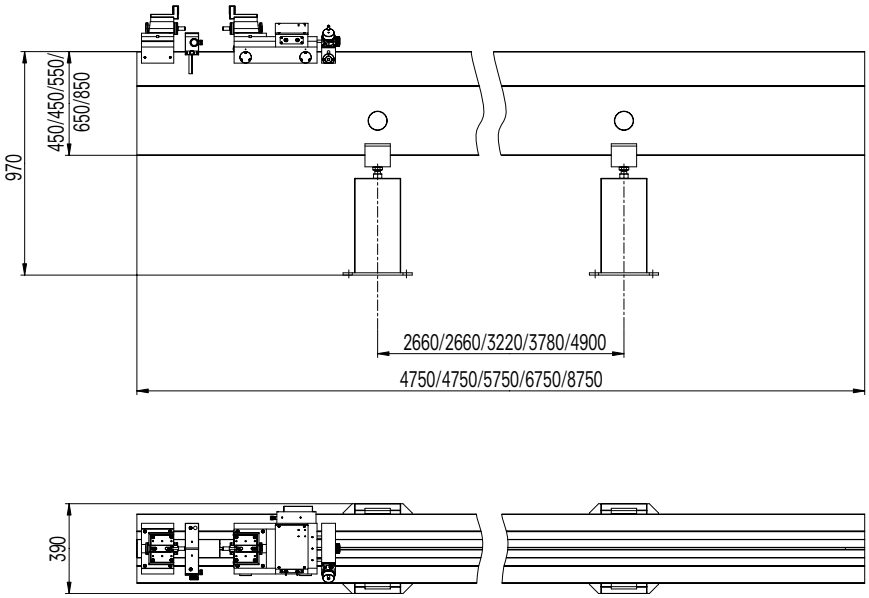
HORIZON + Granite

SCHEMA

HORIZON



HORIZON GRANITE



STANDARD INSTRUMENT

The Horizon instruments are supplied as follows:
Instrument according to specifications
Pair of parallel attachments 25 mm (TEL5)
Universal AC adapter (TA-EL-131)
Protection cover (TEL.HO500 / 1000 / 1500 / 2000)
Allen key set (TA-TO-004)
User's manual (750 50 0005 03)
Test certificate

The Horizon Granite instruments are supplied as follows:
Instrument according to specifications
Pair of anvils with tungsten carbide surface (TEL1)
Lapping plate (TA-TO-302)
Protection cover (TEL.HO3000 / 4000 / 5000 / 6000 / 8000)
Compressed air tubing and air filter
Allen key set (TA-TO-004)
User's manual (750 50 0003 03)
Test certificate

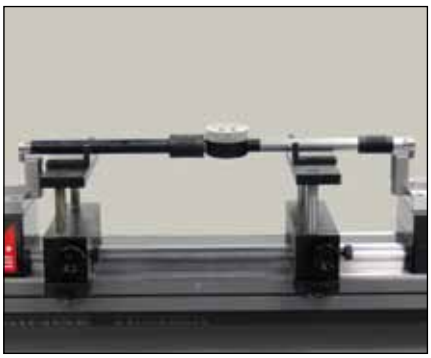
CODE NUMBERS

Horizon	
H501 700 201 10 02	Measuring range 500 mm
H1001 700 201 20 02	Measuring range 1000 mm
H1501 700 201 30 02	Measuring range 1500 mm
H2001 700 201 40 02	Measuring range 2000 mm

Horizon Granite	
HG3000 700 208 60 11	Measuring range 3000 mm
HG4000 700 208 70 11	Measuring range 4000 mm
HG5000 700 208 80 11	Measuring range 5000 mm
HG6000 700 208 90 11	Measuring range 6000 mm
HG8000 700 208 110 11	Measuring range 8000 mm

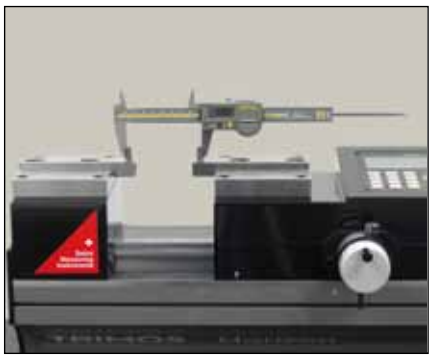
HORIZON + Granite

APPLICATIONS

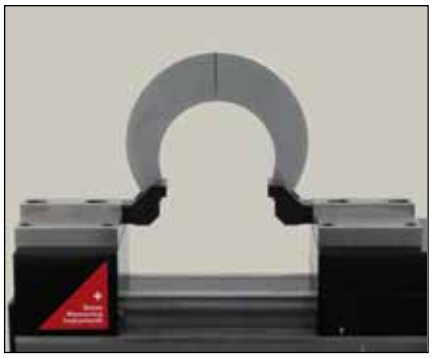


Setting of 2-point internal and external comparative measuring equipment (TEL5 / TELMA7 / TELMN7.2)

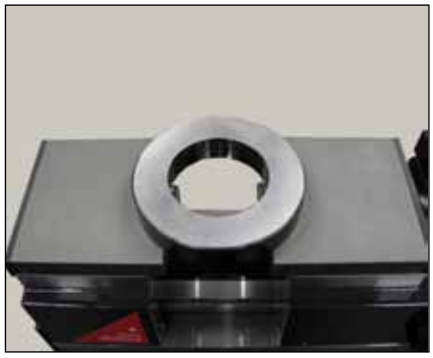
Setting of 2-point bore gauges (TEL5 / TA-SU-301)



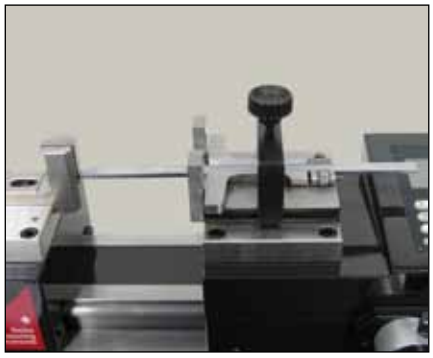
Checking of calipers (TEL5.10)



Checking of snap gauges (TELMA8)

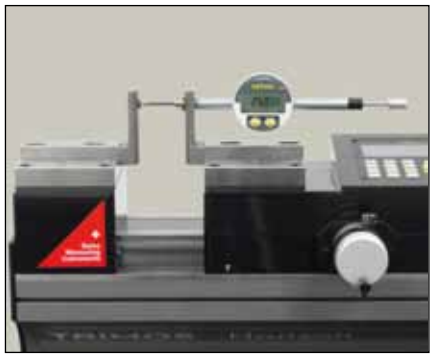


Checking of internal diameter of heavy rings (TEL9 / H-5)

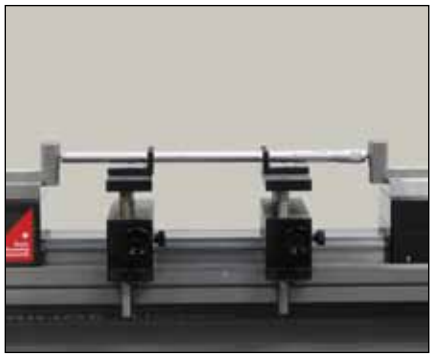


Checking of depth gauges (TULM19 / TEL5)

Checking of external micrometers (TEL5 / TEL11)



Checking of dial indicators (TEL5CN)



Checking of 2-point internal micrometers (TEL5 / TELMA7 / TELMN7.2)

TRIMOS

HORIZON PREMIUM

HORIZON PREMIUM

INTRODUCTION

The HORIZON PREMIUM instruments fulfill today's requirements of high accuracy quality control equipment in production areas and take into consideration EN ISO 9000 standards.

The instruments may be used in a workshop area or installed in a quality control room for checking of measuring gauges and setting of all types of comparative measuring equipment. The well-designed, reliable new concept, obtained by superior engineering, ensures high precision and optimum results by easy manipulation as well as a valuable level of productivity.

The modular design allows the selection between two measuring systems: analog signal output and Heidenhain display unit or digital signal output and computer with TFT touch screen and Trimos-WinDHI software.

Instruments with a measuring range from 500 to 3000 mm are available, all of them built in one single piece. All measuring ranges being direct, it means that the whole measuring range is available without adjustment or intermediate re-calibration.

IDEAL FOR THE USE IN LABORATORY AND IN THE WORKSHOP
NEW ERGONOMIC CONCEPT
MEASURING CARRIAGE WITH FINE ADJUSTMENT
LARGE RANGE OF ACCESSORIES
ADJUSTABLE MEASURING FORCE
3 DISPLAYS AVAILABLE
MODULAR SYSTEM DESIGN
DIRECT MEASUREMENT OVER THE WHOLE RANGE

DESCRIPTION

HORIZON PREMIUM

DISPLAY / SOFTWARE

HORIZON PREMIUM (HPA)
Heidenhain ND287 or ND1100 display units

LINEAR MEASURING SYSTEM, MIN. / MAX. VALUE HOLD
DIGITAL DISPLAY
ZERO SETTING OF THE DISPLAY AND PRESET INPUT
PARAMETER SETTINGS AND CLASSIFICATION
CONFIGURATION OF THE DISPLAY USING EXTERNAL CONTACT
RS232 DATA OUTPUT

Heidenhain ND1100

Heidenhain ND287

HORIZON PREMIUM (HPD)

TRIMOS WinDHI
TRIMOS-WinDHI Software allows the performance of all required measuring functions and the connection to the temperature compensation system TempComp as well as to a gauge inspection and management system.

PC WITH TOUCH SCREEN
DDE-SERVER (FOR EXCEL, WORD, ETC.)
GRAPHIC HELP FOR MEASURING FUNCTIONS
DATA TRANSFER USING A FOOT PEDAL
DIGITAL DISPLAY OF THE SELECTED MEASURING FORCE IN NEWTON (N)
DIRECT DISPLAY OF ALL LENGTH MEASURING VALUES AND MIN. / MAX. VALUE HOLD
MEASURING WITH 9 REFERENCES
INVERSION OF MEASURING DIRECTION SIGN (+/-)
COMPATIBLE WITH TEMPERATURE COMPENSATION SYSTEM TEMPCOMP (SEE § LABCONCEPT)

QMSOFT
Trimos recommends the QMSOFT software package for inspection and management of all measuring tools available.

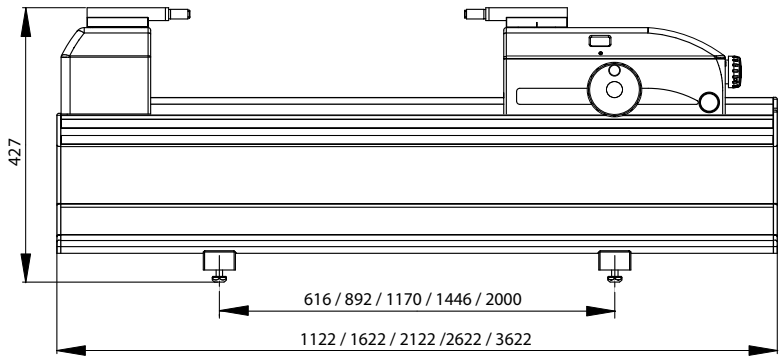
INTEGRATED DRIVERS FOR TRIMOS INSTRUMENTS
REQUIRED NOMINAL SIZES AND TOLERANCES AVAILABLE ACCORDING ALL STANDARDS
CUSTOMIZED INSPECTION CERTIFICATES

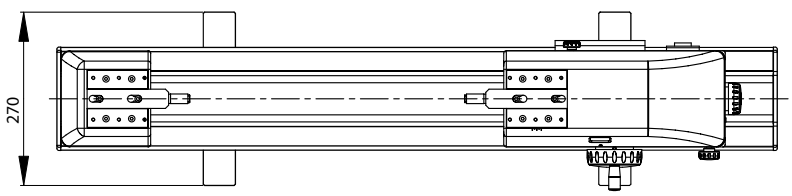
TECHNICAL SPECIFICATIONS

Horizon Premium		500	1000	1500	2000	3000
Measuring range	mm (in)	550 (21)	1050 (41)	1550 (61)	2050 (80)	3050 (120)
Max. permissible errors [1)]	µm	0.7 + L (mm)/1000				
Repeatability (2s) [1)]	µm	0.2				
Resolutions	mm (in)	0.01 / 0.001 / 0.0001 (.001 / .0001 / .00001)				
Max. displacement speed	mm/s	1.5				
Measuring force	N	0 ÷ 12				
Operational temperature	°C	+10 ÷ +40				
Temperature of storage	°C	-10 ÷ +40				
Relative humidity	%	20 ÷ 80				
Weight	kg	94	123	152	181	239

[1)] Values valid at temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5%.

SCHEMA





HORIZON PREMIUM

STANDARD INSTRUMENT

The Horizon Premium (HPA) instruments are supplied as follows:
Instrument according to specifications
Pair of anvils with tungsten carbide surface (HPA-1)
Lapping plate (TA-TO-302)
Protection cover (TEL.HO500 / 1000 / 1500 / 2000)
Allen key set (TA-TO-004)
User's manual (750 50 0015 03)
Test certificate

The Horizon Premium (HPD) instruments are supplied as follows:
Instrument according to specifications
Pair of anvils with tungsten carbide surface (HPA-1)
PC with interface, touch screen [1], adjustable support [1], touch screen pen [1]
Foot pedal for data transfer (TELMA31)
Opto-RS connection cable for measuring force (TVM.O-PC/AT.9P)
Lapping plate (TA-TO-302)
Protection cover (TEL.HO500 / 1000 / 1500 / 2000)
Allen key set (TA-TO-004)
User's manual (750 50 0015 03)
Test certificate

[1] Not included in version HPD-B. Touch screen replaced by a regular TFT screen.

CODE NUMBERS

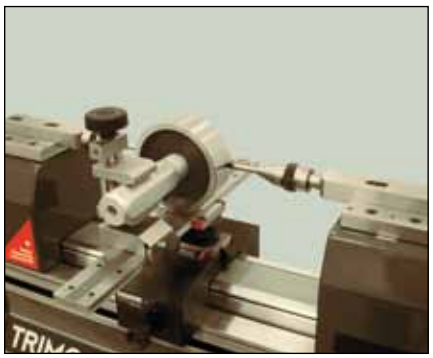
Horizon Premium (HPA)	
HPA500 700 202 10 01	Measuring range 500 mm
HPA1000 700 202 20 01	Measuring range 1000 mm
HPA1500 700 202 30 01	Measuring range 1500 mm
HPA2000 700 202 40 01	Measuring range 2000 mm
HPA3000 700 202 50 01	Measuring range 3000 mm

Horizon Premium (HPD)		
HPD500 700 212 10 01	**HPD500B** 700 212 10 02 [1]	Measuring range 500 mm
HPD1000 700 212 20 01	**HPD1000B** 700 212 20 02 [1]	Measuring range 1000 mm
HPD1500 700 212 30 01	**HPD1500B** 700 212 30 02 [1]	Measuring range 1500 mm
HPD2000 700 212 40 01	**HPD2000B** 700 212 40 02 [1]	Measuring range 2000 mm
HPD3000 700 212 60 01	**HPD3000B** 700 212 60 02 [1]	Measuring range 3000 mm

[1] HPD-B: With TFT screen, no adjustable support.

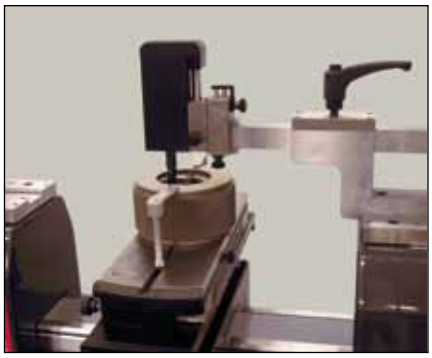
APPLICATIONS

Checking of ring gauges
(TA-SU-313 / TEL16.1 / HPA-1)

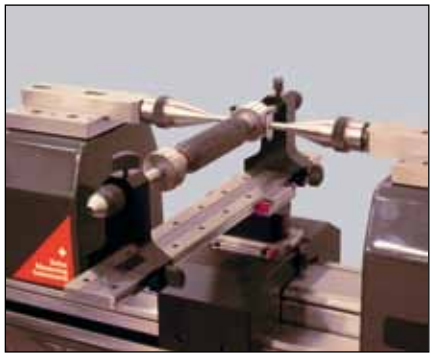


Checking of plug gauges
(HPA-1 / TULM6 / L05 / LABC-15)

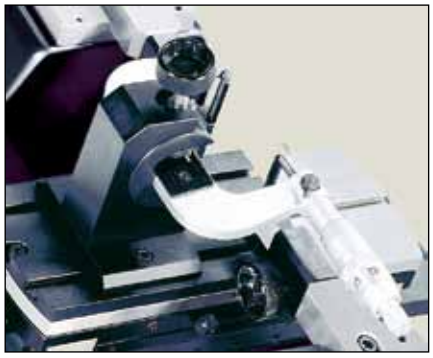
Checking of calipers (TEL5.10)



HPD: Checking of thread ring gauges
(TA-SU-313 / LABC-70 / TA-SU-354)

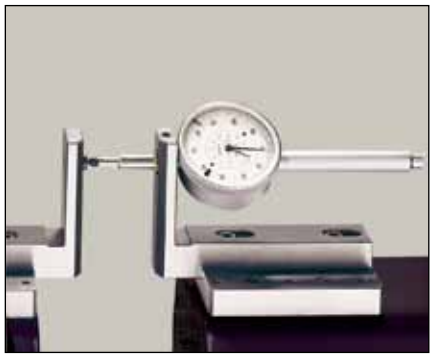


Checking of thread plug gauges (HPA-1 / TEL6 / 3P / 0.17-3.2 / S6.5 / LABC-15)

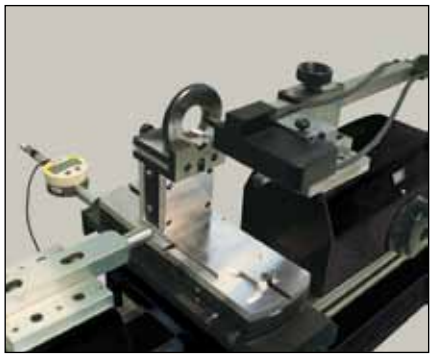


Checking of external micrometers
(HPA-1 / TULM14)

Checking of snap gauges
(TA-SU-313 / TEL14N)



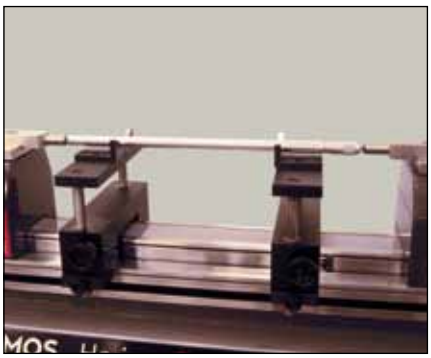
Checking of dial indicators (TEL5CN)



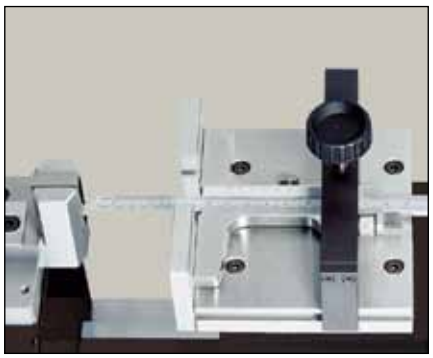
HPD: Checking of taper thread ring gauges (LABC80)

HORIZON PREMIUM

APPLICATIONS

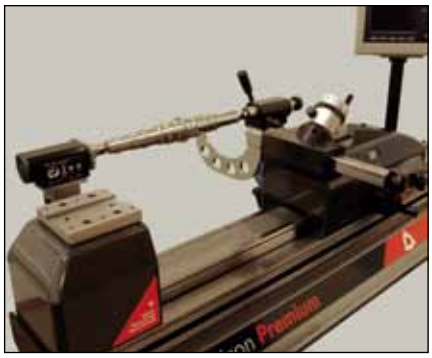


Setting of 2-point internal micrometers
(HPA-1 / TELMA7 / TELMN7.2)



Checking of depth gauges
(TEL5 / TULM19)

HPA: Checking of thread ring gauges
(TEL18)



HPA: Measurement of cylindrical
parts (TA-MS-303)

Large micrometer control
(TEL5 / TEL11 / LABC20)

Setting of 2-point bore gauges
(TEL5 / TA-SU-301)

Setting of a large gauge (TEL5)

TRIMOS

THV

THV

INTRODUCTION

The horizontal THV instrument has been designed for calibration and certification of gauging equipment of small dimension.

It allows easy and precise checking of plug gauges, ring gauges, thread plug gauges, test and dial indicators as well as measuring of high precision production parts.

The incorporated opto-electronic measuring system guarantees high accuracy. A separate display unit or a PC with Trimos WinDHI software can be used to display the measurement results.

The THV instruments can also be delivered without measuring system. An electronic probe or a dial indicator shall then be used as measuring system.

Due to its small size, The THV can be moved easily. It is therefore frequently used as mobile calibration station.

- IDEAL FOR THE USE IN A CLEAN ROOM AND IN THE WORKSHOP AREA
- THE INSTRUMENT MEETS THE REQUIREMENTS OF ALL EN ISO 9000
- VERY SIMPLE MANIPULATION
- LARGE RANGE OF ACCESSORIES
- CHECKING OF INTERNAL AND EXTERNAL DIMENSIONS USING A SINGLE MEASURING ELEMENT
- ACCORDING TO THE APPLICATION, THE INSTRUMENT CAN BE USED IN HORIZONTAL POSITION OR IT CAN BE INCLINED UPTO 90° USING THE ADDITIONAL STAND

DESCRIPTION

DISPLAY UNITS:

Heidenhain ND1100

PC with TRIMOS-WinDHI software

THV

DISPLAY / SOFTWARE

DISPLAY UNIT HEIDENHAIN ND1100

- LINEAR MEASURING SYSTEM, MIN./MAX. VALUE HOLD
- INVERSION OF MEASURING DIRECTION SIGN (+/-)
- ZERO SETTING OF THE DISPLAY AND PRESET INPUT
- PARAMETER SETTINGS AND CLASSIFICATION
- CONFIGURATION OF THE DISPLAY USING EXTERNAL CONTACT
- RS232 DATA OUTPUT

PC WITH TRIMOS WINDHI

TRIMOS-WinDHI Software allows the performance of all required measuring functions and the connection to a gauge inspection and management system.

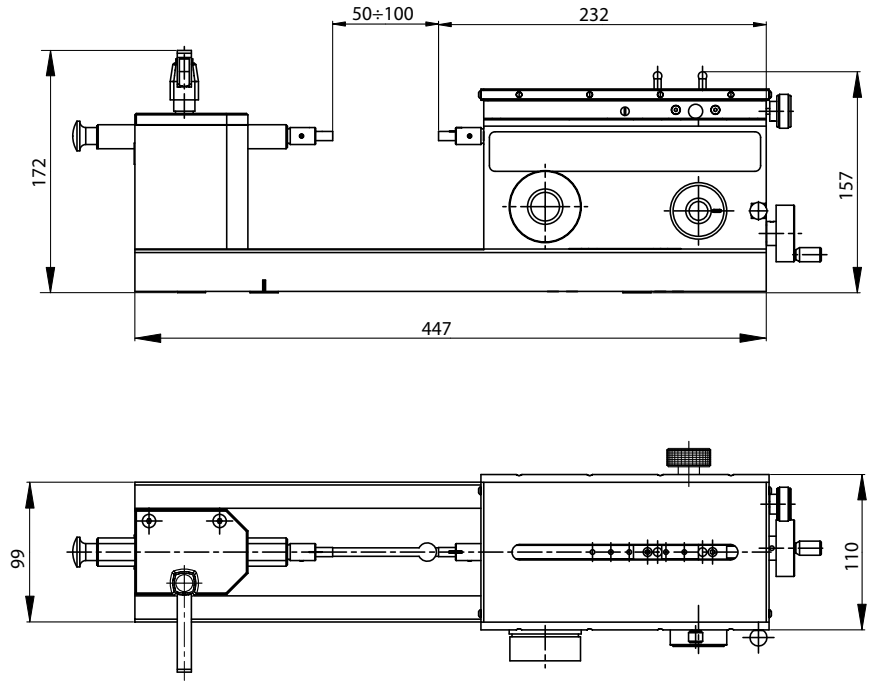
- INVERSION OF MEASURING DIRECTION SIGN (+/-)
- DDE-SERVER (FOR EXCEL, WORD, ETC.)
- GRAPHIC HELP FOR MEASURING FUNCTIONS
- DATA TRANSFER USING A FOOT PEDAL
- DIRECT DISPLAY OF ALL LENGTH MEASURING VALUES AND MIN. / MAX. VALUE HOLD
- MEASURING WITH 9 REFERENCES
- COMPATIBLE WITH MEASURING EQUIPMENT MANAGEMENT SYSTEMS

TECHNICAL SPECIFICATIONS

THV		
Absolute measuring range	mm (in)	50 (2)
Application range (external measurements)	mm (in)	100 (4)
Application range (internal measurements)	mm (in)	100 (4)
Max. permissible errors [1)]	µm	0.2+ L (mm)/250
Repeatability (2s) [1)]	µm	0.1
Resolutions (depending on display unit)	mm (in)	0.1 ÷ 0.00001 (.0001 ÷ .000001)
Measuring force (adjustable)	N	0 ÷ 4
Operational temperature	°C	+10 ÷ +40
Temperature of storage	°C	-10 ÷ +40
Weight	kg	22

[1)] Instruments with integrated measuring system. Values valid at temperature of 20±0.2 °C and relative humidity of 50±5%.

SCHEMA



STANDARD INSTRUMENT

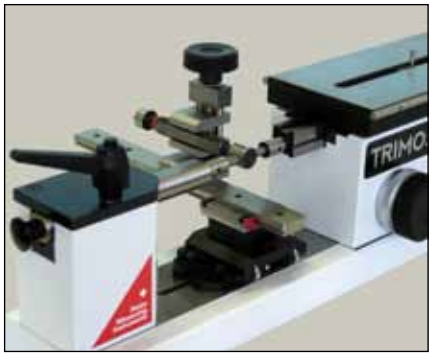
The THV instruments are supplied as follows:
Instrument according to specifications (without display)
Measuring inserts for external measurements (TELS50)
Measuring anvils for internal measurements (THV-10)
Protection cover (THV.HO.0-50)
User's manual (750 50 0006 03)
Test certificate

CODE NUMBERS

THV	Rigid table	Floating table
Instruments with measuring system	**THVR.0-50** 700 206 00 22	**THVR.0-50S** 700 206 00 24
Instruments without measuring system	**THV.0-50** 700 206 00 21	**THV.0-50S** 700 206 00 01

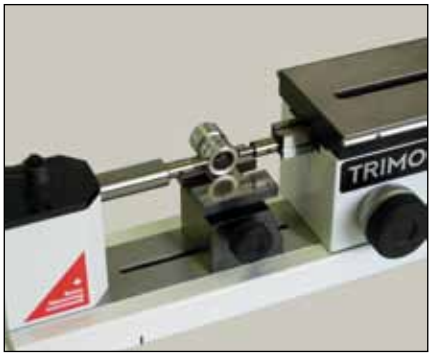
THV

APPLICATIONS

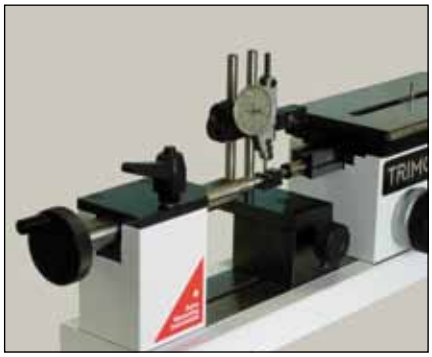


Calibration of plain and threaded plug gauges using the floating table (THV-115)

Calibration of plain rings gauges (THV-260)



Measuring of precision parts (THV-100 / THV-101)



Checking of test indicators (THV-100 / THV-150

Adjustable support for a constant measuring force (THV-200)

Floating table for more accurate internal measurements

TRIMOS

LABCONCEPT + Premium

LABCONCEPT + Premium

INTRODUCTION

The Labconcept and Labconcept Premium are high precision calibration systems that meet the most sophisticated requirements.

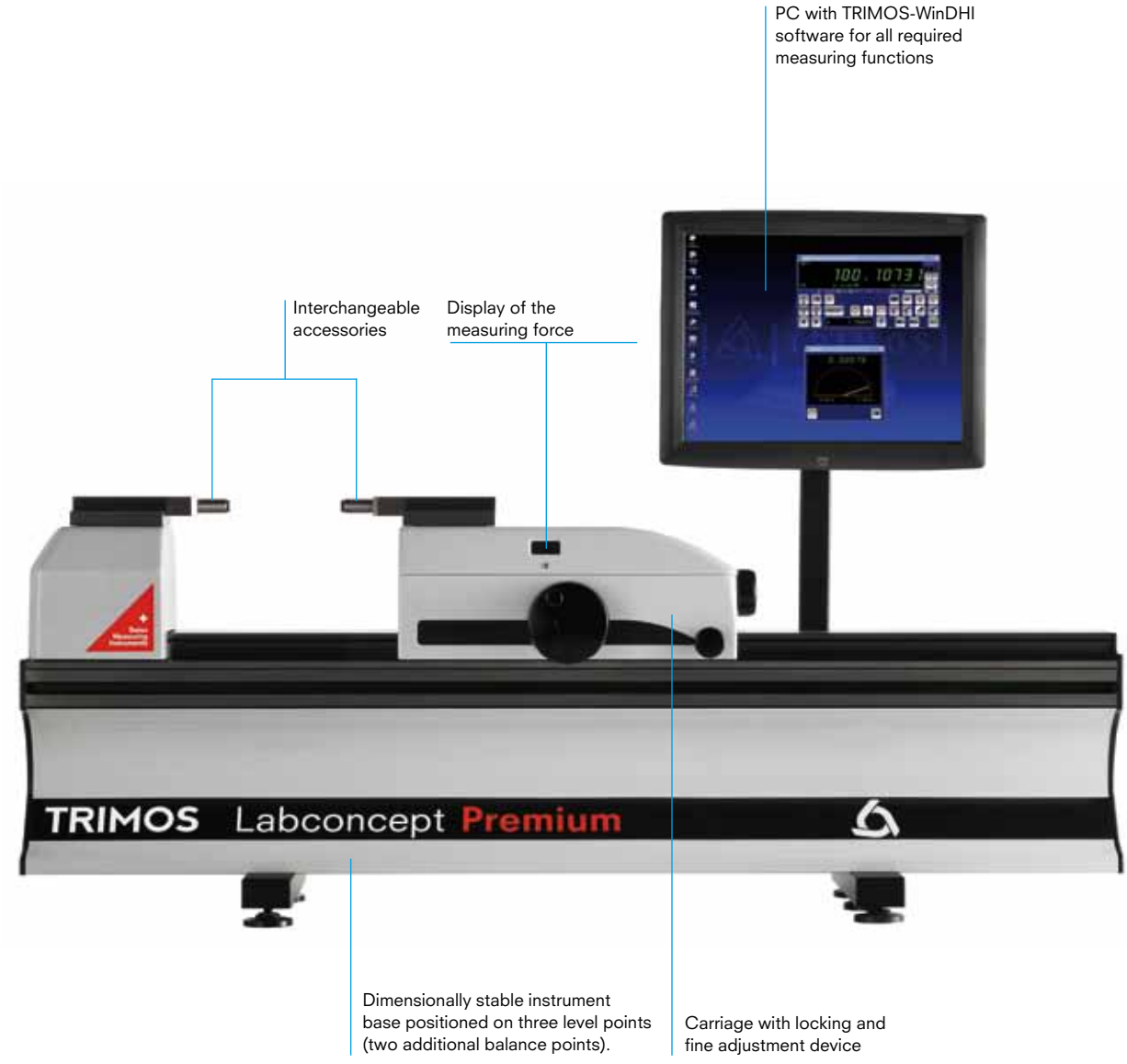
The up-to-date, well designed modular concept enables extremely secure functioning, facilitates the manipulation and therefore increases the productivity in the measuring laboratory. Simplicity and high accuracy have been associated.

This new concept, integrating a computer and a touch screen as well as the appropriate Trimos-WinDHI software with all necessary measuring functions guarantees the best results. A temperature compensation system as well as a gauge management system can be installed to enhance the system performance.

Instruments with a measuring range from 300 to 2000 mm are available, all made in one single piece. All measuring ranges being direct, it means that the whole measuring range is available without adjustment or intermediate re-calibration.

- MEETS THE REQUIREMENTS OF ALL EN ISO 9000
- PC WITH EXCLUSIVE SOFTWARE WINDHI
- HIGH PRECISION MEASURING SYSTEM
- DIMENSIONALLY STABLE INSTRUMENT BASE
- ADJUSTABLE MEASURING FORCE (FROM 0 TO 12 N)
- LARGE RANGE OF ACCESSORIES
- DIRECT MEASUREMENT OVER THE WHOLE MEASURING RANGE

DESCRIPTION



LABCONCEPT + Premium

DISPLAY / SOFTWARE

TRIMOS WINDHI

TRIMOS® WinDHI Software allows the performance of all required measuring functions. It can be connected to the temperature compensation software WinComp and to any gauge inspection and management program.

- DDE-SERVER (FOR EXCEL, WORD, ETC.)
- GRAPHIC HELP FOR MEASURING FUNCTIONS
- DATA TRANSFER USING A FOOT PEDAL
- DIGITAL DISPLAY OF THE SELECTED MEASURING FORCE IN NEWTON (N)
- DIRECT DISPLAY OF ALL LENGTH MEASURING VALUES AND MINI/MAX VALUE HOLD
- INPUT OF 9 PRESET VALUES
- INVERSION OF MEASURING DIRECTION SIGN (+/-)
- COMPATIBLE WITH TEMPERATURE COMPENSATION SYSTEM TEMPCOMP

QMSOFT

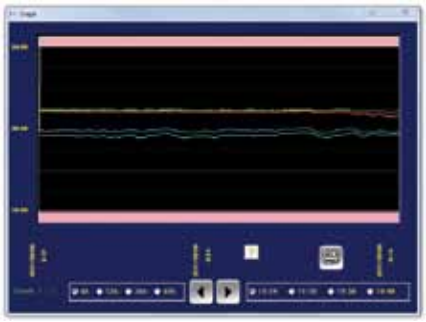
Trimos recommends the QMSOFT software package for inspection and management of all measuring tools available.

- INTEGRATED DRIVERS FOR TRIMOS INSTRUMENTS
- REQUIRED NOMINAL SIZES AND TOLERANCES AVAILABLE ACCORDING TO ALL STANDARDS
- CUSTOMIZED INSPECTION CERTIFICATES

DISPLAY / SOFTWARE

TEMPERATURE COMPENSATION SYSTEM TRIMOS TEMPCOMP

The Temperature Compensation System TempComp gives a solution to air conditioning problems in measuring laboratories.



- COMPATIBLE WITH HPD, LABCONCEPT, LABCONCEPT PREMIUM AND LABCONCEPT NANO INSTRUMENTS
- TRIMOS WINCOMP EXCLUSIVE SOFTWARE
- ACQUISITION AND MANAGEMENT OF TEMPERATURE DATA
- PERMANENT CONNECTION WITH WIN DHI
- REAL-TIME COMPENSATION OF THE MEASUREMENT
- TEMPERATURE EVOLUTION HISTORY OVER SEVERAL YEARS FOR A PERFECT TRACEABILITY
- GRAPHICAL DISPLAY OF TEMPERATURE EVOLUTION
- MATERIALS LIBRARY
- INDICATION OF THE MEASUREMENT RELIABILITY LEVEL

TEMPCOMP BASIC

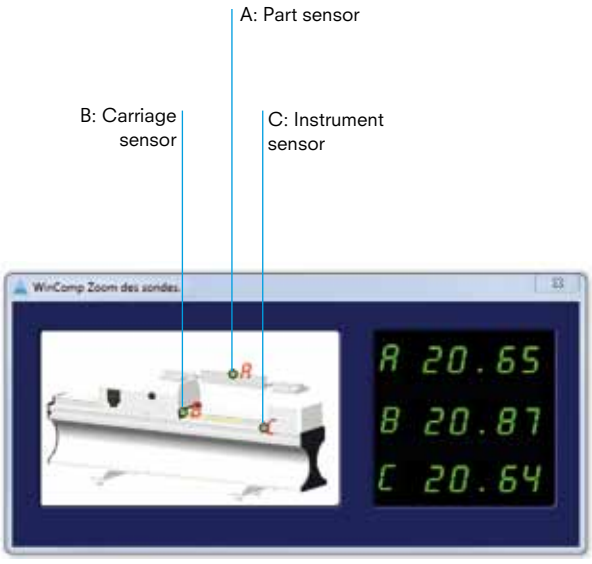
- BASIC TEMPERATURE COMPENSATION SYSTEM
- 2 TEMPERATURE SENSORS:

A PART TO BE MEASURED
B MEASURING CARRIAGE

TEMPCOMP PREMIUM

- PART TO BE MEASURED
- 3 TEMPERATURE SENSORS:

A PART TO BE MEASURED
B MEASURING CARRIAGE
C INSTRUMENT BASE



TempComp Basic & Premium		
Application range (temperature)	°C	+16 ÷ +24
Max. resolution (temperature)	°C	0.01
Max. permissible errors (temperature)	°C	0.05

LABCONCEPT + Premium

DISPLAY / SOFTWARE

TEMPCOMP ADVANCED

The environnement control system TempComp Advanced represents an evolution of the temperature compensation system TempComp.

Tempcomp is an exclusive temperature compensation system with environmental parameter verification of the laboratory. The temperature acquisition is managed by WinComp Advanced software. It offers, on top of WinComp functionalities, the possibility to check the laboratory in real time via Internet, Intranet, mobile phone, etc..

INTEGRATED TEMPERATURE COMPENSATION SYSTEM FOR LABORATORY

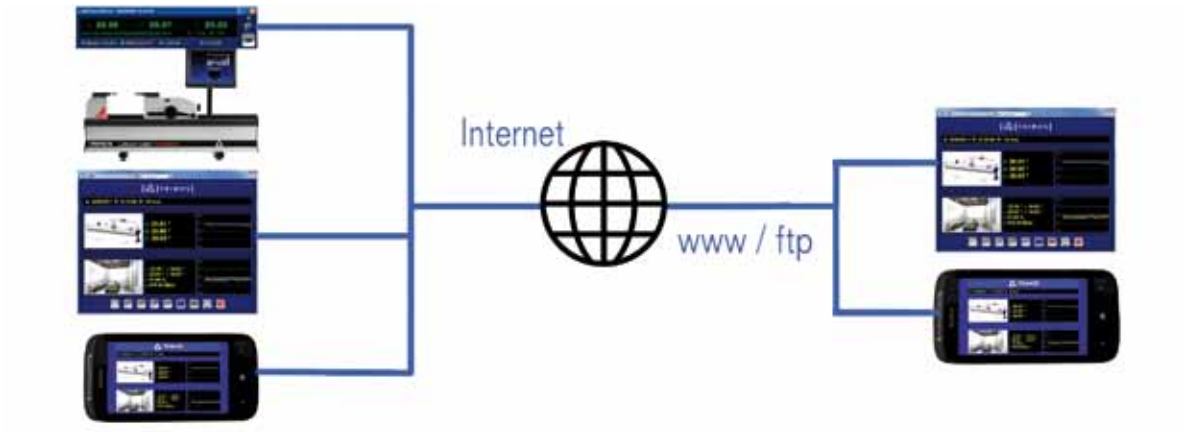
3 TEMPERATURE SENSORS ON THE INSTRUMENT:

- PART TO BE MEASURED
- MEASURING CARRIAGE
- INSTRUMENT BASE

4 TEMPERATURE SENSORS IN THE LABORATORY

1 RELATIVE HUMIDITY SENSOR

1 ATMOSPHERIC PRESSURE SENSOR



TempComp Advanced		
Application range (temperature)	°C	+16 ÷ +24
Max. resolution (temperature)	°C	0.01
Max. permissible errors (instrument temperature)	°C	0.05
Max. permissible errors (environmental temperature)	°C	0.16
Max. permissible errors (humidity)	%	± 2
Max. permissible errors (pressure)	mbar	± 0.5 %

TECHNICAL SPECIFICATIONS

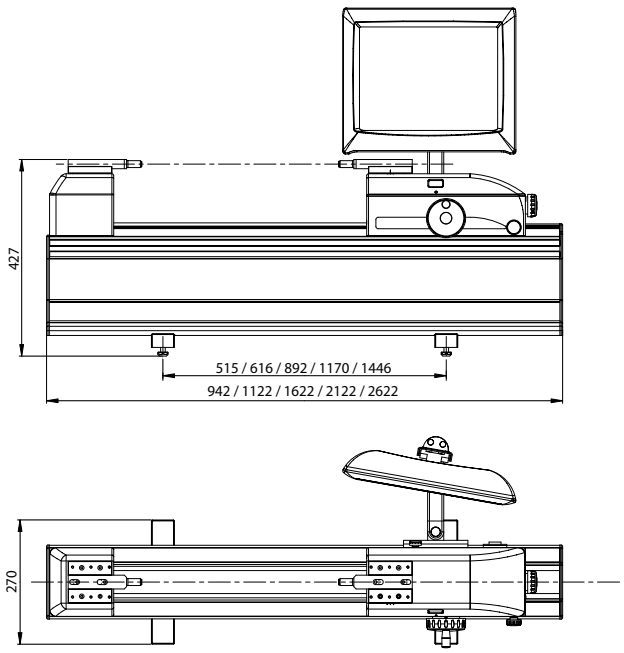
Labconcept		500	1000	1500	2000
Measuring range	mm (in)	550 (21)	1050 (41)	1550 (61)	2050 (80)
Max. permissible errors [1)]	µm	0.3 + L (mm) / 1500			
Repeatability (2s) [1)]	µm	0.1			
Resolutions	mm (in)	0.01 ÷ 0.00001(.0001 ÷ .000001)			
Max. displacement speed	mm / s	1500			
Measuring force	N	0 ÷ 12			
Operational temperature	°C	+10 ÷ +40			
Temperature of storage	°C	-10 ÷ +40			
Relative humidity	%	20 ÷ 80			
Weight	kg	94	123	152	181

[1)] Values valid at temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5%.

Labconcept Premium		300	500	1000
Measuring range	mm (in)	370 (14)	550 (21)	1050 (41)
Max. permissible errors [1)]	µm	0.1 + L (mm) / 2000	0.15 + L (mm) / 2000	
Repeatability (2s) [1)]	µm	0.05		
Resolutions	mm (in)	0.01 ÷ 0.00001 (.0001 ÷ .000001)		
Max. displacement speed	mm / s	400		
Measuring force	N	0 ÷ 12		
Operational temperature	°C	+10 ÷ +40		
Temperature of storage	°C	-10 ÷ +40		
Relative humidity	%	20 ÷ 80		
Weight	kg	78	95	125

[1)] Values valid at temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5%.

SCHEMA



LABCONCEPT + Premium

STANDARD INSTRUMENT

The Labconcept and Labconcept Premium instruments are supplied as follows:
Instrument according to specifications
Pair of anvils with tungsten carbide surface (HPA-1)
PC with interface, touch screen [1] with adjustable support [1] and touch screen pen [1]
Foot pedal for data transfer (TELMA31)
Opto-RS connection cable for measuring force (TVM.O-PC / AT.9P)
Lapping plate (TA-TO-302)
Protection cover (TEL.HO500 / 1000 / 1500 / 2000)
Allen key set (TA-TO-004)
User's manual (750 50 0015 03)
Test certificate

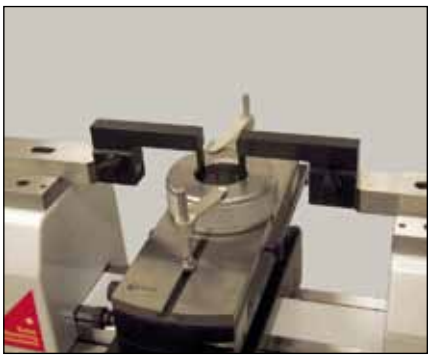
[1] Not included in versions LABC-B. Touch screen replaced by a regular TFT screen.

CODE NUMBER

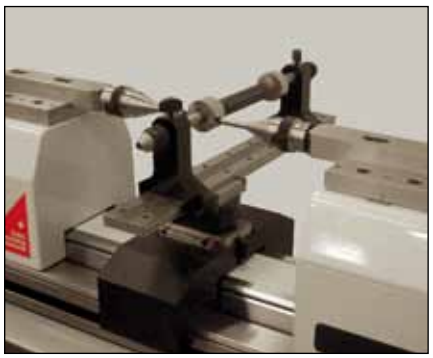
With touch screen	With TFTscreen	Labconcept
LABC500 700 203 10 01	**LABC500B** 700 203 10 02	Measuring range 500 mm
LABC1000 700 203 20 01	**LABC1000B** 700 203 20 02	Measuring range 1000 mm
LABC1500 700 203 30 01	**LABC1500B** 700 203 30 02	Measuring range 1500 mm
LABC2000 700 203 40 01	**LABC2000B** 700 203 40 02	Measuring range 2000 mm

With touch screen	With TFTscreen	Labconcept Premium
	LABCP300B 700 203 10 13	Measuring range 300 mm
LABCP500 700 203 10 11	**LABCP500B** 700 203 10 12	Measuring range 500 mm
LABCP1000 700 203 20 11	**LABCP1000B** 700 203 20 12	Measuring range 1000 mm

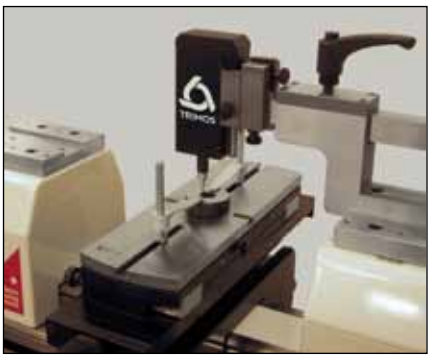
APPLICATIONS



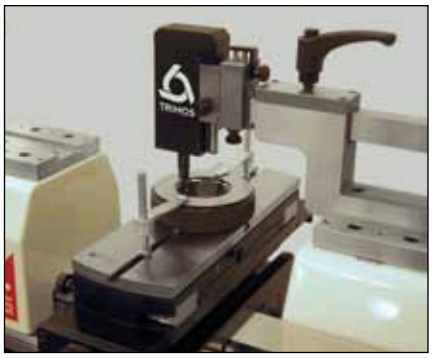
Calibration of ring gauges
(TA-SU-313 / TEL16.1 / HPA-1)



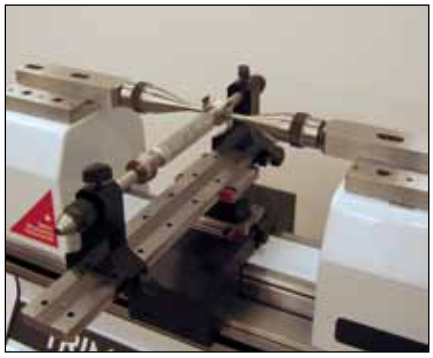
Calibration of plug gauges
(HPA-1 / TULM6 / L05 / LABC-15)



Calibration of small ring gauges
(TA-SU-313 / LABC-70 / TA-SU-354)

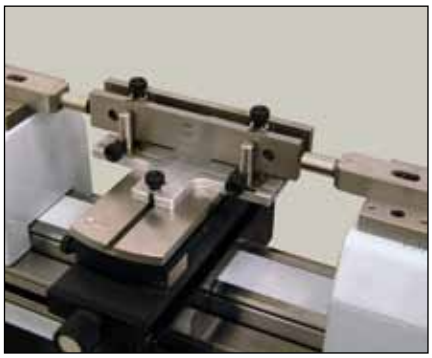


Calibration of thread ring gauges
(TA-SU-313 / LABC-70 / TA-SU-354)

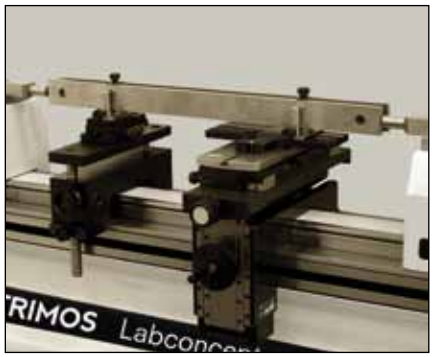


Calibration of thread plug gauges (HPA-1 / TEL6 / 3P / 0.17-3.2 / S6.5 / LABC-15)

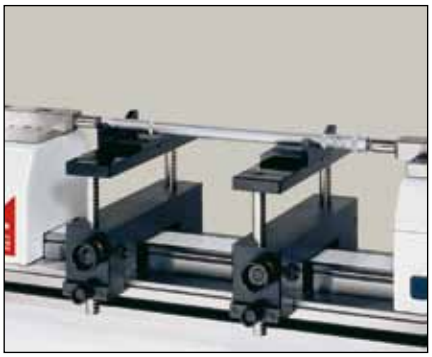
Calibration of external micrometers
(HPA-1 / TULM14)



Comparative checking of gauge blocks < 250 mm (TA-SU-313 / TA-SU-305)



Comparative checking of gauge blocks > 250 mm (TA-SU-313 / TELMA7 / P / TA-SU-305 / TA-SU-306)

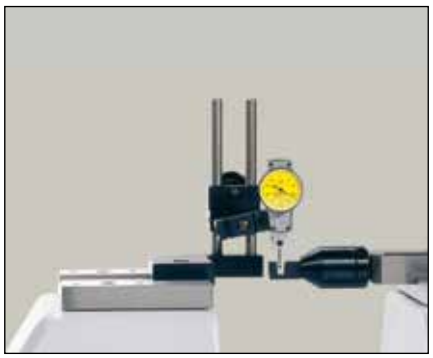


Setting of 2-point internal micrometers
(HPA-1 / TELMA7 / TELMN7.2)

LABCONCEPT + Premium

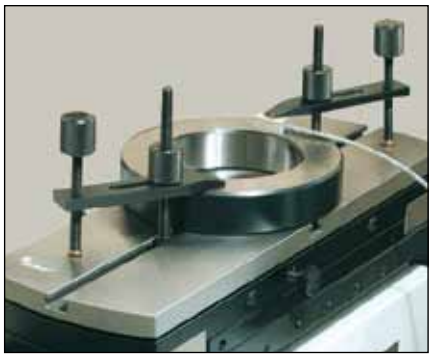
APPLICATIONS

Checking of dial indicators (TULM5C)

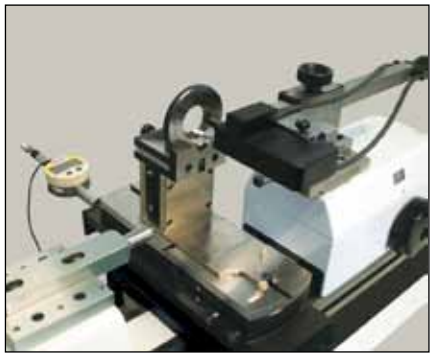


Checking of test indicators (TULM15)

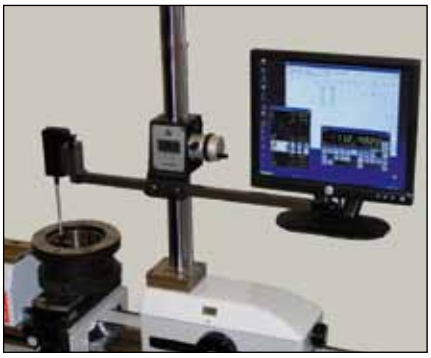
Checking of snap gauges (TA-SU-313 / TEL14N)



Temperatue compensation system TempComp



Checking of taper thread ring gauges (HPA-1 / LABC80)



Special design for measurement of large taper threaded gauges

Direct measurement over the whole measuring range.

TRIMOS

LABCONCEPT Nano

LABCONCEPT Nano

INTRODUCTION

No compromise on accuracy
The Labconcept Nano is a new reference in the field of dimensional metrology. It integrates 40 years of knowledge and continuous improvement. It is a remarkable instrument for all measuring tasks that require extremely high accuracy.

The uncompromising design of the Labconcept Nano offers an ideal and performing platform for checking and calibration of all kinds of gauges and measuring instruments. Checking of internal and external dimensions will be done as a fully automatic procedure by the three motorized axes XYZ and the legendary simplicity of use of Trimos WinDHI software.

The Labconcept Nano is completely designed and manufactured in Switzerland according to the highest quality standards. Robustness, reliability and longevity are our traditional values.

A New Technological Dimension
The Labconcept Nano combines tradition, experience and a strong technological lead. It integrates the latest measuring and motorisation technologies and can be considered as the first "full digital" calibration instrument. A regular PC controls all electronic components. This low-power solution avoids heating and keeps the energy, maintenance and repair costs at a reasonable level. The linear bearings used in all guideways have proven their superiority over all other technologies in terms of precision, wear, rigidity, temperature stability, reliability, dust protection and maintenance. They ensure exceptional repeatability and precision through time.

- UNEQUALLED HIGH LEVEL OF ACCURACY
- EXCEPTIONAL REPEATABILITY
- MOTORIZED MEASURING CARRIAGE, X AXIS, SELECTION OF SPEED BY SOFTWARE
- MOTORIZED UNIVERSAL MEASURING TABLE, CNC Y AND Z AXIS WITH INTEGRATED MEASURING SYSTEM
- MEASURING FORCE (0-12N) AND LOCKING OF MEASURING ANVIL PERFORMED BY SOFTWARE
- INTEGRATED TEMPERATURE COMPENSATION SYSTEM
- ABSOLUTE MEASURING RANGE ON ALL MODELS : 350 MM
- APPLICATION RANGES OF 350, 600 AND 1100 MM
- MEASURING OF PARTS UP TO 60 KG IN WEIGHT
- 2 SCREENS IN THE STANDARD PACKAGE
- CNC CONTROLLED MEASUREMENTS EVEN ON DIAMETERS AND THREADS

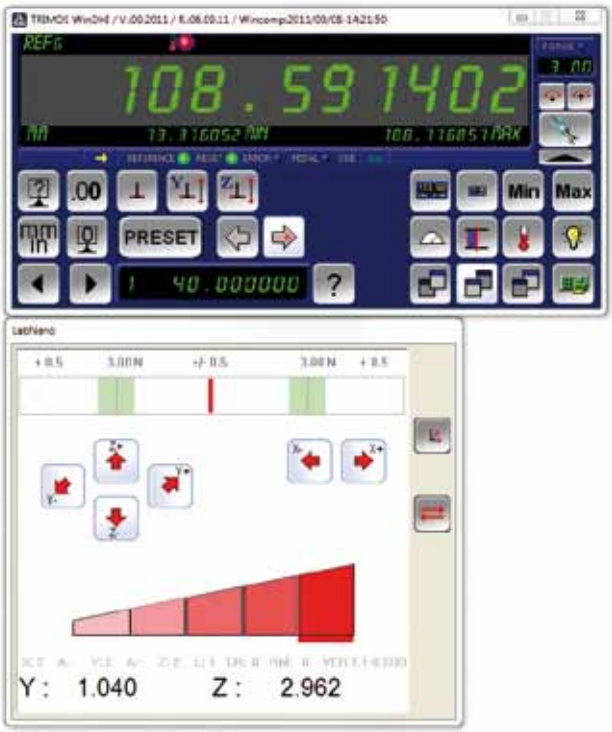
DESCRIPTION

LABCONCEPT Nano

DISPLAY / SOFTWARE

TRIMOS WINDHI NANO

Trimos Win DHI Nano is the exclusive measurement software of Trimos. It is part of the basic equipment of the Labconcept Nano and allows the performance of all measuring functions. It helps the user to perform all measurement tasks through a user-friendly interface.



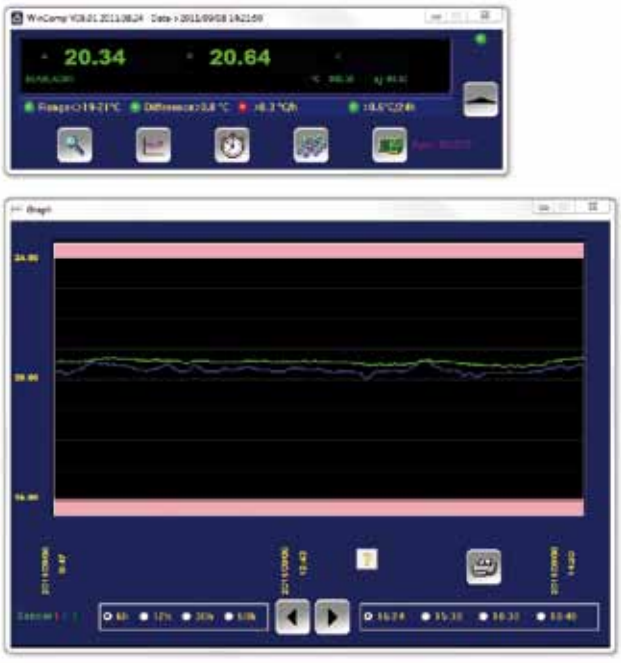
The motorization of the measuring carriage (X) and both vertical (Z) and horizontal (Y) axis of the universal measuring table allow an exceptional performance in terms of measuring speed, ease of use and accuracy.

Positioning can be done easily using the mouse and the keyboard or via the touch screen (optional) or a joystick (optional). Once positioned, measurements are entirely CNC controlled, including searching the reversal point. Plug and ring gauges, threaded ring and plug gauges etc. can be measured automatically in a few seconds. No risk of damage to the sensitive probes while moving or measuring, even with tiny parts and inserts.

- 100 % AUTOMATIC MEASUREMENTS
- MEASUREMENTS PERFORMED IN A FEW SECONDS
- USER FRIENDLY INTERFACE
- GRAPHIC HELP FOR MEASURING FUNCTIONS
- ELECTRONICALLY ADJUSTABLE MEASURING FORCE
- DATA TRANSFER USING A FOOT SWITCH
- DDE SERVER (FOR EXCEL, WORD, ETC.)

TRIMOS WINCOMP

The Labconcept Nano is equipped as standard with a temperature compensation system Trimos WinComp allowing the acquisition and management of temperature data.



- TRIMOS WINCOMP EXCLUSIVE SOFTWARE
- ACQUISITION AND MANAGEMENT OF TEMPERATURE DATA
- PERMANENT CONNECTION WITH WIN DHI
- REAL - TIME COMPENSATION OF THE MEASUREMENT
- TEMPERATURE EVOLUTION HISTORY OVER SEVERAL YEARS FOR A PERFECT TRACEABILITY
- GRAPHICAL DISPLAY OF TEMPERATURE EVOLUTION
- MATERIALS LIBRARY
- INDICATION OF THE MEASUREMENT RELIABILITY LEVEL

DISPLAY / SOFTWARE

QMSOFT

Trimos recommends the QMSOFT software package for inspection and management of all measuring tools available.

- INTEGRATED DRIVERS FOR TRIMOS INSTRUMENTS
- REQUIRED NOMINAL SIZES AND TOLERANCES AVAILABLE ACCORDING TO ALL STANDARDS
- CUSTOMIZED INSPECTION CERTIFICATES

TECHNICAL SPECIFICATIONS

Labconcept Nano		**350**	**600**	**1100**
Application range	mm (in)	350 (13.2)	600 (23.6)	1100 (43.3)
Absolute measuring range	mm (in)	350 (13.2)		
Max. permissible errors [1]	µm	0.07+L(mm) / 2000		
Repeatability (2s) [1]	µm	0.03		
Max. resolution	mm (in)	0.000001 (0.0000001)		
Measuring force (adjustable by software)	N	0 ÷ 12		
Operational temperature	°C	+15 ÷ +35		
Temperature of storage	°C	-10 ÷ +40		
Relative humidity	%	20 ÷ 80		
Weight	kg	350	420	500

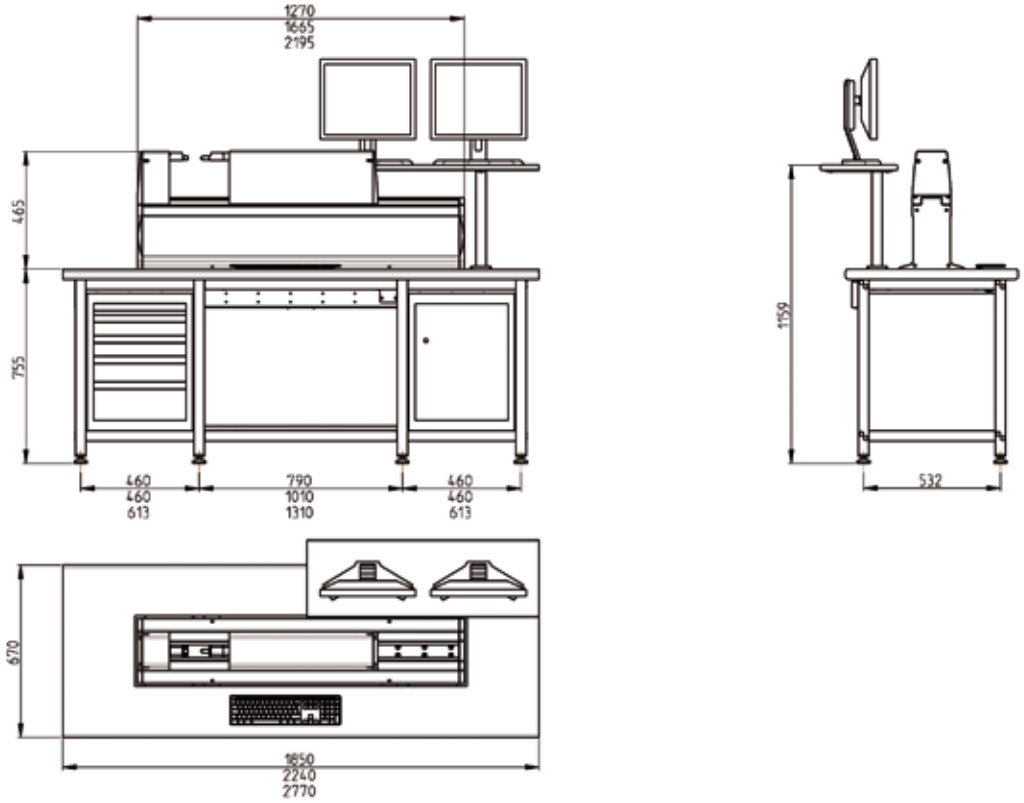
[1] Values valid at temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5%.

Measuring table with motorized Y and Z axes		
Z axis, displacement range [2]	mm (in)	100 (4)
Y axis, displacement range [2]	mm (in)	50 (2)
X axis, floating movement	µm	± 10
Angle of inclination (Y)	°	± 1.5
Angle of rotation (Z)	°	± 4
Max. weight of parts	kg	60

[2] Both axes Y and Z have an integrated measuring system.

LABCONCEPT Nano

SCHEMA



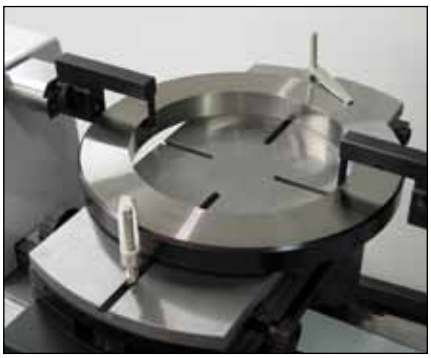
STANDARD INSTRUMENT

The Labconcept Nano are supplied as follows:
Instrument according to specifications with tungsten carbide surface anvils
Universal measuring table with motorized Y and Z axes (Nano-14)
PC with interface, 2 LCD TFT screens and 1 printer
Foot pedal for data transfer (TELMA31)
Specially designed workbench with 1 drawer cabinet and 1 door cabinet
Temperature compensation system (TEMPCOMP-B)
Lapping plate (TA-TO-302)
Protection cover (TEL.HO500 / 1000 / 1500)
Allen key set (TA-TO-004)
User's manual (750 50 0039 03)
Test certificate

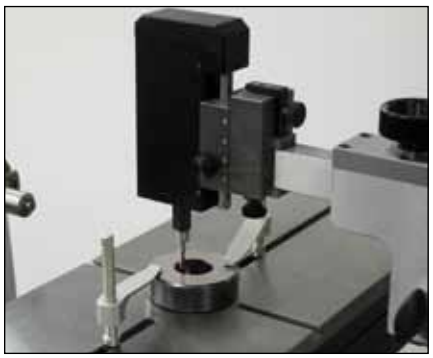
CODE NUMBERS

Labconcept Nano	Standard workbench	Anti-vibration workbench	
LABC-NANO 350 700 213 00 01	**TA-TO-306** 714 12 006	**TA-TO-310** 714 12 010	Measuring range 350 mm
LABC-NANO 600 700 213 10 01	**TA-TO-307** 714 12 007	**TA-TO-311** 714 12 011	Measuring range 600 mm
LABC-NANO 1100 700 213 20 01	**TA-TO-308** 714 12 008	**TA-TO-312** 714 12 012	Measuring range 1100 mm

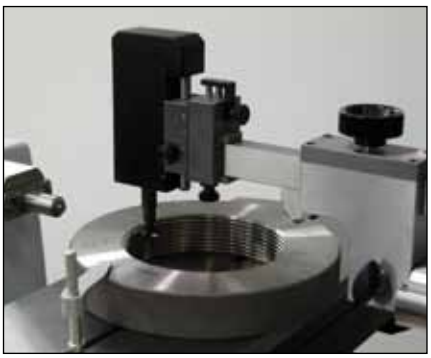
APPLICATIONS



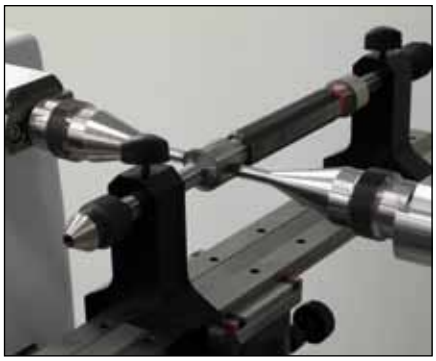
Calibration of plain ring gauges
(TEL16.1 / TA-SU-354)



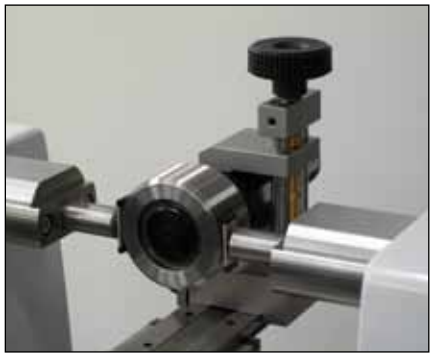
Calibration of small plain ring gauges
(TA-MS-370 / TEL76 / TA-SU-354)



Calibration of thread ring gauges
(TA-MS-370 / TEL75 / TA-SU-354)



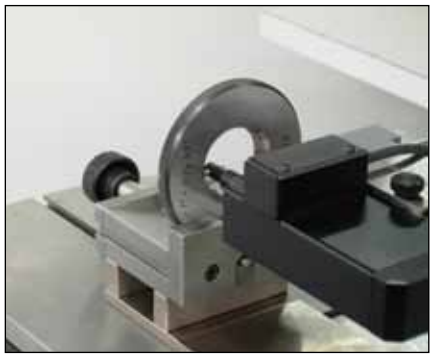
Calibration of plug gauges
(TULM6 / L05 / TA-SU-315)



Calibration of thread plug gauges
(3P / 0.17-3.2 / S6.5 / TA-SU-315)

Comparative checking of gauge blocks
> 250 mm (TA-SU-307 / TEL7 / TELMA7)

Calibration of gauge bars
(TELMA7 / TELMN7.2)

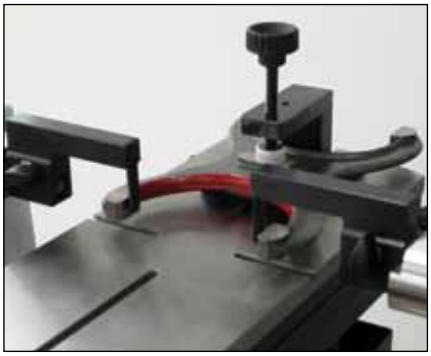


Checking of taper thread ring gauges
(TA-MS-381 / TEL75)

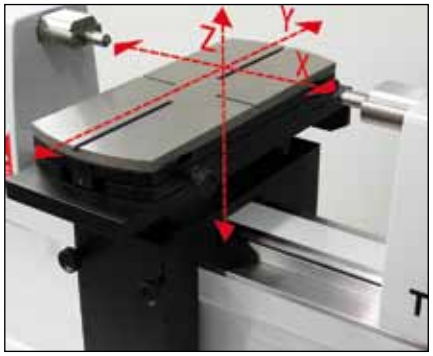
Checking of taper thread plug gauges
(TA-MS-381 / TEL75)

LABCONCEPT Nano

APPLICATIONS

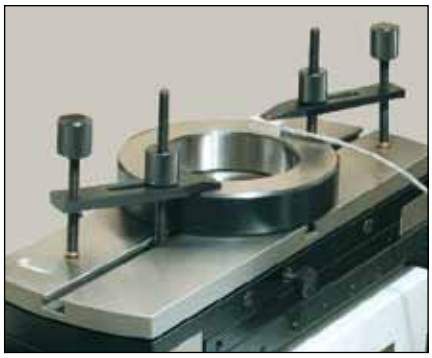


Calibration of snap gauges (TEL16.1 / TEL14N)

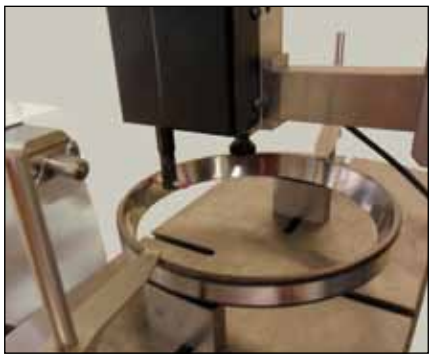


CNC-controlled measurement with automatic reversal point search.

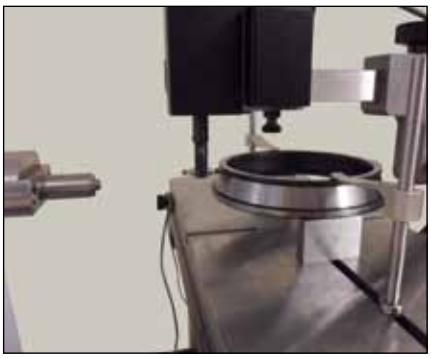
Anti-vibration table (optional)



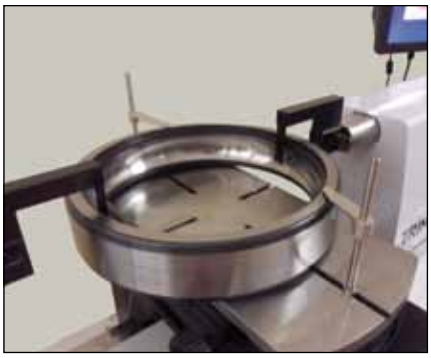
Integrated temperature compensation system TempComp



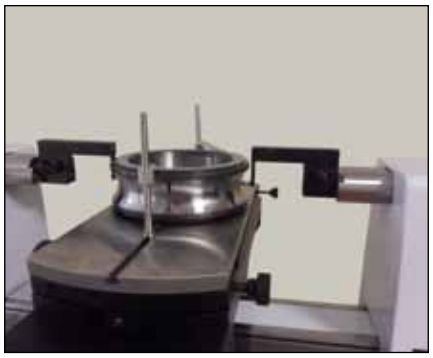
CNC controlled internal taper ring measurement



CNC controlled external taper ring measurement



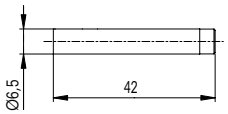
CNC controlled internal measurement of a bearing ring

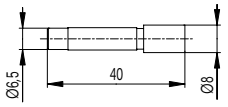


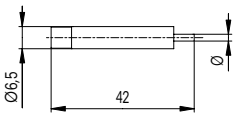
CNC controlled external measurement of a bearing ring

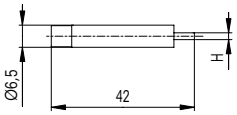
Calibration of a specific gauge

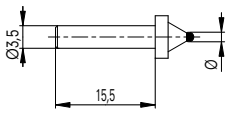
ACCESSORIES







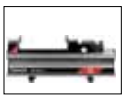




		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
TELS50 609 05 044	Pair of measuring anvils Ø 6.5 mm	●						●		
TELS52 609 05 047	Pair of measuring anvils Ø 8 mm	●			●	●	●	●	●	●
TELS53 609 05 048	Pair of measuring anvils Ø 2 mm	●			●	●	●	●	●	●
TELS53/D1 SP609 05 048 01	Pair of measuring anvils Ø 1 mm	●			●	●	●	●	●	●
TELS50-L05 SP609 05 044 01	Pair of a knife-shaped anvils	●						●		
TA-MI-301 279 901008 001	Ball probe Ø 1.00 mm	●						●		
TA-MI-302 279 901008 002	Ball probe Ø 1.250 mm	●						●		
TA-MI-303 279 901008 003	Ball probe Ø 1.50 mm	●						●		
TA-MI-304 279 901008 004	Ball probe Ø 1.75 mm	●						●		
TA-MI-305 279 901008 005	Ball probe Ø 2.00 mm	●						●		
TA-MI-306 279 901008 006	Ball probe Ø 2.032 mm	●						●		
TA-MI-307 279 901008 007	Ball probe Ø 2.20 mm	●						●		
TA-MI-308 279 901008 008	Ball probe Ø 2.25 mm	●						●		
TA-MI-309 279 901008 009	Ball probe Ø 2.50 mm	●						●		
TA-MI-310 279 901008 010	Ball probe Ø 2.75 mm	●						●		
TA-MI-311 279 901008 011	Ball probe Ø 3.00 mm	●						●		
TA-MI-312 279 901008 012	Ball probe Ø 3.20 mm	●						●		
TA-MI-313 279 901008 013	Ball probe Ø 3.25 mm	●						●		
TA-MI-314 279 901008 014	Ball probe Ø 3.50 mm	●						●		


TELS

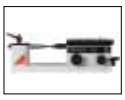

Alesta


H


HG


HPA

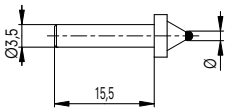

HPD

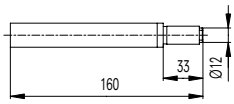

THV

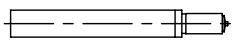

LABC + P

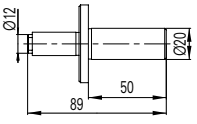

LABCN

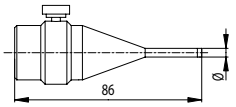
ACCESSORIES





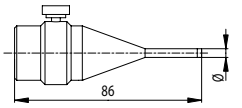


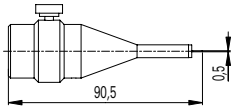


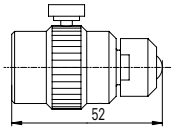


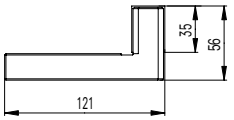
		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
TA-MI-315 279 901008 015	Ball probe Ø 3.70 mm	●						●		
TA-MI-316 279 901008 016	Ball probe Ø 4.00 mm	●						●		
TA-MI-317 279 901008 017	Ball probe Ø 4.50 mm	●						●		
TA-MI-318 279 901008 018	Ball probe Ø 5.00 mm	●						●		
TA-MI-319 279 901008 019	Ball probe Ø 5.50 mm	●						●		
TA-MI-320 279 901008 020	Ball probe Ø 6.00 mm	●						●		
TA-MI-321 279 901008 021	Ball probe Ø 6.50 mm	●						●		
TA-MI-322 279 901008 022	Ball probe Ø 7.00 mm	●						●		
TA-MI-323 279 901008 023	Ball probe Ø 8.00 mm	●						●		
TA-MI-324 279 901008 024	Ball probe Ø 9.00 mm	●						●		
TA-MI-325 279 901008 025	Ball probe Ø 10.00 mm	●						●		
HPA-1 609 05 017	Pair of standard anvils			●		●	●		●	
TA-MI-350 609 05 105	Pair of anvils with radius 30 mm for gauge block					●	●		●	
TEL1 609 05 040	Anvil with tungsten carbide surface				●					
TEL6 609 05 041	Pair of anvils Ø 6.50 mm			●	●	●	●		●	●
TEL6/4 609 05 077	Pair of anvils Ø 4 mm			●	●	●	●		●	●
TEL6/6 609 05 078	Pair of anvils Ø 6 mm			●	●	●	●		●	●
TEL6/6.35 609 05 079	Pair of anvils Ø 6.35 mm			●	●	●	●		●	●

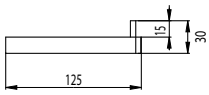
ACCESSORIES

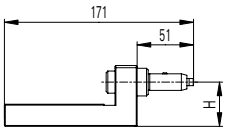


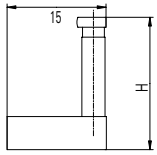


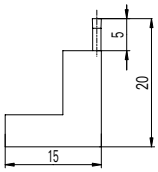








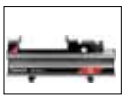




		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
TEL6/6.8 609 05 080	Pair of anvils Ø 6.8 mm			●	●	●	●		●	●
TEL6/8 609 05 081	Pair of anvils Ø 8 mm			●	●	●	●		●	●
TEL6/10 609 05 079	Pair of anvils Ø 10 mm			●	●	●	●		●	●
TULM6/L05 609 05 016	Pair of a knife-shaped anvils			●	●	●	●		●	●
TEL7 609 05 013	Pair of anvils with ball Ø 10 mm			●	●	●	●		●	●
TEL5 609 05 101	Pair of parallel attachments 25 mm			●	●	●	●		●	
TEL5E 609 05 102	Pair of parallel attachments 1"			●	●	●	●		●	
TEL5.10 612 12 002	Pair of parallel attachments 5 mm, for ext. measurement from 20 mm			●		●	●		●	
TEL5.10E 612 12 007	Pair of parallel attachments .2", for ext. measurement from .8"			●		●	●		●	
TELMA5.0 609 05 005	Pair of holders with measuring inserts TELS50, H=40 mm			●		●	●		●	
TELMA5.0/H70 SP609 05 005 01	Pair of holders with measuring inserts TELS50, H=70 mm			●		●	●		●	
TELMA5.0/H88 SP609 05 005 02	Pair of holders with measuring inserts TELS50, H=88 mm			●		●	●		●	
TELMA5.0/H55 SP609 05 005 03	Pair of holders with measuring inserts TELS50, H=55 mm			●		●	●		●	
TELMA5.0/H65 SP609 05 005 04	Pair of holders with measuring inserts TELS50, H=65mm			●		●	●		●	
TELS10 609 05 042	Pair of inserts for int. meas. >Ø10, H=20 mm	●								
TELS10/H50 609 05 043	Pair of inserts for int. meas. >Ø10, H=50 mm	●								
TELS10/H35 SP609 05 043 01	Pair of inserts for int. meas. >Ø10, H=35 mm	●								
TELS10/1.5C SP609 05 070 01	Pair of inserts for int. meas. >Ø3 mm	●								


TELS

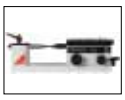

Alesta


H


HG


HPA

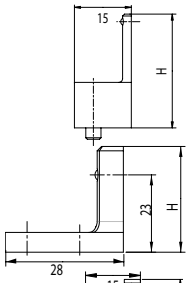

HPD


THV

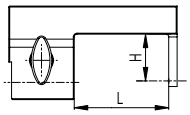

LABC + P

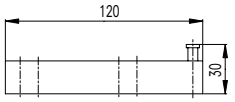

LABCN

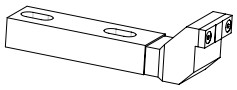
ACCESSORIES

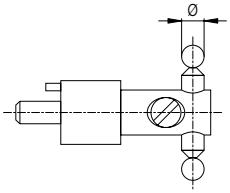
		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**TELS11** 609 05 058	Pair of inserts for int. meas. >Ø6, H=28 mm	●							
	TELS11.1 609 05 103	Pair of inserts for int. meas. >Ø13, H=26 mm	●							
	TELS12 609 05 060	Pair of inserts for int. meas. >Ø11, H=30 mm	●							
	TELS13 609 05 033	Pair of measuring inserts flat-ball	●							
	THV-10 609 05 034	Pair of inserts for internal meas. >Ø10 mm, (rigid measuring table)						●		
	THV-11 609 05 032	Pair of inserts for internal meas. >Ø2.5 mm, (rigid measuring table)						●		
	THV-12 609 05 035	Pair of inserts for internal meas. >Ø13 mm, (rigid measuring table)						●		
	THV-15 609 05 092	Pair of inserts for internal meas. >Ø5 mm, (rigid measuring table)						●		
	THV-20 609 05 037	Paire de touches mesures int. >Ø10 mm, (rigid measuring table)						●		
	THV-21 609 05 038	Pair of inserts for internal meas. >Ø2.5 mm, (floating measuring table)						●		
	THV-22 609 05 039	Pair of inserts for internal meas. >Ø13 mm, (floating measuring table)						●		
	THV-25 609 05 091	Pair of inserts for internal meas. >Ø5 mm, (floating measuring table)						●		
	THV-26 609 05 094	Pair of inserts for internal meas. >Ø10 mm, (floating measuring table)						●		
	TEL16.1 609 05 088	Pair of L-shaped probes, H=25 mm, L=50 mm				●	●		●	●

ACCESSORIES





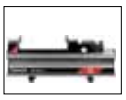




		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
TEL16.2 609 05 089	Pair of L-shaped probes, H=40 mm, L=55 mm					●	●		●	●
TEL16.3 609 05 097	Pair of L-shaped probes, H=70/45 mm, L=65mm					●	●		●	●
TEL9 612 12 008	Pair of inserts for internal meas. >Ø20 mm, with air cushion			●	●					
TEL9.10 612 12 009	Pair of inserts for internal meas. >Ø10 mm, with air cushion			●	●					
TELMN9 612 11 002	Pair of inserts for internal meas. >Ø10 mm, without air cushion			●	●					
TELMA8 612 12 052	Pair of measuring devices for snap-gauges			●	●	●	●		●	
TEL75.01 298 000205 050	T-shaped measuring insert, ruby balls Ø0.335 mm					●	●		●	●
TEL75.1 298 000205 051	T-shaped measuring insert, ruby balls Ø0.455 mm					●	●		●	●
TEL75.2 298 000205 052	T-shaped measuring insert, ruby balls Ø0.530 mm					●	●		●	●
TEL75.3 298 000205 053	T-shaped measuring insert, ruby balls Ø0.620 mm					●	●		●	●
TEL75.4 298 000205 054	T-shaped measuring insert, ruby balls Ø0.725 mm					●	●		●	●
TEL75.5 298 000205 055	T-shaped measuring insert, ruby balls Ø0.895 mm					●	●		●	●
TEL75.6 298 000205 056	T-shaped measuring insert, ruby balls Ø1.100 mm					●	●		●	●
TEL75.7 298 000205 057	T-shaped measuring insert, ruby balls Ø1.350 mm					●	●		●	●
TEL75.8 298 000205 058	T-shaped measuring insert, ruby balls Ø1.650 mm					●	●		●	●
TEL75.9 298 000205 059	T-shaped measuring insert, ruby balls Ø2.050 mm					●	●		●	●
TEL75.10 298 000205 060	T-shaped measuring insert, ruby balls Ø2.550 mm					●	●		●	●
TEL75.11 298 000205 061	T-shaped measuring insert, ruby balls Ø3.200 mm					●	●		●	●
TEL75.12 298 000205 062	T-shaped measuring insert, ruby balls Ø4.000 mm					●	●		●	●


TELS

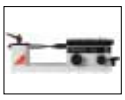

Alesta


H


HG


HPA

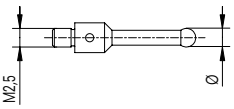

HPD

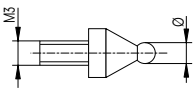

THV


LABC + P


LABCN

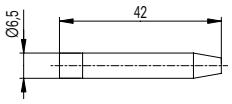
ACCESSORIES

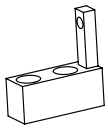


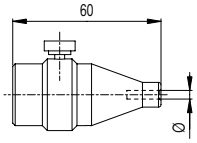


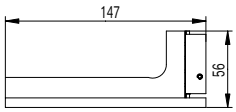
		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
TEL76.2 509 05 20 0018	Measuring insert with ruby ball Ø0.5 mm					●	●		●	●
TEL76.3 509 05 20 0019	Measuring insert with ruby ball Ø1.0 mm					●	●		●	●
TEL76.4 509 05 20 0020	Measuring insert with ruby ball Ø2.5 mm					●	●		●	●
TEL76.5 509 05 20 0021	Measuring insert with ruby ball Ø5.0 mm					●	●		●	●
TEL77.100 279 901009 001	Pair of measuring inserts with ball Ø1.00 mm					●	●		●	●
TEL77.125 279 901009 008	Pair of measuring inserts with ball Ø1.25 mm					●	●		●	●
TEL77.150 279 901009 002	Pair of measuring inserts with ball Ø1.50 mm					●	●		●	●
TEL77.175 279 901009 009	Pair of measuring inserts with ball Ø1.75 mm					●	●		●	●
TEL77.200 279 901009 003	Pair of measuring inserts with ball Ø2.00 mm					●	●		●	●
TEL77.250 279 901009 004	Pair of measuring inserts with ball Ø2.50 mm					●	●		●	●
TEL77.300 279 901009 005	Pair of measuring inserts with ball Ø3.00 mm					●	●		●	●
TEL77.350 279 901009 006	Pair of measuring inserts with ball Ø3.50 mm					●	●		●	●
TEL77.400 279 901009 007	Pair of measuring inserts with ball Ø4.00 mm					●	●		●	●
TEL77.450 279 901009 010	Pair of measuring inserts with ball Ø4.50 mm					●	●		●	●
TEL77.500 279 901009 011	Pair of measuring inserts with ball Ø5.00 mm					●	●		●	●
TEL77.550 279 901009 012	Pair of measuring inserts with ball Ø5.50 mm					●	●		●	●
TEL77.600 279 901009 013	Pair of measuring inserts with ball Ø6.00 mm					●	●		●	●
TEL77.700 279 901009 014	Pair of measuring inserts with ball Ø7.00 mm					●	●		●	●
TEL77.900 279 901009 015	Pair of measuring inserts with ball Ø9.00 mm					●	●		●	●
TEL77.1000 279 901009 016	Pair of measuring inserts with ball Ø10.00 mm					●	●		●	●

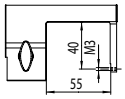
ACCESSORIES







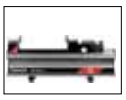




		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
TELS51 509 05 20 0027	Holder for measuring inserts M2.5	●						●		
TELS51E 509 05 20 0028	Holder for measuring inserts 4-48	●						●		
TELS51/D3.5 609 05 045	Pair of holders for measuring inserts Ø 3.5 mm	●						●		
TELS18 612 11 031	Pair of holders for measuring inserts Ø 3.5 mm	●								
TEL15 609 05 098	Pair of holders for measuring inserts Ø 3.5 mm			●	●	●	●		●	●
TEL5.0 612 11 017	Pair of holders for measuring inserts Ø 6.5 mm			●	●	●	●		●	●
TEL18 609 00 019	Pair of cone holder for int. thread measurement			●	●	●	●			
TEL16.2SP2 SP609 05 089 02	Pair of L-shaped holders for M3 Inserts					●	●		●	●
P25 276 950000 001	Electronic probe 25 mm	●						●		
P25TA 276 950001 001	Electronic probe P25 with magnetic insert	●						●		
P25TA.C 276 950001 002	Electronic probe P25 with magnetic insert, and certificate	●						●		
P25TA.1 279 950001 001	Magnetic insert for probe P25	●						●		
TA-MS-301 276 940001 004	Electronic probe 30 mm						●		●	
TA-MS-302 276 000230 001	Digital indicator 50 mm, resolution 0.001 mm	●		●	●	●	●	●	●	
TEL3C.1 276 000230 002	Digital indicator 50 mm, resolution 0.01 mm	●		●	●	●	●		●	
TEL70 706 200 14	Electronic probe for internal measurement				●					
TULM70 706 200 13	Electronic probe for internal measurement					●				
LABC-70 706 203 01	Electronic probe for internal measurement, (with support, without interface)						●		●	


TELS

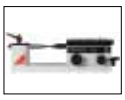

Alesta


H


HG


HPA

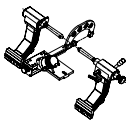
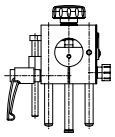
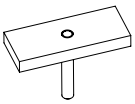
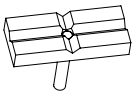
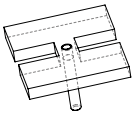
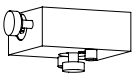
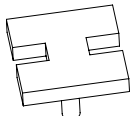
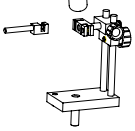
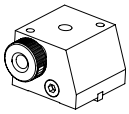
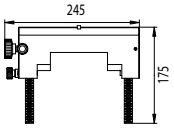

HPD


THV

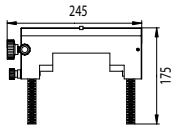

LABC + P

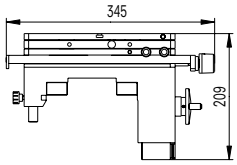

LABCN

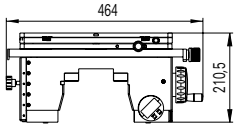
ACCESSORIES

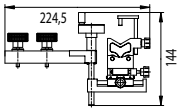
		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**TA-MS-370** 706 203 02	Electronic probe for internal measurement, (with support, without interface)								●
	**LABC80** 709 60 001	Measuring system for taper threads, with electronic probe LABC-70.1					●		●	
	LABC80.1 712 04 003	Measuring system for taper threads, without electronic probe LABC-70.1					●		●	
	TA-MS-381 712 04 010	Measuring system for taper threads, without electronic probe LABC-70.1								●
	**TA-MS-303** 609 00 035	Measuring system for cylindrical parts				●				
	**TA-SU-303** 612 32 003	Pair of V-shaped supports TA-MS-303				●				
	**TELS5.1** 602 33 004	Plate	●							
	**TELS5.2** 602 33 003	Plate with crossed V-grooves	●							
	**TELS5.3** 602 33 001	Plate with H-shaped clearance	●							
	**TELS5** 612 20 001	Support for plates	●							
	**THV-101** 602 33 002	Plate with H-shaped clearance						●		
	**THV-150** 609 00 005	Holder for dial test indicators						●		
	**THV-100** 602 15 001	Support for THV-101 + THV-150						●		
	**TELMA7** 602 39 007	Pair of vertically adjustable supports			●		●	●		●	●
	TELMA7/P 602 39 005	Vertically adjustable support			●		●	●		●	●

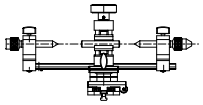
ACCESSORIES

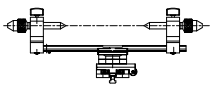


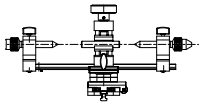


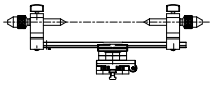


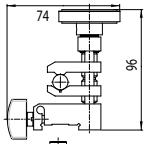


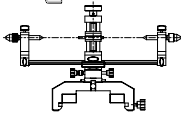


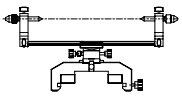








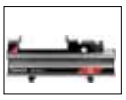




		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
TELMA7/SP04 602 39 012	Pair of vertically adjustable supports, Adjustment range Z=240 mm, standard plate			●		●	●		●	●
TELMA7/SP05 602 39 013	Pair of vertically adjustable supports, Adjustment range Z=240 mm, U-shaped Plate			●		●	●		●	●
HG-3 709 40 032	Pair of vertically adjustable supports				●					
HG-3/P 609 40 032	Vertically adjustable support				●					
TA-SU-313 709 40 044	Universal measuring table <12 kg, Positioning plate 250 x 85 mm					●	●		●	
H-13 709 40 018	Universal measuring table <12 kg, Positioning plate 250 x 85 mm			●						
HG-13 709 40 016	Universal measuring table <12 kg, Positioning plate 250 x 85 mm				●					
HPA-14 709 40 033	Universal measuring table <40 Kg, Positioning plate 360 x 120 mm					●	●		●	
H-6 603 00 007	Support for plug gauges			●						
THV-115 709 40 035	Measuring table for plug gauges <Ø60 x 160 mm, with self centring clamp							●		
THV-115.1 609 40 035	Measuring table for plug gauges <Ø60 x 160 mm, without self centring clamp							●		
TA-SU-316 709 40 041	Measuring table for plug gauges <Ø60 x 160 mm, with self centring clamp, not for TA-SU-313					●	●		●	●
TA-SU-317 609 40 041	Measuring table for plug gauges <Ø60 x 160 mm, without self centring clamp, not for TA-SU-313					●	●		●	●
THV-115.2 706 04 002	Self centring clamp, for THV-115.1 + TA-SU-317							●		
LABC-15 709 40 034	Measuring table for plug gauges <Ø100 x 280 mm, with self centring clamp and alignment screws					●	●		●	
LABC-15.1 609 40 034	Measuring table for plug gauges <Ø100 x 280 mm, without self centring clamp and alignment screws					●	●		●	


TELS

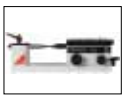

Alesta


H


HG


HPA

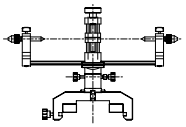
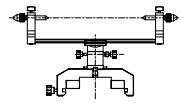
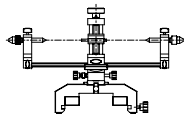
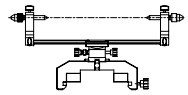
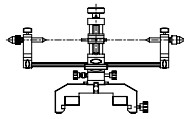
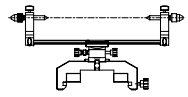
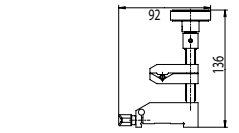
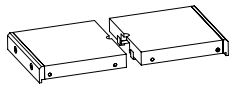
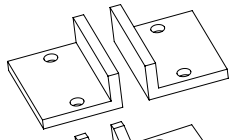
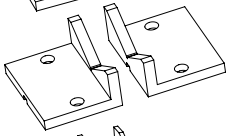
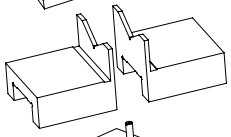
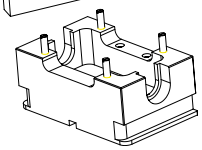

HPD


THV

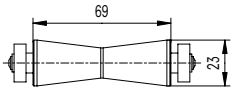
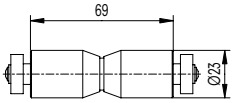
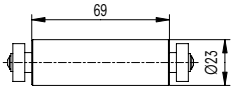
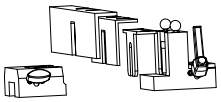
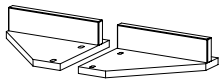
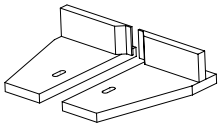
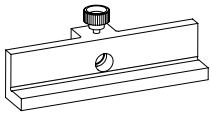
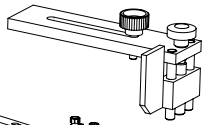
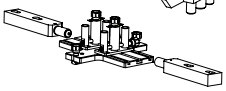
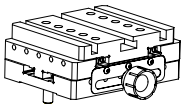
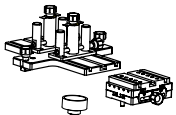
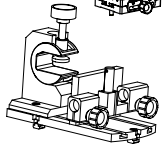
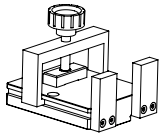

LABC + P


LABCN

ACCESSORIES

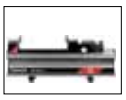
		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**TA-SU-315** 709 40 040	Measuring table for plug gauges <Ø100 x 280 mm, with self centring clamp and alignment screws								●
	**Nano-15.1** 609 40 040	Measuring table for plug gauges <Ø100 x 280 mm, without self centring clamp and alignment screws								●
	**H-15** 709 40 036	Measuring table for plug gauges <Ø100 x 280 mm, with self centring clamp and alignment screws			●					
	**H-15.1** 609 40 036	Measuring table for plug gauges <Ø100 x 280 mm, without self centring clamp and alignment screws			●					
	**HG-15** 709 40 037	Measuring table for plug gauges <Ø100 x 280 mm, with self centring clamp and alignment screws				●				
	**HG-15.1** 609 40 037	Measuring table for plug gauges <Ø100 x 280 mm, without self centring clamp and alignment screws				●				
	**LABC-15.2** 706 04 001	Self centring clamp			●	●	●	●		●	●
	LABC-15.3 708 03 007	Alignment screws for LABC-15.1, Nano 15.1, H15.1, HG 15.1			●	●	●	●		●	●
	**H-5** 606 32 001	Pair of floating tables			●						
	**TELMN7.1** 612 32 002	Pair of L-shaped supports			●		●	●		●	
	**TELMN7.2** 612 32 001	Pair of V-shaped supports			●	●	●	●		●	●
	**TEL11** 612 12 032	Pair of V-shaped supports			●		●	●		●	●
	**TELMN7.2/ SP01** 612 23 001	Supporting device for rolls			●	●	●	●		●	

ACCESSORIES

			TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**TELMN7.2/ SP02** 613 07 006	V-shaped roll for cylindrical parts			●	●	●	●		●	
	**TELMN7.2/ SP03** 613 07 007	Roll for Easy-Metric gauges			●	●	●	●		●	
	**TELMN7.2/ SP04** 613 07 008	Cylindrical roll			●	●	●	●		●	
	**TA-SU-301** 612 04 005	Supporting device for 2 points bore gauges			●	●	●	●		●	
	**TEL17** 602 32 014	Pair of supporting plates for 2 points bore gauges <330 mm			●	●	●	●		●	
	**TEL17.2** 602 32 016	Pair of supporting plates for 2 points bore gauges <180 mm			●	●	●	●		●	
	**TEL17.1** 602 32 015	Supporting device for 2 points bore gauges				●					
	**TELMN4** 602 20 013	Adjustable support for setting of reversal point			●	●	●	●		●	
	**TA-SU-305** 709 60 003	Supporting device for gauge blocks 100-250 mm with anvils TA-MI-350					●	●		●	
	**TA-SU-306** 612 04 008	Additional support for gauge blocks >250 mm, to be used with TA-SU-305, (to be mounted on TELMA7)					●	●		●	
	**TA-SU-307** 709 60 004	Supporting device for gauge blocks (2 items): 1 support for gauge blocks 100-250 mm, 1 additional support for gauge blocks >250 mm									●
	**TULM14** 708 209 140	Clamping device for external micrometers,12-20 mm/.48"-4"					●	●		●	
	**TULM19** 612 30 003	Holding device for depth calipers			●	●	●	●		●	


TELS

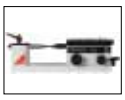

Alesta


H


HG


HPA

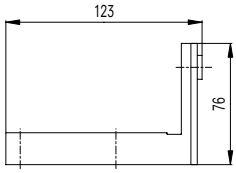
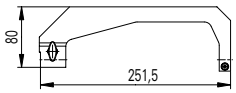
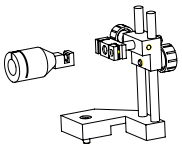
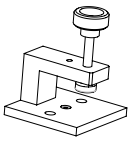
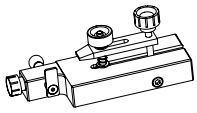
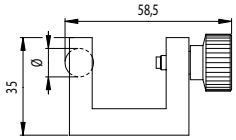
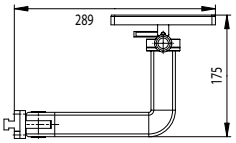
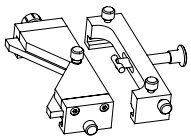
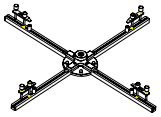
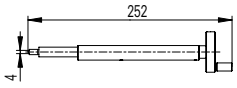
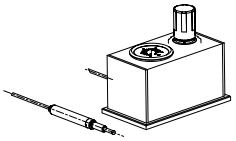

HPD


THV


LABC + P

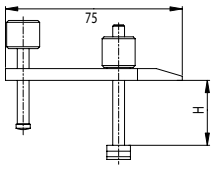

LABCN

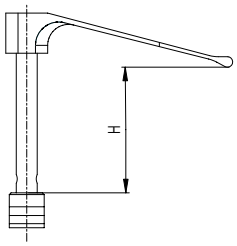
ACCESSORIES

		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**TEL5CN** 612 02 008	Pair of holders for dial indicators Ø 8 mm			●		●	●			
	TEL5CNE 612 02 007	Pair of holders for dial indicators Ø 3/8"			●		●	●			●
	**TULM5C** 612 02 003	Holder for dial indicators Ø 8 mm					●	●		●	●
	TULM5CE 612 02 002	Holder for dial indicators Ø 3/8"					●	●		●	●
	**TULM15** 609 02 015	Holding device for dial test indicators					●	●		●	
	**TEL14N** 612 12 049	Clamping device for snap gauges					●	●		●	
	**TA-SU-302** 603 00 021	Alignment device for snap gauges					●	●		●	
	**TEL10** 612 12 023	Pair of ball attachments Ø10 mm			●	●	●	●		●	
	TEL10E 612 12 022	Pair of ball attachments Ø1/2 "			●	●	●	●		●	
	**LABC20** 709 60 002	Pair of holders for large size micrometers					●	●		●	
	LABC20.1 609 60 002	Holder for large size micrometers					●	●		●	
	**THV-260** 609 00 007	System for search of reversal point for ring gauges (DIN/ISO)							●		
	THV-261 609 00 006	System for search of reversal point for ring gauges (ANSI/ASME)							●		
	**TA-SU-304** SP609 60 001 01	Supporting device for large ring gauges, (only for use with HPA-14)					●	●		●	●
	**THV-180** 606 25 008	Micrometer spindle for checking of dial indicators							●		
	**THV-500** 616 00 021	Pneumatic system for measuring force setting							●		

TRIMOS

ACCESSORIES

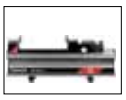




		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
TEL14.1 606 00 004	Pair of clamping attachments H<40 mm			●	●	●	●		●	●
TEL14.2 606 00 005	Pair of clamping attachments H<60 mm			●	●	●	●		●	●
TA-SU-354 706 02 004	Pair of fast clamping attachments H<60 mm			●	●	●	●		●	●
TA-SU-355 706 02 005	Pair of fast clamping attachments H<100 mm			●	●	●	●		●	●
TA-SU-356 706 02 006	Pair of fast clamping attachments H<150 mm			●	●	●	●		●	●
TA-SU-357 706 02 007	Pair of fast clamping attachments H<200 mm			●	●	●	●		●	●
TA-SU-358 706 02 008	Pair of fast clamping attachments H<250 mm			●	●	●	●		●	●
According to type	Specific adapter for 2-point bore gauges		●							
TA-SU-451 279 906001 028	Adapter set for external micrometers		●							
TA-SU-407 279 906001 039	Adapter for 2-points bore gauges without ring Ø8-10 or 14 mm		●							
TA-SU-410 279 906001 073	Fixing bush Ø8 mm for TA-SU-407/8/9		●							
TA-SU-411 279 906001 074	Fixing bush Ø10 mm for TA-SU-407/8/9		●							
TA-SU-412 279 906001 075	Fixing bush Ø14 mm for TA-SU-407/8/9		●							
TA-SU-419 279 906001 044	Adapter for 3 points internal micrometers, Ø 25-140 mm		●							
TA-SU-420 279 906001 069	Adapter for 3 points internal micrometers, Ø 125-240 mm		●							
TA-SU-483 279 906001 091	Adapter for 3 points internal micrometers, Ø 245 - 385 mm		●							
TA-SU-484 279 906001 092	Adapter for 3 points internal micrometers, Ø >385 mm		●							


TELS

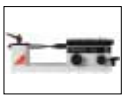

Alesta


H


HG


HPA

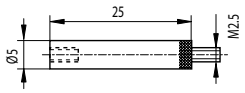
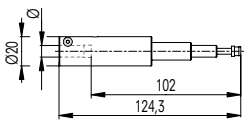

HPD


THV

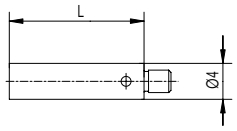
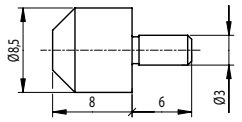
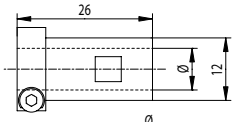
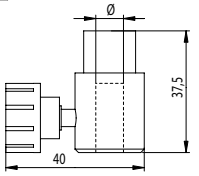
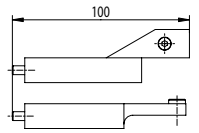
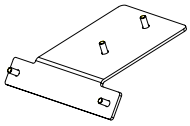
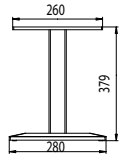
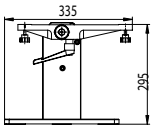
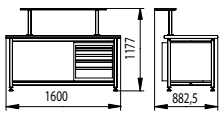
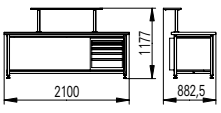
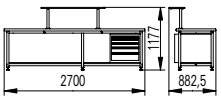

LABC + P


LABCN

ACCESSORIES

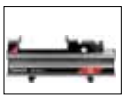
			TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**TA-SU-401** 279 906001 051	Universal adapter for 2-points bore gauges, (to be mounted on mobile probe)		●							
	TA-SU-402 279 906001 052	Universal dapter for 2-points bore gauges, Ø 35-180 mm		●							
	TA-SU-403 279 906001 053	Universal dapter for 2-points bore gauges, Ø 80-330 mm		●							
	**TA-SU-405** 279 906001 062	Universal dapter for 2-points bore gauges, Ø 120-170 mm		●							
	TA-SU-423 279 906001 089	Universal dapter for 2-points bore gauges, Ø 170-220 mm		●							
	TA-SU-404 279 906001 054	Universal dapter for 2-points bore gauges, Ø 160-600 mm		●							
	**TA-SU-414** 279 906001 063	Adapter for external micrometers, and ext. groove instruments Kroeplin		●							
	**TA-SU-417** 279 906001 064	Pair of adapter for internal/external calipers (pair)		●							
	**TA-SU-416** 279 906001 065	Adapter for int. groove instruments Kroeplin		●							
	**TA-SU-418** 279 906001 066	Adapter for 2 points internal micrometers		●							
	**TA-SU-406** 279 906001 070	Support for left bore gauges		●							
	**TA-SU-421** 279 906001 071	Adapter for dial indicators		●							
	**TA-SU-422** 279 906001 072	Adapter for test indicators		●							
	**TELS3.1C** 279 918101 006	Extension for dial indicator, 25 mm	●								
	**THV-181** 601 01 002	Holder for checking dial indicators, Ø 8mm							●		
	THV-181E 601 01 001	Holder for checking dial indicators, Ø 3/8"							●		

ACCESSORIES

			TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**TEL76.6** 501 04 20 0001	Extension for ball and T-shaped probes, L=7.5 mm						●		●	●
	TEL76.7 501 04 20 0002	Extension for ball and T-shaped probes, L=15 mm						●		●	●
	**TEL76.1** 512 12 20 0003	Holder for ball and T-shaped probes						●		●	●
	**TELS3C** 603 12 002	Clamping sleeve for dial indicators Ø 8 mm	●								
	TELS3CE 603 12 001	Clamping sleeve for dial indicators Ø3/8"	●								
	**TEL3.1** 603 12 006	Clamping sleeve for dial indicators Ø 8 mm			●	●	●	●		●	
	TEL3.1E 603 12 007	Clamping sleeve for dial indicators Ø3/8"			●	●	●	●		●	
	**TULM13.2** 612 02 012	Dial indicator holder Ø8 mm for TA-SU-313, H-13, HG-13			●	●	●	●		●	
	TULM13.2E 612 02 013	Dial indicator holder Ø3/8 " for TA-SU-313, H-13, HG-13			●	●	●	●		●	
	**H-32** 612 06 004	Printer holder for Horizon			●						
	**TULM30.1** 612 05 002	Support for display unit Heidenhain ND287	●						●		
	THV30.1 612 05 003	Support for display unit Heidenhain ND1100	●						●		
	**THV-200** 712 12 038	Adjustable support							●		
	**LABC-TAB500** 714 12 001	Table for horizontal instruments, Measuring range = 500 mm			●		●	●		●	
	**LABC-TAB1000** 714 12 002	Table for horizontal instruments, Measuring range = 1000 mm			●		●	●		●	
	**LABC-TAB1500** 714 12 003	Table for horizontal instruments, Measuring range = 1500 + 2000 mm			●		●	●		●	


TELS

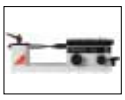

Alesta


H


HG


HPA

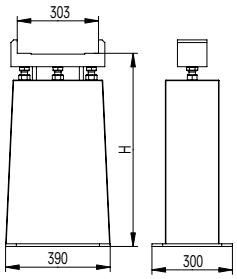

HPD


THV


LABC + P


LABCN

ACCESSORIES



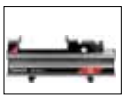
		TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
TELA05A/H700 602 13 004	Support for HG2000, H=700 mm				●					
TELA05A/H600 602 13 005	Support for HG3000, H=600 mm				●					
TELA05A/H500 602 13 006	Support for HG4000, H=500 mm				●					
TELA05A/H400 602 13 007	Support for HG5000, H=400 mm				●					
TELA05A/H300 602 13 008	Support for HG6000, H=300 mm				●					
TELA05A/H200 602 13 009	Support for HG7000, 8000 +10000, H=125 mm				●					
3P/0.17-3.2/ S6.5 279 901004 101	Set of thread measuring wires with holders, Pitches 0.25-5 mm, holder bore Ø6.5 mm			●	●	●	●	●	●	●
TEL15/150 605 01 012	Set of probes for threads ISO 60°			●	●	●				
TEL15/152 605 01 013	Set of probes for threads Whitworth 55°			●	●	●				
TEL18/50S 605 01 010	Set of cones for internal thread measurement 60°			●	●	●				
TEL18/50ES 605 01 011	Set of cones for internal thread measurement 55°			●	●	●				
TEL75 605 01 009	Set of T-shaped measuring inserts with ruby balls				●	●	●		●	●
TEL76 605 01 004	Set of measuring inserts with ruby ball, for internal diameters >1 mm				●	●	●		●	●
TEL25D4M 609 01 002	Setting ring cones 60°			●	●	●				
TEL25D4E 609 01 001	Setting ring cones 55°			●	●	●				
TULM40D.INT 709 201 11	Master ring gauge Ø 40 mm with SCS certificate	●		●	●	●	●	●	●	●
TULM40INT. METAS 709 201 31	Master ring gauge Ø 40 mm with Metas certificate	●		●	●	●	●	●	●	●

ACCESSORIES

			TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**TULM50D.EXT** 709 201 01	Master plug gauge Ø 50 mm with SCS certificate			●	●	●	●		●	●
	TULM50EXT. METAS 709 201 21	Master plug gauge Ø 50 mm with Metas certificate			●	●	●	●		●	●
	**TA-TO-004** 290 000911 100	Allen key set			●	●	●	●		●	●
	**TA-TO-003** 290 000911 003	Allen key 1.5 mm			●	●	●	●		●	●
	**TA-TO-302** 514 02 20 0002	Lapping plate			●	●	●	●		●	●
	TA-TO-301 514 02 20 0001	Lapping plate	●						●		
	**TA-TO-303** 740 05 101	Set of abrasive oil for probe lapping	●		●	●	●	●	●	●	●
	TEL.HO500 505 05 10 0023	Protection cover for instruments 500 mm			●		●	●		●	●
	TEL.HO1000 505 05 10 0024	Protection cover for instruments 1000 mm			●		●	●		●	●
	TEL.HO1500 505 05 10 0025	Protection cover for instruments 1500 mm			●		●	●		●	●
	TEL.HO2000 505 05 10 0026	Protection cover for instruments 2000 mm			●		●	●		●	
	**TEL.HO3000** 505 05 10 0027	Protection cover for instruments 3000 mm				●	●	●			
	TEL.HO4000 505 05 10 0028	Protection cover for instruments 4000 mm				●					
	TEL.HO5000 505 05 10 0029	Protection cover for instruments 5000 mm				●					
	TEL.HO6000 505 05 10 0030	Protection cover for instruments 6000 mm				●					
	TEL.HO8000 505 05 10 0032	Protection cover for instruments 8000 mm				●					
	**TEL70.3** 351 191 0001	Display unit for TEL70 + TULM70				●	●				


TELS

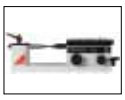

Alesta


H


HG


HPA


HPD


THV


LABC + P


LABCN

ACCESSORIES

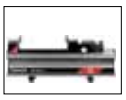
			TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**EL-D80S** 351 292 0011	Display unit SYLVAC D80S	●						●		
	**EL-D100S** 351 292 0010	Display unit SYLVAC D100S	●						●		
	**TA-DU-301** 351 101 1001	Display unit Quadra-Chek ND 1100, (1 Vpp) with standard foot							●		
	TA-DU-302 351 101 1011	Display unit Quadra-Chek ND 1100, (1 Vpp) with OEM foot				●	●				
	TA-DU-303 351 201 0012	Display unit Quadra-Chek ND 1100 (2 axes)					●				
	**TA-DU-330** 351 192 0045	Display unit Heidenhain ND287				●	●				
	**TELMA31** 3706 0002	Foot pedal			●			●	●	●	●
	**TA-EL-301** 3706 0009	Foot pedal for Quadra-chek QC110/ QC120				●	●		●		
	**TA-EL-040** 358 0020	Joystick									●
	**TVM.O-PC/ AT.9P** 333 9 0003	Cable Opto-PC/AT 9 P/F 2 m						●		●	
	**V-31** 333 0 0003	Cable for RS232 printer			●						
	**CABL.RS.1/ 1-9P** 332 01 0001	Cable RS232 m/f, 1.8 m, VT/M/MT: Printer + V+/H: PC			●						
	**TA-EL-011** 358 0006	USB-RS232 Converter						●		●	●
	**LABC-40** 356 0010	Laser printer (USB)						●		●	●
	**TA-EL-030** 356 0016	Inkjet printer (USB)						●		●	●

ACCESSORIES

			TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
	**V-30** 356 0007	Printer (RS232)			●						
	**V-30.7** 788 000001 001	Paper rolls (5 pces)			●						
	**TA-EL-001** 332 10 0011	Power cable, 2 poles, Europe			●			●		●	
	**TA-EL-002** 332 10 0013	Power cable, 2 poles, USA/Japan			●			●		●	
	**TA-EL-003** 332 10 0016	Power cable, 2 poles, Australia			●			●		●	
	**TA-EL-004** 332 10 0014	Power cable, 2 poles, UK			●			●		●	
	**TA-EL-005** 616 20 003	Power cable, 2 poles, Korea			●			●		●	
	**TA-EL-131** 334 0020	Universal AC adapter, 9 V (without cable), Suitable for V+, H			●						
	**BAT-TVM. OPTO** 3705 0002	Battery					●	●		●	
	**TA-EL-331** 740 16 002	Ext. power supply for force display HP/LABC					●	●		●	
	TEMPCOMP-B 609 50 001	Temperature compensation system, with 2 temperature sensors						●		●	●
	TEMPCOMP-P 609 50 002	Temperature compensation system, with 3 temperature sensors						●		●	●
	**TEMPCOMP-PA** 609 50 003	Temperature compensation system for laboratory, with WinComp Advanced and 9 sensors, (7x temperature, 1x humidity, 1x pressure)						●		●	●
	TEMPCOMP-PA DKD 609 50 004	Temperature compensation system for laboratory, with WinComp Advanced and 9 sensors, (7x temperature, 1x humidity, 1x pressure) with DKD certificate						●		●	●


TELS

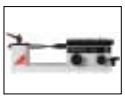

Alesta


H


HG


HPA


HPD


THV


LABC + P


LABCN

ACCESSORIES

			TELS	ALESTA	H	HG	HPA	HPD	THV	LABC + P	LABCN
Win DDE	**TA-SW-001** 394 1 0050	Software for data transfer WinDDE			●	●	●		●		
QMSOFT®	**QM-MANAG** 394 1 3201	Gauge management software						●	●	●	●
	QM-CALIP 394 1 3202	Module for inspection of calipers						●		●	●
	QM-DIAL 394 1 3203	Module for inspection of dial gauges						●	●	●	●
	QM-MICRO 394 1 3204	Module for inspection of micrometers						●		●	●
	QM-PIN 394 1 3205	Module for inspection of pins						●	●	●	●
	QM-PLAIN 394 1 3206	Module for inspection of plain gauges , Plug gauges, ring gauges, snap gauges						●	●	●	●
	QM-BLOCK 394 1 3210	Module for inspection of gauge blocks						●	●	●	●
	QM-THREAD 394 1 3212	Module for inspection of thread gauges						●	●	●	●
	QM-TTAP32 394 1 3214	Module for inspection of taper thread gauges						●		●	●
	QM-SPLINE 394 1 3213	Module for inspection of spline gauges						●		●	●
	QM-THREAD32 STARTER 394 1 3222	Starter Module for inspection of thread gauges						●	●	●	●
	QM-TTAP32 STARTER 394 1 3224	Starter Module for inspection of taper thread gauges						●		●	●
	QM-PACK32-1 394 1 3250	Starter package including, QM-MANAG Light, QM-THREAD, QM-PLAIN , no extension available						●	●	●	●
	QM-PACK32-2 394 1 3251	Standard package including: QM-MANAG, QM-PLAIN, QM-THREAD, QM-DIAL, QMCALIP, QM-MICRO						●	●	●	●

TRIMOS

TWINNER

TWINNER

INTRODUCTION

TWINNER is a universal instrument for the measurement of cylinder-shaped parts, which replaces a great number of conventional instruments in the workshop. This measuring centre, multifunctional, flexible and mobile, allows to measure and document practically all that is manufactured by turning.

This instrument has been specifically developed for the workshop and lends itself perfectly to a use in production, close to the machining centre.

TWINNER allows the quality control of sole parts as well as that of small batches. Other areas of use are the control and acceptation of machine tool. All revolution parts can be precisely measured, without adjustment necessary. The range of parts that can be measured spreads over typical turning parts, such as axles, gearbox shafts, camshafts, crankshafts, transmission shafts, joints and revolving parts, to parts with very elaborate geometry.

TWINNER is available in the following dimensions: lengths of 400, 800, 1200 and 2000 mm and diameters of 125 or 160 mm. The manual use and control of the TWINNER are performed by a PC with TWINNER soft.

- BUILT FOR WORKSHOP USE
- VERY SIMPLE HANDLING
- USE WITHOUT PRELIMINARY KNOWLEDGE
- NO USER'S INFLUENCE THANKS TO A CONSTANT MEASURING FORCE
- EXCELLENT REPEATABILITY
- VERY FAST CHANGE OF PART
- EASY CALIBRATION
- COMPLETE SELECTION OF ACCESSORIES

DESCRIPTION

- Length
- Diameter on odd division
- Diameter of recess
- Internal depth
- Concentricity
- Axial run-out to part axis
- Eccentricity
- Radial run-out to part axis
- Pitch
- External diameter
- Width of internal recess
- Width of chamfer
- Angle of taper
- Axial run-out
- Position
- Eccentricity to part axis
- Point of intersection
- Shoulder
- Width of external recess
- Internal distance
- Coaxiality
- Interrupted axial run-out
- Radius
- Interrupted eccentricity
- Angular pitch

Typical parts easily measured with a Twinner.

TWINNER

DISPLAY / SOFTWARE

The Twinner instruments are controlled by a PC system with different hardware and software modules:

- TWINNER master-easy
- TWINNER master-pro
- TWINNER premium-easy
- TWINNER premium-pro

HARDWARE

MASTER:

WITHOUT ENCODER, DIAMETER MODULE WITH 1 MEASURING SYSTEM

PREMIUM:

WITH ENCODER, DIAMETER MODULE WITH 2 MEASURING SYSTEMS

SOFTWARE

TWINNER SOFT EASY:

FREE MEASUREMENT (NO SEQUENCES)

MEASURING REPORTS

INDIVIDUAL MACROS

TWINNER SOFT PRO:

FREE MEASUREMENT

TEST SEQUENCES WITH USER GUIDE

TEACH-IN

STATISTIC

NETZWERKANBINDUNG

RECORDING OF RESULTS IN IN Q-DAS

MEASURING REPORTS

OPTICAL MODULE (OPTIONAL)

Ideal for the measurement of tiny details such as grooves, angles, chamfers etc.

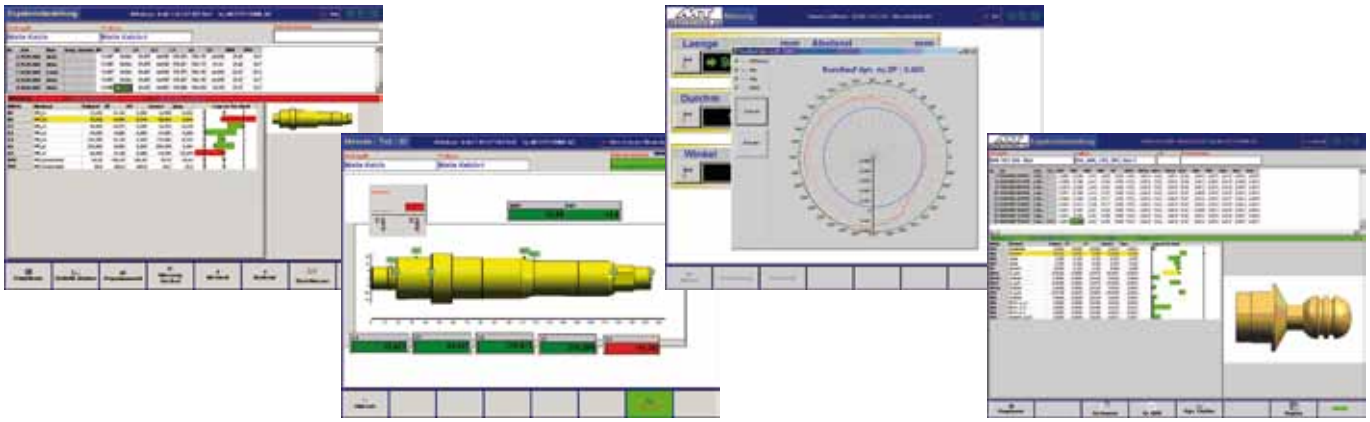
DISPLAY / SOFTWARE

TWINNER SOFT PRO

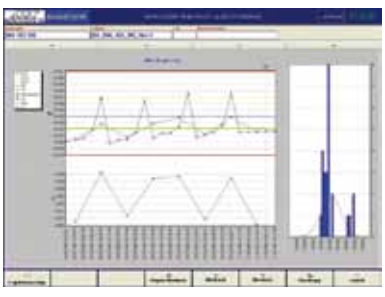
For better comfort and more functionality, the TWINNER can be equipped with TWINNER soft Pro. This modern SPC system offers unbeatable value for money. Its flexibility makes it adaptable to the most diverse measuring situations.

USE OF PROGRAM ADAPTED TO THE WORKSHOP
MEASURING GRAPHICAL HELP
MEASURING MACROS
FREELY CONFIGURABLE VIEWS
REPORTS AND MEASUREMENT GRAPHS
MODERN AND CONVENIENT SPC SYSTEM
FUNCTIONS ADMINISTRATION BY USERS AND PASSWORDS
RECORDING OF RESULTS IN ASCII FORMAT IN Q-DAS

TWINNER Soft Pro considerably reduces the programming time of a measuring sequence and allows a rational use of the instrument.



Numerous functions are integrated into the software:
- Freely configurable masks, reports and graphs
- Administration of functions by users and passwords
- Recording of results in ASCII format in Q-DAS



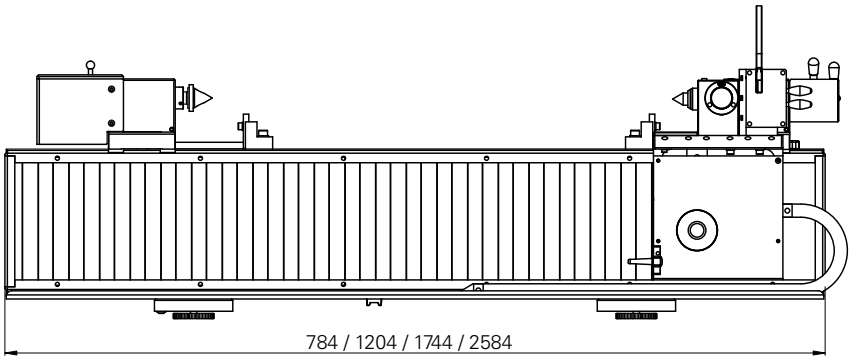
TWINNER

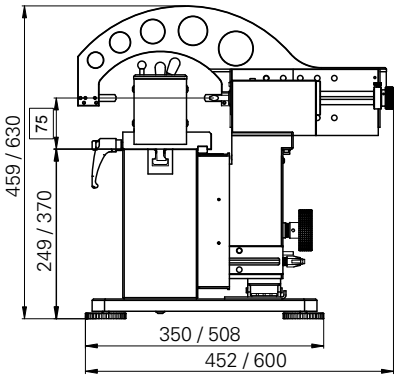
TECHNICAL SPECIFICATIONS

Twinner		T4M	T8M	T12M	T20M
Measuring range, length X	mm (in)	400 (15)	800 (31)	1200 (47)	2000 (78)
Measuring range, diameter Y	mm (in)	125 (5)	125 / 160 (5/6)		
Max. permissible errors, length X [1]	µm	3 + L(mm) / 100			
Max. permissible errors, diameter Y [1]	µm	1.5 + D(mm) / 100			
Repeatability, length X (2s) [1]	µm	≤ 2.0			
Repeatability, diameter Y [1]	µm	≤ 1.0			
Resolution, length X	mm	0.001 / 0.0001			
Resolution, diameter Y	mm	0.001 / 0.0001			
Measuring force, length and diameter	N	2.0			
Max. part weight	kg	20 / 100			
Weight (instrument)	kg	120	140	180	240

[1] Values valid at temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5%.

SCHEMA





STANDARD INSTRUMENT

The Twinner instruments are supplied as follows:
Instrument according to specifications
PC with corresponding hardware and software equipment (see next page)
User's manual
Test certificate
Declaration of conformity

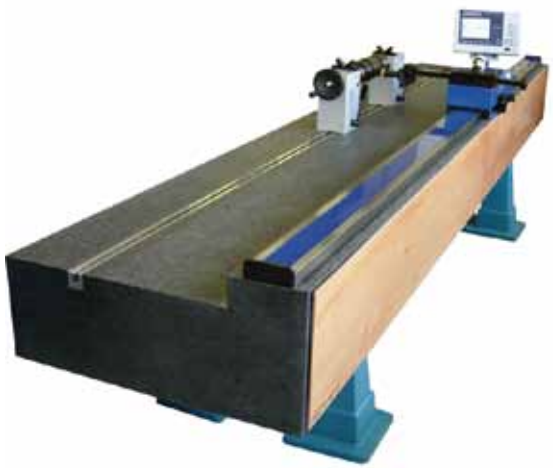
CODE NUMBER

Twinner	PC equipment
T4 Master-Easy 700 215 10 12	Twinner T4 without encoder, 1x Diameter-Modul, free measurement
T4 Master-Pro 700 215 10 13	Twinner T4 without encoder, 1x Diameter-Modul, Sequences
T4 Premium-Easy 700 215 10 14	Twinner T4 with encoder, 2x Diameter-Modul, free measurement
T4 Premium-Pro 700 215 10 15	Twinner T4 with encoder, 2x Diameter-Modul, Sequences
T8 Master-Easy 700 215 20 12	Twinner T8 without encoder, 1x Diameter-Modul, free measurement
T8 Master-Pro 700 215 20 13	Twinner T8 without encoder, 1x Diameter-Modul, Sequences
T8 Premium-Easy 700 215 20 14	Twinner T8 with encoder, 2x Diameter-Modul, free measurement
T8 Premium-Pro 700 215 20 15	Twinner T8 with encoder, 2x Diameter-Modul, Sequences
T12 Master-Easy 700 215 30 12	Twinner T12 without encoder, 1x Diameter-Modul, free measurement
T12 Master-Pro 700 215 30 13	Twinner T12 without encoder, 1x Diameter-Modul, Sequences
T12 Premium-Easy 700 215 30 14	Twinner T12 with encoder, 2x Diameter-Modul, free measurement
T12 Premium-Pro 700 215 30 15	Twinner T12 with encoder, 2x Diameter-Modul, Sequences
T20	Twinner T20 (on request, other models T16, T25, etc.)

The models above are supplied with granite base and PC for corresponding measuring systems and software. Diameter modules, length modules, measuring inserts, location centers etc. must be selected separately from the accessory list.

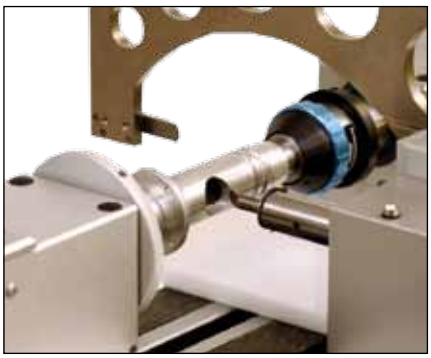
SPECIFIC MODELS

Trimos offers specific solutions adapted to all applications for measurement of cylinder-shaped parts and revolving parts. For more information, your local Trimos agent remains at your disposal.



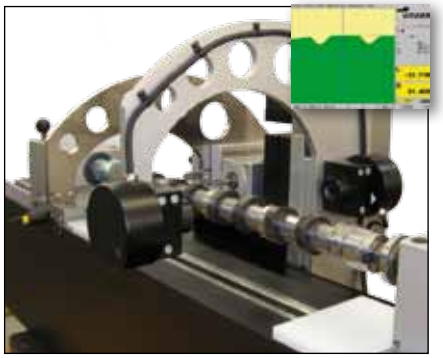
TWINNER

APPLICATIONS

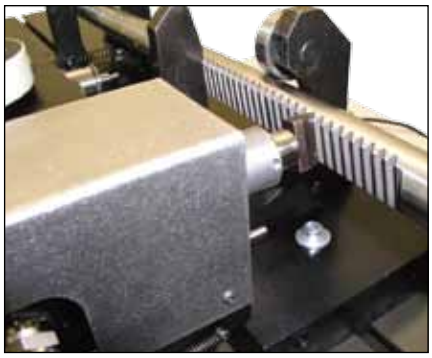


Centerline measurement

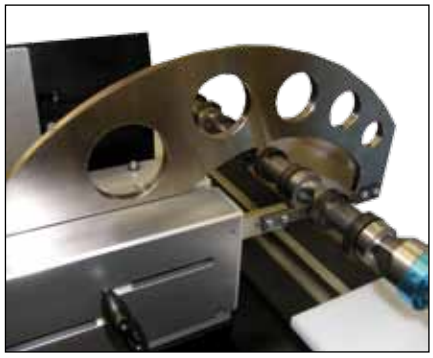
Length measurement



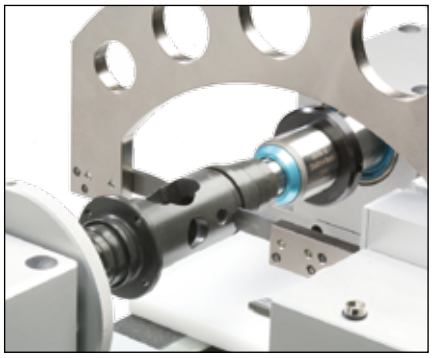
Optical measurement of the characteristics of a camshaft



Measurement of rack rail teeth inclination (specific design)



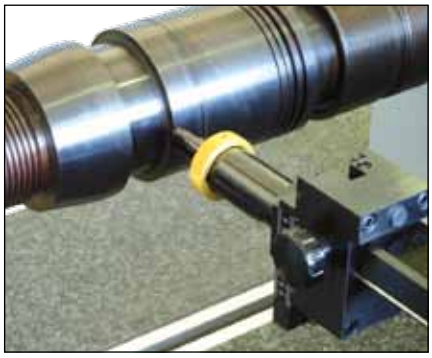
Diameter measurement on a camshaft



Diameter measurement in a groove

Positions measurement (specific design)

Installation for eccentric diameter measurement (specific design)



Length measurement for large parts (specific design)

ACCESSORIES

			Twinner
	**TA-MI-501** 279 953322 251	Insert for diameters - Knive-shaped	•
	**TA-MI-503** 279 953322 259	Special insert for diameters, Ø10÷Ø135 mm	•
	**TA-MI-507** 279 953322 280	Special insert for diameters with step	•
	**TA-MI-502** 279 953322 263	Insert for diameters - 4 x 0.8 mm	•
	**TA-MI-515** 279 953322 241	Probing axis, type E	•
	**TA-MI-516** 279 953322 255	Insert for length, type E	•
	**TA-MI-530** 279 953322 268	Measuring insert with ball Ø1.5 mm for axial run-out to part axis module	•
	**TA-MI-517** 279 953322 271	Insert for length, for position of wholes	•
	**TA-MI-521** 279 953322 272	Measuring insert for position of wholes	•
	**TA-IH-510** 279 953322 273	Insert for length, Ø=4/8 mm without probe	•
	**TA-IH-530** 279 953322 275	Probe holder for cylinders Ø=2 mm	•
	**TA-MS-502** 275 953322 202	Diameter module Ø<125 mm, without probe, 2 measuring systems	•
	**TA-MS-503** 275 953322 203	Diameter module Ø<160 mm, without probe, 1 measuring system	•
	**TA-MS-501** 275 953322 208	Diameter module Ø<125 mm, without probe, 1 measuring system	•

Twinner

ACCESSORIES

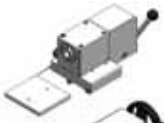
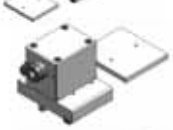
		Twinner
	**TA-MS-504** 275 953322 209	Diameter module Ø<160 mm, without probe, 2 measuring systems	•
	**TA-MS-510** 275 953322 204	Length measuring module, without probe for T4M/T8M/T12M	•
	**TA-MS-511** 276 953322 001	Length module with 3D probe, for PC	•
	**TA-MS-530** 275 953322 206	Length, run-out measuring module, without probe	•
	**TA-MI-531** 279 953322 276	Probe for L Module M2.5 D=2mm	•
	TA-MI-532 279 953322 277	Probe for L Module M2.5 D=3mm	•
	**TA-MS-551** 352 0032	T-CAM package - vision system with motorized Z axis, 1 MS, 70/D125	•
	TA-MS-552 352 0037	T-CAM package - vision system with motorized Z axis of 70 mm/D 160 mm	•
	**TA-MS-540** 271 953322 251	Encoder for rotating system (11µA)	•
	TA-MS-541 271 953322 252	Encoder for rotating system (1Vss)	•
	**TA-AD-528** 249 953322 203	Uni- rotating system empty 100 Kg, incl. protection T with motor and encoder	•
	**TA-SU-520** 249 953322 052	Rotating location center 60°/D=18 mm XN-2	•
	**TA-SU-521** 249 953322 062	Rotary location center 60°/Ø42 mm	•

ACCESSORIES

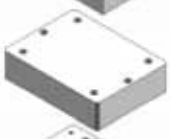
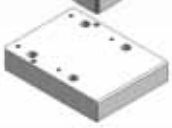
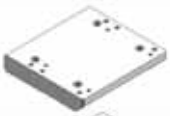
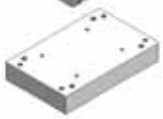
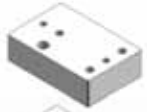
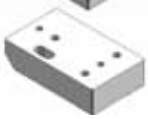
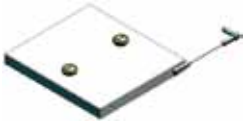
			Twinner
	**TA-SU-523** 249 953322 069	Rotary anvil 60°/D=18 mm	•
	**TA-SU-527** 249 953322 068	Rotary location center 60°/Ø42 with opening	•
	**TA-SU-510** 249 953322 053	ZP- Fixing 60°/D=18 mm, HM	•
	TA-SU-511 249 953322 055	Location center 60°, D=18 mm	•
	**TA-SU-515** 249 953322 056	ZP-fixed location centers 60°/D=18mm long	•
	**TA-SU-512** 249 953322 064	ZP-Location center 60° D=1-42 mm Long	•
	**TA-SU-518** 249 953322 073	ZP-Location center 60° D=16-68 mm Long	•
	**TA-SU-517** 249 953322 065	Rotary anvil 60°/D=25 mm with reference ring D=40mm/B=4mm	•
	**TA-SU-513** 249 953322 060	ZP-Location center 60° D=29 mm with reference ring D=39mm L=6 mm	•
	TA-SU-516 249 953322 061	ZP-fixed location center 52° D=29 mm with reference ring D=39mm L=6 mm	•
	**TA-SU-530** 249 953322 101	WST-V support width = 30 mm D=3-45 mm	•
	**TA-SU-537** 249 953322 109	WST-V support width = 30 mm D=3-45 mm	•
	**TA-SU-531** 249 953322 102	WST-V supports width = 18 mm D=3-45 mm	•
	**TA-SU-538** 249 953322 110	WST-V supports width = 18 mm D=3-45 mm	•

Twinner

ACCESSORIES

			Twinner
	**TA-SU-532** 249 953322 103	WST-adjustable V D=18 mm-60 mm	•
	**TA-SU-533** 249 953322 104	WST-adjustable V D=20 mm - 70 mm	•
	**TA-SU-536** 249 953322 105	WST-adjustable V D=17 mm-D=107 mm	•
	**TA-SU-534** 249 953322 106	WST-adjustable V D=20-70mm-H=100mm D=125mm	•
	**TA-SU-535** 249 953322 107	WST-adjustable V D=20-70mm-H=100mm D=160mm	•
	**TA-AD-522** 249 953322 002	Manual location center, fixed, 20 kg, incl. T-Protection	•
	**TA-AD-523** 249 953322 003	Manuel location center, fixed, 100 kg, incl. T-Protection	•
	**TA-AD-524** 249 953322 004	Fixed location center 20 kg, incl. protection T	•
	**TA-AD-526** 249 953322 006	Duo location center	•
	**TA-AD-525** 249 953322 005	Fixed location center 100 kg, incl. protection T	•
	**TA-AD-527** 249 953322 201	Uni- rotating system empty 20 kg, incl. T protection	•
	**TA-AD-502** 279 953322 261	Adjustable ring, M 2.5, without probe	•
	**TA-SU-501** 239 953322 251	Handle for universal rotating system	•
	**TA-SU-502** 238 953322 251	Drive system for universal rotation system	•

ACCESSORIES

		Twinner
	**TA-AD-501** 279 953322 242	Revolver system for L-Modul	•
	**TA-AD-514** 249 953322 900	Z module adapter plate for center height 100 mm for Ø10÷Ø170	•
	**TA-AD-511** 249 953322 903	Adapter plate for centers 10/20 Kg T16/T20/T25 D 160/H 100 mm	•
	**TA-AD-510** 249 953322 904	Adapter plate for centers 10/20 Kg T4/T8/T12 D 160/H 100 mm	•
	**TA-AD-512** 249 953322 907	Adapter plate for centers 100 Kg T4/T8/T12 D 160/H 100 mm	•
	**TA-AD-513** 249 953322 908	Adapter plate for centers 100 Kg T16/T20/T25 D 160/H 100 mm	•
	**TA-AD-504** 275 953322 903	Adapter plate for L-Module T16/T20/T25 D160/H100	•
	**TA-AD-503** 275 953322 904	Riser plate for L-Module T4/T8/T12 D160/H100	•
	**TA-MG-511** 278 953322 001	L- axis for calibration in wodden box	•
	**TA-MG-510** 278 953322 002	L-reference axis in wooden box	•
	**TA-MG-501** 278 953322 003	D-Reference axis D=125mm in wooden box	•
	**TA-AD-508** 295 953322 001	Support for screen Twinner Cable CH	•
	TA-AD-509 295 953322 002	Support for screen Twinner Cable De	•
	**TA-TO-501** 286 953322 001	T groove protection	•

Twinner

ACCESSORIES

			Twinner
	**TA-AD-505** 279 953322 274	Protection for HM-Knife Probe	•
	**TA-TO-550** 280 953322 002	Packaging system with case T4M and T8M/D125	•
	**TA-TO-551** 280 953322 003	Packaging system with case T8M and T12M/D160	•
	**TA-TO-510** 290 953322 001	Tool and cleaning set	•
	**TA-SW-501** 394 1 2002	Option TWINNERsoft for measurement according to program	•

TRIMOS

TR Profile + DH-8

TR Profile + DH-8

INTRODUCTION

The TR Profile and TR Profile DH-8 are extremely precise surface roughness measuring instruments, built for the use in the workshop and on production lines as well as in the lab.

From the simple roughness measurement without accessories, directly on the machine, to the measurements in the laboratory with measuring support, special tracers and other accessories, including the recording of contours, the TR Profile and TR Profile DH-8 offer maximum flexibility for surface analysis.

The tracers are the core pieces of the roughness meters. They are, to a wide extent, the determining factor of the precision of the measuring values obtained. The great choice of tracers is the result of decades of experience in the construction of such probes. The traversing unit with an integrated reference flat allows to effect precise measurements also with skidless tracers (VHF versions). The traversing units of TR Profile and TR Profile DH-8 are identical.

All instruments can be connected to a PC. They are delivered with a simple analysis software.

- LINEARITY AND MEASURING ACCURACY
- APPLICATION FLEXIBILITY
- LARGE RANGE OF ACCESSORIES
- REMOVABLE TRAVERSING UNITS
- RECHARGEABLE BATTERY FOR MOBILE APPLICATIONS
- TRACERS WITH AND WITHOUT SKID
- EASE OF USE

DESCRIPTION

INTERCHANGEABLE TRACERS
With skid: version VH
With and without skid: version VHF

TRAVERSING UNIT
integrated in the instrument, can also be connected with a cable to the instrument for measurement with stand or to reach difficult measuring points

USB interface for connection with PC

INTEGRATED PRINTER
For parameters,
Profiles and bearing ratio

USB interface for connection with PC

INTERCHANGEABLE TRACERS
With skid: version VH
With and without skid: version VHF

TR Profile + DH-8

DISPLAY / SOFTWARE

TR PROFILE
Extremely simple and intuitive use. Only 4 buttons to access to all functions.

Parameters:
ISO/DIN: Ra, Rz (DIN), Rmax, R3z, Rt, Rq (RMS), Rk, Rp, Rv, Rpk, Rvk, MR1, MR2, Rpc, C1, C2, bearing ratio Rmr, C0, Cz
JIS: Ra (JIS), Rz (JIS)
ISO 12085: R, AR, Rx

- DISPLAY OF PARAMETERS AND PROFILES
- MEMORY FOR 15 MEASURING PROFILES
- AUTOMATIC CALIBRATION
- CUT-OFF FIRMLY ASSIGNED TO THE TRAVERSING LENGTH
- USB DATA OUTPUT
- MENUS IN 6 DIFFERENT LANGUAGES

TR PROFILE DH-8
Multifunctional and polyvalent measuring instrument for roughness and contour measurement.

Parameters:
ISO/DIN: Ra, Rz (DIN), Rmax, R3z, Rt, Rq (RMS), Rk, Rp, Rv, Rpk, Rvk, MR1, MR2, Rpc, C1, C2, bearing ratio Rmr, C0, Cz
JIS: Ra (JIS), Rz (JIS)
ISO 12085: R, AR, Rx

- DISPLAY OF PARAMETERS AND PROFILES
- MEMORY FOR 50 MEASURING PROFILES
- AUTOMATIC CALIBRATION
- 5 MEASURING LENGTHS, ALL SELECTABLE BETWEEN 0.5 AND 15.0 MM
- MEASURING SPEED SELECTABLE
- CALIBRATION FOR MAX. 8 TRACERS
- 8 MEASURING PROGRAMS
- TOLERANCE INDICATION
- KEY LOCK FOR LT, LC AND R TO PREVENT ANY SETTINGS MISTAKES
- USB OUTPUT FOR DATA TRANSFER (OPTION: BLUETOOTH)
- CONTOUR MEASUREMENTS
- MENUS IN 6 DIFFERENT LANGUAGES

DISPLAY / SOFTWARE

SOFTWARE DIASOFT

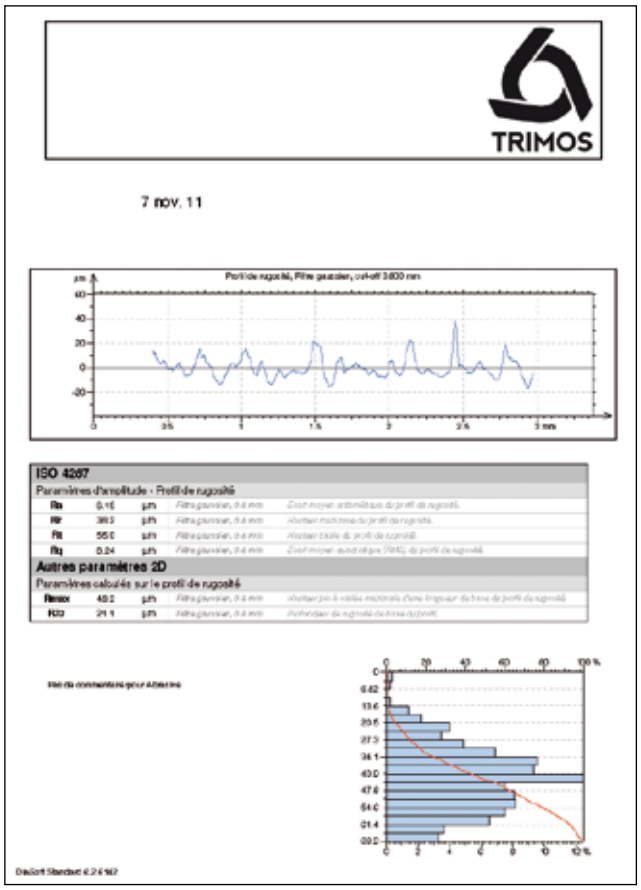
DIASOFT is a multilingual software that gives the opportunity to further improve the DIAVITE possibilities. This software will work out an even greater number of roughness parameters and will be a help for the memorization and the presention of your measurements protocols. All measured values can be analysed and compared. The software most adapted to your needs will doubtlessly be found among the 4 existing versions:

- **Basic (TA-SW-601, included in standard delivery)**
  Basic software with Ra, Rq, Rv, Rp, Rt, Sm, Rsk, Rku, Rz, RTp, RHTp, RDq, RPc, roughness curve, Abbott curve. Predefined protocol.

- **Standard (TA-SW-602)**
  Same as «Basic», additionally with RLq, Rlo, RzJIS, R3z, waviness and roughness profile on the same curve, zoom functions, symmetry, comparison of profiles etc. Protocols can be customized individually.

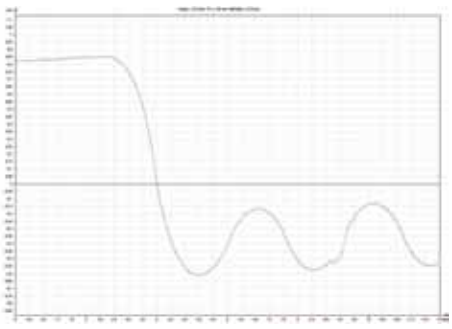
- **Automotive (TA-SW-603)**
  Same as «Standard», additionally with ISO 12085 (CNOMO), ISO 13565, (parameter Rk)

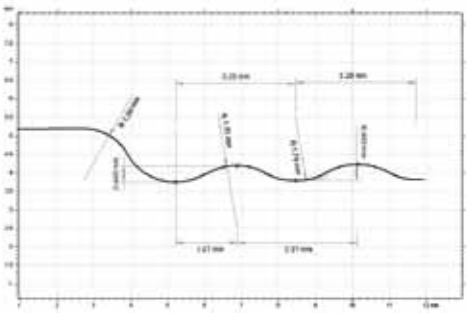
- **Expert (TA-SW-604)**
  Same as «Automotive», additionally with analysis of series of profiles and a lot more features for surface analysis. The most complete offer for the specialist, now and in the future.



MEASUREMENT OF CONTOURS

The TR Profile DH-8/VHF now offers the possibility, as an option, to precisely measure contours. For this purpose, a special contour measuring tracer is needed, in combination with a specific software module.





The softwares DIASOFT Standard, Automotive and Expert can be equipped with the following modules:

- Contour module Simple (TA-SW-610)
- Contour module Advanced (TA-SW-611)

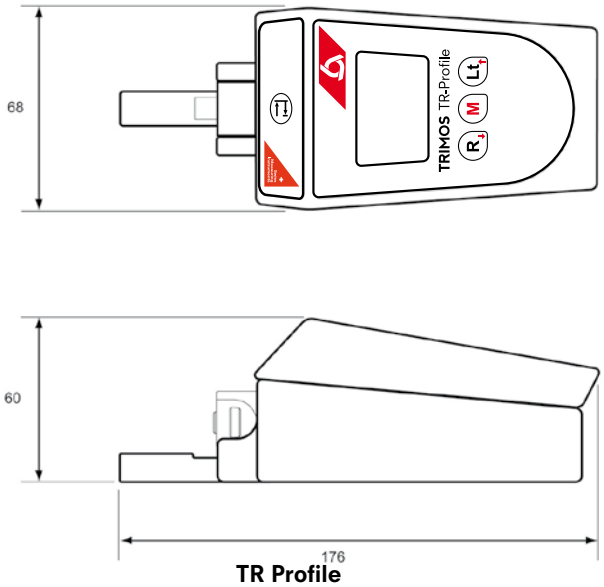
TR Profile + DH-8

TECHNICAL SPECIFICATIONS

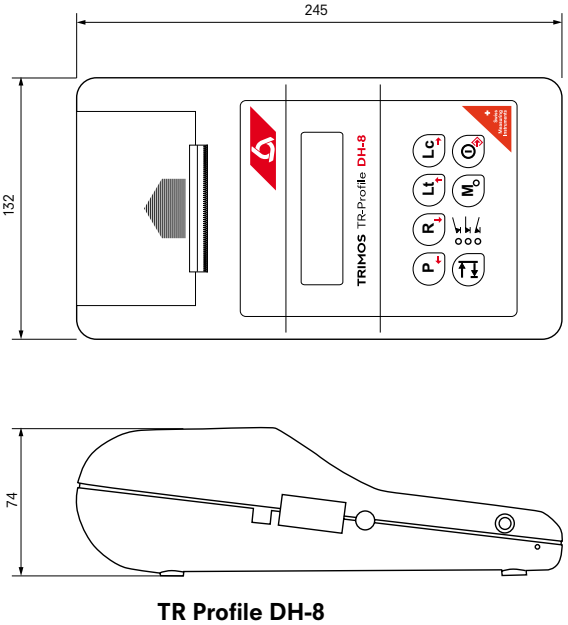
		TR Profile	TR Profile DH-8
Measuring range (Ra, Rq)	µm	20	
Measuring range (other parameters)	µm	350	
Measuring range of tracers	µm	350	
Max. permissible errors Ra	%	5%	
Repeatability (Ra, 1σ)	µm	0.009	
Resolution (Ra, Rq)	µm	0.01 (<0.1 µm: 0.001)	
Resolution (other parameters)	µm	0.1	
Vertical resolution of tracers	µm	0.01	
Horizontal resolution of tracers	µm	1	
Measuring speed	mm/s	0.5	0.25/0.5/1.0
Measuring force, tracers with skid	N	< 0.15	
Measuring force, tracers without skid	mN	< 0.5	
Diamond tip radius	µm	5 µm, 90° (standard) or 2 µm, 60° (option)	
Cutoffs lc	mm	0.08/0.25/0.8/2.5	
Measuring lengths lt	mm	0.48/1.50/4.8/15.0	0.5 ÷ 15 (programmable)
Relative humidity	%	20 ÷ 80	

Contour Tracer (TA-MS-650)		
Horizontal measuring range (X)	mm	15
Vertical measuring range (Z)	mm	4
Max. permissible errors (Z)	µm	5
Tracing angle: rising flanks	°	< 77
Tracing angle: falling flanks	°	< 88

DIAGRAM



TR Profile



TR Profile DH-8

STANDARD INSTRUMENT

The TR Profile instruments are supplied as follows:
Instrument according to specifications
Traversing unit VH or VHF
Standard tracer (TA-MS-601)
Adapter with connecting cable (TA-EL-601)
Roughness standard, Ra=3.0 µm (TA-MG-609)
Charging unit
USB cable
Screw driver
User's manual (750 50 0040 03) and quick guide (750 50 0036 03)
Certificate of quality
Software DIASOFT Basic (TA-SW-601)
Carrying case

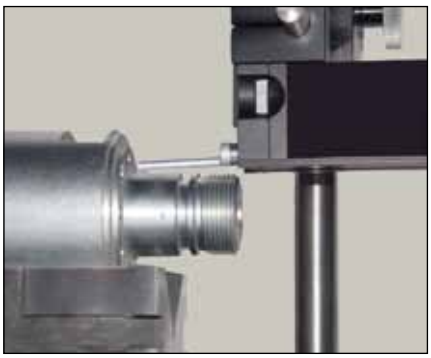
The TR Profile DH-8 instruments are supplied as follows:
Instrument according to specifications
Traversing unit VH or VHF
Standard tracer (TA-MS-601)
Roughness standard, Ra=3.0 µm (TA-MG-609)
Charging unit
USB cable
Screw driver
User's manual (750 50 0042 00) and quick guide (750 50 0043 03)
Certificate of quality
Software DIASOFT Basic (TA-SW-601)
Carrying case

CODE NUMBER

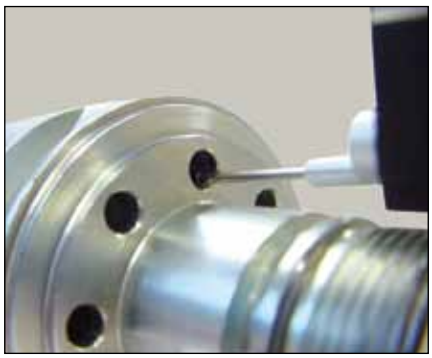
TR Profile	TR Profile DH-8	
TR Profile VH 700 401 10 01	**TR Profile DH-8/VH** 700 401 10 51	For tracers with skid
TR Profile VHF 700 401 10 02	**TR Profile DH-8/VHF** 700 401 10 52	For tracers with and without skid
	TR Profile DH-8/VHF-CP-S 700 401 10 61	Set for contour measurements Simple - TR Profile DH-8/VHF - Contour tracer (TA-MS-650) - Contour standard (TA-MG-651) - Software DIASOFT Standard (TA-SW-602) - Contour module Simple (TA-SW-610)
	TR Profile DH-8/VHF-CP-A 700 401 10 62	Set for contour measurements Advanced - TR Profile DH-8/VHF - Contour tracer (TA-MS-650) - Contour standard (TA-MG-651) - Software DIASOFT Standard (TA-SW-602) - Contour module Advanced (TA-SW-611)

TR Profile + DH-8

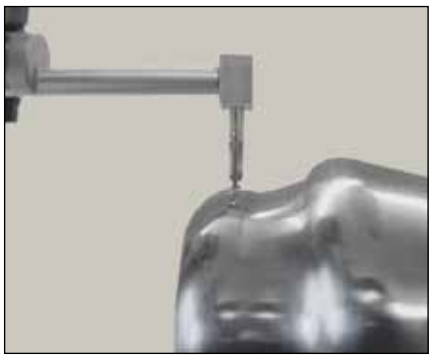
APPLICATIONS



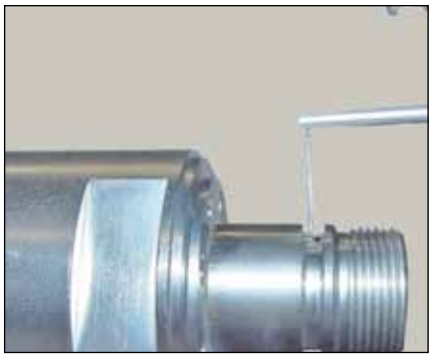
Checking of surface roughness near a shoulder (TA-MS-601)



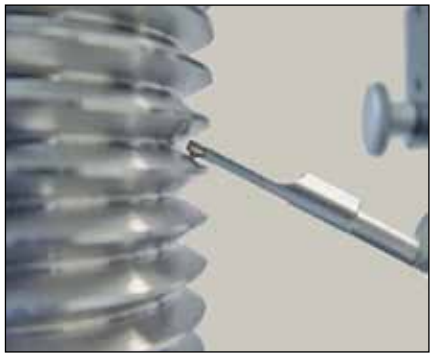
Measurement in small bores (TA-MS-605)



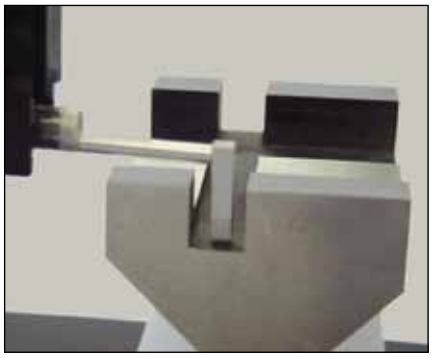
Measuring surface roughness of a polished part (TA-MS-607)



Checking at recessed measuring points (TA-MS-609)

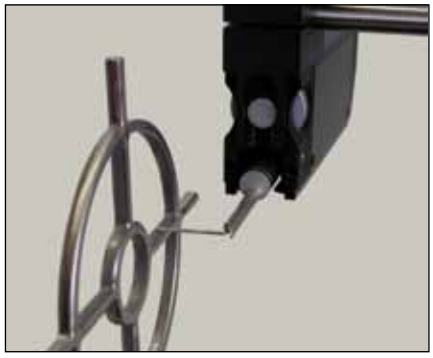


Checking of thread profile roughness of a thread plug gage (TA-MS-620)



Checking in a recess using an appropriate probe (TA-MS-608)

Radial roughness measurement (TA-MS-621)



Transversal flank measurement (TA-MS-627)

Contour measurement with TR Profile DH-8/VHF (TA-MS-650)

TRIMOS

TR SCAN

TR SCAN

INTRODUCTION

The TR Scan offers an innovative alternative to classical surface measurement. Its modular concept, allowing adaptation to each application, and its simple use, make it very efficient in the workshop. Because of its simplicity of use, the TR Scan can be operated by workshop personnel to get reliable results secured with minimum training. All measured surfaces can be treated according to current international standards such as ISO, DIN, JIS, ASME, CNOMO etc., as well as the upcoming ISO 25178 3D standard.

The TR Scan is completely designed and manufactured in Switzerland according to the highest quality standards. Robustness, reliability and longevity are part of our tradition. Trimos instruments have been used in workshops and labs for over 30 years.

The interchangeability of the measuring heads gives the possibility to select the most appropriate technology for each application. This flexibility allows the characterization of surfaces in numerous application fields, such as mechanical industry (all types of machined surfaces), car and aerospace industries, photovoltaics, as well as plastics, papers, imprints, fibrous materials, wood, abrasives, paint, cosmetics, etc.

- MEASURING RESULTS FULLY COMPARABLE TO CLASSICAL SYSTEMS
- COMPLIES TO ALL INTERNATIONAL STANDARDS
- INTUITIVE, EASY TO USE INTERFACE
- ROBUST INDUSTRIAL SYSTEM FOR THE WORKSHOP
- POSSIBLE AUTOMATED MEASUREMENTS
- MODULAR AND COMPACT CONCEPT
- MEASUREMENT AND ANALYSIS WITHIN SECONDS

DESCRIPTION

AUTOMATED Z-AXIS
Motorized axis allow for precise and automated measurements. The working distance is automatically worked out by the system.

INTERCHANGEABLE MEASURING HEADS
The unique system of interchangeable measuring heads confers a high degree of adaptability to every application. Changing a head is quickly done and automatically recognized by the system. Several technologies are available for complete application coverage.

TRIMOS NANOWARE MEASURE
Software for the management of all measurement parameters

TRIMOS NANOWARE ANALYSIS
Software for the analysis of measured surfaces

Motorized table (XY)

TR SCAN

DISPLAY / SOFTWARE

TRIMOS NANOWARE MEASURE
This exclusive software allows the handling of the instrument (positioning and configuration of all measurements).

Positioning in X,Y,Z is performed either automatically by predefined parameters or via the use of an intuitive joystick aided by a integrated positioning laser and a camera (optional).

Once positioned, measurements are taken automatically with one click or via the use of a manual size parameter in a few seconds.

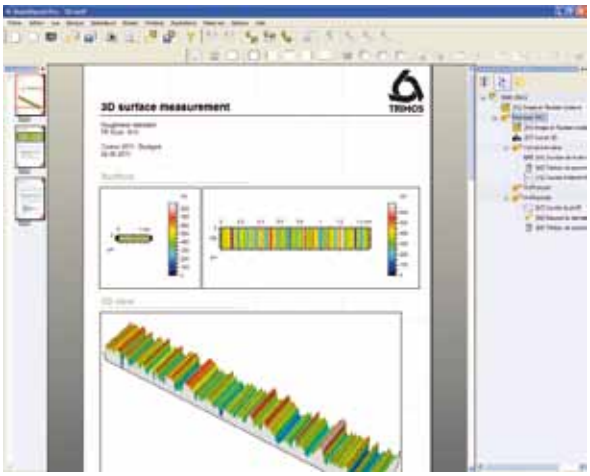
- INTUITIVE POSITIONING
- INSTANT MEASUREMENT
- PROGRAMMABLE MEASUREMENTS WITH PICTURE

TRIMOS NANOWARE ANALYSIS
This software allows the analysis of all measured surfaces according to current international standards such as ISO, DIN, JIS, ASME, CNOMO etc., as well as the 3D standard ISO 25178.

Analysis can be performed automatically by the use of a template, or the user can have direct access to the raw data. The incorporated analysis software is powered by Mountains®, the most powerful and recognized 2D/3D surface analysis software available.

Reports are automatically generated during analysis. Any report can be used as a template later.

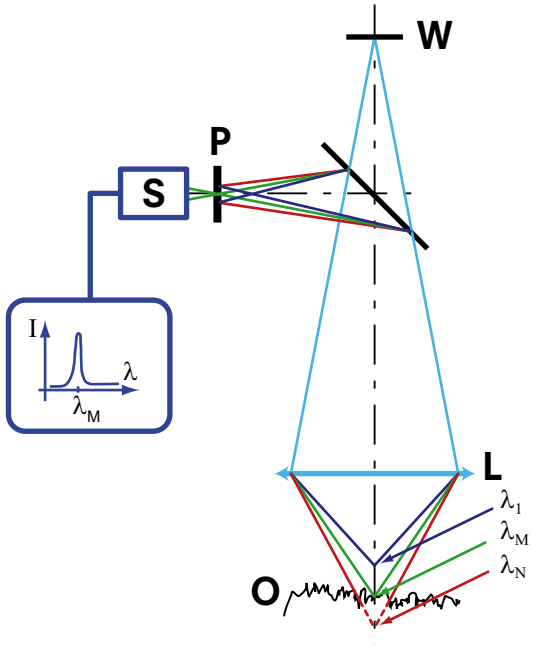
- POWERFUL ANALYSIS
- PROFESSIONAL REPORTING
- SUITABLE MODULE FOR EACH APPLICATION NEED
- COMPLIES TO ALL INTERNATIONAL STANDARDS



THE CCM TECHNOLOGY

Chromatic Confocal Microscopy (CCM) has been acknowledged worldwide as an accurate and reliable technique for non-contact surface measurement. A chromatic lens L generates the image of a point white-light source W as a continuum of monochromatic images located on the optical axis ("Chromatic coding"). A sample O is located inside the color-coded segment and its surface scatters the incident light beam. The backscattered light passes through the chromatic lens L in the opposite direction, and arrives at a pinhole P which filters out all wavelengths except a single wavelength, λM. The collected light is analysed by a spectrometer S. The sample position is directly related to the detected wavelength.

- High resolution
- Works on all types of sample materials
- Wide choice of measuring ranges
- Steep slope compatibility
- Coaxial (no shadowing)
- Recognised method by ISO 25178



CCM P1 MEASURING HEAD

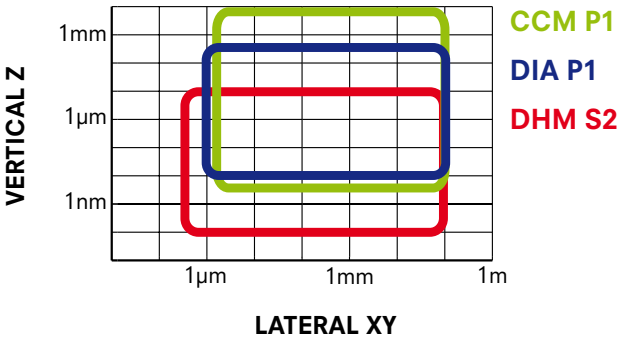
CCM-P1
(support & spectrometer)

TA-MI-701 ÷ 713
Optical pen

COMPLEMENTARY TECHNOLOGIES

There is no universal technology for surface measurement. The modularity of the TR Scan allows the use of the best adapted head for each application.

The diagram here below shows the application field of the TR Scan and of its various measuring heads according to the material structure.



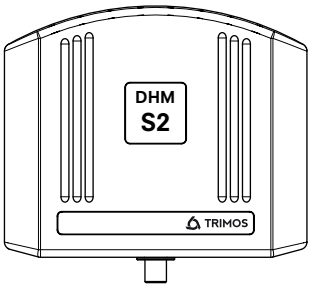
TR SCAN

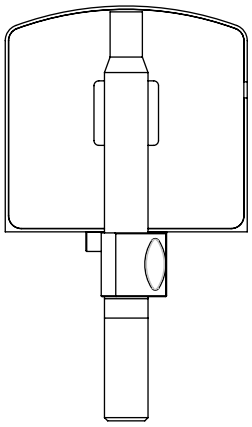
MEASURING HEADS

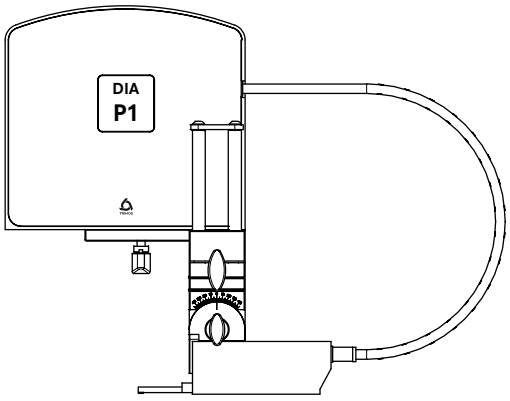
DHM S1 & S2
DHM Technology:
- Smooth, grinded and polished surfaces
- Steel, aluminium, titanium, silicon, gold, ceramics, glass
- High precision and speed, 2D/3D

CCM P1
Chromatic Confocal Technology:
- Machined and rough surfaces, micro-structures
- Metals, plastics, abrasives, papers, textiles, cosmetics
- Large vertical range, all materials, 2D/3D

DIA P1
Diamond Stylus Tip Technology:
- Roughness measurement with contact
- Classical roughness measurements (2D)
- Internal measurements







TECHNICAL SPECIFICATIONS

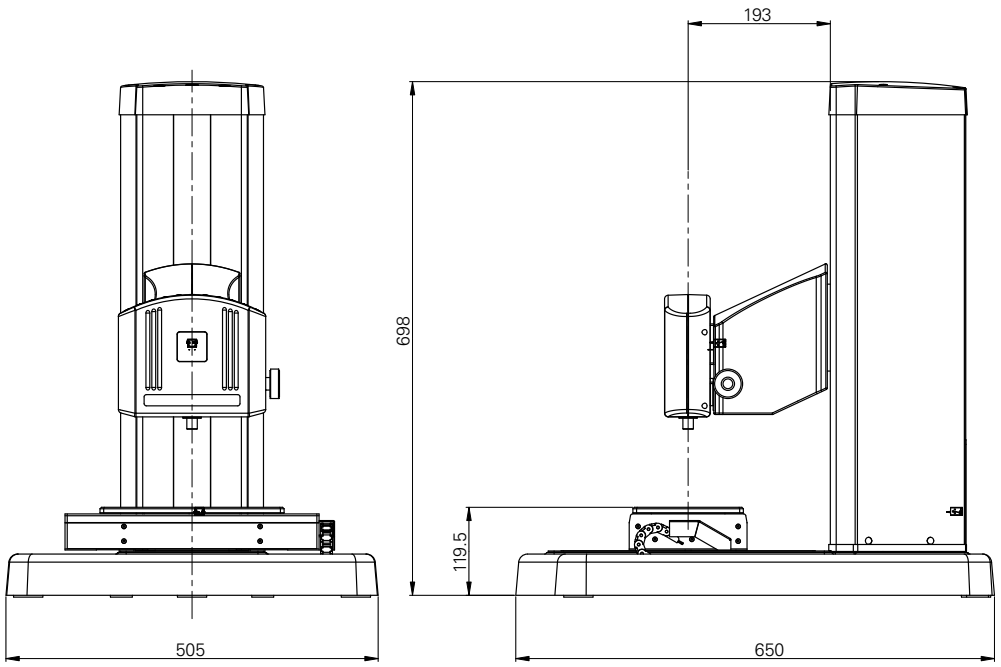
TR Scan		101	201	301
Horizontal measuring range X	mm	-	100	100
Horizontal measuring range Y	mm	-	-	100
Vertical measuring range Z	mm	240		
Measuring system resolution XYZ	µm	0.1		
Positioning accuracy XYZ	µm	1		
Rectitude of the guideways XY	µm	1.5		
Max weight of the part	kg	20		

Measuring heads		DHM S1	DHM S2	CCM P1	DIA P1
Vertical resolution (Z)	nm	1	1	8 ÷ 22 [2)]	10
Lateral resolution (XY)	µm	0.6	0.6	0.9 ÷ 3.5 [2)]	1
Typical measuring range Ra [1)]	µm	0.4	1.6	>200 [2)]	20
Vertical measuring range [1)]	µm	3	7	130 ÷ 400 [2)]	350
Max. permissible errors Ra	%	1%	1%	1% ÷ 5% [2)]	5%
Repeatability (Ra, 1σ)	nm	< 0.1	< 0.1	<5 ÷ 20 [2)]	9
Sample reflectivity	%	< 1% ÷ 100%	< 1% ÷ 100%	1% ÷ 100%	-
Field of view	mm	0.25 x 0.25	0.25 X 0.25	-	-

[1)] Values may differ depending on the surface texture

[2)] Objective dependent

DIAGRAM



STANDARD INSTRUMENT

The TR Scan instruments are supplied as follows:
Instrument according to specification (without measuring head)
1 measuring head (DHM S1, DHM S2, CCM P1+TA-MI-701/TA-MI-708)
PC with 1 TFT screen
Nanoware Measure and Nanoware Analysis software (according to selected model)
User's manual (750 50 0028 03)

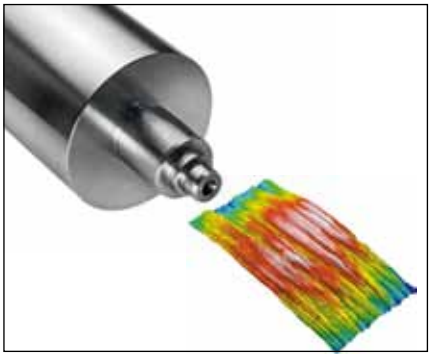
CODE NUMBER

TR Scan	Purpose	Meas. head	Axes	Software
TRS201CCM 700 405 20 11	Non-contact profiles measurements 2D	CCM P1	- 1 vertical axis Z - 1 horizontal axis X	Nanoware LT (2D analysis)
TRS201DHM 700 405 20 21	Extended profiles measurements 3D, metallic parts	DHM S2	- 1 vertical axis Z - 1 horizontal axis X	Nanoware STT (2D/3D analysis)
TRS301DHM 700 405 30 11	3D measurements, metallic parts	DHM S2	- 1 vertical axis Z - 2 horizontal axes XY	Nanoware STT (2D/3D analysis)

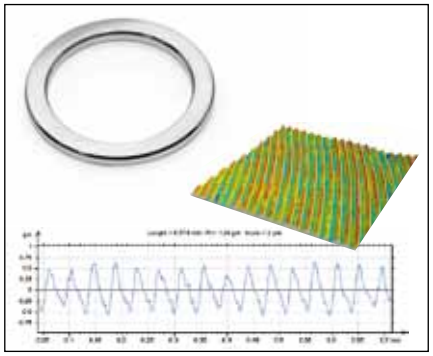
The TR Scan can also be specifically equipped according to the needs for each application (head(s) and measuring table, software). An exhaustive list of equipments can be found in the accessories section.

TR SCAN

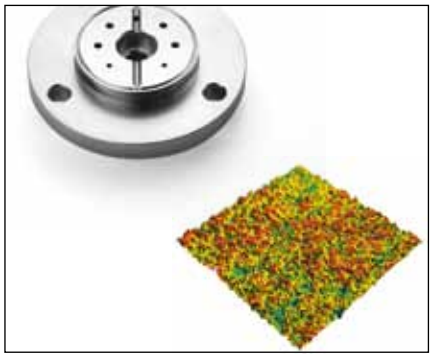
APPLICATIONS



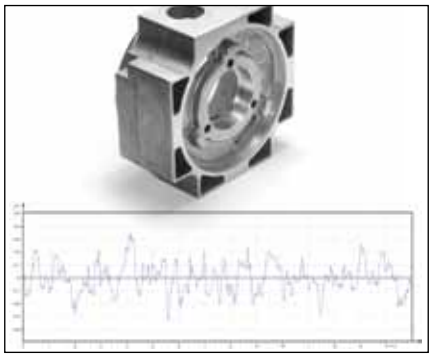
Surface spinning measurement on a steel printing roll (DHM S2)



Verification of an aluminium ring joint gasket for the aircraft industry (DHM S2)



Texture analysis of a chemically polished titanium surface (DHM S2)



Classical 2D internal roughness measurement (DIA P1)

TR SCAN PREMIUM

TR SCAN PREMIUM

INTRODUCTION

TR Scan Premium allows the measuring of the most sensitive surfaces with astounding speed and precision. It has become unavoidable in many cases for hi-tech applications, when the traditional measuring by contact has reached its limits. Medical appliances, prosthesis, wafers, MEMS, semiconductors, metallic layers deposits, polymer films, optical components, research and development, quality control, are the areas of expertise of TR Scan Premium.

The heart of the system, Trimos DHM® (Digital Holographic Microscopy), constitutes a derivation of a technology used in the biomedical engineering field. The system itself is based on the physical characteristics of the hologram for the topography generation of the analysed surface. This technology for checking industrial surfaces is exclusively used by Trimos. Its most distinctive feature to competitive products is the possibility of measuring extreme reflecting, mirror-polished or very small surfaces.

The exceptional high measuring speed coupled with an accuracy range of a nanometre form the main advantages of the TR Scan. Only some microseconds are needed for the acquisition of a three dimensional image (x, y, z) with a million points. This exceptional acquisition speed allows ignoring all problems traceable to vibrations, the traditional enemy of the majority of optical measuring systems. The mentioned advantages prove an enhanced productivity and a limited investment.

- EXCEPTIONAL FAST MEASURING SPEED
- INSENSITIVE TO VIBRATION
- VERTICAL RESOLUTION IN NANOMETER RANGE
- EXTREME SIMPLE POSITIONING OF THE PART THANKS TO LASER ALIGNMENT (DHM)
- NON-CONTACT MEASURING, NON DESTRUCTIVE
- SOFTWARE AT THE TOP OF THE TECHNOLOGY
- PRE-PROGRAMMED MEASURING PROCESSES
- COMPATIBLE WITH 2D AND 3D STANDARDS

DESCRIPTION

AUTOMATED Z-AXIS
The motorization of the axes allows entirely automatic measurements. The working distance is automatically given by the system. The measurement of surfaces wider than the field of vision of the lens is made possible thanks to a particularly efficient "stitching" function.

INTERCHANGEABLE MEASURING HEADS
The unique system of interchangeable measuring heads confers a high degree of adaptability to every application. Changing a head is quickly done and automatically recognized by the system. Several technologies are available for complete application coverage.

TRIMOS NANOWARE MEASURE
Software for the management of all measurement parameters

TRIMOS NANOWARE ANALYSIS
Software for the analysis of measured surfaces

Motorized table (XY)

TR SCAN PREMIUM

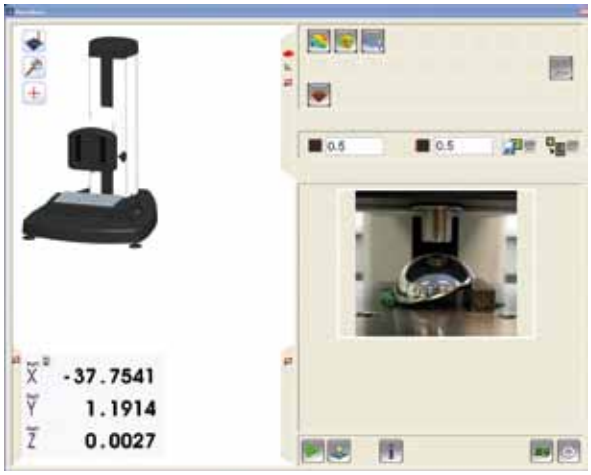
DISPLAY / SOFTWARE

TRIMOS NANOWARE MEASURE
This exclusive software allows the handling of the instrument (positioning and configuration of all measurements).

Positioning in X,Y,Z is performed either automatically by predefined parameters or via the use of an intuitive joystick aided by a integrated positioning laser and a camera (optional).

Once positioned, measurements are taken automatically with one click or via the use of a manual size parameter in a few seconds.

- INTUITIVE POSITIONING
- INSTANT MEASUREMENT
- PROGRAMMABLE MEASUREMENTS WITH PICTURE

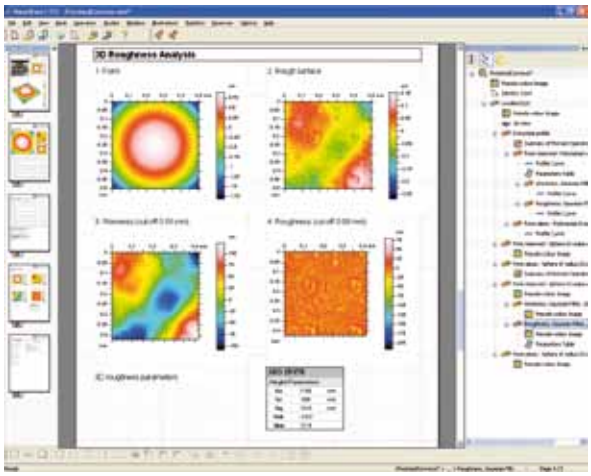


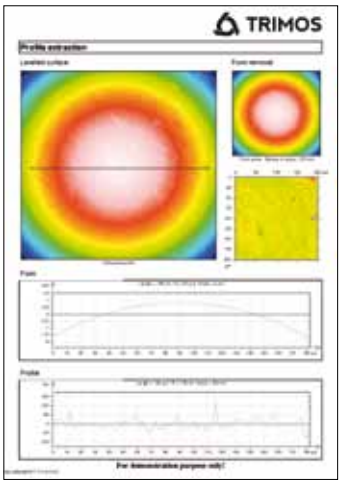
TRIMOS NANOWARE ANALYSIS
This software allows the analysis of all measured surfaces according to current international standards such as ISO, DIN, JIS, ASME, CNOMO etc., as well as the 3D standard ISO 25178.

Analysis can be performed automatically by the use of a template or the user can have direct access to the raw data. The incorporated analysis software is powered by Mountains®, the most powerful and recognized 2D/3D surface analysis software available.

Reports are automatically generated during analysis. Any report can be used as a template later.

- POWERFUL ANALYSIS
- PROFESSIONAL REPORTING
- SUITABLE MODULE FOR EACH APPLICATION NEED
- COMPLIES TO ALL INTERNATIONAL STANDARDS





THE DHM TECHNOLOGY

DHM® (Digital Holographic Microscopy) is a non-contact surface measurement technology originally developed for the biotech and medical industry. DHM generates a high-resolution 3D digital image of a sample using the principle of holography. A hologram generated by combining a coherent reference wave with the wave received from a sample is recorded by a CCD camera and transmitted to a computer for numerical reconstruction.

A single hologram is acquired in a few microseconds, making the whole system insensitive to vibrations. Software procedures allows computation of the complete wavefront emanating from an object and provides:

- Intensity images providing the same contrast as with classical optical microscopy
- Phase images providing quanti tative data, defined at a sub-wavelength scale, used for accurate and stable 3D measurements.

The phase image reveals the surface topography with a sub-nanometric vertical resolution. This digital approach to holography allows the application of computer-based procedures at a level never reached in optical microscopy so far. In particular the DHM principle features software compensation of optical aberrations, digital image focusing and numerical compensation for sample tilt and environmental disturbances, making DHM instruments robust and easy to use for routine inspections at the nanometer and micrometer scale.DHM is used exclusively by Trimos for surface texture measurement. This technology has numerous advantages compared to other contact and non-contact measurement technologies: in particular extremely fast measurements, high resolution, simple working process no moving parts and no requirement for special environmental conditions.

- Acquisition in a few microseconds
- Vibration incensitive
- High image quality
- Subnanometric resolution
- No moving parts
- No requirement for special environmental conditions

DHM is a recognized surface texture measurement method according to the standard ISO 25178-6

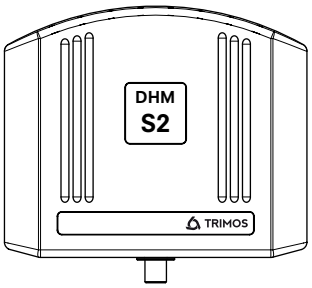
TR SCAN PREMIUM

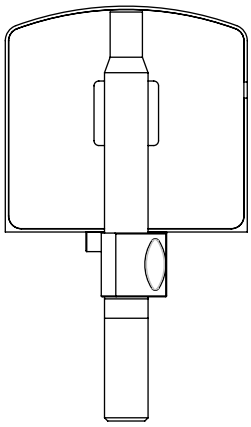
MEASURING HEADS

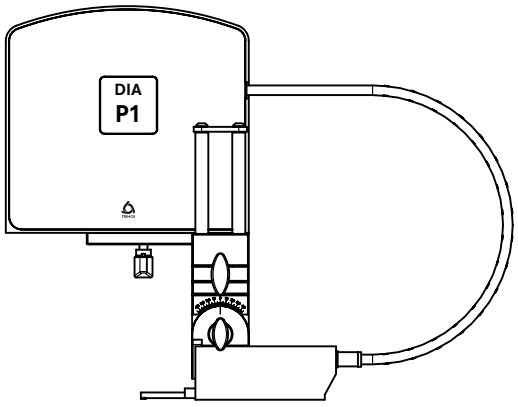
DHM S1 & S2
DHM Technology:
- Smooth, grinded and polished surfaces
- Steel, aluminum, titanium, silicon, gold, ceramics, glass
- High precision and speed, 2D/3D

CCM P1
Chromatic Confocal Technology:
- Machined and rough surfaces, micro-structures
- Metals, plastics, abrasives, papers, textiles, cosmetics
- Large vertical range, all materials, 2D/3D

DIA P1
Diamond Stylus Tip Technology:
- Roughness measurement with contact
- Classical roughness measurements (2D)
- Internal measurements







TECHNICAL SPECIFICATIONS

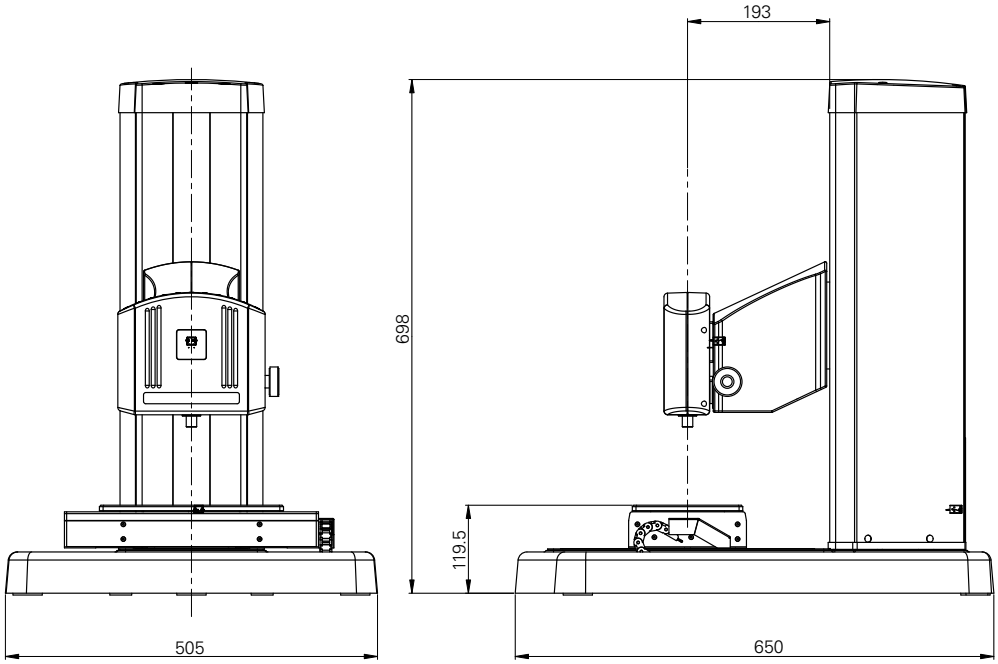
TR Scan Premium		101	301
Horizontal measuring range X	mm	-	100
Horizontal measuring range Y	mm	-	100
Vertical measuring range Z	mm	240	
Measuring system resolution XYZ	µm	0.1	
Positioning accuracy XYZ	µm	1	
Rectitude of the guideways XY	µm	0.3	
Max weight of the part	kg	20	

Measuring Heads		DHM S1	DHM S2	CCM P1	DIA P1
Vertical resolution (Z)	nm	0.1	0.1	8 ÷ 780 [2)]	10
Lateral resolution (XY)	µm	0.6	0.6	0.9 ÷ 14 [2)]	1
Typical measuring range Ra [1)]	µm	0.4	1.6	0.012 ÷ >200 [2)]	20
Vertical measuring range [1)]	µm	3	7	130 ÷ 24000 [2)]	350
Max. permissible errors Ra	%	1%	1%	1% ÷ 5% [2)]	5%
Repeatability (Ra, 1σ)	nm	< 0.1	< 0.1	<5 ÷ 25 [2)]	9
Sample reflectivity	%	< 1% ÷ 100%	< 1% ÷ 100%	1% ÷ 100%	-
Field of view	mm	0.25 x 0.25	0.25 X 0.25	-	-

[1)] Values may differ depending on the surface texture

[2)] Objective dependent

DIAGRAM



STANDARD INSTRUMENT

The TR Scan Premium instruments are supplied as follows:
Instrument according to specification (without measuring head)
1 measuring head (DHM S1, DHM S2, CCM P1+TA-MI-701 ÷ 713)
PC with 1 TFT screen
Nanoware Measure and Nanoware Analysis softwares (according to selected model)
User's manual (750 50 0028 03)

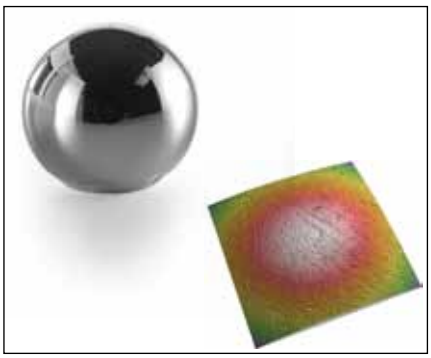
CODE NUMBER

TR Scan Premium	Purpose	Meas. head	Axes	Software
TRSP101DHM 700 405 10 11	3D Measurement of tiny parts	DHM S2	- 1 vertical axis Z	Nanoware STT (2D/3D analysis)
TRSP301DHM 700 405 30 21	3D measurement of metallic parts	DHM S2	- 1 vertical axis Z - 2 horizontal axes XY	Nanoware STT (2D/3D analysis)
TRSP301CCM 700 405 30 31	Universal 3D measurements	CCM P1	- 1 vertical axis Z 2 horizontal axes XY	Nanoware STT (2D/3D analysis)

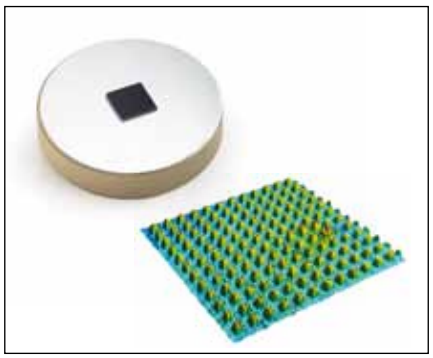
TR Scan Premium can also be specifically equipped according to each application need (head(s) and measuring table, software). An exhaustive list of equipments can be found in the accessories section.

TR SCAN PREMIUM

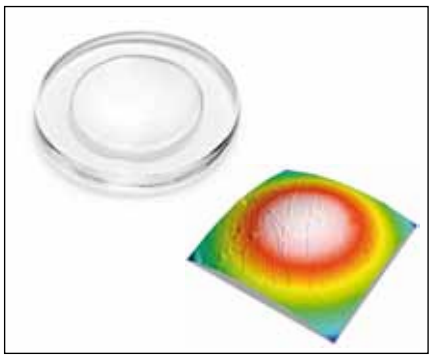
APPLICATIONS



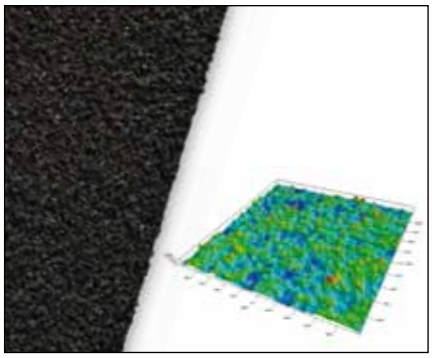
Quality control of a cobalt-chromium polished prosthesis surface (DHM-S2)



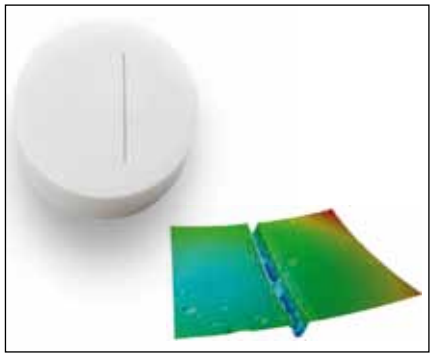
Analysis of a silicon microstructure (DHM S2)



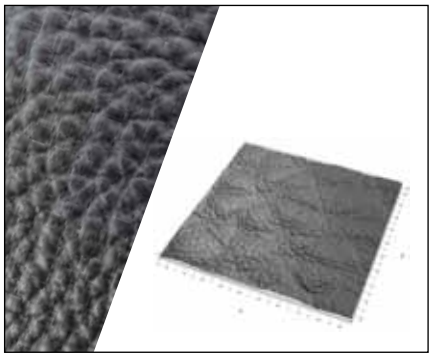
Roughness inspection of micro lenses (DHM S2)



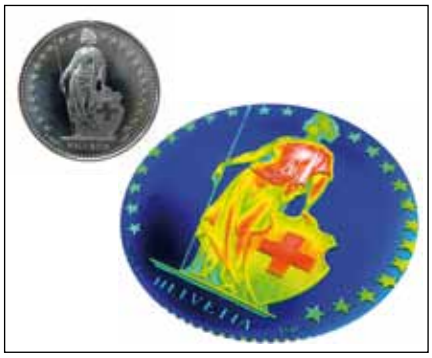
Surface texture analysis of an industrial abrasive material (CCM P1)



Depth measurement of a laser engraving on ceramics (CCM-P1)



Topographic analysis of a leatherette sample (CCM-P1)



Measurment of macroscopic surface textures (CCM P1)

ACCESSORIES

		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
TA-MI-701 279 970000 001	Optical pen, with optical fiber and certificate, measuring range=130 µm, lateral resolution=0.9 µm					●	●
TA-MI-707 279 970001 001	Optical pen, with optical fiber and certificate, measuring range=130 µm, lateral resolution=1.4 µm					●	●
TA-MI-708 279 970001 002	Optical pen, with optical fiber and certificate, measuring range=400 µm, lateral resolution=1.2 µm					●	●
TA-MI-702 279 970000 002	Optical pen, with optical fiber and certificate, measuring range=400 µm, lateral resolution=1.7 µm					●	●
TA-MI-713 279 970002 002	Optical pen, with optical fiber and certificate, measuring range=400 µm, lateral resolution=3.5 µm					●	●
TA-MI-709 279 970001 003	Optical pen, with optical fiber and certificate, measuring range=1400 µm, lateral resolution=2 µm						●
TA-MI-703 279 970000 003	Optical pen, with optical fiber and certificate, measuring range=1400 µm, lateral resolution=4 µm						●
TA-MI-710 279 970001 004	Optical pen, with optical fiber and certificate, measuring range=4000 µm, lateral resolution=4 µm						●
TA-MI-704 279 970000 004	Optical pen, with optical fiber and certificate, measuring range=4000 µm, lateral resolution=7 µm						●
TA-MI-711 279 970001 005	Optical pen, with optical fiber and certificate, measuring range=12000 µm, lateral resolution=7 µm						●
TA-MI-705 279 970000 005	Optical pen, with optical fiber and certificate, measuring range=124000 µm, lateral resolution=12.37 µm						●
TA-MI-712 279 970001 006	Optical pen, with optical fiber and certificate, measuring range=24000 µm, lateral resolution=8 µm						●
TA-MI-706 279 970000 006	Optical pen, with optical fiber and certificate, measuring range=24000 µm, lateral resolution=14 µm						●
TA-MS-601 279 980001 001	Standard tracer, with skid R = 25 mm bore > Ø 8 mm, depth < 27 mm	●	●	●	●		


TR Profile VH


TR Profile VHF

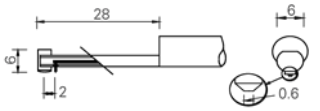

TR Profile DH-8 VH

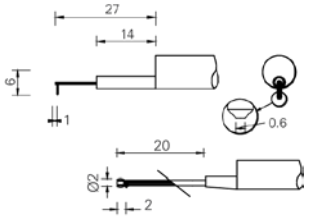

TR Profile DH-8 VHF

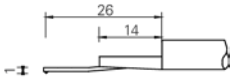

TR Scan

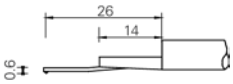

TR Scan Premium

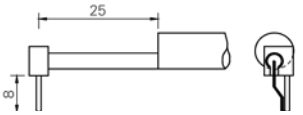
ACCESSORIES

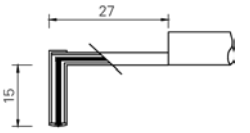


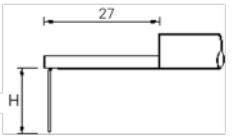


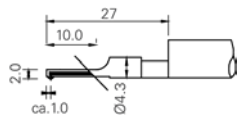


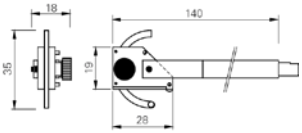


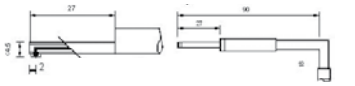


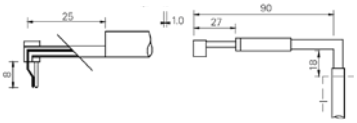






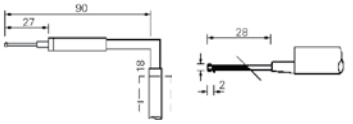


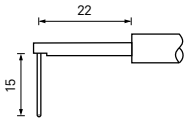


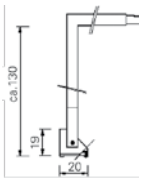


		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
TA-MS-602 279 980001 002	Probe for small axes, knives, edges and wires with skid R=25 mm	●	●	●	●		
TA-MS-603 279 980001 003	Probe for small axes, knives, edges and wires without skid		●		●	●	●
TA-MS-604 279 980002 001	Bore probe with skid R=10 mm bore >Ø2.5 mm, depth < 20 mm	●	●	●	●		
TA-MS-605 279 980002 002	Bore probe, without skid bore >Ø1.5 mm, depth < 12 mm		●		●	●	●
TA-MS-606 279 980002 003	Small bore probe, without skid bore >Ø0.8 mm, depth < 12 mm		●		●	●	●
TA-MS-607 279 980003 001	Concave-convex probe, with skid R=1 mm for concave & convex workpieces with R>5 mm	●	●	●	●		
TA-MS-608 279 980004 001	Probe for slots, with skid R=25 mm slot depth < 15 mm, slot width > 3 mm	●	●	●	●		
TA-MS-612 279 980004 005	Probe for slots, H=5 mm, without skid slot depth < 5 mm, slot width > 1.0 mm		●		●	●	●
TA-MS-611 279 980004 004	Probe for slots, H=10 mm, without skid slot depth < 10 mm, slot width > 1.0 mm		●		●	●	●
TA-MS-609 279 980004 002	Probe for slots, H=15 mm, without skid slot depth < 15 mm, slot width > 1.5 mm		●		●	●	●
TA-MS-610 279 980004 003	Probe for slots, H=20 mm, without skid slot depth < 20 mm, slot width > 1.5 mm		●		●	●	●
TA-MS-620 279 980005 001	Probe for gear tooth profiles, with skid , module >= 2	●	●	●	●		
TA-MS-621 279 980006 001	Probe for circumference and balls, with skid for Ø >= 6 mm	●	●	●	●		
TA-MS-622 279 980007 001	Transverse probe, with skid R=25 mm	●	●	●	●		
TA-MS-623 279 980007 002	Transverse probe for slots, with skid R=1 mm slot depth < 7 mm	●	●	●	●		

ACCESSORIES







		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
TA-MS-624 279 980007 003	Transverse probe for bores, with skid R=25 mm	●	●	●	●		
TA-MS-626 279 980007 004	Transverse probe left side, without skid		●		●	●	●
TA-MS-627 279 980007 005	Transverse probe right side, without skid		●		●		
TA-MS-625 279 980008 001	Depth measuring probe, with skid R=25mm depth < 130 mm	●	●	●	●		
TA-AD-601 279 980901 001	Extension 100 mm for probe	●	●	●	●		
TA-AD-602 279 980901 002	Extension 150 mm for probe	●	●	●	●		
TA-AD-603 279 980901 003	Extension 200 mm for probe	●	●	●	●		
TA-AD-604 279 980901 004	Extension 500 mm for probe	●	●	●	●		
TA-AD-605 279 980901 005	Extension 750 mm for probe	●	●	●	●		
TA-MS-650 279 980010 001	Contour tracer				●		
TA-MS-651 279 980010 002	Contour measurement kit - Simple (for TR Profile DH-8/VHF), Contour tracer (TA-MS-650) with standard (TA-MG-651), DIASOFT Standard (TA-SW-602) & contour module Simple (TA-SW-610)				●		
TA-MS-652 279 980010 003	Contour measurement kit - Advanced (for TR Profile DH-8/VHF, Contour tracer (TA-MS-650) with standard (TA-MG-651), DIASOFT Standard (TA-SW-602) & contour mod. Advanced (TA-SW-611)				●		
DHM-S1 709 70 001	Measuring head DHM S1					●	●
DHM-S2 709 70 002	Measuring head DHM S2					●	●


TR Profile VH


TR Profile VHF


TR Profile DH-8 VH


TR Profile DH-8 VHF


TR Scan


TR Scan Premium

ACCESSORIES

			TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
	**CCM-P1** 709 70 005	Measuring head CCM P1					●	●
	**DIA-P1** 709 70 003	Measuring head DIA P1					●	●
	**TA-SU-601** 279 981001 001	XY table, base plate 70 x 70 mm, travel range 25 x 25 mm	●	●	●	●		
	**TA-SU-602** 279 981901 001	Vice for XY table TA-SU-601, opening 22mm	●	●	●	●		
	**TA-AD-606** 279 982001 001	Measuring stand with drive unit holder with aluminium base and column H=250 mm	●	●	●	●		
	TA-AD-608 279 982001 003	Measuring stand with drive unit holder with aluminium base and column H=500 mm	●	●	●	●		
	**TA-AD-607** 279 982001 002	Measuring stand with drive unit holder with granite base and column H=250 mm	●	●	●	●		
	TA-AD-610 279 982001 004	Measuring stand with drive unit holder with granite base and column H=500 mm	●	●	●	●		
	**TA-AD-609** 279 982901 001	Drive unit holder	●	●	●	●		
	**TA-SU-603** 279 989001 001	Set with measuring stand and XY meas. table TA-AD-606 and TA-SU-601	●	●	●	●		
	**TA-SU-604** 279 989001 002	Set with measuring stand,XY meas. table and vice TA-SU-603 and TA-SU-602	●	●	●	●		
	**TA-SU-605** 297 700003 001	Swivelling stand, with magnetic base	●	●	●	●	●	●
	TA-SU-606 297 700004 001	Precision vice 15 x 15 x 50 mm	●	●	●	●	●	●
	**TA-SU-607** 297 700004 002	Precision vice 25 x 25 x 75 mm	●	●	●	●	●	●
	TA-SU-608 297 700004 003	Precision vice 35 x 35 x 100 mm	●	●	●	●	●	●

ACCESSORIES

		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
TA-SU-609 297 700005 001	Support plate for vice TA-SU-606	●	●	●	●	●	●
TA-SU-610 297 700005 002	Support plate for vice TA-SU-607	●	●	●	●	●	●
TA-SU-611 297 700005 003	Support plate for vice TA-SU-608	●	●	●	●	●	●
TA-SE-601 605 01 021	Clamping set, TA-SU-605/TA-SU-607/TA-SU-610	●	●	●	●	●	●
TA-MG-609 278 980001 001	Roughness standard, Ra=3.0 µm	●	●	●	●	●	●
TA-MG-610 278 980001 002	Roughness standard, Ra=3.0 µm, with SCS certificate	●	●	●	●	●	●
TA-MG-611 278 980001 003	Roughness standard, Ra=1.0 µm	●	●	●	●	●	●
TA-MG-612 278 980001 004	Roughness standard, Ra=1.0 µm, with SCS certificate	●	●	●	●	●	●
TA-MG-601 278 980010 001	Roughness standard Ra=25 nm, with DKD Certificate					●	●
TA-MG-602 278 980010 002	Roughness standard Ra=50 nm, with DKD Certificate					●	●
TA-MG-603 278 980010 003	Roughness standard Ra=80 nm, with DKD Certificate					●	●
TA-MG-605 278 980010 005	Roughness standard Ra=0.2 µm, with DKD Certificate	●	●	●	●	●	●
TA-MG-606 278 980010 006	Roughness standard Ra=0.5 µm, with DKD Certificate	●	●	●	●	●	●
TA-MG-607 278 980010 007	Roughness standard Ra=1.5 µm, with DKD Certificate	●	●	●	●	●	●
TA-MG-604 278 980010 004	Set of roughness standards Ra=25/50/80 nm with DKD Certificate					●	●
TA-MG-608 278 980010 008	Set of roughness standards Ra=0.2/0.5/1.5 µm with DKD Certificate	●	●	●	●	●	●
TA-MG-651 278 980001 011	Contour standard	●	●	●	●	●	●
TA-MG-652 278 980001 012	Contour standard, with SCS certificate	●	●	●	●	●	●
TA-EL-040 358 0020	Joystick					●	●


TR Profile VH


TR Profile VHF


TR Profile DH-8 VH


TR Profile DH-8 VHF


TR Scan


TR Scan Premium

ACCESSORIES

		TR Profile VH	TR Profile VHF	TR Profile DH-8 VH	TR Profile DH-8 VHF	TR Scan	TR Scan Premium
	**LABC-40** 356 0010 — Laser printer (USB)					●	●
	**TA-EL-030** 356 0016 — Inkjet printer (USB)					●	●
	**TA-EL-001** 332 10 0011 — Power cable, 2 poles, Europe					●	●
	**TA-EL-002** 332 10 0013 — Power cable, 2 poles, USA/Japan					●	●
	**TA-EL-003** 332 10 0016 — Power cable, 2 poles, Australia					●	●
	**TA-EL-004** 332 10 0014 — Power cable, 2 poles, UK					●	●
	**TA-EL-005** 616 20 003 — Power cable, 2 poles, Korea					●	●
	TA-SW-601 394 1 3301 — Software DIASOFT Basic, Predefined protocol, roughness and Abbott curve,(Ra, Rq, Rv, Rp, Rt, Sm, Rsk, Rku, Rz, RTp, RHTp, RDq, RPc)	●	●	●	●		
	TA-SW-602 394 1 3302 — Software DIASOFT Standard, Same as TA-SW-601 + individual protocols, zoom, symmetry, profile comparison, (RLq, Rlo, RzJIS, R3z)	●	●	●	●		
	TA-SW-603 394 1 3303 — Software DIASOFT Automotive , Same as TA-SW-602 + additionally with ISO 12085 (CNOMO), and ISO 13565, (parameter Rk)	●	●	●	●		
	TA-SW-604 394 1 3304 — Software DIASOFT Expert. The most complete software for roughness measurement	●	●	●	●		
	TA-SW-610 394 1 3310 — Module DIASOFT Contour Simple (for TA-SW-602/603/604)				●		
	TA-SW-611 394 1 3311 — Module DIASOFT Contour Advanced (for TA-SW-602/603/604)				●		
	TA-SW-612 394 1 3312 — Module DIASOFT Statistics (roughness) (for TA-SW-602/603/604)	●	●	●	●		
	Nanoware LT 616 60 010 — Module for profile analysis NanoWare LT profile measurement 2D - Basic					●	●
	Nanoware XT 616 60 011 — Module for profile analysis Nanoware XT profile measurements 2D - Advanced					●	●
	Nanoware STT 616 60 012 — Module for profile and surface analysis NanoWare STT, 3D roughness Software - Basic					●	●
	Nanoware XTT 616 60 013 — Module for profile and surface analysis Nanoware XTT, Roughness software 3D - Advanced					●	●
	Nanoware PRO 616 60 014 — Complete module for profiles and surfaces Nano-Ware PRO, Roughness software 3D - Professional					●	●

DIASOFT