



TESA
TECHNOLOGY

S M A R T
MEASUREMENT
SOLUTIONS

CATALOGUE



TESA

TECHNOLOGY

Welcome to a new era at TESA Technology

We're proud to return to our roots – a place where we can be bold once again and focus exclusively on what we do best: precision measurement. With complete dedication to meticulous design, engineering, and reliability, we continue a legacy of excellence that has distinguished us for over 80 years.

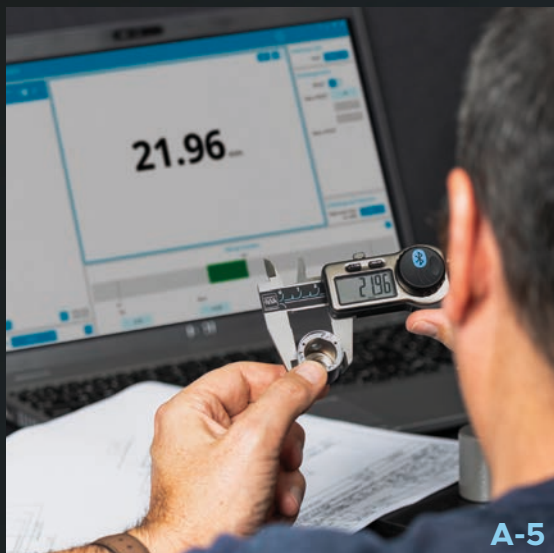
Each of our instruments is crafted to the highest standards, standing as a testament to our unwavering commitment to quality, reliability, and longevity. Our mission is to bridge the expertise of our past with today's pioneering spirit, blending tradition and innovation to create solutions that not only meet current demands but endures for generations.

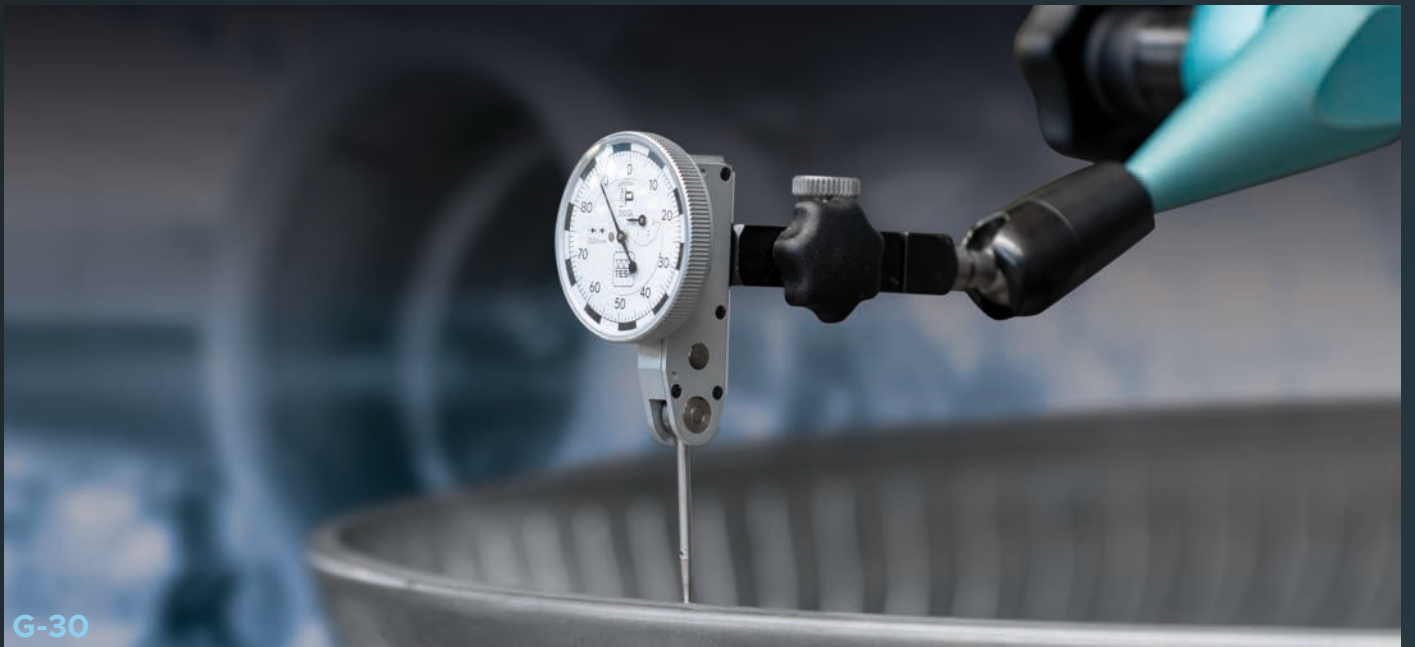
This catalogue is more than a product lineup; it embodies TESA Technology's promise of excellence and our dedication to advancing precision measurement across industries worldwide. Whether you're seeking solutions for quality control, durability, or cutting-edge technology, you'll find in these pages the reliability and trustworthiness that make us the global benchmark in precision measurement.

We invite you to explore our catalogue and discover the lasting quality of TESA Technology – precision instruments crafted to perform today and inspire tomorrow.

— Uwe Burkardt, Marketing Director

OUR ESSENTIALS





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Chapters

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Connectivity



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Towards a connected company...

Thanks to advancements in the field of information technology, robotics, and more, digital technologies are being increasingly utilized in workshops around the world. Even though some companies continue to employ the traditional pen-and-paper method to ensure traceability of the parts they produce, the boundary between the physical and digital worlds is gradually fading.

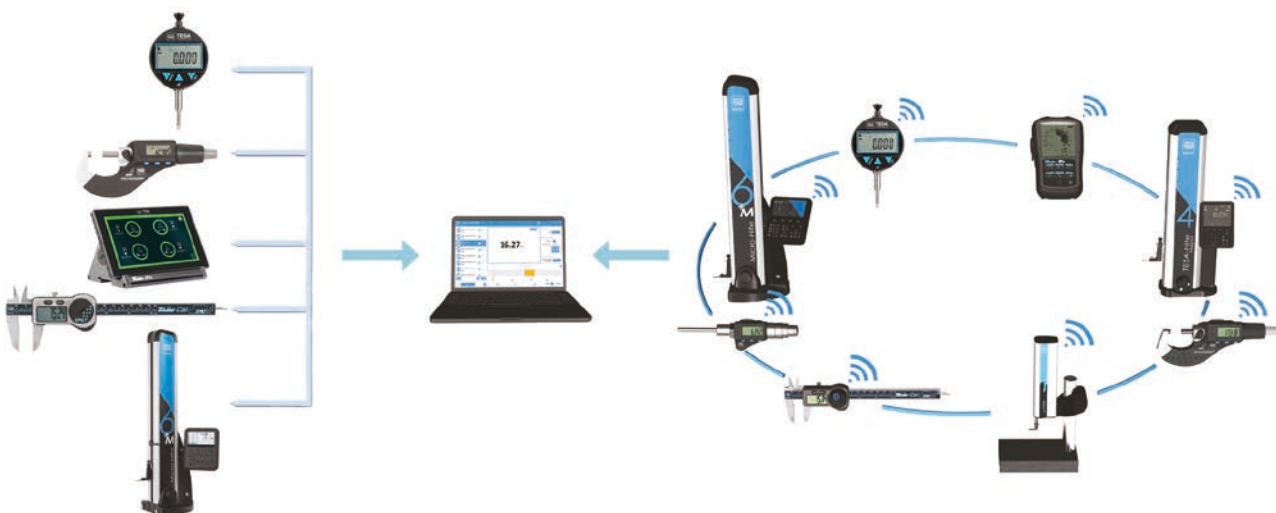
In the current context of Industry 4.0, competitiveness and flexibility go hand in hand with the digitalization of businesses. Productivity gains, cost reduction, and product and process improvement are generally discussed. Consequently, real-time monitoring and control of one's production become relatively important.

In this context, instrument connectivity becomes an indispensable feature. Connecting measurement instruments to a computer opens up powerful possibilities (reports, statistical analysis, etc.) and clearly fulfills data management expectations for both small enterprises and larger companies.



A wide range of possibilities

In this chapter, you will find several options for connecting TESA instruments to a peripheral device and receiving the data for further processing. To achieve this, TESA not only offers various types of connections between the measuring instrument and the computer, but also powerful and comprehensive data management software solutions.



Connectivity

Send your data to a free software, DATA-VIEWER

Data acquisition has never been easier! TESA digital instruments with Bluetooth® and USB connection are automatically recognized by the software, and the measured values are displayed in a user-friendly environment. Once the data is loaded into the TESA DATA-VIEWER software, it can be exported to other software such as STAT-EXPRESS, Q-DAS, or Excel, and customized to fit your own format.



A appreciated modular system

With the flexibility provided by the TLC (TESA Link Connector) connector, the issue of data transmission is no longer a source of stress during the initial purchase of the instrument. Indeed, by externalizing the technology related to data management into this accessory, TESA enables updating its instruments at any time, whether for cable-based or wireless management.



The TLC cap comes in two versions: with cable or wireless transmission

Family	Model		Designation	Connector type
Calipers	Universal models		TWIN-CAL TWIN-CAL IP67	TLC
	Workshop models		TWIN-CAL IP67	TLC
	Workshop models with knife-edge internal jaws		TWIN-CAL IP67	TLC
	Depth models with short cut measuring face		TWIN-CAL IP67	TLC
	Depth models with fixed hook(s)		TWIN-CAL IP67	TLC
	Depth models with rotary stop plate		TWIN-CAL IP67	TLC
	Depth model with steel measuring tip		TWIN-CAL IP67	TLC
Micrometers	External models		MICROMASTER RS	Opto-RS232
	External model with fine inserts		MICROMASTER RS	Opto-RS232
	Internal models		IMICRO RS	Opto-RS232
Dial gauges			DIALTRONIC	Inductive USB
Display units	Portable display unit with 1 probe input		TWIN-T10	TLC
	Double display unit with 2 Heidenhain probe inputs		TWIN-T20	TLC, RS232
	Double display unit with 2 Heidenhain probe inputs		TWIN-T20 nano	TLC, RS232
Height gauges	1D manual		TESA-HITE MAGNA TESA-HITE	TLC
	2D manual		MICRO-HITE	TLC
	2D motorised		MICRO-HITE+M	TLC
Measuring station	2D motorised		μ-HITE	TLC
Clinometers			CLINOBEVEL 1	USB, RS-485
			CLINOBEVEL 3	USB, RS-485
Roughness gauges	Portable		RUGOSURF 20	Micro-USB
	Ultra-compact		TWIN-SURF	USB C
	Roughness and profile measurement		RUGOSURF 90G	Micro-USB

Connectivity

TLC-BLE emitter

- CONNECTOR
 - Guarantees an IP67 protection rating at all times
- MEASUREMENT
 - Allows users to connect TESA instruments to a computer
 - Paired with the free TESA DATA-VIEWER software, data is easily collected, analyzed, and stored



Range	12 m (depending on environment)
Degree of protection	IP67
Weight	7,2 g
Power supply	CR2032 button battery
Operating temperature	10 ÷ 40 °C
Countries/regions certified for Bluetooth® option use	DE, AT, BE, BG, CA, CN, CY, KR, HR, DK, ES, EE, US, FI, FR, GR, HU, IN, IE, IS, IT, JP, LV, LI, LT, LU, MT, NL, NO, PL, PT, CZ, RO, GB, SK, SI, SE, CH, TW, TR

Article number	Designation
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable

TLC-BLE adapters

- CONNECTOR
 - Guarantees an IP67 protection rating at all times
- MEASUREMENT
 - Allows users to connect TESA instruments to a computer
 - Paired with the free TESA DATA-VIEWER software, data is easily collected, analyzed, and stored



04760178



04760179

Countries/regions certified for Bluetooth® option use

DE, AT, BE, BG, CA, CN, CY, KR, HR, DK, ES, EE, US, FI, FR, GR, HU, IN, IE, IS, IT, JP, LV, LI, LT, LU, MT, NL, NO, PL, PT, CZ, RO, GB, SK, SI, SE, CH, TW, TR

Article number	Designation
04760178	Opto-RS232 to TLC adapter
04760179	RS232 to TLC adapter

TLC connection

- CONNECTOR
 - Guarantees an IP67 protection rating at all times
- MEASUREMENT
 - Allows users to connect TESA instruments to a computer
 - Paired with the free TESA DATA-VIEWER software, data is easily collected, analyzed, and stored



04760181



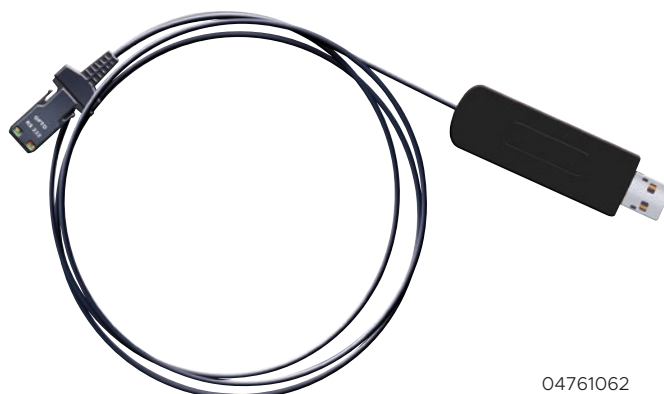
04760182

Degree of protection IP67

Article number	Designation	Length m	Connector (instrument side)	Connector (PC or system side)
04760181	TLC-USB cable	2	TLC	USB
04760182	TLC-DIGIMATIC cable	2	TLC	Ansley 10p/f

Cable connection

Opto connection



04761062

Article number	Designation	Length m	Connector (instrument side)	Connector (PC or system side)
04761062	Opto-RS232 to USB cable, duplex, 2 m	2	Opto-RS232	USB
04761049	Opto-RS232 to Sub-D 9p/f cable, duplex, 2 m	2	Opto-RS232	Sub-D 9p/f
04761027	Opto-RS232 cable, without connector, 2 m	2	Opto-RS232	Without connector

USB connection



Article number	Designation	Length m	Connector (instrument side)	Connector (PC or system side)
04760099	USB to micro-USB cable	2	Micro-USB	USB
06960062	USB cable, RUGOSOFT 90G to computer	1,8		USB
04760151	USB A to USB B cable, 1,8 m	1,8	USB A	USB B
04760152	USB A to USB C cable, 1 m	1	USB C	USB A
04760160	Cable inductive to USB, 3 m	3	Inductive	USB
04760161	Cable power to USB, 3 m	3	Power	USB
04760162	Cable power (90 degrees) to USB, 3 m	3	Power (90 degrees)	USB

Sub-D connection



04761052

Article number	Designation	Length m	Connector (instrument side)	Connector (PC or system side)
04761063	Sub-D 9p/m to USB cable, 2 m	2	Sub-D 9p/m	USB
04761052	Sub-D 9p/f to Sub-D 9p/m cable, 2 m	2	Sub-D 9p/m	Sub-D 9p/f
04761073	Sub-D 9p/m to USB adapter	0,1	Sub-D 9p/m	USB
03969007	Sub-D 9p/f to Sub-D 9p/f cable, 3 m	3	Sub-D 9p/f	Sub-D 9p/f

Batteries, power supplies and cables

Power supplies and cables



04761054

Article number	Designation	Length m
06960046	Power supply 100 ÷ 240 V, 50 ÷ 60 Hz, 12 V, 400 ÷ 600 mAh for RUGOSURF 20	
00760258	Adapter + 14 V charger (cables not included)	
04761054	Power supply 100 ÷ 240 Vac, 50 ÷ 60 Hz, 6,6 Vdc, 750 mAh	
04760153	M4P-3 power supply + EU, UK, US, and CH adapters	
04761055	Power cable, UE	1,8
04761056	Power cable, US	1,8
04761072	Power cable, UK, 1,8 m	1,8
04460016	TWIN-T20 power supply + UE, UK, US and CH cables	1,2
02160038	Power supply 80 ÷ 240 Vac, 50 ÷ 60 Hz for TPS	

Batteries



00760256

Article number	Designation
00760256	Rechargeable battery block
06960063	Battery NiMH 8,4V, 170 mAh, format PP3

Printer for MICRO-HITE range

Together with instruments in the MICRO-HITE range as well as the TESA μ -HITE measuring station, data can be automatically and directly sent to a printer connected to the control panel.

As the printer is optional, it can be connected to an instrument in this range at any time of its use.



00760235

Article number	Designation
00760235	USB printer

Printer for TWIN-SURF roughness gauge



06960090

Article number	Designation
06960090	Bluetooth® printer

Thermal paper



00760250

Article number	Designation
00760250	4x thermal paper, 58 mm, for TWIN-SURF and MICRO-HITE printers



Software

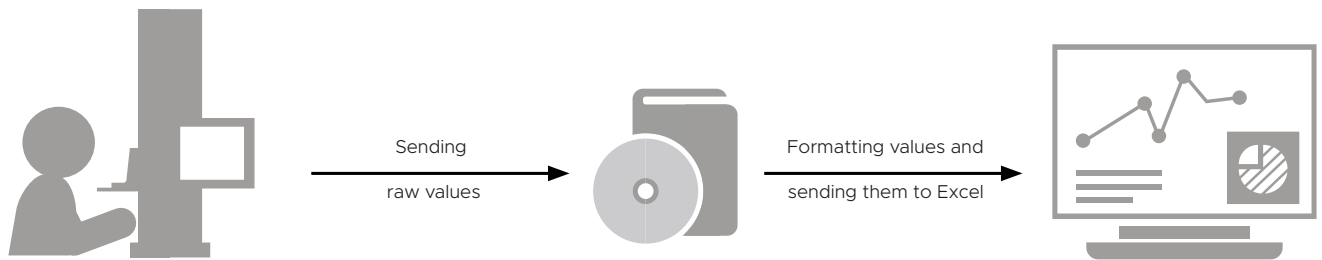


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Software

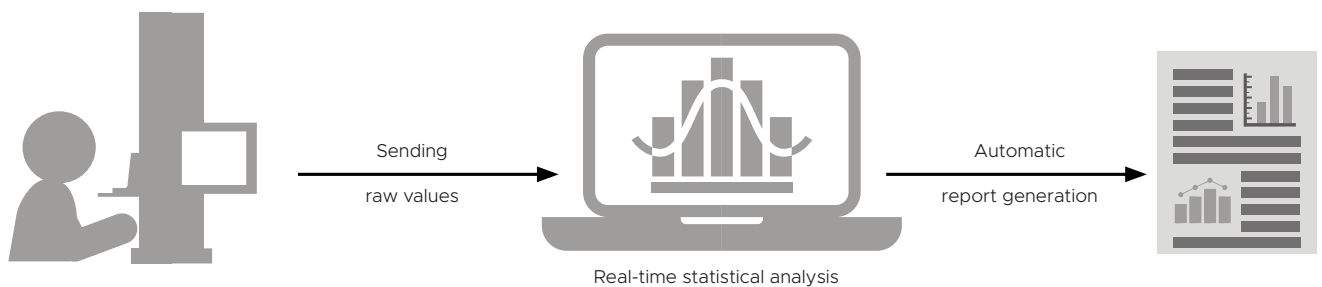
Fill out a report template in real time

With the TESA DATA-DIRECT software, one or several mechanical parts can be measured and the data can be automatically formatted in a previously prepared report template (for example Excel). Once the measurement has been recorded, the report is directly accessible.



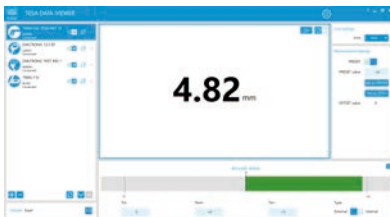
The quick and easy statistical software

The SPC (Statistical Process Control) TESA STAT-EXPRESS software is the way to calculate in real time all the important characteristics during statistical analyses. Quick to learn, it manages also automatically the measuring reports.



DATA-VIEWER

- AVAILABILITY
 - Software downloadable free of charge from the TESA website
- CONNECTIVITY
 - For receiving data via cable (USB)
 - For receiving data via Bluetooth®
 - Instruments automatically recognized and connected
 - Reception via USB dongle or integrated computer dongle (from Windows 10)
 - Possibility to connect up to 40 instruments simultaneously
 - Compatible with a USB foot pedal for sending values
- INTERFACE
 - Clear interface for easy handling without confusion
- DATA MANAGEMENT
 - Transmission of measured values from the measuring instrument or from DATA-VIEWER
 - Real-time export of results to EXCEL or Q-DAS software
 - Automatic creation of files in *.csv or *.txt formats
 - Data transmission format to an active field or a virtual port
- MEASUREMENT REPORT
 - Real-time filling of report templates created in external program (e.g. Excel)



Compatibility

- Wired connection TLC-USB
- Bluetooth® connection TLC-BLE
- DIALTRONIC serie
- USB pedal
- All instruments with an opto-RS232 output using the 04760178 adapter
- All instruments with a Sub-D 9p-RS232 output using the 04760179 adapter

Article number

Designation

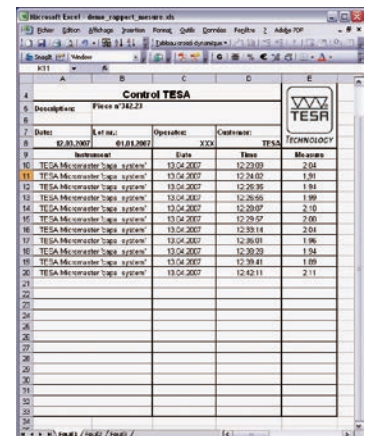
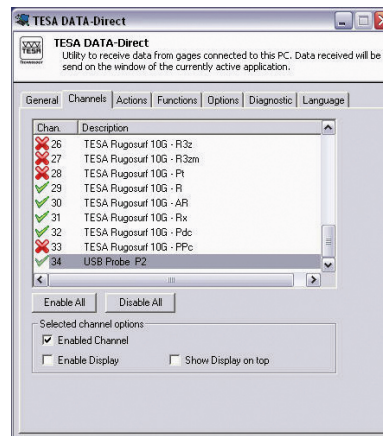
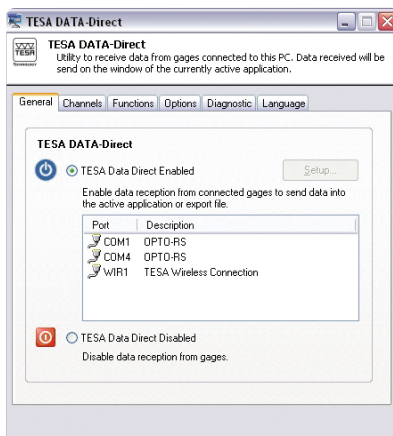
DATA-VIEWER

Free data acquisition software

Data processing software

DATA-DIRECT

- AVAILABILITY
 - Free limited version downloadable from the TESA website
- CONNECTIVITY
 - For data reception via cable (USB)
 - For data reception via Bluetooth® (through the use together with DATA-VIEWER)
 - Compatible with a USB foot pedal for sending values
- DATA MANAGEMENT
 - Transmission of measured values from the measuring instrument or from DATA-DIRECT
 - Real-time export of results to third-party processing software
 - Configurable data transmission format (Cells management)
 - Continuous transmission at a configurable regular interval (Data pooling)
 - Automatic creation of files in .csv format
- MEASUREMENT REPORT
 - Allows for real-time filling of report templates created in external program (e.g. Excel)



Compatibility

- All instruments connectable to DATA-VIEWER
- Customizable RS232 connection for all instruments on the market

Included in delivery

- Installation file and user manual provided on a USB drive
- USB license key (dongle)
- Declaration of conformity

Article number

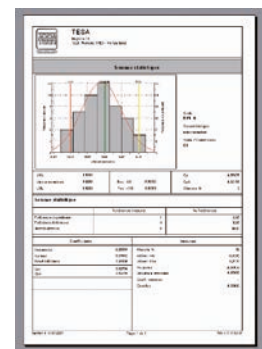
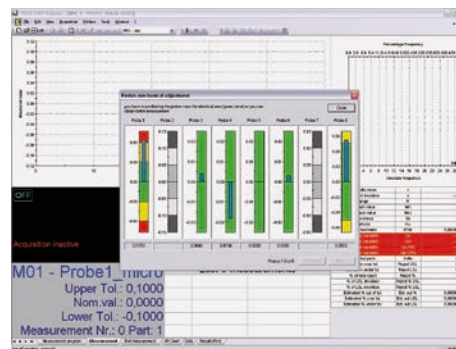
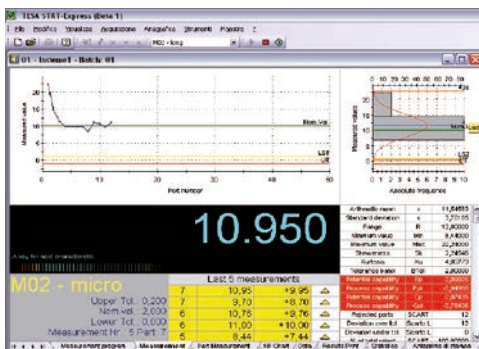
Designation

04981001

DATA-DIRECT software

STAT-EXPRESS

- AVAILABILITY
 - Free limited version downloadable from the TESA website
- CONNECTIVITY
 - For data reception via cable (USB)
 - For data reception via Bluetooth® (through the use together with DATA-VIEWER)
- MEASUREMENT
 - Measurements by part or by characteristic
 - Unlimited creation of measurement programs
 - Simultaneous acquisition of several measurement programs
 - PASS/FAIL classification on the display of the digital TWIN-CAL caliper
- DATA MANAGEMENT
 - Measured value is displayed in real time
 - Statistics calculation and XR control card in real time
 - Accesses protected by user level
 - Import/export of *.csv file
- MEASUREMENT REPORT
 - Report per measured characteristic or per measured part
 - Automatic creation of measurement protocols with photo and operational instruction
 - Complete report with statistics
 - Measurement report in *.pdf, *.html or other format



Compatibility	- All instruments connectable to DATA-VIEWER - Customizable RS232 connection for all instruments on the market
Included in delivery	Installation file and user manual provided on a USB flash drive USB license key (dongle) DATA-DIRECT software (included in STAT-EXPRESS)

Article number	Designation
04981002	STAT-EXPRESS software

Software for gauge block comparators

TESA UP

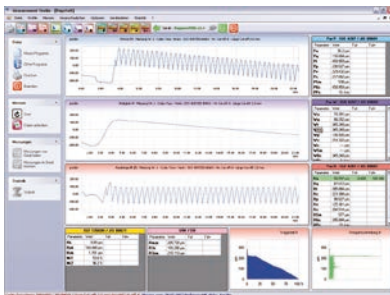
- RESULTS AND MEASUREMENT REPORTS
 - Customized measurement report templates
 - Real-time completion of measurement reports
 - Assignment of standard gauge blocks to their respective classes
 - Automatic sending of measurement reports via email
- FEATURES
 - Wide range of measurement methods
 - Selection of standard or custom quality classes
 - Customizable certificate templates
 - Automatic calculations and classifications based on inspection conditions
 - Client records and order management
 - Unlimited database
 - Data backup for gauge block sets
 - Automatic execution of all corrections (e.g., accounting for the actual dimension of reference standards and flattening due to the use of different types of materials (steel, carbide, ceramic), temperature compensation based on linear expansion coefficients)
 - Processing of metric and imperial values

Standard	ISO 3650
Units	mm / in
Software min. requirements	Windows 10 (32 or 64 bits) or later version
Hardware min. requirements	Processor: Intel core I3 or higher RAM minimum: 8 MB Hard disk: 500 GB
Compatibility	For any system upgrade to TESA UP 3.x please contact your local dealer to confirm the compatibility of TESA UP with your instrument.

Article number	Designation
05960042	TESA UP software, V3.x
05960043	TESA UP software, V3.x + computer

MEASUREMENT STUDIO

- COMPATIBILITY
 - For RUGOSURF 90G
- FUNCTIONS
 - Remote management of measurement start-up and calibration
 - Visualization of the measured parameters
 - Visualization of roughness profiles R, primary P and waviness W
 - Calculation of roughness parameters, including VDA parameters
 - Calculation of statistics from a set of measurements
 - Adjustable upper and lower tolerance for each parameter
 - Creation and storage of measurement programs (instrument settings and parameters to be measured)
 - Transferable measurement programs on the instrument
 - Measurement report with customizable header
 - 51 parameters available
- DATA MANAGEMENT
 - Connection to the instrument via USB
 - Import of saved measurements from the instrument to the computer, for the management of a database
 - Measurement report in *.xls, *.pdf, *.doc, *.rpt or *.rtf format



Par VDA 2007			
Parameter	Value	Tol-	Tol+
WDSm	0.273 μm		
WDc	0.971 μm		
WDt	2.243 μm		

Included in delivery

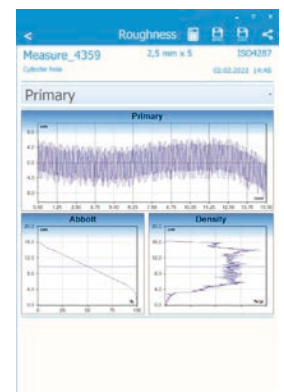
License key (dongle)
 USB-PC connection cable, 1,8 m
 Installation file and user manual provided on a USB drive

Article number	Designation
06960048	MEASUREMENT STUDIO software

Software for roughness gauges

DATA-STUDIO

- COMPATIBILITY
 - RUGOSURF 20 (wired connection)
 - TWIN-SURF (wired and Bluetooth® connection)
 - Wireless printer (Bluetooth®)
- FUNCTIONS
 - Remote management of measurement start and calibration
 - Visualization of the measured parameters
 - Visualization of the measured roughness profiles R, primary P and RK
 - Calculation of roughness parameters, including VDA parameters
 - Statistical calculations from several measurements
 - Adjustable upper and lower tolerance for each parameter
 - Creation and archiving of measurement programs (instrument settings and parameters to be measured)
 - Measurement programs transferable to the instrument
 - Measurement report for each parameter head
 - 57 parameters available with the Premium version
- DATA MANAGEMENT
 - Connection to the instrument via USB or Bluetooth® (depending on the instrument)
 - Import of measurements saved from the instrument to the computer for data base management
 - Printing of results with printer accessory
 - Measurement report in .xls and .pdf format



Included in delivery

USB key including:
Licence key
User manual
Software installation file

Article number	Designation
06960091	DATA-STUDIO software

Calipers



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The essential instrument

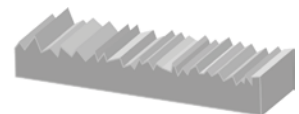
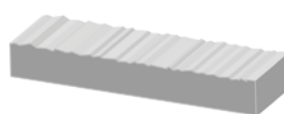
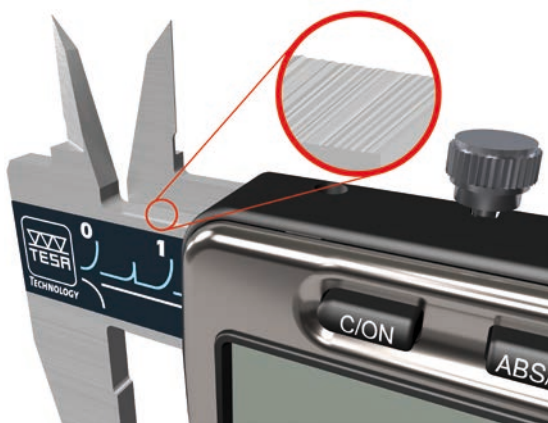
Calipers are the most popular measuring instruments used worldwide. Owing to their simple construction, ease of handling and secure operation, they are highly appreciated by all kinds of users.

With its wide variety of models, TESA wishes to offer everyone the opportunity to find the right instrument and thus, more generally, to meet all the requirements that modern metrology needs. Dial, digital or vernier? With or without data sending management? For which application types? These are typical requests that the range of calipers tries to satisfy by offering products that are as close as possible to the daily needs of the different users.



Smooth operation of the slider

The beam of each instrument is specially ground in order to obtain a sliding quality higher than the average of the instruments available on the market. Therefore, the flawless guide of the slider on the beam ensures a silky-smooth operation allowing a much more precise positioning whilst preventing the measuring jaws from tilting.



Smooth gliding of the slider for optimum operating comfort with ground beams (left) compared to standard rectified beams (right).

Calipers

A robust construction

All models incorporate industry accepted materials perfectly suited to the production of traditional components. Since these instruments are generally used frequently, it is essential that their resistance is guaranteed on the long term. A judicious choice of material combined with appropriate thermal treatments, ensures high resistance to abrasion and corrosion.

Furthermore, in harsh environments such as workshops, the instruments are often subject to all kinds of substances (oil, water, etc). Such conditions are not optimal for instruments containing electronic components. This is the reason why some of the digital models in the range have been designed with a high degree of protection (IP67) to guarantee the longevity of the instrument despite its possible exposure to various projections and intense solicitations.

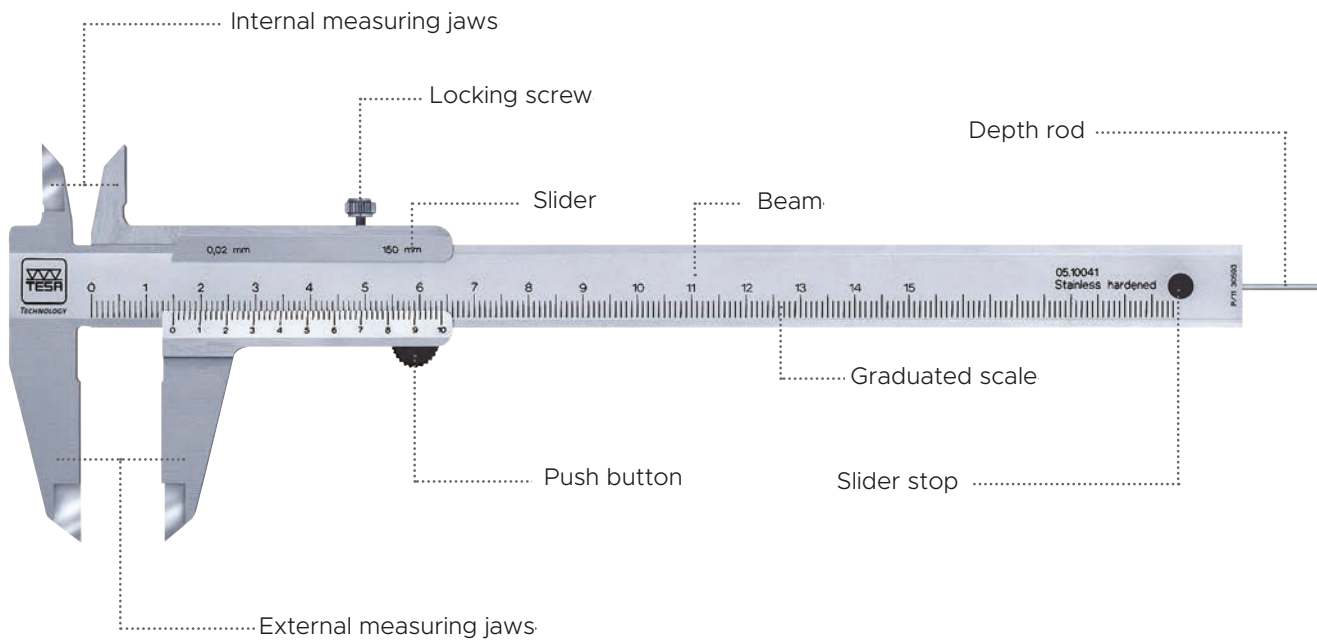


Comfortable handling

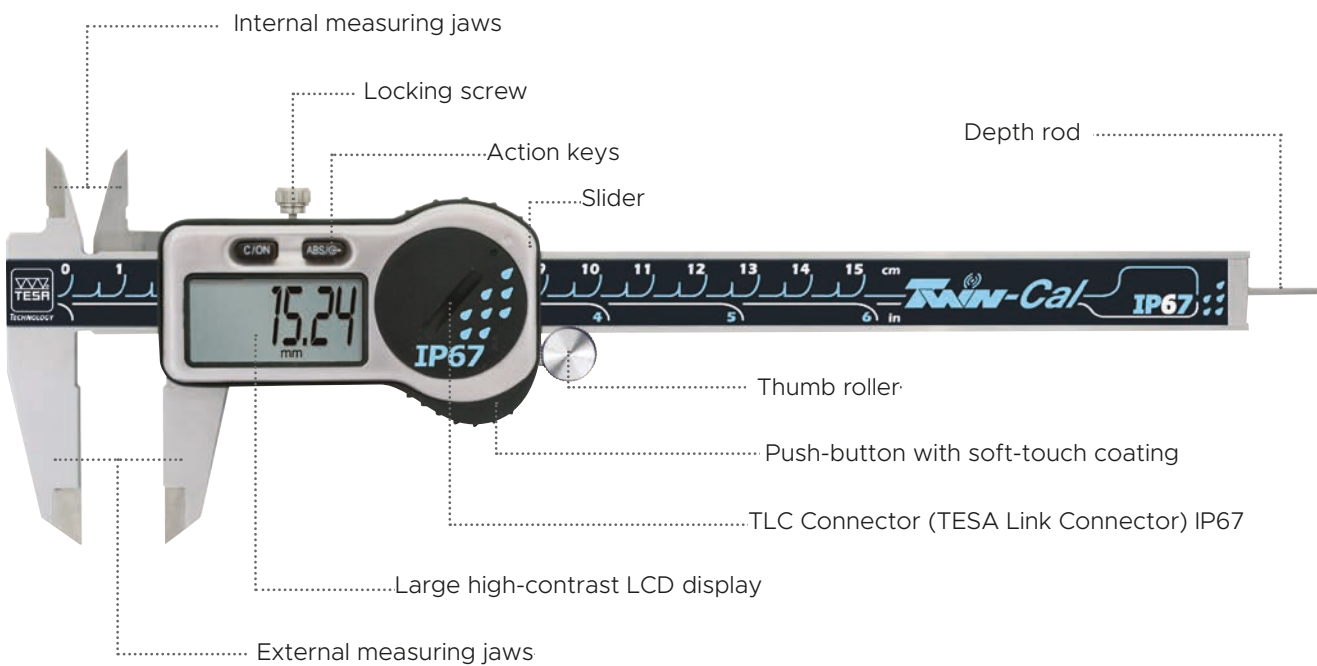
Such instruments are generally used several times a day. Therefore, user comfort is definitely an important factor! Most of our instruments have a ergonomic grip for ease of use.



Vernier caliper

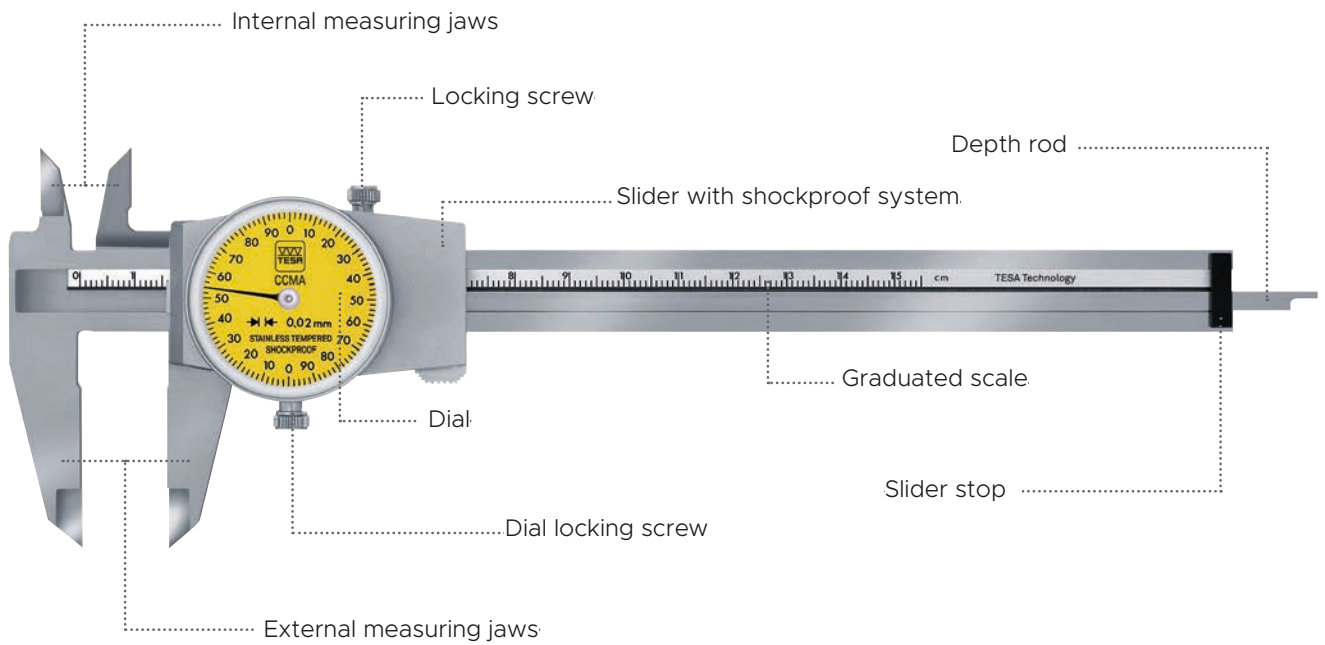


Digital caliper (TWIN-CAL IP67)



Calipers

Dial caliper



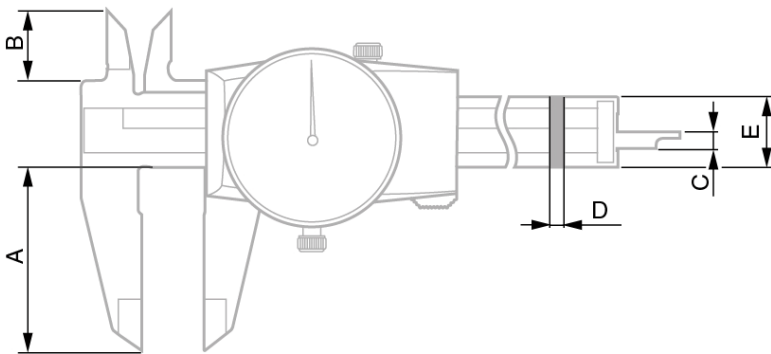
Universal dial models, metric

- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Robust construction with housing and protection of the gear mechanism
 - Integrated shockproof system guaranteeing longevity and stability of results over time
- MEASUREMENT
 - Good reading with big high-contrast dial



Standard	ISO 13385-1:2019
Maximum permissible errors	L = length in mm $0 < L \leq 100: \pm 20 \mu\text{m}$ $100 < L \leq 300: \pm 30 \mu\text{m}$
Material	Hardened stainless steel Gear mechanism made of hardened, ground steel
Dial	\varnothing 32 mm Rotary With locking screw
Particular characteristic(s)	Integrated shockproof system With locking screw
Included in delivery	Measuring report Declaration of conformity

Universal calipers



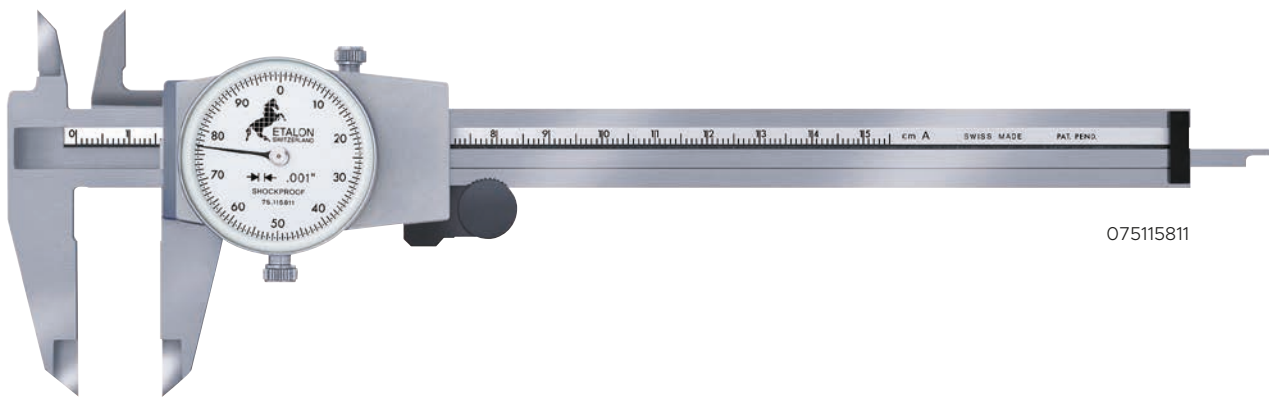
Part number	Measuring range, mm	Resolution mm	Travel / revolution, mm	Thumb roller	Material	A mm	B mm	C mm	D mm	E mm
00510050	150	0,01	1	Without	Metal	40	13	1,5 x 1,8	3,2	15,5
075115821	150	0,02	1	Without	Metal	40	13	1,5 x 1,8	3,2	15,5
00510008	150	0,02	2	Without	Metal	40	13	1,5 x 1,8	3,2	15,5
00510004	150	0,02	2	Without	Plastic	40	13	1,5 x 1,8	3,2	15,5
00510045	200	0,02	2	With	Metal	50	18,6	1,5 x 1,8	3,6	15,5
00510046	300	0,02	2	With	Metal	64	20,6	1,5 x 1,8	4	15,5

Accessories

Part number	Designation
00560013	Depth foot for universal digital or dial calipers of 150 mm

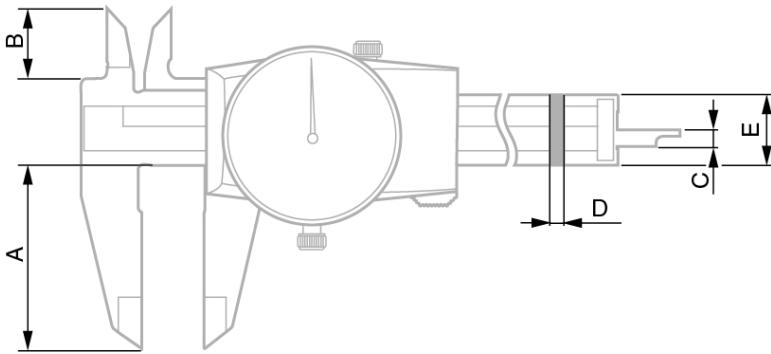
Universal dial models, imperial

- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Robust construction with housing and protection of the gear mechanism
 - Integrated shockproof system guaranteeing longevity and stability of results over time
- MEASUREMENT
 - Good reading with big high-contrast dial



Standard	ISO 13385-1:2019
Maximum permissible errors	L = length in in $0 < L \leq 4: \pm 20 \mu\text{m}$ $4 < L: \pm 30 \mu\text{m}$
Material	Hardened stainless steel Gear mechanism made of hardened, ground steel
Dial	\varnothing 1.2 in Rotary With locking screw
Particular characteristic(s)	Integrated shockproof system With locking screw
Included in delivery	Measuring report Declaration of conformity

Universal calipers



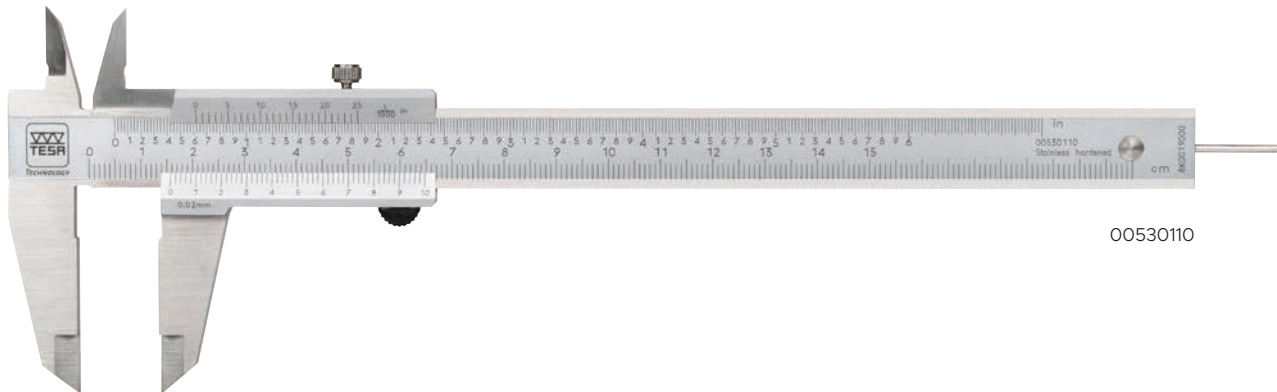
Part number	Measuring range, in	Resolution in	Travel / revolution, in	Thumb roller	Execution	A mm	B mm	C mm	D mm	E mm
075115811	6	.001	.1	With	Silver dial	40	13	1,5 x 1,9	3,2	15,5
075116550	6	.001	.1	With	Black dial	40	13	1,5 x 1,9	3,2	15,5

Accessories

Part number	Designation
00560013	Depth foot for universal digital or dial calipers of 150 mm

Universal vernier models

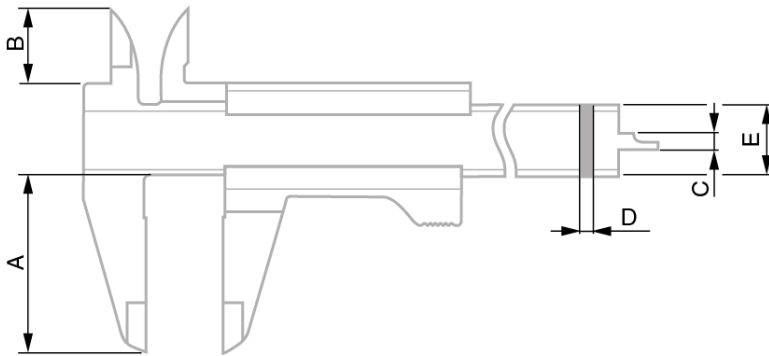
- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Main scale slightly set back for protection against wear
- MEASUREMENT
 - Satin-chrome scale and vernier for good reading



00530110

Standard	ISO 13385-1:2019
Maximum permissible errors	<p>L = length in mm</p> <p>For 0,02 resolution:</p> <p>0 < L ≤ 200: ± 30 μm</p> <p>200 < L ≤ 300: ± 40 μm</p> <p>For resolution 0,05:</p> <p>0 < L ≤ 300: ± 50 μm</p>
Material	Hardened stainless steel
Particular characteristic(s)	Locking screw
Included in delivery	<p>Measuring report</p> <p>Declaration of conformity</p>

Universal calipers



Part number	Measuring range, mm	Measuring range, in	Resolution mm	Resolution in	Self-locking	A mm	B mm	C mm	D mm	E mm
00510070	150		0,02		Without	40	21	1,3 x 1,8	3	16
00530110	150	6	0,02	.001	Without	40	21	1,3 x 1,8	3	16
00530121	150	6	0,02	.001	With	40	21	1,3 x 1,8	3	16
00510073	150		0,05		Without	40	21	1,3 x 1,8	3	16
00530103	150	6	0,02	1/128	Without	40	21	1,3 x 1,8	3	16
00530120	150	6	0,05	1/128	With	40	21	1,3 x 1,8	3	16
00510071	200		0,02		Without	50	23,5	1,3 x 1,8	3,5	17
00530111	200	8	0,02	.001	Without	50	23,5	1,3 x 1,8	3,5	17
00510074	200		0,05		Without	50	23,5	1,3 x 1,8	3,5	17
00530104	200	8	0,05	1/128	Without	50	23,5	1,3 x 1,8	3,5	17
00510072	300		0,02		Without	64	27,5	1,8 x 1,9	4	20
00530112	300	12	0,02	.001	Without	64	27,5	1,8 x 1,9	4	20
00510075	300		0,05		Without	64	27,5	1,8 x 1,9	4	20
00530105	300	12	0,05	1/128	Without	64	27,5	1,8 x 1,9	4	20

Accessories

Part number	Designation
0051610365	Magnetic magnifying glass, 3 x magnification
00560055	Depth foot for universal vernier calipers of 150 mm

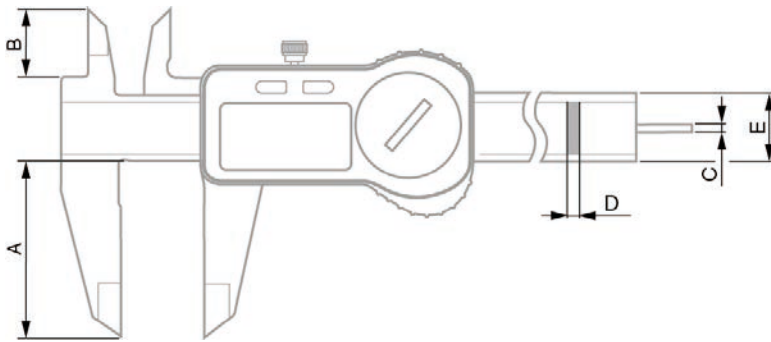
Universal digital models

- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Robust construction to ensure longevity and stability of results over time
 - High degree of protection against dust and liquids (even when the data sending cap is connected)
- MEASUREMENT
 - Reading comfort with large high-contrast display
 - Comfortable handling with ergonomic grip for ease of use (TWIN-CAL models)
- AUTONOMY
 - Long battery life avoiding too frequent battery changes
- DATA MANAGEMENT
 - Sending values to computer via TLC port (cable or wireless)



Standard	ISO 13385-1:2019
Maximum permissible errors	L = length in mm $0 < L \leq 100: \pm 20 \mu\text{m}$ $100 < L \leq 300: \pm 30 \mu\text{m}$
Material	Stainless steel
Particular characteristic(s)	Locking screw
Resolution	0,01 mm / .0005 in
Zero	Fixed
Degree of protection	IP67 or IP40
Display	LCD, 11 mm
Power supply	Lithium battery, 3 V CR2032
Data output	With or without TLC port
Function(s)	Stand-by after 10 min ABS or DIFF mode Low battery indicator
Autonomy	12'000 h
Units	mm / in
Included in delivery	Battery (1x) Measuring report Declaration of conformity

Universal calipers



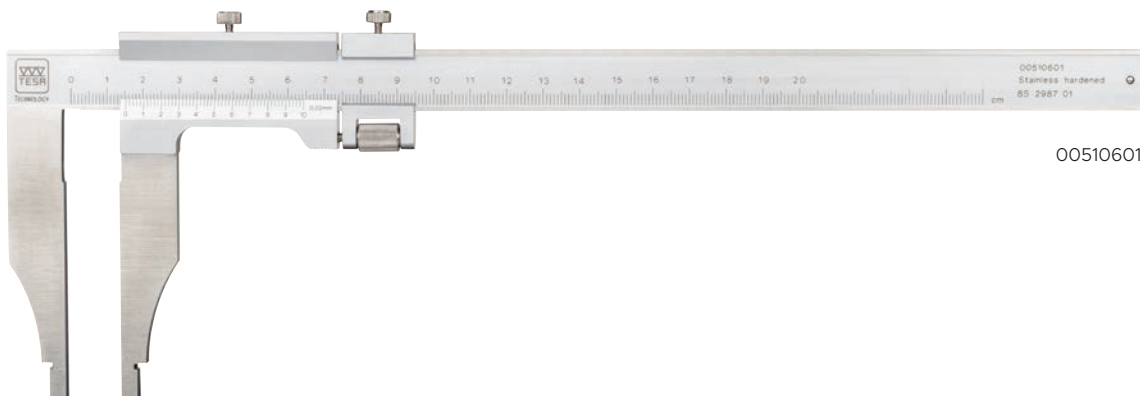
Part number	Measuring range, mm	Measuring range, in	Thumb roller	Data output	Degree of protection	A mm	B mm	C mm	D mm	E mm
00530094	150	6	With	TLC		40	16	∅ 1,6	3,2	15,5
00530097	150	6	Without	TLC		40	16	1,3 x 1,8	3,2	15,5
00530140	150	6	Without		IP67	40	16	1,3 x 1,8	3,2	15,5
00530141	150	6	Without		IP67	40	16	∅ 1,6	3,2	15,5
00530319	150	6	Without	TLC	IP67	40	16	1,3 x 1,8	3,2	15,5
00530320	150	6	Without	TLC	IP67	40	16	∅ 1,6	3,2	15,5
00530321	150	6	With	TLC	IP67	40	16	∅ 1,6	3,2	15,5
00530095	200	8	With	TLC		50	20	1,3 x 1,8	3,6	15,5
00530142	200	8	With		IP67	50	20	1,3 x 1,8	3,6	15,5
00530322	200	8	With	TLC	IP67	50	20	1,3 x 1,8	3,6	15,5
00530096	300	12	With	TLC		64	22	1,4 x 1,8	4	15,5
00530143	300	12	With		IP67	64	22	1,4 x 1,8	4	15,5
00530323	300	12	With	TLC	IP67	64	22	1,4 x 1,8	4	15,5

Accessories

Part number	Designation
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
00560013	Depth foot for universal digital or dial calipers of 150 mm
01961000	3 V battery, type CR2032

Workshop vernier models

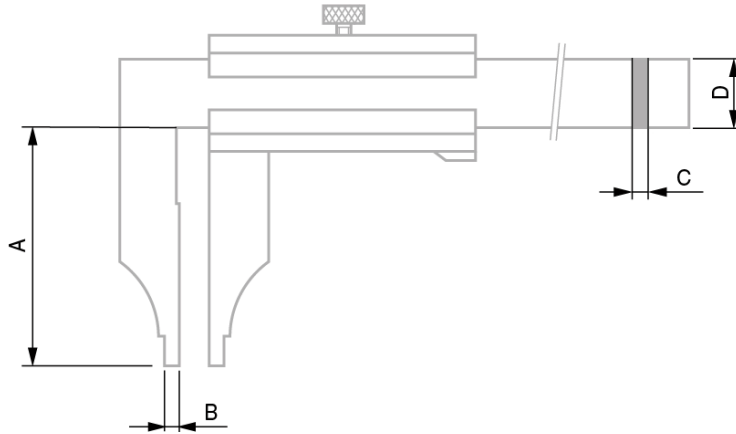
- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Main scale slightly set back for protection against wear
- MEASUREMENT
 - Satin-chrome scale and vernier for good reading
 - With or without fine adjustment



00510601

Standard	ISO 13385-1:2019
Maximum permissible errors	<p>L = length in mm</p> <p>For 0,02 resolution:</p> <p>0 < L ≤ 250: ± 30 μm</p> <p>250 < L ≤ 400: ± 40 μm</p> <p>400 < L ≤ 500: ± 50 μm</p> <p>For resolution 0,05:</p> <p>0 < L ≤ 300: ± 50 μm</p> <p>300 < L ≤ 400: ± 60 μm</p> <p>400 < L ≤ 500: ± 70 μm</p>
Material	Hardened stainless steel
Particular characteristic(s)	With or without fine adjustment Locking screw
Included in delivery	Measuring report Declaration of conformity

Workshop calipers



Part number	Measuring range, mm	Measuring range, in	Resolution mm	Resolution in	Fine adjustment	A mm	B mm	C mm	D mm
00510509	200		0,02		Without	60	5	3,5	17
00510601	200		0,02		With	60	5	3,5	17
00510506	200		0,05		Without	60	5	3,5	17
00510602	200		0,05		With	60	5	3,5	17
00530506	200	8	0,05	1/128	Without	60	5	3,5	17
00530602	200	8	0,05	1/128	With	60	5	3,5	17
00510521	300		0,02		Without	90	5	4	20
00510621	300		0,02		With	90	5	4	20
00510522	300		0,05		Without	90	5	4	20
00510622	300		0,05		With	90	5	4	20
00530522	300	12	0,05	1/128	Without	90	5	4	20
00530622	300	12	0,05	1/128	With	90	5	4	20
00510541	500		0,02		Without	150	10	6	28
00510641	500		0,02		With	150	10	6	28
00510542	500		0,05		Without	150	10	6	28
00510642	500		0,05		With	150	10	6	28
00530542	500	20	0,05	1/128	Without	150	10	6	28
00530642	500	20	0,05	1/128	With	150	10	6	28

Accessories

Part number	Designation
0051610365	Magnetic magnifying glass, 3 x magnification

Digital workshop models

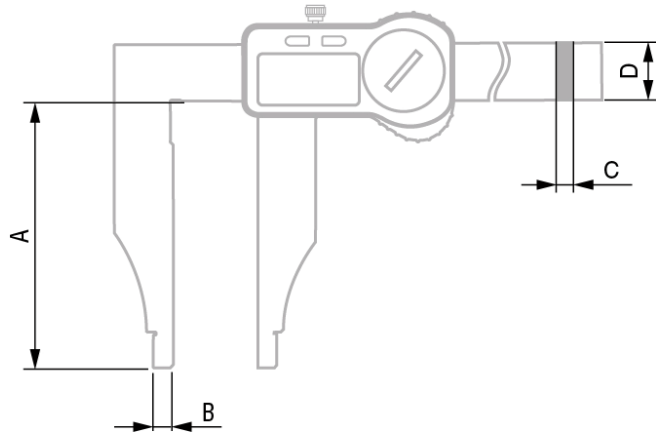
- INSTRUMENT
 - Robust construction to ensure longevity and stability of results over time
 - High degree of protection against dust and liquids (even when the data sending cap is connected)
- MEASUREMENT
 - Reading comfort with large high-contrast display
 - Comfortable handling with ergonomic grip for ease of use
- AUTONOMY
 - Long battery life avoiding too frequent battery changes
- DATA MANAGEMENT
 - Sending values to computer via TLC port (cable or wireless)



00530422

Standard	ISO 13385-1:2019
Maximum permissible errors	L = length in mm $0 < L \leq 100: \pm 30 \mu\text{m}$ $100 < L \leq 600: \pm 40 \mu\text{m}$ $600 < L \leq 1000: \pm 50 \mu\text{m}$
Material	Stainless steel
Particular characteristic(s)	Locking screw
Resolution	0,01 mm / .0005 in
Zero	Fixed
Degree of protection	IP67
Display	LCD, 11 mm
Power supply	Lithium battery, 3 V CR2032
Data output	TLC
Function(s)	Stand-by after 10 min ABS or DIFF mode Low battery indicator
Autonomy	12'000 h
Units	mm / in
Included in delivery	Battery (1x) Measuring report Declaration of conformity

Workshop calipers



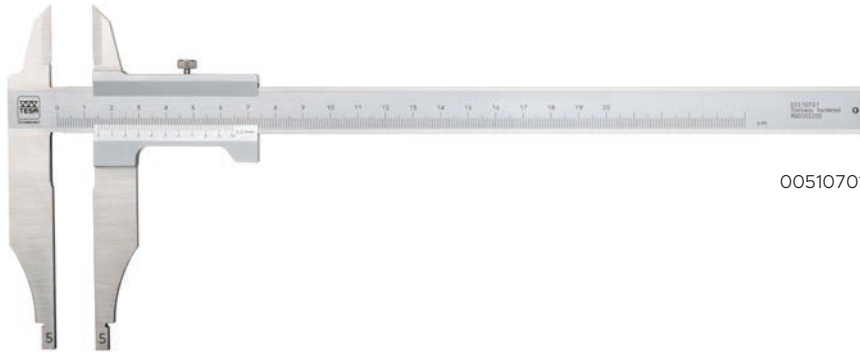
Part number	Measuring range, mm	Measuring range, in	Data output	Degree of protection	A mm	B mm	C mm	D mm
00530421	200	8	TLC	IP67	80	5	4	20
00530422	250	10	TLC	IP67	80	5	4	20
00530423	300	12	TLC	IP67	80	5	4	20
00530424	500	20	TLC	IP67	150	10	6	28
00530425	600	24	TLC	IP67	150	10	6	28
00530426	800	32	TLC	IP67	150	10	8	32
00530427	1000	39	TLC	IP67	150	10	8	32

Accessories

Part number	Designation
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
01961000	3 V battery, type CR2032

Workshop vernier models with knife-edge external jaws

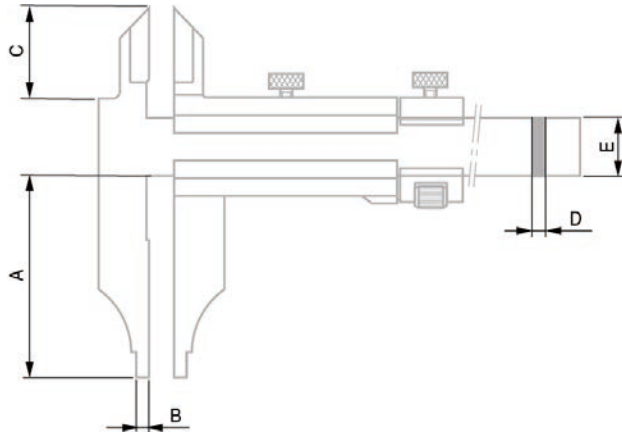
- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Main scale slightly set back for protection against wear
- MEASUREMENT
 - Satin-chrome scale and vernier for good reading
 - With or without fine adjustment



00510701

Standard	ISO 13385-1:2019
Maximum permissible errors	<p>L = length in mm</p> <p>For 0,02 resolution:</p> <p>0 < L ≤ 250: ± 30 μm</p> <p>250 < L ≤ 400: ± 40 μm</p> <p>400 < L ≤ 500: ± 50 μm</p> <p>For resolution 0,05:</p> <p>0 < L ≤ 300: ± 50 μm</p> <p>300 < L ≤ 400: ± 60 μm</p> <p>400 < L ≤ 500: ± 70 μm</p>
Material	Hardened stainless steel
Particular characteristic(s)	With or without fine adjustment Locking screw
Included in delivery	Measuring report Declaration of conformity

Workshop calipers



Part number	Measuring range, mm	Measuring range, in	Resolution mm	Resolution in	Fine adjustment	A mm	B mm	C mm	D mm	E mm
00510701	200		0,02		Without	60	5	30	3,5	17
00510801	200		0,02		With	60	5	30	3,5	17
00510702	200		0,05		Without	60	5	30	3,5	17
00510802	200		0,05		With	60	5	30	3,5	17
00530702	200	8	0,05	1/128	Without	60	5	30	3,5	17
00530802	200	8	0,05	1/128	With	60	5	30	3,5	17
00510721	300		0,02		Without	90	5	38	4	20
00510821	300		0,02		With	90	5	38	4	20
00510722	300		0,05		Without	90	5	38	4	20
00510822	300		0,05		With	90	5	38	4	20
00530722	300	12	0,05	1/128	Without	90	5	38	4	20
00530822	300	12	0,05	1/128	With	90	5	38	4	20
00510741	500		0,02		Without	150	10	60	6	28
00510841	500		0,02		With	150	10	60	6	28
00510742	500		0,05		Without	150	10	60	6	28
00510842	500		0,05		With	150	10	60	6	28
00530742	500	20	0,05	1/128	Without	150	10	60	6	28
00530842	500	20	0,05	1/128	With	150	10	60	6	28

Accessories

Part number	Designation
0051610365	Magnetic magnifying glass, 3 x magnification

Digital workshop models with knife-edge external jaws

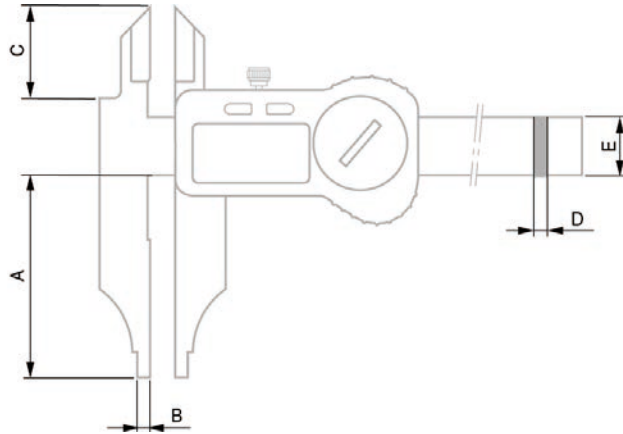
- INSTRUMENT
 - Robust construction to ensure longevity and stability of results over time
 - High degree of protection against dust and liquids (even when the data sending cap is connected)
- MEASUREMENT
 - Reading comfort with large high-contrast display
 - Comfortable handling with ergonomic grip for ease of use
- AUTONOMY
 - Long battery life avoiding too frequent battery changes
- DATA MANAGEMENT
 - Sending values to computer via TLC port (cable or wireless)



00530431

Standard	ISO 13385-1:2019
Maximum permissible errors	L = length in mm $0 < L \leq 100: \pm 30 \mu\text{m}$ $100 < L \leq 600: \pm 40 \mu\text{m}$ $600 < L \leq 1000: \pm 50 \mu\text{m}$
Material	Stainless steel
Particular characteristic(s)	Locking screw
Resolution	0,01 mm / .0005 in
Zero	Fixed
Degree of protection	IP67
Display	LCD, 11 mm
Power supply	Lithium battery, 3 V CR2032
Data output	TLC
Function(s)	Stand-by after 10 min ABS or DIFF mode Low battery indicator
Autonomy	12'000 h
Units	mm / in
Included in delivery	Battery (1x) Measuring report Declaration of conformity

Workshop calipers



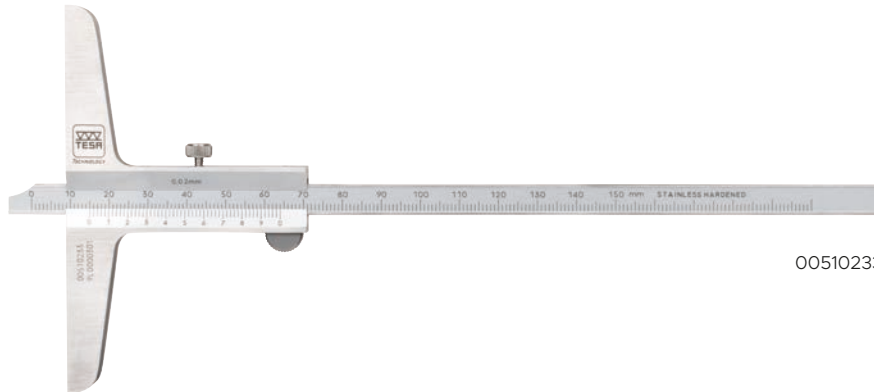
Part number	Measuring range, mm	Measuring range, in	Data output	Degree of protection	A mm	B mm	C mm	D mm	E mm
00530431	200	8	TLC	IP67	80	5	30	4	20
00530432	250	10	TLC	IP67	80	5	37	4	20
00530433	300	12	TLC	IP67	90	5	37	4	20
00530434	500	20	TLC	IP67	150	10	60	6	28
00530435	600	24	TLC	IP67	150	10	60	6	28
00530436	800	32	TLC	IP67	150	10	56	8	32
00530437	1000	39	TLC	IP67	150	10	56	8	32

Accessories

Part number	Designation
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
01961000	3 V battery, type CR2032

Vernier depth models with short cut measuring face

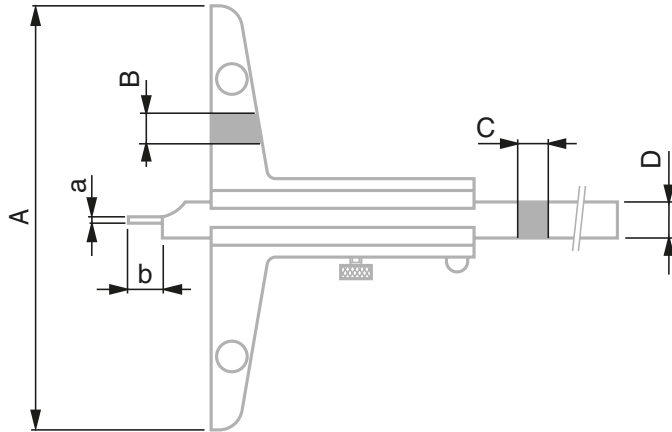
- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Main scale slightly set back for protection against wear
- MEASUREMENT
 - Satin-chrome scale and vernier for good reading
 - With or without steel tip



00510233

Standard	ISO 13385-2:2019
Maximum permissible errors	<p>L = length in mm</p> <p>For 0,02 resolution:</p> <p>$0 < L \leq 100: \pm 30 \mu\text{m}$</p> <p>$100 < L \leq 300: \pm 40 \mu\text{m}$</p> <p>$300 < L \leq 500: \pm 50 \mu\text{m}$</p> <p>For resolution 0,05:</p> <p>$0 < L \leq 500: \pm 50 \mu\text{m}$</p>
Material	Hardened stainless steel
Particular characteristic(s)	<p>With or without fine adjustment</p> <p>With or without steel tip</p> <p>Locking screw</p>
Included in delivery	<p>Measuring report</p> <p>Declaration of conformity</p>

Depth calipers



Part number	Measuring range, mm	Resolution mm	Steel tip	A mm	B mm	C mm	D mm	a mm	b mm
00510233	150	0,02	Without	100	6,5	3	8		
00510234	150	0,05	Without	100	6,5	3	8		
00510223	150	0,02	With	100	6,5	3	8	Ø 1,5	8
00510224	150	0,05	With	100	6,5	3	8	Ø 1,5	8
00510243	200	0,02	Without	100	6,5	3	8		
00510244	200	0,05	Without	100	6,5	3	8		
00510225	200	0,02	With	100	6,5	3	8	Ø 1,5	8
00510226	200	0,05	With	100	6,5	3	8	Ø 1,5	8
00510253	300	0,02	With	150	8	4	12		
00510254	300	0,05	Without	150	8	4	12		
00510227	300	0,02	With	150	8	4	12	Ø 2	8
00510228	300	0,05	With	150	8	4	12	Ø 2	8
00510263	500	0,02	Without	150	8	4	12		
00510264	500	0,05	Without	150	8	4	12		

Accessories

Part number	Designation
0051610365	Magnetic magnifying glass, 3 x magnification
00560108	Removable bridge, 180 mm
00560109	Removable bridge, 260 mm
00560110	Removable bridge, 320 mm

Digital depth models with short cut measuring face

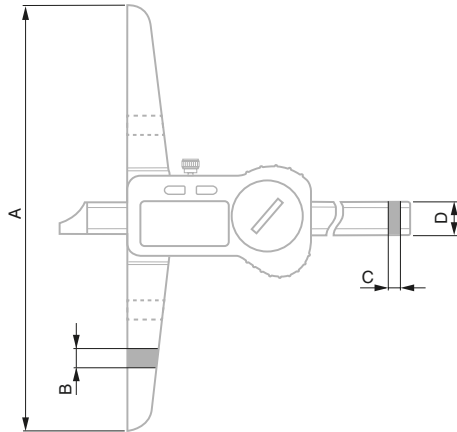
- INSTRUMENT
 - Robust construction to ensure longevity and stability of results over time
 - High degree of protection against dust and liquids (even when the data sending cap is connected)
- MEASUREMENT
 - Reading comfort with large high-contrast display
 - Comfortable handling with ergonomic grip for ease of use
- AUTONOMY
 - Long battery life avoiding too frequent battery changes
- DATA MANAGEMENT
 - Sending values to computer via TLC port (cable or wireless)



00530441

Standard	ISO 13385-2:2019
Maximum permissible errors	L = length in mm $0 < L \leq 100: \pm 20 \mu\text{m}$ $100 < L \leq 500: \pm 30 \mu\text{m}$
Material	Stainless steel
Particular characteristic(s)	Locking screw
Resolution	0,01 mm / .0005 in
Zero	Fixed
Degree of protection	IP67
Display	LCD, 11 mm
Power supply	Lithium battery, 3 V CR2032
Data output	TLC
Function(s)	Stand-by after 10 min ABS or DIFF mode Low battery indicator
Autonomy	12'000 h
Units	mm / in
Included in delivery	Battery (1x) Measuring report Declaration of conformity

Depth calipers



Part number	Measuring range, mm	Measuring range, in	Data output	Degree of protection	A mm	B mm	C mm	D mm
00530441	200	8	TLC	IP67	100	8,5	4	15
00530442	250	10	TLC	IP67	100	8,5	4	15
00530443	300	12	TLC	IP67	150	8,5	4	15
00530444	500	20	TLC	IP67	150	8,5	4	15

Accessories

Part number	Designation
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
00560103	Removable bridge, 200 mm
00560104	Removable bridge, 300 mm
00560105	Removable bridge, 400 mm
01961000	3 V battery, type CR2032

Vernier depth models with fixed hook

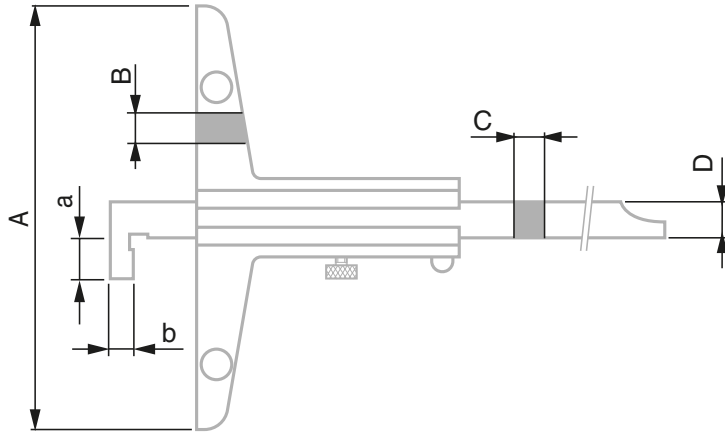
- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Main scale slightly set back for protection against wear
- MEASUREMENT
 - Satin-chrome scale and vernier for good reading



00510280

Standard	ISO 13385-2:2019
Maximum permissible errors	<p>L = length in mm</p> <p>For 0,02 resolution:</p> <p>0 < L ≤ 100: ± 30 μm</p> <p>100 < L ≤ 300: ± 40 μm</p> <p>300 < L ≤ 500: ± 50 μm</p> <p>For resolution 0,05:</p> <p>0 < L ≤ 500: ± 50 μm</p>
Material	Hardened stainless steel
Particular characteristic(s)	Locking screw
Included in delivery	Measuring report Declaration of conformity

Depth calipers



Part number	Measuring range, mm	Resolution mm	Number of hook(s)	A mm	B mm	C mm	D mm	a mm	b mm
00510275	150	0,02	1	100	6,5	3	8	12	5
00510276	150	0,05	1	100	6,5	3	8	12	5
00510277	200	0,02	1	100	6,5	3	8	12	5
00510278	200	0,05	1	100	6,5	3	8	12	5
00510279	300	0,02	1	150	8	4	10	16	10
00510280	300	0,05	1	150	8	4	10	16	10
00510281	500	0,02	1	150	8	4	10	16	10
00510282	500	0,05	1	150	8	4	10	16	10

Accessories

Part number	Designation
0051610365	Magnetic magnifying glass, 3 x magnification
00560108	Removable bridge, 180 mm
00560109	Removable bridge, 260 mm
00560110	Removable bridge, 320 mm

Digital depth models with fixed hook(s)

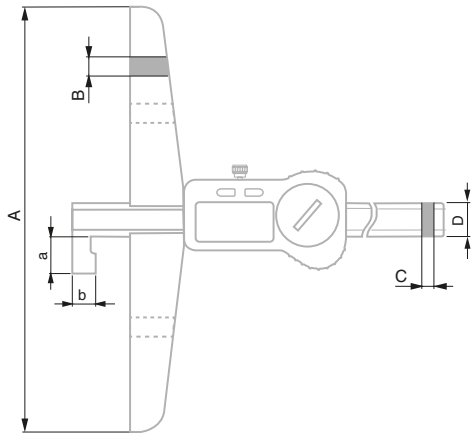
- INSTRUMENT
 - Robust construction to ensure longevity and stability of results over time
 - High degree of protection against dust and liquids (even when the data sending cap is connected)
- MEASUREMENT
 - Reading comfort with large high-contrast display
 - Comfortable handling with ergonomic grip for ease of use
- AUTONOMY
 - Long battery life avoiding too frequent battery changes
- DATA MANAGEMENT
 - Sending values to computer via TLC port (cable or wireless)



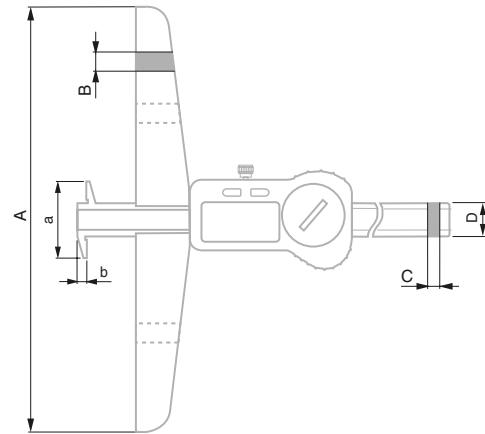
00530445

Standard	ISO 13385-2:2019
Maximum permissible errors	L = length in mm $0 < L \leq 100: \pm 20 \mu\text{m}$ $100 < L \leq 500: \pm 30 \mu\text{m}$
Material	Stainless steel
Particular characteristic(s)	Locking screw
Resolution	0,01 mm / .0005 in
Zero	Fixed
Degree of protection	IP67
Display	LCD, 11 mm
Power supply	Lithium battery, 3 V CR2032
Data output	TLC
Function(s)	Stand-by after 10 min ABS or DIFF mode Low battery indicator
Autonomy	12'000 h
Units	mm / in
Included in delivery	Battery (1x) Measuring report Declaration of conformity

Depth calipers



00530445 and 00530446



00530447

Part number	Measuring range, mm	Measuring range, in	Number of hook(s)	Data output	Degree of protection	A mm	B mm	C mm	D mm	a mm	b mm
00530445	300	12	1	TLC	IP67	150	8,5	4	15	15,5	10
00530446	500	20	1	TLC	IP67	150	8,5	4	15	15,5	10
00530447	300	12	2	TLC	IP67	150	8,5	4	15	27,5	5

Accessories

Part number	Designation
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
00560103	Removable bridge, 200 mm, for digital depth caliper
00560104	Removable bridge, 300 mm, for digital depth caliper
00560105	Removable bridge, 400 mm, for digital depth caliper
01961000	CR2032 button battery

Vernier depth models with rotary stop plate

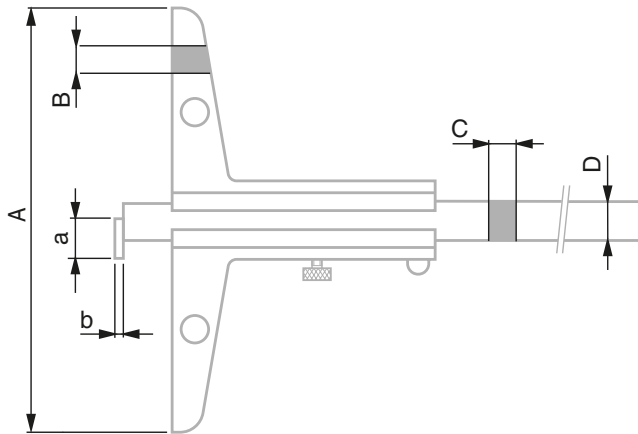
- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Main scale slightly set back for protection against wear
- MEASUREMENT
 - Satin-chrome scale and vernier for good reading



00510294

Standard	ISO 13385-2:2019
Maximum permissible errors	<p>L = length in mm</p> <p>For 0,02 resolution:</p> <p>0 < L ≤ 100: ± 30 μm</p> <p>100 < L ≤ 300: ± 40 μm</p> <p>300 < L ≤ 500: ± 50 μm</p> <p>For resolution 0,05:</p> <p>0 < L ≤ 500: ± 50 μm</p>
Material	Hardened stainless steel
Particular characteristic(s)	Locking screw
Included in delivery	Measuring report Declaration of conformity

Depth calipers



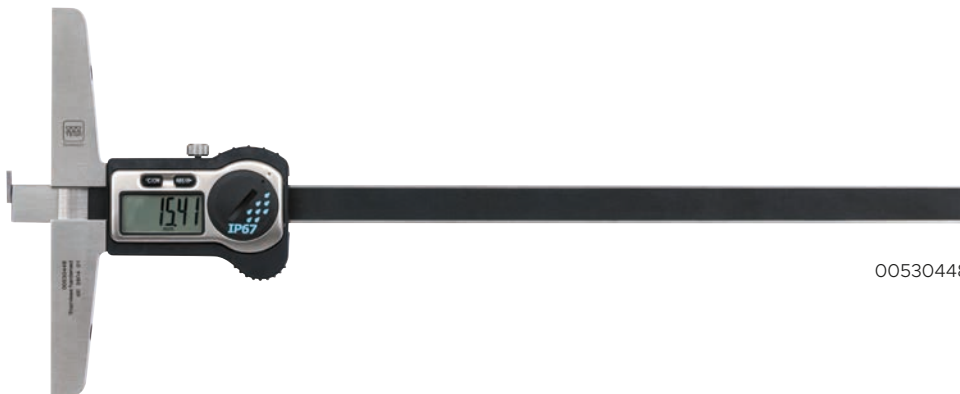
Part number	Measuring range mm	Resolution mm	A mm	B mm	C mm	D mm	a mm	b mm
00510291	150	0,02	150	8,5	4	12	5,3	2
00510292	150	0,05	150	8,5	4	12	5,3	2
00510293	250	0,02	150	8,5	4	12	5,3	2
00510294	250	0,05	150	8,5	4	12	5,3	2
00510295	500	0,02	150	8,5	4	12	5,3	2
00510296	500	0,05	150	8,5	4	12	5,3	2

Accessories

Part number	Designation
0051610365	Magnetic magnifying glass, 3 x magnification
00560108	Removable bridge, 180 mm
00560109	Removable bridge, 260 mm
00560110	Removable bridge, 320 mm

Digital depth models with rotary stop plate

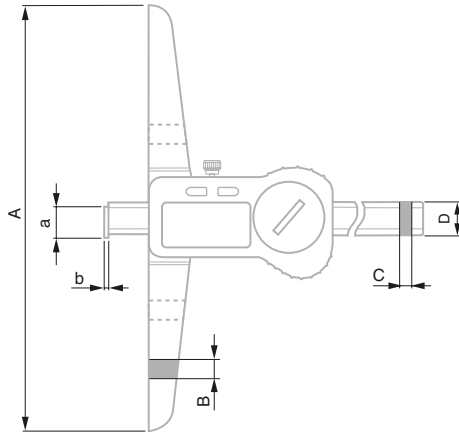
- INSTRUMENT
 - Robust construction to ensure longevity and stability of results over time
 - High degree of protection against dust and liquids (even when the data sending cap is connected)
- MEASUREMENT
 - Reading comfort with large high-contrast display
 - Comfortable handling with ergonomic grip for ease of use
- AUTONOMY
 - Long battery life avoiding too frequent battery changes
- DATA MANAGEMENT
 - Sending values to computer via TLC port (cable or wireless)



00530448

Standard	ISO 13385-2:2019
Maximum permissible errors	L = length in mm $0 < L \leq 100: \pm 20 \mu\text{m}$ $100 < L \leq 500: \pm 30 \mu\text{m}$
Material	Stainless steel
Particular characteristic(s)	Locking screw
Resolution	0,01 mm / .0005 in
Zero	Fixed
Degree of protection	IP67
Display	LCD, 11 mm
Power supply	Lithium battery, 3 V CR2032
Data output	TLC
Function(s)	Stand-by after 10 min ABS or DIFF mode Low battery indicator
Autonomy	12'000 h
Units	mm / in
Included in delivery	Battery (1x) Measuring report Declaration of conformity

Depth calipers



Part number	Measuring range, mm	Measuring range, in	Data output	Degree of protection	A mm	B mm	C mm	D mm	a mm	b mm
00530448	250	10	TLC	IP67	150	8,5	4	15	15,7	2
00530449	350	14	TLC	IP67	150	8,5	4	15	15,7	2
00530450	500	20	TLC	IP67	150	8,5	4	15	15,7	2

Accessories

Part number	Designation
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
00560103	Removable bridge, 200 mm
00560104	Removable bridge, 300 mm
00560105	Removable bridge, 400 mm
01961000	3 V battery, type CR2032

Special vernier models for groove measurement

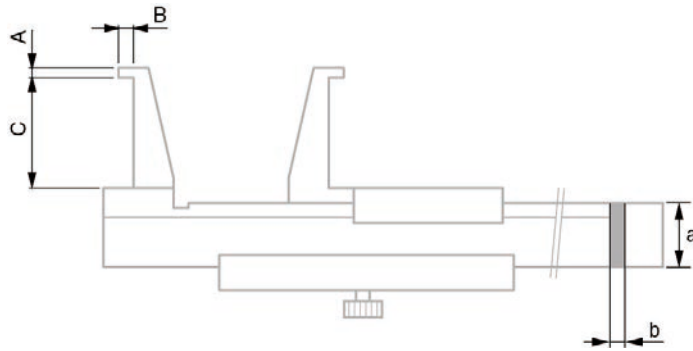
- INSTRUMENT
 - Perfect operation of the slider for a silky-smooth operation
 - Main scale slightly set back for protection against wear
- MEASUREMENT
 - Satin-chrome scale and vernier for good reading



00510371

Standard	Factory standard
Maximum permissible errors	<p>L = length of the jaws in mm</p> <p>For 0,02 resolution:</p> <p>40 < L ≤ 60: ± 80 μm</p> <p>60 < L ≤ 80: ± 100 μm</p> <p>80 < L ≤ 100: ± 120 μm</p> <p>For resolution 0,05:</p> <p>0 < L ≤ 40: ± 50 μm</p>
Material	Hardened stainless steel
Particular characteristic(s)	Locking screw
Included in delivery	Measuring report Declaration of conformity

Special calipers



Part number	Measuring range mm	Resolution mm	A mm	B mm	C mm	a mm	b mm
00510371	10 ÷ 160	0,05	0,9	3	25	16	3
00510375	20 ÷ 160	0,05	2	5	40	16	3
00510383	26 ÷ 200	0,02	3	7	60	16	3
00510387	30 ÷ 250	0,02	4	8,5	80	20	4
00510393	35 ÷ 300	0,02	5	10	100	20	4

Accessories

Part number	Designation
0051610365	Magnetic magnifying glass, 3 x magnification

Special digital model and knife-edge internal jaws

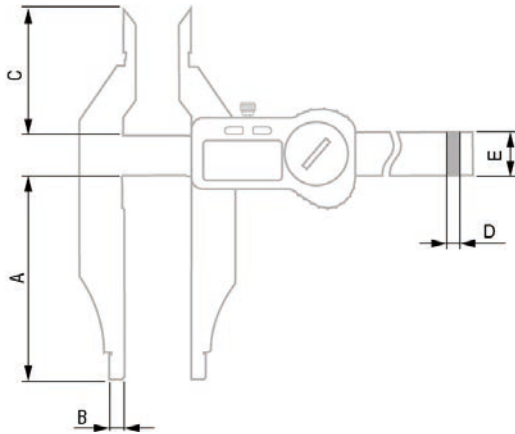
- INSTRUMENT
 - Robust construction to ensure longevity and stability of results over time
 - High degree of protection against dust and liquids (even when the data sending cap is connected)
- MEASUREMENT
 - Reading comfort with large high-contrast display
 - Comfortable handling with ergonomic grip for ease of use
- AUTONOMY
 - Long battery life avoiding too frequent battery changes
- DATA MANAGEMENT
 - Sending values to computer via TLC port (cable or wireless)



00530430

Standard	ISO 13385-1:2019
Maximum permissible errors	L = length in mm $0 < L \leq 100: \pm 30 \mu\text{m}$ $100 < L \leq 600: \pm 40 \mu\text{m}$
Material	Stainless steel
Particular characteristic(s)	Locking screw
Resolution	0,01 mm / .0005 in
Zero	Fixed
Degree of protection	IP67
Display	LCD, 11 mm
Power supply	Lithium battery, 3 V CR2032
Data output	TLC
Function(s)	Stand-by after 10 min ABS or DIFF mode Low battery indicator
Autonomy	12'000 h
Units	mm / in
Included in delivery	Battery (1x) Measuring report Declaration of conformity

Special calipers



Part number	Measuring range, mm	Measuring range, in	Data output	Degree of protection	A mm	B mm	C mm	D mm	E mm
00530430	250	10	TLC	IP67	80	5	54	4	20

Accessories

Part number	Designation
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
01961000	3 V battery, type CR2032

Special model with steel measuring tip

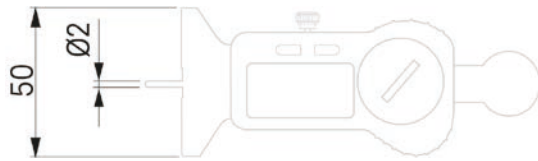
- INSTRUMENT
 - Robust construction to ensure longevity and stability of results over time
 - High degree of protection against dust and liquids (even when the data sending cap is connected)
- MEASUREMENT
 - Reading comfort with large high-contrast display
 - Comfortable handling with ergonomic grip for ease of use
- AUTONOMY
 - Long battery life avoiding too frequent battery changes
- DATA MANAGEMENT
 - Sending values to computer via TLC port (cable or wireless)



00530451

Standard	ISO 13385-2:2019
Maximum permissible errors	± 30 µm
Material	Stainless steel
Particular characteristic(s)	Locking screw
Resolution	0,01 mm / .0005 in
Zero	Fixed
Degree of protection	IP67
Display	LCD, 11 mm
Power supply	Lithium battery, 3 V CR2032
Data output	TLC
Function(s)	Stand-by after 10 min ABS or DIFF mode Low battery indicator
Autonomy	12'000 h
Units	mm / in
Included in delivery	Battery (1x) Measuring report Declaration of conformity

Special calipers



Part number	Measuring range mm	Measuring range in	Data output	Degree of protection
00530451	25	1	TLC	IP67

Accessories

Part number	Designation
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
01961000	3 V battery, type CR2032

Tools sets, metric


00531007

Family	Part number	Model	Dimension, mm	Resolution mm	00530020	00511005	00511002	00511006	00511003	00531004	00511009	00511015	00531004	00511016	00531007	00511013	00511012	00510033	00511004	00511001	00511017	
					Calipers	00510008	Universal dial model Serie 2 mm/t	150	0,02	1	1	1										
	075115821	Universal dial model Serie 1 mm/t	150	0,02				1	1													
	00530319	Universal digital model Serie TWIN-CAL IP67	150	0,01						1	1	1										
	00530320	Universal digital model Serie TWIN-CAL IP67	150	0,01									1	1							1	
	00530094	Universal digital model Serie TWIN-CAL	150	0,01											1							
	00530140	Universal digital model Serie TESA-CAL IP67	150	0,01												1	1					
	00510070	Universal vernier model	150	0,02														1	1	1		
Internal micrometers	06030010	Digital model MICROMASTER EASY	0 ÷ 30	0,001											1	1	1					
	06030020	Digital model MICROMASTER	0 ÷ 30	0,001					1			1										
	00110101	Vernier model ISOMASTER	0 ÷ 25	0,01	1	1	1	1	1		1	1		1				1	1	1	1	
	00110102	Vernier model ISOMASTER	25 ÷ 50	0,01																		1
Accessories	00560013	Depth foot			1				1		1	1		1	1	1	1					
	-	Flexible stainless steel rule	150			1	1	1	1		1	1		1				1	1			
	-	Flexible stainless steel rule	200																			1
	-	Bevelled edge steel squares	100 x 70			1	1	1	1		1	1		1				1	1			
	-	Try square, class 0	75 x 50																			1
	-	Radius gauge concav/convex	R1 ÷ R7					1	1		1	1		1								1
	-	Thread pitch gauges, metric/Withworth						1	1		1	1		1								1
	-	Metal scriber						1	1		1	1		1								1
	-	Setting standard for external micrometers	25																			1

Tool sets



00530319



00510070



00530320



00510008



00530094



075115821



00530140



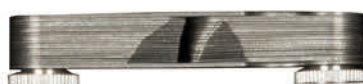
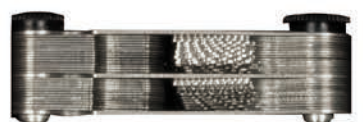
00110101



06030010



06030020



00560013

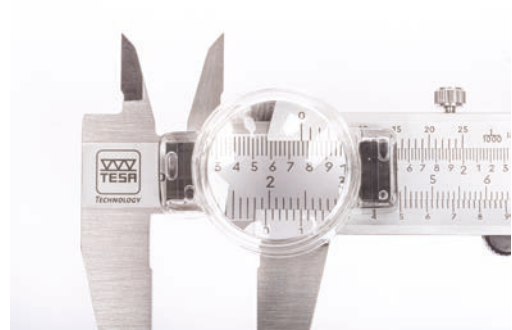


Magnetic magnifying glass for vernier instruments

Magnifying glass for easier reading of vernier scales on sliding instruments.



0051610365



Part number	Designation
0051610365	Magnetic magnifying glass, 3 x magnification

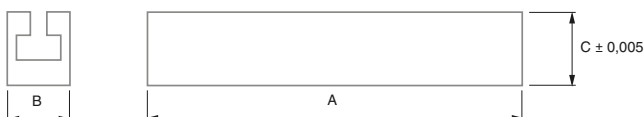
Removable bridge for depth calipers



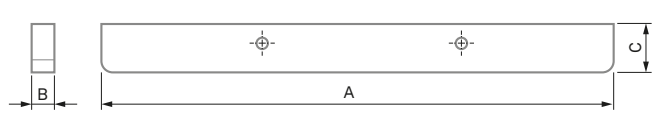
00560103



Part number	Designation	A mm	B mm	C mm
00560103	Removable bridge for digital depth caliper, 200 mm	200	11,5	10
00560104	Removable bridge for digital depth caliper, 300 mm	300	16	16
00560105	Removable bridge for digital depth caliper, 400 mm	400	16	16
00560108	Removable bridge for vernier depth caliper, 180 mm	180	8	17
00560109	Removable bridge for vernier depth caliper, 260 mm	260	8	17
00560110	Removable bridge for vernier depth caliper, 320 mm	320	8	17



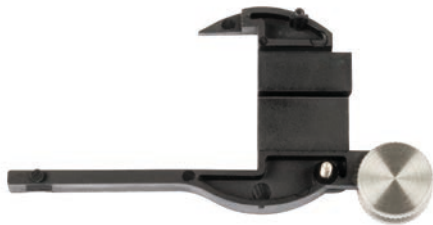
00560103



00560108

Accessories for calipers

Thumb roller for universal caliper TWIN-CAL 150 mm



00560106

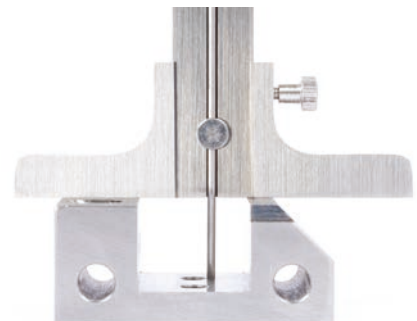


Part number	Designation
00560106	Thumb roller for universal calipers TWIN-CAL 150 mm

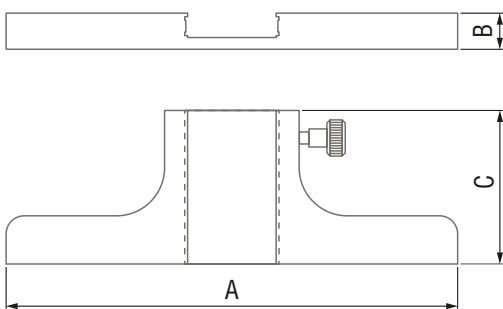
Depth foot for universal digital calipers



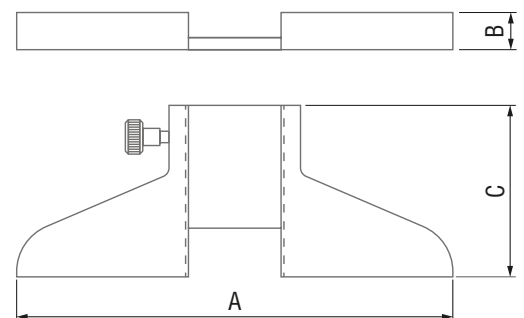
00560013



Part number	Designation	A mm	B mm	C mm
00560013	Depth foot for universal digital or dial calipers of 150 mm	75	6	25,5
00560055	Depth foot for universal vernier calipers of 150 mm	76,2	6,5	30



00560013



00560055



External micrometers



TESA
TECHNOLOGY

The everyday reference

Like calipers, the external micrometer is generally found on the tables of workshops around the world. A true reference in metrology, this instrument is a 'must' for those who want to equip themselves with an easy-to-use tool.

Without compromising the stability of the instrument, the weight of the TESA micrometer is reduced to a minimum in order to make it easier to handle, especially when measuring with one hand. The functional shape of the instrument, the smooth running of the micrometer screw, the secure locking and the friction ratchet also contribute to this.

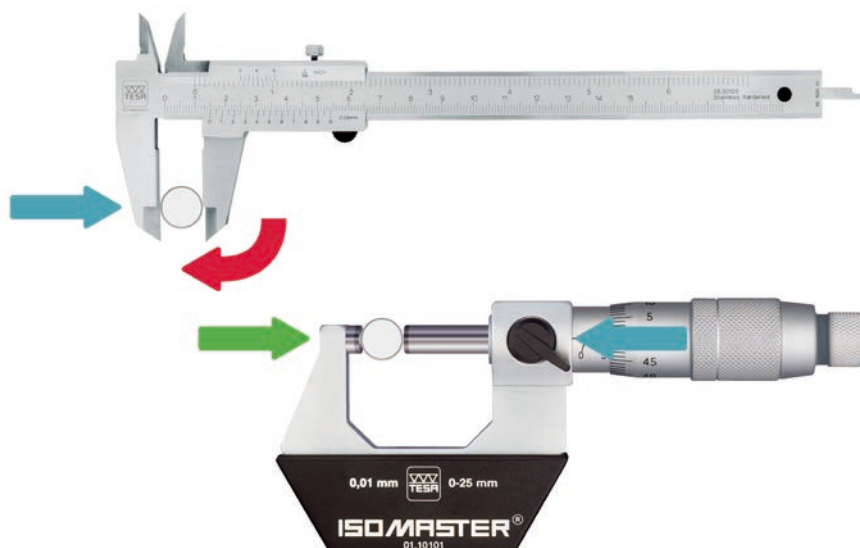
The robustness of the micrometer ensures that its accuracy is maintained over time.



An instrument based on the Abbe principle

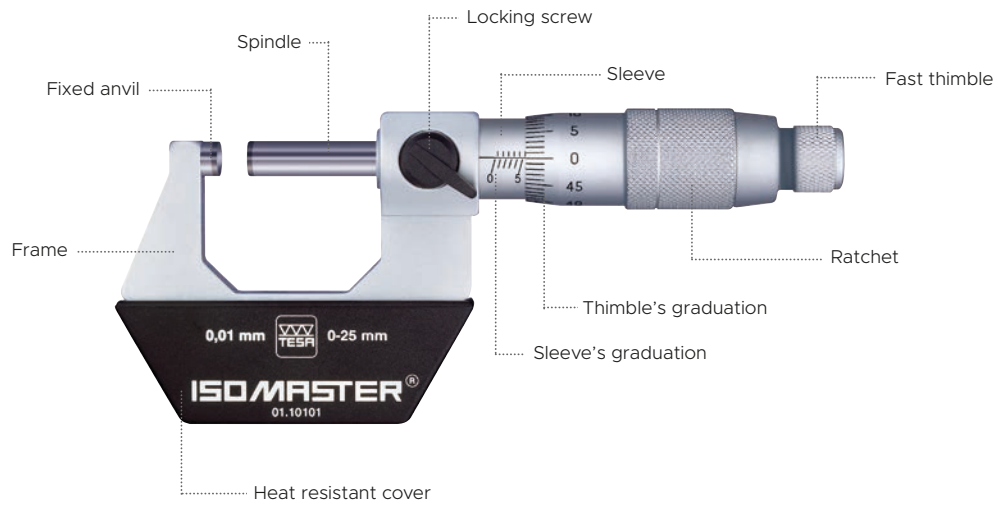
Unlike calipers, micrometers have an axial configuration corresponding to the Abbe principle. By having the measurement as well as the reading at the same level, on a single axis, they allow much more accurate measurements than other types of standard instruments on the market.

When a measuring force (blue) is applied to the part to be measured, a torque (red) is created on the caliper slide, creating a bias in the measurement results. On a micrometer, a force (green) opposite to the measuring force is created on the same axis as the measuring force. This state guarantees a better accuracy.



External micrometers

Vernier external micrometer



Digital external micrometer



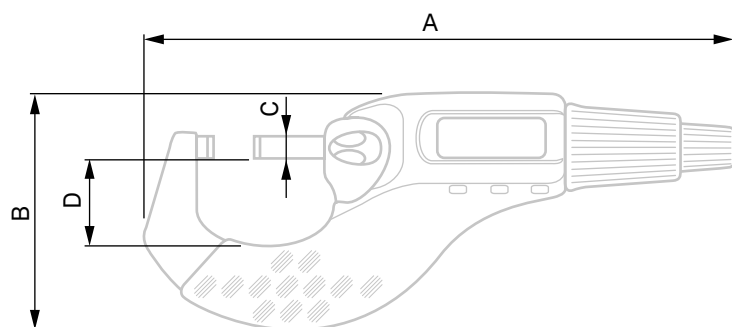
Digital models



06030030

Standard	DIN 863 T1
Resolution	0,001 mm / .00005 in
Zero	Floating
Material	Inserts: tungsten carbide
Thread pitch	0,5 mm
Degree of protection	IP54 IP40 (with opto-RS232)
Display	LCD Digit size: 7 mm
Power supply	CR2032 button battery
Data output(s)	With or without opto-RS232
Function(s)	Standby after 10 min Display locking (except EASY)
Autonomy	2'000 ÷ 4'000 hours
Measuring force	≤ 10 N
Included in delivery	Micrometer Battery (1x) Measuring report Declaration of conformity

Digital external micrometers



Article number	Measuring range, mm	Measuring range, in	Max. perm. errors, μm	Max. perm. parallelism error, μm	Data output	Degree of protection	A mm	B mm	C mm	D mm
06030010	0 ÷ 30	0 ÷ 1.2	4	2		IP40	163	66	Ø 6,5	22
06030020	0 ÷ 30	0 ÷ 1.2	4	2		IP54	163	66	Ø 6,5	22
06030021	25 ÷ 50	1 ÷ 2	4	2		IP54	189	72	Ø 6,5	26
06030022	50 ÷ 75	2 ÷ 3	5	3		IP54	216	91	Ø 6,5	41
06030023	75 ÷ 100	3 ÷ 4	5	3		IP54	245	108	Ø 6,5	52
06030030	0 ÷ 30	0 ÷ 1.2	4	2	Opto-RS232	IP54	163	66	Ø 6,5	22
06030031	25 ÷ 50	1 ÷ 2	4	2	Opto-RS232	IP54	189	72	Ø 6,5	26
06030032	50 ÷ 75	2 ÷ 3	5	3	Opto-RS232	IP54	216	91	Ø 6,5	41
06030033	75 ÷ 100	3 ÷ 4	5	3	Opto-RS232	IP54	245	108	Ø 6,5	52

Accessories

Article number	Designation
DATA-VIEWER	Free data acquisition software
04981002	STAT-EXPRESS software
04981001	DATA-DIRECT software
04760183	TLD-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLD-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04760178	Opto-RS232 to TLC adapter
00160201	Micrometer stand with 16 mm clamp aperture
072110123	Micrometer stand with 20 mm clamp aperture
04761062	Opto-RS232 to USB cable, duplex, 2 m
04761049	Opto-RS232 to Sub-D 9p/f cable, duplex, 2 m
04761046	Opto-RS232 to Sub-D 9p/f cable, simplex, 2 m
02510000	Set of optical flats, 12 ÷ 12,375 mm
02510100	Set of optical flats, 27 ÷ 27,335 mm
02510200	Set of optical flats, 52 ÷ 52,335 mm
02510300	Set of optical flats, 77 ÷ 77,335 mm

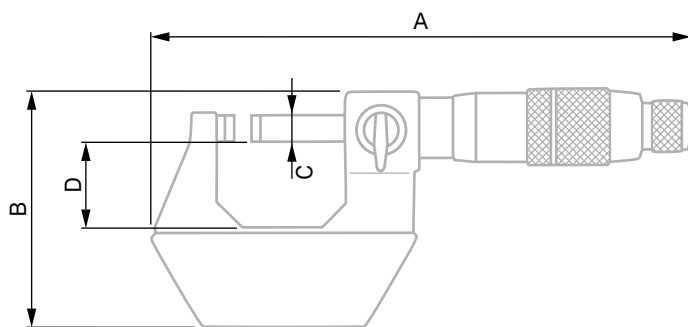
Vernier models, metric



00110101

Standard	DIN 863 T1 / NF E 11-095
Resolution	0,01 mm
Material	Inserts: tungsten carbide
Measuring force	≤ 10 N
Included in delivery	Micrometer Measurement report Declaration of conformity

Analogue external micrometers



Article number	Measuring range, mm	Travel / revolution, mm	Max. perm. errors, μm	Max. perm. parallelism error, μm	A mm	B mm	C mm	D mm
00110101	0 ÷ 25	0,5	4	2	127	56	Ø 6,5	21
00110102	25 ÷ 50	0,5	4	2	155	64	Ø 6,5	26
00110103	50 ÷ 75	0,5	5	3	181	83	Ø 6,5	41
00110104	75 ÷ 100	0,5	5	3	209	99	Ø 6,5	52

Accessories

Article number	Designation
00160201	Micrometer stand with 16 mm clamp aperture
072110123	Micrometer stand with 20 mm clamp aperture
02510000	Set of optical flats, 12 ÷ 12,375 mm
02510100	Set of optical flats, 27 ÷ 27,335 mm
02510200	Set of optical flats, 52 ÷ 52,335 mm
02510300	Set of optical flats, 77 ÷ 77,335 mm

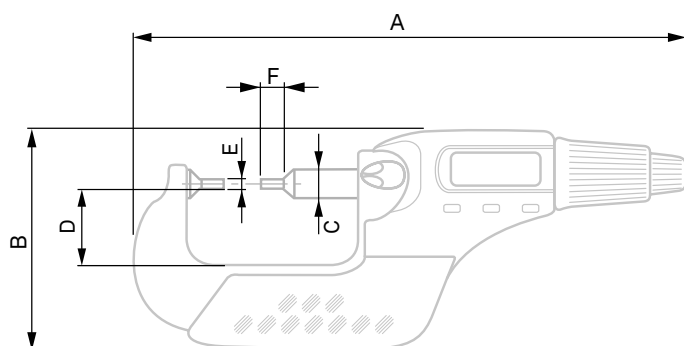
Digital models with fine inserts



06030034

Standard	DIN 863 T3
Resolution	0,001 mm / .00005 in
Zero	Floating
Material	Inserts: tungsten carbide
Thread pitch	0,5 mm
Degree of protection	IP54 IP40 (with opto-RS232)
Display	LCD Digit size: 7 mm
Power supply	CR2032 button battery
Data output(s)	Opto-RS232
Function(s)	Standby after 10 min Display locking
Autonomy	2'000 ÷ 4'000 hours
Measuring force	≤ 10 N
Included in delivery	Micrometer Battery (1x) Measuring report Declaration of conformity

Special external micrometers



Article number	Measuring range, mm	Measuring range, in	Max. perm. errors, μm	Max. perm. parallelism error, μm	Data output	Degree of protection	A mm	B mm	C mm	D mm	E mm	F mm
06030034	0 ÷ 30	0 ÷ 1.2	4	2	Op-to-RS232	IP54	189	72	\varnothing 6,5	28	\varnothing 2	5

Accessories

Article number	Designation
DATA-VIEWER	Free data acquisition software
04981002	STAT-EXPRESS software
04981001	DATA-DIRECT software
04760183	TLD-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLD-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04760178	Opto-RS232 to TLC adapter
00160201	Micrometer stand with 16 mm clamp aperture
072110123	Micrometer stand with 20 mm clamp aperture
04761062	Opto-RS232 to USB cable, duplex, 2 m
04761049	Opto-RS232 to Sub-D 9p/f cable, duplex, 2 m
04761046	Opto-RS232 to Sub-D 9p/f cable, simplex, 2 m

Micrometer supports

For external micrometers up to 300 mm and other instruments



00160201

Article number	Designation
00160201	Micrometer stand with 16 mm clamp aperture
072110123	Micrometer stand with 20 mm clamp aperture

Guide collars for setting standards

Facilitate the positioning of adjustment standards



Article number	Designation
02140103	Guide collars, 100 ÷ 175 mm
02140108	Guide collars, 200 ÷ 1475 mm

Accessories for external micrometers

Setting standards, metric



Article number	Designation
02140001	Setting standard, 25 mm
02140002	Setting standard, 50 mm
02140003	Setting standard, 75 mm
02140004	Setting standard, 100 mm
02140005	Setting standard, 125 mm
02140006	Setting standard, 150 mm
02140007	Setting standard, 175 mm
02140008	Setting standard, 200 mm
02140009	Setting standard, 225 mm
02140010	Setting standard, 250 mm
02140011	Setting standard, 275 mm
02140012	Setting standard, 300 mm

Optical flats with two parallel faces

- APPLICATION
 - For checking the flatness and parallelism of the measuring faces of external micrometers and similar instruments
- TESTING PROCESS
 - The difference in length of the interference lenses corresponds to one quarter or one third of the micrometer screw pitch (0,5 mm) respectively



Article number	Designation
02510000	Set of optical flats, 12 ÷ 12,375 mm
02510100	Set of optical flats, 27 ÷ 27,335 mm
02510200	Set of optical flats, 52 ÷ 52,335 mm
02510300	Set of optical flats, 77 ÷ 77,335 mm
02510001	Optical flat, 12 mm
02510002	Optical flat, 12,125 mm
02510003	Optical flat, 12,25 mm
02510004	Optical flat, 12,375 mm
02510101	Optical flat, 27 mm
02510102	Optical flat, 27,165 mm
02510103	Optical flat, 27,335 mm
02510201	Optical flat, 52 mm
02510202	Optical flat, 52,165 mm
02510203	Optical flat, 52,335 mm
02510301	Optical flat, 77 mm
02510302	Optical flat, 77,165 mm
02510303	Optical flat, 77,335 mm

External micrometers sets

Set of digital external micrometers



Article number	Designation
06030029	Set of 3 digital external micrometers, 0 ÷ 75 mm, MICROMASTER RS IP54

Set of vernier external micrometers, metric



Article number	Designation
00110113	Set of 4 vernier external micrometers, 0 ÷ 100 mm, ISOMASTER

Tools sets, metric


00531007

Family	Part number	Model	Dimension mm	Resolution mm	00530020	00511005	00511002	00511006	00511003	00531004	00511009	00511015	00511018	00511016	00531007	00511013	00511012	00511004	00511001	00511017
Callipers	00510008	Universal dial model Serie 2 mm/t	150	0,02	1	1	1													
	075115821	Universal dial model Serie 1 mm/t	150	0,02				1	1											
	00530319	Universal digital model Serie TWIN-CAL IP67	150	0,01						1	1	1								
	00530320	Universal digital model Serie TWIN-CAL IP67	150	0,01									1	1						1
	00530094	Universal digital model Serie TWIN-CAL	150	0,01											1					
	00530140	Universal digital model Serie TESA-CAL IP67	150	0,01												1	1			
	00510070	Universal vernier model	150	0,02														1	1	
Internal micrometers	06030010	Digital model MICROMASTER EASY	0 ÷ 30	0,001											1	1	1			
	06030020	Digital model MICROMASTER	0 ÷ 30	0,001						1			1							
	00110101	Vernier model ISOMASTER	0 ÷ 25	0,01	1	1	1	1	1		1	1	1					1	1	1
	00110102	Vernier model ISOMASTER	25 ÷ 50	0,01																1
Accessories	00560013	Depth foot			1					1	1	1		1	1	1				
	-	Flexible stainless steel rule	150			1	1	1	1		1	1		1			1	1	1	
	-	Flexible stainless steel rule	200																	1
	-	Bevelled edge steel squares	100 x 70			1	1	1	1		1	1		1			1	1	1	
	-	Try square, class 0	75 x 50																	1
	-	Radius gauge concav/convex	R1 ÷ R7				1	1				1	1							1
	-	Thread pitch gauges, metric/Withworth					1	1				1	1							1
	-	Metal scriber					1	1				1	1							1
	-	Setting standard for external micrometers	25																	

Tools sets



00530319



00510070



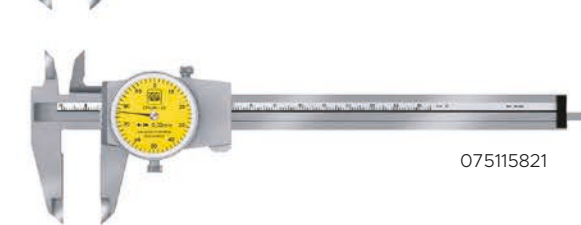
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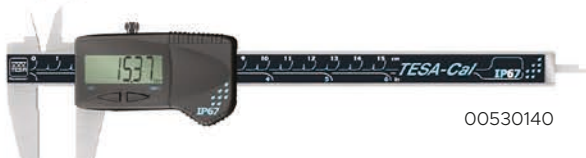
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00530094



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00530140



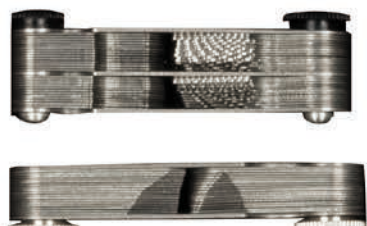
00110101



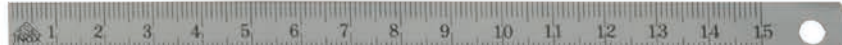
06030010



06030020



00560013



Internal micrometers

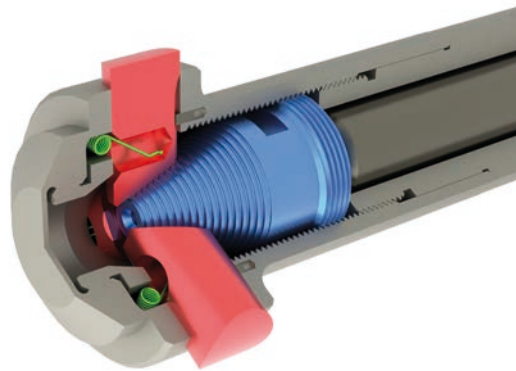


TESA
TECHNOLOGY

A constant measure

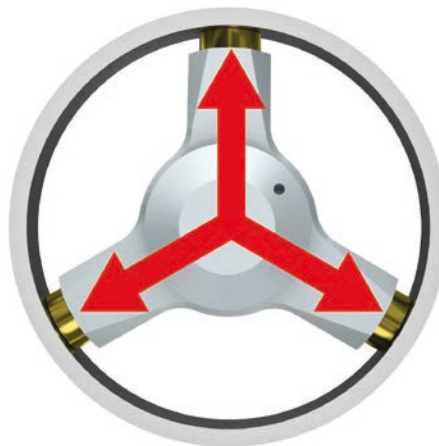
The 3 measuring inserts (red) are arranged symmetrically on the circumference of the measuring head and perpendicular to the axis of the instrument. Springs (green) keep them in constant contact with the threaded cone (micrometric thread), considered as the heart of the instrument. The inserts and the cone (blue) thus form a rigid and stable unit in the bore.

The three measuring inserts rest on the wall of the bore in three lines and not on three points. The ratchet ensures a constant measuring pressure.



Self-centering

The ideal 120° arrangement of the measuring inserts produces maximum centering force. Due to its line contact, the instrument always finds the correct measuring position and automatically centers itself in the bore, thanks to the longitudinal vibrations transmitted by the ratchet.



Internal micrometers

A single tool can replace multiple plug gauges

As plug gauges have fixed dimensions, they can be used for the verification of a single dimension. On the contrary, the instruments in the range all have a variable measuring range. Each of them is therefore suitable for measuring many different bore diameters, where several plug gauges would be required.



Digital IMICRO models



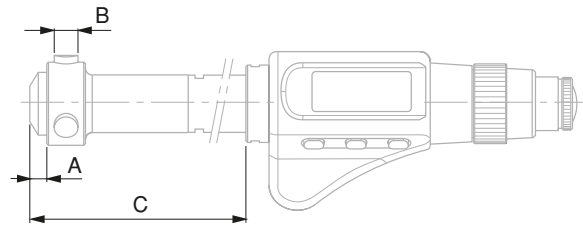
06130101

Article number	Measuring range, mm	Measuring range in	Max. perm. errors, μm	Max. perm. errors, in	Resolution mm	Resolution in	Repeatability limit, μm	Repeatability limit, in	A mm	B mm	C mm
06130101	3,5 ÷ 4	.1377 ÷ .1574	4	.0002	0,001	.00005	4	.0002	2	1,5	20
06130102	4 ÷ 4,5	.1574 ÷ .1771	4	.0002	0,001	.00005	4	.0002	2	1,5	20
06130103	4,5 ÷ 5,5	.1771 ÷ .2165	4	.0002	0,001	.00005	4	.0002	2	1,5	25
06130104	5,5 ÷ 6,5	.2165 ÷ .2559	4	.0002	0,001	.00005	4	.0002	2	1,5	25
06130105	6 ÷ 8	.2362 ÷ .315	4	.0002	0,001	.00005	4	.0002	2,5	2,5	58
06130106	8 ÷ 10	.315 ÷ .397	4	.0002	0,001	.00005	4	.0002	2,5	2,5	58
06130107	10 ÷ 12	.397 ÷ .4724	4	.0002	0,001	.00005	4	.0002	2,5	2,5	58
06130108	11 ÷ 14	.433 ÷ .5512	4	.0002	0,001	.00005	4	.0002	3,5	4	72
06130109	14 ÷ 17	.5512 ÷ .6693	4	.0002	0,001	.00005	4	.0002	3,5	4	72
06130110	17 ÷ 20	.6693 ÷ .7874	4	.0002	0,001	.00005	4	.0002	3,5	4	72
06130111	20 ÷ 25	.7874 ÷ .9843	4	.0002	0,001	.00005	4	.0002	7	7	91
06130112	25 ÷ 30	.9843 ÷ 1.1811	4	.0002	0,001	.00005	4	.0002	7	7	91
06130113	30 ÷ 35	1.1811 ÷ 1.378	4	.0002	0,001	.00005	4	.0002	7	7	91
06130114	35 ÷ 40	1.378 ÷ 1.5748	4	.0002	0,001	.00005	4	.0002	7	7	91
06130115	40 ÷ 50	1.5748 ÷ 1.9685	4	.0002	0,001	.00005	4	.0002	11	12	104
06130116	50 ÷ 60	1.9685 ÷ 2.3622	5	.00025	0,001	.00005	5	.00025	11	12	104
06130117	60 ÷ 70	2.3622 ÷ 2.756	5	.00025	0,001	.00005	5	.00025	11	12	104
06130118	70 ÷ 80	2.756 ÷ 3.1496	5	.00025	0,001	.00005	5	.00025	11	12	104
06130119	80 ÷ 90	3.1496 ÷ 3.5433	5	.00025	0,001	.00005	5	.00025	11	12	104
06130120	90 ÷ 100	3.5433 ÷ 3.937	5	.00025	0,001	.00005	5	.00025	11	12	104
06130121	100 ÷ 125	3.937 ÷ 4.9212	6	.00025	0,001	.00005	6	.00025	26	18	100
06130122	125 ÷ 150	4.9212 ÷ 5.9055	6	.00025	0,001	.00005	6	.00025	26	18	100
06130123	150 ÷ 175	5.9055 ÷ 6.8897	7	.0003	0,001	.00005	7	.0003	26	18	100
06130124	175 ÷ 200	6.8897 ÷ 7.874	7	.0003	0,001	.00005	7	.0003	26	18	100
06130125	200 ÷ 225	7.874 ÷ 8.8582	8	.00035	0,001	.00005	8	.00035	26	18	100
06130126	225 ÷ 250	8.8582 ÷ 9.8425	8	.00035	0,001	.00005	8	.00035	26	18	100
06130127	250 ÷ 275	9.8425 ÷ 10.8267	8	.00035	0,001	.00005	8	.00035	26	18	100
06130128	275 ÷ 300	10.8267 ÷ 11.811	8	.00035	0,001	.00005	8	.00035	26	18	100

Accessories

Article number	Designation
04760178	Opto-RS232 to TLC adapter
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04761062	Opto-RS232 to USB cable, duplex, 2 m
04761046	Opto-RS232 to Sub-D 9p/f cable, simplex, 2 m
04761049	Opto-RS232 to Sub-D 9p/f cable, duplex, 2 m
DATA-VIEWER	Free data acquisition software
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
00860001	Centering device for IMICRO 40 ÷ 100 mm, 150 mm
00862601	Centering device for IMICRO 100 ÷ 200 mm, 200 mm

Digital internal micrometers



Standard	DIN 863 T4
Measuring face(s)	Models (mm) 3,5 ÷ 12: hardened steel 11 ÷ 100: titanium nitride hard-coating 100 ÷ 300: tungsten carbide tipped
Resolution	0,001 mm / .00005 in
Zero	Floating
Degree of protection	IP54 IP40 (with opto-RS232)
Display	LCD Digit size: 7 mm
Power supply	CR2032 button battery
Data output(s)	Opto-RS232
Autonomy	1 ÷ 2 years
Units	mm / in
Included in delivery	Micrometer Battery (1x) Measuring report Declaration of conformity

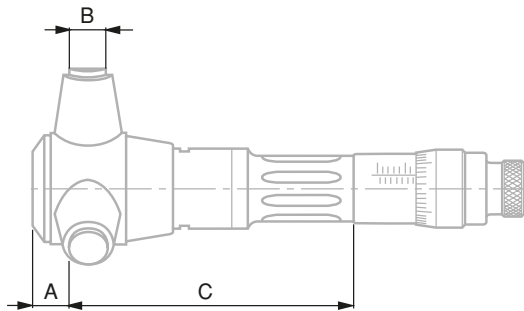
Analogue IMICRO models, metric



00812304

Standard	DIN 863 T4 / NF E 11-099
Measuring face(s)	Models (mm) 3,5 ÷ 12: hardened steel 11 ÷ 100: titanium nitride hard-coating 100 ÷ 300: tungsten carbide tipped
Units	mm
Included in delivery	Micrometer Measurement report Declaration of conformity

Analogue internal micrometers



Article number	Serie	Measuring range mm	Max. perm. errors, μm	Resolution mm	Repeatability limit, μm	A mm	B mm	C mm
00813410	BAE1	3,5 ÷ 4	4	0,001	4	2	1,5	20
00813411	BAE2	4 ÷ 4,5	4	0,001	4	2	1,5	20
00813412	BAE3	4,5 ÷ 5,5	4	0,001	4	2	1,5	25
00813413	BAE4	5,5 ÷ 6,5	4	0,001	4	2	1,5	25
00810001	BAF1	6 ÷ 8	4	0,001	4	2,5	2,5	52
00810002	BAF2	8 ÷ 10	4	0,001	4	2,5	2,5	52
00810003	BAF3	10 ÷ 12	4	0,001	4	2,5	2,5	52
00810801	BAG1	11 ÷ 14	4	0,005	4	3,5	4	77
00810802	BAG2	14 ÷ 17	4	0,005	4	3,5	4	77
00810803	BAG3	17 ÷ 20	4	0,005	4	3,5	4	77
00811501	BAH1	20 ÷ 25	4	0,005	4	7	7	78
00811502	BAH2	25 ÷ 30	4	0,005	4	7	7	78
00811503	BAH3	30 ÷ 35	4	0,005	4	7	7	78
00811504	BAH4	35 ÷ 40	4	0,005	4	7	7	78
00812301	BAJ1	40 ÷ 50	4	0,005	4	11	12	84
00812302	BAJ2	50 ÷ 60	5	0,005	5	11	12	84
00812303	BAJ3	60 ÷ 70	5	0,005	5	11	12	84
00812304	BAJ4	70 ÷ 80	5	0,005	5	11	12	84
00812305	BAJ5	80 ÷ 90	5	0,005	5	11	12	84
00812306	BAJ6	90 ÷ 100	5	0,005	5	11	12	84
00812601	BAK1W	100 ÷ 125	6	0,01	6	26	18	81
00812602	BAK2W	125 ÷ 150	6	0,01	6	26	18	81
00812603	BAK3W	150 ÷ 175	7	0,01	7	26	18	81
00812604	BAK4W	175 ÷ 200	7	0,01	7	26	18	81
00813101	BAL1	200 ÷ 225	8	0,01	8	26	18	81
00813102	BAL2	225 ÷ 250	8	0,01	8	26	18	81
00813103	BAL3	250 ÷ 275	8	0,01	8	26	18	81
00813104	BAL4	275 ÷ 300	8	0,01	8	26	18	81

Accessories

Article number	Designation
00860001	Centering device for IMICRO 40 ÷ 100 mm, 150 mm
00862601	Centering device for IMICRO 100 ÷ 200 mm, 200 mm
00860002	Key for analogue IMICRO BAJ 1/2/3/4/5/6
00862802	Key for analogue IMICRO BAG 1/2/3
00862702	Key for analogue IMICRO BAF 1/2/3
00862901	Key for analogue IMICRO BAH 1/2/3/4 and BAK 1/2/3/4
00862801	Screwdriver, 2,5 x 5 mm

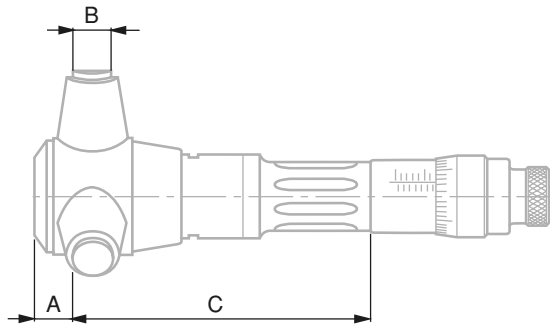
Analogue IMICRO models, imperial



00881905

Standard	DIN 863 T4 / NF E 11-099
Measuring face(s)	Models (in) .275 ÷ 4: hardened steel 4 ÷ 8: tungsten carbide tipped
Units	in
Included in delivery	Micrometer Measurement report Declaration of conformity

Analogue internal micrometers



Article number	Serie	Measuring range in	Max. perm. errors in	Resolution in	Repeatability limit, in	A mm	B mm	C mm
00880101	BAF1E	.275 ÷ .35	.0002	.0001	.0002	2,5	2,5	52
00880102	BAF2E	.35 ÷ .425	.0002	.0001	.0002	2,5	2,5	52
00880103	BAF3E	.425 ÷ .5	.0002	.0001	.0002	2,5	2,5	52
00880401	BAG1E	.5 ÷ .6	.0002	.0002	.0002	3,5	4	77
00880402	BAG2E	.6 ÷ .7	.0002	.0002	.0002	3,5	4	77
00880403	BAG3E	.7 ÷ .8	.0002	.0002	.0002	3,5	4	77
00881201	BAH1E	.8 ÷ 1	.0002	.0002	.0002	7	7	78
00881202	BAH2E	1 ÷ 1.2	.0002	.0002	.0002	7	7	78
00881203	BAH3E	1.2 ÷ 1.4	.0002	.0002	.0002	7	7	78
00881204	BAH4E	1.4 ÷ 1.6	.0002	.0002	.0002	7	7	78
00881901	BAJ1E	1.6 ÷ 2	.0002	.0002	.0002	11	12	84
00881902	BAJ2E	2 ÷ 2.4	.0002	.0002	.0002	11	12	84
00881903	BAJ3E	2.4 ÷ 2.8	.0002	.0002	.0002	11	12	84
00881904	BAJ4E	2.8 ÷ 3.2	.0002	.0002	.0002	11	12	84
00881905	BAJ5E	3.2 ÷ 3.6	.0002	.0002	.0002	11	12	84
00881906	BAJ6E	3.6 ÷ 4	.0002	.0002	.0002	11	12	84
00882701	BAK1WE	4 ÷ 5	.0005	.0005	.0005	26	18	95
00882702	BAK2WE	5 ÷ 6	.0005	.0005	.0005	26	18	95
00882703	BAK3WE	6 ÷ 7	.0005	.0005	.0005	26	18	95
00882704	BAK4WE	7 ÷ 8	.0005	.0005	.0005	26	18	95

Accessories

Article number	Designation
00862802	Key for analogue IMICRO BAG 1/2/3
00862702	Key for analogue IMICRO BAF 1/2/3
00862901	Key for analogue IMICRO BAH 1/2/3/4 and BAK 1/2/3/4
00860002	Key for analogue IMICRO BAJ 1/2/3/4/5/6
00862801	Screwdriver, 2,5 x 5 mm

Sets of digital internal micrometers, complete



06130223

Family	Part number	Dimension mm	06130220 3,5 ÷ 6,5	06130221 6 ÷ 12	06130222 11 ÷ 20	06130223 20 ÷ 40	06130224 40 ÷ 100	06130225 100 ÷ 200
Micrometers	06130101	3,5 ÷ 4	1					
	06130102	4 ÷ 4,5	1					
	06130103	4,5 ÷ 5,5	1					
	06130104	5,5 ÷ 6,5	1					
	06130105	6 ÷ 8		1				
	06130106	8 ÷ 10		1				
	06130107	10 ÷ 12		1				
	06130108	11 ÷ 14			1			
	06130109	14 ÷ 17			1			
	06130110	17 ÷ 20			1			
	06130111	20 ÷ 25				1		
	06130112	25 ÷ 30				1		
	06130113	30 ÷ 35				1		
	06130114	35 ÷ 40				1		
	06130115	40 ÷ 50					1	
	06130116	50 ÷ 60					1	
	06130117	60 ÷ 70					1	
	06130118	70 ÷ 80					1	
	06130119	80 ÷ 90					1	
	06130120	90 ÷ 100					1	
	06130121	100 ÷ 125						1
	06130122	125 ÷ 150						1
	06130123	150 ÷ 175						1
	06130124	175 ÷ 200						1
Setting rings	00843200	4	1					
	00843201	5,5	1					
	00840101	8		1				
	00840102	10		1				
	00840103	11			1			
	00840104	17			1			
	00840106	25				1		
	00840107	35				1		
	00840108	50					1	
	00840109	70					1	
	00840110	90					1	
	00840112	125						1
	00840113	175						1
Extensions	00840001	100		1				
	00840301	150			1			
	00841100	150				1		
	00841800	150					1	
	00842600	150						1

Internal micrometer sets

Sets of digital internal micrometers, partial



06130233

Family	Dimension mm	Dimension in	06130230 3,5 ÷ 6,5 mm .1377 ÷ .2559 in	06130231 6 ÷ 12 mm .2362 ÷ .4724 in	06130232 11 ÷ 20 mm .4330 ÷ .7874 in	06130233 20 ÷ 40 mm .7874 ÷ 1.5748 in	06130234 40 ÷ 100 mm 1.5748 ÷ 3.9370 in	06130235 100 ÷ 200 mm 3.9370 ÷ 7.8740 in
Micrometers	3,5 ÷ 4	.1377 ÷ .1574	1					
	4 ÷ 4,5	.1574 ÷ .1771	1					
	4,5 ÷ 5,5	.1771 ÷ .2165	1					
	5,5 ÷ 6,5	.2165 ÷ .2559	1					
	6 ÷ 8	.2362 ÷ .3150		1				
	8 ÷ 10	.3150 ÷ .3970		1				
	10 ÷ 12	.3970 ÷ .4724		1				
	11 ÷ 14	.4330 ÷ .5512			1			
	14 ÷ 17	.5512 ÷ .6693			1			
	17 ÷ 20	.6693 ÷ .7874			1			
	20 ÷ 25	.7874 ÷ .9843				1		
	25 ÷ 30	.9843 ÷ 1.1811				1		
	30 ÷ 35	1.1811 ÷ 1.3780				1		
	35 ÷ 40	1.3780 ÷ 1.5748				1		
	40 ÷ 50	1.5748 ÷ 1.9685					1	
	50 ÷ 60	1.9685 ÷ 2.3622					1	
	60 ÷ 70	2.3622 ÷ 2.7560					1	
	70 ÷ 80	2.7560 ÷ 3.1496					1	
	80 ÷ 90	3.1496 ÷ 3.5433					1	
	90 ÷ 100	3.5433 ÷ 3.9370					1	
100 ÷ 125	3.9370 ÷ 4.9212						1	
125 ÷ 150	4.9212 ÷ 5.9055						1	
150 ÷ 175	5.9055 ÷ 6.8897						1	
175 ÷ 200	6.8897 ÷ 7.8740						1	
Setting rings	4	.1574	1					
	5,5	.2165	1					
	8	.3150		1				
	10	.3970		1				
	11	.4330			1			
	17	.6693			1			
	25	.9843				1		
	35	1.3780				1		
	50	1.9685					1	
	70	2.7560					1	
	90	3.5433					1	
	125	4.9212						1
175	6.8897						1	
Extensions	100	3.9370		1				
	150	5.9055			1			
	150	5.9055				1		
	150	5.9055					1	
	150	5.9055						1

Sets of analogue internal micrometers, metric



00811500

Family	Dimension mm	00813409 BAE 3,5 ÷ 6,5	00810000 BAF 6 ÷ 12	00810800 BAG 11 ÷ 20	00811500 BAH 20 ÷ 40	00812300 BAJ 40 ÷ 100	00812600 BAK 100 ÷ 200
Micrometers	3,5 ÷ 4	1					
	4 ÷ 4,5	1					
	4,5 ÷ 5,5	1					
	5,5 ÷ 6,5	1					
	6 ÷ 8		1				
	8 ÷ 10		1				
	10 ÷ 12		1				
	11 ÷ 14				1		
	14 ÷ 17				1		
	17 ÷ 20				1		
	20 ÷ 25					1	
	25 ÷ 30					1	
	30 ÷ 35					1	
	35 ÷ 40					1	
	40 ÷ 50						1
	50 ÷ 60						1
	60 ÷ 70						1
	70 ÷ 80						1
	80 ÷ 90						1
90 ÷ 100						1	
100 ÷ 125							1
125 ÷ 150							1
150 ÷ 175							1
175 ÷ 200							1
Setting rings	4	1					
	5,5	1					
	8		1				
	10		1				
	11			1			
	17			1			
	25				1		
	35				1		
	50					1	
	70					1	
	90					1	
125						1	
175						1	
Extensions	100		1				
	150			1			
	150				1		
	150					1	
	150						1

Internal micrometer sets

Sets of analogue internal micrometers, imperial



00881200

Family	Dimension in	00880100 BAFE .275 ÷ .5	00880400 BAGE .5 ÷ .8	00881200 BAHE .8 ÷ 1.6	00881900 BAJE 1.6 ÷ 4	00882700 BAKE 4 ÷ 8
Micrometers	.275 ÷ .350	1				
	.350 ÷ .425	1				
	.425 ÷ .500	1				
	.500 ÷ .600		1			
	.600 ÷ .700		1			
	.700 ÷ .800		1			
	.800 ÷ 1.0				1	
	1.0 ÷ 1.2				1	
	1.2 ÷ 1.4				1	
	1.4 ÷ 1.6				1	
	1.6 ÷ 2.0					1
	2.0 ÷ 2.4					1
	2.4 ÷ 2.8					1
	2.8 ÷ 3.2					1
	3.2 ÷ 3.6					1
	3.6 ÷ 4.0					1
	4.0 ÷ 5.0					
5.0 ÷ 6.0						1
6.0 ÷ 7.0						1
7.0 ÷ 8.0						1
Setting rings	.35	1				
	.43	1				
	.50		1			
	.70		1			
	1.0			1		
	1.4			1		
	2.0				1	
	2.8				1	
	3.6				1	
	5.0					1
7.0					1	
Extensions	4.0	1				
	6.0		1			
	6.0			1		
	6.0				1	
	6.0					1

Extensions for metric internal micrometer



Article number	Dimensions mm	Dimensions in	Compatibility
00840001	100	4	for micrometer with a measuring range of 6 ÷ 12 mm
00840301	150	6	for micrometer with a measuring range of 11 ÷ 20 mm
00840302	500	20	for micrometer with a measuring range of 11 ÷ 20 mm
00841100	150	6	for micrometer with a measuring range of 20 ÷ 40 mm
00841101	500	20	for micrometer with a measuring range of 20 ÷ 40 mm
00841102	1000	52	for micrometer with a measuring range of 20 ÷ 40 mm
00841800	150	6	for micrometer with a measuring range of 40 ÷ 100 mm
00841801	500	20	for micrometer with a measuring range of 40 ÷ 100 mm
00841802	1000	52	for micrometer with a measuring range of 40 ÷ 100 mm
00842600	150	6	for micrometer with a measuring range of 100 ÷ 300 mm
00842601	500	20	for micrometer with a measuring range of 100 ÷ 300 mm
00842602	1000	52	for micrometer with a measuring range of 100 ÷ 300 mm

Extensions for imperial internal micrometer



Article number	Dimensions mm	Dimensions in	Compatibility
00850001	100	4	for micrometer with a measuring range of .275 ÷ .5 in
00850301	150	6	for micrometer with a measuring range of .5 ÷ .8 in
00850302	500	20	for micrometer with a measuring range of .5 ÷ .8 in
00851100	150	6	for micrometer with a measuring range of .8 ÷ 1.6 in
00851101	500	20	for micrometer with a measuring range of .8 ÷ 1.6 in
00851800	1000	6	for micrometer with a measuring range of 1.6 ÷ 4 in
00851801	500	20	for micrometer with a measuring range of 1.6 ÷ 4 in
00851802	1000	40	for micrometer with a measuring range of 1.6 ÷ 4 in
00852600	150	6	for micrometer with a measuring range of 4 ÷ 12 in
00852601	500	20	for micrometer with a measuring range of 4 ÷ 12 in
00852602	1000	40	for micrometer with a measuring range of 4 ÷ 12 in

Accessories for internal micrometers

Centring devices for metric internal micrometers



Article number	Dimensions mm	Compatibility
00860001	150	for micrometer with a measuring range of 40 ÷ 100 mm
00862601	200	for micrometer with a measuring range of 100 ÷ 200 mm

Setting rings, metric



Max. perm. errors

The cylindricity errors make no allowance for a rim of 1 mm.

Particular characteristic(s)

All listed values are determined through a 2-point measurement taken at half-height of the setting ring. The measuring direction is marked with 2 strokes. The measured actual dimension is engraved on every setting master.

Article number	Max. perm. cylindricity error μm	Uncertainty of measurement μm	Diameter mm
00843200	1,5	1,5	4
00843201	1,5	1,5	5,5
00840114	1,5	1,5	6
00840101	1,5	1,5	8
00840115	1,5	1,5	8,5
00840102	1,5	1,5	10
00840103	1,5	1,5	11
00840116	1,5	1,5	12,5
00840104	1,5	1,5	15
00840105	1,5	1,5	17
00840117	1,5	1,5	17,5
00840106	1,5	1,5	25
00840107	2	2	35
00843230	2	2	45
00840108	2	2	50
00843239	2	2	60
00840109	2	2	70
00840118	2	2	85
00840110	2	2	90
00840111	2,5	2,5	110
00840112	2,5	2,5	125
00840113	2,5	4	175

Setting rings and setting standards

Setting rings, imperial



00850106

Max. perm. errors	The cylindricity errors make no allowance for a rim of 1 mm.
Particular characteristic(s)	All listed values are determined through a 2-point measurement taken at half-height of the setting ring. The measuring direction is marked with 2 strokes. The measured actual dimension is engraved on every setting master.

Article number	Max. perm. cylindricity error μm	Uncertainty of measurement μm	Diameter in
00850101	1,5	1,5	.35
00850102	1,5	1,5	.425
00850103	1,5	1,5	.5
00850104	1,5	1,5	.6
00850105	1,5	1,5	.7
00850106	1,5	1,5	1
00850107	2	2	1.4
00850108	2	2	2
00850109	2	2	2.8
00850110	2	2	3.6
00850111	2,5	2,5	4.4
00850112	2,5	2,5	5
00850113	2,5	4	7

Dial gauges



TESA
TECHNOLOGY

The wide range of analog and digital dial gauges, easy to use and versatile, offers a great selection of models in various configurations.

Digital Models

The operator can easily switch from standard functionalities (EASY model) to advanced features, with a measurement range of up to 150 mm.

Traceability is ensured through the connection to the DATA-VIEWER software.

The display of tolerance results via colored LED indicators allows for clear and visible production control.

Versions with IP67 protective bellows are also available for use in challenging environments.

Analog Models

Resolutions from 0.1 mm to 0.001 mm, combined with measurement ranges up to 50 mm, cover a wide range of applications.

The yellow outline of the dial enhances contrast for better readability.

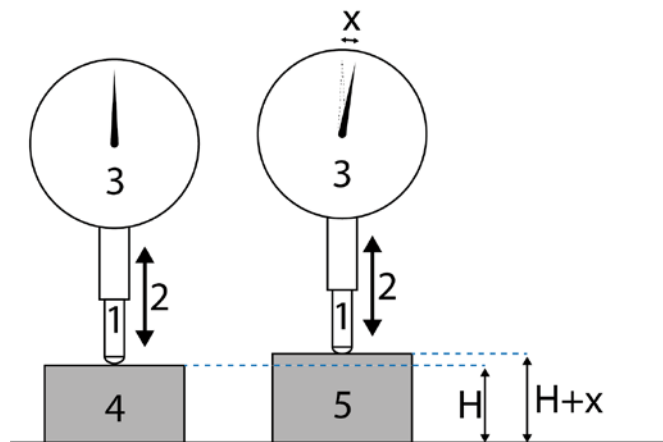
Versions protected by a bellows and a sealed screwed dial are also available for use in harsh environments.

Principle

A comparator is a measuring instrument consisting of two main parts: a movable translational rod (1) whose displacement (2) is transformed by a mechanical device into a measurement value displayed on an analog (3) or digital dial.

The comparator is not an absolute device. All measurements taken are relative to a reference point.

The instrument is then «zeroed» (H) relative to a reference piece (4). The measured length variation (x) on another identical piece (5) is then read on the dial. This value helps determine whether the piece has been correctly manufactured, if it requires adjustment, or if it should be rejected.



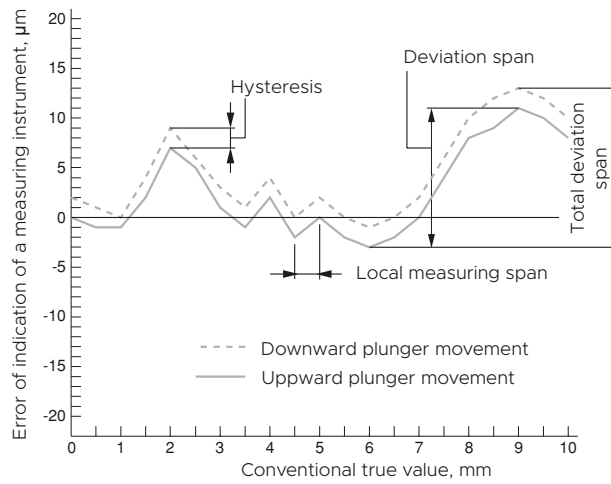
Metrological definitions

International standard ISO 463:2006, is the main standard used for the metrological and dimensional characteristics of dial gauges.

Indication errors for:

- Measuring range (retractable plunger): MPEe
- Partial measuring range: MPEp
 - over 1 revolution
 - over 1/2 revolution
 - over 1/10 revolution
 - over 1 mm
- Hysteresis: MPEh
- Repeatability: MPEr

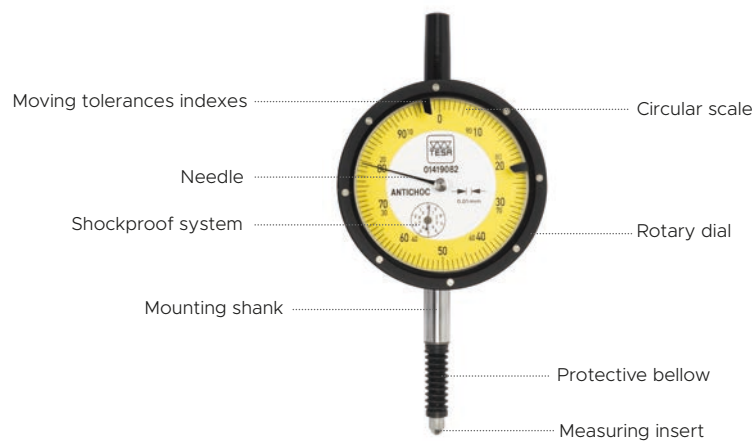
Dial gauges



Digital dial gauges



Analog dial gauge



Digital dial gauges

Series	Article number	Dial, Ø mm	Measuring range, mm	Resolution mm	Degree of protection	Measuring force, N	Number of buttons	Functions	Data output
DIALTRONIC COMPACT	01930260	45	12.5	0.01	IP54	0,5 ÷ 0,9	1	Standard	RS232
	01930261	45	12.5	0.001	IP54	0,5 ÷ 0,9	1	Standard	RS232
	01930263	45	12.5	0.001	IP67	0,6 ÷ 1,3	1	Standard	RS232
DIALTRONIC EASY	01930320	60	12.5	0.01	IP51	0,65 ÷ 0,9	3	Standard	RS232
	01930321	60	12.5	0.001	IP51	0,65 ÷ 0,9	3	Standard	RS232
DIALTRONIC	01930300	60	12.5	0.01	IP54	0,65 ÷ 0,9	3	Advanced	RS232
	01930301	60	12.5	0.001	IP54	0,65 ÷ 0,9	3	Advanced	RS232
	01930303	60	12.5	0.001	IP67	0,7 ÷ 1,4	3	Advanced	RS232
	01930304	60	25	0.01	IP54	0,65 ÷ 1,15	3	Advanced	RS232
	01930305	60	25	0.001	IP54	0,65 ÷ 1,15	3	Advanced	RS232
	01930307	60	25	0.001	IP67	0,65 ÷ 1,8	3	Advanced	RS232
	01930309	60	50	0.001	IP54	1,1 ÷ 2,6	3	Advanced	RS232
	01930311	60	100	0.001	IP54	1,8 ÷ 3,8	3	Advanced	RS232
	01930313	60	150	0.001	IP54	2,6 ÷ 5,7	3	Advanced	RS232
DIALTRONIC BT	01930315	60	12.5	0.001	IP54	0,65 ÷ 0,9	3	Advanced	RS232, Bluetooth®
	01930317	60	25	0.001	IP54	0,65 ÷ 1,15	3	Advanced	RS232, Bluetooth®

Dial gauges

Analogue metric dial gauges

Article number	Resolution, mm	Measuring range, mm	Dial Ø	Travel / revolution, mm	Circular scale	Reading direction	Degree of protection	Shockproof mechanism	Rotating dial	Type
0141760500	0.1	10	40	10	0 ÷ 5 ÷ 10	Clockwise	IP40		•	Standard
0141760501	0.1	10	58	10	0 ÷ 5 ÷ 10	Clockwise	IP40		•	Standard
0141760503	0.1	30	58	10	0 ÷ 5 ÷ 10	Clockwise	IP40		•	Standard
0141760566	0.01	3	40	0.5	0 ÷ 25 ÷ 50	Clockwise	IP40	•	•	Back mounted plunger
01419080	0.01	3.5	28	0.5	0 ÷ 25 ÷ 50	Clockwise	IP40		•	Standard
01419047	0.01	5	40	0.5	0 ÷ 25 ÷ 50	Clockwise	IP40	•	•	Standard
01419081	0.01	5	44.5	0.5	0 ÷ 25 ÷ 50	Clockwise	IP67	•	•	Standard
01419048	0.01	10	58	1	0 ÷ 50 ÷ 100	Clockwise	IP40	•	•	Standard
01419082	0.01	10	61.5	1	0 ÷ 50 ÷ 100	Clockwise	IP67	•	•	Standard
0141760651	0.01	30	58	1	0 ÷ 50 ÷ 100	Clockwise	IP40		•	Standard
0141760661	0.01	50	58	1	0 ÷ 50 ÷ 100	Clockwise	IP40		•	Standard
01419056	0,002	3	44.5	0.2	0 ÷ 10 ÷ 20	Clockwise	IP40	•	•	Standard
01419057	0,002	3	44.5	0.2	0 ÷ 10 ÷ 20	Clockwise	IP67	•	•	Standard
01419058	0,002	5	58	0.2	0 ÷ 10 ÷ 20	Clockwise	IP40	•	•	Standard
01419051	0.001	0.1	62		50 ÷ 0 ÷ 50	Clockwise and anti-clockwise	IP40	•		Standard
01419052	0.001	0.1	62		50 ÷ 0 ÷ 50	Clockwise and anti-clockwise	IP54	•		Standard
01419053	0.001	1	40	0.2	0 ÷ 10 ÷ 20	Clockwise	IP40	•	•	Standard
01419054	0.001	1	58	0.2	0 ÷ 10 ÷ 20	Clockwise	IP40	•	•	Standard
01419055	0.001	5	58	0.2	0 ÷ 10 ÷ 20	Clockwise	IP40	•	•	Standard

DIALTRONIC COMPACT series

- FUNCTIONS
 - Zeroing
 - Adjustable PRESET with Computer connection
 - Data transmission
 - mm/in selection
 - Selection of measurement direction
 - Automatic switch-off



01930260



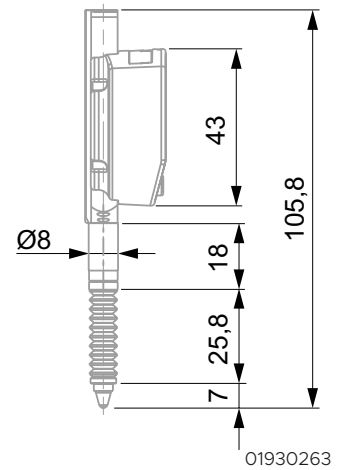
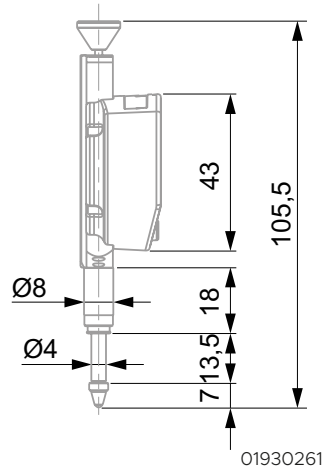
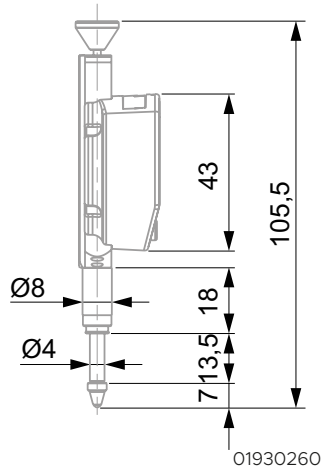
01930261



01930263

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	12,5 mm / .5 in
Resolution	0,01 or 0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP54 or IP67
Data output(s)	RS232
Units	mm / in
Included in delivery	Dial gauge with mounted ball insert Ø 3 mm Measurement report Quickstart guide

Digital dial gauges



Article number	Ø Dial mm	Ø Dial in	Degree of protection	Data output	Measuring force N	Number of buttons
01930260	45	1.77	IP54	RS232	0,5 ÷ 0,9	1
01930261	45	1.77	IP54	RS232	0,5 ÷ 0,9	1
01930263	45	1.77	IP67	RS232	0,6 ÷ 1,3	1

Article number	MPEe, retractable plunger, µm	MPEe, retractable plunger, in	MPEp, 1 mm µm	MPEp, 1 mm in	MPEr µm	MPEr in
01930260	10 ± 1 digit	.0005 ± 1 digit	8	.0003	2	.0001
01930261	4	.0002	3	.0001	2	.0001
01930263	4	.0002	3	.0001	2	.0001

MPEe: indication error on the measuring range (retractable plunger)

MPEp: indication error on partial measuring range

MPEr: repeatability of the indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
01961012	Device for plunger retraction for DIALTRONIC COMPACT dial gauge
04760161	Cable power to USB, 3 m
04760162	Cable power (90 degrees) to USB, 3 m

DIALTRONIC EASY series

- FUNCTIONS
 - Zeroing / Preset
 - Data transmission
 - mm/in selection
 - Selection of measurement direction
 - Automatic or manual switch-off
 - Locking of the measured value



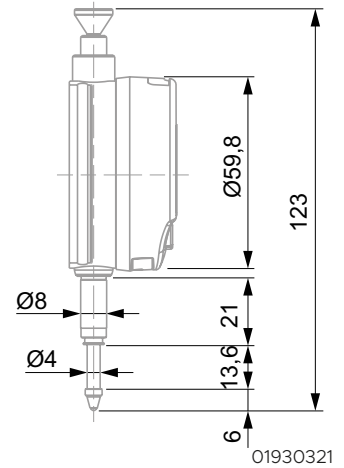
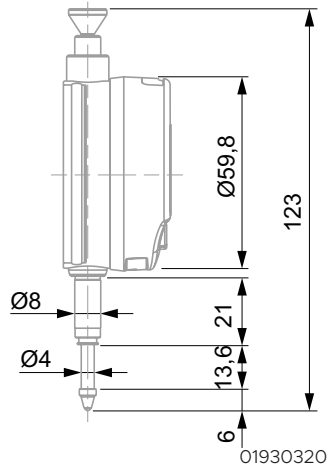
01930320



01930321

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	12,5 mm / .5 in
Resolution	0,01 or 0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP51
Data output(s)	RS232
Units	mm / in
Included in delivery	Dial gauge with mounted ball insert Ø 3 mm Measurement report Quickstart guide

Digital dial gauges



Article number	Ø Dial mm	Ø Dial in	Degree of protection	Data output	Measuring force N	Number of buttons
01930320	60	2.36	IP51	RS232	0,65 ÷ 0,9	3
01930321	60	2.36	IP51	RS232	0,65 ÷ 0,9	3

Article number	MPEe, retractable plunger, µm	MPEe, retractable plunger, in	MPEp, 1 mm µm	MPEp, 1 mm in	MPEr µm	MPEr in
01930320	10 ± 1 digit	.0005 ± 1 digit	8	.0003	2	.0001
01930321	4	.0002	3	.0001	2	.0001

MPEe: indication error on the measuring range (retractable plunger)

MPEp: indication error on partial measuring range

MPEr: repeatability of the indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
01960101	Device for plunger retraction for DIALTRONIC dial gauge
01960100	Back with central lug for DIALTRONIC dial gauge
04760160	Cable inductive to USB, 3 m
04760161	Cable power to USB, 3 m
04760162	Cable power (90 degrees) to USB, 3 m

DIALTRONIC series, measuring range 12,5 mm

• FUNCTIONS

- Switching of the counting direction
- Automatic sleep mode
- RS232 data output
- PRESET mode
- 2 storable references
- MAX, MIN, MAX-MIN (TIR)
- Change of resolution
- Multiplication factor
- Locking of the keys
- Storage of the measured value
- Reset of the value
- Button for recall of PRESET value
- Setting of tolerances
- Wireless data output (01930315)



01930300



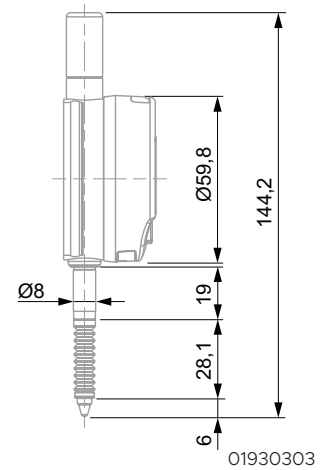
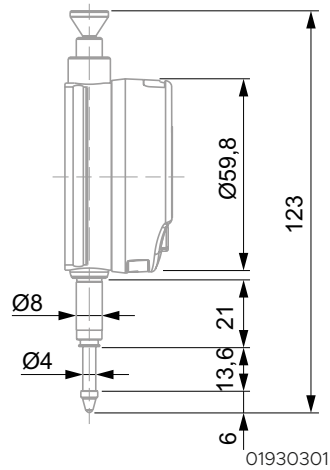
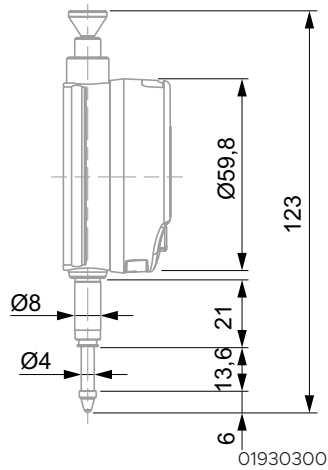
01930301



01930303

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	12,5 mm / .5 in
Resolution	0,01 or 0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP54 or IP67
Data output(s)	RS232 or Bluetooth®
Units	mm / in
Included in delivery	Dial gauge with mounted ball insert Ø 3 mm Measurement report Quickstart guide

Digital dial gauges



Article number	Ø Dial mm	Ø Dial in	Degree of protection	Data output	Measuring force N	Number of buttons
01930300	60	2.36	IP54	RS232	0,65 ÷ 0,9	3
01930301	60	2.36	IP54	RS232	0,65 ÷ 0,9	3
01930303	60	2.36	IP67	RS232	0,7 ÷ 1,4	3
01930315	60	2.36	IP54	RS232 and Bluetooth®	0,65 ÷ 0,9	3

Article number	MPEe, retractable plunger, µm	MPEe, retractable plunger, in	MPEp, 1 mm µm	MPEp, 1 mm in	MPEr µm	MPEr in
01930300	10 ± 1 digit	.0005 ± 1 digit	8	.0003	2	.0001
01930301	3	.0001	2,6	.0001	2	.0001
01930303	3	.0001	2,6	.0001	2	.0001
01930315	3	.0001	2,6	.0001	2	.0001

MPEe: indication error on the measuring range (retractable plunger)

MPEp: indication error on partial measuring range

MPEr: repeatability of the indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
01960101	Device for plunger retraction for DIALTRONIC dial gauge
01960100	Back with central lug for DIALTRONIC dial gauge
04760160	Cable inductive to USB, 3 m
04760161	Cable power to USB, 3 m
04760162	Cable power (90 degrees) to USB, 3 m

DIALTRONIC series, measuring range 25 mm

• FUNCTIONS

- Switching of the counting direction
- Automatic sleep mode
- RS232 data output
- PRESET mode
- 2 storable references
- MAX, MIN, MAX-MIN (TIR)
- Change of resolution
- Multiplication factor
- Locking of the keys
- Storage of the measured value
- Reset of the value
- Button for recall of PRESET value
- Setting of tolerances



01930304



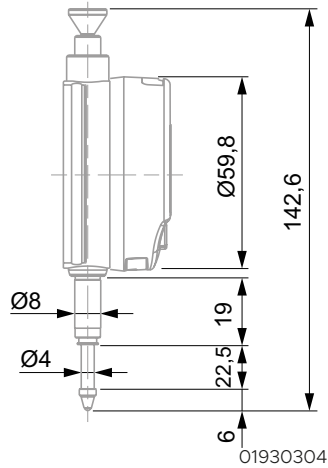
01930305



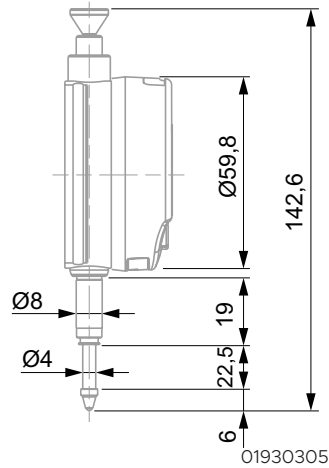
01930307

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	25 mm / 1 in
Resolution	0,01 or 0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP54 or IP67
Data output(s)	RS232 or Bluetooth®
Units	mm / in
Included in delivery	Dial gauge with mounted ball insert Ø 3 mm Measurement report Quickstart guide

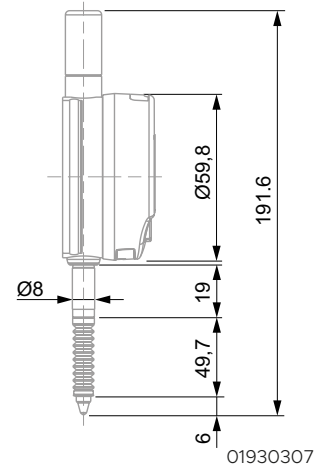
Digital dial gauges



01930304



01930305



01930307

Article number	Ø Dial mm	Ø Dial in	Degree of protection	Data output	Measuring force N	Number of buttons
01930304	60	2.36	IP54	RS232	0,65 ÷ 1,15	3
01930305	60	2.36	IP54	RS232	0,65 ÷ 1,15	3
01930307	60	2.36	IP67	RS232	0,65 ÷ 1,8	3
01930317	60	2.36	IP54	RS232 and Bluetooth®	0,65 ÷ 1,15	3

Article number	MPEe, retractable plunger, µm	MPEe, retractable plunger, in	MPEp, 1 mm µm	MPEp, 1 mm in	MPEr µm	MPEr in
01930304	10 ± 1 digit	.0005 ± 1 digit	2,6	.0001	2	.0001
01930305	4	.0002	2,6	.0001	2	.0001
01930307	4	.0002	2,6	.0001	2	.0001
01930317	4	.0002	2,6	.0001	2	.0001

MPEe: indication error on the measuring range (retractable plunger)
MPEp: indication error on partial measuring range
MPEr: repeatability of the indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
01960102	Device for plunger retraction for DIALTRONIC dial gauge
01960100	Back with central lug for DIALTRONIC dial gauge
04760160	Cable inductive to USB, 3 m
04760161	Cable power to USB, 3 m
04760162	Cable power (90 degrees) to USB, 3 m

DIALTRONIC series, measuring range 50 mm

• FUNCTIONS

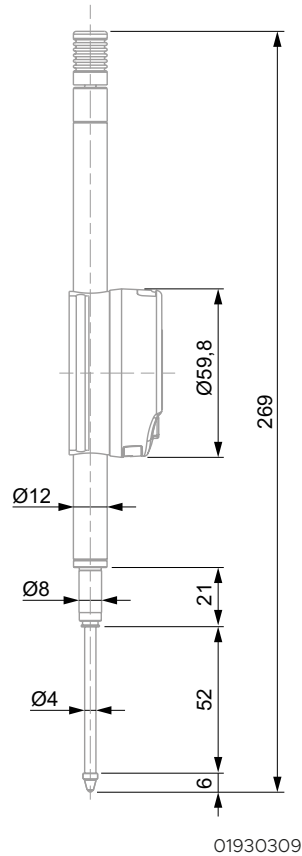
- Switching of the counting direction
- Automatic sleep mode
- RS232 data output
- PRESET mode
- 2 storable references
- MAX, MIN, MAX-MIN (TIR)
- Change of resolution
- Multiplication factor
- Locking of the keys
- Storage of the measured value
- Reset of the value
- Button for recall of PRESET value
- Setting of tolerances



01930309

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	50 mm / 2 in
Resolution	0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP54
Data output(s)	RS232
Units	mm / in
Included in delivery	Dial gauge with mounted ball insert Ø 3 mm Measurement report Quickstart guide

Digital dial gauges



Article number	Ø Dial mm	Ø Dial in	Degree of protection	Data output	Measuring force N	Number of buttons
01930309	60	2.36	IP54	RS232	1,1 ÷ 2,6	3

Article number	MPEe, retractable plunger, µm	MPEe, retractable plunger, in	MPEp, 1 mm µm	MPEp, 1 mm in	MPEr µm	MPEr in
01930309	5	.0002	3,2	.00015	2	.0001

MPEe: indication error on the measuring range (retractable plunger)
MPEp: indication error on partial measuring range
MPEr: repeatability of the indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
01960100	Back with central lug for DIALTRONIC dial gauge
04760160	Cable inductive to USB, 3 m
04760161	Cable power to USB, 3 m
04760162	Cable power (90 degrees) to USB, 3 m

DIALTRONIC series, measuring range 100 mm

• FUNCTIONS

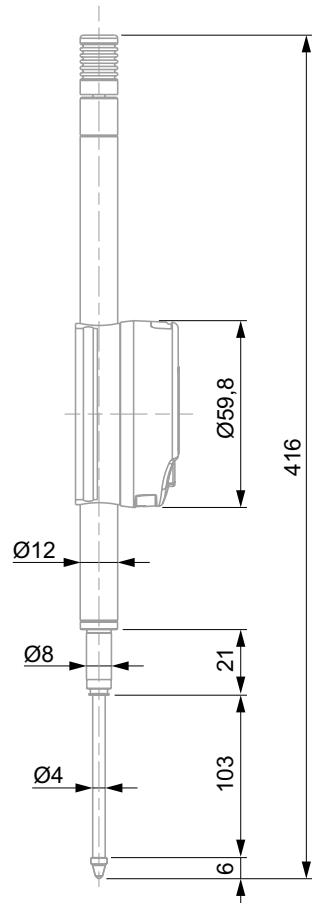
- Switching of the counting direction
- Automatic sleep mode
- RS232 data output
- PRESET mode
- 2 storable references
- MAX, MIN, MAX-MIN (TIR)
- Change of resolution
- Multiplication factor
- Locking of the keys
- Storage of the measured value
- Reset of the value
- Button for recall of PRESET value
- Setting of tolerances



Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	100 mm / 4 in
Resolution	0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP54
Data output(s)	RS232
Units	mm / in
Included in delivery	Dial gauge with mounted ball insert Ø 3 mm Measurement report Quickstart guide

01930311

Digital dial gauges



01930311

Article number	Ø Dial mm	Ø Dial in	Degree of protection	Data output	Measuring force N	Number of buttons
01930311	60	2.36	IP54	RS232	1,8 ÷ 3,8	3

Article number	MPEe, retractable plunger, µm	MPEe, retractable plunger, in	MPEp, 1 mm µm	MPEp, 1 mm in	MPEr µm	MPEr in
01930311	6	.00025	3,2	.00015	2	.0001

MPEe: indication error on the measuring range (retractable plunger)
MPEp: indication error on partial measuring range
MPEr: repeatability of the indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
01960100	Back with central lug for DIALTRONIC dial gauge
04760160	Cable inductive to USB, 3 m
04760161	Cable power to USB, 3 m
04760162	Cable power (90 degrees) to USB, 3 m

DIALTRONIC series, measuring range 150 mm

• FUNCTIONS

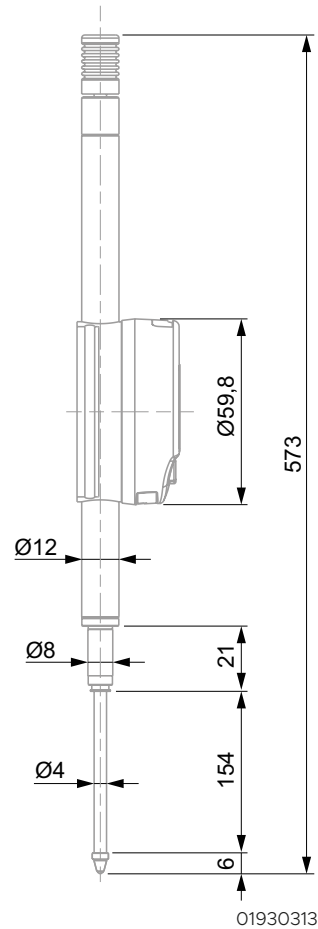
- Switching of the counting direction
- Automatic sleep mode
- RS232 data output
- PRESET mode
- 2 storable references
- MAX, MIN, MAX-MIN (TIR)
- Change of resolution
- Multiplication factor
- Locking of the keys
- Storage of the measured value
- Reset of the value
- Button for recall of PRESET value
- Setting of tolerances



Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	150 mm / 6 in
Resolution	0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP54
Data output(s)	RS232
Units	mm / in
Included in delivery	Dial gauge with mounted ball insert Ø 3 mm Measurement report Quickstart guide

01930313

Digital dial gauges



Article number	Ø Dial mm	Ø Dial in	Degree of protection	Data output	Measuring force N	Number of buttons
01930313	60	2.36	IP54	RS232	2,6 ÷ 5,7	3

Article number	MPEe, retractable plunger, µm	MPEe, retractable plunger, in	MPEp, 1 mm µm	MPEp, 1 mm in	MPEr µm	MPEr in
01930313	10	.0004	3,2	.00015	2	.0001

MPEe: indication error on the measuring range (retractable plunger)
MPEp: indication error on partial measuring range
MPEr: repeatability of the indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
01960100	Back with central lug for DIALTRONIC dial gauge
04760160	Cable inductive to USB, 3 m
04760161	Cable power to USB, 3 m
04760162	Cable power (90 degrees) to USB, 3 m

Standard models, resolution 0,1 mm, measuring range 10 mm



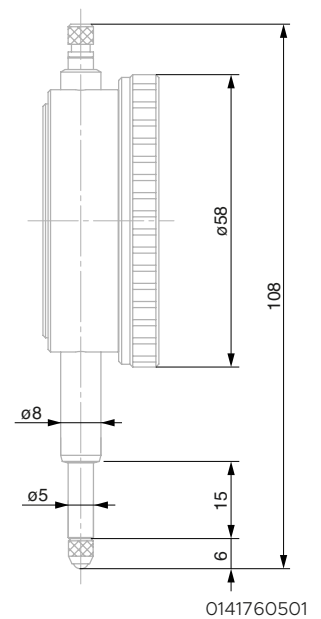
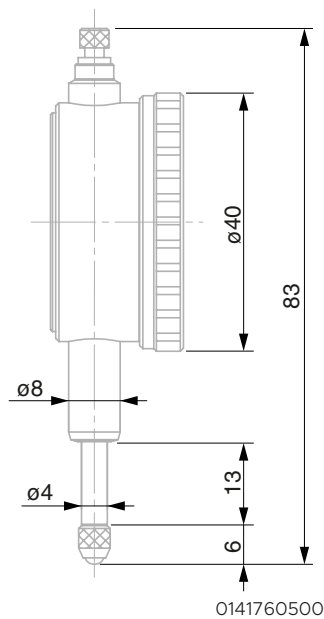
0141760500



0141760501

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	10 mm
Resolution	0,1 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force N	Color
0141760500	40	10	0 ÷ 5 ÷ 10	IP40	Without	1 ± 20%	Internal dial: white External dial: white Numerals: black
0141760501	58	10	0 ÷ 5 ÷ 10	IP40	Without	0,7 ± 20%	Internal dial: white External dial: white Numerals: black

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
0141760500	50	40	30	15	15
0141760501	50	40	30	15	15

MPEe: indication error on the measuring range (retractable plunger)
MPEp 1/10: indication error on 1/10 rotation
MPEp 1/2: indication error on 1/2 rotation
MPEr: repeatability of the indication error
MPEh: hysteresis of indication error

Accessories

Article number	Designation
01462004	Back with central lug for IP40 dial gauges with Ø 40 or Ø 44,5 mm dial
01462005	Back with central lug for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial
03560004	Device for plunger retraction for dial gauge with a Ø 40 or Ø 44,5 mm dial
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial
01960005	Device for plunger retraction

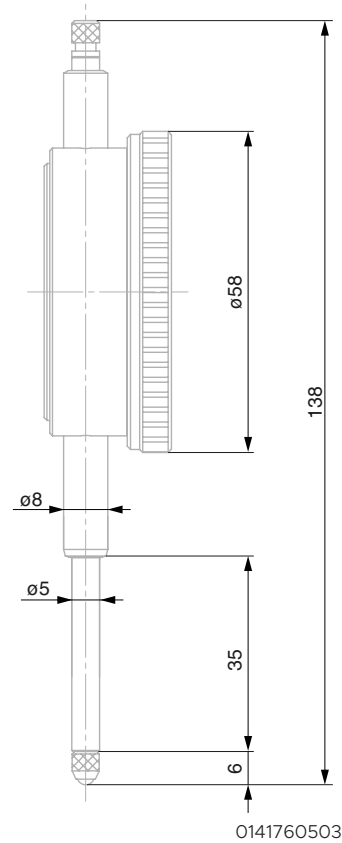
Standard model, resolution 0,1 mm, measuring range 30 mm



0141760503

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	30 mm
Resolution	0,1 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



Article number	Ø Dial mm	Travel / revolution mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force N	Color
0141760503	58	10	0 ÷ 5 ÷ 10	IP40	Without	0,8 ± 20%	Internal dial: white External dial: white Numerals: black and red

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
0141760503	50	40	30	15	15

MPEe: indication error on the measuring range (retractable plunger)
MPEp 1/10: indication error on 1/10 rotation
MPEp 1/2: indication error on 1/2 rotation
MPEr: repeatability of the indication error
MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial
01462005	Back with central lug, for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial

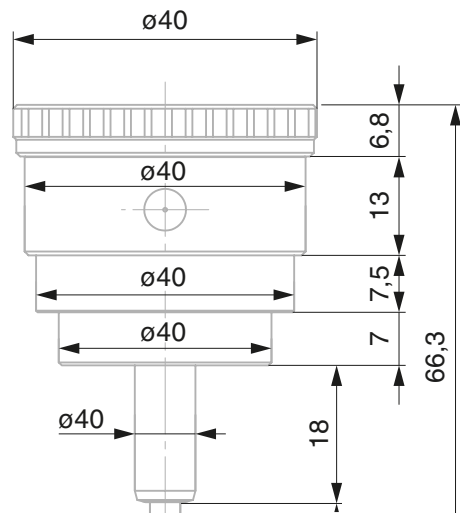
Model with back mounted plunger, resolution 0,01 mm, measuring range 3 mm



0141760566

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	3 mm
Resolution	0,01 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



0141760566

Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force N	Color
0141760566	40	0,5	0 ÷ 25 ÷ 50	IP40	With	1,5 ± 20%	Internal dial: white External dial: yellow Numerals: black

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
0141760566	12	8	5	5	3

MPEe: indication error on the measuring range (retractable plunger)

MPEp 1/10: indication error on 1/10 rotation

MPEp 1/2: indication error on 1/2 rotation

MPEr: repeatability of the indication error

MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03540104	Device for plunger retraction for dial gauge with stroke < 5 mm
03560004	Device for plunger retraction for dial gauge with a Ø 40 or Ø 44,5 mm dial

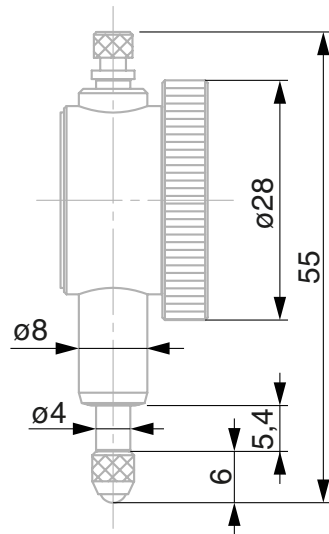
Standard model, resolution 0,01 mm, measuring range 3,5 mm



01419080

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	3,5 mm
Resolution	0,01 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: \varnothing 8 mm
Degree of protection	IP40
Dial	Rotating dial
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert \varnothing 3,175 mm Declaration of conformity

Analogue dial gauges, metric



01419080

Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force N	Color
01419080	28	0,5	0 ÷ 25 ÷ 50	IP40	Without	0,8 ± 20%	Internal dial: white External dial: yellow Numerals: black

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
01419080	17	9	5	5	3

MPEe: indication error on the measuring range (retractable plunger)

MPEp 1/10: indication error on 1/10 rotation

MPEp 1/2: indication error on 1/2 rotation

MPEr: repeatability of the indication error

MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction

Standard models, resolution 0,01 mm, measuring range 5 mm



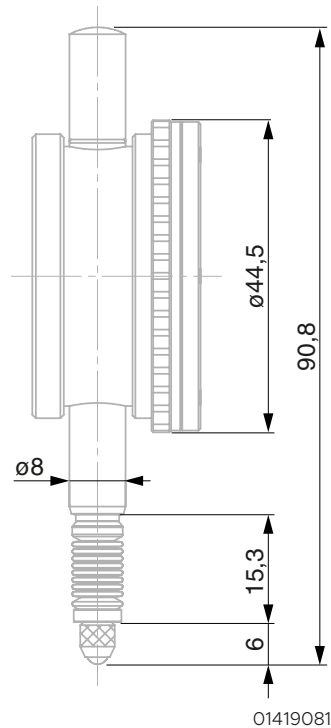
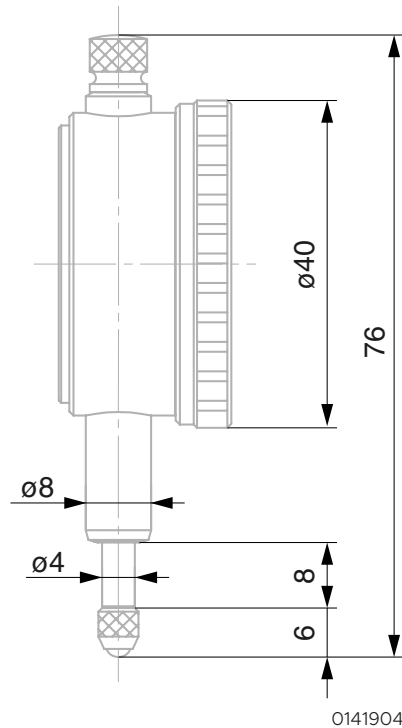
01419047



01419081

Standard	Dimensions: ISO 463 (01419047), factory standard (01419081) Performances: DIN 878
Measuring range	5 mm
Resolution	0,01 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force, N	Color
01419047	40	0,5	0 ÷ 25 ÷ 50	IP40	With	0,7 ± 10%	Internal dial: white External dial: yellow Numerals: black
01419081	44,5	0,5	0 ÷ 20 ÷ 50	IP67	With	0,9 ± 20%	Internal dial: white External dial: yellow Numerals: black

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
01419047	12	9	5	3	3
01419081	12	9	5	3	3

MPEe: indication error on the measuring range (retractable plunger)
MPEp 1/10: indication error on 1/10 rotation
MPEp 1/2: indication error on 1/2 rotation
MPEr: repeatability of the indication error
MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03540104	Device for plunger retraction for dial gauge with stroke < 5 mm
03560004	Device for plunger retraction for dial gauge with a Ø 40 or Ø 44,5 mm dial
01462004	Back with central lug for IP40 dial gauges with Ø 40 or Ø 44,5 mm dial
01460020	Back with central lug for IP67 dial gauges with Ø 40 or Ø 44,5 mm dial

Standard models, resolution 0,01 mm, measuring range 10 mm



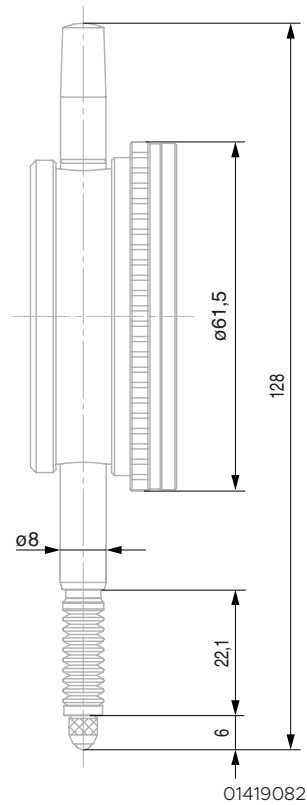
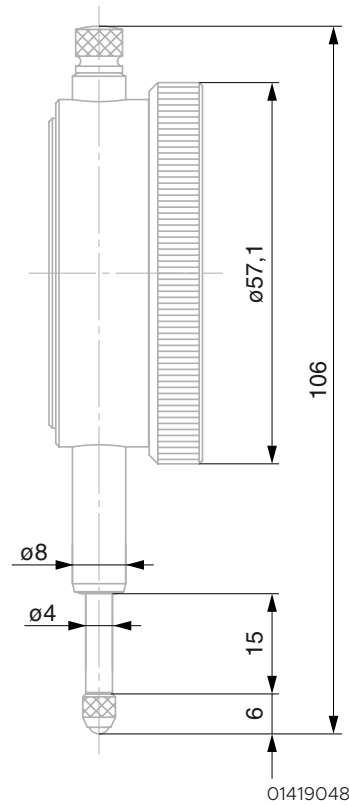
01419048



01419082

Standard	Dimensions: ISO 463 (01419048), factory standard (01419082) Performances: DIN 878
Measuring range	10 mm
Resolution	0,01 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40 or IP67
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force, N	Color
01419048	58	1	0 ÷ 50 ÷ 100	IP40	With	0,7 ± 20%	Internal dial: white External dial: yellow Numerals: black
01419082	61,5	1	0 ÷ 50 ÷ 100	IP67	With	1,3 ± 20%	Internal dial: white External dial: yellow Numerals: black

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
01419048	15	9	5	3	3
01419082	15	9	5	3	3

MPEe: indication error on the measuring range (retractable plunger)
MPEp 1/10: indication error on 1/10 rotation
MPEp 1/2: indication error on 1/2 rotation
MPEr: repeatability of the indication error
MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial
01462005	Back with central lug for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial
01460021	Back with central lug for IP67 dial gauges with Ø 58 or Ø 61,5 mm dial

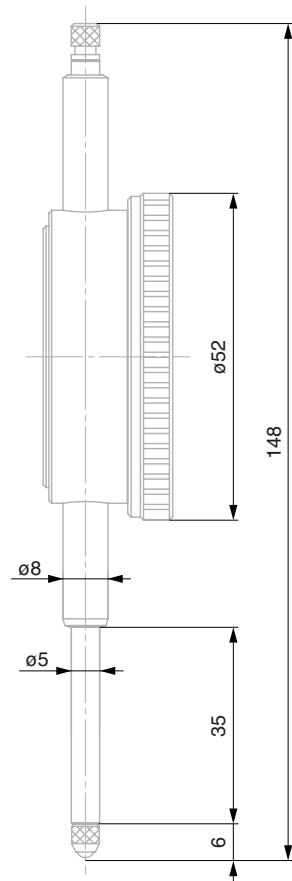
Standard model, resolution 0,01 mm, measuring range 30 mm



0141760651

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	30 mm
Resolution	0,01 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



0141760651

Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force, N	Color
0141760651	58	1	0 ÷ 50 ÷ 100	IP40	Without	0,8 ± 20%	Internal dial: white External dial: yellow Numerals: black

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
0141760651	20	10	5	5	3

MPEe: indication error on the measuring range (retractable plunger)
MPEp 1/10: indication error on 1/10 rotation
MPEp 1/2: indication error on 1/2 rotation
MPEr: repeatability of the indication error
MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial
01462005	Back with central lug for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial

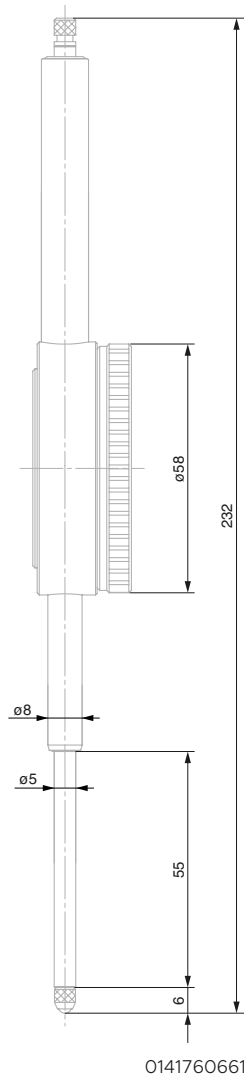
Standard model, resolution 0,01 mm, measuring range 50 mm



0141760661

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	50 mm
Resolution	0,01 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force N	Color
0141760661	58	1	0 ÷ 50 ÷ 100	IP40	Without	1 ± 20%	Internal dial: white External dial: yellow Numerals: black

Article number	MPEe, retractable plunger µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEr µm
0141760661	25	10	5	3

MPEe: indication error on the measuring range (retractable plunger)
MPEp 1/10: indication error on 1/10 rotation
MPEp 1/2: indication error on 1/2 rotation
MPEr: repeatability of the indication error
MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial
01462005	Back with central lug for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial

Standard models, resolution 0,002 mm, measuring range 3 mm



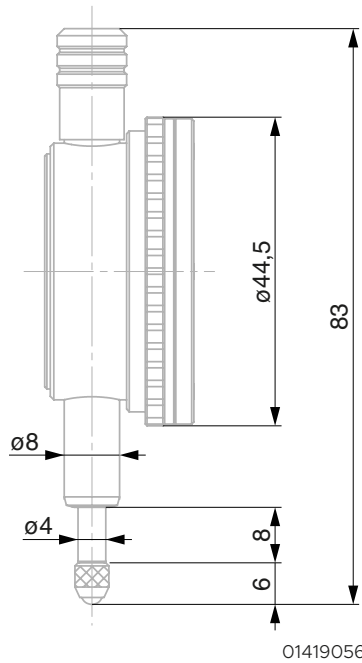
01419056



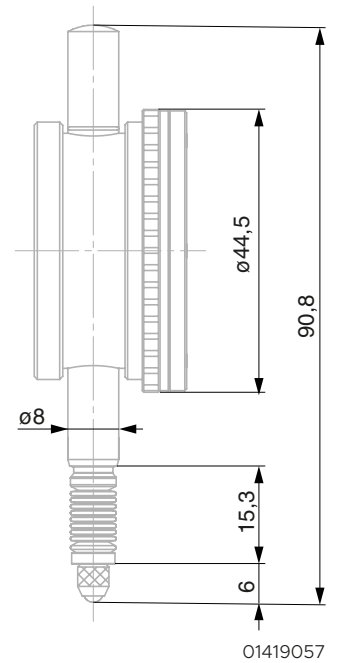
01419057

Standard	Dimensions: ISO 463 (01419056), factory standard (01419057) Performances: factory standard
Measuring range	3 mm
Resolution	0,002 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40 or IP67
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise and anti-clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



01419056



01419057

Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force, N	Color
01419056	44,5	0,2	0 ÷ 10 ÷ 20	IP40	With	1,1 ± 20%	Internal dial: white External dial: yellow Numerals: black and red
01419057	44,5	0,2	0 ÷ 10 ÷ 20	IP67	With	1,3 ± 20%	Internal dial: white External dial: yellow Numerals: black and red

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
01419056	7	4	3	3	0,5
01419057	7	4	3	3	0,5

MPEe: indication error on the measuring range (retractable plunger)

MPEp 1/10: indication error on 1/10 rotation

MPEp 1/2: indication error on 1/2 rotation

MPEr: repeatability of the indication error

MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03540104	Device for plunger retraction for dial gauge with stroke < 5 mm
03560004	Device for plunger retraction for dial gauge with a Ø 40 or Ø 44,5 mm dial
01462005	Back with central lug for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial
01460020	Back with central lug for IP67 dial gauges with Ø 40 or Ø 44,5 mm dial

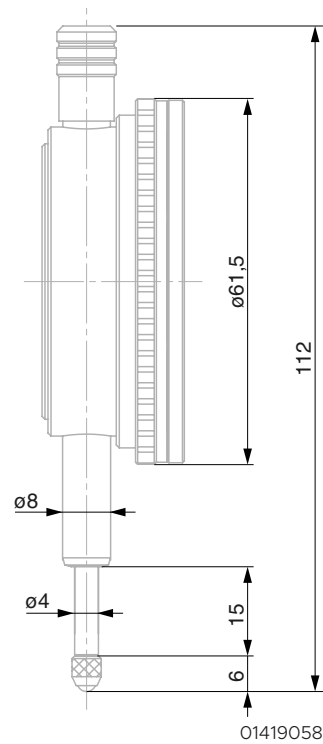
Standard model, resolution 0,002 mm, measuring range 5 mm



01419058

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	5 mm
Resolution	0,002 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force, N	Color
01419058	58	0,2	0 ÷ 10 ÷ 20	IP40	With	1,4 ± 20%	Internal dial: white External dial: yellow Numerals: black

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
01419058	10	4	3	3	0,5

MPEe: indication error on the measuring range (retractable plunger)
MPEp 1/10: indication error on 1/10 rotation
MPEp 1/2: indication error on 1/2 rotation
MPEr: repeatability of the indication error
MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03540104	Device for plunger retraction for dial gauge with stroke < 5 mm
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial
01462005	Back with central lug for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial

Standard models, resolution 0,001 mm, measuring range 0,1 mm

• INSTRUMENT

- High precision comparators
- Short stroke
- Movement protected from shocks
- Stroke limited to less than one needle turn
- Fine adjustment of the indication with a protective cap against accidental movement of the needle
- Large dead travel

- MEASUREMENT

- Designed for comparative measurement with very low measurement uncertainty
- Very low hysteresis when checking axial and radial runout



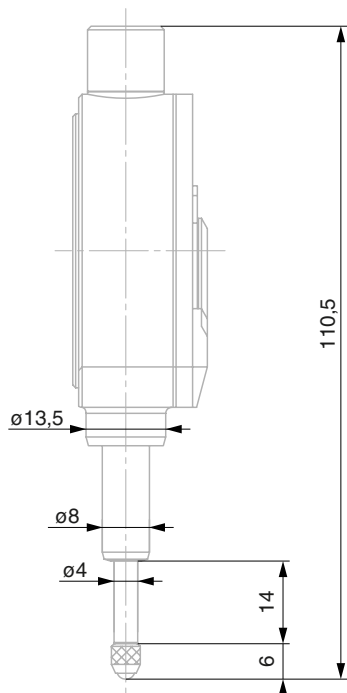
01419051



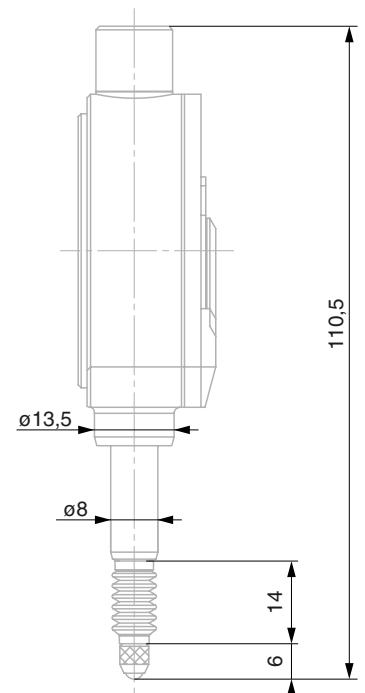
01419052

Standard	Dimensions: DIN 879-1 Performances: DIN 879-1
Measuring range	0,1 mm
Resolution	0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40 or IP54
Dial	Moving tolerances indexes
Reading direction	Clockwise and anti-clockwise
Units	mm
Remark(s)	Measuring bolt mounted on a ball bearing Thread for lifting cable
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



01419051



01419052

Article number	Ø Dial mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force N	Color
01419051	62	50 ÷ 0 ÷ 50	IP40	With	1 ± 20%	Internal dial: white Numerals: black
01419052	62	50 ÷ 0 ÷ 50	IP54	With	1,1 ± 20%	Internal dial: white Numerals: black

Article number	Ge µm	Gt µm	Fu µm	Rw µm
01419051	1	0,7	0,5	0,5
01419052	1	0,7	0,5	0,5

Gges: indication error on the measuring range (retractable and extendable plunger)

Ge: indication error on the measuring range (retractable plunger)

Gt: indication error over any local area including 10 divisions

Fu: hysteresis of indication error

Rw: repeatability of the indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03540104	Device for plunger retraction for dial gauge with stroke < 5 mm
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial

Standard models, resolution 0,001 mm, measuring range 1 mm



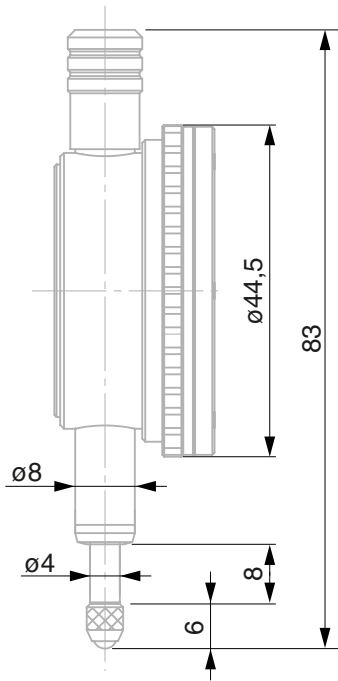
01419053



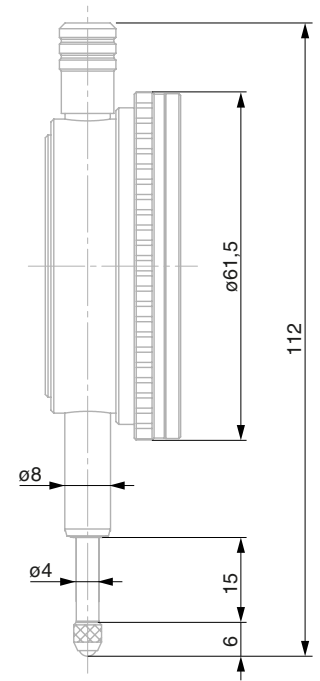
01419054

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	1 mm
Resolution	0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



01419053



01419054

Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force, N	Color
01419053	44,5	0,2	0 ÷ 10 ÷ 20	IP40	With	1 ± 20%	Internal dial: white External dial: yellow Numerals: black
01419054	61,5	0,2	0 ÷ 10 ÷ 20	IP40	With	1,4 ± 20%	Internal dial: white External dial: yellow Numerals: black

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
01419053	5	3	2	3	0,5
01419054	5	3	2	3	0,5

MPEe: indication error on the measuring range (retractable plunger)

MPEp 1/10: indication error on 1/10 rotation

MPEp 1/2: indication error on 1/2 rotation

MPEr: repeatability of the indication error

MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03540104	Device for plunger retraction for dial gauge with stroke < 5 mm
03560004	Device for plunger retraction for dial gauge with a Ø 40 or Ø 44,5 mm dial
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial
01462004	Back with central lug for IP40 dial gauges with Ø 40 or Ø 44,5 mm dial
01462005	Back with central lug for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial

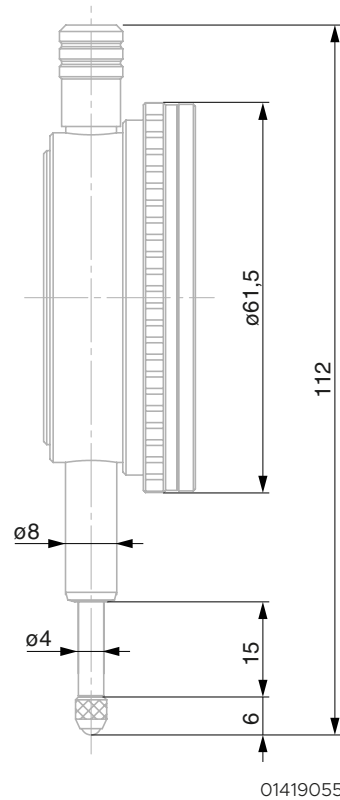
Standard model, resolution 0,001 mm, measuring range 5 mm



01419055

Standard	Dimensions: ISO 463 Performances: factory standard
Measuring range	5 mm
Resolution	0,001 mm
Material	Casing: metallic Mounting shank: stainless steel Plunger: stainless steel
Dimensions	Insert thread: M2,5 Mounting shank: Ø 8 mm
Degree of protection	IP40
Dial	Rotating dial Moving tolerances indexes
Reading direction	Clockwise
Units	mm
Included in delivery	Dial gauge with mounted ball insert Ø 3,175 mm Declaration of conformity

Analogue dial gauges, metric



Article number	Ø Dial mm	Travel / revolution, mm	Circular scale	Degree of protection	Shockproof mechanism	Measuring force N	Color
01419055	61,5	0,2	0 ÷ 10 ÷ 20	IP40	With	1,4 ± 20%	Internal dial: white External dial: yellow Numerals: black

Article number	MPEe, retractable plunger, µm	MPEp 1/2 µm	MPEp 1/10 µm	MPEh µm	MPEr µm
01419055	10	4	3	3	0,5

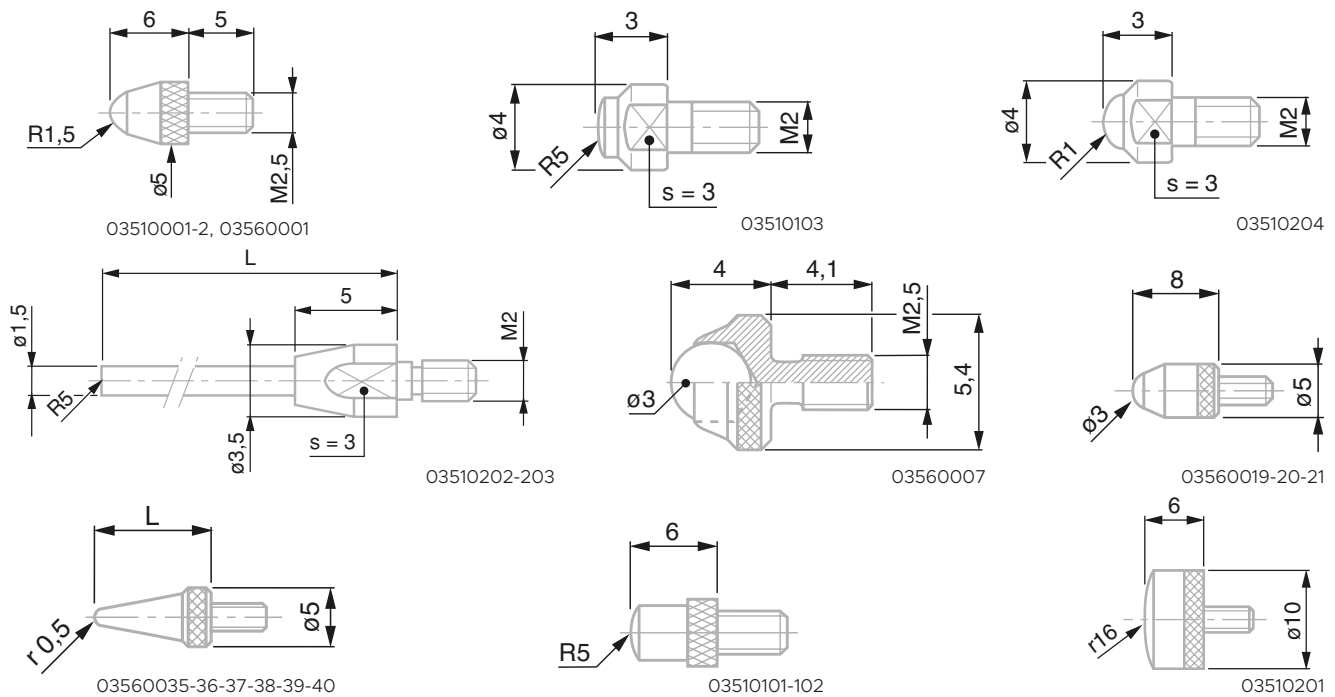
MPEe: indication error on the measuring range (retractable plunger)
MPEp 1/10: indication error on 1/10 rotation
MPEp 1/2: indication error on 1/2 rotation
MPEr: repeatability of the indication error
MPEh: hysteresis of indication error

Accessories

Article number	Designation
01960005	Device for plunger retraction
03540104	Device for plunger retraction for dial gauge with stroke < 5 mm
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial
01462005	Back with central lug for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial

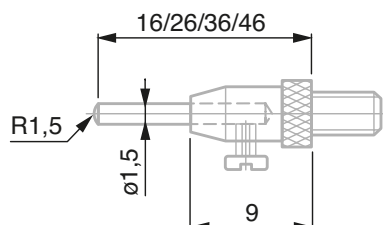
Hemispherical inserts

Article number	Designation	Fixing mm	Radius mm	Probe length mm	Diameter mm	Material
03510103	Hemispherical insert	M2	1	3	4	Tungsten carbide
03510204	Hemispherical insert	M2	1	3	4	Tungsten carbide
03510202	Hemispherical insert	M2	5	16	1,5	Tungsten carbide
03510203	Hemispherical insert	M2	5	26	1,5	Tungsten carbide
03560035	Hemispherical insert	M2,5	0,5	5	5	Steel
03560036	Hemispherical insert	M2,5	0,5	5	5	Steel
03560037	Hemispherical insert	M2,5	0,5	15	5	Steel
03560038	Hemispherical insert	M2,5	0,5	20	5	Steel
03560039	Hemispherical insert	M2,5	0,5	30	5	Steel
03560040	Hemispherical insert	M2,5	0,5	40	5	Steel
03560007	Hemispherical insert	M2,5	1,5	4	5,4	Tungsten carbide
03510001	Hemispherical insert	M2,5	1,5	6	5	Steel
03510002	Hemispherical insert	M2,5	1,5	6	5	Tungsten carbide
03560001	Hemispherical insert	M2,5	1,5	6	5	Sapphire
03560019	Hemispherical insert	M2,5	1,5	8	8	Steel
03560020	Hemispherical insert	M2,5	1,5	8	8	Tungsten carbide
03560021	Hemispherical insert	M2,5	1,5	8	8	Ruby
03510101	Hemispherical insert	M2,5	5	6	5	Steel
03510102	Hemispherical insert	M2,5	5	6	5	Tungsten carbide
03560017	Hemispherical insert	M2,5	16	6	10	Steel
03560018	Hemispherical insert	M2,5	16	6	10	Tungsten carbide



Hemispherical measuring insert with 4 interchangeable pins

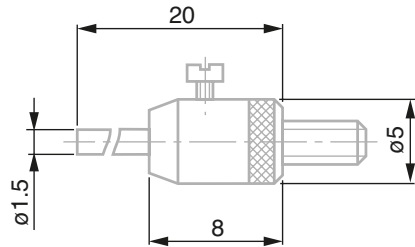
Article number	Designation	Fixing mm	Measuring face(s)	Probe length mm	Diameter mm	Material
03510201	Hemispherical insert with interchangeable pins	M2,5	R1,5	16, 26, 36, 46	1,5	Steel



Inserts for dial gauges

Inserts with flat measuring face and interchangeable pins

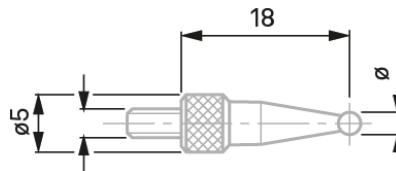
Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03560008	Insert with exchangeable contact pin	M2,5	20	1,5	Steel	Flat measuring face
03560009	Insert with exchangeable contact pin	M2,5	20	1,5	Tungsten carbide	Flat measuring face



03560008

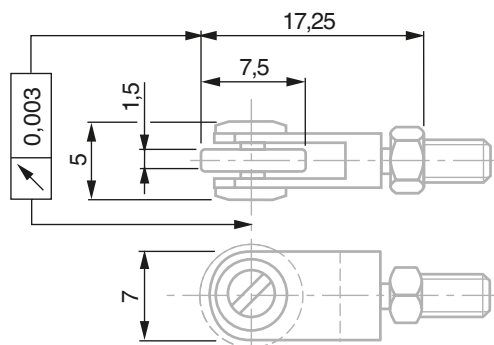
Ball tip inserts

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material
03560051	Ball insert	M2,5	18	1	Tungsten carbide
03560052	Ball insert	M2,5	18	2	Tungsten carbide
03560053	Ball insert	M2,5	18	3	Tungsten carbide
03560054	Ball insert	M2,5	18	4	Tungsten carbide
03560055	Ball insert	M2,5	18	5	Tungsten carbide
03560056	Ball insert	M2,5	18	6	Tungsten carbide
03560057	Ball insert	M2,5	18	7	Tungsten carbide
03560058	Ball insert	M2,5	18	8	Tungsten carbide



Inserts with rollers

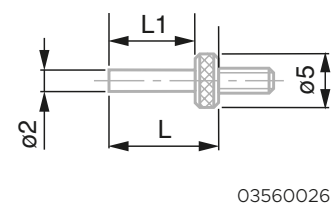
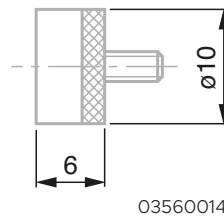
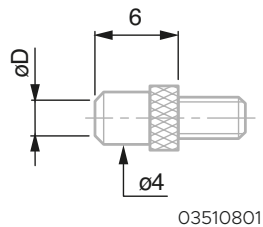
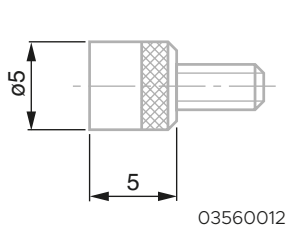
Article number	Designation	Fixing mm	Probe length mm	Material	Particular characteristic(s)
03560010	Insert with ball-bearing roller	M2,5	17,25	Steel	Cylindrical shape Locknut for radial alignment
03560011	Insert with ball-bearing roller	M2,5	17,25	Steel	Domed shape Locknut for radial alignment



03560010

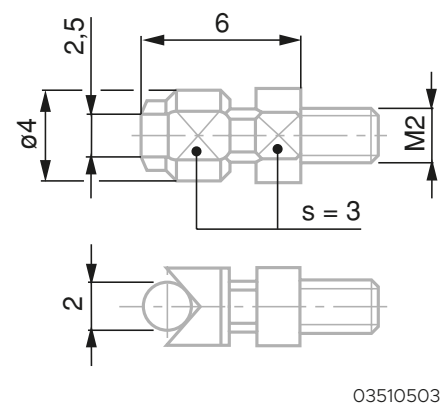
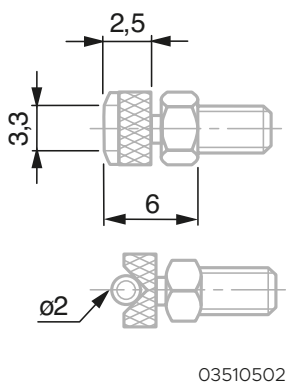
Inserts with flat measuring face

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material
03560026	Insert with a flat measuring face	M2,5	L=5, L1=2,8	2	Steel
03560027	Insert with a flat measuring face	M2,5	L=10, L1=7,8	2	Steel
03560028	Insert with a flat measuring face	M2,5	L=15, L1=12,8	2	Steel
03560029	Insert with a flat measuring face	M2,5	L=20, L1=17,8	2	Steel
03510801	Insert with a flat measuring face	M2,5	6	2,5	Steel
03510802	Insert with a flat measuring face	M2,5	6	2,5	Tungsten carbide
03560022	Insert with a flat measuring face	M2,5	6	3,4	Steel
03560023	Insert with a flat measuring face	M2,5	6	3,4	Tungsten carbide
03560012	Insert with a flat measuring face	M2,5	5	5	Steel
03560013	Insert with a flat measuring face	M2,5	5	5	Tungsten carbide
03560014	Insert with a flat measuring face	M2,5	6	10	Steel
03560015	Insert with a flat measuring face	M2,5	6	10	Tungsten carbide
03560016	Insert with a flat measuring face	M2,5	3,6	20	Steel



Cylindrical inserts

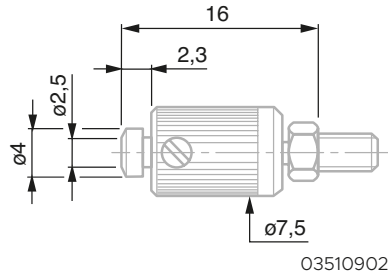
Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03510502	Insert with cylindrical face	M2,5	6	Ø 2 x 3,3	Tungsten carbide	Lock nut for radial alignment
03510503	Insert with cylindrical face	M2	6	Ø 2 x 2,5	Tungsten carbide	Lock nut for radial alignment



Inserts for dial gauges

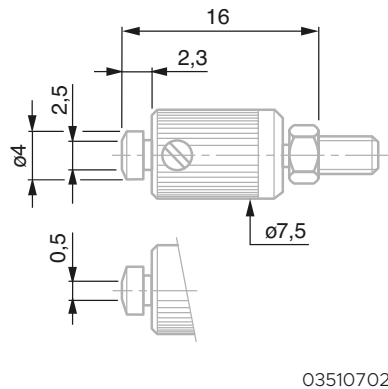
Insert with a flat measuring face and adjustable parallelism

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03510902	Insert with a flat measuring face	M2,5	16	4	Tungsten carbide	Flat face Locknut for radial alignment



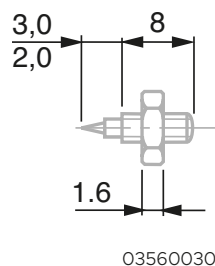
Narrow insert with adjustable parallelism

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03510702	Insert with adjustable parallelism	M2,5	16	4	Tungsten carbide	Narrow face Locknut for radial alignment



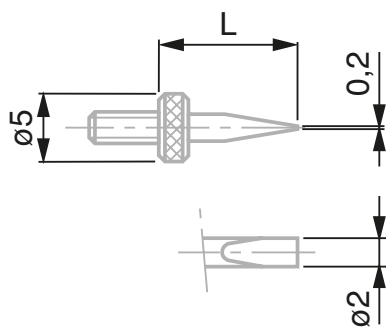
Needle insert

Article number	Designation	Fixing mm	Probe length mm	Material
03560030	Needle insert, steel, Ø 0,6 x 2,5 mm	M2,5	7	Steel

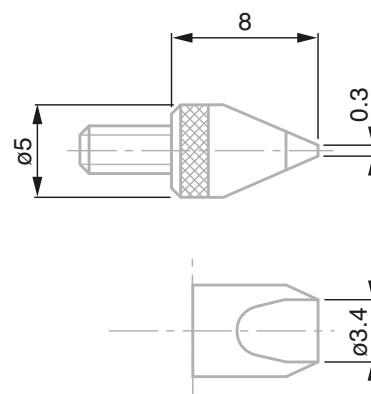


Inserts with knife blade shape

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03560031	Insert with knife blade face	M2,5	5	Ø 2 x 0,2	Steel	Locknut for radial alignment
03560032	Insert with knife blade face	M2,5	10	Ø 2 x 0,2	Steel	Locknut for radial alignment
03560033	Insert with knife blade face	M2,5	15	Ø 2 x 0,2	Steel	Locknut for radial alignment
03560034	Insert with knife blade face	M2,5	20	Ø 2 x 0,2	Steel	Locknut for radial alignment
03560024	Insert with knife blade face	M2,5	8	Ø 3,4 x 0,3	Steel	Locknut for radial alignment
03560025	Insert with knife blade face	M2,5	8	Ø 3,4 x 0,3	Tungsten carbide	Locknut for radial alignment



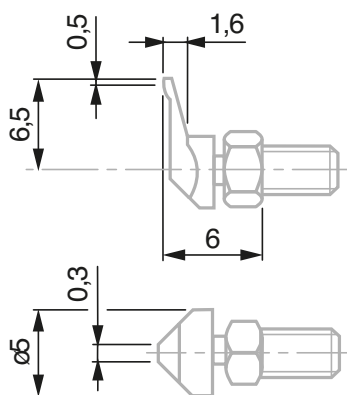
03560031



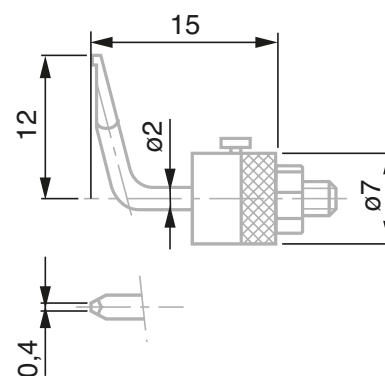
03560024

Pointed offset inserts

Article number	Designation	Fixing, mm	Material	Particular characteristic(s)
03510401	Insert with offset	M2,5	Steel	Pointed face Locknut for radial alignment
03560063	Insert with offset	M2,5	Steel	Pointed face Locknut for radial alignment



03510401

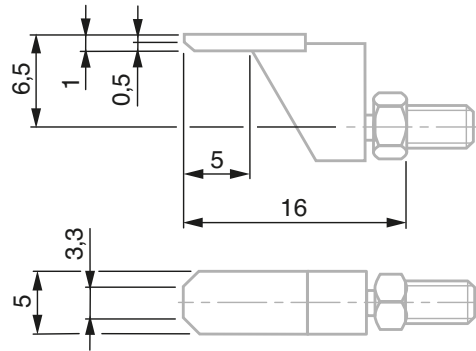


03560063

Inserts for dial gauges

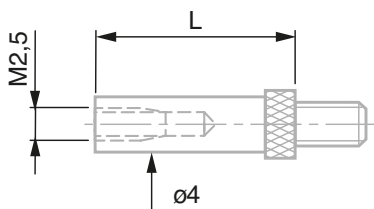
Narrow insert with offset

Article number	Designation	Fixing mm	Probe length mm	Material	Particular characteristic(s)
03510602	Insert with narrow and off-centre face	M2,5	16	Tungsten carbide	Lock nut for radial alignment

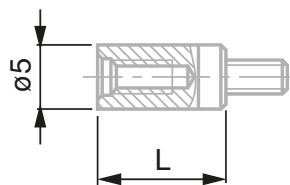


Extensions

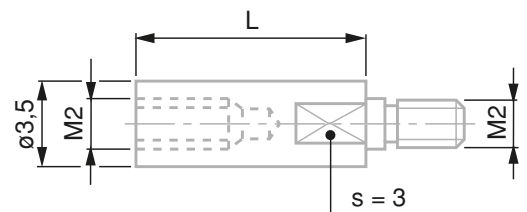
Article number	Designation	Fixing mm	Probe length mm
03540505	Extension	M2	10
03540506	Extension	M2	15
03540501	Extension	M2,5	10
03540502	Extension	M2,5	15
03540503	Extension	M2,5	20
03540504	Extension	M2,5	40
03560042	Extension	M2,5	10
03560043	Extension	M2,5	15
03560044	Extension	M2,5	20
03560045	Extension	M2,5	25
03560046	Extension	M2,5	30
03560047	Extension	M2,5	35
03560048	Extension	M2,5	40
03560049	Extension	M2,5	45
03560050	Extension	M2,5	50



03540501 to 03540504



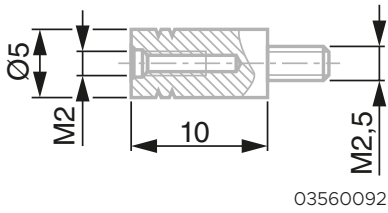
03560042 to 03560050



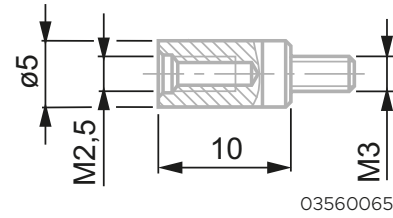
03540505 and 03540506

Adapters

Article number	Designation	Fixing mm	Probe length mm	Particular characteristic(s)
03560092	Adapter	M2,5	10	For M2 inserts
03560065	Adapter	M3	10	For M2,5 inserts



03560092



03560065

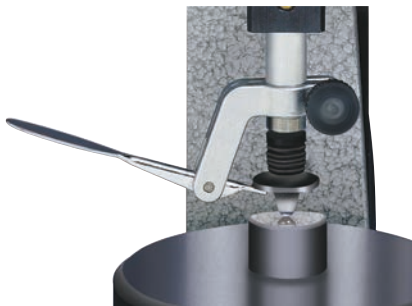
Accessories for dial gauges

Device for plunger retraction



01960005

Article number	Designation	Compatibility
03540104	Device for plunger retraction for dial gauge with stroke < 5 mm	For dial gauge with stroke < 5 mm
01961012	Device for plunger retraction for DIALTRONIC COMPACT dial gauge	For DIALTRONIC COMPACT dial gauge
01960005	Device for plunger retraction	
03560004	Device for plunger retraction for dial gauge with a Ø 40 or Ø 44,5 mm dial	For dial gauge with Ø 40 or Ø 44,5 mm dial
03560005	Device for plunger retraction for dial gauge with a Ø 58 or Ø 61,5 mm dial	For dial gauge with Ø 58 or Ø 61,5 mm dial
01960101	Device for plunger retraction for DIALTRONIC dial gauge	For DIALTRONIC dial gauge 12,5 mm
01960102	Device for plunger retraction for DIALTRONIC dial gauge	For DIALTRONIC dial gauge 25 mm



03540104



01961012



03560004 and 03560005



01960101



01960102



01960005

Mounting backs for DIALTRONIC dial gauges



01960100

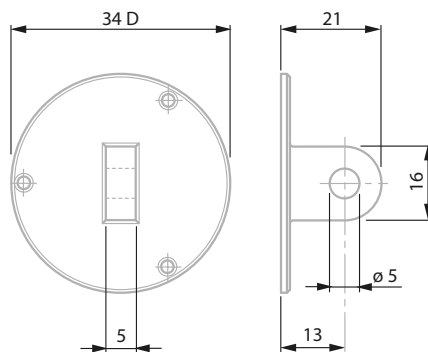
Article number	Designation	Compatibility	Particular characteristic(s)
01960100	Back with central lug for DIALTRONIC dial gauge	For DIALTRONIC dial gauges	Central lug

Mounting backs for analogue dial gauges



01462004

Article number	Designation	Diameter mm	Compatibility	Composed of	Particular characteristic(s)
01462004	Back with central lug for IP40 dial gauges with \varnothing 40 or \varnothing 44,5 mm dial	34	For IP40 dial gauges, \varnothing 40 or \varnothing 44,5 mm dial	Mounting back 3x M1,5 x 4 mm screw	Central lug
01462005	Back with central lug for IP40 dial gauges with \varnothing 58 or \varnothing 61,5 mm dial	46	For IP40 dial gauges, \varnothing 58 or \varnothing 61,5 mm dial	Mounting back 3x M2 x 4 mm screw	Central lug
01460020	Back with central lug for IP67 dial gauges with \varnothing 40 or \varnothing 44,5 mm dial	41	For IP67 dial gauges, \varnothing 40 or \varnothing 44,5 mm dial	Mounting back 3x M2 x 6 mm screw	Central lug
01460021	Back with central lug for IP67 dial gauges with \varnothing 58 or \varnothing 61,5 mm dial	55	For IP67 dial gauges, \varnothing 58 or \varnothing 61,5 mm dial	Mounting back 3x M3 x 5,5 mm screw	Central lug



01462004

Accessories for dial gauges

90° angular probe

90° angle probe. For the transmission of movements of the measuring plunger. Max. travel up to 10 mm. For dial gauges of 0,01 mm.



Article number	Designation	Compatibility	Measuring range, mm	Composed of
03560006	90° angular probe	For dial gauge with 0,01 mm resolution	≤ 10 mm	Probe Flat insert Ø 5 mm



Lever-type dial test indicators



TESA
TECHNOLOGY

Lever-type dial test indicators

Lever indicators are essential instruments for both workshops and measurement laboratories. They are ideally suited for positioning/alignment in the adjustment of machine tools, for measuring axial or radial runout, or for comparative measurements on a calibration plate.

The bidirectional measurement and the lever system on a ball bearing with a tilt of 210° offer total freedom of measurement direction. The precision movement mounted on rubies minimizes wear and enhances the longevity of the instruments.

Our wide range of indicators each has its specific features to best meet user needs:

The TESATAST (metric) / BESTEST (imperial) range allows continuous clockwise pointer rotation providing error-free reading in every measuring directions. Its fully metallic construction, including three dovetail mountings, ensures robust build quality.

The RUBYTAST range uses a ruby ball insert for improved longevity. The contrast is enhanced with its circular segment dial.

The INTERAPID 312 range allows for easy attachment with a pivoting stem with a \varnothing 4 mm swivelling shank. These lever indicators are designed to read the measured value without correction when the probe is positioned at an angle α of 12° relative to the surface of the workpiece.

The P-LINE range reflects all the quality and high precision of the renowned COMPAC brand, with a long measuring range of up to 3 mm.



TESATAST	RUBYTAST	INTERAPID 312	P-LINE
Short travel	Short travel	Long travel	Long travel
0,2 ÷ 0,8 mm	0,2 ÷ 0,8 mm	0,4 ÷ 1,6 mm	0,6 ÷ 3,0 mm

Lever-type dial test indicators

The three types of TESA lever-type Dial Indicators

Standard model (left)

The dial is parallel to the axis of the measuring insert and mounted frontally on the casing.

Perpendicular model (center)

The dial is mounted perpendicularly to the axis of the measuring insert.

Lateral model (right)

The dial is parallel to the axis of the measuring insert and mounted laterally on the casing.



The importance of the measuring insert position

When using a lever-type dial indicator, if the position of the measuring insert is parallel to the surface of the workpiece (left figure), meaning that the measuring force is perpendicular to the surface (F), the 1.1 ratio is accurate. This means that the reading on the instrument is correct and does not require adjustment.

In the opposite case (right figure), the lever length is reduced (L), and the readings on the indicator dial must be corrected. The result given by the instrument should then be multiplied by a correction factor, which depends on the tilt angle α between the probe and the surface of the workpiece.

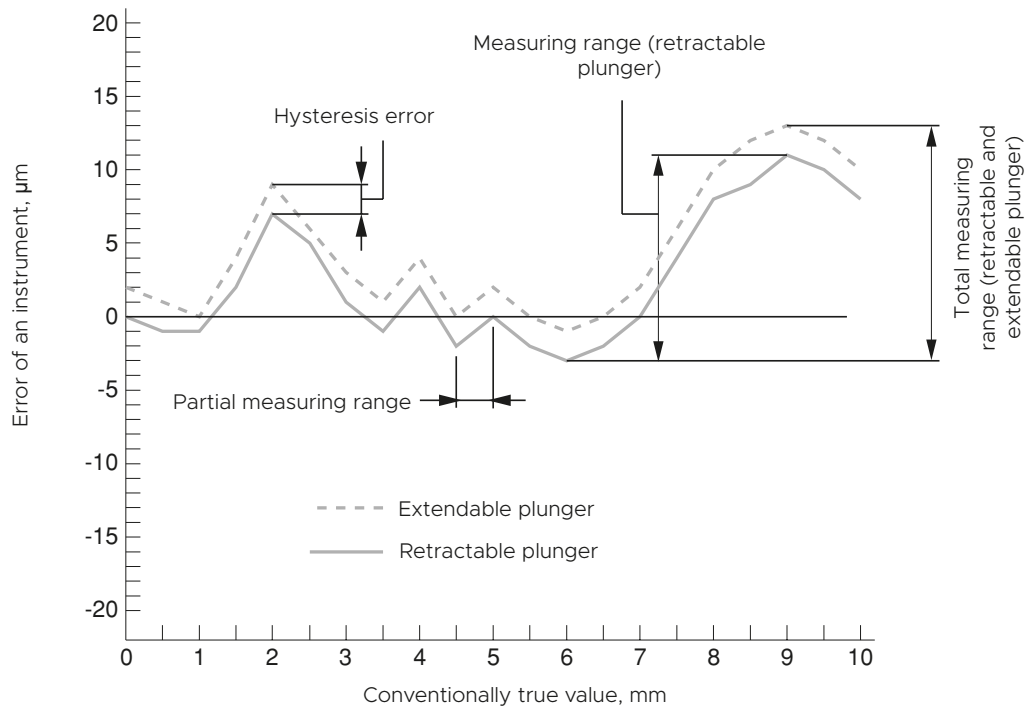


Metrological definitions

The international standard ISO 9493: 2011 is the main standard used for the metrological and dimensional characteristics of lever indicators.

Indication errors for:

- Total measuring range (retractable and extending stem): MPE_{tot}
- Measuring range (retractable stem): MPE_e
- Partial measuring range: MPE_p
 - over 1 full turn
 - over 1/2 turn
 - over 1/10 turn
 - over 10 divisions
- Hysteresis: MPE_h
- Repeatability: MPE_r

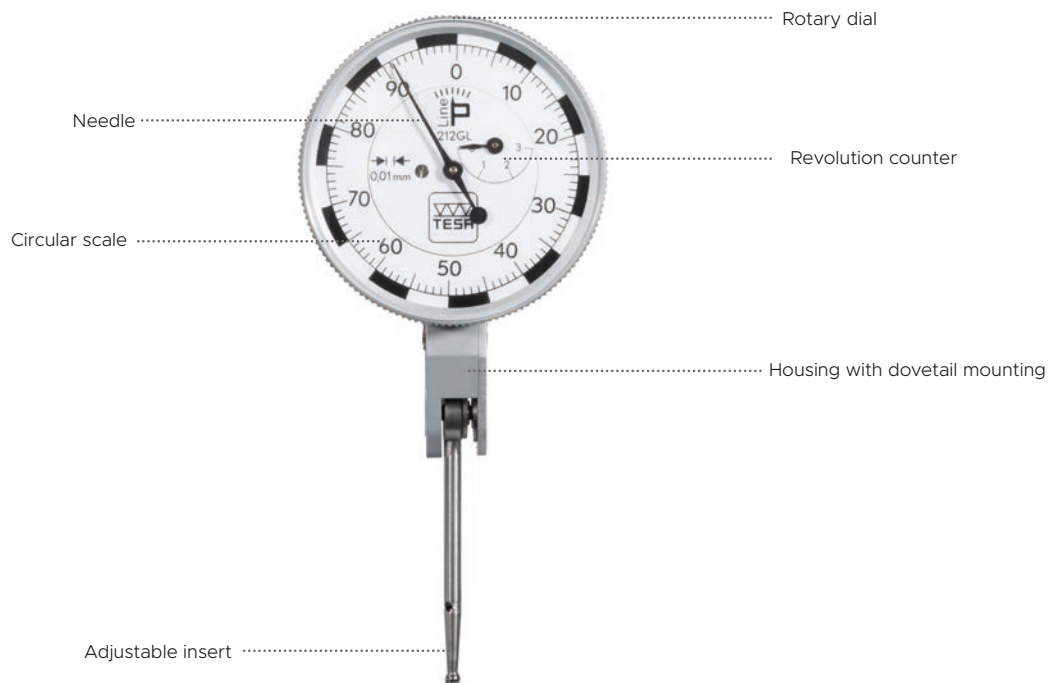


Lever-type dial test indicators

Digital lever-type dial test indicator



Analogue lever-type dial test indicator



Metric analogue lever-type dial test indicators, short travel

Model	Article number	Type	Resolution mm	Measuring range, mm	Dial, Ø mm	Circular scale	Probe length mm
TESATAST	01810007	Standard	0,01	0,5	28	0 ÷ 0,25 ÷ 0	36,53
TESATAST	01810008	Standard	0,01	0,5	38	0 ÷ 0,25 ÷ 0	36,53
TESATAST	01810005	Standard	0,01	0,8	28	0 ÷ 0,4 ÷ 0	12,53
TESATAST	01810006	Standard	0,01	0,8	38	0 ÷ 0,4 ÷ 0	12,53
TESATAST	01810009	Standard	0,002	0,2	28	0 ÷ 100 ÷ 0	12,53
TESATAST	01810010	Standard	0,002	0,2	38	0 ÷ 100 ÷ 0	12,53
TESATAST	S18001695	Standard	0,001	0,2	38	0 ÷ 100 ÷ 0	12,53
RUBYTAST	01811000	Standard	0,01	0,8	28	0 ÷ 0,4 ÷ 0	12,53
RUBYTAST	01811001	Standard	0,002	0,2	38	0 ÷ 100 ÷ 0	12,53
TESATAST	01810205	Perpendicular	0,01	0,5	28	0 ÷ 0,25 ÷ 0	36,53
TESATAST	01810204	Perpendicular	0,01	0,8	28	0 ÷ 0,4 ÷ 0	12,53
TESATAST	01810304	Perpendicular	0,002	0,2	38	0 ÷ 100 ÷ 0	12,53
TESATAST	01810011	Lateral	0,01	0,8	28	0 ÷ 0,4 ÷ 0	12,53
TESATAST	01810012	Lateral	0,02	2	38	0 ÷ 1 ÷ 0	36,53
TESATAST	01810013	Lateral	0,002	0,2	28	0 ÷ 100 ÷ 0	12,53

Imperial analogue lever-type dial test indicators, short travel

Model	Article number	Type	Resolution in	Measuring range, in	Dial, Ø in	Circular scale	Probe length in
TESATAST	01820010	Standard	.001	.03	1.1	0 ÷ 15 ÷ 0	1/2
TESATAST	01820009	Standard	.0005	.02	1.5	0 ÷ 10 ÷ 0	1-7/16
TESATAST	01820006	Standard	.0005	.03	1.1	0 ÷ 15 ÷ 0	1/2
TESATAST	01820007	Standard	.0005	.03	1.5	0 ÷ 15 ÷ 0	1/2
TESATAST	01820011	Standard	.0001	.008	1.1	0 ÷ 4 ÷ 0	1/2
TESATAST	01820012	Standard	.0001	.008	1.5	0 ÷ 4 ÷ 0	1/2
TESATAST	01820013	Standard	.00005	.008	1.5	0 ÷ 4 ÷ 0	1/2
TESATAST	01820014	Lateral	.0005	.03	1.1	0 ÷ 15 ÷ 0	1/2

Metric analogue lever-type dial test indicators, long travel

Model	Article number	Type	Resolution mm	Measuring range, mm	Dial, Ø mm	Circular scale	Probe length mm
P-LINE	01810400	Standard	0,01	1,5	27	0 ÷ 25 ÷ 50	18
P-LINE	01810401	Standard	0,01	1,5	40	0 ÷ 25 ÷ 50	18
P-LINE	01810402	Standard	0,01	3	27	0 ÷ 50 ÷ 100	36
P-LINE	01810403	Standard	0,01	3	40	0 ÷ 50 ÷ 100	36
P-LINE	01810404	Standard	0,002	0,6	27	0 ÷ 5 ÷ 10	18
P-LINE	01810405	Standard	0,002	0,6	40	0 ÷ 5 ÷ 10	18
P-LINE	01810406	Standard	0,002	1,2	40	0 ÷ 10 ÷ 20	36
P-LINE	01810407	Standard	0,001	0,6	40	0 ÷ 5 ÷ 10	18
P-LINE	01810408	Perpendicular	0,01	3	40	0 ÷ 50 ÷ 100	36
P-LINE	01810409	Lateral	0,01	3	40	0 ÷ 50 ÷ 100	36

Lever-type dial test indicators

Metric analogue lever-type dial test indicators, robust construction

Model	Article number	Type	Resolution mm	Measuring range, mm	Dial, Ø mm	Circular scale	Probe length mm
INTERAPID 312	074111366	Standard	0.01	1,6	37,5	0 ÷ 40 ÷ 0	16,5
INTERAPID 312	074111367	Standard	0.01	1,6	30	0 ÷ 40 ÷ 0	16,5
INTERAPID 312	074111368	Standard	0.002	0,4	37,5	0 ÷ 10 ÷ 0	15,2
INTERAPID 312	074111369	Standard	0.002	0,4	30	0 ÷ 10 ÷ 0	15,2
INTERAPID 312	074111375	Perpendicular	0.01	1,6	37,5	0 ÷ 40 ÷ 0	16,5
INTERAPID 312	074111376	Perpendicular	0.01	1,6	30	0 ÷ 40 ÷ 0	16,5

Imperial analogue lever-type dial test indicators, robust construction

Model	Article number	Type	Resolution in	Measuring range	Dial, Ø in	Circular scale	Probe length in
INTERAPID 312	074111374	Standard	.001	.06	1-1/5	0 ÷ 15 ÷ 0	.65
INTERAPID 312	074111370	Standard	.0005	.06	1-1/2	0 ÷ 15 ÷ 0	.65
INTERAPID 312	074111371	Standard	.0005	.06	1-1/5	0 ÷ 15 ÷ 0	.65
INTERAPID 312	074111965	Standard	.0005	.06	1-1/2	0 ÷ 15 ÷ 0	2.675
INTERAPID 312	074111372	Standard	.0001	.016	1-1/2	0 ÷ 4 ÷ 0	.65
INTERAPID 312	074111373	Standard	.0001	.016	1-1/5	0 ÷ 4 ÷ 0	.65
INTERAPID 312	074111379	Perpendicular	.001	.06	1-1/5	0 ÷ 15 ÷ 0	.65
INTERAPID 312	074111377	Perpendicular	.0005	.06	1-1/2	0 ÷ 15 ÷ 0	.65
INTERAPID 312	074111378	Perpendicular	.0005	.06	1-1/5	0 ÷ 15 ÷ 0	.65
INTERAPID 312	074111958	Perpendicular	.0005	.06	1-1/2	0 ÷ 15 ÷ 0	2.77
INTERAPID 312	074111957	Perpendicular	.0001	.016	1-1/2	0 ÷ 4 ÷ 0	.65

Digital lever-type dial test indicator

Model	Article number	Type	Resolution mm	Measuring range, mm	Dial, Ø mm	Degree of protection	Number of buttons
DIALTRONIC BT	01830004	Standard	0,001	0,8	45	IP54	3

DIALTRONIC series

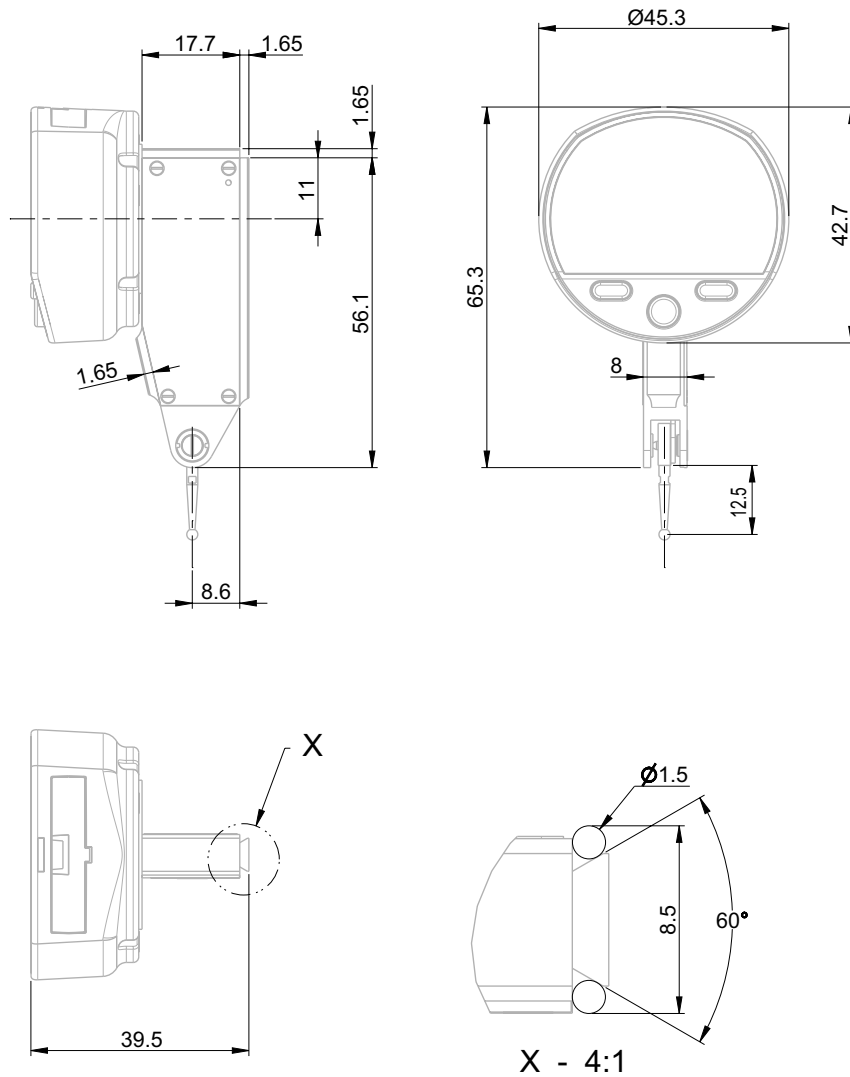


01830004

Standard	Dimensions: Factory standard Performances: Factory standard
Measuring range	0,8 mm
Units	mm / in
Resolution	0,001 mm / .00005 in
Material	Housing: Metal Inserts: Tungsten carbide
Dimensions	Insert thread: M1,4
Degree of protection	IP54
Data output(s)	Bluetooth®
Remark(s)	<p>If the position of the insert is parallel to the surface of the workpiece (left figure), the 1:1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual</p> <p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p>
Included in delivery	<p>Lever-type dial test indicator with mounted ball insert Ø 2 mm Wrench for insert mounting Rigid stem Ø 8 mm Measurement report Quick start manual</p>



Digital lever-type dial test indicators



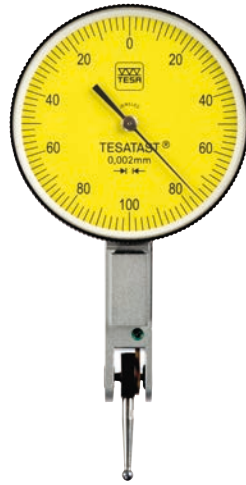
01830004

Article number	Series	Resolution mm	Measuring range mm	Ø Dial mm	Degree of protection	Probe length mm	Measuring force N
01830004	DIALTRONIC	0,001	0,8	45	IP54	12,5	0,15

Article number	MPE _{tot} , retractable and extendable plunger, µm	MPE _e , retractable plunger µm	MPE _h µm	MPE _r µm
01830004	4	3	2	1

MPE_e: Indication error on the measuring range (retractable plunger)
MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
MPE_r: Repeatability of the indication error
MPE_h: Hysteresis of indication error

TESATAST series, standard, metric

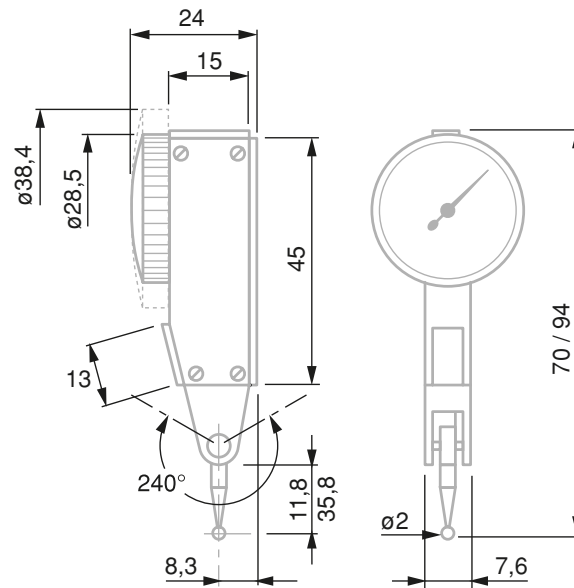


01810010

Standard	Dimensions : ISO 9493 Performances : DIN 2270
Units	mm
Material	Housing: Metal Ball inserts: Tungsten carbide
Dimensions	Insert thread: M1,4
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Shockproof mechanism	With
Remark(s)	<p>If the position of the insert is parallel to the surface of the workpiece (left figure), the 1.1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual.</p> <p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p>
Included in delivery	<p>Lever-type dial test indicator with mounted ball insert \varnothing 2 mm Wrench for insert mounting Rigid stem \varnothing 8 mm User manual Declaration of conformity</p>



Analogue lever-type dial test indicators, short travel



Article number	Series	Resolution mm	Measuring range mm	Ø Dial mm	Circular scale	Probe length mm	Measuring force N
01810005	TESATAST	0,01	0,8	28	0 ÷ 0,4 ÷ 0	12,53	0,15
01810006	TESATAST	0,01	0,8	38	0 ÷ 0,4 ÷ 0	12,53	0,15
01810007	TESATAST	0,01	0,5	28	0 ÷ 0,25 ÷ 0	36,53	0,06
01810008	TESATAST	0,01	0,5	38	0 ÷ 0,25 ÷ 0	36,53	0,06
01810009	TESATAST	0,002	0,2	28	0 ÷ 100 ÷ 0	12,53	0,15
01810010	TESATAST	0,002	0,2	38	0 ÷ 100 ÷ 0	12,53	0,15
S18001695	TESATAST	0,001	0,2	38	0 ÷ 100 ÷ 0	12,53	0,15

Article number	MPE _{tot} , retractable and extendable plunger, µm	MPE _e , retractable plunger, µm	MPE _p , 10 div µm	MPE _h µm	MPE _r µm
01810005	13	10	5	3	3
01810006	13	10	5	3	3
01810007	13	10	5	3	3
01810008	13	10	5	3	3
01810009	3,5	2	1	1,5	1
01810010	3,5	2	1	1,5	1
S18001695	3,5	2	1	1,5	1

MPE_e: Indication error on the measuring range (retractable plunger)
MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
MPE_p 10 div: Deviation span within the local measuring span
MPE_r: Repeatability of the indication error
MPE_h: Hysteresis of indication error

TESATAST series, standard, imperial

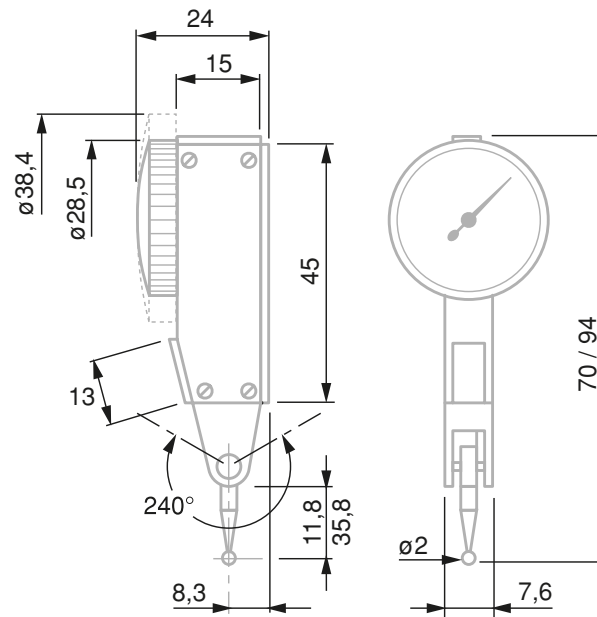


01820007

Standard	Dimensions : ISO 9493 Performances : DIN 2270
Units	in
Material	Housing: Metal Ball inserts: Tungsten carbide
Dimensions	Insert thread: M1,4
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Shockproof mechanism	With
Remark(s)	<p>If the position of the insert is parallel to the surface of the workpiece (left figure), the 1.1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual.</p> <p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p>
Included in delivery	<p>Lever-type dial test indicator with mounted ball insert Ø 2 mm Wrench for insert mounting Rigid stem Ø 8 mm User manual Declaration of conformity</p>



Analogue lever-type dial test indicators, short travel



Article number	Series	Resolution in	Measuring range in	Ø Dial in	Circular scale	Probe length in	Measuring force N
01820006	TESATAST	.0005	.03	1.1	0 ÷ 15 ÷ 0	1/2	0,15
01820007	TESATAST	.0005	.03	1.5	0 ÷ 15 ÷ 0	1/2	0,15
01820009	TESATAST	.0005	.02	1.5	0 ÷ 10 ÷ 0	1-7/16	0,06
01820010	TESATAST	.001	.03	1.1	0 ÷ 15 ÷ 0	1/2	0,15
01820011	TESATAST	.0001	.008	1.1	0 ÷ 4 ÷ 0	1/2	0,15
01820012	TESATAST	.0001	.008	1.5	0 ÷ 4 ÷ 0	1/2	0,15
01820013	TESATAST	.00005	.008	1.5	0 ÷ 4 ÷ 0	1/2	0,15

Article number	MPE _{tot} , retractable and extendable plunger, μ-in	MPE _e , retractable plunger, μ-in	MPE _p , 10 div μ-in	MPE _h μ-in	MPE _r μ-in
01820006	650	500	250	150	150
01820007	650	500	250	150	150
01820009	650	500	250	150	150
01820010	650	500	250	150	150
01820011	160	110	40	60	40
01820012	160	110	40	60	40
01820013	160	110	40	60	40

MPE_e: Indication error on the measuring range (retractable plunger)

MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)

MPE_p 10 div: Deviation span within the local measuring span

MPE_r: Repeatability of the indication error

MPE_h: Hysteresis of indication error

TESATAST series, lateral, metric

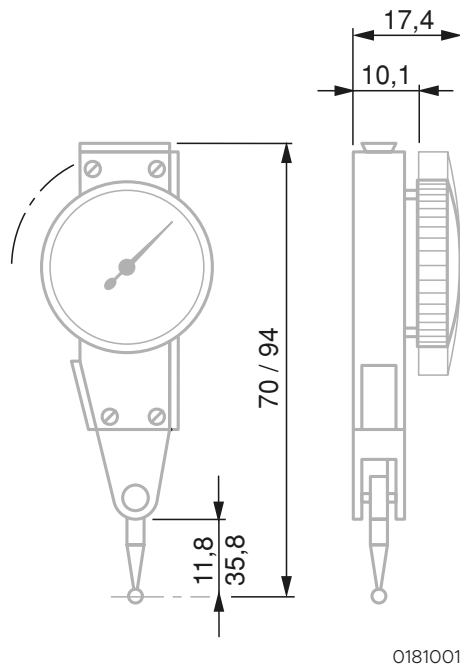


01810011

Standard	Dimensions : ISO 9493 Performances : DIN 2270
Units	mm
Material	Housing: Metal Ball inserts: Tungsten carbide
Dimensions	Insert thread: M1,4
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Shockproof mechanism	With
Remark(s)	<p>If the position of the insert is parallel to the surface of the workpiece (left figure), the 1.1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual.</p> <p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p>
Included in delivery	<p>Lever-type dial test indicator with mounted ball insert \varnothing 2 mm Wrench for insert mounting Rigid stem \varnothing 8 mm User manual Declaration of conformity</p>



Analogue lever-type dial test indicators, short travel



Article number	Series	Resolution mm	Measuring range mm	Ø Dial mm	Circular scale	Probe length mm	Measuring force N
01810011	TESATAST	0,01	0,8	28	0 ÷ 0,4 ÷ 0	12,53	0,15
01810012	TESATAST	0,02	2	38	0 ÷ 1,0 ÷ 0	36,53	0,06
01810013	TESATAST	0,002	0,2	28	0 ÷ 100 ÷ 0	12,53	0,15

Article number	MPE _{tot} , retractable and extendable plunger, µm	MPE _e , retractable plunger, µm	MPE _p , 10 div µm	MPE _h µm	MPE _r µm
01810011	13	10	5	3	3
01810012	31	27	12	10	4
01810013	3,5	2	1	1,5	1

MPE_e: Indication error on the measuring range (retractable plunger)
MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
MPE_p 10 div: Deviation span within the local measuring span
MPE_r: Repeatability of the indication error
MPE_h: Hysteresis of indication error

TESATAST series, lateral, imperial

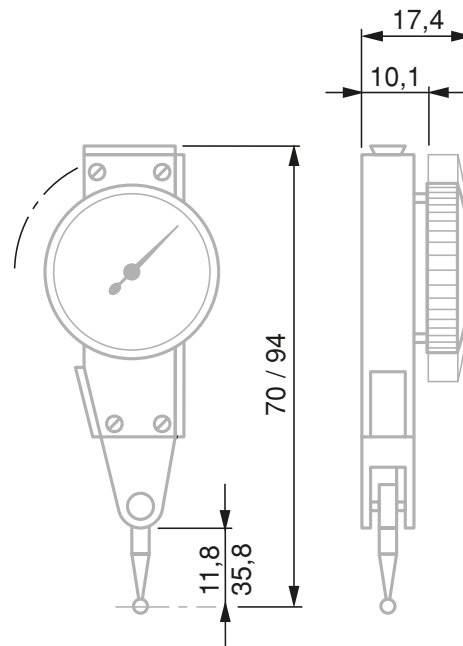


01820014

Standard	Dimensions : ISO 9493 Performances : DIN 2270
Units	in
Material	Housing: Metal Ball inserts: Tungsten carbide
Dimensions	Insert thread: M1,4
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Shockproof mechanism	With
Remark(s)	<p>If the position of the insert is parallel to the surface of the workpiece (left figure), the 1.1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual.</p> <p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p>
Included in delivery	<p>Lever-type dial test indicator with mounted ball insert Ø 2 mm Rigid stem Ø 8 mm User manual Declaration of conformity</p>



Analogue lever-type dial test indicators, short travel



Article number	Series	Resolution in	Measuring range in	Ø Dial in	Circular scale	Probe length in	Measuring force N
01820014	TESATAST	.0005	.03	1.1	0 ÷ 15 ÷ 0	1/2	0,15

Article number	MPE _{tot} , retractable and extendable plunger, μ-in	MPE _e , retractable plunger, μ-in	MPE _p , 10 div μ-in	MPE _h μ-in	MPE _r μ-in
01820014	650	500	250	150	150

MPE_e: Indication error on the measuring range (retractable plunger)
MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
MPE_p 10 div: Deviation span within the local measuring span
MPE_r: Repeatability of the indication error
MPE_h: Hysteresis of indication error

TESATAST series, perpendicular, metric

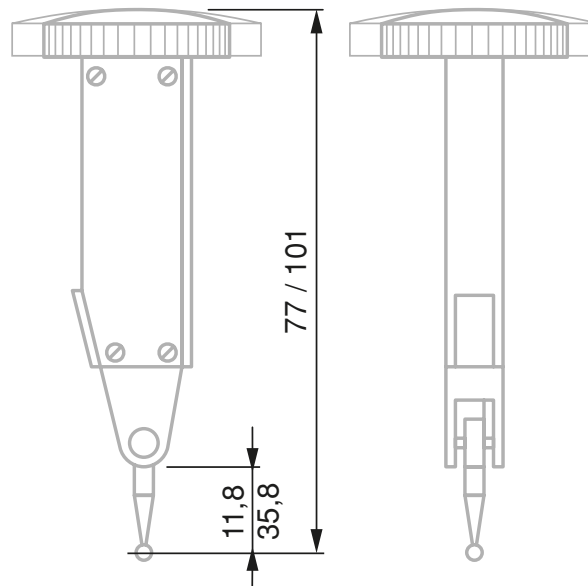


01810204

Standard	Dimensions : ISO 9493 Performances : DIN 2270
Units	mm
Material	Housing: Metal Ball inserts: Tungsten carbide
Dimensions	Insert thread: M1,4
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Shockproof mechanism	With
Remark(s)	If the position of the insert is parallel to the surface of the workpiece (left figure), the 1.1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual.
Included in delivery	Lever-type dial test indicator with mounted ball insert Ø 2 mm Rigid stem Ø 8 mm User manual Declaration of conformity



Analogue lever-type dial test indicators, short travel



Article number	Series	Resolution mm	Measuring range mm	Ø Dial mm	Circular scale	Probe length mm	Measuring force N
01810204	TESATAST	0,01	0,8	28	0 ÷ 0,4 ÷ 0	12,53	0,15
01810205	TESATAST	0,01	0,5	28	0 ÷ 0,25 ÷ 0	36,53	0,06
01810304	TESATAST	0,002	0,2	38	0 ÷ 100 ÷ 0	12,53	0,15

Article number	MPE _{tot} , retractable and extendable plunger, µm	MPE _e , retractable plunger, µm	MPE _p , 10 div µm	MPE _h µm	MPE _r µm
01810204	13	10	5	3	3
01810205	13	10	5	3	3
01810304	3,5	2	1	1,5	1

MPE_e: Indication error on the measuring range (retractable plunger)
 MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
 MPE_p 10 div: Deviation span within the local measuring span
 MPE_r: Repeatability of the indication error
 MPE_h: Hysteresis of indication error

RUBYTAST series, standard, metric

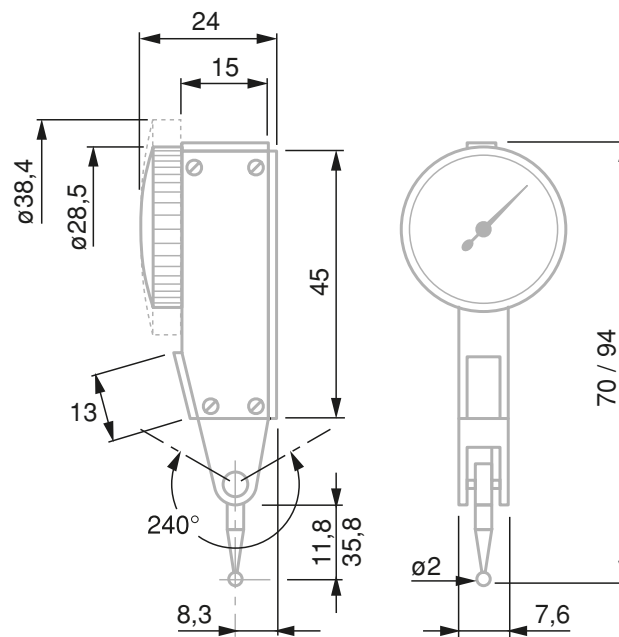


01811001

Standard	Dimensions : ISO 9493 Performances : DIN 2270
Units	mm
Material	Housing: Metal Ball inserts: Ruby
Dimensions	Insert thread: M1,4
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Shockproof mechanism	With
Remark(s)	<p>If the position of the insert is parallel to the surface of the workpiece (left figure), the 1.1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual.</p> <p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p>
Included in delivery	<p>Lever-type dial test indicator with mounted ball insert \varnothing 2 mm Rigid stem \varnothing 8 mm User manual Declaration of conformity</p>



Analogue lever-type dial test indicators, short travel



Article number	Series	Resolution mm	Measuring range mm	Ø Dial mm	Circular scale	Probe length mm	Measuring force N
01811000	RUBYTAST	0,01	0,8	28	0 ÷ 0,4 ÷ 0	12,53	0,15
01811001	RUBYTAST	0,002	0,2	38	0 ÷ 100 ÷ 0	12,53	0,15

Article number	MPE _{tot} , retractable and extendable plunger, µm	MPE _e , retractable plunger, µm	MPE _p , 10 div µm	MPE _h µm	MPE _r µm
01811000	13	10	5	3	3
01811001	3,5	2	1	1,5	1

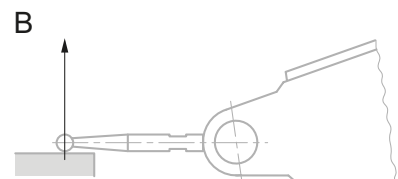
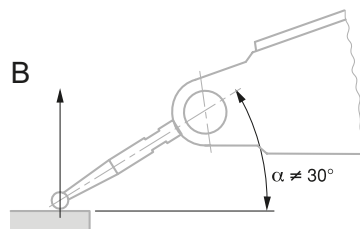
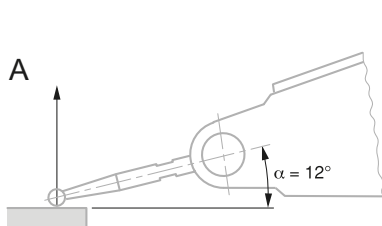
MPE_e: Indication error on the measuring range (retractable plunger)
 MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
 MPE_p 10 div: Deviation span within the local measuring span
 MPE_r: Repeatability of the indication error
 MPE_h: Hysteresis of indication error

INTERAPID 312 series, standard, metric

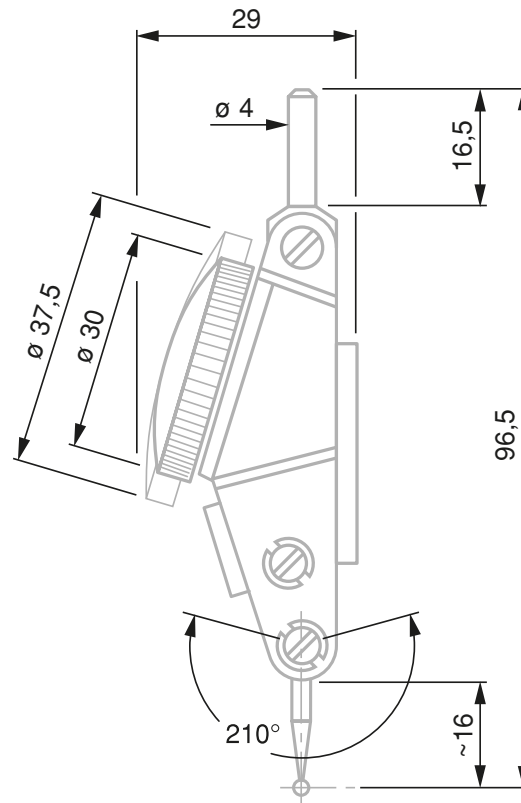


074111366

Standard	Dimensions : ISO 9493 Performances : Factory standard
Units	mm
Material	Housing: Metal Ball inserts: Tungsten carbide
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Remark(s)	<p>The INTERAPID 312 indicators are designed to read the measured value without correction when the probe is positioned at an angle α of 12° relative to the surface of the workpiece (Fig. A). For any other angle, including the parallel position of the insert, the readings require correction (Fig. B). Please refer to the user manual on this subject.</p> <p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p>
Included in delivery	<p>Lever-type dial test indicator with mounted ball insert \varnothing 2 mm Wrench for insert mounting Measurement report Declaration of conformity</p>



Analogue lever-type dial test indicators, robust construction



Article number	Series	Resolution mm	Measuring range mm	\varnothing Dial mm	Travel / revolution, mm	Circular scale	Probe length mm	Measuring force, N
074111366	INTERAPID 312-1	0,01	1,6	37,5	0,8	0 ÷ 40 ÷ 0	16,5	0,12
074111367	INTERAPID 312-2	0,01	1,6	30	0,8	0 ÷ 40 ÷ 0	16,5	0,12
074111368	INTERAPID 312-3	0,002	0,4	37,5	0,2	0 ÷ 10 ÷ 0	15,2	0,25
074111369	INTERAPID 312-4	0,002	0,4	30	0,2	0 ÷ 10 ÷ 0	15,2	0,25

Article number	MPE _{tot} , retractable and extendable plunger, μm	MPE _p 2 μm	MPE _p 1 μm	MPE _h μm	MPE _r μm
074111366	23	20	10	3	3
074111367	23	20	10	3	3
074111368	10	8	4	2	1
074111369	10	8	4	2	1

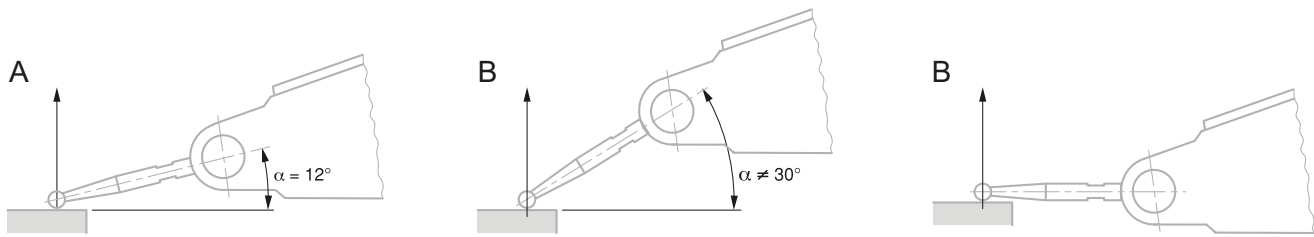
MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
MPE_p 1: Indication error on 1 rotation
MPE_p 2: Indication error on 2 rotations
MPE_r: Repeatability of the indication error
MPE_h: Hysteresis of indication error

INTERAPID 312 series, standard, imperial

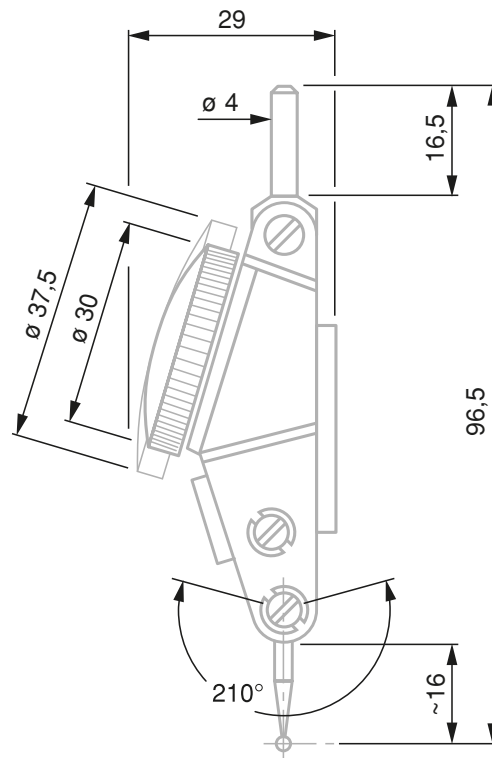


074111370

Standard	Dimensions : ISO 9493 Performances : Factory standard
Units	in
Material	Housing: Metal Ball inserts: Tungsten carbide
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Remark(s)	<p>The INTERAPID 312 indicators are designed to read the measured value without correction when the probe is positioned at an angle α of 12° relative to the surface of the workpiece (Fig. A). For any other angle, including the parallel position of the insert, the readings require correction (Fig. B). Please refer to the user manual regarding this.</p> <p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p>
Included in delivery	<p>Lever-type dial test indicator with mounted ball insert \varnothing 2 mm Wrench for insert mounting Measurement report Declaration of conformity</p>



Analogue lever-type dial test indicators, robust construction



Article number	Series	Resolution in	Measuring range in	Ø Dial in	Travel / revolution, in	Circular scale	Probe length, in	Measuring force, N
074111370	INTERAPID 312 B-1	.0005	.06	1-1/2	.03	0 ÷ 15 ÷ 0	.65	0,12
074111371	INTERAPID 312 B-2	.0005	.06	1-1/5	.03	0 ÷ 15 ÷ 0	.65	0,12
074111965	INTERAPID 312 B-15	.0005	.06	1-1/2	.03	0 ÷ 15 ÷ 0	2.675	0,12
074111374	INTERAPID 312 B-20	.001	.06	1-1/5	.03	0 ÷ 15 ÷ 0	.65	0,12
074111372	INTERAPID 312 B-3	.0001	.016	1-1/2	.008	0 ÷ 4 ÷ 0	.65	0,25
074111373	INTERAPID 312 B-4	.0001	.016	1-1/5	.008	0 ÷ 4 ÷ 0	.65	0,25

Article number	MPE _{tot} , retractable and extendable plunger, μ-in	MPE ₂ μ-in	MPE ₁ μ-in	MPE _h μ-in	MPE _r μ-in
074111370	920	800	400	120	120
074111371	920	800	400	120	120
074111965	1600	800	600	800	120
074111374	920	800	400	120	120
074111372	400	320	160	80	40
074111373	400	320	160	80	40

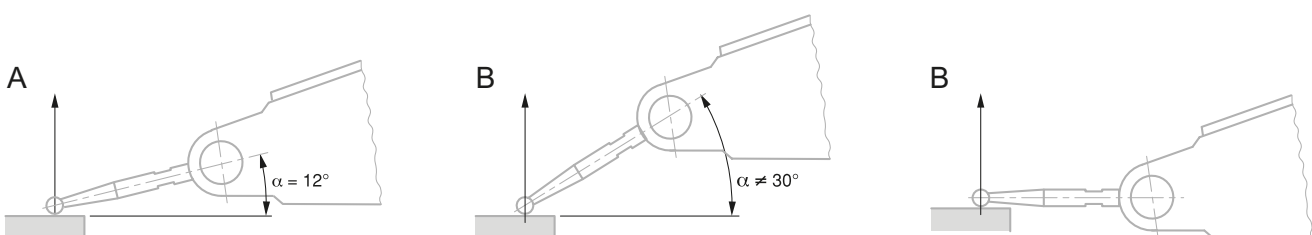
MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
MPE₁: Indication error on 1 rotation
MPE₂: Indication error on 2 rotations
MPE_r: Repeatability of the indication error
MPE_h: Hysteresis of indication error

INTERAPID 312 series, perpendicular, metric

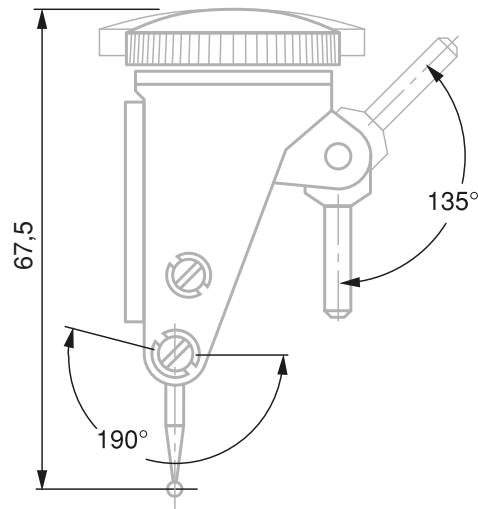


074111375

Standard	Dimensions : ISO 9493 Performances : Factory standard
Units	mm
Material	Housing: Metal Ball inserts: Tungsten carbide
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Remark(s)	The INTERAPID 312 indicators are designed to read the measured value without correction when the probe is positioned at an angle α of 12° relative to the surface of the workpiece (Fig. A). For any other angle, including the parallel position of the insert, the readings require correction (Fig. B). Please refer to the user manual on this subject.
Included in delivery	The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained. Lever-type dial test indicator with mounted ball insert \varnothing 2 mm Wrench for insert mounting Measurement report Declaration of conformity



Analogue lever-type dial test indicators, robust construction



074111375

Article number	Series	Resolution mm	Measuring range, mm	Ø Dial mm	Travel / revolution, mm	Circular scale	Probe length, mm	Measuring force, N
074111375	INTERAPID 312-1V	0,01	1,6	37,5	0,8	0 ÷ 40 ÷ 0	16,5	0,12
074111376	INTERAPID 312-2V	0,01	1,6	30	0,8	0 ÷ 40 ÷ 0	16,5	0,12

Article number	MPE _{tot} , retractable and extendable plunger, µm	MPE _p 2 µm	MPE _p 1 µm	MPE _h µm	MPE _r µm
074111375	23	20	10	3	3
074111376	23	20	10	3	3

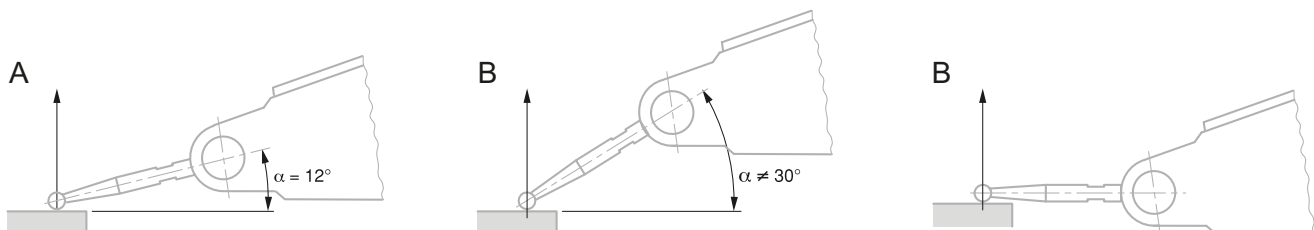
MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
MPE_p 1: Indication error on 1 rotation
MPE_p 2: Indication error on 2 rotations
MPE_r: Repeatability of the indication error
MPE_h: Hysteresis of indication error

INTERAPID 312 serie, perpendicular, imperial

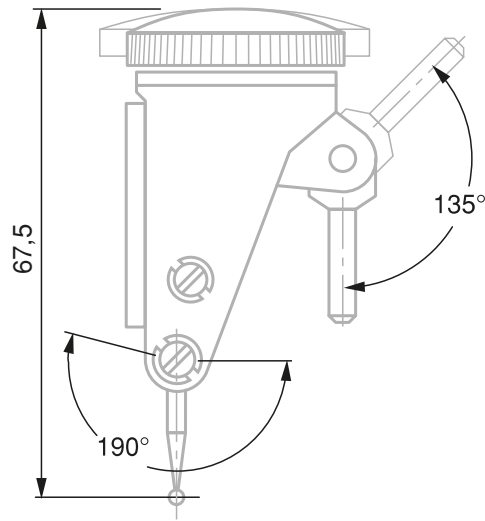


074111377

Standard	Dimensions : ISO 9493 Performances : Factory standard
Units	in
Material	Housing: Metal Ball inserts: Tungsten carbide
Reading direction	Clockwise and anti-clockwise
Dial	Rotating dial
Remark(s)	The INTERAPID 312 indicators are designed so that the measured value can be read without correction when the insert is positioned at an angle of 12° relative to the surface of the workpiece (Fig. A). For any other angle, including the parallel position of the insert, the readings require correction (Fig. B). Please refer to the user manual regarding this.
Included in delivery	The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained. Lever-type dial test indicator with mounted ball insert Ø 2 mm Wrench for insert mounting Measurement report Declaration of conformity



Analogue lever-type dial test indicators, robust construction



074111375

Article number	Series	Resolution in	Measuring range, in	Ø Dial in	Travel / revolution, in	Circular scale	Probe lengthn, in	Measuring force, N
074111377	INTERAPID 312 B-1V	.0005	.06	1-1/2	.03	0 ÷ 15 ÷ 0	.65	0,12
074111378	INTERAPID 312 B-2V	.0005	.06	1-1/5	.03	0 ÷ 15 ÷ 0	.65	0,12
074111958	INTERAPID 312 B-15V	.0005	.06	1-1/2	.03	0 ÷ 15 ÷ 0	2.77	0,12
074111379	INTERAPID 312 B-20V	.001	.06	1-1/5	.03	0 ÷ 15 ÷ 0	.65	0,12
074111957	INTERAPID 312 B-3V	.0001	.016	1-1/2	.008	0 ÷ 4 ÷ 0	.65	0,25

Article number	MPE _{tot} , retractable and extendable plunger, μ-in	MPE _{p 2} μ-in	MPE _{p 1} μ-in	MPE _h μ-in	MPE _r μ-in
074111377	920	800	400	120	120
074111378	920	800	400	120	120
074111958	1600	800	600	800	120
074111379	920	800	400	120	120
074111957	400	320	160	80	400

MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
MPE_{p 1}: Indication error on 1 rotation
MPE_{p 2}: Indication error on 2 rotations
MPE_r: Repeatability of the indication error
MPE_h: Hysteresis of indication error

P-LINE series, standard, metric

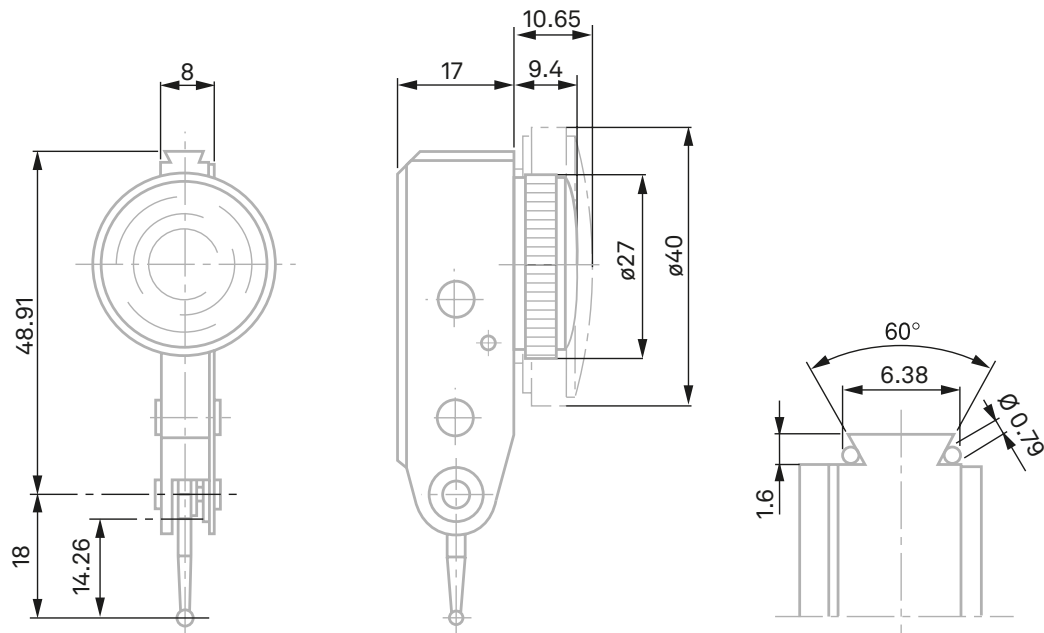


01810400

Standard	Dimensions : ISO 9493 Performances : Factory standard
Units	mm
Material	Housing: Metal Ball inserts: Tungsten carbide
Dimensions	Insert thread: M1,6
Reading direction	Clockwise
Dial	Rotating dial
Remark(s)	<p>If the position of the insert is parallel to the surface of the workpiece (left figure), the 1.1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual.</p> <p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p>
Included in delivery	<p>Lever-type dial test indicator with mounted ball insert \varnothing 2 mm Wrench for insert mounting Rigid stem \varnothing 8 mm Rigid stem \varnothing 4 mm User manual Measurement report Declaration of conformity</p>



Analogue lever-type dial test indicators, long travel



Article number	Series	Resolution mm	Measuring range, mm	Ø Dial mm	Travel / revolution, mm	Circular scale	Probe length, mm	Measuring force, N
01810400	P-LINE 213	0,01	1,5	27	0,5	0 ÷ 25 ÷ 50	18	0,35
01810401	P-LINE 213G	0,01	1,5	40	0,5	0 ÷ 25 ÷ 50	18	0,35
01810402	P-LINE 212L	0,01	3	27	1	0 ÷ 50 ÷ 100	36	0,2
01810403	P-LINE 212GL	0,01	3	40	1	0 ÷ 50 ÷ 100	36	0,2
01810404	P-LINE 215	0,002	0,6	27	0,1	0 ÷ 5 ÷ 10	18	0,3
01810405	P-LINE 215G	0,002	0,6	40	0,1	0 ÷ 5 ÷ 10	18	0,3
01810406	P-LINE 215GL	0,002	1,2	40	0,2	0 ÷ 10 ÷ 20	36	0,2
01810407	P-LINE 216G	0,001	0,6	40	0,1	0 ÷ 5 ÷ 10	18	0,3

Article number	MPE _{tot} , retractable and extendable plunger, µm	MPE _e , retractable plunger, µm	MPE _p 1 µm	MPE _p 1/2 µm	MPE _p 1/10 µm	MPE _h µm	MPE _r µm
01810400	13	10	6	5	3	3	3
01810401	13	10	6	5	3	3	3
01810402	26	20	12	10	6	7	3
01810403	26	20	12	10	6	7	3
01810404	13	10	5	3	1	4,5	1,5
01810405	13	10	5	3	1	4,5	1,5
01810406	26	20	10	6	2	8	1,5
01810407	13	10	5	3	1	4,5	1,5

MPE_e: Indication error on the measuring range (retractable plunger)
 MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
 MPE_p 1/10: Indication error on 1/10 rotation
 MPE_p 1/2: Indication error on 1/2 rotation
 MPE_p 1: Indication error on 1 rotation
 MPE_r: Repeatability of the indication error
 MPE_h: Hysteresis of indication error

P-LINE series, perpendicular, metric

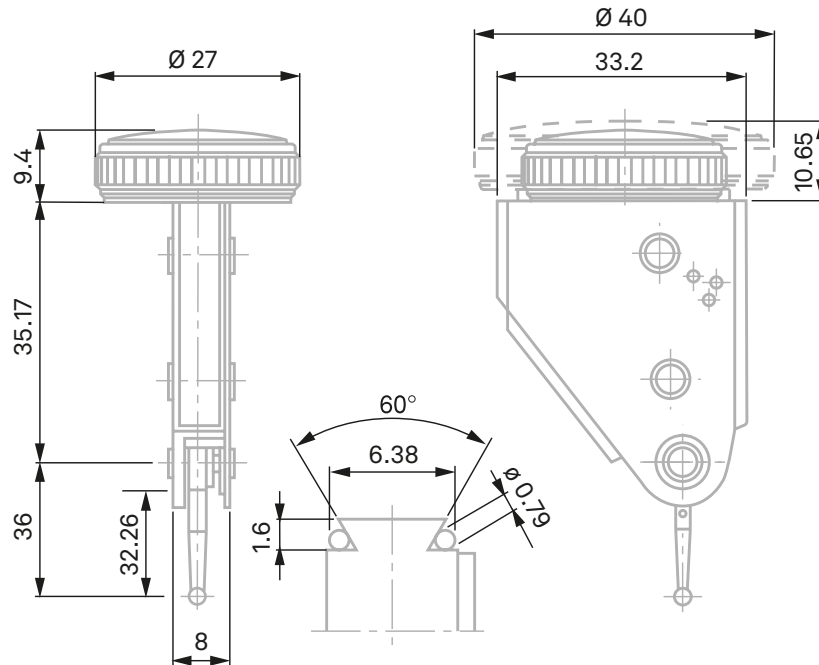


01810408

Standard	Dimensions : ISO 9493 Performances : Factory standard
Units	mm
Material	Housing: Metal Ball inserts: Tungsten carbide
Dimensions	Insert thread: M1,6
Reading direction	Clockwise
Dial	Rotating dial
Remark(s)	<p>If the position of the insert is parallel to the surface of the workpiece (left figure), the 1.1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual.</p>
Included in delivery	<p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p> <p>Lever-type dial test indicator with mounted ball insert \varnothing 2 mm Wrench for insert mounting Rigid stem \varnothing 8 mm Rigid stem \varnothing 4 mm User manual Measurement report Declaration of conformity</p>



Analogue lever-type dial test indicators, long travel



Article number	Series	Resolution mm	Measuring range, mm	Ø Dial mm	Travel / revolution, mm	Circular scale	Probe length mm	Measuring force, N
01810408	P-LINE 222GL	0,01	3	40	1	0 ÷ 50 ÷ 100	36	0,2

Article number	MPE _{tot} , retractable and extendable plunger, µm	MPE _e , retractable plunger, µm	MPE _p 1 µm	MPE _p 1/2 µm	MPE _p 1/10 µm	MPE _h µm	MPE _r µm
01810408	26	20	12	10	3	7	3

MPE_e: Indication error on the measuring range (retractable plunger)
 MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
 MPE_p 1/10: Indication error on 1/10 rotation
 MPE_p 1/2: Indication error on 1/2 rotation
 MPE_p 1: Indication error on 1 rotation
 MPE_r: Repeatability of the indication error
 MPE_h: Hysteresis of indication error

P-LINE series, lateral, metric

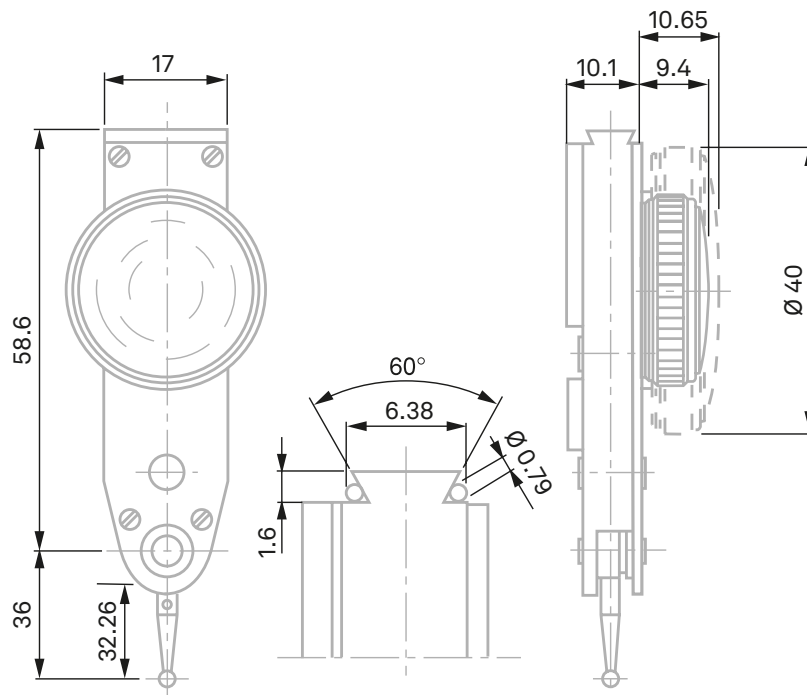


01810409

Standard	Dimensions : ISO 9493 Performances : Factory standard
Units	mm
Material	Housing: Metal Ball inserts: Tungsten carbide
Dimensions	Insert thread: M1,6
Reading direction	Clockwise
Dial	Rotating dial
Remark(s)	<p>If the position of the insert is parallel to the surface of the workpiece (left figure), the 1:1 ratio is accurate. Therefore, the reading does not require any correction. In the opposite case (right figure), the effective length of the lever changes. The readings must then be corrected. In this regard, please refer to the user manual.</p>
Included in delivery	<p>The original inserts mounted on the instrument can be replaced with inserts that have either the same or a different ball diameter, provided that the nominal length of the insert is maintained.</p> <p>Lever-type dial test indicator with mounted ball insert \varnothing 2 mm Wrench for insert mounting Rigid stem \varnothing 8 mm Rigid stem \varnothing 4 mm User manual Measurement report Declaration of conformity</p>



Analogue lever-type dial test indicators, long travel



Article number	Series	Resolution mm	Measuring range, mm	Ø Dial mm	Travel / revolution, mm	Circular scale	Probe length mm	Measuring force, N
01810409	P-LINE 232GL	0,01	3	40	1	0 ÷ 50 ÷ 100	36	0,2

Article number	MPE _{tot} , retractable and extendable plunger, µm	MPE _e , retractable plunger, µm	MPE _p 1 µm	MPE _p 1/2 µm	MPE _p 1/10 µm	MPE _h µm	MPE _r µm
01810409	26	20	12	10	3	7	3

MPE_e: Indication error on the measuring range (retractable plunger)
 MPE_{tot}: Indication error on the measuring range (retractable and extendable plunger)
 MPE_p 1/10: Indication error on 1/10 rotation
 MPE_p 1/2: Indication error on 1/2 rotation
 MPE_p 1: Indication error on 1 rotation
 MPE_r: Repeatability of the indication error
 MPE_h: Hysteresis of indication error

Ball tip inserts for TESATAST and RUBYTAST indicators



01860203

Article number	Material	Fixing mm	Diameter mm	Probe length mm
01860704	Tungsten carbide	M1,4	0,5	12,53
01860201	Tungsten carbide	M1,4	1	12,53
01860202	Tungsten carbide	M1,4	2	12,53
01860203	Tungsten carbide	M1,4	3	12,53
01860211	Tungsten carbide	M1,4	1	36,53
01860212	Tungsten carbide	M1,4	2	36,53
01860213	Tungsten carbide	M1,4	3	36,53
01860301	Ruby	M1,4	1	12,53
01860302	Ruby	M1,4	2	12,53
01860303	Ruby	M1,4	3	12,53
01860304	Ruby	M1,4	1	36,53
01860305	Ruby	M1,4	2	36,53

The original inserts mounted on TESATAST and RUBYTAST indicators can be replaced without issue by inserts with either the same or different ball diameter, provided that the nominal length is respected.

Accessories

Article number	Designation
01860307	Key for lever-type indicator

Inserts

Ball tip inserts for metric INTERAPID 312 indicators



074107893

Article number	Material	Fixing mm	Diameter mm	Probe length mm	Compatibility
074107897	Steel	M1,7	0,8	16,5	INTERAPID 312, resolution 0,01 mm
074107895	Steel	M1,7	1,5	16,5	INTERAPID 312, resolution 0,01 mm
074107893	Steel	M1,7	2	16,5	INTERAPID 312, resolution 0,01 mm
074110493	Steel	M1,7	0,8	15,2	INTERAPID 312, resolution 0,002 mm
074105995	Tungsten carbide	M1,7	0,8	16,5	INTERAPID 312, resolution 0,01 mm
074105994	Tungsten carbide	M1,7	1,5	16,5	INTERAPID 312, resolution 0,01 mm
074105993	Tungsten carbide	M1,7	2	16,5	INTERAPID 312, resolution 0,01 mm
074106360	Tungsten carbide	M1,7	0,8	36,6	INTERAPID 312, resolution 0,01 mm
074106358	Tungsten carbide	M1,7	2	36,6	INTERAPID 312, resolution 0,01 mm
074110507	Tungsten carbide	M1,7	0,8	15,2	INTERAPID 312, resolution 0,002 mm
074110491	Tungsten carbide	M1,7	1,5	15,2	INTERAPID 312, resolution 0,002 mm
074110482	Tungsten carbide	M1,7	2	15,2	INTERAPID 312, resolution 0,002 mm
074110508	Tungsten carbide	M1,7	0,8	34	INTERAPID 312, resolution 0,002 mm
074110494	Tungsten carbide	M1,7	2	34	INTERAPID 312, resolution 0,002 mm

The original inserts mounted on INTERAPID 312 indicators can be replaced without issue by inserts with either the same or different ball diameter, provided that the nominal length is respected.

The length of inserts 074106358, 074106360, 074110494 and 074110508 modifies the amplification factor of the lever system. Therefore, the read values must be doubled.

Accessories

Article number	Designation
01860307	Key for lever-type indicator

Ball tip inserts for imperial INTERAPID 312 indicators



074107899

Article number	Material	Fixing mm	Compatibility
074116284	Tungsten carbide	M1,7	All INTERAPID 312 indicators
074107903	Steel	M1,7	All INTERAPID 312 indicators
074107901	Steel	M1,7	All INTERAPID 312 indicators
074107899	Steel	M1,7	All INTERAPID 312 indicators
074105998	Tungsten carbide	M1,7	All INTERAPID 312 indicators
074105997	Tungsten carbide	M1,7	All INTERAPID 312 indicators
074105996	Tungsten carbide	M1,7	All INTERAPID 312 indicators
074106363	Tungsten carbide	M1,7	All INTERAPID 312 indicators
074106361	Tungsten carbide	M1,7	All INTERAPID 312 indicators
074111913	Tungsten carbide	M1,7	Indicator 074111965
074111912	Tungsten carbide	M1,7	Indicator 074111958

The original inserts mounted on INTERAPID 312 can be replaced without issue by inserts with either the same or different ball diameter, provided that the nominal length is respected.

The length of inserts 074106361 and 074106363 modifies the amplification factor of the lever system. Therefore, the read values must be doubled.

Accessories

Article number	Designation
01860307	Key for lever-type indicator

Inserts

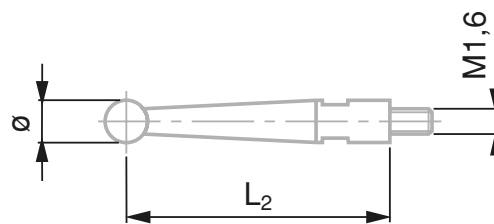
Ball tip inserts for metric P-LINE indicators



01866014

Article number	Material	Fixing mm	Diameter mm	L1 mm	L2 mm
01866014	Tungsten carbide	M1,6	0,8	18	14,26
01866003	Tungsten carbide	M1,6	2	18	14,26
01866021	Tungsten carbide	M1,6	3	18	14,26
01866016	Tungsten carbide	M1,6	0,8	36	32,26
01866004	Tungsten carbide	M1,6	2	36	32,26
01866023	Tungsten carbide	M1,6	3	36	32,26
01866015	Tungsten carbide	M1,6	0,8	45	41,26
01866006	Tungsten carbide	M1,6	2	45	41,26
01866026	Tungsten carbide	M1,6	2	18	14,26
01866027	Ruby	M1,6	2	36	32,26

The original insert mounted on P-LINE indicators can be replaced without issue by inserts with either the same or different ball diameter, provided that the nominal length is respected.



L1 = axial length from ball to pivot

TESATAST indicator, standard, metric + magnetic support



01639055

Article number	Designation	Composed of
01639055	Set with magnetic support + TESATAST	01810005 TESATAST analogue lever-type dial test indicator, standard, 0,8 mm, 0,01 mm, Ø 28 mm 01639010 Support with magnetic base, articulated arm

RUBYTAST indicator, standard, metric + magnetic support

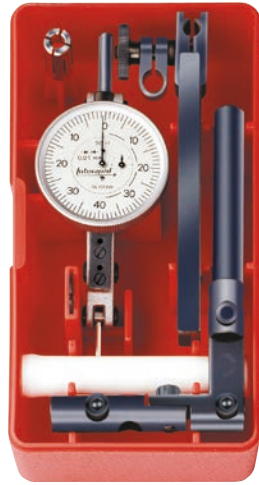


01639056

Article number	Designation	Composed of
01639056	Set with magnetic support + RUBYTAST	01811001 RUBYTAST analogue lever-type dial test indicator, standard, 0,2 mm, 0,002 mm, Ø 38 mm 01639010 Support with magnetic base, articulated arm

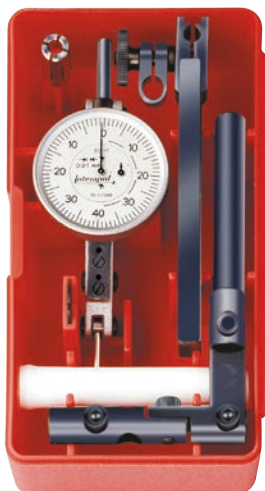
Sets of lever-type test indicator + accessories

Sets with INTERAPID 312 and accessories, imperial



			With standard indicator				With perpendicular indicator	
Family	Part number	Description	07411508	07411509	07411510	07411511	07411513	07411514
Lever-type dial test indicator	07411370	INTERAPID 312, standard, with ball insert Ø 2 mm Dial, Ø: 1-1/2 in Application range: .06 in Resolution: .0005 in	•					
	07411371	INTERAPID 312, standard, with ball insert Ø 2 mm Dial, Ø: 1-1/5 in Application range: .06 in Resolution: .0005 in		•				
	07411372	INTERAPID 312, standard, with ball insert Ø 2 mm Dial, Ø: 1-1/2 in Application range: .016 in Resolution: .0001 in			•			
	07411373	INTERAPID 312, standard, with ball insert Ø 2 mm Dial, Ø: 1-1/5 in Application range: .016 in Resolution: .0001 in				•		
	07411377	INTERAPID 312, perpendicular, with ball insert Ø 2 mm Dial, Ø: 1-1/2 in Application range: .06 in Resolution: .0005 in					•	
	07411378	INTERAPID 312, perpendicular, with ball insert Ø 2 mm Dial, Ø: 1-1/5 in Application range: .06 in Resolution: .0005 in						•
Accessories	074106331	Swivel holder with dovetail grip, Ø 4 and Ø 5,5 mm, bar = 6 x 12,6 x 76 mm	•	•	•	•	•	•
	074106931	Swivel holder with dovetail grip, Ø 4 and Ø 7 mm, shaft = Ø 3/8 x 5-1/4 in	•	•	•	•	•	•
	074108943	Reducing sleeve, Ø 3/8 in - Ø 5/32 in	•	•	•	•	•	•
	074111474	Case for measuring inserts	•	•	•	•	•	•
	01860307	Key for inserts	•	•	•	•	•	•

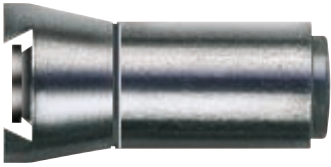
Sets with INTERAPID 312 and accessories, metric



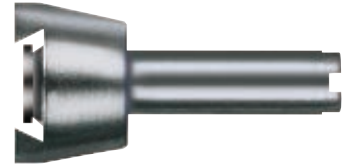
Family	Part number	Description	With standard indicator			
			074111502	074111503	074111504	074111505
Lever-type dial test indicator	074111366	INTERAPID 312, standard, with ball insert Ø 2 mm Dial, Ø: 37,5 mm Application range: 1,6 mm Resolution: 0,01 mm	•			
	074111367	INTERAPID 312, standard, with ball insert Ø 2 mm Dial, Ø: 30 mm Application range: 1,6 mm Resolution: 0,01 mm		•		
	074111368	INTERAPID 312, standard, with ball insert Ø 2 mm Dial, Ø: 37,5 mm Application range: 0,4 mm Resolution: 0,002 mm			•	
	074111369	INTERAPID 312, standard, with ball insert Ø 2 mm Dial, Ø: 30 mm Application range: 0,4 mm Resolution: 0,002 mm				•
Accessories	074106331	Swivel holder with dovetail grip, Ø 4 and Ø 5,5 mm, bar = 6 x 12,6 x 76 mm	•	•	•	•
	074106026	Swivel holder with dovetail grip, Ø 4 and Ø 7 mm, shaft = Ø 8 x 133 mm	•	•	•	•
	074108942	Reducing sleeve, Ø 8 mm - Ø 4 mm	•	•	•	•
	074111474	Case for measuring inserts	•	•	•	•
	01860307	Key for inserts	•	•	•	•

Fixing accessories

Rigid fixing rods with dovetail attachment



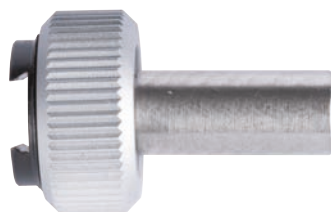
01840105



01840104

Article number	Designation
01840104	Mounting rod with dovetail clamp, shaft = Ø 4 x 13 mm
01840105	Mounting rod with dovetail clamp, shaft = Ø 8 x 13 mm
01850104	Mounting rod with dovetail clamp, shaft = Ø 5,55 x 13 mm
01850105	Mounting rod with dovetail clamp, shaft = Ø 6,35 x 13 mm
01860008	Mounting rod with dovetail clamp, shaft = Ø 6 x 13 mm

Rigid fixing rods with dovetail attachment



01850107

Article number	Designation
01840107	Knurled mounting rod with dovetail clamp, shaft = Ø 8 x 16,5 mm
01840109	Knurled mounting rod with dovetail clamp, shaft = Ø 4 x 16,4 mm

Swivelling fixing rods with dovetail attachment



01840408

Article number	Designation
01840408	Mounting rod with dovetail clamp, swivelling, shaft = Ø 4 x 64,35 mm
01840409	Mounting rod with dovetail clamp, swivelling, shaft = Ø 8 x 64,35 mm

Swivel holders



01840404



01840407



01850404

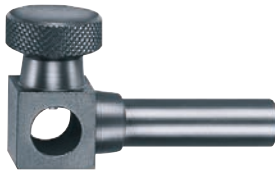


01840405

Article number	Designation
01840404	Swivel holder with dovetail grip, shaft = Ø 8 x 25 mm
01850404	Swivel holder with dovetail grip, shaft = Ø 3/8 x 1 in
01840405	Swivel holder with dovetail grip, shaft = Ø 8 x 90 mm
01850405	Swivel holder with dovetail grip, shaft = Ø 3/8 x 3-5/8 in
01840407	Swivel holder with dovetail grip, fine adjustment device, shaft = Ø 8 x 125 mm
074106026	Swivel holder with dovetail grip, Ø 4 and Ø 7 mm, shaft = Ø 8 x 133 mm
074106931	Swivel holder with dovetail grip, Ø 4 and Ø 7 mm, shaft = Ø 3/8 x 5-1/4 in
074106331	Swivel holder with dovetail grip, Ø 4 and Ø 5,5 mm, bar = 6 x 12,6 x 76 mm

Fixing accessories

Squares holders



01840406



01850406

Article number	Designation
01840406	Angular swivel holder, shaft = \varnothing 8 x 25 mm, clamping \varnothing 8 mm
01850406	Angle holder with cylindrical shank, \varnothing 3/8 in, shaft = \varnothing 3/8 x 3.5 in

Fixing rod with pin



01840202



01850203



074111481

Article number	Designation
01840202	Mounting rod, pin = \varnothing 5,6 mm, shaft = 8 x 80 mm
01850202	Fixing shank, pin \varnothing 7/32 in, shank = \varnothing 3/8 x 3.5 in
01850203	Fixing shank, pin \varnothing .22 in, bar = 1/4 x 1/2 x 3 in
074111481	Fixing shank, pin \varnothing 5/32 in, bar = 3/16 x 5/16 in

Clamps



01860401

Article number	Designation
01860401	Dovetail clamp with dovetail clamp, clamping = Ø 5,6 and Ø 9,5 mm
01860402	Dovetail clamp with dovetail clamp, clamping = Ø 7 and 9,5 mm
074108603	Dovetail clamp with dovetail clamp, clamping = Ø 7/32 and 5/32 in

Rotating holder



SPT

Article number	Designation
SPT	Swivel clamp, Ø 4,1 mm, axis = Ø 8 x 25 mm

Fixing accessories

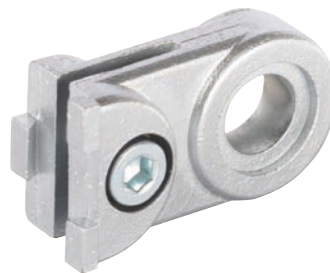
Centring holder



01840501

Article number	Designation
01840501	Centering holder, \varnothing 4 mm, shaft = \varnothing 4 x 25 mm

Mounting backs for lever-type test indicators



03238013

Article number	Designation
03238013	Mounting lug

Reducing sleeves



074108942

Article number	Designation
074108942	Reducing sleeve, Ø 8 mm - Ø 4 mm
074108943	Reducing sleeve, Ø 3/8 in - Ø 5/32 in
03560101	Reducing sleeve, Ø .375 in - Ø 8 mm



Measuring probes



TESA
TECHNOLOGY

A necessary indicator to guarantee high quality parts in the long term

The ability to remain competitive depends on the successful and timely delivery of orders. In a challenging environment, the use of industrial resources needs to be closely monitored to understand the causes of potential performance drops and to monitor the production on a daily basis. Even if the structures are currently very efficient, monitoring is still necessary in order to control the processes as much as possible in terms of use and costs. To this purpose, multiple performance indicators generally give a real-time view of the production in progress.

Multi-gauging dimensional control is globally integrated in this approach of process optimisation in order to guarantee a high quality in the long term and to avoid a high reject rate. The measurement of medium and large series parts is a major application challenge today, where both measurement speed and high accuracy are required.



A wide range, numerous application possibilities

TESA probes are designed for applications that rely on the combined use of internal or external measuring instruments, supports or specific measurement systems. Various versions are available for these applications, such as probes with axial or parallel guided measuring bolt or even lever angle probes.

Lever probe

For quick and easy measurement of straightness, parallelism or perpendicularity in the micron level during alignment or assembly control operations.

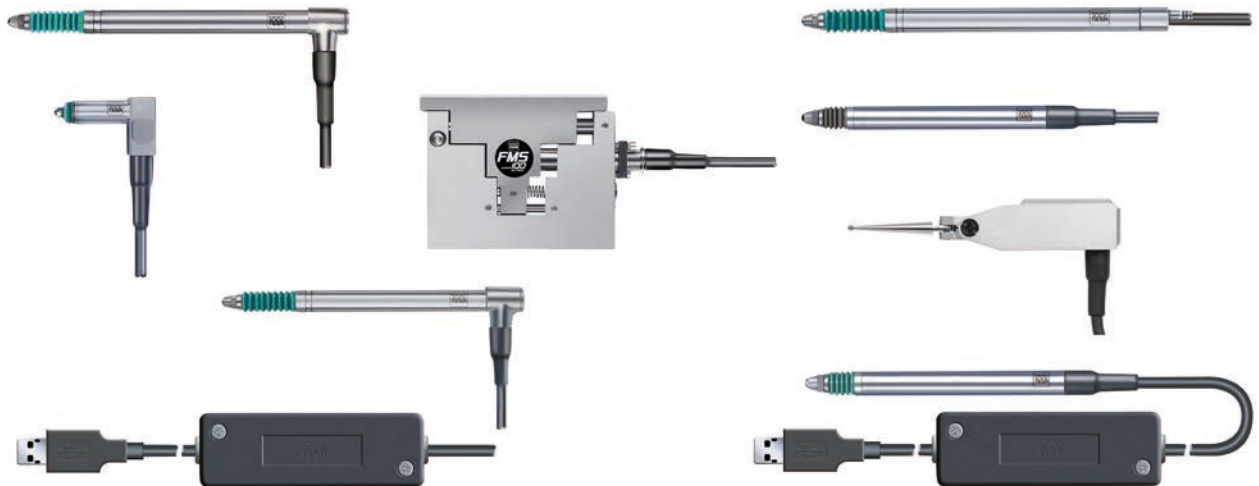
Axial probes

Standard probes mounted on a ball bearing are insensitive to any radial force exerted on the measuring rod. These probes are effectively protected against the penetration of liquids or solids and can withstand heat, fuels and chemicals.

FMS probes

Where access to the measurement area is difficult, it is often necessary to use offset inserts. The robust, modular design of this probe ensures accurate measurement and can withstand a higher torque generated by the measuring insert.

Measuring probes



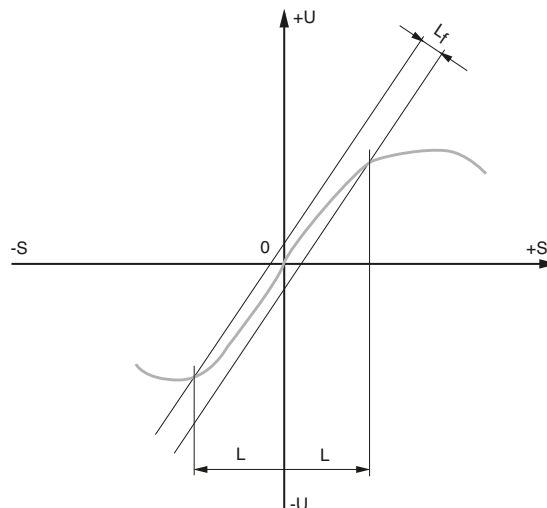
Operating principle

All TESA electronic probes (value sensors) work based on the inductive principle with mechanical contact of the workpiece. They are fitted with a coil system inducing an alternating output voltage that depends on the the position of the ferro magnetic core.

When symmetrically positioned - i.e. at electrical zero - no voltage is impressed. A move of the core, which may be attached to the measuring bolt while the measurand is being taken, causes the inductance to change. This change generates a signal that is amplified and rectified before being displayed and further output. Depending on the instrument type, the analogue signal will be shown on a voltmetre or a numerical display after a digital transformation.

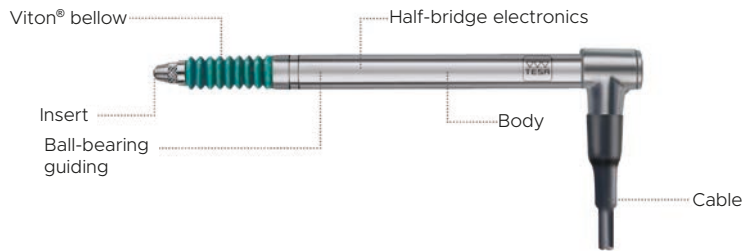
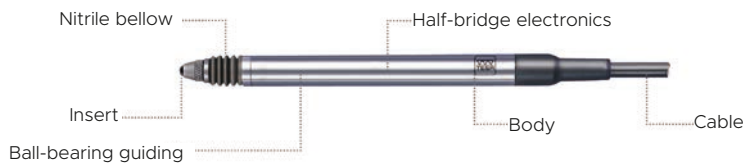
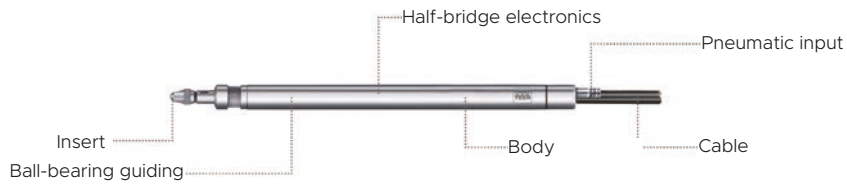
Unambiguous assessment of the measurand (at bolt position) to the signal (displayed value) is the main characteristic of analogue value acquisition. One of its distinct advantages lies in the value primarily displayed, which will be reproduced in the event of a power cut (switch-off or power failure).

The linearity range L , which is the range within which the max. perm. errors are contained, is equal to the measuring range. The max. perm. errors are limiting values given for the linearity errors.

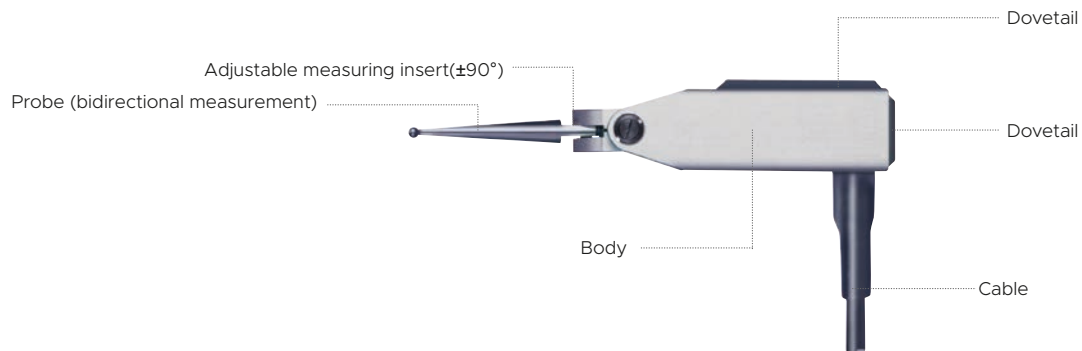


S: Stroke, U: Output Voltage, 0: Electrical Zero, L: Linearity Range, Lf: Linearity Deviation

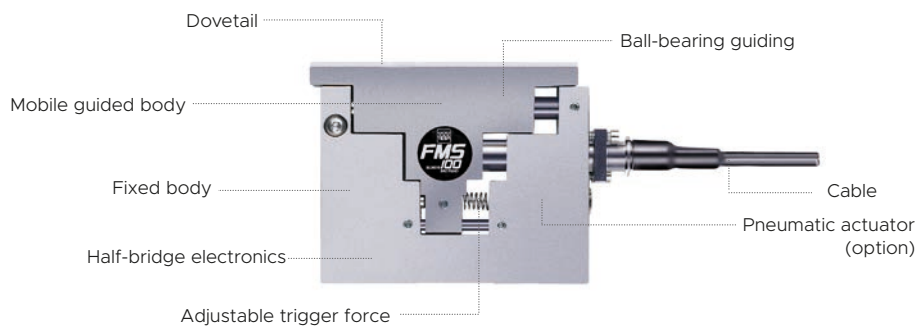
Axial probe



Lever probe

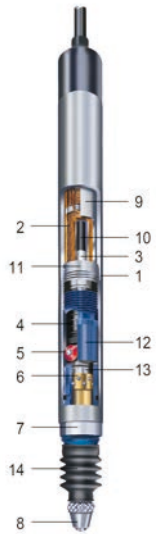


FMS probe with parallel guiding



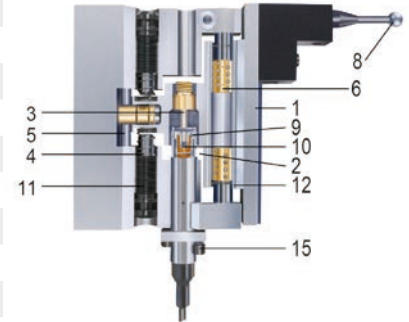
Standard lever probes

Components of a TESA inductive probe



Axial probe

1	Mounting stem or probe housing
2	Coil system
3	Element mounted between the ferromagnetic core and the measuring bolt for the correction of varying coefficients of thermal expansion
4	Force compression spring
5	Anti-rotation guiding system
6	Ball cage
7	Setting element for limiting the measuring bolt travel
8	Probe insert
9	In-between tube being part of the coil system
10	Ferro-magnetic core
11	Force spring stop
12	Ball-bearing guiding tube
13	Measuring bolt
14	Sealing rubber bellow
15	Mechanical device for zero-setting



FMS probe

Sensitivity of TESA half-bridge probes for TESA electronic interfaces and display units

Sensitivity	All: 73,75 mV/V/mm except GT61, GT62: 29,50 mV/V/mm FMS130, FMS132: 49,17 mV/V/mm
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The aforementioned sensitivities are valid under the following reference conditions:

Drive voltage	3 V _{pp}
Drive frequency	13 kHz
Adjustment load	2 kΩ

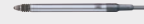





Activation and retraction modes

Activation (1)	Spring	Spring	Pneumatic pressure
Retraction (2)	-	Vacuum	Spring
Examples of probe models	GT21, GT27	GTL211, GT271	GTL212, GTL222




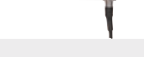
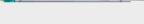
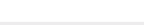
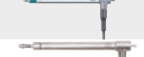

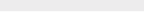



Output signal type

Data output	TESA standard half-bridge	DC	USB
Probe models	GT21, GT22,...	GTL211, GT271,...	GTL212, GTL222,...
Specifications			USB A Transmission speed: 4800 Data bits: 7 Stop bits: 2 Parity: even


Axial probes, Ø 8 mm

	Article number	Description	Measuring range, mm	Bolt travel	Bolt retraction	Sealing bellow	Cable
	03210904	GT21	±1	4,3	Mechanical	Nitrile	Axial
	03210924	GT22	±1	4,3	Mechanical Vacuum	Nitrile	Radial
	03230057	GTL21	±2	4,3	Mechanical	Viton	Axial
	03230072	GTL211	±2	4,3	Mechanical Vacuum	Viton	Axial
	03230056	GTL22	±2	4,3	Mechanical Vacuum	Viton	Radial
	03230027	GT27	±2	10,3	Mechanical	Viton	Axial
	03230073	GT271	±2	10,3	Mechanical Vacuum	Viton	Axial
	03230026	GT28	±2	10,3	Mechanical Vacuum	Viton	Radial
	03230041	GT61	±5	10,3	Mechanical	Viton	Axial
	03230042	GT62	±5	10,3	Mechanical Vacuum	Viton	Radial
	03230036	GT21 HP	±0,2	4,3	Mechanical	Nitrile	Axial
	03230021	GT22 HP	±0,2	4,3	Mechanical Vacuum	Nitrile	Radial


Axial probes, Ø 8 mm, activation of the bolt by pneumatic pressure

	Article number	Description	Measuring range, mm	Bolt travel mm	Sealing bellow	Cable
	03230060	GTL212	±1,5	3,2	Viton	Axial
	03230067	GTL212-A	±1,5	3,2	Without	Axial
	03230054	GTL222	±1,5	3,2	Viton	Radial
	03230063	GTL222-A	±1,5	3,2	Without	Radial
	03230061	GT272	±2	10,3	Viton	Axial
	03230068	GT272-A	±2	10,3	Without	Axial
	03230053	GT282	±2	10,3	Viton	Radial
	03230069	GT282-A	±2	10,3	Without	Radial
	03230062	GT612	±5	10,3	Viton	Axial
	03230070	GT612-A	±5	10,3	Without	Axial
	03230055	GT622	±5	10,3	Viton	Radial
	03230071	GT622-A	±5	10,3	Without	Radial

Lever probe

	Article number	Description	Measuring range, mm	Bolt travel mm	Bolt retraction	Sealing bellow	Cable
	03210802	GT31	±0,3	0,7	Without	Without	Angled

DC lever probe

	Article number	Description	Measuring range, mm	Bolt travel mm	Bolt retraction	Sealing bellow	Cable
	03230081	GT31 DC	0,3	0,7	Without	Without	Angled

Measuring probes





Nominal measuring force, N	Mobile weight, g	Max. permissible error for deviations in linearity, μm , L in mm	Hysteresis μm	Repeatability μm	Protection
0,63	6	0,2 + 3xLxLxL	0,02	0,01	IP65
0,63	6	0,2 + 3xLxLxL	0,02	0,01	IP65
0,63	6	0,2 + 2,4xLxL 0,2 + 0,8xL (with TESA interface)	0,02	0,01	IP65
0,63	6	0,2 + 2,4xLxL 0,2 + 0,8xL (with TESA interface)	0,02	0,01	IP65
0,63	6	0,2 + 2,4xLxL 0,2 + 0,8xL (with TESA interface)	0,02	0,01	IP65
0,63	8	0,2 + 3xLxLxL	0,05	0,05	IP65
0,63	8	0,2 + 3xLxLxL	0,05	0,05	IP65
0,63	8	0,2 + 3xLxLxL	0,05	0,05	IP65
0,9	8	1 + 4xL 0,6 + 0,8xL (with TESA interface)	0,05	0,05	IP65
0,9	8	1 + 4xL 0,6 + 0,8xL (with TESA interface)	0,05	0,05	IP65
0,63	6	0,07 + 0,4xL	0,01	0,01	IP65
0,63	6	0,07 + 0,4xL	0,01	0,01	IP65

Nominal measuring force, N	Mobile weight, g	Max. permissible error for deviations in linearity, μm , L in mm	Hysteresis μm	Repeatability μm	Protection
1,2	6	0,2 + 2,4xLxL 0,2 + 0,8xL (with TESA interface)	0,02	0,015	IP65
0,2	6	0,2 + 2,4xLxL 0,2 + 0,8xL (with TESA interface)	0,02	0,015	IP50
1,2	6	0,2 + 2,4xLxL 0,2 + 0,8xL (with TESA interface)	0,02	0,015	IP65
0,2	6	0,2 + 2,4xLxL 0,2 + 0,8xL (with TESA interface)	0,02	0,015	IP50
1	8	0,2 + 3xLxLxL	0,05	0,05	IP65
0,85	8	0,2 + 3xLxLxL	0,05	0,05	IP50
1	8	0,2 + 3xLxLxL	0,05	0,05	IP65
0,85	8	0,2 + 3xLxLxL	0,05	0,05	IP50
2	8	1 + 4xL 0,6 + 0,8xL (with TESA interface)	0,05	0,05	IP65
1	8	1 + 4xL 0,6 + 0,8xL (with TESA interface)	0,05	0,05	IP50
2	8	1 + 4xL 0,6 + 0,8xL (with TESA interface)	0,05	0,05	IP65
1	8	1 + 4xL 0,6 + 0,8xL (with TESA interface)	0,05	0,05	IP50





Nominal measuring force, N	Mobile weight, g	Max. permissible error for deviations in linearity, μm , L in mm	Hysteresis μm	Repeatability μm	Protection
0,1	12	0,2 + 50xLxL	0,25	0,1	IP40

Nominal measuring force, N	Mobile weight, g	Max. permissible error μm , L in mm	Hysteresis μm	Repeatability μm	Protection
0,1	12	0,2 + 50xLxL		0,1	IP65











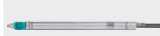
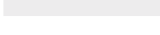

Miniature axial probes

	Article number	Description	Measuring range, mm	Bolt travel mm	Bolt retraction	Sealing bellow	Cable
	03230001	GT41	±0,3	0,7	Without	Nitrile	Axial
	03230002	GT42	±0,3	0,7	Vacuum	Nitrile	Radial
	03230035	GT43	±1	2,1	Mechanical	Viton	Axial
	03230017	GT44	±1	2,1	Vacuum	Viton	Radial









Neutral axial probes

	Article number	Description	Measuring range, mm	Bolt travel mm	Bolt retraction	Sealing bellow	Cable
	96410012	410	±1	2,5	Mechanical	Nitrile	Axial Radial
	96160013	160	±1	3,3	Mechanical	Viton	Axial
	96430029	430	±0,5	1,25	Mechanical	Nitrile	Axial
	96441041	451	±0,5	2,1	Mechanical	Nitrile	Radial

USB & DC axial probes

	Article number	Description	Measuring range, mm	Bolt travel mm	Bolt retraction	Sealing bellow	Cable
	03230059	GTL21 DC	±2	4,3	Mechanical	Viton	Axial
	03230058	GTL22 DC	±2	4,3	Mechanical Vacuum	Viton	Radial
	03230086	GT61 DC	±5	10,3	Mechanical	Viton	Axial
	03230087	GT62 DC	±5	10,3	Mechanical Vacuum	Viton	Radial
	03230085	GT44 DC	±1	2,1	Mechanical Vacuum	Viton	Radial
	03230200	GTL21 USB	±2	4,3	Mechanical	Viton	Axial
	03230201	GTL22 USB	±2	4,3	Mechanical Vacuum	Viton	Radial
	03230204	GT61 USB	±5	10,3	Mechanical	Viton	Axial
	03230205	GT62 USB	±5	10,3	Mechanical Vacuum	Viton	Radial
	03230202	GTL222 USB	±1,5	3,1	Pressure (advance) Spring (retract)	Viton	Radial
	03230211	GTL272 USB	±2	10,3	Pressure (advance) Spring (retract)	Viton	Axial
	03230210	GT612 USB	±5	10,3	Pressure (advance) Spring (retract)	Viton	Axial
	03230206	GT622 USB	±5	10,3	Pressure (advance) Spring (retract)	Viton	Radial

FMS probes

	Article number	Description	Measuring range, mm	Bolt travel mm	Bolt retraction	Sealing bellow	Cable
	03230019	FMS100	±2	5,8	Retraction by air pressure (optional accessory)	Without	Axial
	03230037	FMS100-P	±2	5,8	Retraction by air pressure (optional accessory)	Without	Axial
	03230028	FMS102	±2	5,8	Retraction by air pressure (optional accessory)	Without	Radial
	03230038	FMS102-P	±2	5,8	Retraction by air pressure (optional accessory)	Without	Radial
	03230049	FMS130	±2,9	5,8	Retraction by air pressure (optional accessory)	Without	Axial
	03230051	FMS130-P	±2,9	5,8	Retraction by air pressure (optional accessory)	Without	Axial
	03230050	FMS132	±2,9	5,8	Retraction by air pressure (optional accessory)	Without	Radial
	03230052	FMS132-P	±2,9	5,8	Retraction by air pressure (optional accessory)	Without	Radial

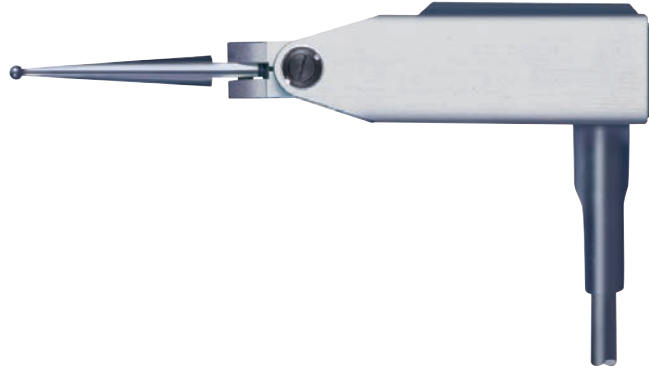
Measuring probes

Nominal measuring force, N	Mobile weight, g	Max. permissible error for deviations in linearity, μm , L in mm	Hysteresis μm	Repeatability μm	Protection
0,63	2	0,2 + 5xLxL	0,01	0,01	IP65
0,63	2	0,2 + 5xLxL	0,01	0,01	IP65
0,4	2	0,2 + 5xLxL	0,15	0,1	IP65
0,4	2	0,2 + 5xLxL	0,15	0,1	IP65

Nominal measuring force, N	Mobile weight, g	Max. permissible error for deviations in linearity, μm , L in mm	Hysteresis μm	Repeatability μm	Protection
0,6	3,1	0,2% (for a measuring range of ± 1 mm)	0.02	0,1	IP62
0,6	2,5	0,2% (for a measuring range of ± 1 mm)	0.02	0,1	IP62
0,75	1,9	0,2% (for a measuring range of $\pm 0,5$ mm)	0.02	0,2	IP62
0,6	3	0,2% (for a measuring range of $\pm 0,5$ mm)	0.02	0,1	IP62

Nominal measuring force, N	Mobile weight, g	Max. permissible error μm , L in mm	Hysteresis μm	Repeatability μm	Protection
0,63	6	0,2 + 3,5xLxL	0,5	0,1	IP65
0,63	6	0,2 + 3,5xLxL	0,5	0,1	IP65
0,9	8	1 + 4xL	0,5	0,1	IP65
0,9	8	1 + 4xL	0,5	0,1	IP65
0,4	2	0,2 + 5xLxL	0,5	0,1	IP65
0,63	6	0,4 + 0,8xL	0,5	0,1	IP65
0,63	6	0,4 + 0,8xL	0,5	0,1	IP65
0,9	8	1 + 4xL	0,5	0,24	IP65
0,9	8	1 + 4xL	0,5	0,24	IP65
1,2	6	0,4 + 0,8xL	0,5	0,1	IP65
1	8	0,4 + 0,8xLxLxL	0,5	0.01	IP65
2	8	1 + 4xL	0,5	0.24	IP65
2	8	1 + 4xL	0,5	0.24	IP65

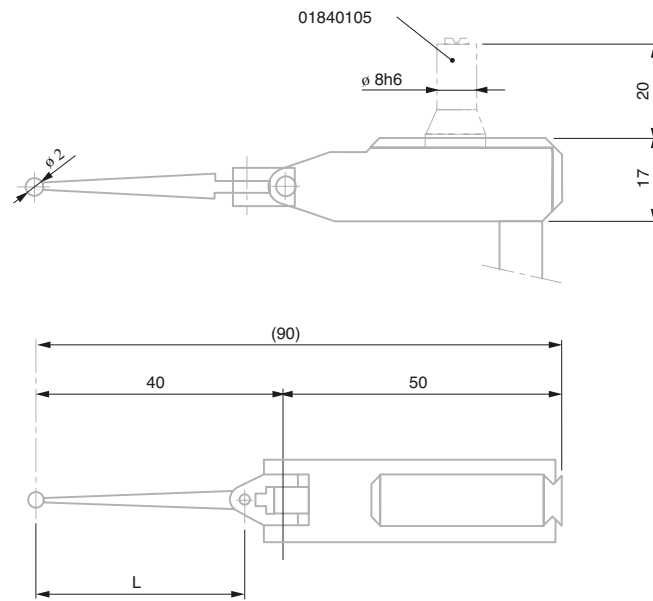
Nominal measuring force, N	Mobile weight, g	Max. permissible error for deviations in linearity, μm , L in mm	Hysteresis μm	Repeatability μm	Protection
2	110	0,2 + 3xLxLxL	0.5	0.5	IP50
2	110	0,2 + 3xLxLxL	0.5	0.5	IP54
2	110	0,2 + 3xLxLxL	0.5	0.5	IP50
2	110	0,2 + 3xLxLxL	0.5	0.5	IP54
2	110	0,2 + 3xLxLxL	0.5	0.5	IP50
2	110	0,2 + 3xLxLxL	0.5	0.5	IP54
2	110	0,2 + 3xLxLxL	0.5	0.5	IP50
2	110	0,2 + 3xLxLxL	0.5	0.5	IP54

Lever probes, $\pm 0,3$ mm, 0,7 mm bolt travel


03210802

Standard	DIN 32876
Measuring range	$\pm 0,3$ mm
Bolt travel	0,7 mm
Repeatability	0,1 μ m
Hysteresis	0,25 μ m
Max. perm. errors	L in mm 0,2 + 50 x (L x L) μ m
Degree of protection	IP40
Weight	Mobile weight: 12 g
Working temperature	20 °C \pm 0,5
Material	Metal housing: matt chrome-plated Ball insert: tungsten carbide
Dimensions	Ball insert: \varnothing 2 mm Cable: 2 m (except 03210807, 3 m) Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Fixing rod \varnothing 8 mm User manual Declaration of conformity

Standard lever probes



03210802

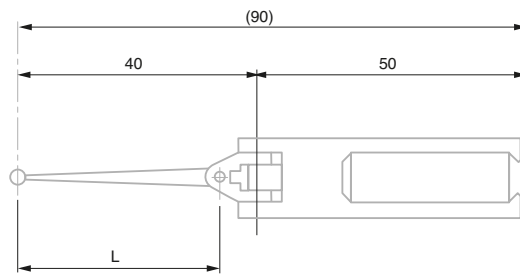
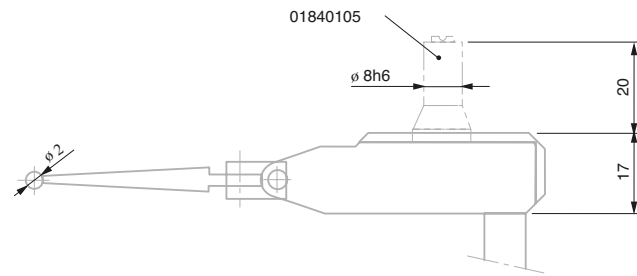
Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03210801	GT31 probe	0,02	Without	IP40	Radial	2
03210802	GT31 probe	0,1	Without	IP40	Radial	2
03210807	GT31 probe	0,1	Without	IP40	Radial	3
03210803	GT31 probe	0,2	Without	IP40	Radial	2

DC lever probe, $\pm 0,3$ mm, 0,7 mm bolt travel

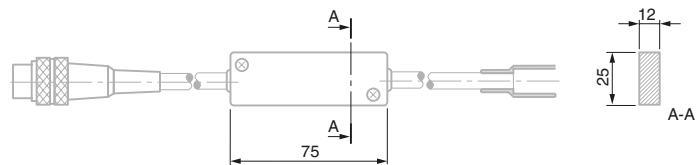

03230081

Standard	DIN 32876
Measuring range	$\pm 0,3$ mm
Bolt travel	0,7 mm
Repeatability	0,1 μ m
Hysteresis	0,5 μ m
Max. perm. errors	L in mm 0,2 + 50 x (L x L) μ m
Degree of protection	IP40
Weight	Mobile weight: 12 g
Working temperature	20 °C \pm 0,5
Material	Metal housing: matt chrome-plated Ball insert: tungsten carbide
Dimensions	Ball insert: \varnothing 2 mm Cable: 2 m Connector: 5p DIN45322
Power supply	Stabilised supply voltage: ± 15 V Consumption: 15 mAh Adjustable load: > 1k Ω Output voltage: $\pm 0,3$ V
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Fixing rod \varnothing 8 mm User manual Declaration of conformity

DC lever probes



03230081



Article number	Designation	Measuring force, N	Bolt retraction	Output voltage, V	Sensitivity V/mm	Degree of protection	Cable orientation	Cable length, m
03230081	GT31 DC probe	0,1	Without	$\pm 0,3$	1	IP40	Radial	2,2

Standard GT21 probes, ± 1 mm, 4,3 mm bolt travel, axial cable

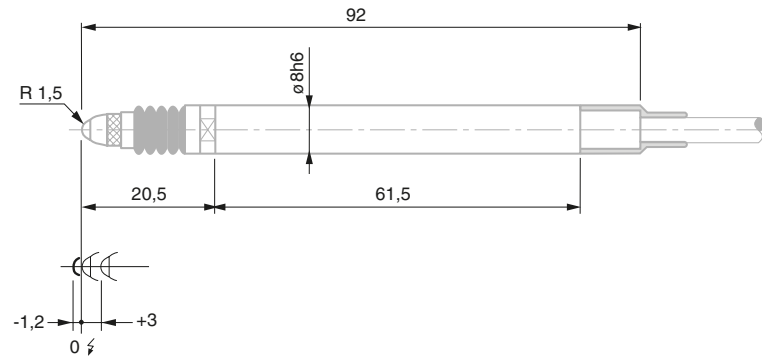

03210904

Standard	DIN 32876
Measuring range	± 1 mm
Bolt travel	4,3 mm
Repeatability	0,01 µm
Hysteresis	0,02 µm
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) µm
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 ÷ 0,1 mm
Coefficient of linear expansion	0,15 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Nitrile Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03210904

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03210904	GT21-I probe	0,63	Mechanical	IP65	Axial	2
03290133	10x GT21-I probe	0,63	Mechanical	IP65	Axial	2
03210905	GT21-L probe	1	Mechanical	IP65	Axial	2
03290167	10x GT21-L probe	1	Mechanical	IP65	Axial	2
03210906	GT21-P probe	1,6	Mechanical	IP65	Axial	2
03290179	10x GT21-P probe	1,6	Mechanical	IP65	Axial	2
03210907	GT21-T probe	2,5	Mechanical	IP65	Axial	2
03210908	GT21-U probe	4	Mechanical	IP65	Axial	2

Standard GT22 probes, ± 1 mm, 4,3 mm bolt travel, radial cable



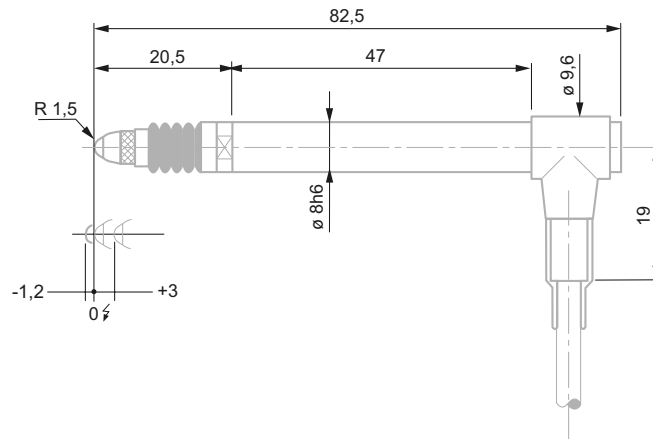
03210924

Standard	DIN 32876
Measuring range	± 1 mm
Bolt travel	4,3 mm
Repeatability	0,01 µm
Hysteresis	0,02 µm
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) µm
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 ÷ 0,1 mm
Coefficient of linear expansion	0,15 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Nitrile Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03210924

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03210924	GT22-I probe	0,63	Mechanical, vacuum	IP65	Radial	2
03290134	10x GT22-I probe	0,63	Mechanical, vacuum	IP65	Radial	2
03210921	GT22-C probe	0,16	Mechanical, vacuum	IP65	Radial	2
03290156	10x GT22-C probe	0,16	Mechanical, vacuum	IP65	Radial	2
03210922	GT22-D probe	0,25	Mechanical, vacuum	IP65	Radial	2
03210923	GT22 probe	0,4	Mechanical, vacuum	IP65	Radial	2
03210925	GT22-L probe	1	Mechanical, vacuum	IP65	Radial	2
03290168	10x GT22-L probe	1	Mechanical, vacuum	IP65	Radial	2
03210926	GT22-P probe	1,6	Mechanical	IP65	Radial	2
03290180	10x GT22-P probe	1,6	Mechanical	IP65	Radial	2
03210927	GT22-T probe	2,5	Mechanical	IP65	Radial	2
03210928	GT22-U probe	4	Mechanical	IP65	Radial	2

Standard linearised GTL21 probes, ± 2 mm, 4,3 mm bolt travel, axial cable


03230057



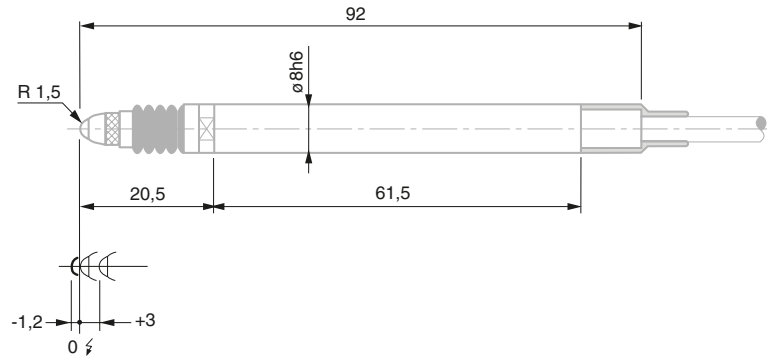
03230072

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	4,3 mm
Repeatability	0,01 µm
Hysteresis	0,02 µm
Max. perm. errors	L in mm 0,2 + 2,4 x (L x L) µm 0,2 + 0,8 x L µm (with TESA interface)
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 ÷ 0,1 mm
Coefficient of linear expansion	0,2 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

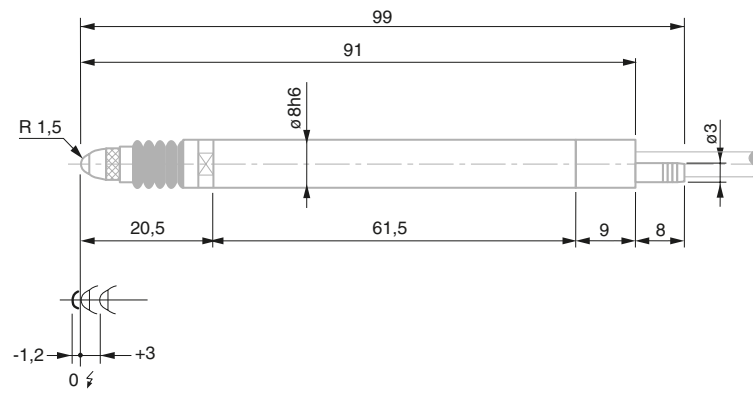
Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230057



03230072

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230057	GTL21 probe	0,63	Mechanical	IP65	Axial	2
03290138	10x GTL21 probe	0,63	Mechanical	IP65	Axial	2
03230072	GTL211 probe	0,63	Mechanical, vacuum	IP65	Axial	2

Standard linearised GTL22 probes, 2 mm, 4,3 mm bolt travel, radial cable

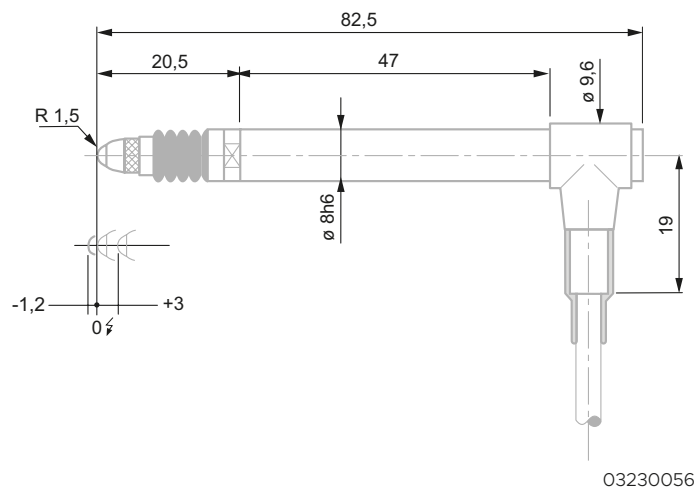

03230056

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	4,3 mm
Repeatability	0,01 μ m
Hysteresis	0,02 μ m
Max. perm. errors	L in mm 0,2 + 2,4 x (L x L) μ m 0,2 + 0,8 x L μ m (with TESA interface)
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 \div 0,1 mm
Coefficient of linear expansion	0,2 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

 Measuring force: at electrical zero, limit deviation \pm 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230056	GTL22 probe	0,63	Mechanical, vacuum	IP65	Radial	2
03290139	10x GTL22 probe	0,63	Mechanical, vacuum	IP65	Radial	2
03230076	GTL22 probe	1	Mechanical, vacuum	IP65	Radial	2
03290176	10x GTL22 probe	1	Mechanical, vacuum	IP65	Radial	2

Standard GT27 probes, ± 2 mm, 10,3 mm bolt travel, axial cable


03230027



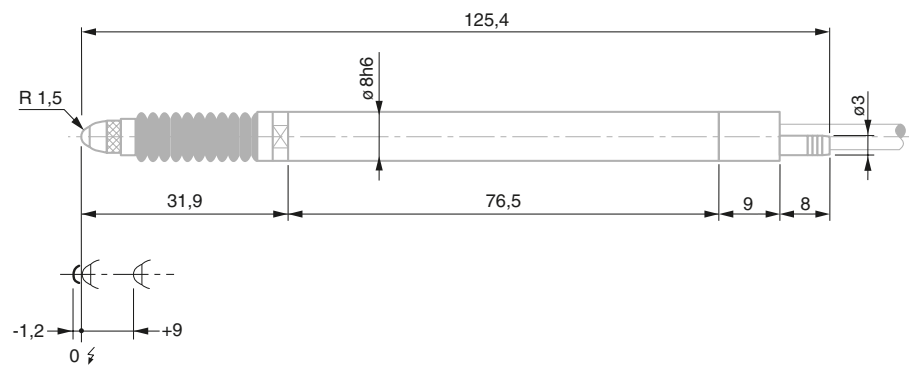
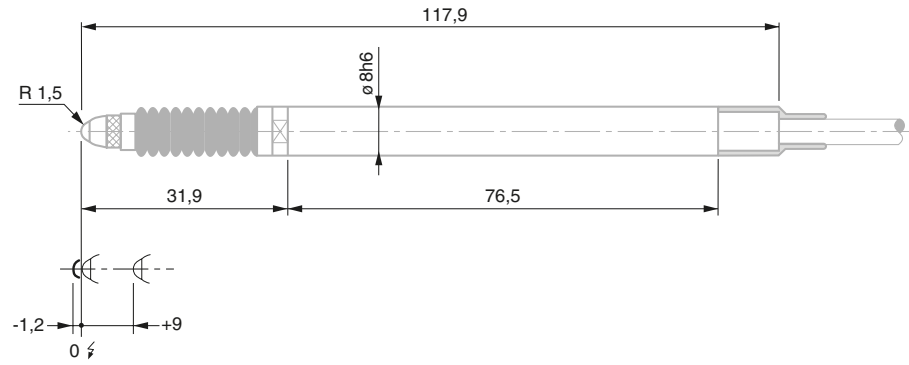
03230073

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	10,3 mm
Repeatability	0,05 μ m
Hysteresis	0,05 μ m
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) μ m
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 \div 0,1 mm
Coefficient of linear expansion	0,15 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

 Measuring force: at electrical zero, limit deviation $\pm 25\%$, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230027	GT27 probe	0,63	Mechanical	IP65	Axial	2
03290152	10x GT27 probe	0,63	Mechanical	IP65	Axial	2
03230073	GT271 probe	0,63	Mechanical, vacuum	IP65	Axial	2

Standard GT28 probes, ± 2 mm, 10,3 mm bolt travel, radial cable

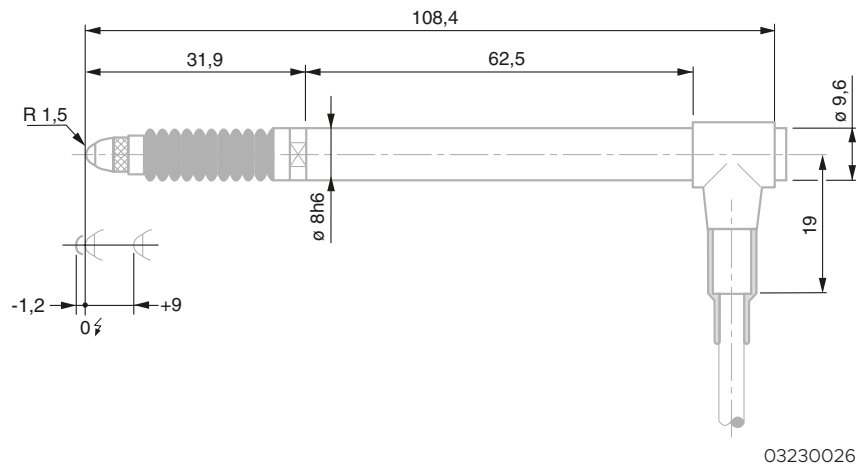

03230026

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	10,3 mm
Repeatability	0,05 μ m
Hysteresis	0,05 μ m
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) μ m
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 \div 0,1 mm
Coefficient of linear expansion	0,15 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

 Measuring force: at electrical zero, limit deviation $\pm 25\%$, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230026	GT28 probe	0,63	Mechanical, vacuum	IP65	Radial	2
03290137	10x GT28 probe	0,63	Mechanical, vacuum	IP65	Radial	2

Standard GT61 probes, ± 5 mm, 10,3 mm bolt travel, axial cable

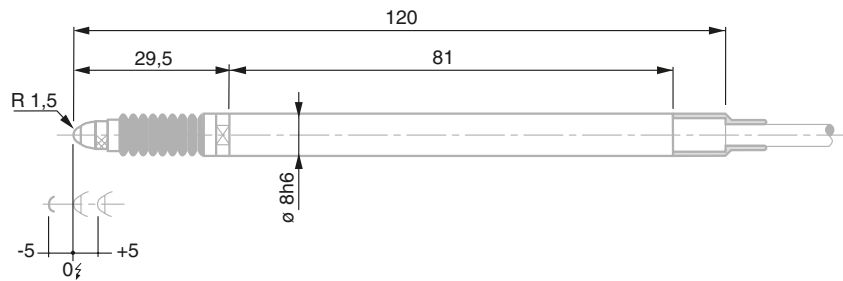

03230041

Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,05 µm
Hysteresis	0,05 µm
Max. perm. errors	L in mm 1 + 4 x L µm
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -5 mm Not adjustable: lower: -5,1 mm, upper +5,2 mm
Coefficient of linear expansion	0,09 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230041

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230041	GT61 probe	0,9	Mechanical	IP65	Axial	2
03290153	10x GT61 probe	0,9	Mechanical	IP65	Axial	2

Standard GT62 probes, ± 5 mm, 10,3 mm bolt travel, radial cable

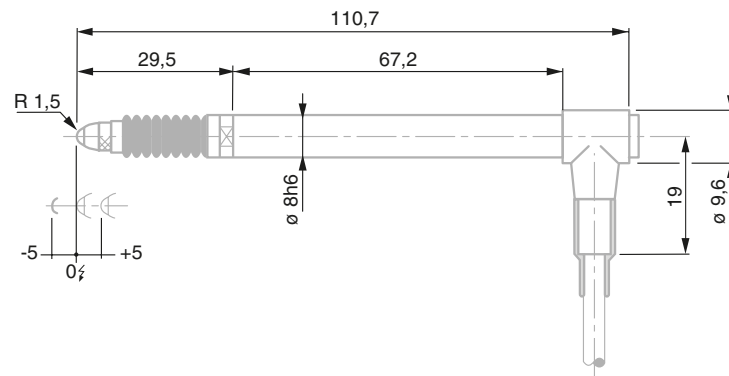

03230042

Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,05 μ m
Hysteresis	0,05 μ m
Max. perm. errors	L in mm 1 + 4 x L μ m
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -5 mm Not adjustable: lower: -5,1 mm, upper +5,2 mm
Coefficient of linear expansion	0,09 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

 Measuring force: at electrical zero, limit deviation $\pm 25\%$, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230042

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230042	GT62 probe	0,9	Mechanical, vacuum	IP65	Radial	2
03290135	10x GT62 probe	0,9	Mechanical, vacuum	IP65	Radial	2

High precision GT21 HP probe, $\pm 0,2$ mm, 4,3 mm bolt travel, axial cable



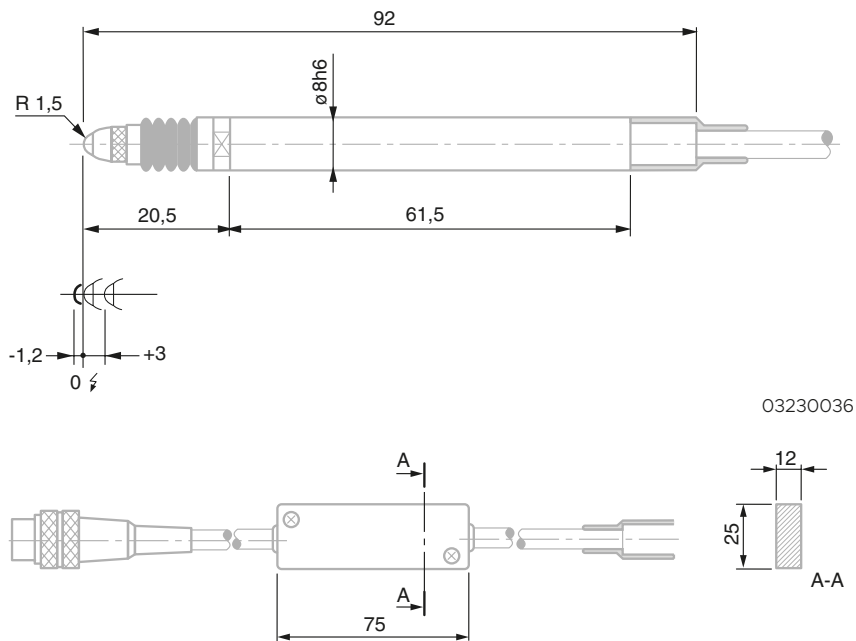
03230036

Standard	DIN 32876
Measuring range	$\pm 0,2$ mm
Bolt travel	4,3 mm
Repeatability	0,01 μ m
Hysteresis	0,01 μ m
Max. perm. errors	L in mm 0,07 + 0,4 x L μ m
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 \pm 0,1 mm
Coefficient of linear expansion	0,15 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Nitrile Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

 Measuring force: at electrical zero, limit deviation \pm 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230036	GT21 HP probe	0,63	Mechanical	IP65	Axial	2

High precision GT22 HP probe, $\pm 0,2$ mm, 4,3 mm bolt travel, radial cable



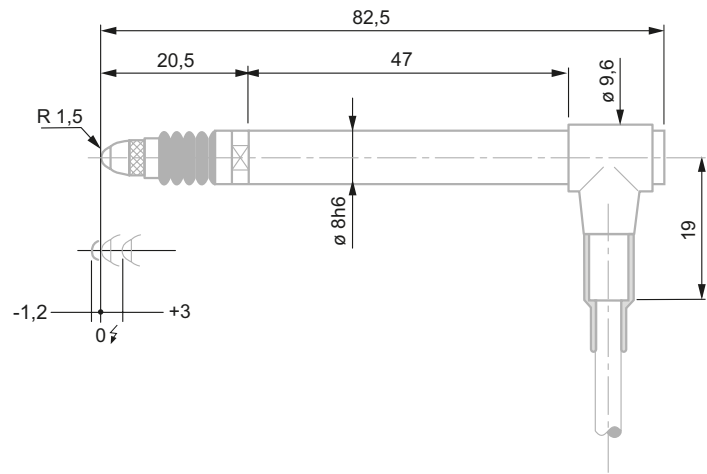
03230021

Standard	DIN 32876
Measuring range	$\pm 0,2$ mm
Bolt travel	4,3 mm
Repeatability	0,01 μ m
Hysteresis	0,01 μ m
Max. perm. errors	L in mm 0,07 + 0,4 x L μ m
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 \div 0,1 mm
Coefficient of linear expansion	0,15 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Nitrile Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

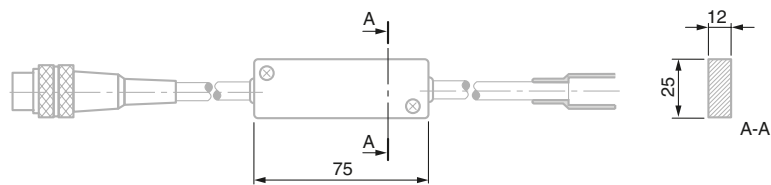
Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation $\pm 25\%$, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230021



Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230021	GT22 HP probe	0,63	Mechanical, vacuum	IP65	Radial	2

Miniature GT41 probe, 0,3 mm, 0,7 mm bolt travel, axial cable

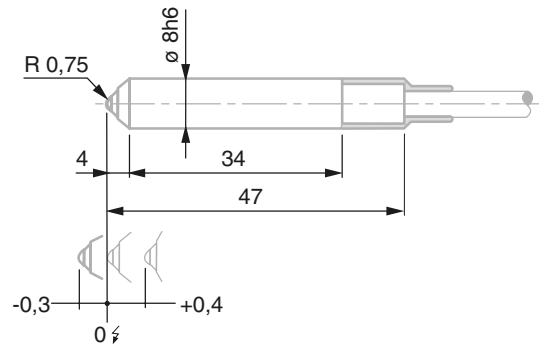

03230001

Standard	DIN 32876
Measuring range	± 0,3 mm
Bolt travel	0,7 mm
Repeatability	0,01 µm
Hysteresis	0,01 µm
Max. perm. errors	L in mm 0,2 + 5 x (L x L) µm
Degree of protection	IP65
Weight	Mobile weight: 2 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -0,3 mm Not adjustable: lower: -0,3 mm, upper +0,4 mm
Coefficient of linear expansion	0,1 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: ceramic Protection bellow: Nitrile Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Non-interchangeable insert Ball insert: Ø 1,5 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230001

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230001	GT41 probe	0,63	Without	IP65	Axial	2

Miniature GT42 probe, $\pm 0,3$ mm, 0,7 mm bolt travel, radial cable



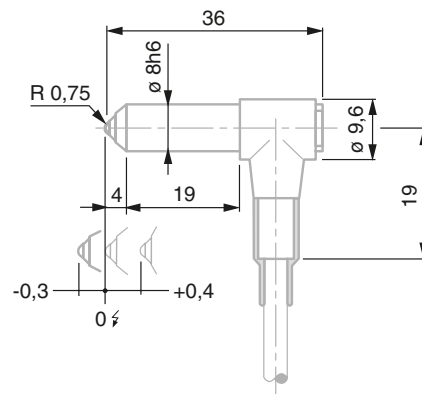
03230002

Standard	DIN 32876
Measuring range	$\pm 0,3$ mm
Bolt travel	0,7 mm
Repeatability	0,01 μ m
Hysteresis	0,01 μ m
Max. perm. errors	L in mm 0,2 + 5 x (L x L) μ m
Degree of protection	IP65
Weight	Mobile weight: 2 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -0,3 mm Not adjustable: lower: -0,3 mm, upper +0,4 mm
Coefficient of linear expansion	0,1 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: ceramic Protection bellow: Nitrile Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Non-interchangeable insert Ball insert: \varnothing 1,5 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation $\pm 25\%$, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230002

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230002	GT42 probe	0,63	Vacuum	IP65	Radial	2

Miniature GT43 probe, ± 1 mm, 2,1 mm bolt travel, axial cable



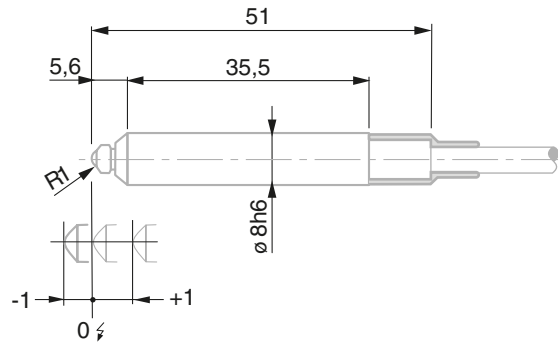
03230035

Standard	DIN 32876
Measuring range	± 1 mm
Bolt travel	2,1 mm
Repeatability	0,1 μ m
Hysteresis	0,15 μ m
Max. perm. errors	L in mm 0,2 + 5 x (L x L) μ m
Degree of protection	IP65
Weight	Mobile weight: 2 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,0 mm Not adjustable: lower: -1,05 mm, upper +1,05 mm
Coefficient of linear expansion	0,1 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2 Insert with ball tip: \varnothing 2 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation $\pm 25\%$, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230035

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230035	GT43 probe	0,4	Mechanical	IP65	Axial	2
03290151	10x GT43 probe	0,4	Mechanical	IP65	Axial	2

Miniature GT44 probe, ± 1 mm, 2,1 mm bolt travel, radial cable



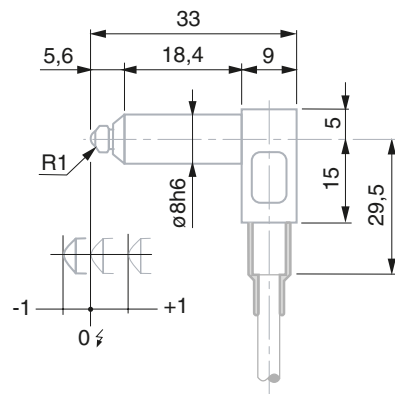
03230017

Standard	DIN 32876
Measuring range	± 1 mm
Bolt travel	2,1 mm
Repeatability	0,1 μ m
Hysteresis	0,15 μ m
Max. perm. errors	L in mm 0,2 + 5 x (L x L) μ m
Degree of protection	IP65
Weight	Mobile weight: 2 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,0 mm Not adjustable: lower: -1,05 mm, upper +1,05 mm
Coefficient of linear expansion	0,1 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2 Insert with ball tip: \varnothing 2 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation \pm 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230017

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230017	GT44 probe	0,4	Vacuum	IP65	Radial	2
03290136	10X GT44 probe	0,4	Vacuum	IP65	Radial	2

Pneumatic linearised GTL212 probes, ± 1,5 mm, 3,2 mm bolt travel, axial cable



03230060

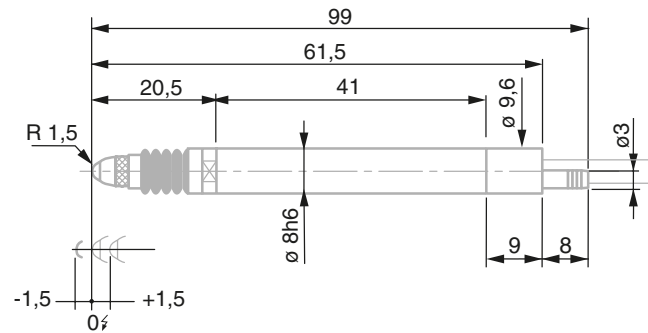


03230067

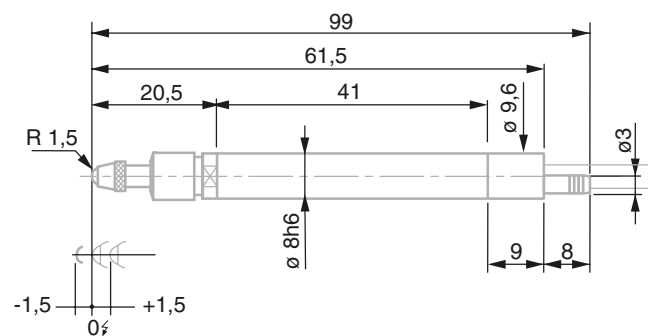
Standard	DIN 32876
Measuring range	± 1,5 mm
Bolt travel	3,2 mm
Repeatability	0,015 µm
Hysteresis	0,02 µm
Max. perm. errors	L in mm 0,2 + 2,4 x (L x L) µm 0,2 + 0,8 x L µm (with TESA interface)
Degree of protection	IP65 or IP50
Weight	Mobile weight: 6 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,2 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230060



03230067

Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure bar	Degree of protection	Cable orientation	Cable length, m
03230060	GTL212 probe	1,2	Activation: pressure, retraction: spring	0,7	1	IP65	Axial	2
03290157	10x GTL212 probe	1,2	Activation: pressure, retraction: spring	0,7	1	IP65	Axial	2
03230067	GTL212-A probe	0,2	Activation: pressure, retraction: spring	0,25	6	IP50	Axial	2
03290170	10x GTL212-A probe	0,2	Activation: pressure, retraction: spring	0,25	6	IP50	Axial	2

Pneumatic linearised GTL222 probes, ± 1,5 mm, 3,2 mm bolt travel, radial cable


03230054

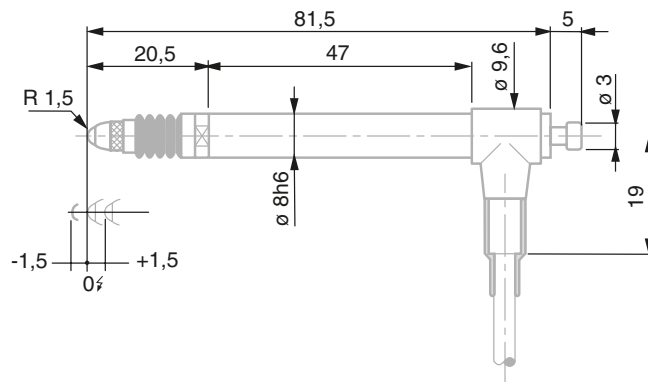


03230063

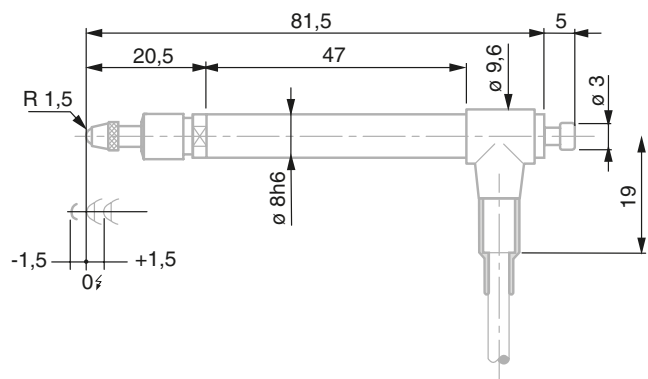
Standard	DIN 32876
Measuring range	± 1,5 mm
Bolt travel	3,2 mm
Repeatability	0,015 µm
Hysteresis	0,02 µm
Max. perm. errors	L in mm 0,2 + 2,4 x (L x L) µm 0,2 + 0,8 x L µm (with TESA interface)
Degree of protection	IP65 or IP50
Weight	Mobile weight: 6 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,2 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230054



03230063

Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure, bar	Degree of protection	Cable orientation	Cable length, m
03230054	GTL222 probe	1,2	Activation: pressure, retraction: spring	0,7	1	IP65	Radial	2
03290140	10x GTL222 probe	1,2	Activation: pressure, retraction: spring	0,7	1	IP65	Radial	2
03230063	GTL222-A probe	0,2	Activation: pressure, retraction: spring	0,25	6	IP50	Radial	2
03290171	10x GTL222-A probe	0,2	Activation: pressure, retraction: spring	0,25	6	IP50	Radial	2

Pneumatic GT272 probes, ± 2 mm, 10,3 mm bolt travel, axial cable



03230061

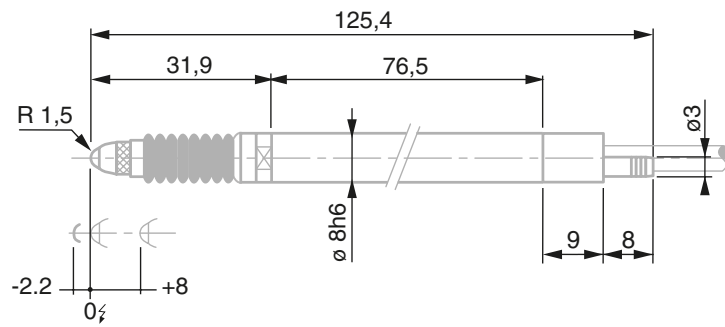


03230068

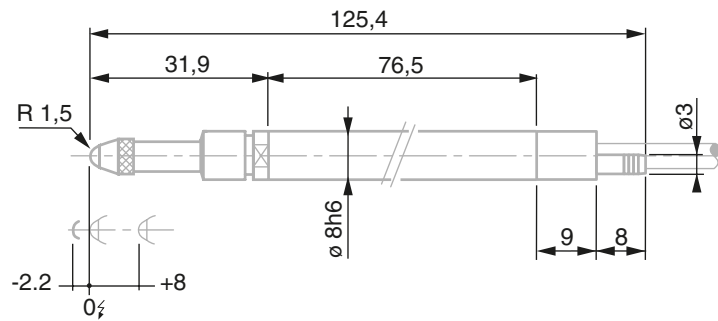
Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	10,3 mm
Repeatability	0,05 µm
Hysteresis	0,05 µm
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) µm
Degree of protection	IP65 or IP50
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,15 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230061



03230068

Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure, bar	Degree of protection	Cable orientation	Cable length, m
03230061	GT272 probe	1	Activation: pressure, retraction: spring	1,1	1,5	IP65	Axial	2
03290158	10x GT272 probe	1	Activation: pressure, retraction: spring	1,1	1,5	IP65	Axial	2
03230068	GT272-A probe	0,85	Activation: pressure, retraction: spring	1	6	IP50	Axial	2
03290172	10x GT272-A probe	0,85	Activation: pressure, retraction: spring	1	6	IP50	Axial	2

Pneumatic GT282 probes, ± 2 mm, 10,3 mm bolt travel, radial cable



03230053

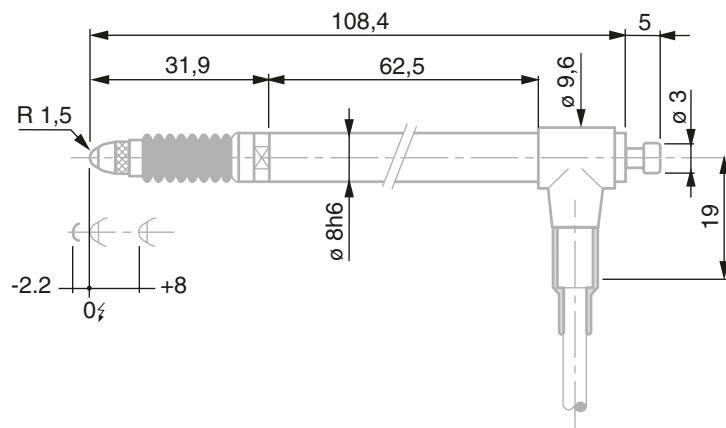


03230069

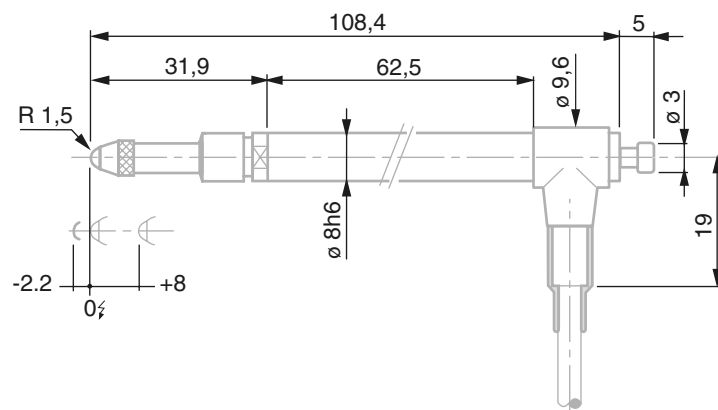
Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	10,3 mm
Repeatability	0,05 µm
Hysteresis	0,05 µm
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) µm
Degree of protection	IP65 or IP50
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,15 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellows: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230053



03230069

Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure bar	Degree of protection	Cable orientation	Cable length, m
03230053	GT282 probe	1	Activation: pressure, retraction: spring	1,1	1,5	IP65	Radial	2
03290141	10x GT282 probe	1	Activation: pressure, retraction: spring	1,1	1,5	IP65	Radial	2
03230069	GT282-A probe	0,85	Activation: pressure, retraction: spring	1	6	IP50	Radial	2
03290173	10x GT282-A probe	0,85	Activation: pressure, retraction: spring	1	6	IP50	Radial	2

Pneumatic GT612 probes, ± 5 mm, 10,3 mm bolt travel, axial cable



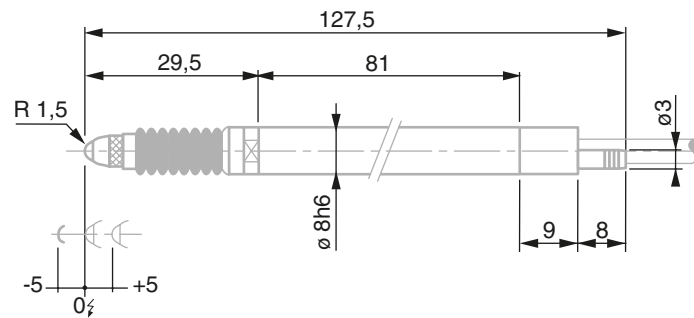
03230062



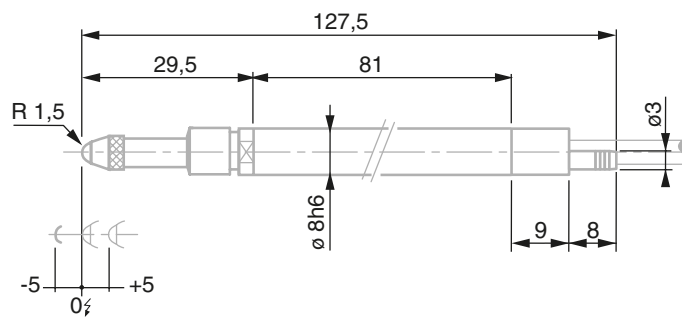
03230070

Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,05 µm
Hysteresis	0,05 µm
Max. perm. errors	L in mm 1 + 4 x L µm 0,6 + 0,8 x L µm (with TESA interface)
Degree of protection	IP65 or IP50
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,09 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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Standard axial probes



03230062



03230070

Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure bar	Degree of protection	Cable orientation	Cable length, m
03230062	GT612 probe	2	Activation: pressure, retraction: spring	1,1	1,5	IP65	Axial	2
03290159	10x GT612 probe	2	Activation: pressure, retraction: spring	1,1	1,5	IP65	Axial	2
03230070	GT612-A probe	1	Activation: pressure, retraction: spring	1	6	IP50	Axial	2
03290174	10x GT612-A probe	1	Activation: pressure, retraction: spring	1	6	IP50	Axial	2

Pneumatic GT622 probes, ± 5 mm, 10,3 mm bolt travel, radial cable


03230055

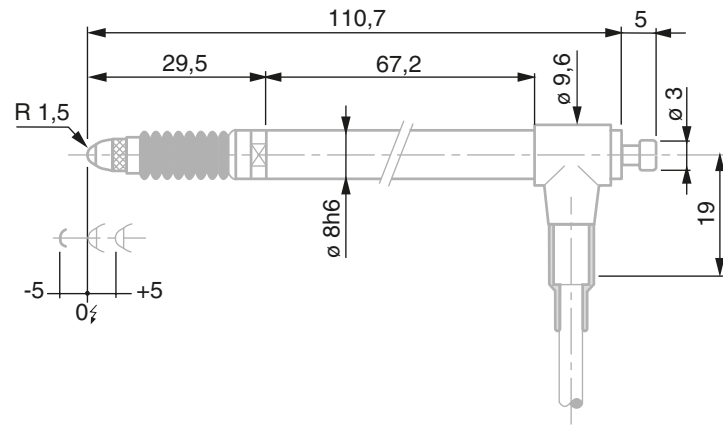


03230071

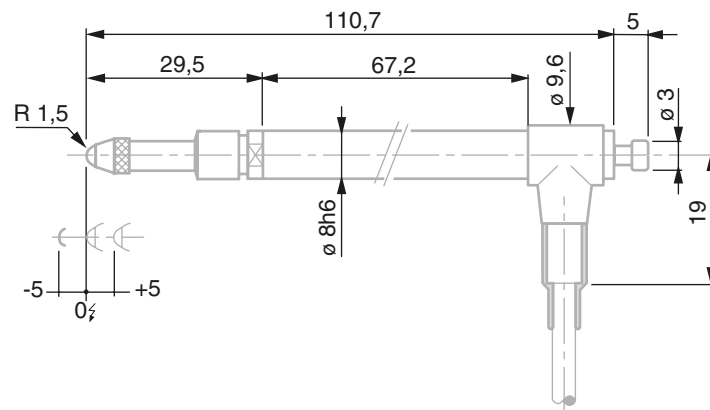
Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,05 µm
Hysteresis	0,05 µm
Max. perm. errors	L in mm 1 + 4 x L µm 0,6 + 0,8 x L µm (with TESA interface)
Degree of protection	IP65 or IP50
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,09 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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Measuring force: at electrical zero, limit deviation ± 25%, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



03230055



03230071

Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure bar	Degree of protection	Cable orientation	Cable length, m
03230055	GT622 probe	2	Activation: pressure, retraction: spring	1,1	1,5	IP65	Radial	2
03290142	10x GT622 probe	2	Activation: pressure, retraction: spring	1,1	1,5	IP65	Radial	2
03230071	GT622-A probe	1	Activation: pressure, retraction: spring	1	6	IP50	Radial	2
03290175	10x GT622-A probe	1	Activation: pressure, retraction: spring	1	6	IP50	Radial	2

Unbranded probe, ± 1 mm, 2,5 mm bolt travel, axial and radial cable



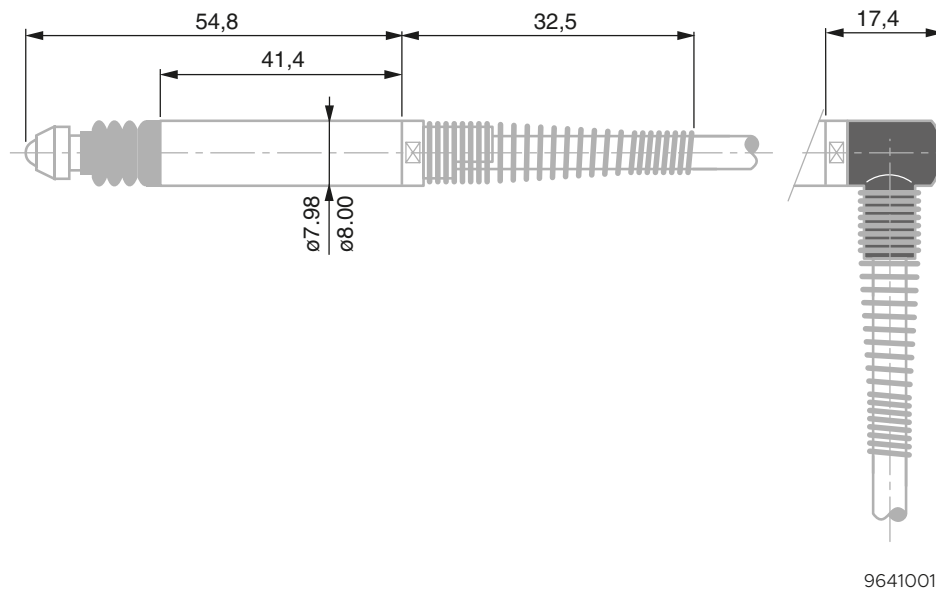
96410012

Standard	DIN 32876
Measuring range	± 1 mm
Bolt travel	2,5 mm
Repeatability	0,1 µm
Hysteresis	0,02 µm
Max. perm. errors	0,2 % (for a measuring range of ± 1 mm)
Degree of protection	IP65
Weight	Mobile weight: 3,1 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -1,08 mm Adjustable: -1,2 ÷ 0,0 mm
Coefficient of linear expansion	0,025 µm/°C
Material	Fixing shank: chrome plated Measuring bolt: stainless steel Protection bellow: Nitrile Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation ± 0,15 N, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
96410012	Unbranded probe	0,6	Mechanical	IP65	Axial and radial	2

Unbranded probe, ± 1 mm, 3,3 mm bolt travel, axial cable

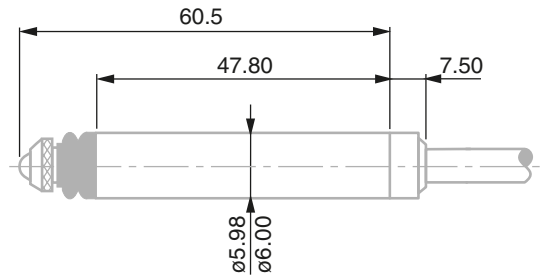

96160013

Standard	DIN 32876
Measuring range	± 1 mm
Bolt travel	3,3 mm
Repeatability	0,1 μ m
Hysteresis	0,02 μ m
Max. perm. errors	0,2 % (for a measuring range of ± 1 mm)
Degree of protection	IP65
Weight	Mobile weight: 2,5 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,08 mm Adjustable: -1,2 \div 0,0 mm
Coefficient of linear expansion	0,025 μ m/°C
Material	Fixing shank: chrome plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 6 mm Insert thread: M2 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
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Free position: corresponds to the distance from the electrical zero

 Measuring force: at electrical zero, limit deviation $\pm 0,15$ N, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



96160013

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
96160013	Unbranded probe	0,6	Mechanical	IP65	Axial	2

Unbranded miniature probe, $\pm 0,5$ mm, 1,25 mm bolt travel, axial cable



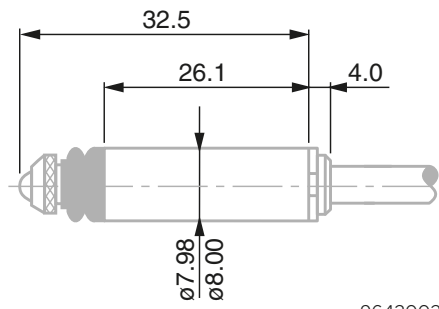
96430029

Standard	DIN 32876
Measuring range	$\pm 0,5$ mm
Bolt travel	1,25 mm
Repeatability	0,2 μ m
Hysteresis	0,02 μ m
Max. perm. errors	0,2 % (for a measuring range of $\pm 0,5$ mm)
Degree of protection	IP65
Weight	Mobile weight: 1,9 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -0,58 mm Adjustable: -0,7 \div 0,0 mm
Coefficient of linear expansion	0,025 μ m/°C
Material	Fixing shank: chrome plated Measuring bolt: stainless steel Protection bellows: Nitrile Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
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Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation $\pm 0,2$ N, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
96430029	Unbranded probe	0,75	Mechanical	IP65	Axial	2

Unbranded miniature probe, $\pm 0,5$ mm, 2,1 mm bolt travel, radial cable



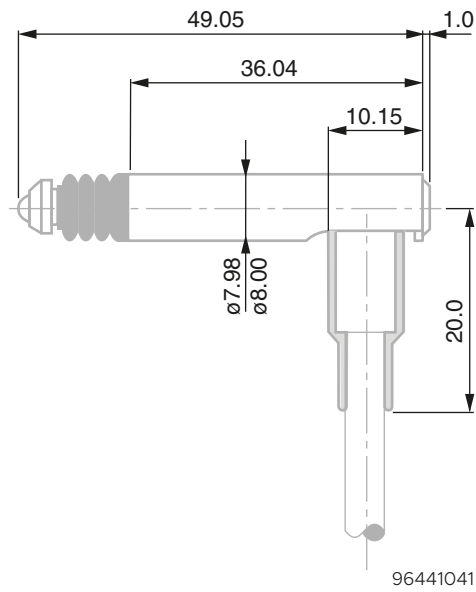
96441041

Standard	DIN 32876
Measuring range	$\pm 0,5$ mm
Bolt travel	2,1 mm
Repeatability	0,1 μ m
Hysteresis	0,02 μ m
Max. perm. errors	0,2 % (for a measuring range of $\pm 0,5$ mm)
Degree of protection	IP65
Weight	Mobile weight: 3 g
Working temperature	20 °C $\pm 0,5$
Resting position	Factory setting: -0,58 mm Adjustable: -0,7 \div 0,0 mm
Coefficient of linear expansion	0,025 μ m/°C
Material	Fixing shank: chrome plated Measuring bolt: stainless steel Protection bellow: Nitrile Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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Free position: corresponds to the distance from the electrical zero

Measuring force: at electrical zero, limit deviation $\pm 0,15$ N, valid in vertical position, static measurement, bolt pointing downwards

Standard axial probes



Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
96441041	Unbranded probe	0,6	Mechanical	IP65	Radial	2

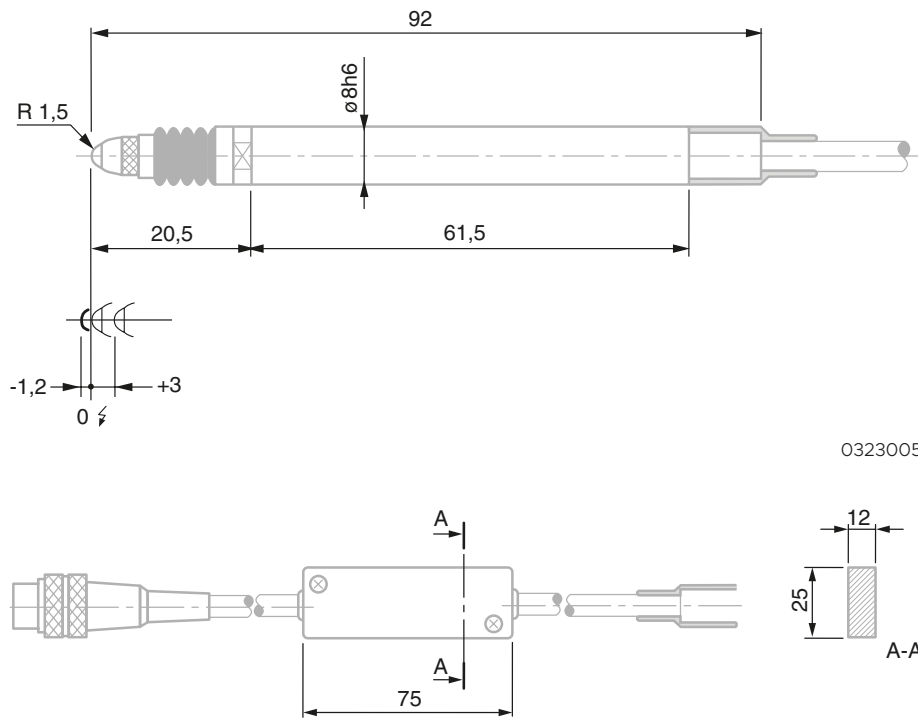
GTL21 DC probe, ± 2 mm, 4,3 mm bolt travel, axial cable



03230059

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	4,3 mm
Repeatability	0,1 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 0,2 + 3,5 x (L x L) µm
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 ÷ 0,1 mm
Coefficient of linear expansion	0,2 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Power supply	Stabilised supply voltage: ± 15 V Consumption: 15 mAh Adjustable load: > 1kΩ Output voltage: ± 2 V
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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DC axial probes



03230059

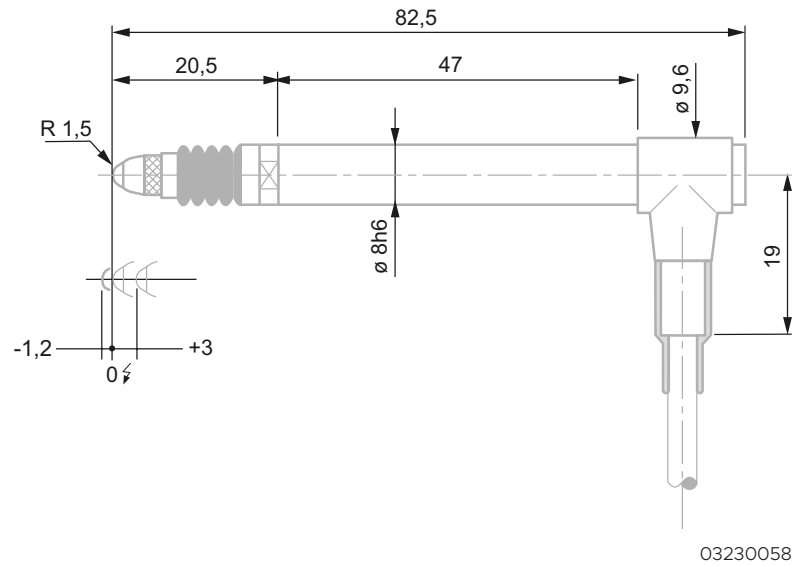
Article number	Designation	Measuring force, N	Bolt retraction	Output voltage, V	Sensitivity V/mm	Degree of protection	Cable orientation	Cable length m
03230059	GTL21 DC probe	0,63	Mechanical	± 2	1	IP65	Axial	2,2

DGTL22 DCC probe, ± 2 mm, 4,3 mm bolt travel, radial cable

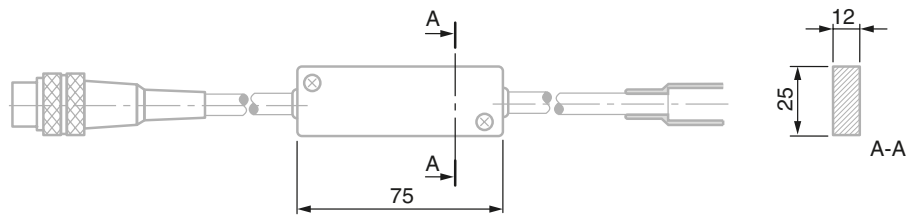

03230058

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	4,3 mm
Repeatability	0,1 μ m
Hysteresis	0,5 μ m
Max. perm. errors	L in mm 0,2 + 3,5 x (L x L) μ m
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 \pm 0,1 mm
Coefficient of linear expansion	0,2 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
Power supply	Stabilised supply voltage: ± 15 V Consumption: 15 mA Adjustable load: > 1k Ω Output voltage: ± 2 V
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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DC axial probes



03230058



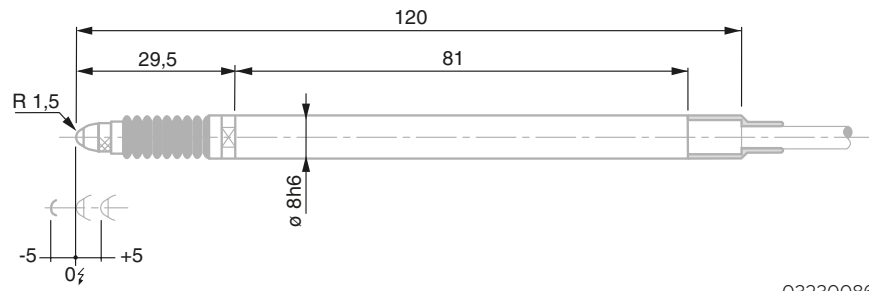
Article number	Designation	Measuring force, N	Bolt retraction	Output voltage, V	Sensitivity V/mm	Degree of protection	Cable orientation	Cable length, m
03230058	GTL21 DC probe	0,63	Mechanical, vacuum	± 2	1	IP65	Radial	2,2

GT61 DC probe, ± 5 mm, 10,3 mm bolt travel, axial cable

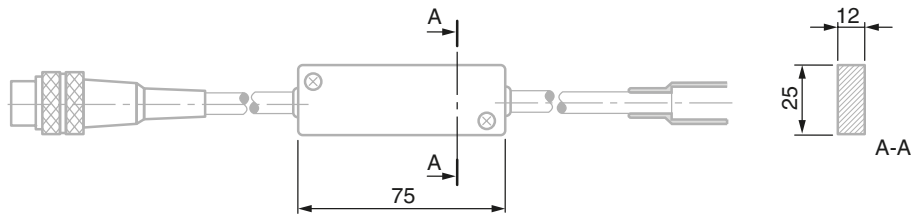

03230086

Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,1 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 1 + 4 x L µm
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -5 mm Not adjustable: lower: -5,1 mm, upper +5,2 mm
Coefficient of linear expansion	0,2 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Power supply	Stabilised supply voltage: ± 15 V Consumption: 15 mAh Adjustable load: > 1kΩ Output voltage: ± 5 V
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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DC axial probes



03230086



Article number	Designation	Measuring force, N	Bolt retraction	Output voltage, V	Sensitivity V/mm	Degree of protection	Cable orientation	Cable length, m
03230086	GT61 DC probe	0,9	Mechanical	± 5	1	IP65	Axial	2,2

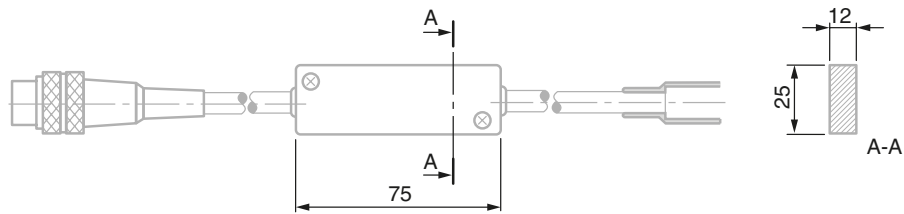
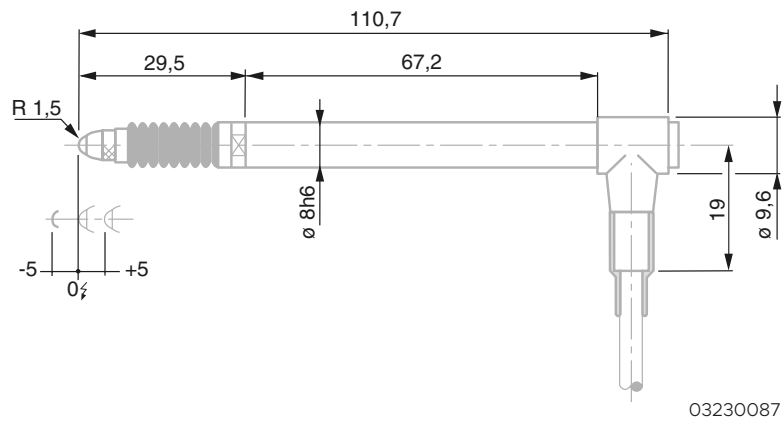
GT62 DC probes, ± 5 mm, 10,3 mm bolt travel, radial cable



03230087

Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,1 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 1 + 4 x L µm
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -5 mm Not adjustable: lower: -5,1 mm, upper +5,2 mm
Coefficient of linear expansion	0,2 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2 m Connector: 5p DIN45322
Power supply	Stabilised supply voltage: ± 15 V Consumption: 15 mAh Adjustable load: > 1kΩ Output voltage: ± 5 V
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

DC axial probes



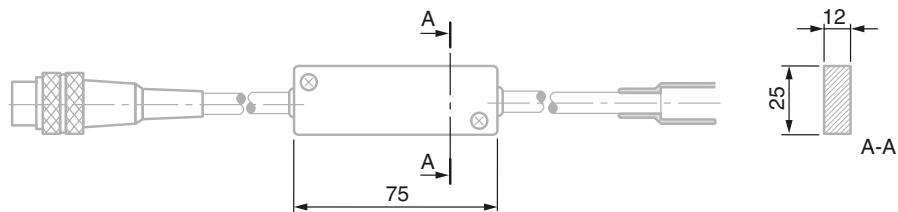
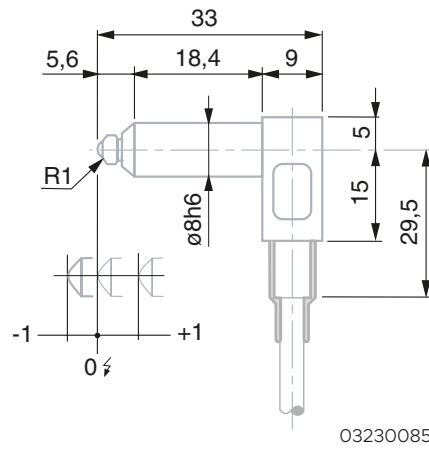
Article number	Designation	Measuring force, N	Bolt retraction	Output voltage, V	Sensitivity V/mm	Degree of protection	Cable orientation	Cable length, m
03230087	GT62 DC probe	0,9	Mechanical, vacuum	± 5	1	IP65	Radial	2,2

Miniature GT44 DC probe, ± 1 mm, 2,1 mm bolt travel, radial cable


03230085

Standard	DIN 32876
Measuring range	± 1 mm
Bolt travel	0,7 mm
Repeatability	0,1 μ m
Hysteresis	0,5 μ m
Max. perm. errors	L in mm 0,2 + 5 x (L x L) μ m
Degree of protection	IP65
Weight	Mobile weight: 2 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,0 mm Not adjustable: lower: -1,05 mm, upper +1,05 mm
Coefficient of linear expansion	0,1 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2 m Connector: 5p DIN45322
Power supply	Stabilised supply voltage: \pm 15 V Consumption: 15 mAh Adjustable load: > 1k Ω Output voltage: \pm 1 V
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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DC axial probes



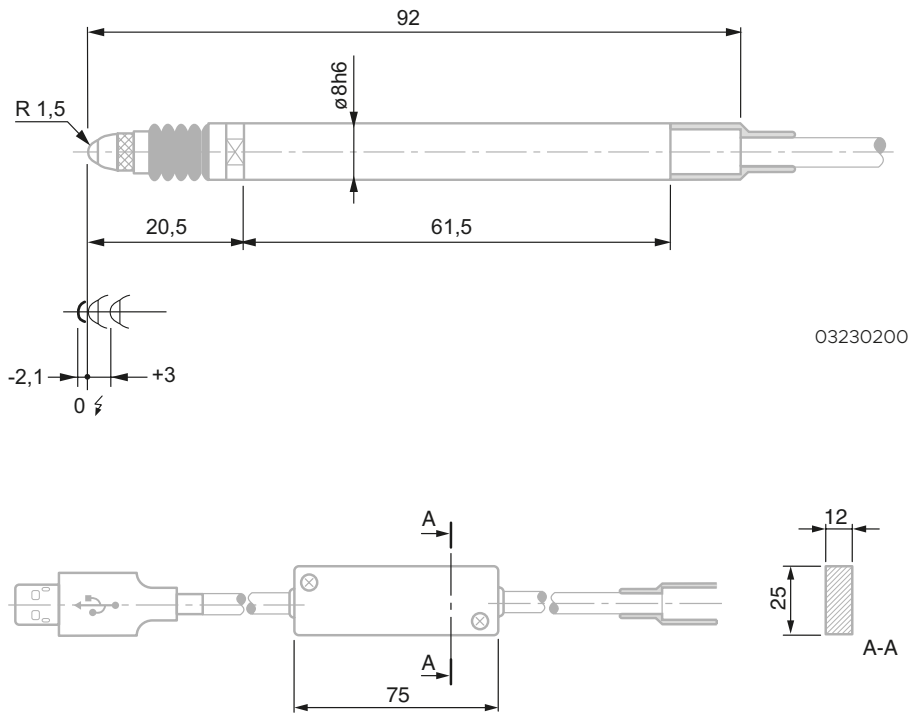
Article number	Designation	Measuring force, N	Bolt retraction	Output voltage, V	Sensitivity V/mm	Degree of protection	Cable orientation	Cable length, m
03230085	GT44 DC probe	0,4	Mechanical, vacuum	± 1	1	IP65	Radial	2,2

GTL21 USB probe, ± 2 mm, 4,3 mm bolt travel, axial cable


03230200

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	4,3 mm
Repeatability	0,1 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 0,4 + 2,4 x (L x L) µm
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 ÷ 0,1 mm
Coefficient of linear expansion	0,2 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2,9 m Connector: USB A type
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

USB axial probes



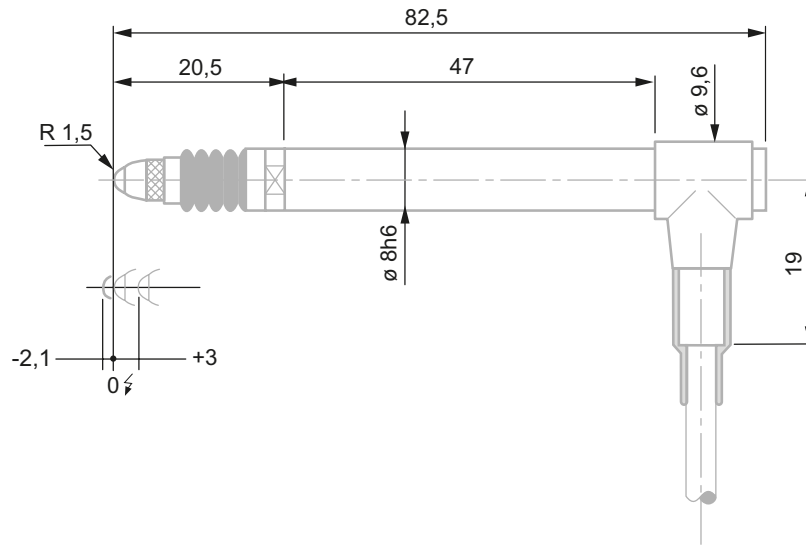
Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230200	GTL21 USB probe	0,63	Mechanical	IP65	Axial	2,9

GTL22 USB probes, ± 2 mm, 4,3 mm bolt travel, radial cable

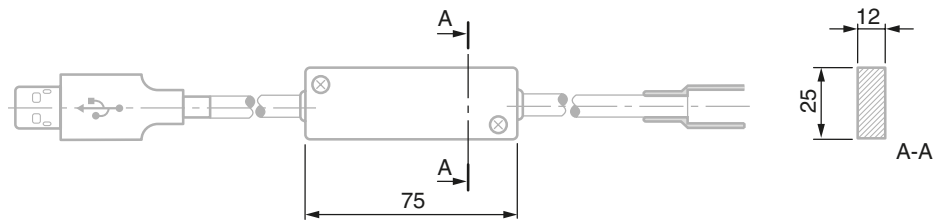

03230201

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	4,3 mm
Repeatability	0,1 μ m
Hysteresis	0,5 μ m
Max. perm. errors	L in mm 0,4 + 2,4 x (L x L) μ m
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C \pm 0,5
Resting position	Factory setting: -1,2 mm Adjustable: -2,2 \div 0,1 mm
Coefficient of linear expansion	0,2 μ m/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2,9 m Connector: USB A type
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

USB axial probes



03230201



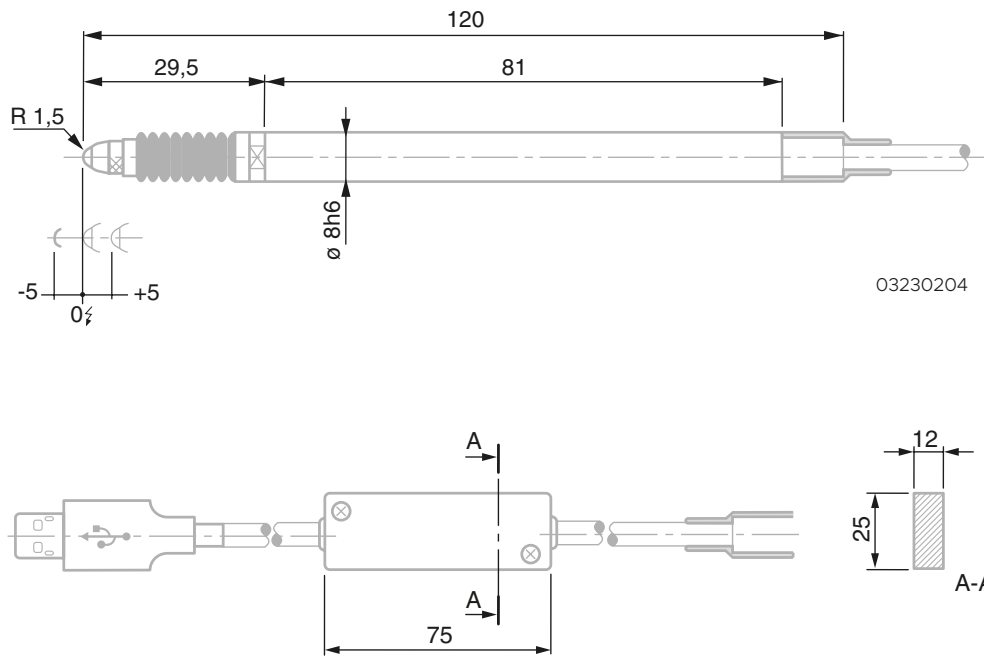
Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230201	GTL22 USB probe	0,63	Mechanical, vacuum	IP65	Radial	2,9

GT61 USB probe, ± 5 mm, 10,3 mm bolt travel, axial cable


03230204

Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,24 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 1 + 4 x L µm
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -5 mm Not adjustable: lower: -5,1 mm, upper +5,2 mm
Coefficient of linear expansion	0,09 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2,9 m Connector: USB A type
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

USB axial probes



03230204

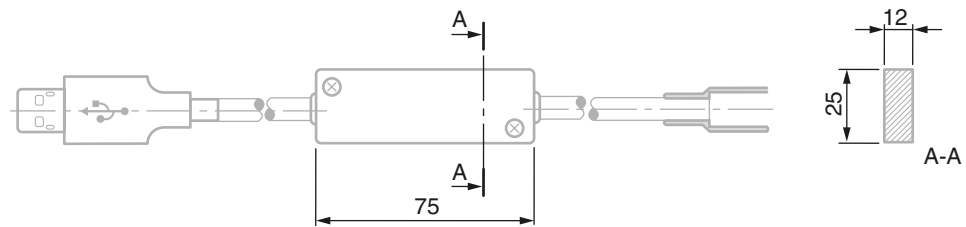
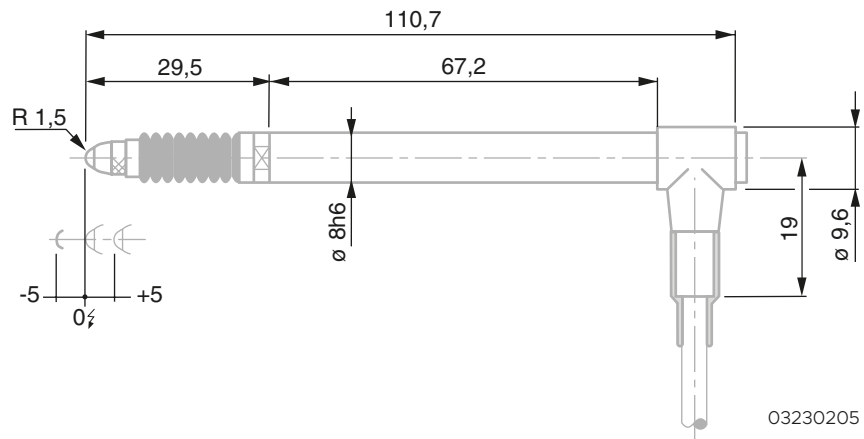
Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230204	GT61 USB probe	0,9	Mechanical	IP65	Axial	2,9

GT62 USB probe, ± 5 mm, 10,3 mm bolt travel, radial cable


03230205

Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,24 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 1 + 4 x L µm
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Resting position	Factory setting: -5 mm Not adjustable: lower: -5,1 mm, upper +5,2 mm
Coefficient of linear expansion	0,09 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2,9 m Connector: USB A type
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
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USB axial probes



Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230205	GT62 USB probe	0,9	Mechanical, vacuum	IP65	Radial	2,9

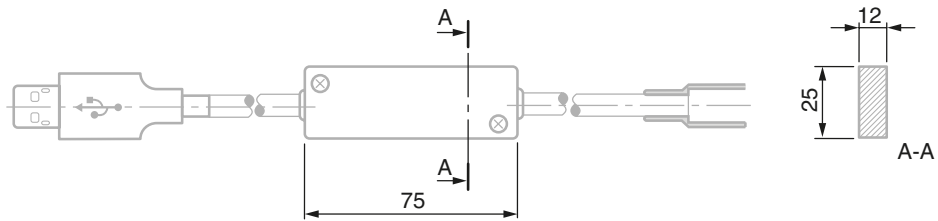
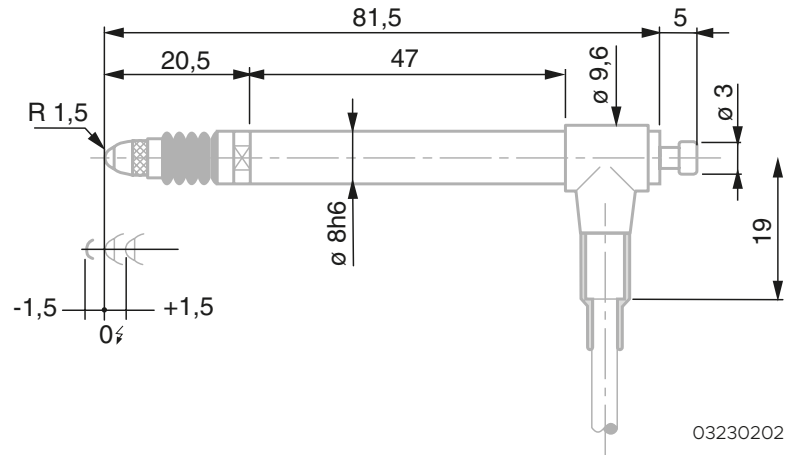
Pneumatic GTL222 USB probe, ± 1,5 mm, 3,1 mm bolt travel, radial cable



03230202

Standard	DIN 32876
Measuring range	± 1,5 mm
Bolt travel	3,1 mm
Repeatability	0,1 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 0,4 + 2,4 x (L x L) µm
Degree of protection	IP65
Weight	Mobile weight: 6 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,2 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2,9 m Connector: USB A type
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Hose clamp Wrench Measurement report User manual Declaration of conformity

USB axial probes



Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure bar	Degree of protection	Cable orientation	Cable length, m
03230202	GTL222 USB probe	1,2	Activation: pressure, retraction: spring	0,7	1	IP65	Radial	2,9

Pneumatic GTL272 USB probes, ± 2 mm, 10,3 mm bolt travel, axial cable

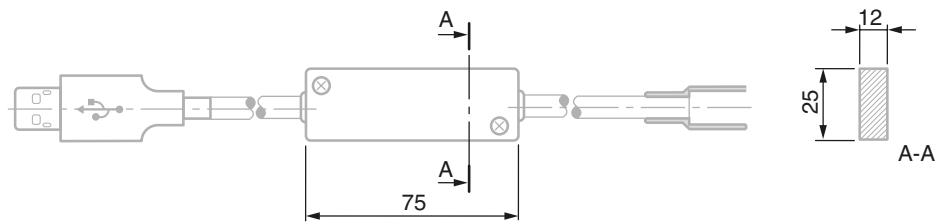
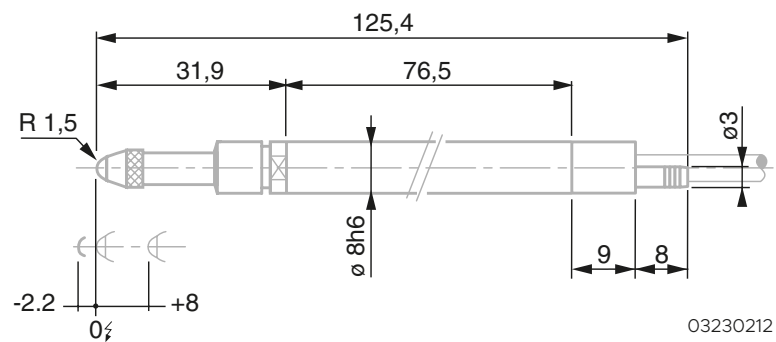
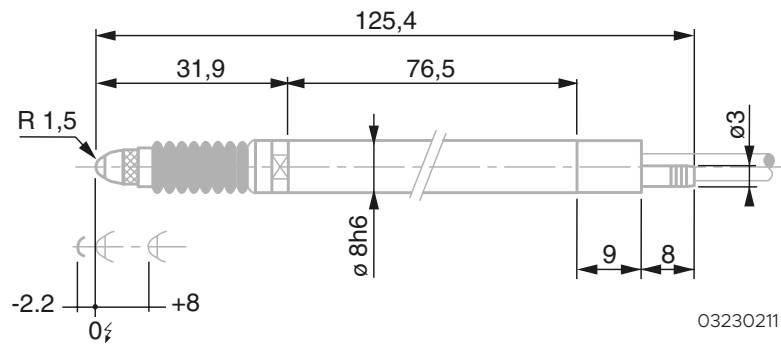

03230211



03230212

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	10,3 mm
Repeatability	0,01 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 0,4 + 0,8 x (L x L x L) µm
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,15 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2,9 m Connector: USB A type
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

USB axial probes



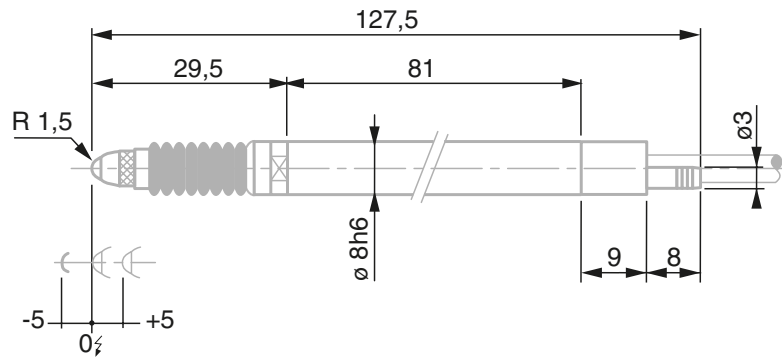
Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure, bar	Degree of protection	Cable orientation	Cable length, m
03230211	GTL272 USB probe	1	Activation: pressure, retraction: spring	1,1	1,5	IP65	Axial	2,9
03230212	GTL272-A USB probe	0,85	Activation: pressure, retraction: spring	1	6	IP65	Axial	2,9

GT612 USB pneumatic probes, ± 5 mm, 10,3 mm bolt travel, axial cable

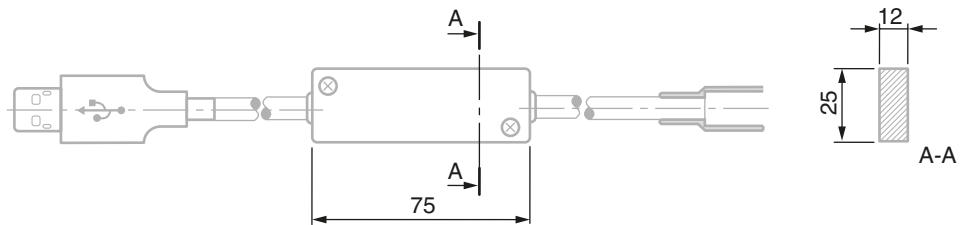

03230210

Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,24 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 1 + 4 x L µm
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,09 µm/°C
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: Ø 8 mm Insert thread: M2,5 Ball insert: Ø 3 mm Cable: 2,9 m Connector: USB A type
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Wrench Measurement report User manual Declaration of conformity

USB axial probes



03230210



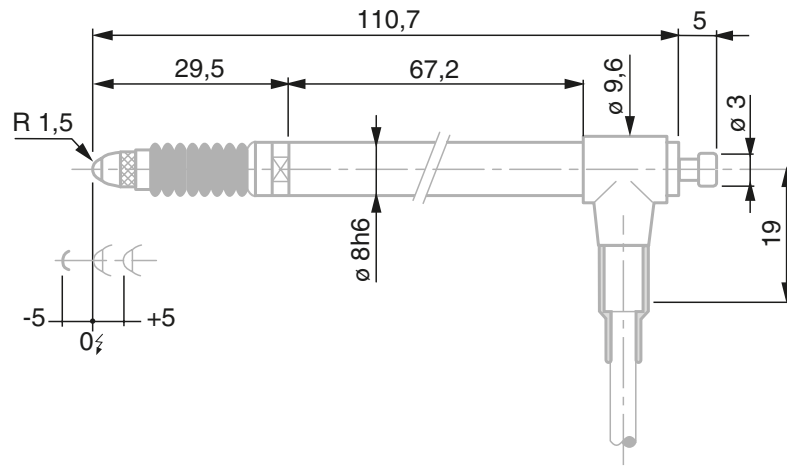
Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure bar	Degree of protection	Cable orientation	Cable length, m
03230210	GT612 USB probe	2	Activation: pressure, retraction: spring	1,1	1,5	IP65	Axial	2,9

Pneumatic GT622 USB probe, ± 5 mm, 10,3 mm bolt travel, radial cable

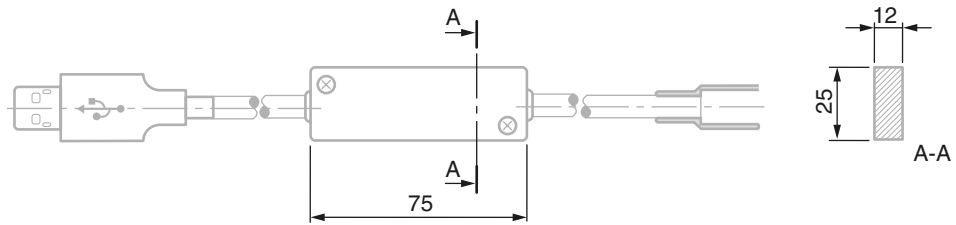

03230206

Standard	DIN 32876
Measuring range	± 5 mm
Bolt travel	10,3 mm
Repeatability	0,24 μm
Hysteresis	0,5 μm
Max. perm. errors	L in mm 1 + 4 x L μm
Degree of protection	IP65
Weight	Mobile weight: 8 g
Working temperature	20 °C \pm 0,5
Coefficient of linear expansion	0,09 $\mu\text{m}/^{\circ}\text{C}$
Material	Fixing shank: nickel plated Measuring bolt: stainless steel Protection bellow: Viton® Ball insert: tungsten carbide
Dimensions	Fixing shank: \varnothing 8 mm Insert thread: M2,5 Ball insert: \varnothing 3 mm Cable: 2,9 m Connector: USB A type
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Hose clamp Wrench Measurement report User manual Declaration of conformity

USB axial probes

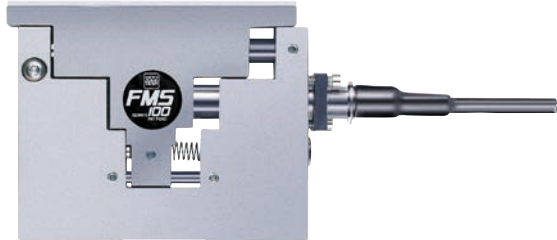


03230206



Article number	Designation	Measuring force, N	Bolt retraction	Nominal pressure, bar	Max. pressure bar	Degree of protection	Cable orientation	Cable length, m
03230206	GT622 USB probe	2	Activation: pressure, retraction: spring	1,1	1,5	IP65	Radial	2,9

FMS100 probes, ± 2 mm, 5,8 mm measuring travel, axial cable



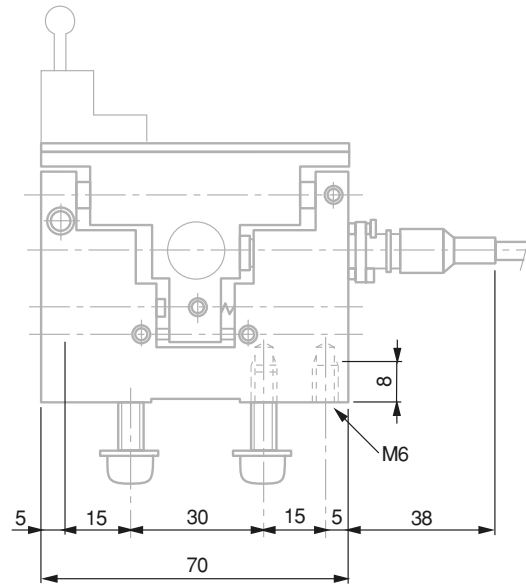
03230019



03230037

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	5,8 mm
Repeatability	0,5 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) µm
Degree of protection	IP50 or IP54
Weight	Mobile weight: 110 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,14 µm/°C
Material	Probe body: nickel plated steel
Dimensions	Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Allen key 2x M2 x 10 screws 2x M6 x 20 screws 2x M6 washers Measurement report User manual Declaration of conformity

FMS probes with parallel guiding



03230019

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length, m
03230019	FMS100 probe	2	Retraction by air pressure (optional accessory)	IP50	Axial	2
03230037	FMS100-P probe	2	Retraction by air pressure (optional accessory)	IP54	Axial	2

FMS102 probes, ± 2 mm, 5,8 mm measuring travel, radial cable



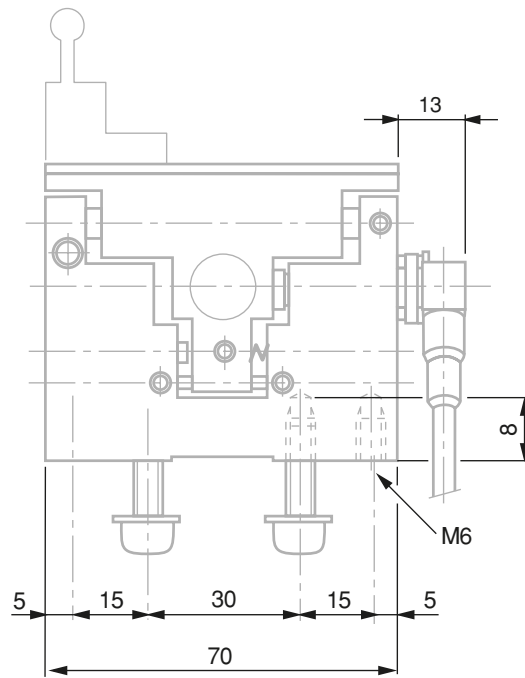
03230028



03230038

Standard	DIN 32876
Measuring range	± 2 mm
Bolt travel	5,8 mm
Repeatability	0,5 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) µm
Degree of protection	IP50 or IP54
Weight	Mobile weight: 110 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,14 µm/°C
Material	Probe body: nickel plated steel
Dimensions	Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Allen key 2x M2 x 10 screws 2x M6 x 20 screws 2x M6 washers Measurement report User manual Declaration of conformity

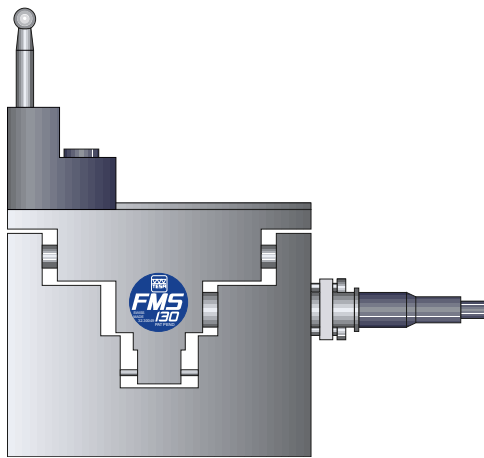
FMS probes with parallel guiding



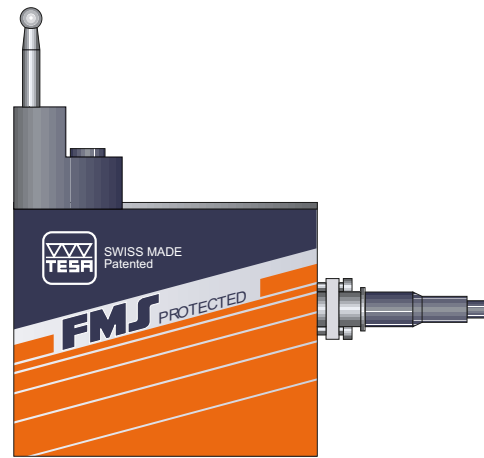
03230028

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length, m
03230028	FMS102 probe	2	Retraction by air pressure (optional accessory)	IP50	Radial	2
03230038	FMS102-P probe	2	Retraction by air pressure (optional accessory)	IP54	Radial	2

FMS130 probes, ± 2,9 mm, 5,8 mm measuring travel, axial cable



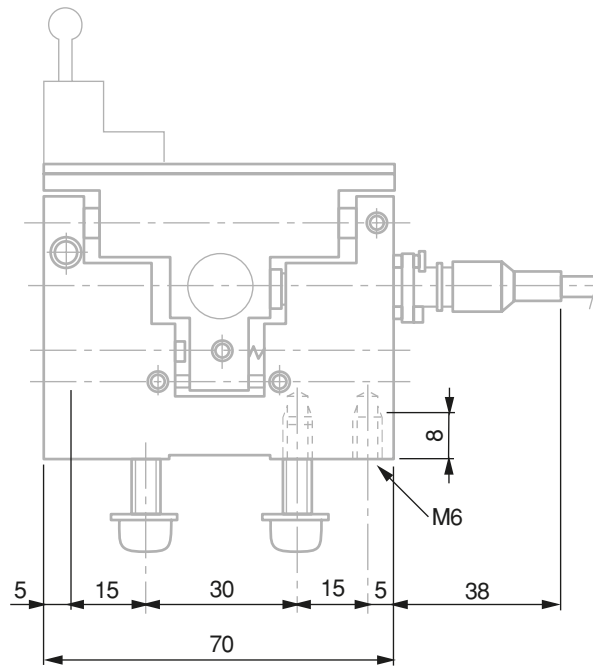
03230049



03230051

Standard	DIN 32876
Measuring range	± 2,9 mm
Bolt travel	5,8 mm
Repeatability	0,5 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) µm
Degree of protection	IP50 or IP54
Weight	Mobile weight: 110 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,14 µm/°C
Material	Probe body: nickel plated steel
Dimensions	Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Allen key 2x M2 x 10 screws 2x M6 x 20 screws 2x M6 washers Measurement report User manual Declaration of conformity

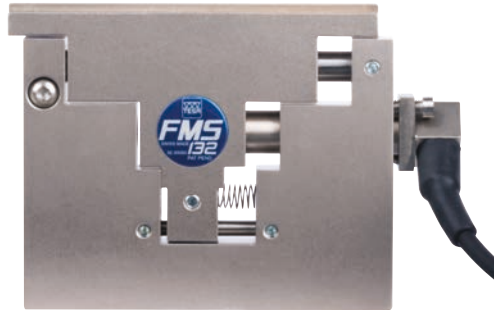
FMS probes with parallel guiding



03230049

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length, m
03230049	FMS130 probe	2	Retraction by air pressure (optional accessory)	IP50	Axial	2
03230051	FMS130-P probe	2	Retraction by air pressure (optional accessory)	IP54	Axial	2

FMS132 probes, ± 2,9 mm, 5,8 mm measuring travel, radial cable



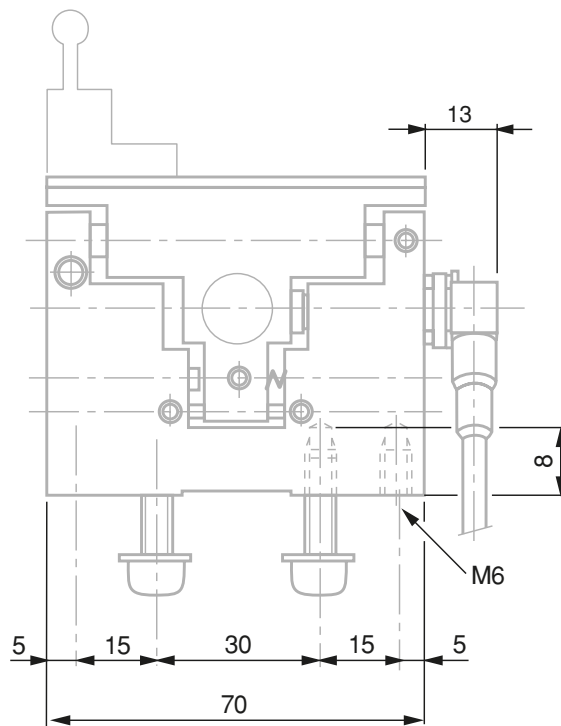
03230050



03230052

Standard	DIN 32876
Measuring range	± 2,9 mm
Bolt travel	5,8 mm
Repeatability	0,5 µm
Hysteresis	0,5 µm
Max. perm. errors	L in mm 0,2 + 3 x (L x L x L) µm
Degree of protection	IP50 or IP54
Weight	Mobile weight: 110 g
Working temperature	20 °C ± 0,5
Coefficient of linear expansion	0,14 µm/°C
Material	Probe body: nickel plated steel
Dimensions	Cable: 2 m Connector: 5p DIN45322
Remark(s)	CAD files available on request Downloadable data sheets on www.TESAtechnology.com
Included in delivery	Probe Allen key 2x M2 x 10 screws 2x M6 x 20 screws 2x M6 washers Measurement report User manual Declaration of conformity

FMS probes with parallel guiding

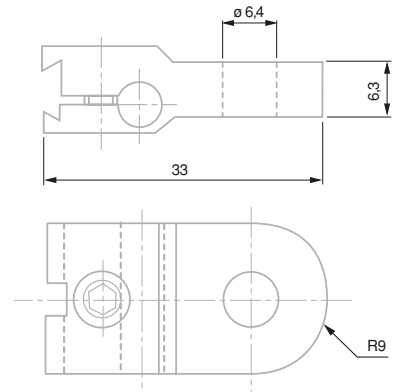


03230050 and 03230052

Article number	Designation	Measuring force, N	Bolt retraction	Degree of protection	Cable orientation	Cable length m
03230050	FMS132 probe	2	Retraction by air pressure (optional accessory)	IP50	Radial	2
03230052	FMS132-P probe	2	Retraction by air pressure (optional accessory)	IP54	Radial	2

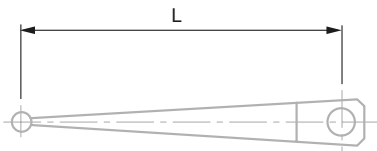
Fixing clamp

Article number	Designation	Particular characteristic(s)
03240100	Fixing bracket	With dovetail and cylindrical bore

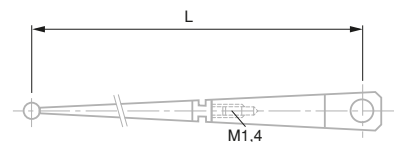


Ball tip inserts

Article number	Designation	Probe length mm	Diameter mm	Particular characteristic(s)
03260402	Ball insert	32	1	One-piece shaft
03260410	Ball insert	32	2	One-piece shaft
03260403	Ball insert	32	3	One-piece shaft
03590002	Ball insert	32	1	Two-piece shaft
03590003	Ball insert	32	2	Two-piece shaft
03590004	Ball insert	32	3	Two-piece shaft
03590005	Ball insert	32	4	Two-piece shaft
03590007	Ball insert	72	2	Two-piece shaft



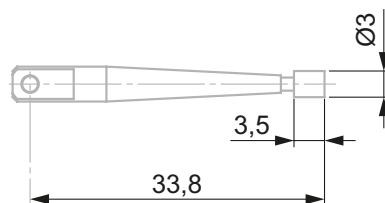
1-piece insert



2-pieces insert

Cylindrical insert

Article number	Designation	Probe length mm	Diameter mm
03260510	Cylindrical-shaped insert	32	Ø 3 x 3,5



Other accessories for axial probes

Protection bellows for measuring probes

Article number	Designation	Particular characteristic(s)
03260468	Nitrile bellow, 4,3 mm travel	For GT21, GT22
03260470	Viton® bellow, 4,3 mm travel	For GTL21, GTL211, GTL22
03260489	Viton® bellow for pressure probe, 4,3 mm travel	For GTL212, GTL222
03260491	Viton® bellow, 10,3 mm travel	For GT27, GT271, GT28, GT61, GT611, GT62
03260490	Viton® bellow for pressure probe, 10,3 mm travel	For GT272, GT282, GT612, GT622



03260468



03260470



03260489

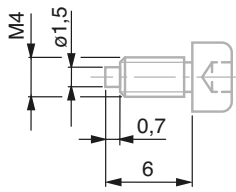
Spring sets for measuring probes

Article number	Designation	Measuring force N	Particular characteristic(s)
03260419	Spring sets	0,16	For GT22
03260420	Spring sets	0,25	For GT22
03260421	Spring sets	0,4	For GT22
03260457	Spring sets	0,63	For GT21, GT22
03260422	Spring sets	1	For GT21, GT22
03260423	Spring sets	1,6	For GT21, GT22
03260424	Spring sets	2,5	For GT21, GT22
03260425	Spring sets	4	For GT21, GT22
03260458	Spring sets	0,63	For GT27, GT28
03260464	Spring sets	1,6	For GT61, GT62

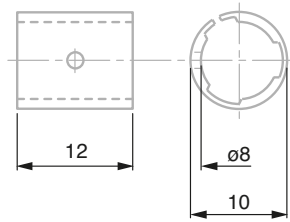


Clamping elements for measuring probes

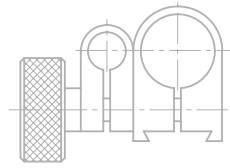
Article number	Designation	Diameter mm
02611013	VKD clamping screw	M4
02611014	VKE clamping sleeve, Ø 8 mm	8
01860401	Dovetail clamp with dovetail clamp, clamping Ø 5,6 and Ø 9,5 mm	5,6 / 9,5
02660048	VDE probe holder, Ø 8 mm, L = 28 mm	8



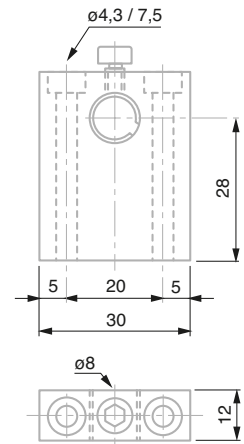
02611013



02611014



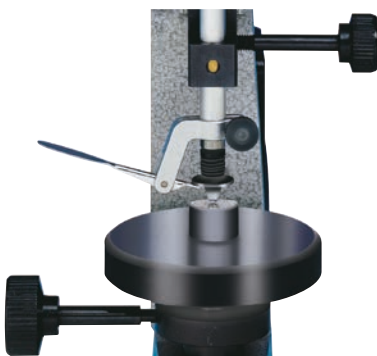
01860401



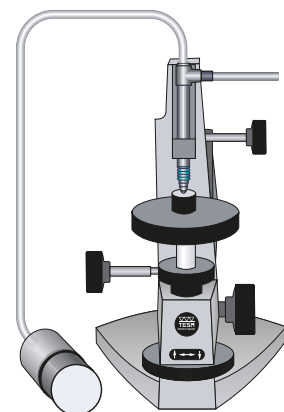
02660048

Manual measuring bolt retraction

Numéro d'article	Designation	Composed of
03540104	Device for mechanical plunger retraction	1x washer TB102 1x lifting lever TB101
03260401	Pneumatic retraction of the measuring bolt, manually operated	1x manual vacuum pump 1x 1m tube, Ø 4,7 mm



03540104

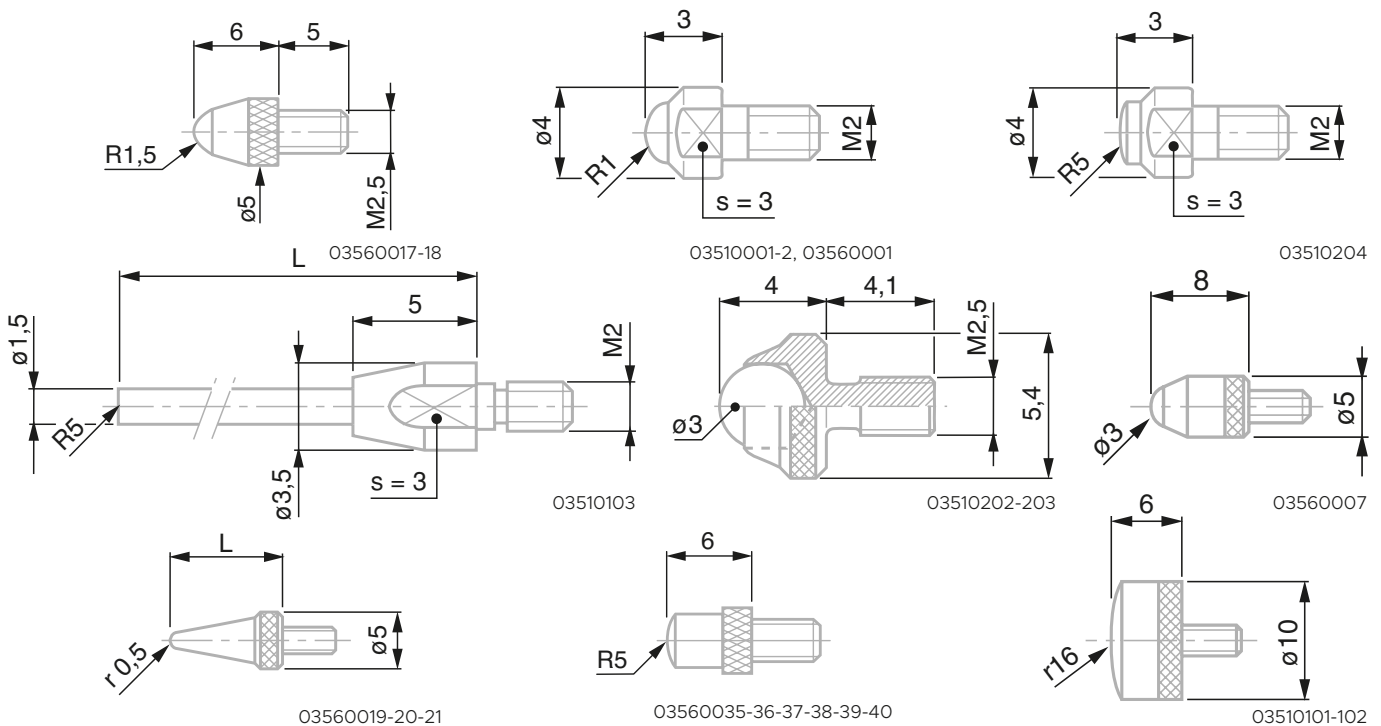


03260401

Inserts for axial probes

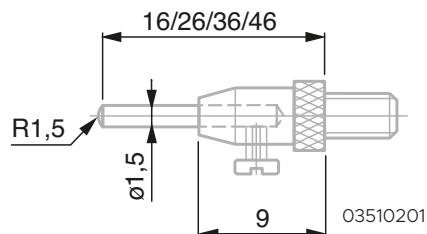
Hemispherical inserts

Article number	Designation	Fixing mm	Radius mm	Probe length mm	Diameter mm	Material
03510103	Hemispherical insert	M2	1	3	4	Tungsten carbide
03510204	Hemispherical insert	M2	1	3	4	Tungsten carbide
03510202	Hemispherical insert	M2	5	16	1,5	Tungsten carbide
03510203	Hemispherical insert	M2	5	26	1,5	Tungsten carbide
03560035	Hemispherical insert	M2,5	0,5	5	5	Steel
03560036	Hemispherical insert	M2,5	0,5	5	5	Steel
03560037	Hemispherical insert	M2,5	0,5	15	5	Steel
03560038	Hemispherical insert	M2,5	0,5	20	5	Steel
03560039	Hemispherical insert	M2,5	0,5	30	5	Steel
03560040	Hemispherical insert	M2,5	0,5	40	5	Steel
03560007	Hemispherical insert	M2,5	1,5	4	5,4	Tungsten carbide
03510001	Hemispherical insert	M2,5	1,5	6	5	Steel
03510002	Hemispherical insert	M2,5	1,5	6	5	Tungsten carbide
03560001	Hemispherical insert	M2,5	1,5	6	5	Sapphire
03560019	Hemispherical insert	M2,5	1,5	8	8	Steel
03560020	Hemispherical insert	M2,5	1,5	8	8	Tungsten carbide
03560021	Hemispherical insert	M2,5	1,5	8	8	Ruby
03510101	Hemispherical insert	M2,5	5	6	5	Steel
03510102	Hemispherical insert	M2,5	5	6	5	Tungsten carbide
03560017	Hemispherical insert	M2,5	16	6	10	Steel
03560018	Hemispherical insert	M2,5	16	6	10	Tungsten carbide



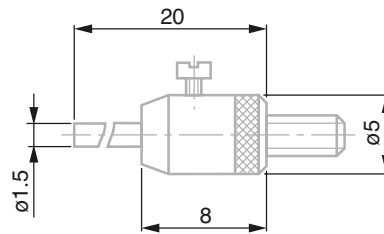
Hemispherical measuring insert with 4 interchangeable pins

Article number	Designation	Fixing mm	Measuring face(s)	Probe length mm	Diameter mm	Material
03510201	Hemispherical insert with interchangeable pins	M2,5	R1,5	16, 26, 36, 46	1,5	Steel



Inserts with flat measuring face and interchangeable pins

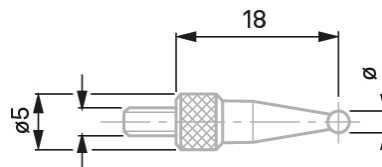
Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03560008	Insert with exchangeable contact pin	M2,5	20	1,5	Steel	Flat measuring face
03560009	Insert with exchangeable contact pin	M2,5	20	1,5	Tungsten carbide	Flat measuring face



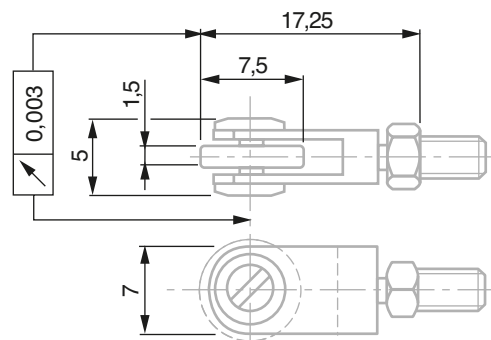
03560008

Ball tip inserts

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material
03560051	Ball insert	M2,5	18	1	Tungsten carbide
03560052	Ball insert	M2,5	18	2	Tungsten carbide
03560053	Ball insert	M2,5	18	3	Tungsten carbide
03560054	Ball insert	M2,5	18	4	Tungsten carbide
03560055	Ball insert	M2,5	18	5	Tungsten carbide
03560056	Ball insert	M2,5	18	6	Tungsten carbide
03560057	Ball insert	M2,5	18	7	Tungsten carbide
03560058	Ball insert	M2,5	18	8	Tungsten carbide


Inserts with rollers

Article number	Designation	Fixing mm	Probe length, mm	Material	Particular characteristic(s)
03560010	Insert with ball-bearing roller	M2,5	17,25	Steel	Cylindrical shape Locknut for radial alignment
03560011	Insert with ball-bearing roller	M2,5	17,25	Steel	Domed shape Locknut for radial alignment

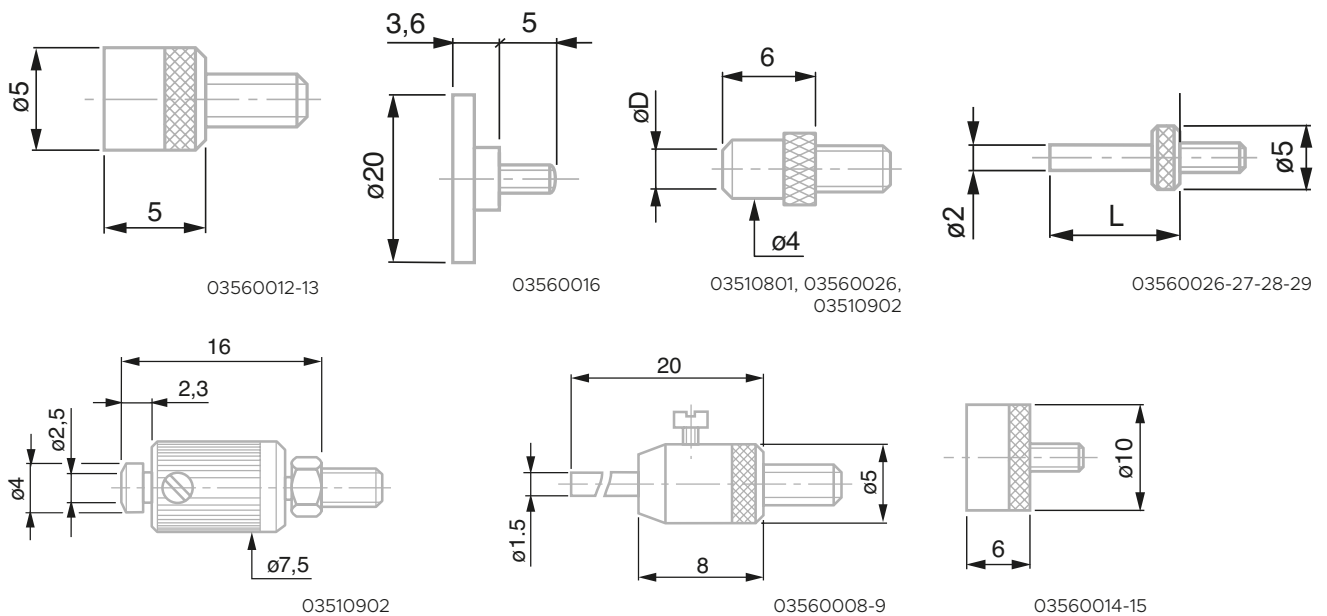


03560010

Inserts for axial probes

Inserts with flat measuring face

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material
03560026	Insert with a flat measuring face	M2,5	2,8	2	Steel
03560027	Insert with a flat measuring face	M2,5	7,8	2	Steel
03560028	Insert with a flat measuring face	M2,5	12,8	2	Steel
03560029	Insert with a flat measuring face	M2,5	17,8	2	Steel
03510801	Insert with a flat measuring face	M2,5	6	2,5	Steel
03510802	Insert with a flat measuring face	M2,5	6	2,5	Tungsten carbide
03560022	Insert with a flat measuring face	M2,5	6	3,4	Steel
03560023	Insert with a flat measuring face	M2,5	6	3,4	Tungsten carbide
03560012	Insert with a flat measuring face	M2,5	5	5	Steel
03560013	Insert with a flat measuring face	M2,5	5	5	Tungsten carbide
03560014	Insert with a flat measuring face	M2,5	6	10	Steel
03560015	Insert with a flat measuring face	M2,5	6	10	Tungsten carbide
03560016	Insert with a flat measuring face	M2,5	3,6	20	Steel



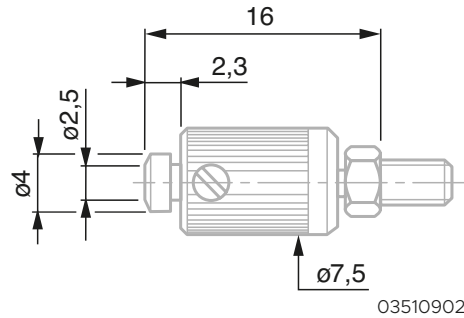
Cylindrical inserts

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03510502	Insert with cylindrical face	M2,5	6	Ø 2 x 3,3	Tungsten carbide	Lock nut for radial alignment
03510503	Insert with cylindrical face	M2	6	Ø 2 x 2,5	Tungsten carbide	Lock nut for radial alignment



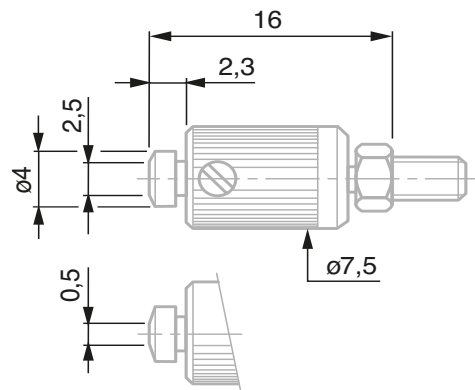
Insert with a flat measuring face, parallelism adjustable

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03510902	Insert with a flat measuring face	M2,5	16	4	Tungsten carbide	Flat face Locknut for radial alignment



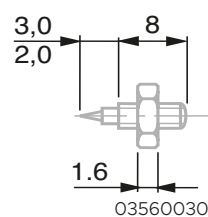
Narrow insert with adjustable parallelism

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03510702	Insert with adjustable parallelism	M2,5	16	4	Tungsten carbide	Narrow face Locknut for radial alignment



Needle insert

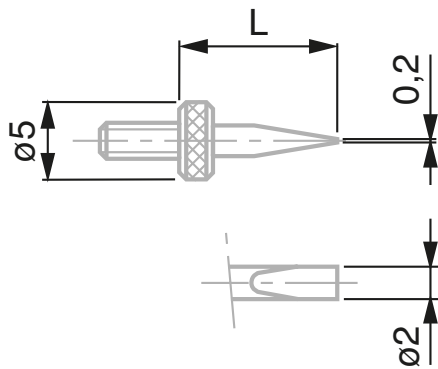
Article number	Designation	Fixing mm	Probe length mm	Material
03560030	Needle insert, steel, \varnothing 0,6 x 2,5 mm	M2,5	7	Steel



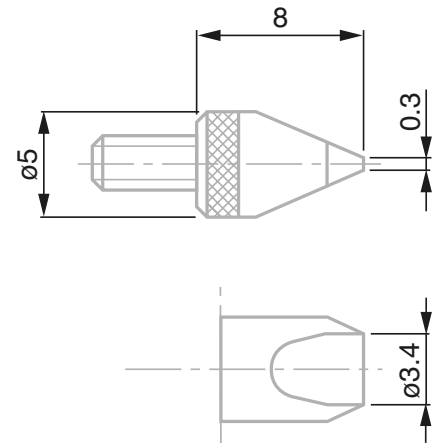
Inserts for axial probes

Inserts with knife blade shape

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Particular characteristic(s)
03560031	Insert with knife blade face	M2,5	5	Ø 2 x 0,2	Steel	Locknut for radial alignment
03560032	Insert with knife blade face	M2,5	10	Ø 2 x 0,2	Steel	Locknut for radial alignment
03560033	Insert with knife blade face	M2,5	15	Ø 2 x 0,2	Steel	Locknut for radial alignment
03560034	Insert with knife blade face	M2,5	20	Ø 2 x 0,2	Steel	Locknut for radial alignment
03560024	Insert with knife blade face	M2,5	8	Ø 3,4 x 0,3	Steel	Locknut for radial alignment
03560025	Insert with knife blade face	M2,5	8	Ø 3,4 x 0,3	Tungsten carbide	Locknut for radial alignment



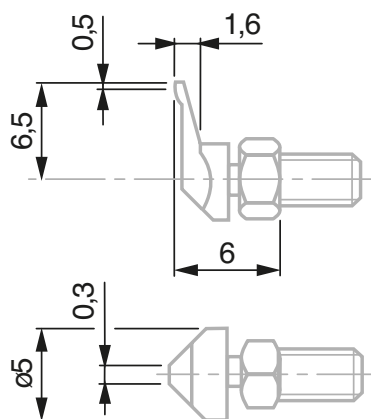
03560031



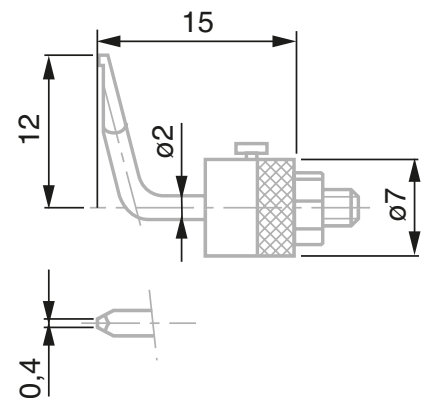
03560024

Pointed offset inserts

Article number	Designation	Fixing mm	Material	Particular characteristic(s)
03510401	Insert with offset	M2,5	Steel	Pointed face Locknut for radial alignment
03560063	Insert with offset	M2,5	Steel	Pointed face Locknut for radial alignment



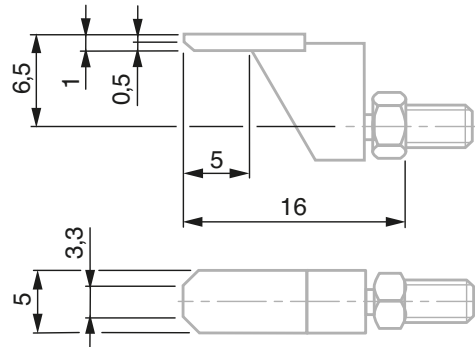
03510401



03560063

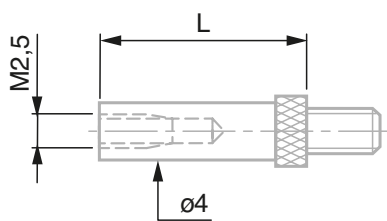
Narrow insert with offset

Article number	Designation	Fixing mm	Probe length mm	Material	Particular characteristic(s)
03510602	Insert with narrow and off-centre face	M2,5	16	Tungsten carbide	Lock nut for radial alignment

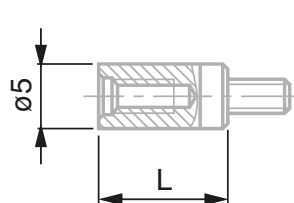


Extensions

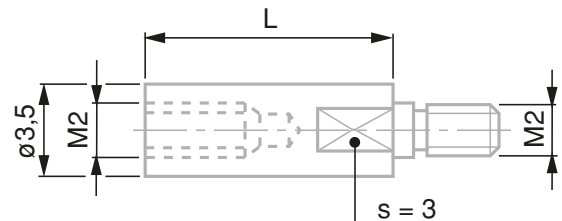
Article number	Designation	Fixing mm	Probe length mm	Diameter mm
03540505	Extension	M2	10	3,5
03540506	Extension	M2	15	3,5
03540501	Extension	M2,5	10	4
03540502	Extension	M2,5	15	4
03540503	Extension	M2,5	20	4
03540504	Extension	M2,5	40	4
03560042	Extension	M2,5	10	5
03560043	Extension	M2,5	15	5
03560044	Extension	M2,5	20	5
03560045	Extension	M2,5	25	5
03560046	Extension	M2,5	30	5
03560047	Extension	M2,5	35	5
03560048	Extension	M2,5	40	5
03560049	Extension	M2,5	45	5
03560050	Extension	M2,5	50	5



03540501 to 03540504



03560042 to 03560050

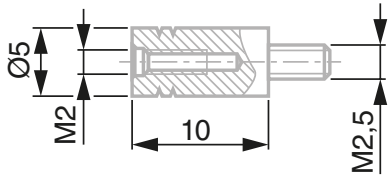


03540505 and 03540506

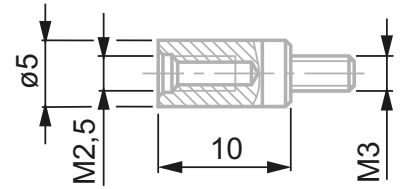
Inserts for dial gauges

Adapters

Article number	Designation	Fixing mm	Probe length mm	Particular characteristic(s)
03560092	Adapter	M2,5	10	For M2 inserts
03560065	Adapter	M3	10	For M2,5 inserts



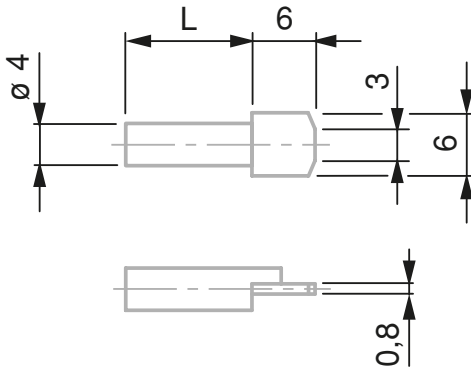
03560092



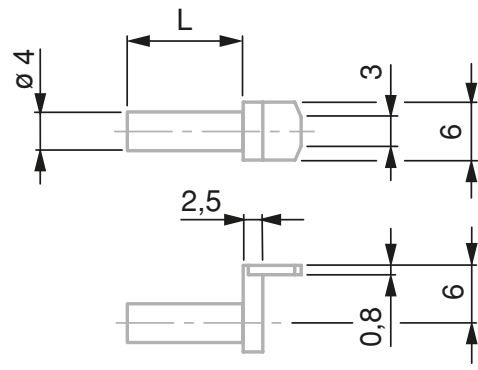
03560065

Probe inserts with flat rectangular face

Article number	Designation	Fixing mm	Probe length, mm	Material	Particular characteristic(s)
02660066	Insert with flat and right-angle measuring face	Ø 4	12	Tungsten carbide	Centered
02660067	Insert with flat and right-angle measuring face	Ø 4	12	Tungsten carbide	Offset
02660068	Insert with flat and right-angle measuring face	Ø 4	25	Tungsten carbide	Centered
02660069	Insert with flat and right-angle measuring face	Ø 4	25	Tungsten carbide	Offset



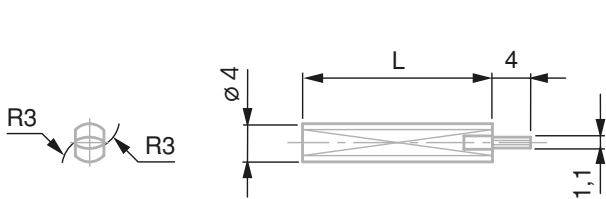
02660067, 02660069



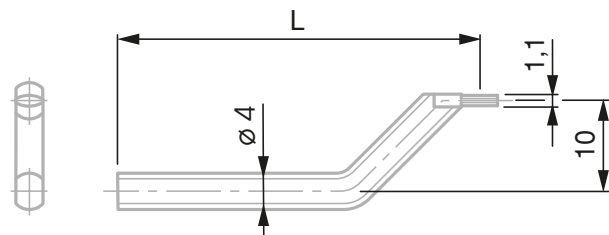
02660066, 02660068

Inserts with 2 cylindrical measuring faces

Article number	Designation	Fixing mm	Probe length mm	Material	Particular characteristic(s)
02660070	Insert with 2 cylindrical faces	Ø 4	20	Tungsten carbide	Centered
02660071	Insert with 2 cylindrical faces	Ø 4	40	Tungsten carbide	Centered
02660072	Insert with 2 cylindrical faces	Ø 4	60	Tungsten carbide	Centered
02660082	Insert with 2 cylindrical faces	Ø 4	40	Tungsten carbide	Offset
02660083	Insert with 2 cylindrical faces	Ø 4	60	Tungsten carbide	Offset



02660070-71-72

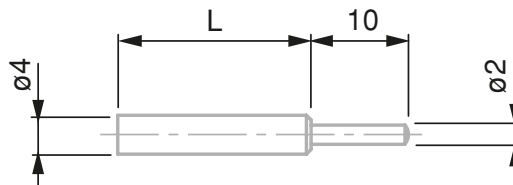


02660082-83

Inserts and holders for FMS probes

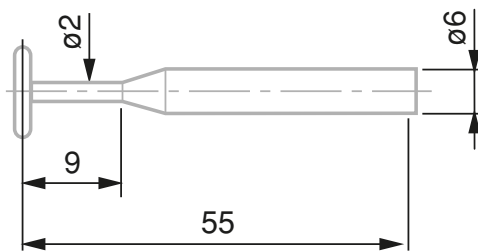
Pin insert

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material
02660073	Insert with contact pin	Ø 4	20	2	Tungsten carbide
02660074	Insert with contact pin	Ø 4	40	2	Tungsten carbide

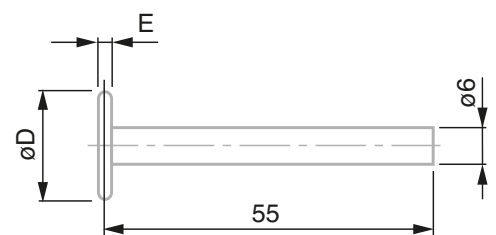


Disc inserts

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material	Disc thickness mm
00760074	Disc insert	Ø 6	55	4,5	Tungsten carbide	1
00760075	Disc insert	Ø 6	55	14	Tungsten carbide	2
00760076	Disc insert	Ø 6	55	19	Tungsten carbide	3



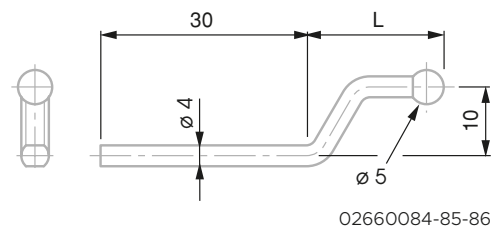
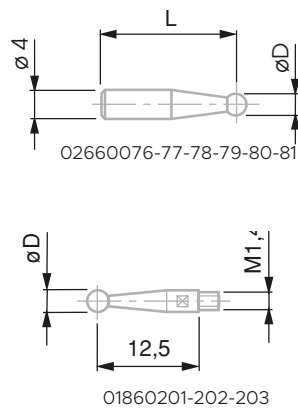
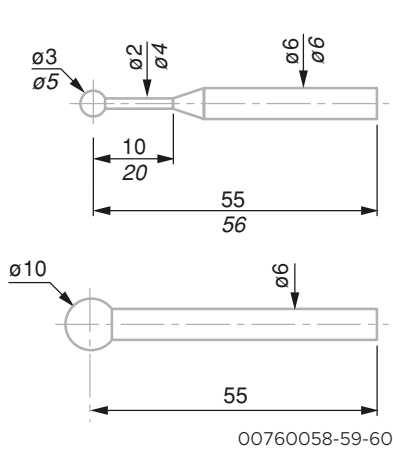
00760074



00760075-76

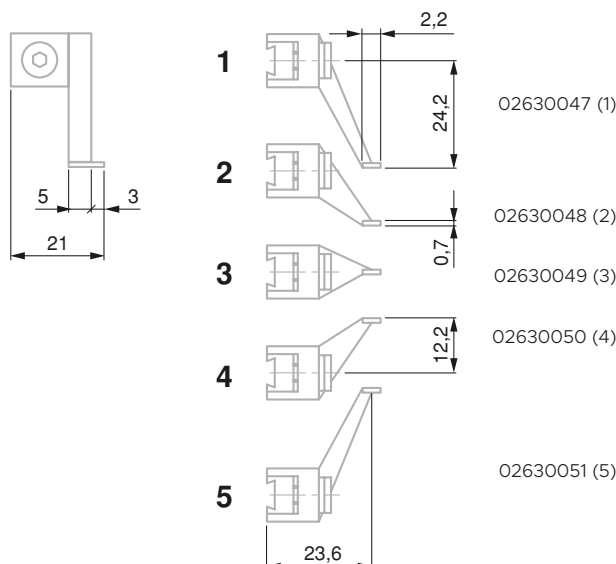
Ball tip inserts

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material
02660076	Ball insert	∅ 4	20	3	Tungsten carbide
02660077	Ball insert	∅ 4	40	3	Tungsten carbide
02660078	Ball insert	∅ 4	60	3	Tungsten carbide
02660079	Ball insert	∅ 4	20	5	Tungsten carbide
02660080	Ball insert	∅ 4	40	5	Tungsten carbide
02660081	Ball insert	∅ 4	60	5	Tungsten carbide
02660084	Ball insert	∅ 4	20	5	Tungsten carbide
02660085	Ball insert	∅ 4	33	5	Tungsten carbide
02660086	Ball insert	∅ 4	48	5	Tungsten carbide
00760058	Ball insert	∅ 6	55	3	Tungsten carbide
00760059	Ball insert	∅ 6	56	5	Tungsten carbide
00760060	Ball insert	∅ 6	55	10	Tungsten carbide
01860201	Ball insert	M1,4	12,53	1	Tungsten carbide
01860202	Ball insert	M1,4	12,53	2	Tungsten carbide
01860203	Ball insert	M1,4	12,53	3	Tungsten carbide



Offset inserts

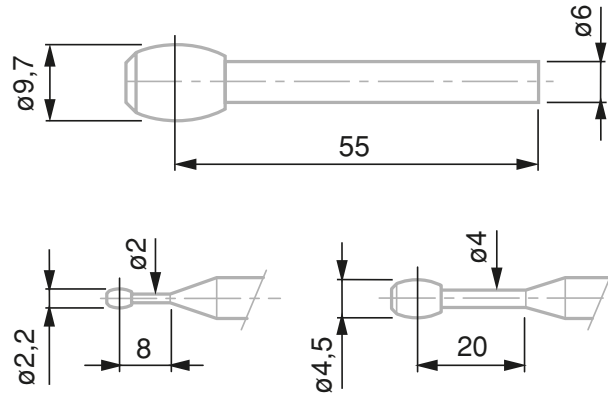
Article number	Designation	Material	Particular characteristic(s)
02630047	VBM insert with flat and right-angle measuring face	Tungsten carbide	Offset
02630048	VBN insert with flat and right-angle measuring face	Tungsten carbide	Offset
02630049	VBO insert with flat and right-angle measuring face	Tungsten carbide	Centered
02630050	VBP insert with flat and right-angle measuring face	Tungsten carbide	Offset
02630051	VBQ insert with flat and right-angle measuring face	Tungsten carbide	Offset



Inserts and holders for FMS probes

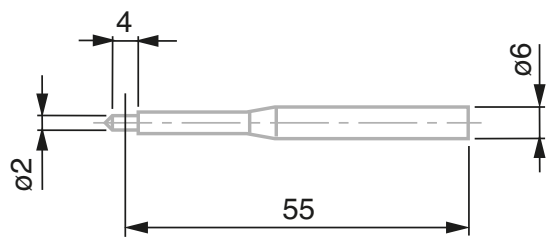
Barrel inserts

Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material
00760066	Barrel-shaped insert	∅ 6	57,5	2,2	Tungsten carbide
00760067	Barrel-shaped insert	∅ 6	60	4,5	Tungsten carbide
00760068	Barrel-shaped insert	∅ 6	62,5	9,7	Tungsten carbide



Cylindrical insert

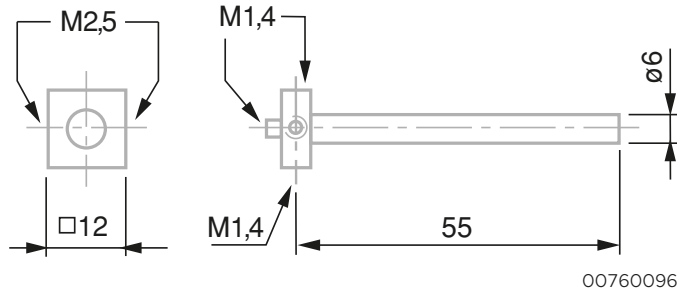
Article number	Designation	Fixing mm	Probe length mm	Diameter mm	Material
00760082	Cylindrical-shaped insert	∅ 6	55,8	2	Tungsten carbide



00760082

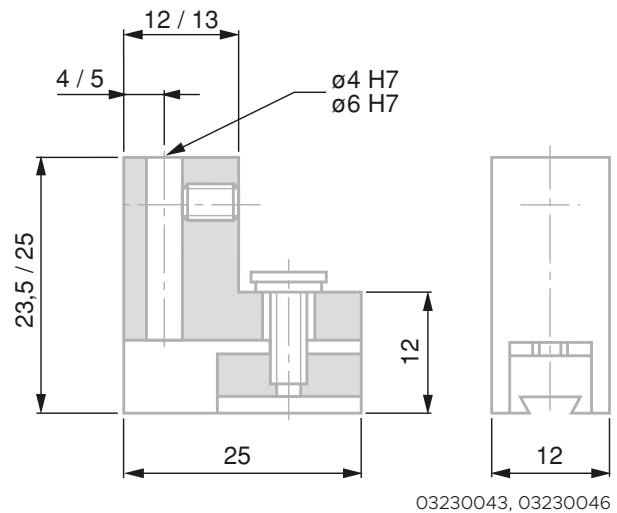
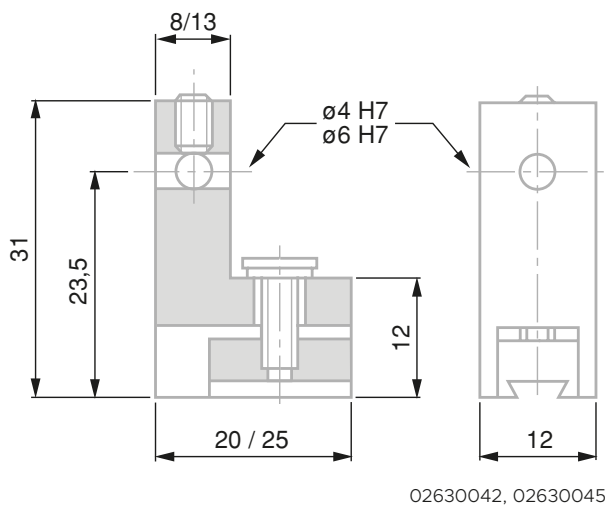
Cross-shaped inserts holder

Article number	Designation	Fixing mm	Length mm	Compatibility
00760096	Cross-shaped probe support	Ø 6	55	M1,4 and M2,5



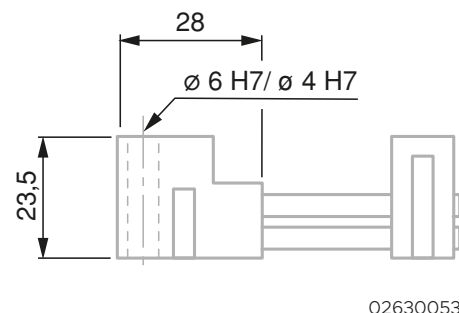
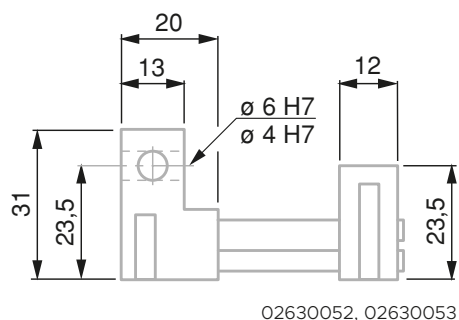
Fixed inserts holder

Article number	Designation	Fixing mm
02630042	VBH horizontal fixed holder	Ø 4
02630043	VBJ vertical fixed holder	Ø 4
02630045	VBK horizontal fixed holder	Ø 6
02630046	VBL vertical fixed holder	Ø 6



Inserts holder with fine adjustment

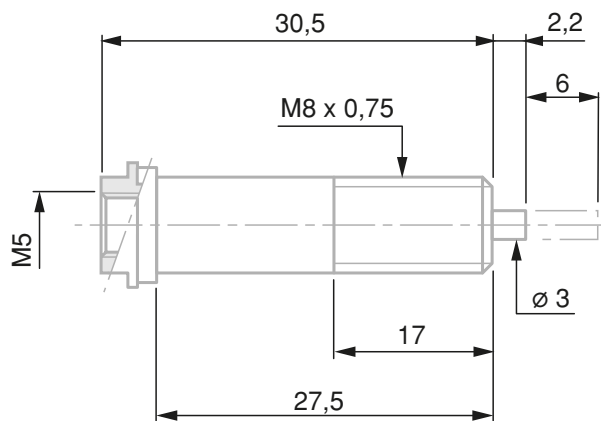
Article number	Designation	Fixing mm	Displacement range mm
02630053	VBS horizontal holder, with fine adjustment	Ø 4	25
02630055	VBU vertical holder, with fine adjustment	Ø 4	25
02630052	VBR horizontal holder, with fine adjustment	Ø 6	25
02630054	VBT vertical holder, with fine adjustment	Ø 6	25



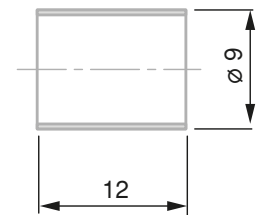
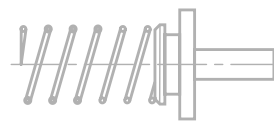
Other accessories for FMS probes

Auxiliary spring-loaded element

Article number	Designation	Measuring force N
03260441	Auxiliary spring-element, red	0,4
03260442	Auxiliary spring-element, yellow	0,63
03260443	Auxiliary spring-element, green	1
03260444	Auxiliary spring-element, blue	1,6
03260445	Auxiliary spring-element, grey	2
03260446	Auxiliary spring-element, brown	2,5
03260447	Auxiliary spring-element, black	4
03260440	Pneumatic jack	11 (for 4 bars)



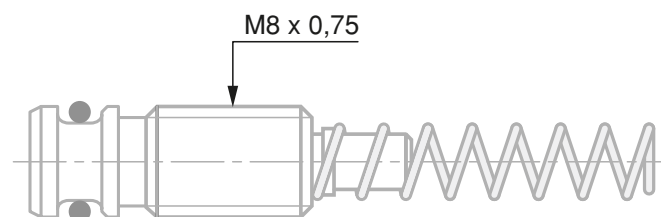
03260440



03260441 to 03260447

Measuring force spring sets

Article number	Designation	Measuring force N
03260448	Spring set, red	0,4
03260449	Spring set, yellow	0,63
03260450	Spring set, green	1
03260451	Spring set, blue	1,6
03260452	Spring set, brown	2,5
03260453	Spring set, black	4



Extension, Din 5p

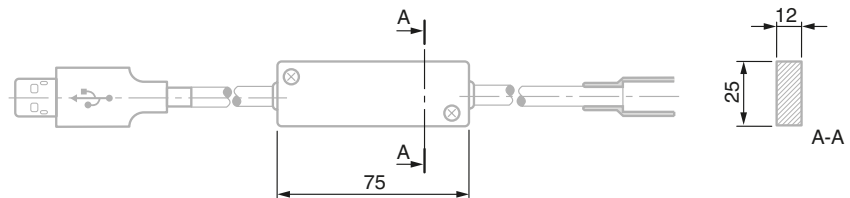


03240203

Remark(s) It is recommended to calibrate the complete equipment (probe + extension), in order to guarantee the highest accuracy

Article number	Designation
03240201	Extension cable for TESA inductive probe, L = 1 m
03240202	Extension cable for TESA inductive probe, L = 2 m
03240203	Extension cable for TESA inductive probe, L = 3 m
03240205	Extension cable for TESA inductive probe, L = 5 m
03240207	Extension cable for TESA inductive probe, L = 7 m
03240210	Extension cable for TESA inductive probe, L = 10 m
03240215	Extension cable for TESA inductive probe, L = 15 m
03240220	Extension cable for TESA inductive probe, L = 20 m

Adapter Din 5p to USB



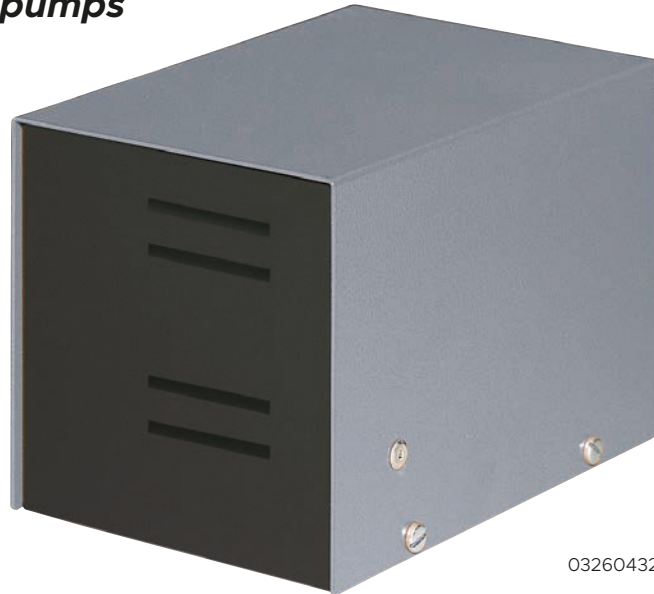
03260501

Standard	DIN 32876
Resolution	0,1 μm
Dimensions	1,2 m
Degree of protection	IP51
Power supply	2 V effective, 13 kHz \pm 0,5 %
Working temperature	20 $^{\circ}\text{C}$ \pm 0,5
Particular characteristic(s)	Standard refresh rate = 80 ms Maximum refresh rate = 42 ms
Particular characteristic(s)	The total error must take into account that of the standard probe and that of the adapter

Article number	Designation	Deviation span μm	Compatibility	Zero drift
03260500	DIN 5p to USB adapter	0,3% \pm 0,1	For probes with sensitivity 73,75 mV/V/mm	\pm 0,01% / $^{\circ}\text{C}$
03260501	DIN 5p to USB adapter	0,3% \pm 0,1	For probes with sensitivity 29,5 mV/V/mm	\pm 0,01% / $^{\circ}\text{C}$

Other accessories for probes

Electropneumatic pumps



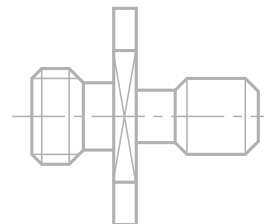
03260432

Article number	Designation	Particular characteristic(s)
03260432	Electro-pneumatic vacuum pump, 230 V, 50 Hz, operated via foot switch	Operated via foot switch
03260433	Electro-pneumatic vacuum pump, activation via external TESA control	Operated via TESA external control

Pneumatic accessories



03560000



Article number	Designation	Particular characteristic(s)
03560000	Straight connector, M4, for \varnothing 4,7 mm / \varnothing 2 mm tube	For pipe \varnothing 4,7 / \varnothing 2 mm
03560002	Angle connector, M4, for \varnothing 4,7 mm / \varnothing 2 mm tube	For pipe \varnothing 4,7 / \varnothing 2 mm
03540403	T-connector, M4, for \varnothing 4,7 mm / \varnothing 2 mm tube	For pipe \varnothing 4,7 / \varnothing 2 mm
03540405	TB311 flexible tube, L = 1 m, \varnothing 4,7 mm	
01660011	Pneumatic suction loader	



Display units and electronic interfaces



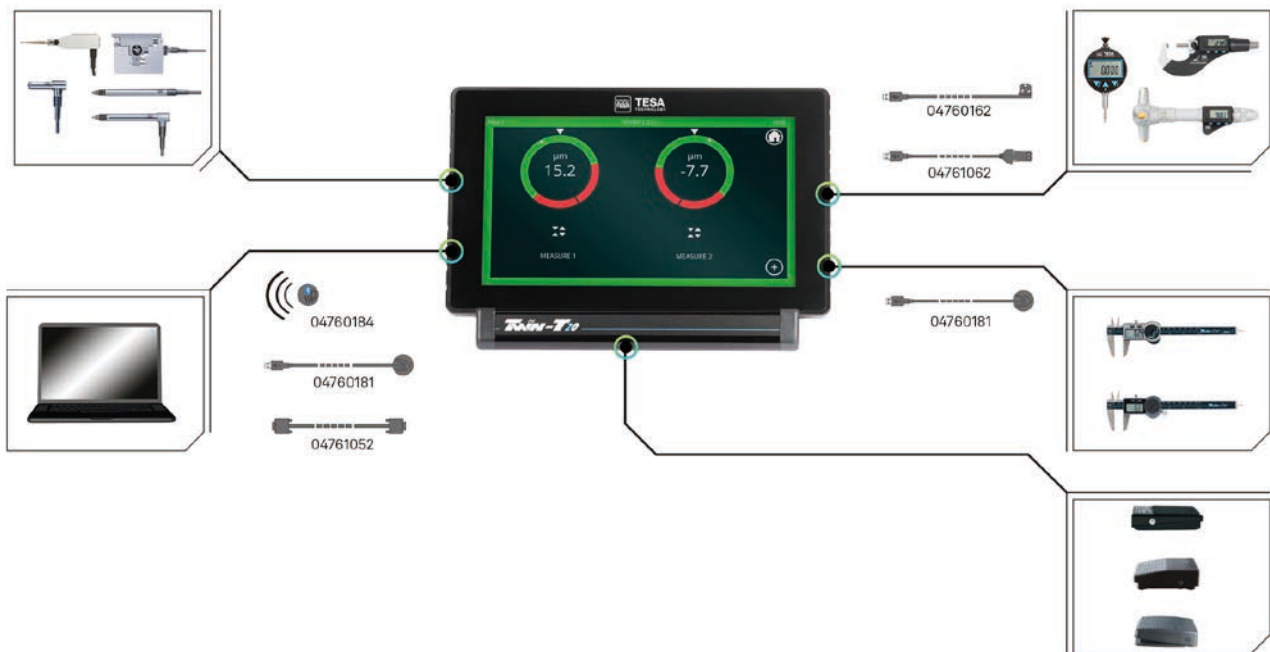
TESA
TECHNOLOGY

TESA displays units: precision for all your applications

The display units are designed to show a reliable measurement value, usually from inductive TESA probes, for quick control of parts both in production workshops and quality assurance laboratories.

Our range meets the needs of portable measurement for the verification of alignments or run-outs close to the installation and also stationary measurement benches.

Of course, our display units also incorporate connectivity features to store, collect and analyse data for optimal traceability.



The TESATRONIC range, a solution for every need:



Display units and electronic interfaces

Display unit with battery (TWIN-T10)



Display unit with power supply (TWIN-T20)



TWIN-T10 digital display unit

- DISPLAY
 - Large, high-contrast screen for clear and immediate reading
 - Retractable feet
 - Back mounting
- USE
 - Light and portable
 - Robust for use in any kind of conditions, even the most extreme ones
- AUTONOMY
 - Powered by standard AA batteries only
 - Low consumption allows a long autonomy
- FUNCTIONS
 - Metric or imperial unit
 - Identification of values out of tolerance
 - Storage of MAX, MIN or MAX-MIN values during dynamic measurement
 - Combines analogue display and analogue indication
 - Zeroing of the display facilitating measurements by comparison
 - Special ZOOM display allowing a more detailed visualization of the analogue scale to facilitate precise adjustment
 - Up to 7 measuring ranges or automatic switching according to the measured value



04430013

Standard	DIN 32876
Input(s)	1 probe input
Max. perm. errors	At 20°C and relative humidity of ≤ 50 %: analogue display: 1% ± 0,1 μm Digital display: 1% ± 0,1 μm
Material	Resistant synthetic material
Dimensions	Housing: 100 x 170 x 38 mm Screen: 70 x 62 mm Digit: 10 x 5 mm
Degree of protection	IP63
Weight	500 g
Power supply	4 AA batteries
Data output(s)	TLC
Units	mm / in
Particular characteristic(s)	At 20°C and relative humidity of ≤ 50 %: Zero drift and signal amplification: ≤ 0,005 %/° C Display frequency limit with respect to input signal: 10 Hz
Response time	At 20°C and relative humidity of ≤ 50 %: Response time ≤ 100 ms Digital display hold ≥ 100 ms
Included in delivery	TWIN-T10 display unit 4 AA batteries Instruction manual including declaration of conformity

Display units



Part number	Designation
04430013	TWIN-T10 display

Accessories

Part number	Designation
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
01460008	Back with central lug, Ø 40 mm
04768000	Handswitch, Jack, 1,8 m
04768001	Footswitch, Jack, 1,8 m
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable

Measuring ranges, analogue and numerical interval

Measuring range μm	Analogue interval μm	Numerical interval μm	Measuring range in	Analogue interval in	Numerical interval in
± 5000	1	0,1	$\pm 250/1000$	.010/1000	.005/1000
± 2000	1	0,1	$\pm 100/1000$	.010/1000	.005/1000
± 500	1	0,1	$\pm 25/1000$	.010/1000	.005/1000
± 200	1	0,1	$\pm 10/1000$	.010/1000	.005/1000
± 50	0,1	0,1	$\pm 2.5/1000$	.005/1000	.005/1000
± 20	0,1	0,1	$\pm 1.0/1000$	.005/1000	.005/1000
± 5	0,1	0,1	$\pm 0.25/1000$	.005/1000	.005/1000

TWIN-T20 digital display unit

- USE
 - Robust, for laboratory and workshop use
 - Compatible with a wide range of probes and measuring devices
 - Large colour screen for comfortable reading in dark environments
 - Black background display for excellent contrast
 - Refined interface for easy handling without confusion
 - 4 different display styles
 - Touch screen
- FUNCTIONS
 - One or two measurement values displayed
 - Static or dynamic measurements
 - Intuitive measurement setting
 - 8 tolerance classes available



Standard	DIN 32876
Input(s)	2 inductive probe inputs 2 digital probe inputs 2 USB measuring device inputs
Max. perm. errors	At 20°C, relative humidity of ≤ 50 %, with fictive probes: Digital display: ±(0,2 % measured value + 0,3 µm)
Material	Housing: aluminium
Dimensions	Housing: 112 x 190 x 119 mm Screen: 155 x 87 mm
Degree of protection	Front side: IP65
Weight	1,74 kg
Power supply	100 ÷ 240 V, 50 ÷ 60 Hz, 0,6 A
Data output(s)	TLC, RS232
Units	mm / in
Particular characteristic(s)	At 20°C and relative humidity of ≤ 50 %: Zero drift ≤ 0,15 µm / °C
Sampling frequency	6500 Hz
Included in delivery	TWIN-T20 display unit Power supply + EU, UK, US and CH cables Self-test report Calibration certificate Quick start manual including a declaration of conformity

Display units



Part number	Designation
04430014	TWIN-T20 display

Accessories

Part number	Designation
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
04460016	TWIN-T20 power supply + UE, UK, US and CH cables
04460013	Stylus + holder
04460017	Screen
04460019	Socket
04768000	Handswitch, Jack, 1,8 m
04768001	Footswitch, Jack, 1,8 m
04761071	Footswitch, USB, 2 m
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04761062	Opto-RS232 to USB cable, duplex, 2 m
04760151	USB A to USB B cable, 1,8 m
04761063	Sub-D 9p/m to USB cable, 2 m

Measuring ranges, analogue and numerical interval

Measuring range μm	Analogue interval μm	Numerical interval μm	Measuring range in	Analogue interval in	Numerical interval in
± 5000	200	0,1	± 2	.01	.0001
± 2000	100	0,1	± 1	.005	.0001
± 500	20	0,1	$\pm 0,2$	.001	.0001
± 200	10	0,1	$\pm 0,1$	.0005	.0001
± 50	2	0,1	$\pm 0,02$	.0001	.0001
± 20	1	0,1	$\pm 0,01$	.00005	.0001
± 5	0,2	0,1	$\pm 0,002$	.00001	.0001

TWIN-T20 nano digital display unit

- USE
 - Robust, for laboratory and workshop use
 - Compatible with all Heidenhain probes type 1 Vpp and 11 μ App
 - Large colour screen for comfortable reading in dark environments
 - Black background display for excellent contrast
 - Refined interface for easy handling without confusion
 - 4 different display styles
 - Touch screen
- FUNCTIONS
 - One or two measurement values displayed
 - Static or dynamic measurements
 - Intuitive measurement setting
 - Classification of the values



Standard	DIN 32876
Input(s)	2 incremental Heidenhain probe inputs 2 USB measuring device inputs
Max. perm. errors	Depending on the connected probe
Material	Housing: aluminium
Dimensions	Housing: 112 x 190 x 119 mm Screen: 155 x 87 mm
Degree of protection	Front side: IP65
Weight	1,2 kg
Power supply	100 ÷ 240 V, 50 ÷ 60 Hz, 0,6 A
Data output(s)	TLC, RS232, USB HID
Units	mm / in
Particular characteristic(s)	At 20°C and relative humidity of $\leq 50\%$: Zero drift $\leq 0,15 \mu\text{m} / ^\circ\text{C}$
Sampling frequency	260 kHz
Included in delivery	TWIN-T20 nano display unit Power supply + EU, UK, US and CH cables Self-test report Quick start manual including a declaration of conformity

Display units



Part number	Designation
04430020	TWIN-T20 nano display

Accessories

Part number	Designation
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
04460016	TWIN-T20 power supply + UE, UK, US and CH cables
04460013	Stylus + holder
04460017	Screen
04768000	Handswitch, Jack, 1,8 m
04768001	Footswitch, Jack, 1,8 m
04761071	Footswitch, USB, 2 m
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04761062	Opto-RS232 to USB cable, duplex, 2 m
04761063	Sub-D 9p/m to USB cable, 2 m
04760151	USB A to USB B cable, 1,8 m

TWIN-T40 digital display unit

- USE
 - Robust, for laboratory and workshop use
 - Compatible with a wide range of probes and measuring devices
 - Large colour screen for comfortable reading in dark environments
 - Black background display for excellent contrast
 - Refined interface for easy handling without confusion
 - 4 different display styles
 - Touch screen
- FUNCTIONS
 - One or two measurement values displayed
 - Static or dynamic measurements
 - Intuitive measurement setting
 - 16 tolerance classes available
 - Mathematical functions for simultaneous calculation of multiple probes (flatness)



04430015

Standard	DIN 32876
Input(s)	4 inductive probe inputs 4 USB measuring device inputs
Max. perm. errors	At 20°C, relative humidity of ≤ 50 %, with fictive probes: Digital display: ± (0,2 % measured value + 0,3 µm)
Material	Housing: aluminium
Dimensions	Housing: 112 x 190 x 119 mm Screen: 155 x 87 mm
Degree of protection	Front side: IP65
Weight	1,74 kg
Power supply	100 ÷ 240 V, 50 ÷ 60 Hz, 0,6 A
Data output(s)	TLC, RS232
Units	mm / in
Particular characteristic(s)	At 20°C and relative humidity of ≤ 50 %: Zero drift ≤ 0,15 µm / °C
Sampling frequency	6500 Hz
Included in delivery	TWIN-T40 display unit Power supply + EU, UK, US and CH cables Self-test report Calibration certificate

Display units



Part number	Designation
04430015	TWIN-T40 display

Accessories

Part number	Designation
04768000	Handswitch, Jack, 1,8 m
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
04460016	TWIN-T20 power supply + UE, UK, US and CH cables
04460013	Stylus + holder
04460020	Socket
04460017	Screen
04768001	Footswitch, Jack, 1,8 m
04761071	Footswitch, USB, 2 m
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04761062	Opto-RS232 to USB cable, duplex, 2 m
04760151	USB A to USB B cable, 1,8 m
04761063	Sub-D 9p/m to USB cable, 2 m

Set probe + TWIN-T10 display unit



04430013P1 and 04430013P2

Input(s)	1 probe input
Max. perm. errors	TWIN-T10 at 20°C and relative humidity of ≤ 50 %: Analogue display: 1% Digital display: 1 %
Material	Resistant synthetic material (TWIN-T10)
Dimensions	TWIN-T10: Housing: 100 x 170 x 38 mm Screen: 70 x 62 mm Digit: 10 x 5 mm
Degree of protection	TWIN-T10: IP63
Power supply	4 AA batteries
Data output(s)	TWIN-T10: TLC
Units	mm / in
Particular characteristic(s)	TWIN-T10 at 20°C and relative humidity of ≤ 50 %: Zero drift and signal amplification: ≤ 0,005 %/° C Display frequency limit with respect to input signal: 10 Hz
Response time	TWIN-T10 at 20°C and relative humidity of ≤ 50 %: Response time ≤ 100 ms Digital display hold ≥ 100 ms
Included in delivery	TWIN-T10 + batteries Probe GT31 or GT22 Magnetic holder UJ15 Instruction manual including declaration of conformity

Sets of probe and display unit

Part number	Designation
04430013P1	TESA μ -FINDER set with GT31 lever probe
04430013P2	TESA μ -FINDER set with GT22 axial probe

Accessories

Part number	Designation
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
01460008	Back with central lug, \varnothing 40 mm
03210802	GT31 probe
04768000	Handswitch, Jack, 1,8 m
04768001	Footswitch, Jack, 1,8 m
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable

Dummy probes

The reference probes, also called 'dummy probes', are resistance dividers. Each probe simulates a given length very accurately. Reference probes are connected to the instrument instead of standard probes for checking or calibrating electronic devices that can be connected to TESA inductive probes.



Dimensions	Ø 18 x 118 mm
Degree of protection	IP40
Weight	≈ 45 g
Particular characteristic(s)	<p>Input impedance: $970 \pm 50 \Omega$ (13 kHz) or $2150 \pm 50 \Omega$ (0 μm normal)</p> <p>Phase (13 kHz): $71 \pm 2^\circ$</p> <p>Input resistance: $100 \pm 5 \Omega$</p> <p>Output impedance (13 kHz): $1000 \pm 2 \Omega$</p> <p>Phase (13 kHz): $0,2^\circ$</p> <p>Dummy probe (half-bridge), sensitivity 73.75 mV/V/mm</p> <p>Suitable for instruments characterized as follows:</p> <p>Frequency: $13 \pm 0,65$ kHz</p> <p>Voltage: $3 \pm 0,015$ Vrms (2 symmetrical voltages of 1,5 Vrms)</p> <p>Output and input impedance: $\leq 0,2 \Omega$ and 2000Ω, resp.</p>
Included in delivery	Measurement report

Part number	Designation
S41078077	Dummy probe, $\pm 0 \mu\text{m}$
S41078079	Dummy probe, $\pm 3 \mu\text{m}$
S41078231	Dummy probe, $\pm 5 \mu\text{m}$
S41078081	Dummy probe, $\pm 10 \mu\text{m}$
S41078228	Dummy probe, $\pm 100 \mu\text{m}$
S41078230	Dummy probe, $\pm 190 \mu\text{m}$
S41078087	Dummy probe, $\pm 300 \mu\text{m}$
S41078332	Dummy probe, $\pm 500 \mu\text{m}$
S41078751	Dummy probe, $\pm 1000 \mu\text{m}$
S41078752	Dummy probe, $\pm 1900 \mu\text{m}$
S41077249	Set of 3 dummy probes, $\pm 0 \mu\text{m}$, $\pm 100 \mu\text{m}$, $\pm 1000 \mu\text{m}$
S41078654	Set of 2 dummy probes, $\pm 190 \mu\text{m}$, $\pm 1900 \mu\text{m}$

Electronic interfaces

BPX interface

- FUNCTIONS
 - Direct connection to the computer's USB port
 - 'Stand Alone' operational mode
 - Modularity: possibility to connect multiple BPX units together to increase the number of probes used
 - High immunity to environmental disturbances, whether of electrical origin or caused by solid or liquid contaminants
- SOFTWARE
 - TIS interface software included with BPX delivery
 - Tolerance indication capabilities
 - Simple functions +A, -A, +A+B, +A-B
 - Export of values to a .csv file



BPX interface, front and back faces

Max. perm. errors	At 20°C and relative humidity of ≤ 50 % Digital output: ± (0,05 + 0,15 % of the measuring range)
Material	Housing: aluminium
Dimensions	55 x 172 x 155 mm
Degree of protection	IP40
Weight	1 kg
Data output(s)	3x USB 2.0
Particular characteristic(s)	At 20°C and relative humidity of ≤ 50 %: Zero drift: ≤0,05 %/°C Sensitivity drift: ≤0,05 %/°C Acquisition time: 10 ms (between two consecutive measurements), 1 ms (timing window) Time data transfer of digital serial output (USB): depends on the operating system of the computer
Power supply	115 ÷ 230 V, 50 ÷ 60 Hz

Part number	Designation
05030010	BPX44 interface

M4P-3 interface

- USE
 - Connection to PC possible via A/D converter
 - Connectable to a programmable controller
 - Easy and quick integration on DIN rail
 - Interfaces can be connected to each other (up to 10 interfaces) with a common power supply
- FUNCTIONS
 - analogue signal output (in V/mm)
 - The interface converts the signal from the probe into a DC voltage via an electronic circuit optimised for fast measurements.
 - Gain of 1V/mm (standard) or 2,5, 5 or 10 V/mm (via adjustment)



04130323

Max. perm. errors	Gain = 1: \pm (1% measured value + 1 μ m) Gain > 1: \pm (1,5% measured value + 1 μ m)
Dimensions	75 x 155 x 40 mm
Degree of protection	IP40
Weight	400 g
Data output(s)	Sub-D 9p/f
Particular characteristic(s)	Gain: 1 V/mm (standard), 2,5 V/mm, 5 V/mm, 10 V/mm
Operating temperature	0 ÷ 40 °C
Input(s)	4 probe inputs
Fixing	On 35 x 7,5 mm DIN rail

Part number	Designation
04130323	M4P-3 interface

Accessories

Part number	Designation
04760153	M4P-3 power supply + UE, UK, US and CH adaptors



Measuring supports and clamping equipment



TESA
TECHNOLOGY

TESA measuring stands are designed to provide the best stability for holding instruments such as dial gauges, lever-type indicators, or probes.

Stability is a key criteria as it minimizes uncertainties related to the measuring method.

The wide range of measuring stands offers a selection based on the useful measuring arm's range, the fixing base, or the instrument's mounting type.

These various configurations enable the optimization of your measurement solution.

TESA measuring stands



Suction support with articulated arm



Magnetic supports with articulated arm



Tiltable magnetic support



Small magnetic support



Support with ground table



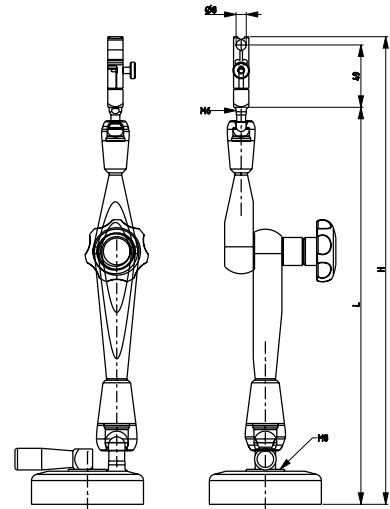
Support with granite table

Measuring supports and clamping equipment

Suction support with articulated arm



01639064

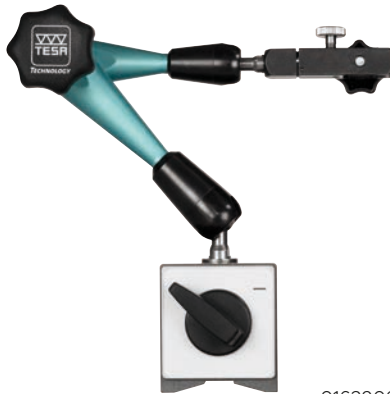


Material	Arm: Light alloy Base: Metallic
Dimensions	Base: Ø 88 x 28 mm
Function(s)	Suction controlled by lever switch Fine adjustment
Measuring instrument mount	Dovetail fixing bracket with circular clamping Ø 8 mm
Base	Suction cup force: 300 N
Included in delivery	Articulated arm Clamp with fine adjustment Suction base Declaration of conformity User manual

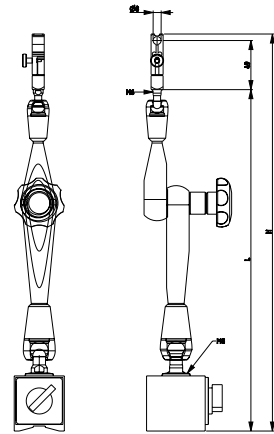
Article number	Designation	Height mm	Length mm	Base dimensions mm	Suction cup force N
01639064	Suction support with articulated arm	365	280	Ø 88 x 28	300



Magnetic supports with articulated arm



01639061



Material	Arm: Light alloy Base: Metallic
Function(s)	With switch to disengage the magnet Fine adjustment
Measuring instrument mount	Dovetail fixing bracket with circular clamping $\varnothing 8$ mm
Base	V-shaped
Included in delivery	Articulated arm Clamp with fine adjustment Magnetic base Declaration of conformity User manual

Article number	Designation	Height mm	Length mm	Base dimensions, mm	Dimensions of V, mm	Magnetic force N
01639060	Magnetic support with articulated arm	220	130	34 x 30 x 35	$\varnothing 27 \div 76$	300
01639061	Magnetic support with articulated arm	310	200	60 x 50 x 55	$\varnothing 30 \div 150$	800
01639062	Magnetic support with articulated arm	390	280	60 x 50 x 55	$\varnothing 30 \div 150$	800
01639063	Magnetic support with articulated arm	445	330	73 x 50 x 55	$\varnothing 30 \div 150$	1000



01639060



01639062



01639063



01639061

Supports with magnetic base

Magnetic support with flexible arm



01639020

Material	Arm: Metallic Base: Metallic
Dimensions	Base: 50 x 60 x 55 mm
Function(s)	With switch to disengage the magnet
Measuring instrument mount	Dovetail fixing bracket with circular clamping \varnothing 8 mm
Base	V-shaped, for \varnothing 30 ÷ 150 mm Magnetic force: 400 N
Included in delivery	Support Declaration of conformity

Article number	Designation	Height mm	Base dimensions mm	Dimensions of V mm	Magnetic force N
01639020	Magnetic support with flexible arm	350	60 x 50 x 55	\varnothing 30 ÷ 150	400

Magnetic support EASY



01639070

Material	Arm: Metallic Base: Metallic
Dimensions	Base: 60 x 50 x 55 mm
Function(s)	With switch to disengage the magnet Fine adjustment
Measuring instrument mount	Dovetail fixing bracket with circular clamping Ø 8 mm
Base	V-shaped, for Ø 30 ÷ 150 mm Magnetic force: 750 N
Included in delivery	Support Declaration of conformity

Article number	Designation	Height mm	Base dimensions mm	Dimensions of V mm	Magnetic force N
01639070	Magnetic support EASY	450	60 x 50 x 55	Ø 30 ÷ 150	750

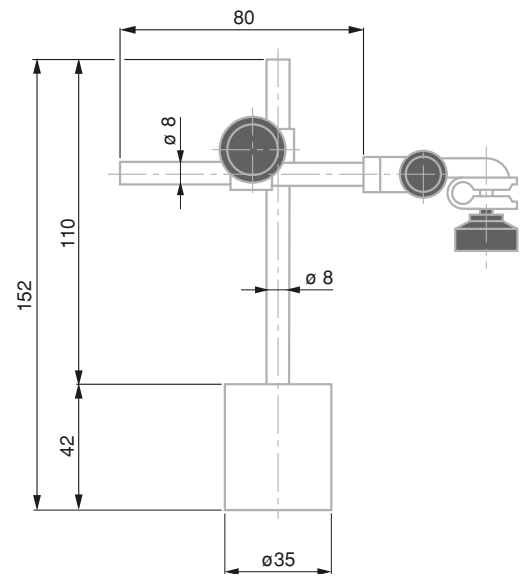


Supports with magnetic base

Magnetic support UJ15



01639007



Material	Arm: Metallic Base: Metallic
Dimensions	Base: Ø 35 x 42 mm
Measuring instrument mount	Dovetail fixing bracket with circular clamping Ø 4 and Ø 8 mm
Base	Permanent magnet Magnetic force: 220 N
Included in delivery	Support Declaration of conformity

Article number	Designation	Height mm	Base dimensions mm	Magnetic force N
01639007	UJ15 magnetic support	152	Ø 35 x 42	220



Magnetic support



01639010

Material	Arm: Metallic Base: Metallic
Dimensions	Base: Ø 30 x 25 mm Main axis: Ø 6 mm
Function(s)	Articulated arm, 360°
Measuring instrument mount	Dovetail fixing bracket with circular clamping Ø 6 or Ø 8 mm
Base	Permanent magnet Magnetic force: 140 N
Included in delivery	Support Declaration of conformity

Article number	Designation	Height mm	Base dimensions mm	Magnetic force N
01639010	Support with magnetic base, articulated arm	90	Ø 30 x 25	140

Supports with table

Measuring support with articulated arm



01639065

Material	Support: Light alloy
Dimensions	Granite: 300 x 200 mm
Function(s)	Fine adjustment
Measuring instrument mount	Dovetail fixing bracket with circular clamping \varnothing 8 mm
Grade	0
Included in delivery	Articulated arm Clamp with fine adjustment Granite table User manual

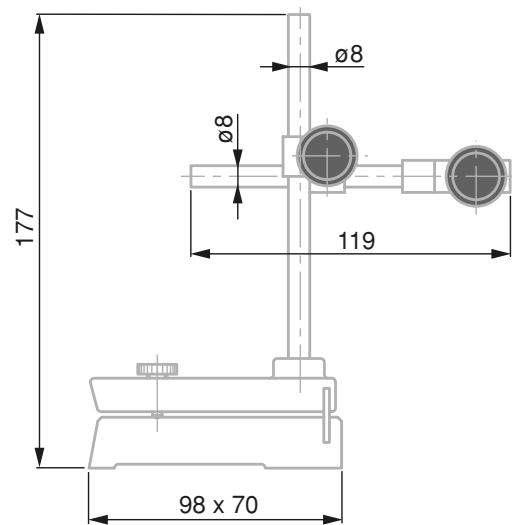
Article number	Designation
01639065	Measurement support with articulated arm



Inclinable measuring support



01639003



Material	Arm: Metallic Base: Cast iron
Function(s)	Base with front support face
Measuring instrument mount	Dovetail fixing bracket with circular clamping \varnothing 8 mm
Included in delivery	Support Declaration of conformity

Article number	Designation	Height mm	Base dimensions mm
01639003	Inclinable measuring support	177	98 x 70



Supports with table

UD12 measuring support



01639000

Material	Arm: Metallic Base: Cast iron
Function(s)	Support with lateral guiding faces T-slot for vertical column
Measuring instrument mount	Dovetail fixing bracket with circular clamping \varnothing 8 mm
Included in delivery	Support Declaration of conformity

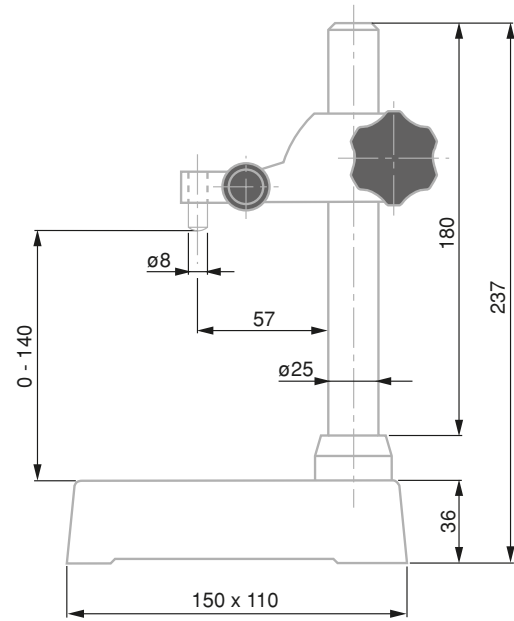
Article number	Designation	Height mm	Base dimensions mm
01639000	UD12 measuring support	243	200 x 55 x 35



Measuring support with UA1 ground surface table



01639008



Application range	0 ÷ 140 mm
Material	Table: Cast iron Column: Chrome steel Arm: Spheroidal graphite cast iron
Dimensions	Ground side: 100 x 100 mm
Function(s)	Column can be dismantled
Measuring instrument mount	Measuring arm with clamp \varnothing 8 mm
Included in delivery	Support Declaration of conformity

Article number	Designation	Height mm	Measuring face(s)	Material
01639008	UA1 measuring support with ground table	237	100 x 100	Base: Cast iron

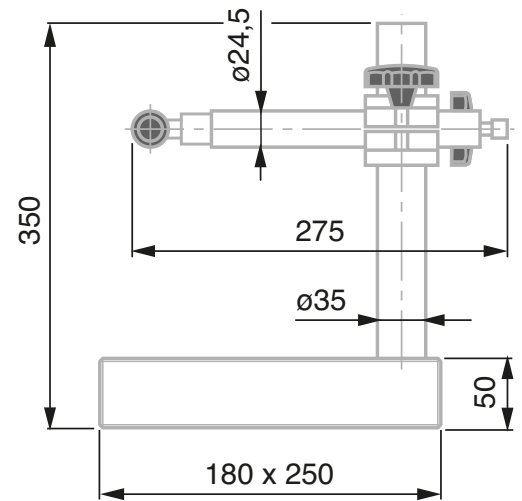


Supports with table

Measuring support with granite table



01639033



Application range	0 ÷ 260 mm
Material	Column: Chrome plated
Dimensions	Table: 180 x 250 x 50 mm Axis: Ø 35 mm Working surface: 180 x 200 mm
Function(s)	Horizontal sliding arm Fine adjustment
Measuring instrument mount	Circular clamping Ø 4 mm or Ø 8 mm for dovetail or lug
Grade	00
Flatness	3 µm
Included in delivery	Support Declaration of conformity

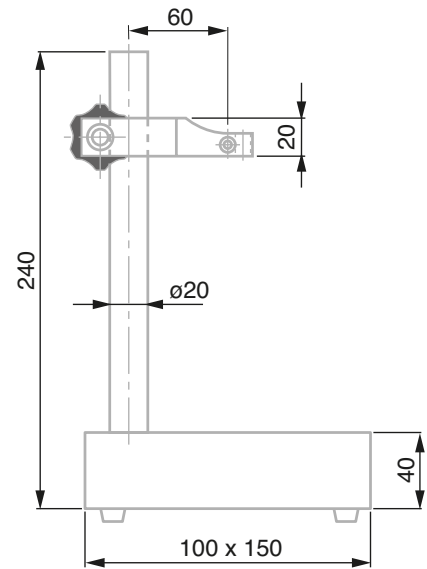
Article number	Designation	Height mm	Base dimensions mm
01639033	Measuring support with granite table	350	180 x 250 x 50



Measuring support with granite table



01639035



Application range	0 ÷ 170 mm
Material	Table: Granite Pole: Steel Holder: Aluminium
Dimensions	Base: 100 x 150 x 40 mm
Measuring instrument mount	Circular clamping Ø 8 mm
Grade	00
Flatness	3 µm
Included in delivery	Support Declaration of conformity

Article number	Designation	Height mm	Base dimensions mm	Application range mm
01639035	Measuring support with granite table	240	100 x 150 x 40	0 ÷ 170

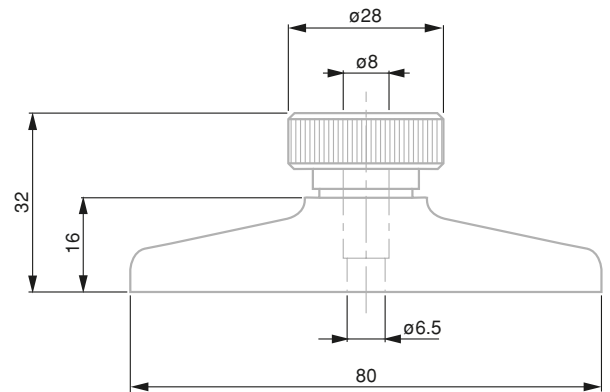


Depth foot

Depth foot with flat face



01639046

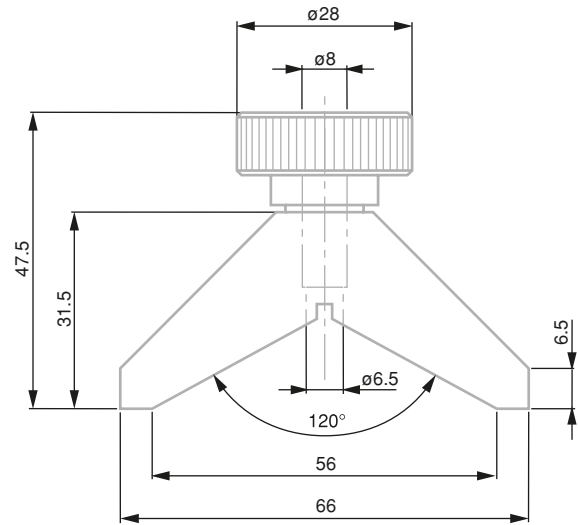


Material	Hardened steel
Dimensions	Measuring face: 80 x 16 mm
Measuring instrument mount	Mounting with clamping bracket Ø 8 mm
Measuring face(s)	Fine ground measuring face
Flatness	4 µm
Included in delivery	Support Declaration of conformity

Article number	Designation	Base dimensions mm
01639046	Depth foot with flat face	80 x 16

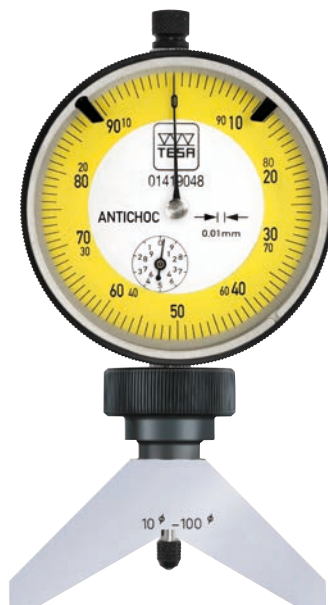


Depth foot with V-shaped face



Material	Hardened steel
Dimensions	Measuring faces: 5 x 16 mm
Measuring instrument mount	Mounting with clamping bracket Ø 8 mm
Base	V-groove, for Ø 10 ÷ 100 mm
Measuring face(s)	Fine ground measuring faces
Flatness	6 µm
Included in delivery	Support Declaration of conformity

Article number	Designation	Base dimensions mm	Dimensions of V mm
01639047	Depth foot with V-shaped base	Each face: 5 x 16	Ø 10 ÷ 100



Fixing blocks

Measurement base for squares



05360030

Material	Base: Light alloy
Dimensions	Base: 200 x 100 mm Drilling: 20 x 20 mm with M5 thread
Parallelism	0,5 µm
Flatness	0,5 µm
Included in delivery	Base Stop-bar Mounting bracket SCS calibration certificate

Article number	Designation	Base dimensions mm
05360030	Base square check	200 x 100

Swivel clamps



01860401

Article number	Designation
01860401	Clamp with dovetail mount, clamping = Ø 5,6 and Ø 9,5 mm
01860402	Clamp with dovetail mount, clamping = Ø 7 and 9,5 mm
074108603	Clamp with dovetail mount, clamping = Ø 7/32 and 5/32 in

Rotating holder

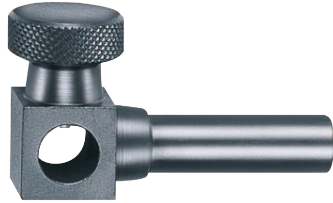


SPT

Article number	Designation
SPT	Rotating support, shaft = Ø 8 x 25 mm, clamping = Ø 4,1 mm

Fixing accessories

Squares holders



01840406



01850406

Article number	Designation
01840406	Bracket support, shaft = Ø 8 x 25 mm, clamping = Ø 8 mm
01850406	Bracket support, shaft = Ø 3/8 x 3.5 in, clamping = Ø 3/8 in

Swivel holders



01840404



01840407



01850404



01840405

Article number	Designation
01840404	Swivel holder with dovetail mount, shaft = Ø 8 x 25 mm
01850404	Swivel holder with dovetail grip, shaft = Ø 3/8 x 1 in
01840405	Swivel holder with dovetail clamp, shaft = Ø 8 x 90 mm
01850405	Swivel holder with dovetail grip, shaft = Ø 3/8 x 3-5/8 in
01840407	Swivel holder with dovetail grip, fine adjustment device, shaft = Ø 8 x 125 mm
074106026	Swivel holder with dovetail grip, shaft = Ø 8 x 133 mm, clamping = Ø 4 and Ø 7 mm
074106931	Swivel holder with dovetail grip, shaft = Ø 3/8 x 5-1/4 in, clamping = Ø 4 and Ø 7 mm
074106331	Swivel holder with dovetail grip, shaft = 6 x 12,6 x 76 mm, clamping = Ø 4 and Ø 5,5 mm

Fixing rod with pin



01840202



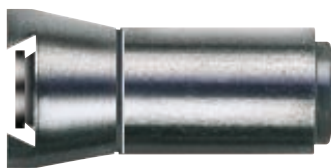
01850203



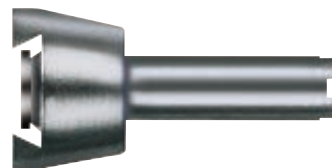
074111481

Article number	Designation
01840202	Fixing rod, pin = \varnothing 5,6 mm, shaft = 8 x 80 mm
01850202	Fixing rod, pin = \varnothing 7/32 in, axis = \varnothing 3/8 x 3.5 in
01850203	Fixing rod, pin = \varnothing .22 in, shaft = 1/4 x 1/2 x 3 in
074111481	Fixing rod, pin = \varnothing 5/32 in, pole = 3/16 x 5/16 in

Rigid fixing rods with dovetail attachment



01840105



01840104

Article number	Designation
01840104	Dovetail fixing rod, shaft = \varnothing 4 x 13 mm
01840105	Dovetail fixing rod, shaft = \varnothing 8 x 13 mm
01850104	Dovetail fixing rod, shaft = \varnothing 5,55 x 13 mm
01850105	Dovetail fixing rod, shaft = \varnothing 6,35 x 13 mm
01860008	Dovetail fixing rod, axis = \varnothing 6 x 13 mm

Fixing accessories

Swivelling fixing rods with dovetail attachment



01840408

Article number	Designation
01840408	Dovetail fixing rod, swivelling, shaft = Ø 4 x 64,35 mm
01840409	Dovetail fixing rod, swivelling, shaft = Ø 8 x 64,35 mm

Centering holder



01840501

Article number	Designation
01840501	Centering holder, shaft = Ø 4 x 25 mm, clamping = Ø 4 mm

Mounting backs for DIALTRONIC dial gauges



01960100

Article number	Designation	Composed of
01960100	Back with central lug, for DIALTRONIC dial gauge	Mounting back 4x M2 x 4 mm screw

Mounting backs for analogue dial gauges



01462004

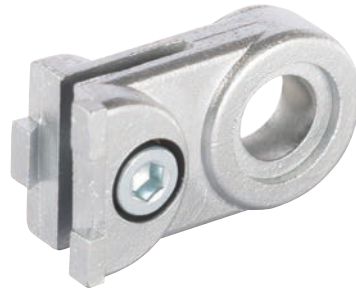


01460020

Article number	Designation	Composed of
01462004	Back with central lug, for IP40 dial gauges with Ø 40 or Ø 44,5 mm dial	Mounting back 3x M1,5 x 4 mm screw
01462005	Back with central lug, for IP40 dial gauges with Ø 58 or Ø 61,5 mm dial	Mounting back 3x M2 x 4 mm screw
01460020	Back with central lug, for IP67 dial gauges with Ø 40 or Ø 44,5 mm dial	Mounting back 3x M2 x 6 mm screw
01460021	Back with central lug, for IP67 dial gauges with Ø 58 or Ø 61,5 mm dial	Mounting back 3x M3 x 5,5 mm screw

Fixing accessories

Mounting backs for lever-type test indicators



03238013

Article number	Designation
03238013	Dovetail mounting lug, Ø 6,4 mm

Reducing sleeves



074108942

Article number	Designation
074108942	Reducing sleeve, Ø 8 mm - Ø 4 mm
074108943	Reducing sleeve, Ø 3/8 in - Ø 5/32 in
03560101	Reducing sleeve, Ø 9,5 mm - Ø 8 mm

2-point measurement



TESA
TECHNOLOGY

UNIMASTER model, metric

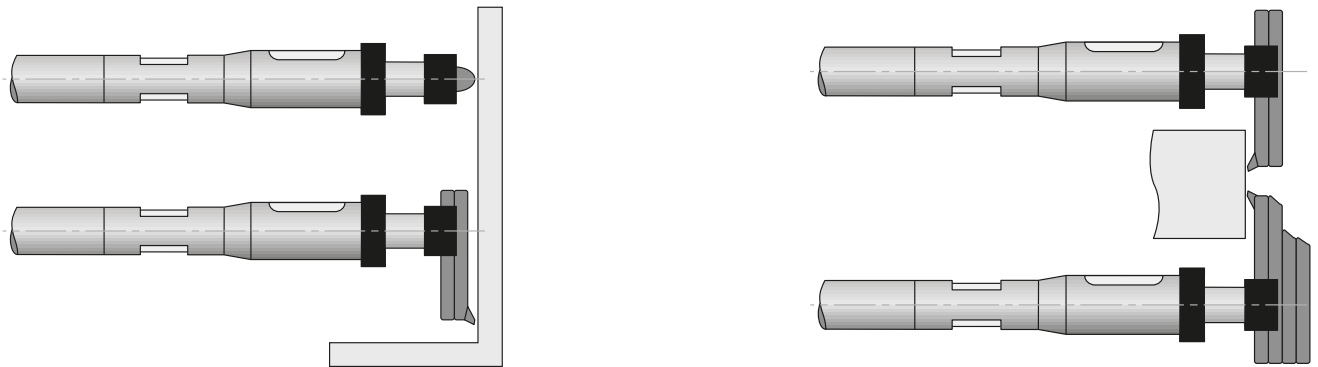
- MEASUREMENT
 - Internal or external
 - Direct or comparative
 - No need for expensive setting standard thanks to the included standard
 - Constant measuring force for optimal repeatability
- INSTRUMENT
 - Incorporates a dial test indicator for easy detection of the culmination point
 - Interchangeable measuring inserts
 - Ensures stable measuring owing to a negligible deflection of the instrument
 - Thermal protection against hand warmth of the operator
 - Integrated shockproof system
- USE
 - Portable for use on large work pieces that cannot be transported to the laboratory
 - Easy to handle because it can be positioned both horizontally and vertically



01110001

Standard	DIN 863 T4
Measuring range	Vernier: 25 mm Dial gauge: $\pm 0,4$ mm
Max. perm. errors	Measurement element: $5 \mu\text{m}$ + error of each extension + error depending on the number of extensions used Error depending on the number of extensions used 1 extension: $1,1 \mu\text{m}$ 2 extensions: $1,9 \mu\text{m}$ 3 extensions: $4,4 \mu\text{m}$
Resolution	0,01 mm
Material	Inserts: Tungsten Carbide Extensions: Steel
Thread pitch	1 mm
Measuring force	$15 \div 20$ N
Remark(s)	Use of up to 3 extension cables with the measuring element
Included in delivery	Measuring element Extensions Masterpiece Measuring inserts Calibration certificate for the setting standard Measurement report for the measuring element Measurement report for each extension Declaration of conformity User manual

Large dimensions measurement



Article number	Designation	Application range mm
01110000	UNIMASTER, set without 1000 mm extension	Internal: 250 ÷ 1625, external: 225 ÷ 1600
01110001	UNIMASTER, set with 1000 mm extension	Internal: 250 ÷ 2325, external: 225 ÷ 2300

Accessories

Article number	Designation
01112401	UNIMASTER wheeled case
01130001	Screwdriver UNIMASTER

UNIMASTER sets

Article number	Description	Measurement	01110000	01110001
01110300	Measurement element	Internal: 250 ÷ 275 mm External: 225 ÷ 250 mm	•	•
01110101	Extension, L = 25 mm		•	•
01110102	Extension, L = 50 mm		•	•
01110103	Extension, L = 75 mm		•	•
01110104	Extension, L = 100 mm		•	•
01110105	Extension, L = 125 mm		•	•
01110106	Extension, L = 150 mm		•	•
01110112	Extension, L = 300 mm		•	•
01110118	Extension, L = 450 mm		•	•
01110124	Extension, L = 600 mm		•	•
01110140	Extension, L = 1000 mm			•
01110203	Pair of inserts	Internal	•	•
01110205	Pair of inserts, L = 75 mm	Internal External	•	•
01110208	Pair of inserts, L = 100 mm	Internal External	•	•
01110501	Setting standard	Internal: 250 mm External: 225 mm	•	•
01130001	Screwdriver		•	•
01110401	Set of suspension accessories (4 brackets and 4 clamps)		•	•
01112401	Wheeled case		•	•

Extensions for UNIMASTER



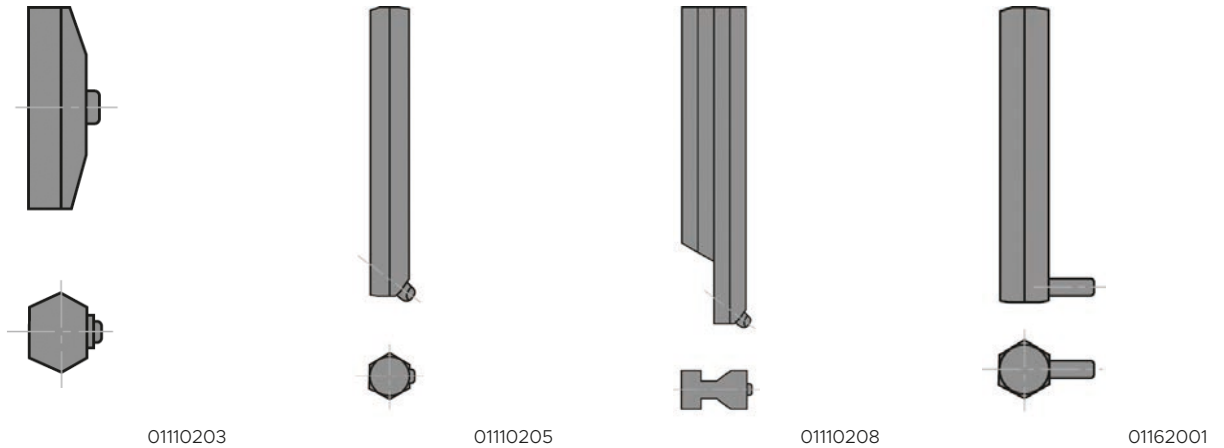
01110104

Max. perm. errors	Measurement element: 5 μm + error of each extension + error depending on the number of extensions used Error depending on the number of extensions used 1 extension: 1,1 μm 2 extensions: 1,9 μm 3 extensions: 4,4 μm
Material	Steel
Diameter	\varnothing 38 mm
Remark(s)	Use of up to 3 extension cables with the measuring element
Included in delivery	Extension Calibration certificate

Article number	Designation	Max. perm. errors μm
01110101	UNIMASTER extension, L = 25 mm	0,7
01110102	UNIMASTER extension, L = 50 mm	1
01110103	UNIMASTER extension, L = 75 mm	1,2
01110104	UNIMASTER extension, L = 100 mm	1,5
01110105	UNIMASTER extension, L = 125 mm	1,5
01110106	UNIMASTER extension, L = 150 mm	2
01110112	UNIMASTER extension, L = 300 mm	3,5
01110118	UNIMASTER extension, L = 450 mm	4,5
01110124	UNIMASTER extension, L = 600 mm	6,5
01110140	UNIMASTER extension, L = 1000 mm	10

Large dimensions measurement

Measuring bolts for UNIMASTER



Article number	Designation
01110203	Pair of inserts for internal measurement
01110205	Pair of inserts for internal and external measurement, L = 75 mm
01110208	Pair of inserts for internal and external measurement, L = 100 mm
01162001	Pair of inserts for internal, external and grooves measurement, depth ≤ 20 mm, Ø 4 x 7 mm

Other accessories for UNIMASTER



Article number	Designation
01110401	Set of suspension accessories (4 brackets and 4 clamps)
01160001	Roller (2 items are needed)

VERIBOR light models

- MEASUREMENT
 - 2-point measurement
 - For comparative measurement
- INSTRUMENT
 - Gauge body made of Invar steel to neutralise the influence of the operator's hand warmth
 - Centring shoe for correct alignment of the instrument in the bore
 - Tungsten Carbide ball tips for high resistance to wear
 - Can be used with a dial gauge, a precision indicator, or a probe with \varnothing 8 mm



05710090

Max. perm. errors	4 μ m
Repeatability	2 μ m
Compatibility	Fixation for accessory: \varnothing 8 mm
Material	Measuring bolts: hardened steel Anvils: hardened steel
Included in delivery	VERIBOR (without dial gauge) Set of interchangeable fixed inserts Declaration of conformity

The metrological values are given for the VERIBOR light only, without including the dial gauge mounted on it.

Article number	Designation	Measuring range mm	Application range mm
05710090	VERIBOR light bore gauge	1,3	18 ÷ 35
05710091	VERIBOR light bore gauge	1,4	35 ÷ 60
05710092	VERIBOR light bore gauge	1,4	50 ÷ 150
05710093	VERIBOR light bore gauge	1,3 / 1,4	18 ÷ 150

Bore measurement

VERIBOR models

- MEASUREMENT
 - 2-point measurement
 - For comparative measurement
- INSTRUMENT
 - Gauge body made of Invar steel to neutralise the influence of the operator's hand warmth
 - Centring shoe for correct alignment of the instrument in the bore
 - Tungsten Carbide ball tips for high resistance to wear
 - Can be used with a dial gauge, a precision indicator or a probe with \varnothing 8 mm

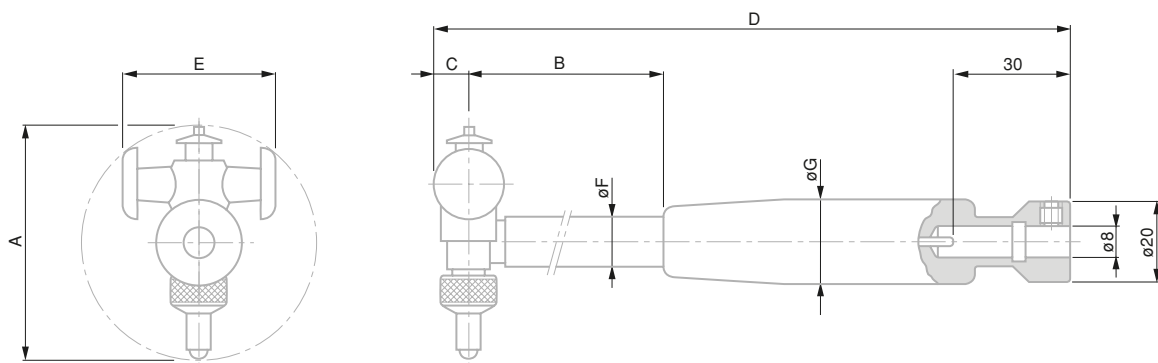
Max. perm. errors	2 μ m
Repeatability	0,5 μ m
Compatibility	Fixation for accessory: \varnothing 8 mm
Material	Measuring bolts: Tungsten Carbide Anvils: Tungsten Carbide
Included in delivery	VERIBOR (without dial gauge) Set of interchangeable fixed inserts Declaration of conformity



05710012

The metrological values are given for the VERIBOR only, without including the dial gauge mounted on it.

Article number	Designation	Max. perm. errors, μ m	Measuring range, mm	A mm	B mm	C mm	D mm	E mm	F mm
05710012	VERIBOR bore gauge	2	0,35	4,5 ÷ 6	74	2	138	3,3	3,8
05710013	VERIBOR bore gauge	2	0,5	6 ÷ 12,5	93	2,6	156	4,3	4,9
05710014	VERIBOR bore gauge	2	0,9	12 ÷ 25	106	4,5	194	7,8	7,9
05710015	VERIBOR bore gauge	2	1,3	25 ÷ 50	140	6	228	16	8
05710016	VERIBOR bore gauge	2	1,4	50 ÷ 150	173	10	279	36	12
05710018	VERIBOR bore gauge	2	1,4	50 ÷ 300	173	10	279	36 / 66	12
05710017	VERIBOR bore gauge	2	1,6	240 ÷ 550	227	14	347	112	18



Depth extensions for VERIBOR



05760027

Compatibility

For VERIBOR $25 \leq \varnothing \leq 550$ mm

Article number	Designation
05760026	VERIBOR extension, L = 250 mm
05760027	VERIBOR extension, L = 500 mm
05760028	VERIBOR extension, L = 750 mm
05760029	VERIBOR extension, L = 1000 mm

Extensions set for VERIBOR



05740001

Compatibility

Compatible only with VERIBOR n° 05710016

Article number	Designation
05740001	Set of VERIBOR extensions

Height gauges



TESA
TECHNOLOGY

Monitoring operations in the manufacturing process

Why carry the workpieces from a distant measuring room when they can be inspected almost on the spot?

The vertical measurement systems are 1D instruments, usually placed on a granite table, defining a reference plane, devoted to the determination of various characteristics such as height, thickness, depth, internal/external diameter. This is dependant upon the configuration of the associated measuring probe.

The range of TESA height gauges is primarily distinguished by the variety of models available, but also by the many possibilities for applications where these instruments offer genuine performance solutions. Designed for process control of manufacturing operations or directly on a machine tool, they also provide a safe measurement when parts of the dimensions are critical.



A complete family that meets the needs of demanding users

TESA-HITE & TESA-HITE MAGNA range

The height gauges of this range are specially designed for workshop measurement, where ensuring quality metrology is in generally complicated. These instruments are often subject to harsh environmental factors such as temperature, projections, etc.

MICRO- HITE range

These high-end 2D height gauges are intuitive due to the clear and refined user philosophy of their embedded software. They are reliable and robust universal machines, developed for workshops that can be integrated as close as possible to the user. Multifunctional, they are a metrological “multi-user” asset, that replaces the most conventional measuring tools.

μ-HITE range

Compact measuring station, the perfect compromise for measuring small parts or applications requiring a low measuring force. Based on the comparator principle (coaxial measuring according to the ABBE principle) it achieves extremely fine precision, a characteristic that is often essential for laboratory use.



Height gauges

The safety of a quality product, guaranteed benefits

Since their development phase, TESA height gauges are subject to strict internal standards aligned with the most restrictive national standards. Thanks to this close monitoring, all TESA height gauges meet the QUALITY requirements that we strive to keep as sharp as possible.

For this reason, our measurement laboratory meets the requirements for SCS accreditation (Swiss Calibration Service). Each instrument in this product line is therefore delivered with a free SCS certificate, making our products meet the requirements of many central laboratories through ILAC cooperation (International Laboratory Accreditation & Cooperation). Any hidden additional extra cost due to a re-certification of the instrument after purchase is avoided.



Calibration laboratory for TESA height gauges

A philosophy of use for everyone

With their refined user interface, ergonomic panel and contextual help button, the TESA height gauges are designed to be quickly accessible to any user profile.

The required learning time is short and autonomy of use is often achieved in less than a day.



Two panels, one philosophy
For TESA-HITE (left) and for MICRO-HITE or μ-HITE (right)

MICRO-HITE+M



TESA-HITE



Height gauges

TESA μ -HITE





		μ-HITE	TESA-HITE MAGNA		TESA-HITE	
Part number		00730502* 00730503*	00730082	00730083	00730084	00730085
Type	Manuel displacement		•	•	•	•
	Motorised displacement	•				
Precision	Max. permissible errors μm, L in mm	Axial: ≤1 Offset: ≤2	≤8	≤8	2,5+4L/1000	2.5+4L/1000
	Repeatability (2σ), μm	Surface: ≤0,5 Arc: ≤1	Surface: ≤ 3 Arc: ≤5	Surface: ≤ 3 Arc: ≤5	Surface: ≤ 2 Arc: ≤3	Surface: ≤ 2 Arc: ≤3
	SCS Certificate	•	•	•	•	•
Instrument	Size, mm	100	400	700	400	700
	Air cushion				•	•
	Fine adjustment		•	•	•	•
	Adjustable panel arm					
Accessories	Probe support Ø 6 mm		•	•	•	•
	Axial probe holder for insert M2,5	•				
	Ball tip insert, Ø 5 mm, tungsten carbide		•	•	•	•
	Axial ball tip insert, Ø 3 mm, tungsten carbide ball tip	•				
	Masterpiece 6,35 mm / .25 in	•	•	•		
Masterpiece 12,7 mm / .5 in	•			•	•	
Power supply	Integrated rechargeable battery		•	•	•	•
	Rechargeable interchangeable battery					
	Charger	•	•	•	•	•
	Power cables EU, US, UK	•	•	•	•	•
Functionalities	Single probing, culmination point	•	•	•	•	•
	Double probing, bore, axis, groove, rib	•	•	•	•	•
	Perpendicularity, straightness				With external display	With external display
	Min, max, delta	•	•	•	•	•
	Angle	•				
	2D	•				
	Integrated calculator, configurable functions	•				
	Reference(s)	2	1	1	1	1
	Distance, midpoint	•	•	•	•	•
	Tolerancing, Go-NoGo report	•				
	Context-based help	•	•	•	•	•
	Preset	•	•	•	•	•
	Programs' management	•				
	Manual or automatic data transmission	•	•	•	•	•
	Data backup on USB stick (txt)	•				
	Sending data through TLC port	•	•	•	•	•
	Screenshot	•				
Customizable interface		•	•	•	•	

*The metrological specifications for these instruments are valid only for the measuring head and not for the complete system.

MICRO-HITE

- **PANEL**
 - Hybrid with colour touch screen and keyboard
 - Refined keyboard for easy handling without confusion
 - Adjustable support for optimal reading of the screen at any time
 - **AUTONOMY**
 - Rechargeable interchangeable battery
 - Infinite operative with a backup battery
 - **MEASUREMENT**
 - Patented QUICKCENTER technology integrated to efficiently determine the culmination points
 - Advanced functions for a multi-task instrument, accessible to all users
 - Context-based help to avoid incorrect use and bad results
 - Clear results to decrease possible errors due to bad interpretation of the displayed results
 - **INSTRUMENT**
 - Robust construction to ensure longevity and stability of results over time
 - **DATA MANAGEMENT**
 - Sending values to computer via TLC port
- Automatic creation of pdf reports or txt file on USB stick
- Data printing via USB printer
- **SCS CALIBRATION CERTIFICATE**
 - Free SCS Certificate supplied with purchase to avoid any additional extra costs for calibration of the instrument directly after purchase



00730074

Standard	Factory standard
Resolution	0,0001 / 0,001 / 0,01 mm .00001 / .0001 / .001 in
Zero	Fixed
Coefficient of linear expansion	11,5 x 10 ⁻⁶ K ⁻¹
Material	Base and frame: cast iron
Panel	Colour & touch screen, 84 x 152 mm Keyboard: backlit
Weight	Model 350: 33 kg Model 600: 37 kg Model 900: 45 kg
Power supply	Power connection Rechargeable interchangeable battery
Data output(s)	TLC, USB
Function(s)	Measuring probe can be manually displaced with a displacement wheel Air cushion system
Execution	Manual
Autonomy	8 hours (with a battery block) Infinite (with 2 battery blocks)
Included in delivery	SCS calibration certificate Declaration of conformity
Measuring force	1,6 ± 0,25 N
Units	mm / in

2D height gauges

Part number	Designation	Measuring range, mm	Max. perm. errors, μm	Repeatability limit, μm	Max. perm. perp. error, μm	Measuring force, N	Weight kg	Fine adjustment
00730073	MH 350	365	2 + 2L	On surface: ≤ 1 On arc: ≤ 1	Frontal: 5 Lateral: 5	1,6 \pm 0,25	33	Without
00730074	MH 600	615	2 + 2L	On surface: ≤ 1 On arc: ≤ 1	Frontal: 5 Lateral: 5	1,6 \pm 0,25	37	Without
00730075	MH 900	920	2 + 2L	On surface: ≤ 1 On arc: ≤ 1	Frontal: 9 Lateral: 9	1,6 \pm 0,25	45	Without
00730076	MH 350F	365	2 + 2L	On surface: ≤ 1 On arc: ≤ 1	Frontal: 5 Lateral: 5	1,6 \pm 0,25	33	With
00730077	MH 600F	615	2 + 2L	On surface: ≤ 1 On arc: ≤ 1	Frontal: 7 Lateral: 7	1,6 \pm 0,25	37	With
00730078	MH 900F	920	2 + 2L	On surface: ≤ 1 On arc: ≤ 1	Frontal: 9 Lateral: 9	1,6 \pm 0,25	45	With

Accessories

Part number	Designation
00760222	Holder for accessories
00760140	IG13 probe + holder
00760235	USB printer
00760250	Thermal paper (4 rolls)
00760124	Practice piece
00760151	Dust cover, 350 mm
00760152	Dust cover, 600 mm
00760153	Dust cover, 900 mm
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
00760249	Cleaning liquid for granite table, 1 L
00760256	Rechargeable battery block
00760258	14 V charger + adapter
062473	MICRO-HITE 350 and MICRO-HITE+M 350 packaging
062474	MICRO-HITE 600 and MICRO-HITE+M 600 packaging
062475	MICRO-HITE 900 and MICRO-HITE+M 900 packaging



MICRO-HITE+M

- **PANEL**
 - Hybrid with colour touch screen and keyboard
 - Refined keyboard for easy handling without confusion
 - Adjustable support for optimal reading of the screen at any time
- **AUTONOMY**
 - Rechargeable interchangeable battery
 - Infinite operative with a backup battery
- **MEASUREMENT**
 - Patented QUICKCENTER technology integrated to efficiently determine the culmination points
 - Advanced functions for a multi-task instrument, accessible to all users
 - Context-based help to avoid incorrect use and bad results
 - Clear results to decrease possible errors due to bad interpretation of the displayed results
- **INSTRUMENT**
 - Robust construction to ensure longevity and stability of results over time
 - Intelligent hand-wheel that integrates the FEEL&MOVE technology for fast and precise probe positioning.
- **DATA MANAGEMENT**
 - Sending values to computer via TLC port
 - Automatic creation of pdf reports or txt file on USB stick
 - Data printing via USB printer
- **SCS CALIBRATION CERTIFICATE**
 - Free SCS Certificate supplied with purchase to avoid any additional extra costs for calibration of the instrument directly after purchase



00730080

Standard	Factory standard
Resolution	0,0001 / 0,001 / 0,01 mm .00001 / .0001 / .001 in
Zero	Fixed
Coefficient of linear expansion	11,5 x 10 ⁻⁶ K ⁻¹
Material	Base and frame: cast iron
Panel	Colour & touch screen, 84 x 152 mm Keyboard: backlit
Weight	Model 350: 33 kg Model 600: 37 kg Model 900: 45 kg
Power supply	Power connection Rechargeable interchangeable battery
Data output(s)	TLC, USB
Function(s)	Measuring probe can be displaced (motorised) with a displacement wheel Air cushion system
Execution	Motorised
Autonomy	8 hours (with a battery block) Infinite (with two battery blocks)
Included in delivery	SCS calibration certificate Declaration of conformity
Measuring force	1,6 ± 0,25 N
Units	mm / in

2D height gauges

Part number	Designation	Measuring range, mm	Max. perm. errors, μm	Repeatability limit μm	Max. perm. perp. error, μm	Measuring force, N	Weight kg
00730079	MH+M 350	365	1,8 + 2L	On surface: $\leq 0,5$ On arc: ≤ 1	Frontal: 5 Lateral: 5	1,6 \pm 0,25	33
00730080	MH+M 600	615	1,8 + 2L	On surface: $\leq 0,5$ On arc: ≤ 1	Frontal: 7 Lateral: 7	1,6 \pm 0,25	37
00730081	MH+M 900	920	1,8 + 2L	On surface: $\leq 0,5$ On arc: ≤ 1	Frontal: 9 Lateral: 9	1,6 \pm 0,25	45

Accessories

Part number	Designation
00760222	Holder for accessories
00760140	IG13 probe + holder
00760235	USB printer
00760250	Thermal paper (4 rolls)
00760124	Practice piece
00760151	Dust cover, 350 mm
00760152	Dust cover, 600 mm
00760153	Dust cover, 900 mm
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
00760249	Cleaning liquid for granite table, 1 L
00760256	Rechargeable battery block
00760258	14 V charger + adapter
062473	MICRO-HITE 350 and MICRO-HITE+M 350 packaging
062474	MICRO-HITE 600 and MICRO-HITE+M 600 packaging
062475	MICRO-HITE 900 and MICRO-HITE+M 900 packaging



TESA-HITE

- **PANEL**
 - Protected against the penetration of liquids or dust (IP65)
 - Big colour screen for better reading in dimly lit surroundings
 - Black display background for excellent contrast
 - Large numbers displayed on the screen (21 mm) for optimal readability
 - Keyboard with few buttons for easy learning without confusion
- **AUTONOMY**
 - Long battery life (60h) to avoid too frequent recharging
- **MEASURE**
 - Philosophy of use similar to tablets or smartphones
 - Quick access to the first measurement from start up (<4s) for a significant time saving
 - QUICKCENTER DYNAMIC technology integrated to efficiently determine the culmination points
 - Context-based help to avoid incorrect use and bad results
 - The interface can be customized according to the user's wishes
- **SCS CALIBRATION CERTIFICATE**
 - Free SCS certificate provided to avoid additional costs for re-calibration at the initial purchase



00730084

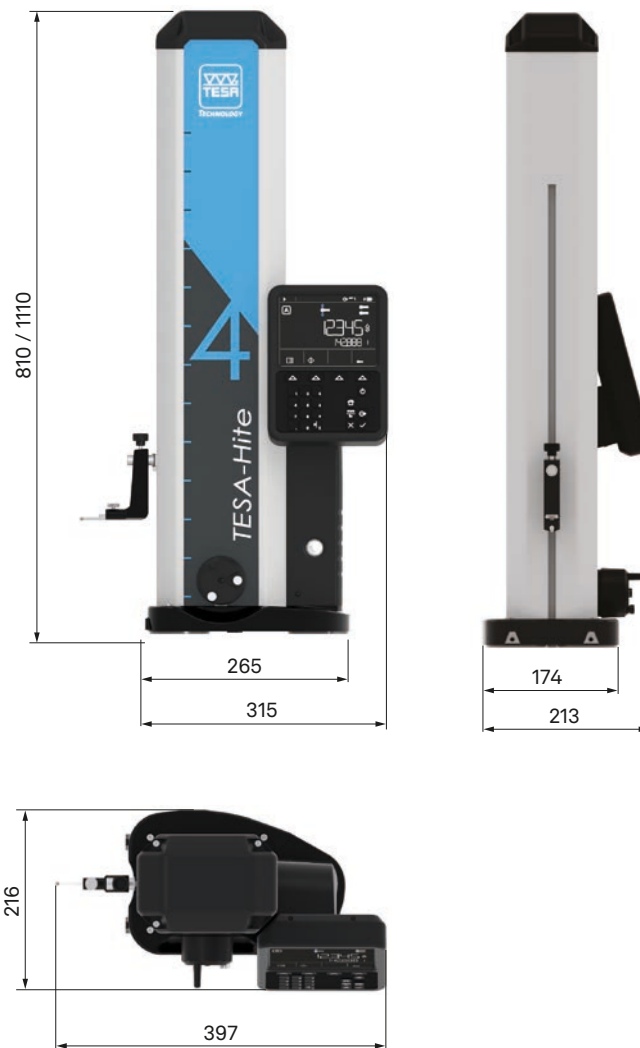
Standard	Factory standard
Resolution	0,0001 / 0,001 / 0,01 mm .00001 / .0001 / .001 in
Zero	Fixed
Coefficient of linear expansion	(12 ± 1,5) x 10 ⁻⁶ K ⁻¹
Material	Base: cast iron
Degree of protection	Panel: IP65
Particular characteristic(s)	Integrated fine adjustment Air cushion system
Panel	Panel: 155 x 210 x 43 mm Screen: colour, 121 x 92 mm Value on screen: 20 x 10 mm
Weight	Model 400: 24 kg Model 700: 30 kg
Power supply	Power connection Rechargeable interchangeable battery
Data output(s)	TLC
Function(s)	Manual displacement of the measuring probe
Execution	Manual
Autonomy	≈ 60 hours
Included in delivery	SCS calibration certificate Declaration of conformity
Measuring force	1,5 ± 0,5 N
Units	mm / in

1D height gauges

Part number	Designation	Measuring range, mm	Max. perm. errors, μm	Repeatability limit, μm	Max. perm. perp. error, μm	Measuring force, N	Weight kg
00730084	TH 400	415	2,5 + 4L	On surface: ≤ 2 On arc: ≤ 3	9	1,5 \pm 0,5	24
00730085	TH 700	715	2,5 + 4L	On surface: ≤ 2 On arc: ≤ 3	13	1,5 \pm 0,5	30

Accessories

Part number	Designation
00760124	Practice piece
00760152	Dust cover, 600 mm
00760153	Dust cover, 900 mm
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
00760249	Cleaning liquid for granite table, 1 L
00760258	14 V charger + adapter
S07610172	Travel case for TESA-HITE
063404	TESA-HITE 400 and TESA-HITE MAGNA 400 packaging
063405	TESA-HITE 700 and TESA-HITE MAGNA 700 packaging



TESA-HITE MAGNA

- **PANEL**
 - Protected against the penetration of liquids or dust (IP65)
 - Big colour screen for better reading in dimly lit surroundings
 - Black display background for excellent contrast
 - Large numbers displayed on the screen (21 mm) for optimal readability
 - Keyboard with few buttons for easy learning without confusion
- **AUTONOMY**
 - Long battery life (60h) to avoid too frequent recharging
- **MEASURE**
 - Philosophy of use similar to tablets or smartphones
 - Quick access to the first measurement from start up (<4s) for a significant time saving
 - Magnetic measuring system (patented) ensuring functioning in the extreme conditions of the workshop
 - QUICKCENTER DYNAMIC technology integrated to efficiently determine the culmination points
 - Context-based online help to avoid incorrect use and bad results
 - The interface can be customized according to the user's wishes
- **SCS CALIBRATION CERTIFICATE**
 - Free SCS certificate provided to avoid additional costs for re-calibration at the initial purchase



00730082

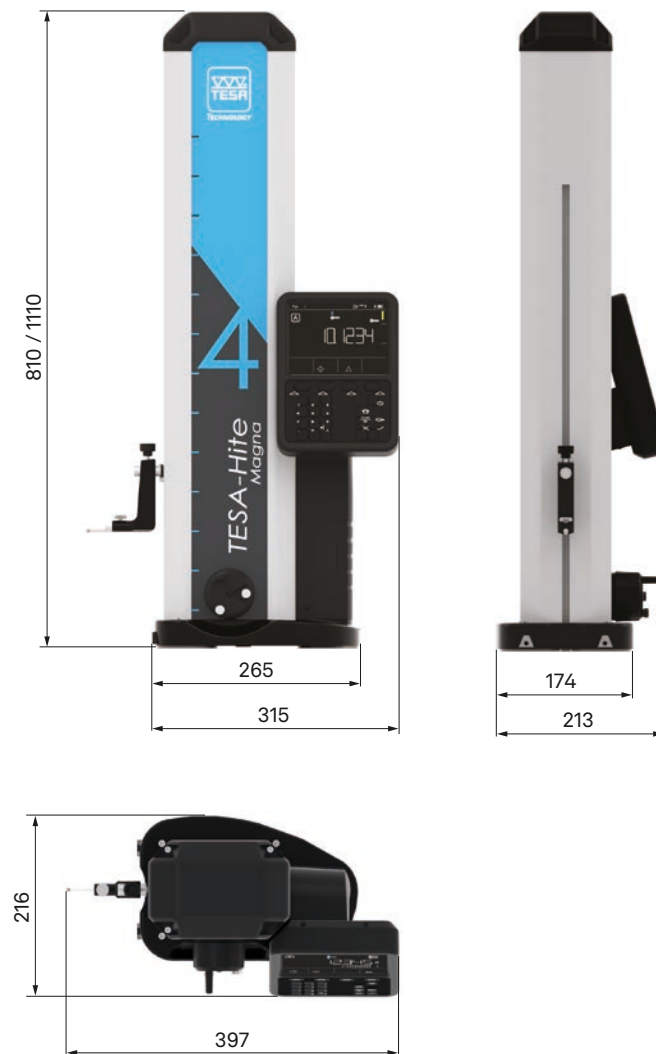
Standard	Factory standard
Resolution	0,001 / 0,005 / 0,01 mm .0001 / .0002 / .001 in
Zero	Fixed
Coefficient of linear expansion	(12 ± 1,5) x 10 ⁻⁶ K ⁻¹
Material	Base: cast iron
Degree of protection	Measuring system: IP55 Panel: IP65
Particular characteristic(s)	Integrated fine adjustment
Panel	Panel: 155 x 210 x 43 mm Screen: colour, 121 x 92 mm Value on screen: 20 x 10 mm
Weight	Model 400: 15 kg Model 700: 18 kg
Power supply	Power connection Rechargeable interchangeable battery
Data output(s)	TLC
Function(s)	Manual displacement of the measuring probe
Execution	Manual
Autonomy	≈ 60 hours
Included in delivery	SCS calibration certificate Declaration of conformity
Measuring force	1,5 ± 0,5 N
Units	mm / in

1D height gauges

Part number	Designation	Measuring range, mm	Max. perm. errors, μm	Repeatability limit, μm	Measuring force, N	Weight kg
00730082	TH MG 400	415	≤ 8	On surface: ≤ 3 On arc: ≤ 5	$1,5 \pm 0,5$	15
00730083	TH MG 700	715	≤ 8	On surface: ≤ 3 On arc: ≤ 5	$1,5 \pm 0,5$	18

Accessories

Part number	Designation
00760124	Practice piece
00760152	Dust cover, 600 mm
00760153	Dust cover, 900 mm
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE ® emitter
04760185	USB receiver + 1,5 m extension cable
00760249	Cleaning liquid for granite table, 1 L
00760258	14 V charger + adapter
S07610172	Travel case for TESA-HITE
063404	TESA-HITE 400 and TESA-HITE MAGNA 400 packaging
063405	TESA-HITE 700 and TESA-HITE MAGNA 700 packaging



TESA μ -HITE

- **PANEL**
 - Hybrid with colour touch screen and keyboard
 - Refined keyboard for easy handling without confusion
- **MEASUREMENT**
 - Advanced functions (angle, parallelism, 2D, ...) for a multi-task instrument, accessible to all users
 - Context-based online help to avoid incorrect use and bad results
 - Clear interface to decrease possible errors due to bad interpretation of the displayed results
 - Flexible since the instrument can be used as 1D probe as well as height gauge
- **INSTRUMENT**
 - Turnkey solution easy to set up and quickly operational
 - Its small footprint makes it an instrument that can be integrated and moved in any kind of workshop close to production machines
- **DATA MANAGEMENT**
 - Sending values to computer via TLC port (cable or Bluetooth®)
 - Automatic creation of pdf reports or txt files on USB stick
 - Data printing via USB printer
- **SCS CALIBRATION CERTIFICATE**
 - Free SCS Certificate supplied with purchase to avoid any additional extra costs for calibration of the instrument directly after purchase



00730503

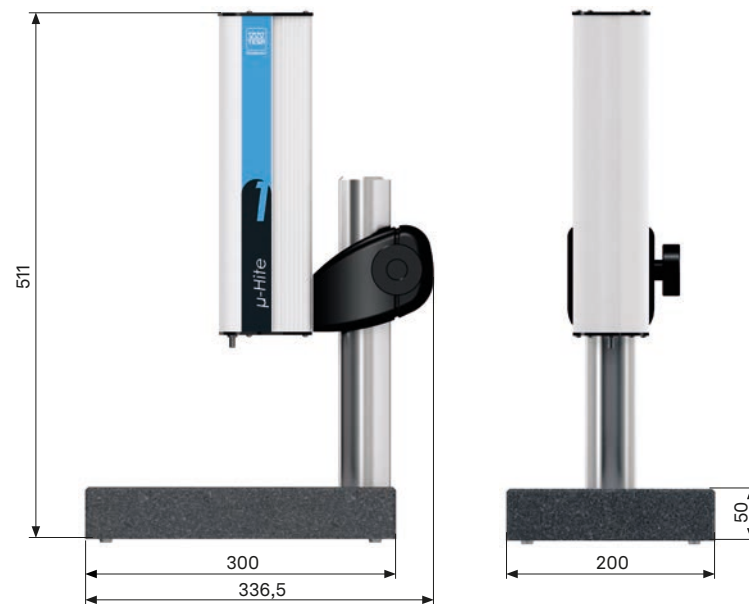
Standard	Factory standard
Resolution	0,001 mm / 0,0001 mm .0001 / .00005 in
Zero	Fixed
Coefficient of linear expansion	11,5 x 10 ⁻⁶ K ⁻¹
Material	Table: granit Pole: hardened steel Measuring head support: cast iron
Dimensions	Granite: 200 x 300 x 50 mm Pole: Ø 50 x 300 mm
Degree of protection	Measuring head: IP50
Panel	Colour & touch screen, 84 x 152 mm Keyboard: backlit
Weight	Table + pole + support: 16,2 kg Panel + box: 1,5 kg Measuring head: 2,5 kg
Data output(s)	TLC, USB
Max. displacement speed	Fast displacement: 10, 20, 30, 40 mm/s Probing: 5, 10 mm/s
Execution	Motorised
Included in delivery	SCS calibration certificate Declaration of conformity
Measuring force	1,0 ± 0,2 N 0,6 ± 0,2 N
Units	mm / in

Measuring station

Part number	Designation	Max. perm. errors, μm	Repeatability limit, μm	Measuring force, N	Execution
00730503	μ -HITE	Axial: 1 Offset: 2	Axial: 0,5 Offset: 1	0,6 or 1	Motorised
00730502	μ -HITE without granite, pole and support	Axial: 1 Offset: 2	Axial: 0,5 Offset: 1	0,6 or 1	Motorised
00730504	Retrofit kit for former μ -HITE			0,6 or 1	

Accessories

Part number	Designation (catalog)
00760235	USB printer
00760250	Thermal paper (4 rolls)
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
00760258	14 V charger + adapter
00760249	Cleaning liquid for granite table, 1 L
063416	μ -HITE packaging



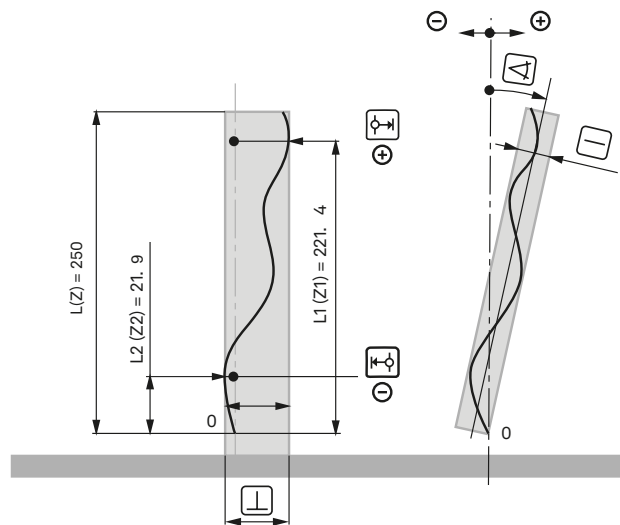
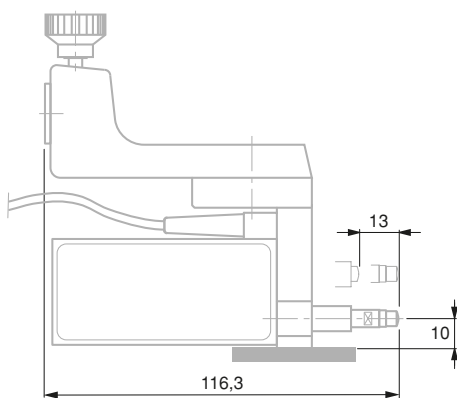
IG13 probe and accessories

The IG13 probe has been specially developed for the range of the MICRO-HITE (manual or motorised) height gauges for reliability and accuracy reasons. Robust, it is used in laboratories as well as workshops where the working environment is more restrictive.



Measuring range	13 mm
Max. perm. errors	1 μm
Measuring force	0,45 N at zero 0,75 N at stop
Included in delivery	Measurement report Declaration of conformity

Part number	Designation	Remark(s)
00760138	IG13 holder	
00760139	IG13 probe	
00760140	IG13 probe + holder	
00760247	Connection cable to the MH or MH+M	Useable with height gauges 00730073 to 00730081



Accessories for perpendicularity measurement

Supports for accessories

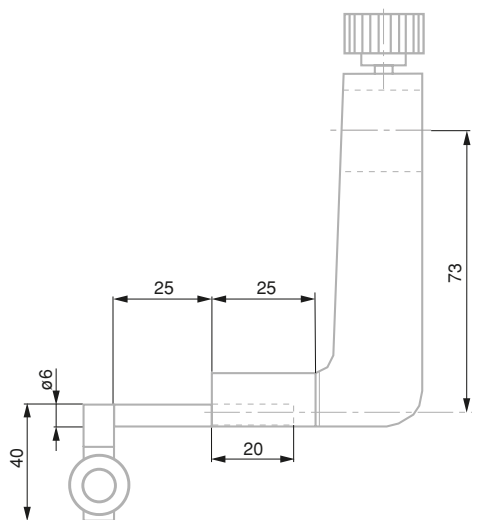
Certain height gauges of the range are adjusted in their perpendicularity (frontal plane) so that they can be used as a squareness measuring instrument by using a lever-type dial test indicator or other similar accessory. In this configuration we speak of a mechanical perpendicularity deviation only.

- Manual MICRO-HITE models
- Motorised MICRO-HITE+M models
- Manual TESA-HITE models (with external display)

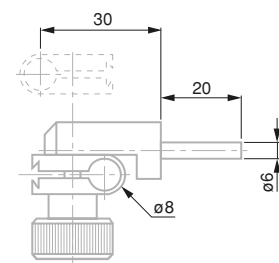
For example, a TWIN-T10 display coupled to an inductive probe and its support is an optimal configuration for detecting perpendicularity deviations. Other configurations are also possible.



Part number	Designation
00760222	Holder for accessories
00760166	Holder for accessories



00760222



00760166

Printer for MICRO-HITE range

Together with instruments in the MICRO-HITE range as well as the TESA μ -HITE measuring station, data can be automatically and directly sent to a printer connected to the control panel.

As the printer is optional, it can be connected to an instrument in this range at any time of its use.



Part number	Designation	Remark(s)
00760235	USB printer for MICRO-HITE	For panel 00760233 and 00760234

MICRO-HITE fine adjustment system



Part number	Designation	Remark(s)
00760246	MICRO-HITE fine adjustment kit	For MICRO-HITE 2016 range

Printers and accessories

Battery and accessories

The power supply of a MICRO-HITE or a MICRO-HITE + M can be achieved via two means:

- via a network connected to power
- via an integrated battery in the instrument, this battery is rechargeable and easy to remove.

With an accumulator, work on the control granite is therefore much easier to the extent that no power cable impedes the operator's movements with the height gauge.

When used mainly on battery power, it is highly advisable to purchase a second battery pack that will, through an interchangeable system, always have an operational battery when the other is charging. This allows an infinite autonomy unlike the instruments with an integrated battery without possibility of exchange.



Part number	Designation	Remark(s)
00760256	Rechargeable battery block	For MICRO-HITE 2016 range
00760258	14 V charger + adapter	For MICRO-HITE 2016 range

Cleaning liquid for granite table

- SCOPE
 - Thorough cleaning of all types of stone surfaces
 - Daily or weekly use
 - Apply with a lint free cloth and then wipe with a dry cloth.
- AUTONOMY

Cleaning is an important part of preventive maintenance. It ensures correct measurements and extends the life of your granite.



Part number	Designation
00760249	Cleaning liquid for granite table, 1 L

Dust cover

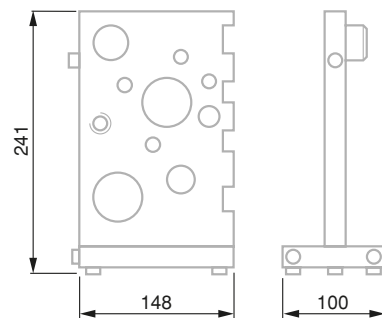
In certain situations the columns are used in harsh production environments characterized by a high rate of dust and frequent spills of liquid (water, oil, etc.). Thus, a cover can be the essential accessory to effectively protect the instrument when not in use.



Part number	Designation
00760151	Dust cover, 350 mm
00760152	Dust cover, 600 mm
00760153	Dust cover, 900 mm

Practice piece

Just as learning an instrument is a key moment to confirm optimum productivity later, TESA has developed an exercise piece that allows to review all metrological options that offer its vertical measuring ranges.

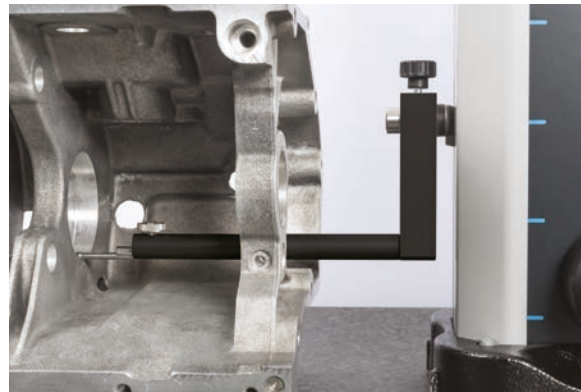


00760124

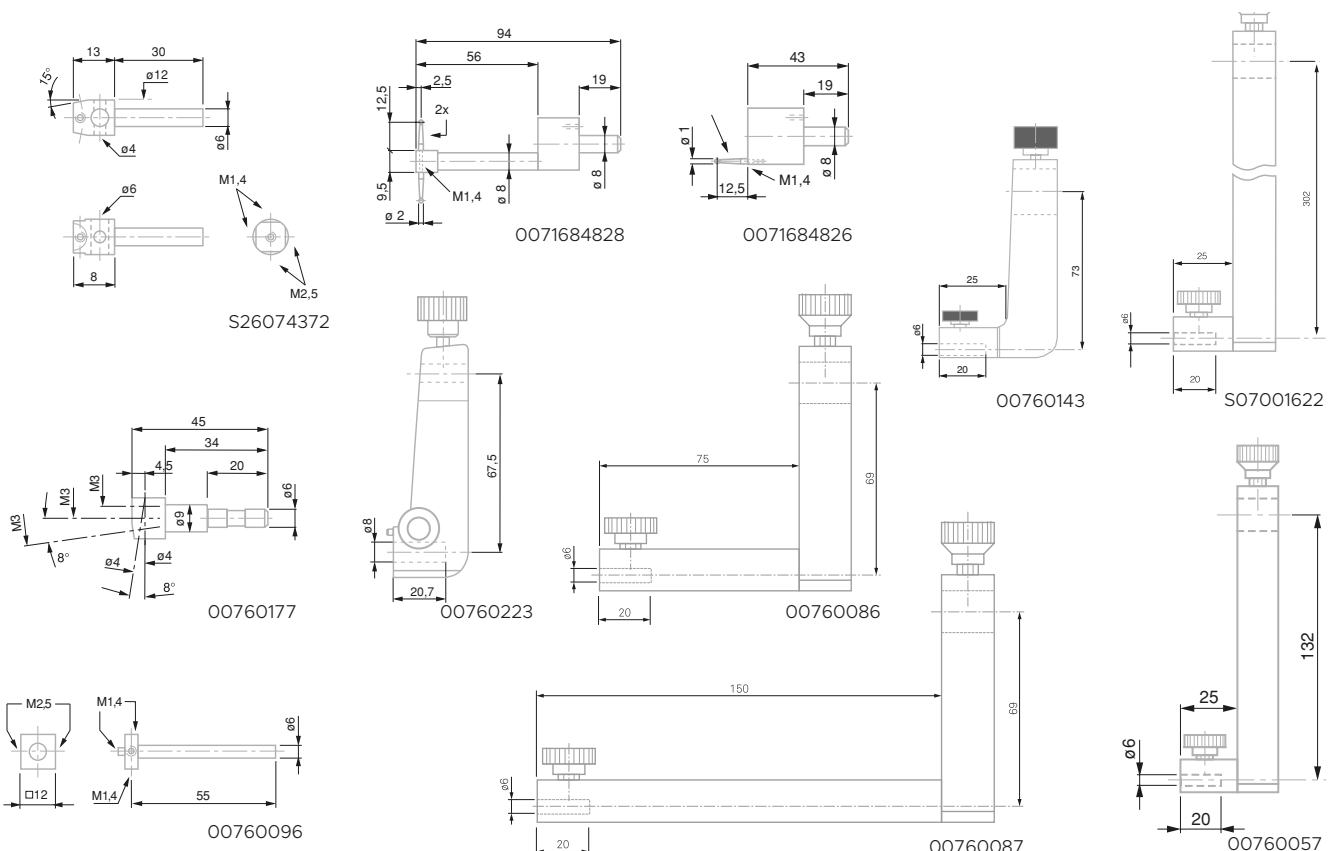
Part number	Designation
00760124	Practice piece

Other accessories for height gauges

Inserts holders for TESA-HITE and MICRO-HITE ranges



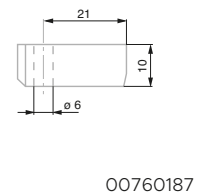
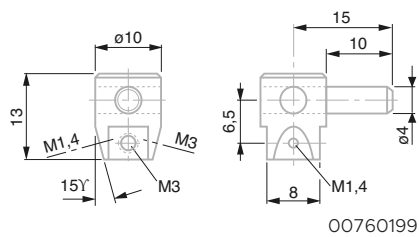
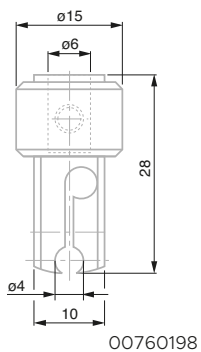
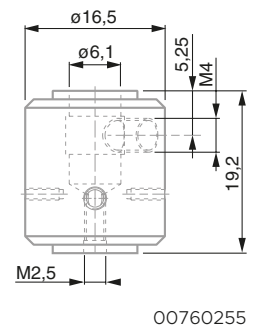
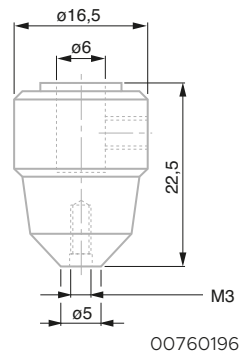
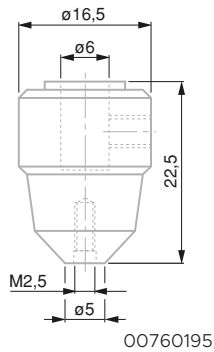
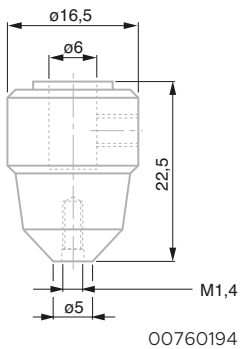
Part number	Fixing mm	Particular characteristic(s)
S26074372	Ø 6	For insert Ø 4 mm (1), Ø 6 mm (1), M1,4 (2), M2,5 (2)
00760096	Ø 6	For inserts M1,4 (3) and M2,5 (2)
00760177	Ø 6	For M3 inserts
00760243	Ø 6	For inserts with Ø 6 mm
0071684828	Ø 8	For M1,4 inserts (including Ø 2 mm and Ø 2,5 mm)
0071684826	Ø 8	For M1,4 inserts (including Ø 1 mm)
00760057	Ø 14,5	For inserts with Ø 6 mm
00760086	Ø 14,5	For inserts with Ø 6 mm
00760087	Ø 14,5	For inserts with Ø 6 mm
S07001622	Ø 14,5	For inserts with Ø 6 mm
00760223	Ø 14,5	For inserts with Ø 8 mm



Inserts holders for TESA μ -HITE range



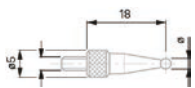
Part number	Execution	Fixing mm	Particular characteristic(s)
00760187	Radial		
00760199	Radial	Ø 4	For inserts M1,4 (2) and M3 (2)
00760194	Axial	Ø 6	For M1,4 inserts
00760195	Axial	Ø 6	For M2,5 inserts
00760196	Axial	Ø 6	For M3 inserts
00760198	Radial	Ø 6	For M4 inserts
00760255	Radial	Ø 6	For inserts M1,4 (2) and M2,5 (3)



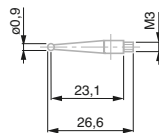
Ball tip inserts, mounting M2,5 and M3



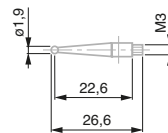
Part number	Diameter mm	Probe length mm	Fixing mm	Material	Particular characteristic(s)
00760180	0,9	26,6	M3	Steel	For TESA-HITE, MICRO-HITE and μ -HITE
00760181	1,9	26,6	M3	Steel	For TESA-HITE, MICRO-HITE and μ -HITE
00760182	2,9	26,6	M3	Steel	For TESA-HITE, MICRO-HITE and μ -HITE
03560051	1	18	M2,5	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
03560052	2	18	M2,5	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
03560053	3	18	M2,5	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
03560054	4	18	M2,5	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
03560055	5	18	M2,5	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
03560056	6	18	M2,5	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
03560057	7	18	M2,5	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
03560058	8	18	M2,5	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE



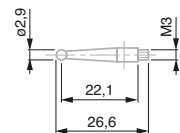
03560051-52-53-54-55-56-57-58



00760180



00760181



00760182

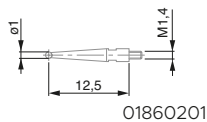
Inserts and holders

Ball tip inserts, mounting M1,4

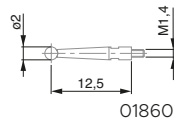


01860201 + 00760096

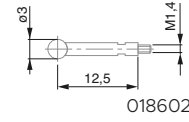
Part number	Diameter mm	Probe length mm	Fixing mm	Material	Particular characteristic(s)
01860201	1	12,53	M1,4	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
01860202	2	12,53	M1,4	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
01860203	3	12,53	M1,4	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
01860211	1	36,5	M1,4	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
01860212	2	36,5	M1,4	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE
01860213	3	36,5	M1,4	Tungsten carbide	For TESA-HITE, MICRO-HITE and μ -HITE



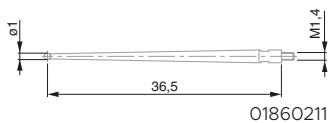
01860201



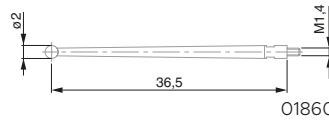
01860202



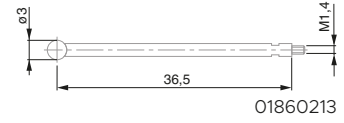
01860203



01860211



01860212

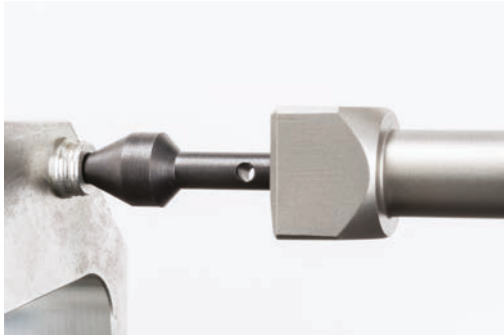


01860213

Cone probes

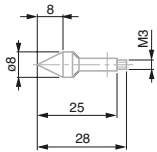
Conical probes are in principle not used for conventional measure such as 'probing', since it is not possible by their geometry to trigger in an accurate way a measuring point.

They are mainly used for determining the location of bores as their shape allows quick mechanical positioning at the center of these elements.

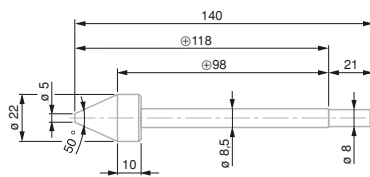


0071684822

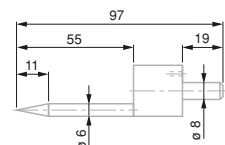
Part number	Diameter mm	Probe length mm	Fixing mm	Material
0071684819	22	140	Ø 8	Steel
0071684822	6	97	Ø 8	Steel
00760183	8	28	M3	Steel



00760183



0071684819



0071684822

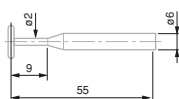
Disc inserts

As their name suggests, these styli are disc shaped with variable thicknesses and diameters to allow for probing of centring shoulders and grooves.

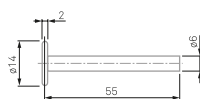
These accessories are often used in interior bore measurements where they are a good substitute to the star shaped stylus if this one cannot be used.



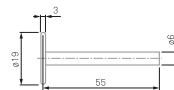
Part number	Diameter mm	Probe length mm	Fixing mm	Material
0071684827	12	91	Ø 8	Tungsten carbide
00760074	4,5	55,5	Ø 6	Tungsten carbide
00760075	14	56	Ø 6	Tungsten carbide
00760076	19	56,5	Ø 6	Tungsten carbide



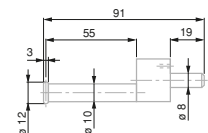
00760074



00760075



00760076



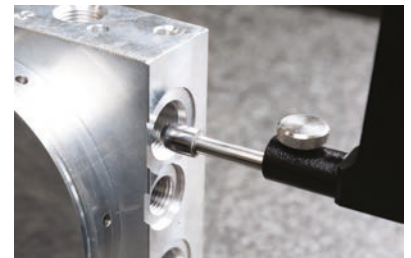
0071684827

Inserts and holders

Cylindrical or barrel inserts

The cylinder-shaped stylus are often used for the measurement of elements that cannot or only with difficulty be measured with a simple ball stylus. Indeed, it happens that for some measures the contact between the accessory and the part to be measured cannot be guaranteed when the end of the accessory is a sphere.

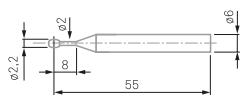
It can also be used for measuring threaded elements and often for the determination of center tapped holes



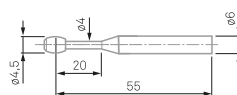
0071684820

00760068

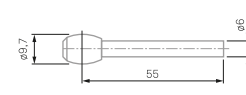
Part number	Diameter mm	Probe length, mm	Fixing mm	Material	Particular characteristic(s)
03510502	3,3	6	M2,5	Tungsten carbide	Counter-nut for radial alignment
03510503	4	6	M2	Tungsten carbide	Counter-nut for radial alignment
0071684820	10	96	Ø 8	Steel	
00760066	2,2	57,5	Ø 6	Tungsten carbide	
00760067	4,5	60	Ø 6	Tungsten carbide	
00760068	9,7	62,5	Ø 6	Tungsten carbide	
00760082	2	58,5	Ø 6	Tungsten carbide	
00760093	10	91		Steel basis, measuring face tungsten carbide	



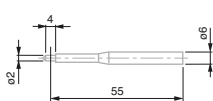
00760066



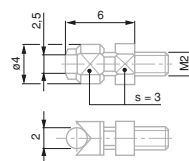
00760067



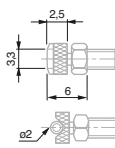
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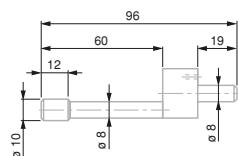
00760082



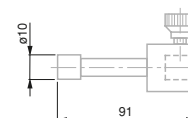
03510503



03510502



0071684820

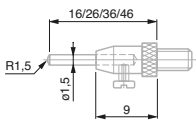


00760093

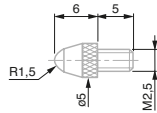
Hemispherical inserts



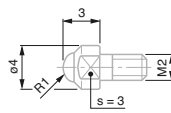
Part number	Radius mm	Probe length mm	Fixing mm	Material	Particular characteristic(s)
03510201	1,5	16, 26, 36, 46	M2,5	Steel	Interchangeable pins
03510202	5	16	M2	Tungsten carbide	
03510203	5	26	M2	Tungsten carbide	
03510204	1	3	M2	Tungsten carbide	
03510001	1,5	6	M2,5	Steel	
03510002	1,5	6	M2,5	Tungsten carbide	
03510101	5	6	M2,5	Steel	
03510102	5	6	M2,5	Tungsten carbide	
03510103	1	3	M2	Tungsten carbide	
03560001	1,5	6	M2,5	Sapphire	
03560007	1,5	4	M2,5	Tungsten carbide	
03560017	16	6	M2,5	Steel	
03560018	16	6	M2,5	Tungsten carbide	
03560019	1,5	8	M2,5	Steel	
03560020	1,5	8	M2,5	Tungsten carbide	
03560021	1,5	8	M2,5	Ruby	
03560035	0,5	5	M2,5	Steel	
03560036	0,5	10	M2,5	Steel	
03560037	0,5	15	M2,5	Steel	
03560038	0,5	20	M2,5	Steel	
03560039	0,5	30	M2,5	Steel	
03560040	0,5	40	M2,5	Steel	



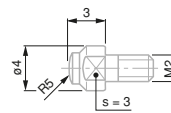
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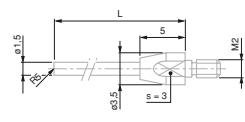
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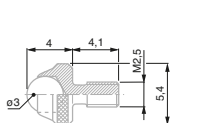
03510204



03510103



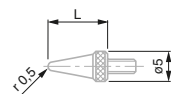
03510202-203



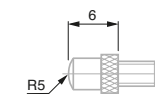
03560007



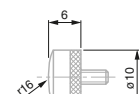
03560019-20-21



03560035-36-37-38-39-40



03510101-102



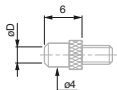
03560017-18

Inserts and holders

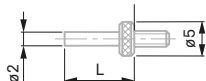
Inserts with flat measuring face



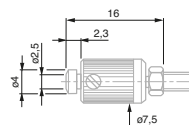
Part number	Diameter mm	Probe length mm	Fixing mm	Material	Particular characteristic(s)
03510902	4	16	M2,5	Tungsten carbide	Adjustable parallelism
03560008	1,5	20	M2,5	Steel	Interchangeable pins
03560009	1,5	20	M2,5	Tungsten carbide	Interchangeable pins
03510801	2,5	6	M2,5	Steel	
03510802	2,5	6	M2,5	Tungsten carbide	
03560022	3,4	6	M2,5	Steel	
03560023	3,4	6	M2,5	Tungsten carbide	
03560026	2	2,8	M2,5	Steel	
03560027	2	7,8	M2,5	Steel	
03560028	2	12,8	M2,5	Steel	
03560029	2	17,8	M2,5	Steel	
03560012	5	5	M2,5	Steel	
03560013	5	5	M2,5	Tungsten carbide	
03560014	10	6	M2,5	Steel	
03560015	10	6	M2,5	Tungsten carbide	
03560016	20	3,6	M2,5	Steel	



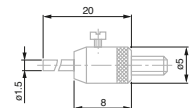
03510801, 03560026, 03510902



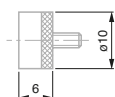
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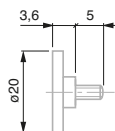
03510902



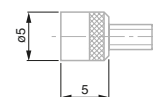
03560008-9



03560014-15



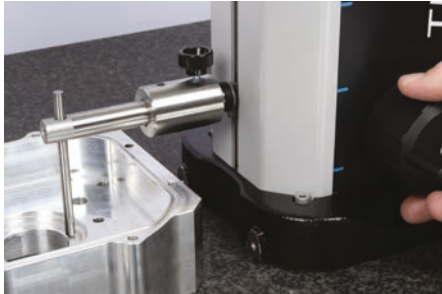
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03560012-13

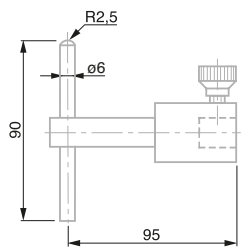
Shaft probes

The shaft probes are mainly used to measure grooves, centring shoulders, blind bores, etc.

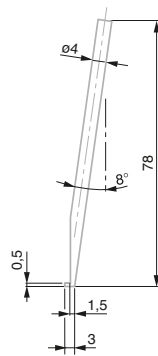


00760178

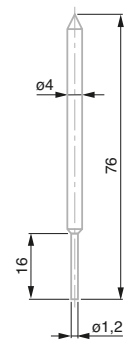
Part number	Probe length mm	Material	Particular characteristic(s)
00760094	95	Steel	1 x flat face and 1 x hemispherical face
00760178	78	Steel	Angle 8°
00760179	76	Steel	1 x contact point face and 1 x flat face



00760094



00760178



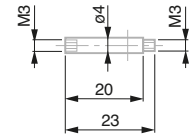
00760179

Inserts and holders

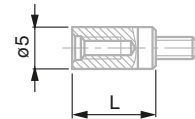
Extensions



00760184

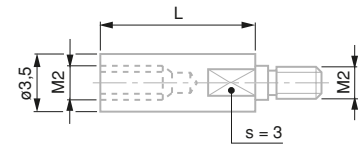


00760184



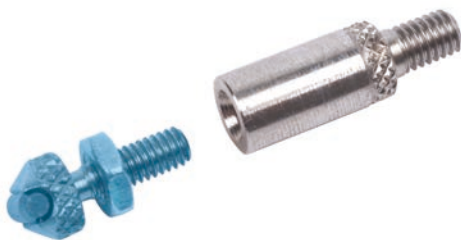
03560042-43-44-45-46-47-48-49-50

Part number	Probe length mm	Fixing mm
00760184	20	M3
03540505	10	M2
03540506	15	M2
03560042	10	M2,5
03560043	15	M2,5
03560044	20	M2,5
03560045	25	M2,5
03560046	30	M2,5
03560047	35	M2,5
03560048	40	M2,5
03560049	45	M2,5
03560050	50	M2,5

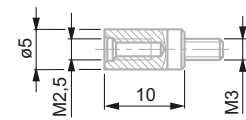


03540505-506

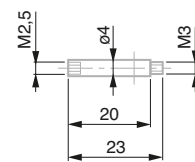
Adapters



03560065



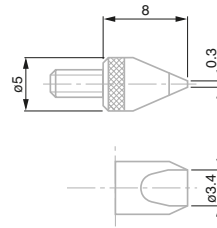
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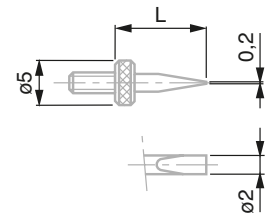
00760185

Part number	Probe length mm	Fixing mm	Particular characteristic(s)
03560092		M2,5	For M2 inserts
03560065		M3	For M2,5 inserts
00760185	20	M3	For M2,5 inserts

Inserts with knife blade shape



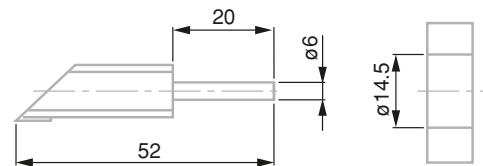
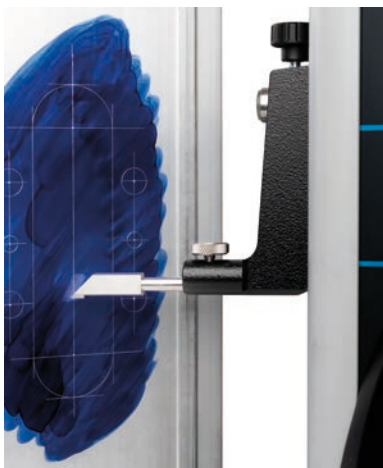
03560031



03560024

Part number	Probe length mm	Fixing mm	Material	Particular characteristic(s)
03560024	8	M2,5	Steel	Lock nut for radial alignment
03560025	8	M2,5	Tungsten carbide	Lock nut for radial alignment
03560031	5	M2,5	Steel	Lock nut for radial alignment
03560032	10	M2,5	Steel	Lock nut for radial alignment
03560033	15	M2,5	Steel	Lock nut for radial alignment
03560034	20	M2,5	Steel	Lock nut for radial alignment

Scribers



00760165

Part number	Probe length mm	Fixing mm	Material
00760172	30	Ø 6	Tungsten carbide
00760165	32	Ø 6	Tungsten carbide

Set of probe inserts + accessories

Instrument sets



00760175

			For TESA-HITE and MICRO-HITE				For μ -HITE
Family	Part number	Description	00760232	00760173	00760148	00760175	00760186
Probe holders	00760057	Probe support \varnothing 6 mm			•		
	00760086	Probe holder \varnothing 6 mm For depth up to 110 mm			•		
	00760087	Probe holder \varnothing 6 mm For depth up to 185 mm			•		
	00760177	Adapter for M3 inserts				•	
	00760187	Probe holder for offset measurement					•
Probes	00760061	Ball tip insert \varnothing 3 mm Mounting \varnothing 6 mm	•	•	•		
	00760060	Ball tip insert \varnothing 10 mm Mounting \varnothing 6 mm		•	•		
	00760180	Ball tip insert \varnothing 0,9 mm Mounting M3				•	•
	00760181	Ball tip insert \varnothing 1,9 mm Mounting M3				•	•
	00760182	Ball tip insert \varnothing 2,9 mm Mounting M3				•	•
	00760228	Ball tip insert \varnothing 1 mm Mounting \varnothing 6 mm		•	•		
	00760229	Ball tip insert \varnothing 2 mm Mounting \varnothing 6 mm		•	•		
	00760230	Ball tip insert \varnothing 3 mm Mounting \varnothing 6 mm		•	•		
	00760066	Barrel shaped insert \varnothing 2,2 mm Mounting \varnothing 6 mm			•		
	00760067	Barrel shaped insert \varnothing 4,5 mm Mounting \varnothing 6 mm			•		
	00760068	Barrel shaped insert \varnothing 9,7 mm Mounting \varnothing 6 mm			•		
	00760074	Disc-shaped insert \varnothing 4,5 mm Mounting \varnothing 6 mm			•		
	00760075	Disc-shaped insert \varnothing 14 mm Mounting \varnothing 6 mm	•	•	•		
	00760076	Disc-shaped insert \varnothing 19 mm Mounting \varnothing 6 mm			•		
	00760082	Cylindrical insert \varnothing 2 mm Mounting \varnothing 6 mm	•		•		
	00760093	Cylindrical insert \varnothing 10 mm		•	•		
	00760183	Cone-shaped insert \varnothing 8 mm Mounting M3				•	•
	Shaft probes	00760094	Probe holder + rod	•	•	•	
00760178		Shaft probe \varnothing 4 mm Angle 8°				•	•
00760179		Cylindrical shaft probe \varnothing 4 mm 1 x pointed tip				•	•
Extensions	00760184	Extension L20 mm Mounting M3 For M3 insert				•	•
	00760185	Extension L20 mm Mounting M3 For M2,5 insert				•	•



Surface roughness testing



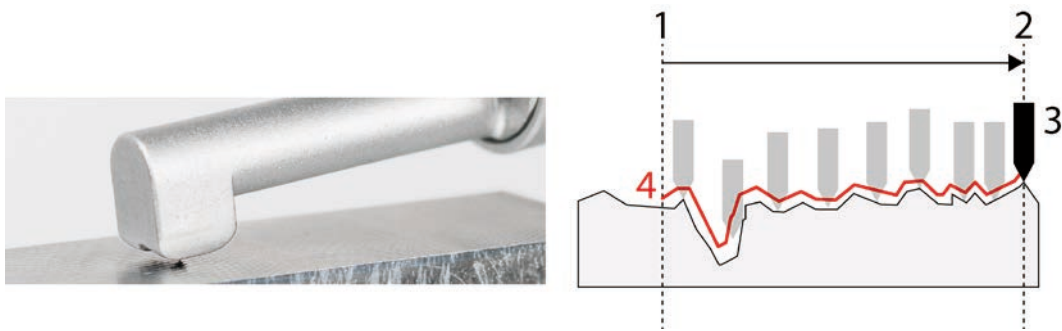
TESA
TECHNOLOGY

Roughness Measurement

Roughness gauges are instruments used to determine surface irregularities, such as the level of wear on metal surfaces or the condition of surfaces after machining.

TESA roughness gauges are classic compact models using a highly resistant diamond tip. This tip will scan these irregularities so that the instrument can determine a profile. The determination of the tip to be measured is important since it will allow, according to the surface to be measured, to reach a more or less high precision.

Once the micro-geometric asperities of the surface are measured, parameter values are defined, thus qualifying the defects of the controlled zone.



(1) Start of measurement, (2) End of measurement, (3) Diamond tip, (4) Measured profile

TESA Roughness Gauges

RUGOSURF 20

A portable and compact roughness tester, its large screen allows the user to directly display the measured profiles and available graphics.

TWIN-SURF

A portable and ultra-compact roughness tester, this instrument allows measurements in hard-to-reach places thanks to its feature that allows the probe to be positioned at 90°. It can also be mounted on other instruments such as height gauges. A model with integrated Bluetooth® is available, allowing data to be send directly to a wireless printer.

RUGOSURF 90G

Roughness tester that can also be transformed into a profile meter by using the PROFILE SET 2 mm option. It can also measure in three directions: +90°, 0 and -90°.



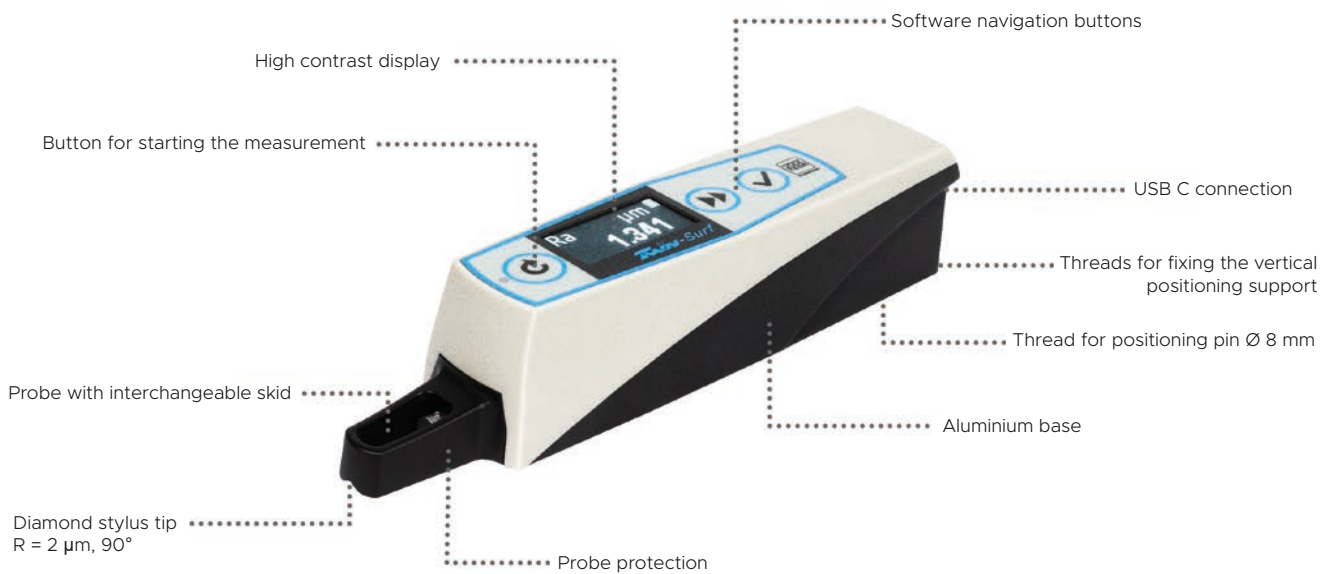
TWIN-SURF, RUGOSURF 20, RUGOSURF 90G

Surface roughness testing

RUGOSURF 20



TWIN-SURF



RUGOSURF 20

- INSTRUMENT
 - Portable and robust
 - 3 buttons on top of the product for easy instrument configuration
 - Interchangeable probes
- AUTONOMY
 - Can be operated with power supply or battery
- MEASUREMENT
 - Suitable for use in production environments or for incoming inspection
 - Access to narrow and deep areas thanks to the 100 mm probe extension (optional)
- FUNCTIONS (with DATA-STUDIO, basic version)
 - R-profile display
 - 13 roughness parameters available
 - 10 measurements usable for statistical processing
 - Storage of 10 measurement programs
 - Each parameter can be individually activated
 - Tolerancing possible for each parameter
- DATA MANAGEMENT
 - Transfer of measurements, creation of database, report with DATA-STUDIO software



06930013

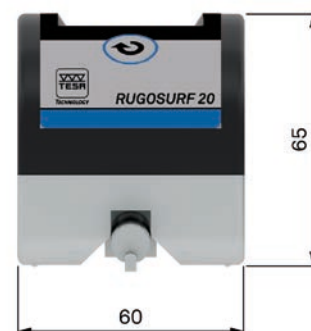
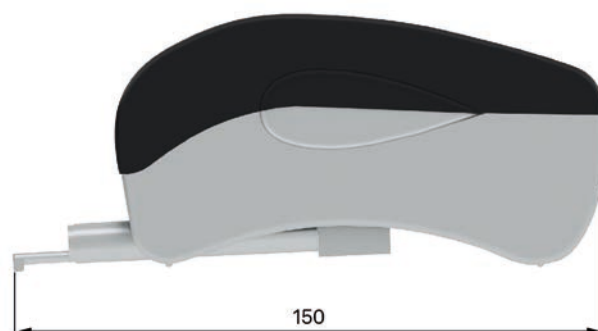
Article number	Designation
06930013	RUGOSURF 20 roughness gauge

Accessories

Article number	Designation
04760099	USB to micro-USB cable
06960035	Support with granite table, 400 x 250 mm
06960081	SB10-2 probe, for RUGOSURF 20, R = 2 μm , 90°
06960036	SB10 probe, for RUGOSURF 20, R = 5 μm , 90°
06960037	SB20 probe, for RUGOSURF 20, for groove of depth < 5 mm
06960038	SB30 probe, for RUGOSURF 20, for bores $\varnothing > 4$ mm
06960039	SB40 probe, for RUGOSURF 20, V-shape for cylinders $\varnothing > 1$ mm
06960040	SB50 probe, for RUGOSURF 20, for concave surfaces or 90°
06960056	100 mm extension for probe with skid, for RUGOSURF 20
06960057	SB110 probe, for RUGOSURF 20, for concave or convex surfaces R > 5 mm
06960063	Battery NiMH 8,4V, 170 mAh, format PP3
06960046	Power supply 100 \div 240 V, 50 \div 60 Hz, 12 V, 400 \div 600 mAh
06960041	Roughness standard, Ra = 2,97 μm
06960064	Roughness standard, Ra = 0,1 μm
06960065	Roughness standard, Ra = 0,5 μm
06960066	Roughness standard, Ra = 1 μm
06960091	DATA-STUDIO software

Roughness gauges

Standard	ISO 3274, ISO 4287, ISO 12085, ISO 21920
Measuring range	Z: $\pm 200 \mu\text{m}$ X: 16 mm
Range of indication	Ra = $0 \div 100 \mu\text{m}$ Rt = $0,05 \div 400 \mu\text{m}$
Max. perm. errors	R = roughness in μm $0,05 \mu\text{m} + (5\% R)$
Resolution	$0,001 \mu\text{m} / .01 \mu\text{in}$
Material	Stylus tip: diamond
Dimensions	Housing: 122 x 60 x 62 mm Screen: 160 x 100 pixels Tip: R2 μm , 90°
Degree of protection	Keyboard: IP67
Display	LCD, black/white
Weight	650 g
Data output(s)	Micro-USB
Measuring force	0,75 mN
Units	mm / in
Roughness parameters	Available with the RUGOSURF 20 used in conjunction with the following TESA DATA-STUDIO versions: Basic version: According to ISO 4287: Ra, Rq, Rt, Rz, Rc, Rmax, RSm, RPC According to ISO 12085: Pt, R, AR, Rx, PPc Premium version: According to ISO 12085: Rke, Rpke, Rvke, A1e, A2e, Mr1e, Mr2e According to ISO 4287: Rp, Rv, Rsk, Rku, RΔq, RΔa, Rmr rel, Rδc, Rmr(c) Pa, Pq, Pp, Pv, Pt, Pc, RPC, R3z Psk, Pku, PSm, PΔq, Pmr rel, Pδc, Pmr(c) Rk, Rpk, Rvk, A1, A2, Mr1, Mr2 as well as all parameters of the basic version
Graphic(s)	With DATA-STUDIO version: Basic: R-profile Premium: P-profile, Rk-profile Number: 1 - 5
Cut-off	Lengths: 0,25 - 0,8 - 2,5 mm (ISO 4287) 1,5 - 2,5 - 4 - 8 - 12 - 16 mm (ISO 12085)
Memory	Measurements with parameters: < 1'000 Measurements with profile and graph: < 20
Probe displacement speed	1 mm/s
Delay before measurement	4 to 10 s
Included in delivery	1x RUGOSURF 20 1x SB10-2 probe, R = 2 μm 1x standard, Ra = 2,97 μm 1x positioning pin \varnothing 8 mm 1x vertical positioning support 1x removable probe protection 1x rechargeable battery 1x charger and UE/US adapter



RUGOSURF 90G

- INSTRUMENT
 - Vertical adjustment screw for probe positioning (up to 90 mm) without accessories
 - Can be transformed into a profile measurer by using the PROFILE SET 2 mm option
- MEASURE
 - Suitable for use in production environments or for incoming inspection
 - 3 horizontal measuring positions of the probe: 0°, -90° and +90°.
 - Roughness or waviness measurement with one probe (probe with removable skid)
- FUNCTIONS
 - R-profile measurement
 - P-profile measurement
 - W-profile measurement
 - 51 roughness parameters available
 - Tolerancing possible for each parameter
- DATA MANAGEMENT
 - USB output for transferring measured values to a computer
 - TESA MEASUREMENT STUDIO software (optional)



06930012

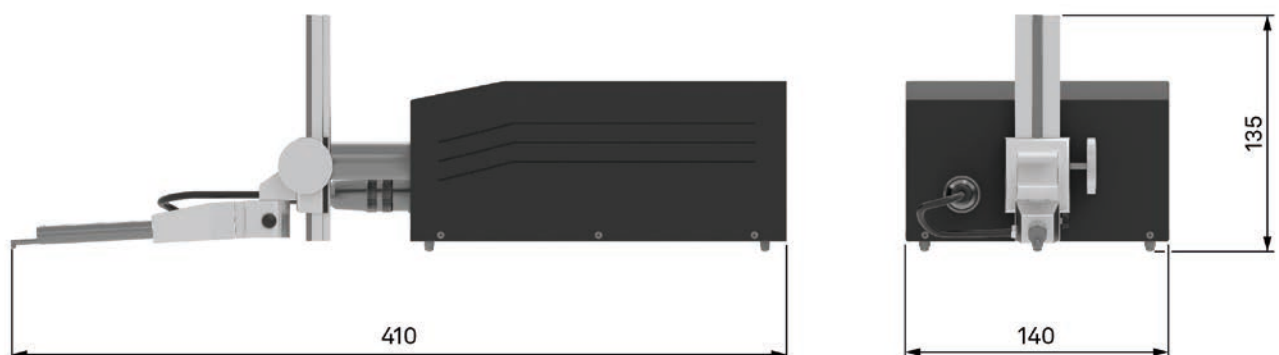
Article number	Designation
06930012	RUGOSURF 90G roughness gauge

Accessories

Article number	Designation
06960062	USB cable, RUGOSOFT 90G to computer
06960048	MEASUREMENT STUDIO software
06960067	SB60/10-2 probe, for RUGOSURF 90G, detachable skid, R = 2 µm, 90°
06960050	SB20P probe, for RUGOSURF 90G, for groove of depth < 5 mm
06960051	SB30P probe, for RUGOSURF 90G, for bores Ø > 4 mm
06960052	SB40P probe, for RUGOSURF 90G, V-shape for cylinders Ø > 1 mm
06960053	SB50P probe, for RUGOSURF 90G, for concave surfaces or 90° measurement
06960054	SB120P probe, for RUGOSURF 90G, for groove of depth < 20 mm
06960058	SB120S probe, for RUGOSURF 90G, for groove of depth < 15 mm
06960061	SB60-D2 probe, for RUGOSURF 90G, for bores Ø > 2 mm
06960049	SB60/10 probe, for RUGOSURF 90G, detachable skid, R = 5 µm, 90°
06960041	Roughness standard, Ra = 2,97 µm
06960064	Roughness standard, Ra = 0,1 µm
06960065	Roughness standard, Ra = 0,5 µm
06960066	Roughness standard, Ra = 1 µm
06960100	PROFILE SET, 2 mm
06960055	Support with granite table, 630 x 400 mm

Roughness gauges

Standard	ISO 3274, ISO 4287, ISO 12085, ISO 21920
Measuring range	Z: $\pm 500 \mu\text{m}$ X: 50 mm
Range of indication	Ra = 0 ÷ 400 μm Rt = 0 ÷ 1000 μm
Max. perm. errors	R = roughness in μm 0,05 μm + (5% R)
Resolution	0,001 μm / .01 μin
Material	Stylus tip: diamond
Dimensions	Housing: 270 x 140 x 90 mm Screen: 320 x 240 pixels Tip: R2 μm , 90°
Degree of protection	Keyboard: IP67
Display	TFT, color
Weight	3 kg
Data output(s)	Micro-USB
Measuring force	0,75 mN
Units	mm / in
Roughness parameters	According to ISO 4287: Ra, Rq, Rt, Rp, Rc, Rv, RSm, R δ c, RPc Pa, Pq, Pp, Pc, Pv, PSm, P δ c Wa, Wq, Wt, Wp, Wc, Wv, WSm, W δ c, WPc Rmr, Rz, Rmax, Rsk, Rku, Wz Rk, Rpk, Rvk, Mr1, Mr2 As per DB N 31007: R3z, R3zm According to ISO 12085: Pt, R, Rx, AR, Wte, W, AW, Wx, Rke, Rpke, Rvke, Pdc, Ppc, Mr1e, Mr2e
Graphic(s)	Bearing area curve P-profile R-profile W-profile
Cut-off	Length: 0,08 - 0,25 - 0,80 - 2,50 - 8,00 mm Number: 1 - 19 for cut-off up to 2,5 mm 1 - 5 for cut-off 8,0 m
Memory	Measurements with parameters: < 60'000
Probe displacement speed	0,5 or 1 mm/s
Included in delivery	1x RUGOSURF 90G 1x SB60/10-2 probe with skid 1x standard, Ra = 2,97 μm 1x probe holder 1x guide column, vertical stroke of 90 mm 1x rechargeable battery 1x charger and UE/US adapter



TWIN-SURF

- INSTRUMENT
 - Ultra-compact, portable and robust
 - High contrast display for comfortable reading in dark environments
 - 3 buttons on top of the product for easy instrument configuration
 - Interchangeable probes
- AUTONOMY
 - Can be operated with power supply or battery
- MEASUREMENT
 - Suitable for use in production environments or for incoming inspection
 - Access to narrow and deep areas thanks to the 100 mm probe extension (optional)
 - 90° probe orientation for cross-sectional measurements
- FUNCTIONS (with DATA-STUDIO, basic version)
 - R-profile display
 - 13 roughness parameters available
 - 10 measurements usable for statistical processing
 - Storage of 10 measurement programs
 - Each parameter can be individually activated
 - Tolerancing possible for each parameter
- DATA MANAGEMENT
 - Standard version connectable to a computer via cable
 - Bluetooth® version wirelessly connectable to a computer, tablet or smartphone
 - Free TESA DATA-STUDIO software (basic version) included for creating measurement reports, statistical management, measurement parameters.



06930014

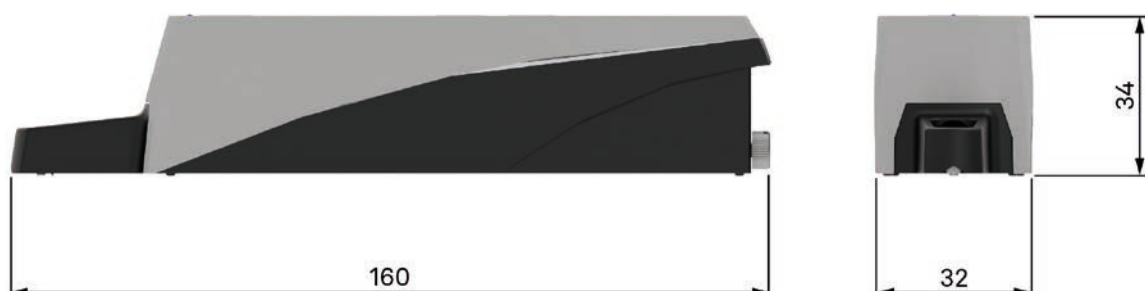
Article number	Designation
06930014	TWIN-SURF roughness gauge
06930015	TWIN-SURF roughness gauge, Bluetooth® version

Accessories

Article number	Designation
06960092	SB21 probe, for TWIN-SURF, for groove of depth < 5 mm
06960093	SB31 probe, for TWIN-SURF, for bores $\varnothing > 4$ mm, depth < 20 mm
06960094	SB51 probe, for TWIN-SURF, for concave surfaces or 90° measurement, for groove of depth < 5 mm
06960095	SB121 probe, for TWIN-SURF, for groove of depth < 20 mm
06960096	Extension for TWIN-SURF, 100 mm
04760152	USB A to USB C cable, 1 m
06960090	Bluetooth® printer
06960091	DATA-STUDIO software

Roughness gauges

Standard	ISO 3274, ISO 4287, ISO 12085, ISO 21920
Measuring range	Z: $\pm 200 \mu\text{m}$ X: 17,5 mm
Range of indication	Ra = $0 \div 50 \mu\text{m}$ Rt = $0,05 \div 200 \mu\text{m}$
Max. perm. errors	R = roughness in μm $0,05 \mu\text{m} + (5\% R)$
Resolution	$0,001 \mu\text{m} / .01 \mu\text{in}$
Material	Stylus tip: diamond
Dimensions	Housing: 160 x 34 x 34 mm Screen: 128 x 64 pixels Tip: R2 μm , 90°
Degree of protection	Keyboard: IP67
Display	OLED, monochrome
Weight	200 g
Data output(s)	USB C
Measuring force	0,75 mN
Units	mm / in
Roughness parameters	Available with the TWIN-SURF used in conjunction with the following TESA DATA-STUDIO versions: Basic version: According to ISO 4287: Ra, Rq, Rt, Rz, Rc, Rmax, RSm, RPC According to ISO 12085: Pt, R, AR, Rx, PPc Premium version: According to ISO 12085: Rke, Rpke, Rvke, A1e, A2e, Mr1e, Mr2e According to ISO 4287: Rp, Rv, Rsk, Rku, RΔq, RΔa, Rmr rel, Rδc, Rmr(c) Pa, Pq, Pp, Pv, Pt, Pc, RPC, R3z Psk, Pku, PSm, PΔq, Pmr rel, Pδc, Pmr(c) Rk, Rpk, Rvk, A1, A2, Mr1, Mr2 and all the parameters of the basic version
Graphic(s)	With DATA-STUDIO version: Basic: R-profile Premium: P-profile, Rk-profile Number: 1 - 5
Cut-off	Lengths: 0,25 - 0,8 - 2,5 mm (ISO 4287) 1,5 - 2,5 - 4 - 8 - 12 - 16 mm (ISO 12085)
Memory	Measurements with parameters: < 18'000 (evaluation length: 0,8 x 5 mm) Measurements with profile and graph: < 30
Probe displacement speed	0,5 or 1 mm/s
Delay before measurement	0 to 10 s
Included in delivery	1x TWIN-SURF 1x probe SB51 1x standard, Ra = 2,97 μm 1x positioning pin \varnothing 8 mm 1x key for protection management 1x charger and EU/US adapter 1x USB A-C cable DATA-STUDIO software (basic version) Measuring report Declaration of conformity



PROFILE SET 2 mm

- USE
 - Transforms the RUGOSURF 90G into a profile measuring device
 - For the measurement of lengths, radii and angles
- FUNCTIONS (with PROFILE STUDIO software)
 - Dimensions can be inserted on the measured profile after defining the geometrical elements (point, line, arc or intersection between 2 lines 'for example')
 - A previous measurement can be used as a measurement template for repeating a measurement of a part with identical geometry
 - A detailed measurement report with customizable header
 - Measurement command and help for calibration from computer
 - Import and export of measurement parameters from and to the instrument
 - Archiving of measurement results and measured parameters as a database

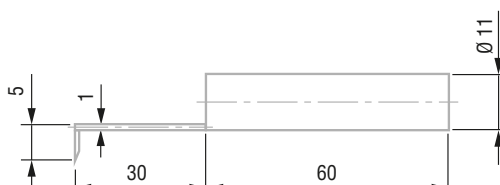


Measuring range	Z: 2 mm X: 50 mm
Max. perm. errors	Z: $3.5 + 0.75 \times H \mu\text{m}$ (H in Z axis, in mm) X: $3.5 + L/10 \mu\text{m}$ (L in X axis, in mm)
Resolution	Z: $0,1 \mu\text{m}$ X: 0,4 to $4 \mu\text{m}$ (depending on measured length)
Measuring force	0,003 mN with SB2000 probe
Roughness parameters	According to ISO 4287, ISO 13565-1, ISO 13565-2, ISO 12085, VDA 2007
Probe displacement speed	1 mm/s
Profile angles	Upward measurement: 70° Downward measurement: 85°

Article number	Designation
06960100	PROFILE SET, 2 mm

Accessories

Article number	Designation
06960101	PROFILE STUDIO software
06960102	SB2000 probe for PROFILE SET 2 mm, R = $15 \mu\text{m}$, 20°
06960103	Setting master for PROFILE SET 2 mm
06960062	USB cable, RUGOSOFT 90G to computer

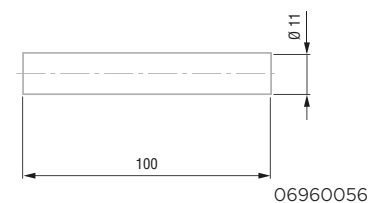
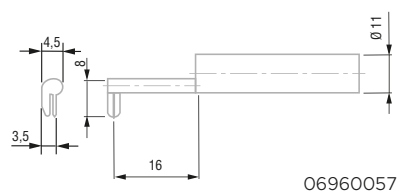
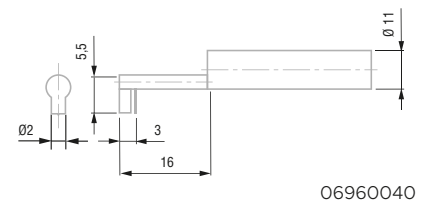
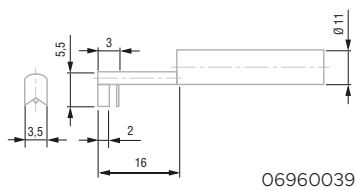
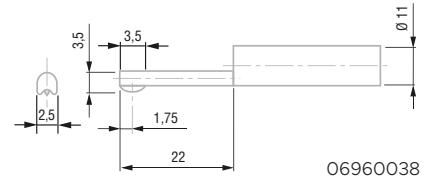
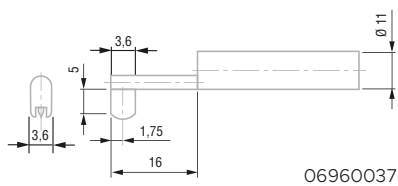
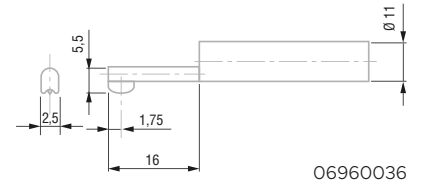
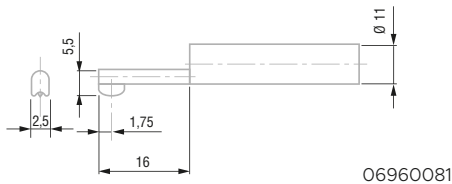


Accessories for roughness gauges

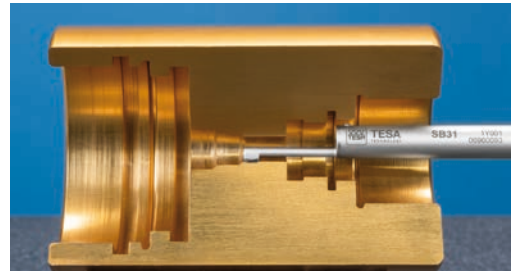
Probes and extension for RUGOSURF 20



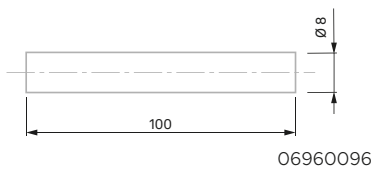
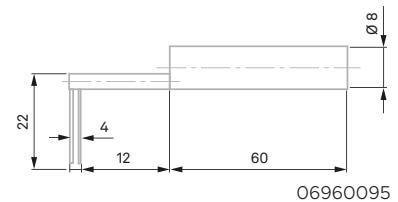
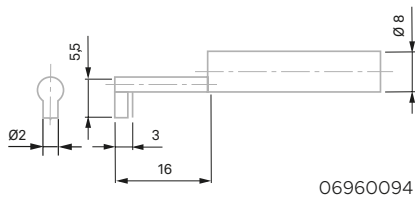
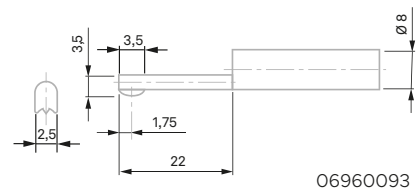
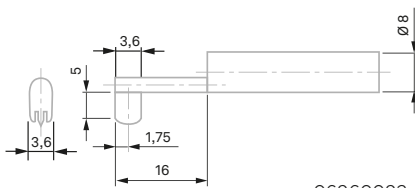
Article number	Designation
06960036	SB10 probe, for RUGOSURF 20, R = 5 μm , 90°
06960037	SB20 probe, for RUGOSURF 20, for groove of depth < 5 mm
06960038	SB30 probe, for RUGOSURF 20, for bores $\varnothing > 4$ mm
06960039	SB40 probe, for RUGOSURF 20, V-shape for cylinders $\varnothing > 1$ mm
06960040	SB50 probe, for RUGOSURF 20, for concave surfaces or 90°
06960057	SB110 probe, for RUGOSURF 20, for concave or convex surfaces R > 5 mm
06960081	SB10-2 probe, for RUGOSURF 20, R = 2 μm , 90°
06960056	100 mm extension for probe with skid, for RUGOSURF 20



Probes and extension for TWIN-SURF



Article number	Designation
06960092	SB21 probe, for TWIN-SURF, for groove of depth < 5 mm
06960093	SB31 probe, for TWIN-SURF, for bores $\varnothing > 4$ mm, depth < 20 mm
06960094	SB51 probe, for TWIN-SURF, for concave surfaces or 90° measurement, for groove of depth < 5 mm
06960095	SB121 probe, for TWIN-SURF, for groove of depth < 20 mm
06960096	Extension for TWIN-SURF, 100 mm

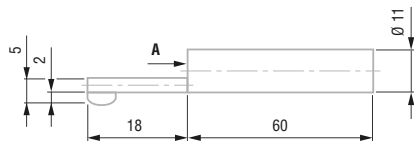


Accessories for roughness gauges

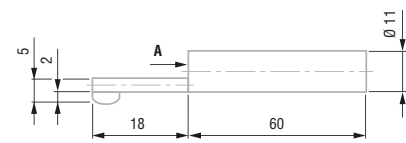
Probes and extension for RUGOSURF 90G



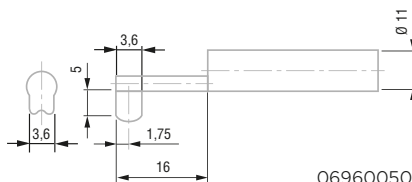
Article number	Designation
06960049	SB60/10 probe, for RUGOSURF 90G, detachable skid, R = 5 μ m, 90°
06960050	SB20P probe, for RUGOSURF 90G, for groove of depth < 5 mm
06960051	SB30P probe, for RUGOSURF 90G, for bores $\varnothing > 4$ mm
06960052	SB40P probe, for RUGOSURF 90G, V-shape for cylinders $\varnothing > 1$ mm
06960053	SB50P probe, for RUGOSURF 90G, for concave surfaces or 90° measurement
06960054	SB120P probe, for RUGOSURF 90G, for groove of depth < 20 mm
06960058	SB120S probe, for RUGOSURF 90G, for groove of depth < 15 mm
06960061	SB60-D2 probe, for RUGOSURF 90G, for bores $\varnothing > 2$ mm
06960067	SB60/10-2 probe, for RUGOSURF 90G, detachable skid, R = 2 μ m, 90°
06960056	100 mm extension for probe with skid, for RUGOSURF 90G



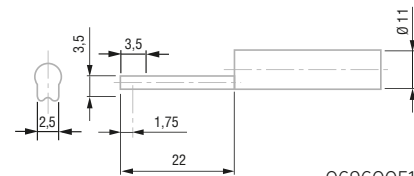
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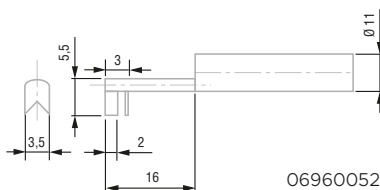
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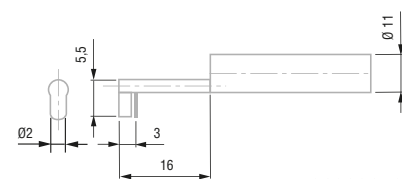
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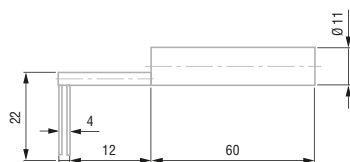
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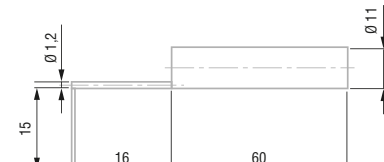
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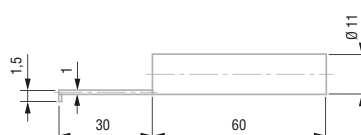
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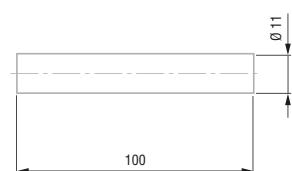
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06960058



06960061



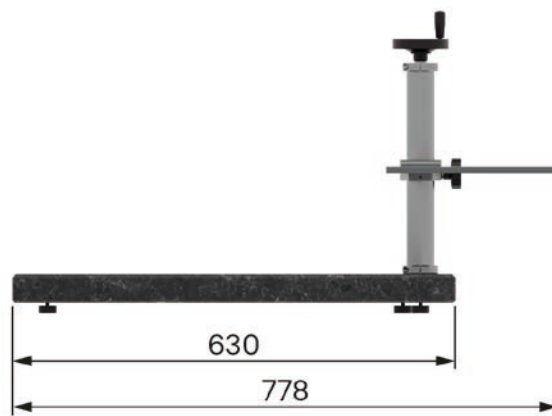
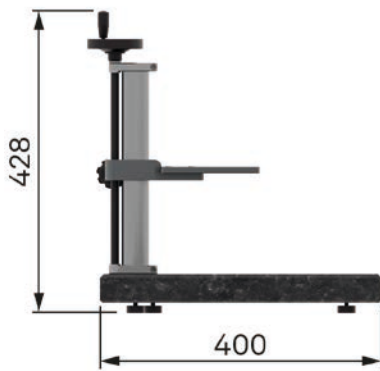
06960056

Support group

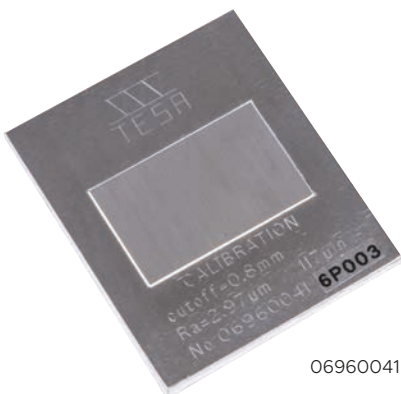


06960055

Article number	Designation
06960055	Support with granite table, 630 x 400 mm



Calibration standards



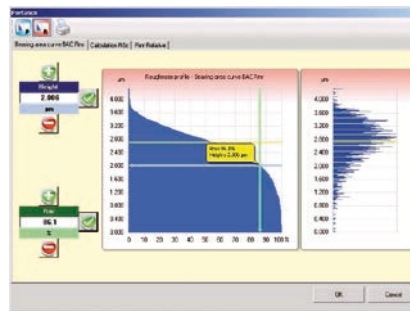
06960041

Article number	Designation
06960041	Roughness standard, Ra = 2,97 µm
06960066	Roughness standard, Ra = 1 µm
06960065	Roughness standard, Ra = 0,5 µm
06960064	Roughness standard, Ra = 0,1 µm

Software for roughness gauges

MEASUREMENT STUDIO

- COMPATIBILITY
 - For RUGOSURF 90G
- FUNCTIONS
 - Remote management of measurement start-up and calibration
 - Visualization of the measured parameters
 - Visualization of roughness profiles R, primary P and waviness W
 - Calculation of roughness parameters, including VDA parameters
 - Calculation of statistics from a set of measurements
 - Adjustable upper and lower tolerance for each parameter
 - Creation and storage of measurement programs (instrument settings and parameters to be measured)
 - Transferable measurement programs on the instrument
 - Measurement report with customizable header
 - 51 parameters available
- DATA MANAGEMENT
 - Connection to the instrument via USB
 - Import of saved measurements from the instrument to the computer, for the management of a database
 - Measurement report in .xls, .pdf, .doc, .rpt or .rtf format



Par VDA 2007			
Parameter	Value	Tol-	Tol+
WDSm	0.273 μm		
WDc	0.971 μm		
WDt	2.243 μm		

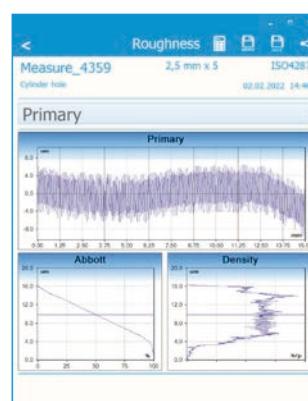
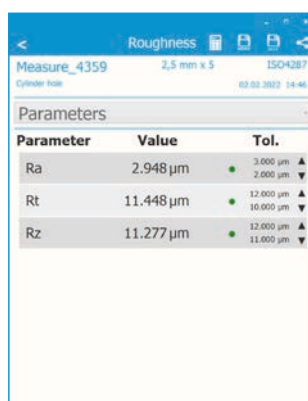
Included in delivery

License key (dongle)
 USB-PC connection cable, 1,80 m
 User manual
 Software installation file

Article number	Designation
06960048	MEASUREMENT STUDIO software

DATA-STUDIO

- COMPATIBILITY
 - For RUGOSURF 20
 - For TWIN-SURF
- FUNCTIONS
 - Remote management of measurement start and calibration
 - Visualization of the measured parameters
 - Visualization of the measured roughness profiles R, primary P and Rk
 - Calculation of roughness parameters, including VDA parameters
 - Statistical calculations from several measurements
 - Adjustable upper and lower tolerance for each parameter
 - Creation and archiving of measurement programs (instrument settings and parameters to be measured)
 - Measurement programs transferable to the instrument
 - Measurement report for each parameter head
 - 51 parameters available with the Premium version
- DATA MANAGEMENT
 - Connection to the instrument via USB or Bluetooth® (depending on the instrument)
 - Import of measurements saved from the instrument to the computer for data base management
 - Printing of results with printer accessory
 - Measurement report in .xls and .pdf format



Included in delivery

1x USB key including:
User manual
Software installation file

Article number

Designation

06960091

DATA-STUDIO software



Straightness, angles and inclination measurement



TESA
TECHNOLOGY

Straightness, angles and inclination measurement

Irrespective of whether they are spirit or electronic inclinometers, all precision levels are based on the same perfectly reliable reference but also cost-free: The centre of the earth's gravity.

Under the force of gravity, the gas bubble in the liquid or the pendulum inclines itself according to this natural physical principle. The position of the pendulum with respect to the measuring faces of the instrument body can then be measured.

Based on this perfect principle, these instruments offer a great number of measuring applications of high precision. The horizontal and vertical positioning of the measuring faces enable the detection of form errors in the geometrical elements on the workpiece to be measured.

These errors often result from deviations in straightness, flatness, position, parallelism and squareness.

Indication of values may vary depending on the type of level, the values typically displayed are:

- Inclination (mm/m or in/10 in)
- Radian (mrad)
- Decimal angle (12,37°, for example);
- Sexagesimal angle in degrees (°), minutes (') and seconds (") (15° 30' 45" for example)

TESA precision clinometers and levels



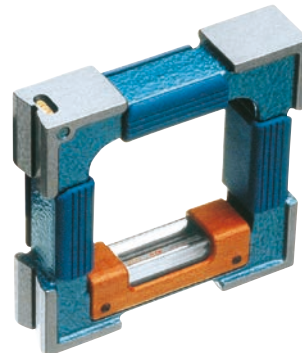
CLINOBEVEL 1 USB digital clinometer



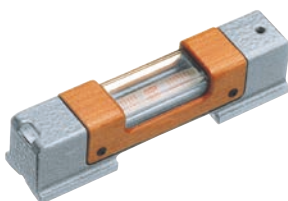
CLINOBEVEL 3 SQUARE digital clinometer



Square spirit level with magnetic inserts



Frame spirit level



Precision spirit level



MICRO-SQUARE Perpendicularity Gauge

Straightness, angles and inclination measurement



CLINOBEVEL 1 clinometer

- INSTRUMENT
 - Compact, lightweight, and robust
 - Reinforced anodized aluminum casing
 - Large digital display to eliminate interpretation errors
- MEASUREMENT
 - For direct (absolute) or comparative (relative) measurement
 - Measuring range of $\pm 45^\circ$ with angle or inclination indication
- DATA MANAGEMENT
 - USB connection to the computer
 - Measurement data transfer using CLINOSOFT software
 - Automatic generation of measurement reports in Microsoft Excel



05330203

Standard	DIN 2276
Measuring range	$\pm 45^\circ$
Max. perm. errors	2' + 1 digit
Resolution	0,020 mm/m (5'')
Material	Aluminium anodised
Dimensions	100 x 75 x 35 mm
Measuring face(s)	4 flat measuring faces
Degree of protection	IP65
Display	LCD display
Power supply	1 x 1,5 V, AA, type LRC 6 battery
Data output(s)	USB, RS-485
Function(s)	Automatic shutdown after 8 minutes Absolute zero mode Relative zero mode Display lock Memory for 21 correction values
Autonomy	≈ 150 hours
Units	DEG, mm/m, „/10“, „/12“, mRad, DEG/min, min/sec, mm/REL, „/REL, A‰, GON
Response time	≈ 1 s
Included in delivery	CLINOBEVEL 1 CLINOSOFT software (as per model) LRC 6 battery USB cable, L = 1,8 m (as per model) User manual Declaration of conformity SCS certificate (as per model)

Clinometers

Article number	Designation
05330203	CLINOBEVEL 1 USB + CLINOSOFT software
05330204	CLINOBEVEL 1 USB
S53220194	CLINOBEVEL 1 USB, 4 magnetic faces + CLINOSOFT software
05330205	CLINOBEVEL 1 USB + certificate SCS

Accessories

Article number	Designation
05360006	External control with cable, L = 2 m
553300165	USB cable, L = 1,8 m



CLINOBEVEL 3 SQUARE clinometers

- INSTRUMENT
 - Cast iron treated against rust
 - 4 rectified measurement faces
 - Large-format digital display eliminating any interpretation errors
- MEASUREMENT
 - For direct (absolute) or comparative (relative) measurement
 - Measuring range of $\pm 60^\circ$ or $\pm 1^\circ$ with angle or inclination indication
 - Remote measurement via smartphone with its remote display
- DATA MANAGEMENT
 - A free application called «CLINOBEVEL 3» allows measurement visualization on a smartphone
 - The application enables recording of measurement values in .csv format



05330220

Standard	DIN 2276
Measuring range	$\pm 60^\circ$ or $\pm 1^\circ$
Max. perm. errors	α = measured value $T = 20^\circ\text{C}$ Model $\pm 60^\circ$: $15'' + (0,027\% \alpha)$ Model $\pm 1^\circ$: $1\% \alpha$
Material	Housing: Cast iron
Dimensions	160 x 160 x 40 mm
Measuring face(s)	V-shaped measuring faces for $\varnothing 30 \div 100$ mm: top left and lower side Flat measuring faces: top right and upper side
Display	Color LCD screen with high contrast 4 different background colors Various measurement display configurations, such as a bubble level or bar graph
Power supply	2 x 1,5 V, Size C, type LR14 batteries
Data output(s)	USB, RS-485
Function(s)	Display configurations Absolute zero mode Relative zero mode Display lock Configurable alarms when limits are exceeded
Autonomy	25 hours
Units	mm/m, „/10“, „/12“, mRad, mm/REL, „/REL, A‰, ‰, DEG, GON
Included in delivery	CLINOBEVEL 3 SQUARE 2x calibration pins for quick calibration (05330220 and 05330222) 2x LR14 1,5 V batteries User manual Declaration of conformity SCS certificate (as per model)

Clinometers



Article number	Designation
05330220	CLINOBEVEL 3 SQUARE, 60°
05330221	CLINOBEVEL 3 SQUARE, 1°
05330222	CLINOBEVEL 3 SQUARE + SCS certificate
05330223	CLINOBEVEL 3 SQUARE + SCS certificate

Accessories

Article number	Designation
S53300166	USB cable, L = 2,5 m

NIVELTRONIC clinometers

- INSTRUMENT
 - Analog display with precision needle galvanometer
 - High zero point stability thanks to the measurement system with pendulum-type inductive sensor
- MEASUREMENT
 - For checking and aligning surfaces vertically or horizontally
 - For measuring slight inclinations



03130060



03130063

Standard	DIN 2276
Measuring range	$\pm 0,15 \text{ mm/m}$ or $\pm 0,75 \text{ mm/m}$
Max. perm. errors	$< 0,5 \times$ measuring range: min. $0,001 \text{ mm/m}$, max. 1 % of the measured value $\geq 0,5 \times$ measuring range: max. 1 % of (2 x measured value - 0,5 x total range)
Resolution	0,05 / 0,01 mm/m
Repeatability	1 $\mu\text{m/m}$
Material	Body: Cast iron Base: Granite (horizontal model)
Dimensions	Base: 150 x 45 mm (03130063), 200 x 45 mm (03130060)
Measuring face(s)	1 flat measuring face (horizontal model) 2 V-shaped measuring faces for $\varnothing 20 \div 120 \text{ mm}$ (square model)
Display	Analog display and integrated galvanometer
Power supply	4 x 1,5 V, AAA batteries
Units	mm/m NIVELTRONIC
Included in delivery	4x AAA, 1,5 V batteries Declaration of conformity User manual

Clinometers

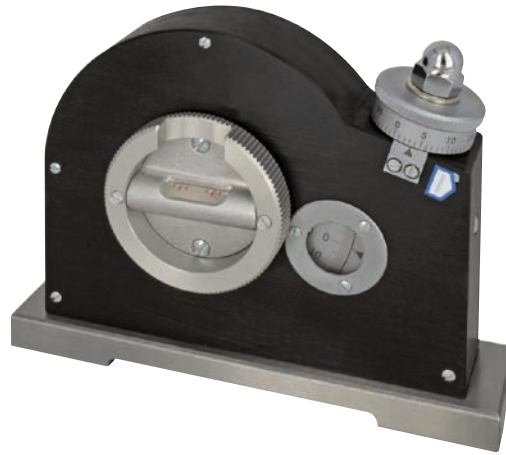


Article number	Designation
03130063	NIVELTRONIC electronic clinometer, horizontal version
03130060	NIVELTRONIC electronic clinometer, square version

Accessories

Article number	Designation
03160007	Granit base 200 x 50 mm
03160008	Granit base 250 x 50 mm
03160009	Granit base 500 x 50 mm
03160048	Holder with voltage regulator (4,65 V) and 4 x AAA batteries

Spirit clinometer with angle protractor and micrometer element



05331750

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Resolution	Vial: 0,3 mm/m Micrometric screw: 1 arcmin Main scale: 1°
Material	Base: Hardened, ground steel
Dimensions	150 x 35 x 116 mm
Measuring face(s)	Flat measuring face with V-groove for $\varnothing 17 \div 80$ mm
Particular characteristic(s)	Longitudinal and cross vials
Included in delivery	Clinometer Declaration of conformity

Article number	Designation
05331750	Spirit clinometer with angle protractor and micrometer element

Levels

Precision spirit level

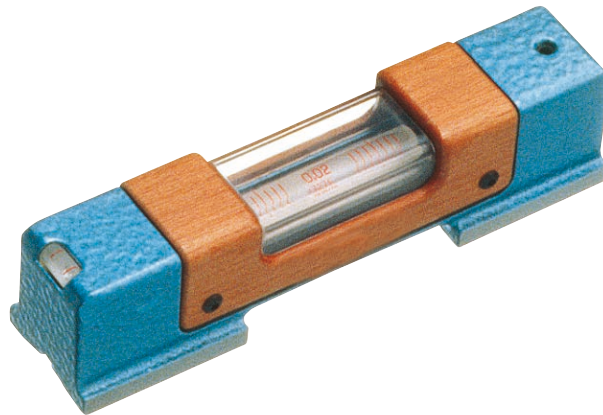


05331450

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Resolution	0,02 mm/m
Material	Hardened and ground steel
Dimensions	150 x 45 x 45 mm
Measuring face(s)	V-shaped measuring face for $\varnothing 19 \div 108$ mm
Function(s)	1 longitudinal vial 1 transverse vial 1 micrometer rotation = +2 mm/m Side thermal insulator
Included in delivery	Level Declaration of conformity

Article number	Designation	Resolution mm/m	For shafts mm	Dimensions mm
05331450	Precision spirit level with micrometric element	0,02	$\varnothing 19 \div 120$	150 x 45 x 45

Precision spirit level



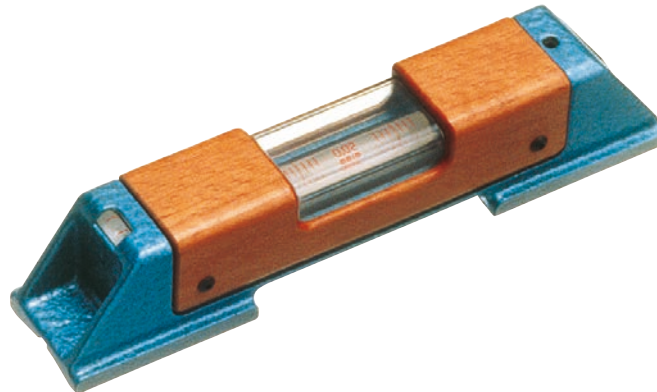
05331050

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Measuring face(s)	Flat and V-shaped measuring faces
Function(s)	1 longitudinal vial 1 transverse vial Side viewing slots Thermal insulation and protection of the vial
Included in delivery	Level Declaration of conformity

Article number	Designation	Resolution mm/m	For shafts mm	Dimensions mm
05331050	Precision spirit level	0,02	Ø 17 ÷ 84	100 x 32 x 35

Levels

Precision spirit levels

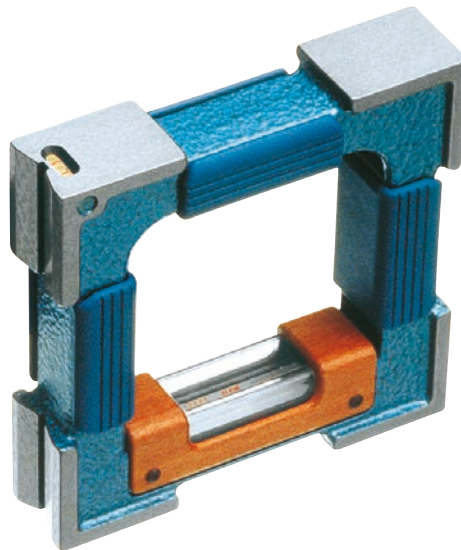


05331054

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Measuring face(s)	Flat and V-shaped measuring faces
Function(s)	1 longitudinal vial 1 transverse vial Side viewing slots Thermal insulation and protection of the vial
Included in delivery	Level Declaration of conformity

Article number	Designation	Resolution mm/m	For shafts mm	Dimensions mm
05331054	Precision spirit level	0,02	Ø 17 ÷ 94	150 x 35 x 38
05331056	Precision spirit level	0,05	Ø 17 ÷ 94	150 x 35 x 38
05331058	Precision spirit level	0,02	Ø 19 ÷ 108	200 x 40 x 42
05331060	Precision spirit level	0,05	Ø 19 ÷ 108	200 x 40 x 42
05331061	Precision spirit level	0,1	Ø 19 ÷ 108	200 x 40 x 42
05331063	Precision spirit level	0,02	Ø 19 ÷ 120	250 x 45 x 42

Precision spirit levels



05331201

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Measuring face(s)	4 flat measuring surfaces: 2 faces with V-groove 2 smooth faces
Function(s)	1 longitudinal vial 1 transverse vial Side viewing slots Thermal insulation and protection of the vial
Perpendicularity	90° measuring surfaces, machined together
Included in delivery	Level Declaration of conformity

Article number	Designation	Resolution mm/m	For shafts mm	Dimensions mm
05331201	Precision spirit level with frame	0,05	Ø 17 ÷ 84	100 x 100 x 32
05331202	Precision spirit level with frame	0,1	Ø 17 ÷ 84	100 x 100 x 32
05331204	Precision spirit level with frame	0,05	Ø 17 ÷ 94	150 x 150 x 35
05331206	Precision spirit level with frame	0,02	Ø 19 ÷ 108	200 x 200 x 40

Levels

Precision spirit levels

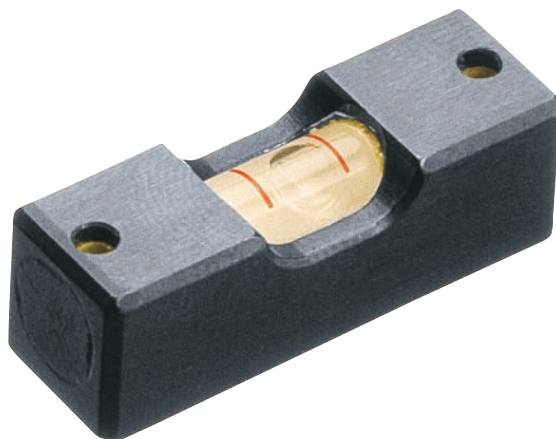


05331000

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Measuring face(s)	2 V-shaped measuring faces for $\varnothing 19 \div 108$ mm
Function(s)	1 longitudinal vial 1 transverse vial Side viewing slots Thermal insulation and protection of the vial Vertical face with magnetic inserts
Perpendicularity	90° measuring surfaces, machined together
Included in delivery	Level Declaration of conformity

Article number	Designation	Resolution mm/m	Dimensions mm
05331000	Precision spirit level, magnetic square	0,02	150 x 150 x 40
05331002	Precision spirit level, magnetic square	0,05	150 x 150 x 40

Spirit levels to be fixed



05331416

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Function(s)	1 longitudinal vial
Fixing	With 2 screws
Included in delivery	Level Declaration of conformity

Article number	Designation	Resolution mm/m	Dimensions mm
05331402	Spirit level to be fixed	1	50 x 10 x 12
05331406	Spirit level to be fixed	0,3	60 x 12 x 14
05331408	Spirit level to be fixed	0,1	80 x 15 x 18
05331411	Spirit level to be fixed	0,1	100 x 18 x 22

Levels

Spirit levels to be fixed



05331500

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Material	Protection in anodized aluminum alloy
Function(s)	1 longitudinal vial 1 transverse vial
Fixing	With 3 screws
Included in delivery	Level Declaration of conformity

Article number	Designation	Resolution mm/m	Dimensions mm
05331500	Spirit level to be fixed	2 ÷ 5	Ø 40 x 11
05331502	Spirit level to be fixed	0,3	Ø 60 x 13

Spirit levels to be fixed



05331550

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Function(s)	1 longitudinal vial 1 transverse vial
Fixing	With 2 screws
Included in delivery	Level Declaration of conformity

Article number	Designation	Resolution mm/m	Dimensions mm
05331550	Spirit level to be fixed	0,1	80 x 65 x 17
05331551	Spirit level to be fixed	0,3	80 x 65 x 17

Levels

Spirit levels



05331254

Standard	DIN 877
Max. perm. errors	DIN 2276/1
Measuring face(s)	Flat measuring face
Function(s)	1 longitudinal vial
Included in delivery	Level Declaration of conformity

Article number	Designation	Resolution mm/m	Dimensions mm
05331250	Spirit level	0,1	Ø 16 x 80 x 9
05331254	Spirit level	0,05	Ø 22 x 150 x 11
05331255	Spirit level	0,1	Ø 22 x 150 x 11

TESA MICRO-SQUARE

- MEASUREMENT
 - High precision perpendicularity
 - Quick visualization of the results with the TWIN-T10
- INSTRUMENT
 - Carriage mounted on an ultra-precise guide
 - Easy handling
- USE
 - Perpendicularity measurement for professionals looking for high precision
- ACCESSORIES
 - Probe holder for easy measurement of hard-to-reach interior surfaces
 - Insert for GT31 lever indicator with cylindrical probing surface for line contact
 - Flanged measuring base and mounting bracket included to secure the position of the workpiece. The inside and outside of a square, for example, can be measured quickly and easily.



Resolution	0,1 μm (TWIN-T10)
Included in delivery	Instrument only: MICRO-SQUARE SCS Calibration Certificate
	Set: MICRO-SQUARE TWIN-T10 display GT31 probe Key SCS calibration certificate

05310400

Perpendicularity measurement



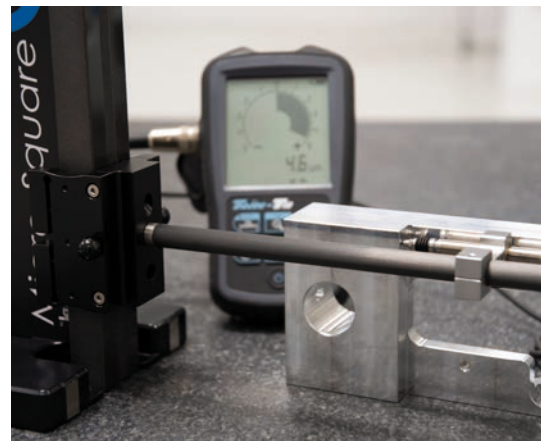
Article number	Designation	Application range mm	Repeatability limit, μm	Max. perm. perp. error, μm
05330400	MICRO-SQUARE 350 set	360	0,5	1,5
05330401	MICRO-SQUARE 600 set	610	0,5	2,4
05310400	MICRO-SQUARE 350	360	0,5	1,5
05310401	MICRO-SQUARE 600	610	0,5	2,4

Accessories

Article number	Designation
05360008	Probe holder, L = 200 mm
05360030	Base square check
03260510	Cylindrical-shaped insert



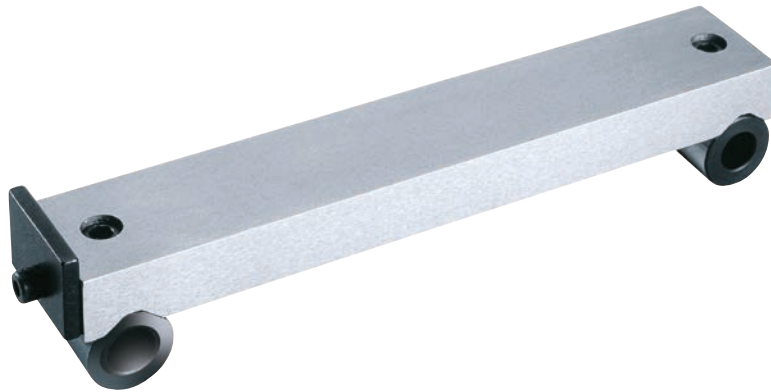
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05360008

Sine bar

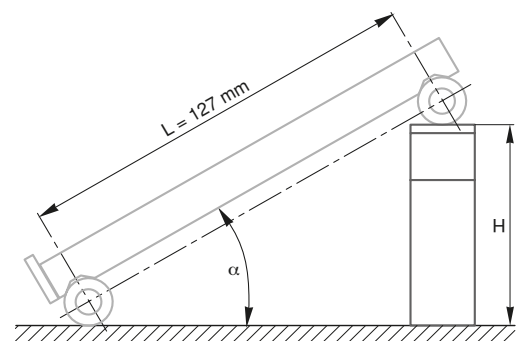
- USE
 - Suitable for angles from 0° to 60°
 - Sine function for determining the angle based on length dimensions obtained from gauge blocks



06769005

Material	Hardened stainless steel
Straightness	5 μm
Dimensions	Center distance: 127 mm ± 0,004 Body: 123 x 25 mm
Function(s)	Removable front stop

Article number	Designation
06769005	Sine bar



Example for the calculation of an angle
 H = height of combination gauge blocks in mm
 L = length of sine bar in mm

$$H = L \times \sin(\alpha)$$

$$\sin(\alpha) = H/L$$

$$\alpha = \arcsin(H/L)$$

Flatness measurement

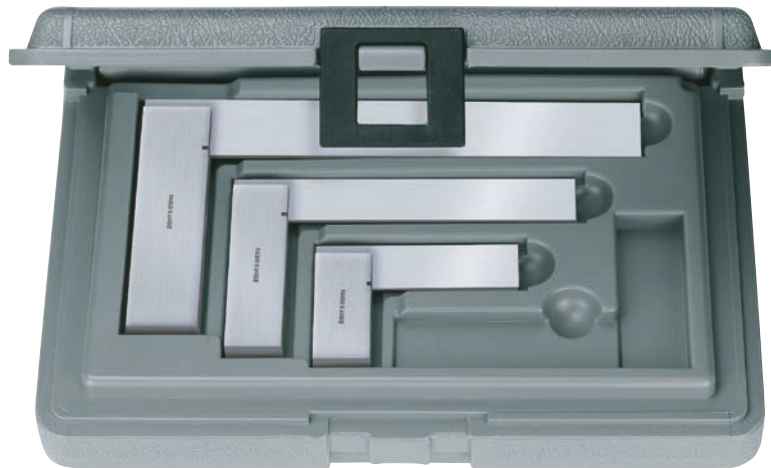
Bevelled straight edges



Standard	DIN 874 T2 / NF E 11-104
Material	Hardened steel Hardness ≥ 650 HV 10
Function(s)	1 edge Insulating grip
Included in delivery	Rule Declaration of conformity

Article number	Designation	Dimensions mm	Max. perm. straightness error, μm
0951750002	Bevelled straight edge	75	2
0951750003	Bevelled straight edge	100	2
0951750005	Bevelled straight edge	150	3
0951750006	Bevelled straight edge	200	3
0951750007	Bevelled straight edge	300	3
0951750008	Bevelled straight edge	400	4
0951750009	Bevelled straight edge	500	4

Try squares set



06739001

Standard	Factory standard
Material	Hardened steel
Perpendicularity	16 µm
Included in delivery	1x square: 68 x 45 mm 1x square: 120 x 70 mm 1x square: 175 x 95 mm

Article number	Designation
06739001	Set of 3 try-squares

Standards



TESA
TECHNOLOGY

Choice of material

Steel

Steel standards have proven their reliability for over a century. Steel is an ideal reference material for the comparison measurement method used in Metrology, ensuring their reliability.

Steel standards are highly resistant to wear and have excellent adhesive properties. However, this material needs to be protected against corrosion, making it essential to properly maintain these standards, which can then be used for many years.

Tungsten Carbide

Tungsten carbide standards are nearly 10 times more wear-resistant than steel standards. They are particularly sought after for frequent use and their excellent adhesive properties.

Ceramic

Ceramic standards offer extreme resistance to wear and scratches. The adhesion of their measuring surfaces is never compromised due to the physical properties of this material. They are corrosion-resistant and are particularly insensitive to hand perspiration.

Selection of the precision grade

Grade 2

The gauges of this grade are typically used as standard reference gauges at production site inspection stations for the adjustment and calibration of instruments and other measuring equipment, as well as for the verification and adjustment of tooling, devices, or machines.

Grade 1

These gauges are also considered transfer standards used for the adjustment and calibration of gauges and measuring instruments at production control stations.

Grade 0

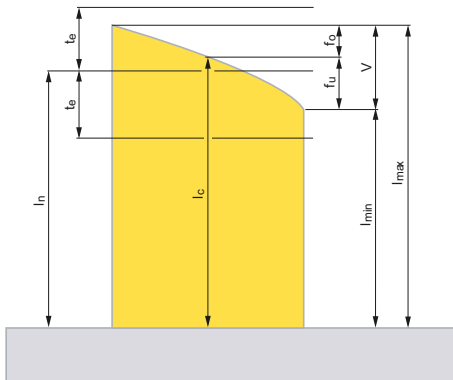
These gauges are reference standards for the company intended for calibration laboratories and other climate-controlled measuring stations, where they are used for the adjustment and calibration of gauges and measuring instruments.

Grade K

Grade K gauges are reference standards intended for metrology laboratories of national institutes, laboratories accredited or not by a national calibration service, and measurement laboratories. They are used for calibrating gauges or other standards of the same precision and measuring instruments.

Standards

Limit Deviations and Tolerances (Definition)



t_e	Limit deviations of lengths at any point relative to the nominal length
t_v	Tolerances for length variation
t_f	Flatness tolerances
l_n	Nominal length
l_c	Length at the center

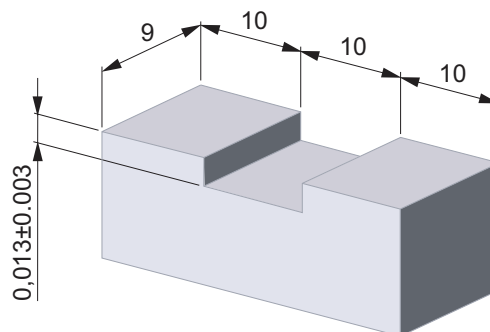
Limit Deviations and Tolerances according to ISO 3650

Nominal length mm	Grade											
	$\pm t_e$ μm	K $\pm t_v$ μm	$\pm t_f$ μm	$\pm t_e$ μm	O $\pm t_v$ μm	$\pm t_f$ μm	$\pm t_e$ μm	1 $\pm t_v$ μm	$\pm t_f$ μm	$\pm t_e$ μm	2 $\pm t_v$ μm	$\pm t_f$ μm
$0,5 < l_n \leq 10$	0,20	0,05	0,05	0,12	0,10	0,10	0,20	0,16	0,15	0,45	0,30	0,25
$10 < l_n \leq 25$	0,30	0,05	0,05	0,14	0,10	0,10	0,30	0,16	0,15	0,60	0,30	0,25
$25 < l_n \leq 50$	0,40	0,06	0,05	0,20	0,10	0,10	0,40	0,18	0,15	0,80	0,30	0,25
$50 < l_n \leq 75$	0,50	0,06	0,05	0,25	0,12	0,10	0,50	0,18	0,15	1,00	0,35	0,25
$75 < l_n \leq 100$	0,60	0,07	0,05	0,30	0,12	0,10	0,60	0,20	0,15	1,20	0,35	0,25
$100 < l_n \leq 150$	0,80	0,08	0,05	0,40	0,14	0,10	0,80	0,20	0,15	1,60	0,40	0,25
$150 < l_n \leq 200$	1,00	0,09	0,10	0,50	0,16	0,15	1,00	0,25	0,18	2,00	0,40	0,25
$200 < l_n \leq 250$	1,20	0,10	0,10	0,60	0,16	0,15	1,20	0,25	0,18	2,40	0,45	0,25
$250 < l_n \leq 300$	1,40	0,10	0,10	0,70	0,18	0,15	1,40	0,25	0,18	2,80	0,50	0,25
$300 < l_n \leq 400$	1,80	0,12	0,10	0,90	0,20	0,15	1,80	0,30	0,18	3,60	0,50	0,25
$400 < l_n \leq 500$	2,20	0,14	0,10	1,10	0,25	0,15	2,20	0,35	0,18	4,40	0,60	0,25
$500 < l_n \leq 600$	2,60	0,16	0,15	1,30	0,25	0,18	2,60	0,40	0,20	5,00	0,70	0,25
$600 < l_n \leq 700$	3,00	0,18	0,15	1,50	0,30	0,18	3,00	0,45	0,20	6,00	0,70	0,25
$700 < l_n \leq 850$	3,40	0,20	0,15	1,70	0,30	0,18	3,40	0,50	0,20	6,50	0,80	0,25
$800 < l_n \leq 900$	3,80	0,20	0,15	1,90	0,35	0,18	3,80	0,50	0,20	7,50	0,90	0,25
$900 < l_n \leq 1000$	4,20	0,25	0,15	2,00	0,40	0,18	4,20	0,60	0,20	8,00	1,00	0,25

Sets of 11 gauge blocks for the calibration of UPC/UPD gauge blocks comparators

Standard	ISO 3650
Calibration method	Interferometry or mechanical comparison
Material	6 mm bridge gauge block: Hard metal Other blocks: Special alloy steel
Grade	K
Included in delivery	1x special 6 mm bridge-shaped gauge block for capturing measurement errors of the lower probe 5x pairs of gauge blocks: 0,5 - 0,5 mm 1,0 - 1,005 mm 1,0 - 1,01 mm 4,0 - 4,0 mm 100,0 - 100,0 mm Calibration certificate

Article number	Designation	Max. perm. errors μm	Calibration method
S59110152	Set of 11 gauge blocks + PTB certificate	Deviation in center: $U = \pm 0,015$	Interferometry
S59110489	Set of 11 gauge blocks + DAkkS certificate	Deviation in center: $U = \pm 0,030$	Mechanical comparison



Special 6 mm bridge-shaped gauge block

Gauge blocks

Set of 9 additional metric gauge blocks for calibrating the UPD measuring device

Standard	ISO 3650
Calibration method	Interferometry or mechanical comparison
Material	Special alloy steel
Grade	K
Included in delivery	Blocks: 1, 5, 10, 15, 20, 25, 50, 75, 100 mm Calibration certificate

Article number	Designation	Max. perm. errors μm	Calibration method
S59300107	Set of 9 gauge blocks + PTB certificate	Deviation in center: $\pm (0,02 + 0,2 \times 10^{-6} \times L)$ (L in m)	Interferometry
S59300104	Set of 9 gauge blocks + SCS certificate	Deviation in center: $\pm (0,05 + 0,5 \times 10^{-6} \times L)$ (L in m)	Mechanical comparison

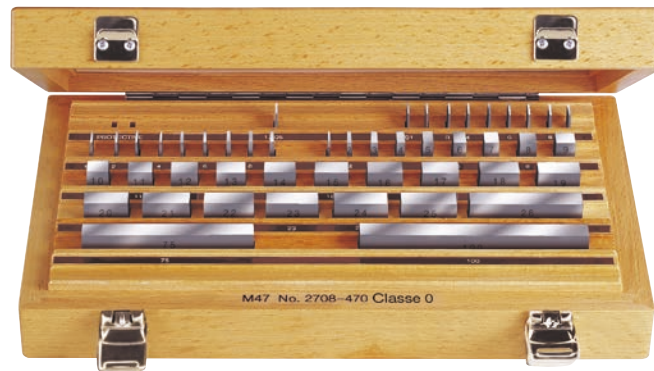
Sets of 32 gauge blocks, metric

Standard	ISO 3650
Included in delivery	<p>1x gauge block: 1.005 mm 9x gauge blocks: 1.01 ÷ 1.09 mm, increment = 0.01 mm 9x gauge blocks: 1.1 ÷ 1.9 mm, increment = 0.1 mm 9x gauge blocks: 1 ÷ 9 mm, increment = 1 mm 4x gauge blocks: 10, 20, 30, 60 mm</p> <p>+ calibration certificate according to: Steel sets, all grades: DAkkS certificate Tungsten carbide sets, all grades: UKAS certificate Ceramic sets, all grades: UKAS certificate</p>

		Grade			
		K	0	1	2
Material	Steel	0651516027	0651515027	0651511027	0651512028
	Tungsten carbide	0651526027	0651525027	0651521027	-
	Ceramic	0651536027	0651535027	0651531027	-

Gauge blocks

Sets of 47 gauge blocks, metric

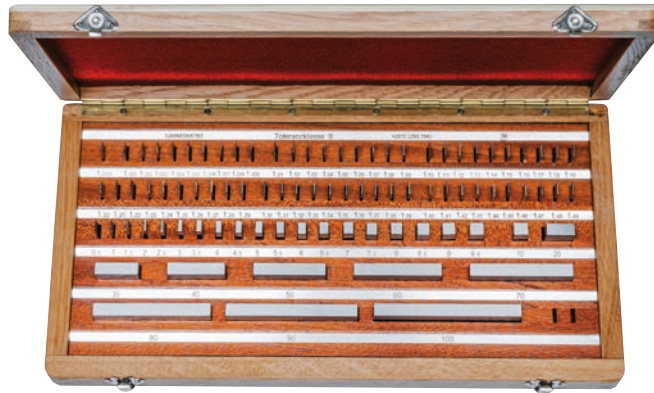


065151021

Standard	ISO 3650
Included in delivery	<p>1x gauge block: 1,005 mm 9x gauge blocks: 1,01 ÷ 1,09 mm, increment = 0,01 mm 9x gauge blocks: 1,1 ÷ 1,9 mm, increment = 0,1 mm 24x gauge blocks: 1 ÷ 24 mm, increment = 1 mm 4x gauge blocks: 25 ÷ 100 mm, increment = 25 mm</p> <p>+ calibration certificate according to: Steel sets, all grades: DAkkS certificate Tungsten carbide sets, all grades: UKAS certificate Ceramic sets, all grades: UKAS certificate</p>

		Grade			
		K	0	1	2
Material	Steel	0651516021	0651515021	0651511021	0651512021
	Tungsten carbide	-	0651525021	0651521021	-
	Ceramic	0651536021	0651535021	0651531021	-

Sets of 88 gauge blocks, metric



065151014

Standard	ISO 3650
Included in delivery	<p>1x gauge block: 1,005 mm 9x gauge blocks: 1,001 ÷ 1,009 mm, increment = 0,001 mm 49x gauge blocks: 1,01 ÷ 1,49 mm, increment = 0,01 mm 19x gauge blocks: 0,5 ÷ 9,5 mm, increment = 0,5 mm 10x gauge blocks: 10 ÷ 100 mm, increment = 10 mm</p> <p>+ calibration certificate according to: Steel sets, all grades: DAkkS certificate Tungsten carbide sets, all grades: UKAS certificate Ceramic sets, all grades: UKAS certificate</p>

		Grade			
		K	O	1	2
Material	Steel	0651516014	0651515014	0651511014	0651512014
	Tungsten carbide	-	0651525014	0651521014	-
	Ceramic	0651536014	0651535014	0651531014	-

Gauge blocks

Sets of 112 gauge blocks, metric



0652511012

Standard	ISO 3650
Included in delivery	<p>1x gauge block: 1,0005 mm 9x gauge blocks: 1,001 ÷ 1,009 mm, increment = 0,001 mm 49x gauge blocks: 1,01 ÷ 1,49 mm, increment = 0,01 mm 49x gauge blocks: 0,5 ÷ 24,5 mm, increment = 0,5 mm 4x gauge blocks: 25 ÷ 100 mm, increment = 25 mm</p> <p>+ calibration certificate according to: Steel sets, all grades: DAkkS certificate Tungsten carbide sets, all grades: UKAS certificate Ceramic sets, all grades: UKAS certificate</p>

		Grade			
		K	0	1	2
Material	Steel	0651516012	0651515012	0651511012	0651512012
	Tungsten carbide	-	0651525012	0651521012	-
	Ceramic	0651536012	0651535012	0651531012	-

Sets of 122 gauge blocks, metric



0651511011

Standard	ISO 3650
Included in delivery	<p>1x gauge block: 1,0005 mm 9x gauge blocks: 1,001 ÷ 1,009 mm, increment = 0,001 mm 49x gauge blocks: 1,01 ÷ 1,49 mm, increment = 0,01 mm 4x gauge blocks: 1,6 ÷ 1,9 mm, increment = 0,1 mm 49x gauge blocks: 0,5 ÷ 24,5 mm, increment = 0,5 mm 8x gauge blocks: 30 ÷ 100 mm, increment = 10 mm 2x gauge blocks: 25, 75 mm</p> <p>+ calibration certificate according to: Steel sets, all grades: DAkkS certificate Tungsten carbide sets, all grades: UKAS certificate Ceramic sets, all grades: UKAS certificate</p>

		Grade			
		K	0	1	2
Material	Steel	0651516011	0651515011	0651511011	0651512011
	Tungsten carbide	-	0651525011	-	-
	Ceramic	0651536011	0651535011	-	-

Gauge blocks

Set with 12 precision squares



06769002

Dimensions	Measuring faces: 6.35 x 76.2 mm (1/4 x 3 in)
Material	Hardened steel
Max. perm. errors	30 in
Included in delivery	12x blocks: 1/4°, 1/2°, 1°, 2°, 3°, 4°, 5°, 10°, 15°, 20°, 25°, 30°

Article number	Designation
06769002	Set of 12 angle gauge blocks

Setting rings, metric


Max. perm. errors

The cylindricity errors make no allowance for a rim of 1 mm.

Particular characteristic(s)

All listed values are determined through a 2-point measurement taken at half-height of the setting ring. The measuring direction is marked with 2 strokes. The measured actual dimension is engraved on every setting master.

Article number	Designation	Max. perm. cylindricity error, μm	Uncertainty of measurement, μm	Diameter mm
00843200	Ring gauge	1,5	1,5	4
00843201	Ring gauge	1,5	1,5	5,5
00840114	Ring gauge	1,5	1,5	6
00840101	Ring gauge	1,5	1,5	8
00840115	Ring gauge	1,5	1,5	8,5
00840102	Ring gauge	1,5	1,5	10
00840103	Ring gauge	1,5	1,5	11
00840116	Ring gauge	1,5	1,5	12,5
00840104	Ring gauge	1,5	1,5	15
00840105	Ring gauge	1,5	1,5	17
00840117	Ring gauge	1,5	1,5	17,5
00840106	Ring gauge	1,5	1,5	25
00840107	Ring gauge	2	2	35
00843230	Ring gauge	2	2	45
00840108	Ring gauge	2	2	50
00843239	Ring gauge	2	2	60
00840109	Ring gauge	2	2	70
00840118	Ring gauge	2	2	85
00840110	Ring gauge	2	2	90
00840111	Ring gauge	2,5	2,5	110
00840112	Ring gauge	2,5	2,5	125
00840113	Ring gauge	2,5	4	175

Setting rings

Setting rings, imperial



00850106

Max. perm. errors	The cylindricity errors make no allowance for a rim of 1 mm.
Particular characteristic(s)	All listed values are determined through a 2-point measurement taken at half-height of the setting ring. The measuring direction is marked with 2 strokes. The measured actual dimension is engraved on every setting master.

Article number	Designation	Max. perm. cylindricity error, μm	Uncertainty of measurement, μm	Diameter in
00850101	Ring gauge	1,5	1,5	.35
00850102	Ring gauge	1,5	1,5	.425
00850103	Ring gauge	1,5	1,5	.5
00850104	Ring gauge	1,5	1,5	.6
00850105	Ring gauge	1,5	1,5	.7
00850106	Ring gauge	1,5	1,5	1
00850107	Ring gauge	2	2	1.4
00850108	Ring gauge	2	2	2
00850109	Ring gauge	2	2	2.8
00850110	Ring gauge	2	2	3.6
00850111	Ring gauge	2,5	2,5	4.4
00850112	Ring gauge	2,5	2,5	5
00850113	Ring gauge	2,5	4	7

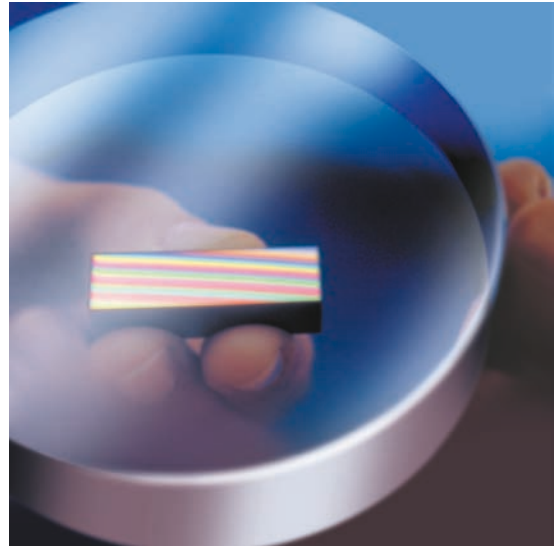
Optical flats

• USE

- For checking the flatness and adherence of reference gauges or any other parts with flat faces of the same precision.



02530075



Parallelism	Parallelism between the measuring faces is not guaranteed.
Flatness	0,125 μm
Included in delivery	Optical flat Declaration of Conformity

Article number	Designation	Diameter mm	Epaisseur mm
02530050	Optical flat	50	15
02530075	Optical flat	75	20

Optical flats

Optical flats with two parallel faces

- USE
 - For checking the flatness and parallelism of the measuring faces of external micrometers and similar instruments
- TESTING PROCESS
 - The difference in length of the interference lenses corresponds to one quarter or one third of the micrometer screw pitch (0,5 mm) respectively



Max. perm. errors	Length compared to the nominal dimension: $\pm 100 \mu\text{m}$ Flatness: $\leq 27.335 \text{ mm}$: $0,15 \mu\text{m}$ $\geq 52.000 \text{ mm}$: $0,20 \mu\text{m}$ Parallelism: $\leq 27.335 \text{ mm}$: $0,4 \mu\text{m}$ $\geq 52.000 \text{ mm}$: $0,5 \mu\text{m}$
Included in delivery	Optical flat(s) Déclaration de conformité

Article number	Designation	Diameter mm	Epaisseur mm
02510000	Set of optical flats	31	12 ÷ 12,375
02510100	Set of optical flats	31	27 ÷ 27,335
02510200	Set of optical flats	31	52 ÷ 52,335
02510300	Set of optical flats	31	77 ÷ 77,335
02510001	Optical flat	31	12
02510002	Optical flat	31	12,125
02510003	Optical flat	31	12,25
02510004	Optical flat	31	12,375
02510101	Optical flat	31	27
02510102	Optical flat	31	27,165
02510103	Optical flat	31	27,335
02510201	Optical flat	31	52
02510202	Optical flat	31	52,165
02510203	Optical flat	31	52,335
02510301	Optical flat	31	77
02510302	Optical flat	31	77,165
02510303	Optical flat	31	77,335

Sets of adjustable parallels



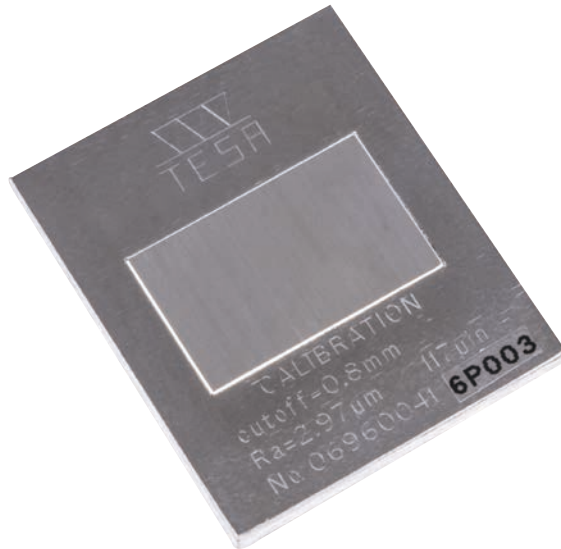
06769010

Material	Hardened steel
Function(s)	Each parallel consists of two conical parts assembled using a dovetail joint. Two fixing screws lock the parallel at the desired dimension.
Included in delivery	<p>1x parallel: height = 10 ÷ 13 mm, length = 44 mm, width = 7 mm</p> <p>1x parallel: height = 13 ÷ 17 mm, length = 54 mm, width = 7 mm</p> <p>1x parallel: height = 17 ÷ 24 mm, length = 68 mm, width = 7 mm</p> <p>1x parallel: height = 24 ÷ 33 mm, length = 90 mm, width = 7 mm</p> <p>1x parallel: height = 33 ÷ 44 mm, length = 106 mm, width = 7 mm</p> <p>1x parallel: height = 44 ÷ 57 mm, length = 129 mm, width = 7 mm</p> <p>Screwdriver</p>

Article number	Designation
06769010	Set of 6 adjustable parallels

Standards for roughness gauges

Surface roughness standards



06960041

Standard	ISO 5436-1
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Article number	Designation
06960041	Roughness standard, Ra = 2,97 µm
06960066	Roughness standard, Ra = 1 µm
06960065	Roughness standard, Ra = 0,5 µm
06960064	Roughness standard, Ra = 0,1 µm

Dummy probes

The reference probes, also called "dummy probes", are resistance dividers. Each probe simulates a given length very accurately. Reference probes are connected to the instrument instead of standard probes for checking or calibrating electronic devices that can be connected to TESA inductive probes.



Dimensions	Ø 18 x 118 mm
Degree of protection	IP40
Particular characteristic(s)	<p>Input impedance: $970 \pm 50 \Omega$ (13 kHz) or $2150 \pm 50 \Omega$ (0 μm normal) Phase (13 kHz): $71 \pm 2^\circ$ Input resistance: $100 \pm 5 \Omega$ Output impedance (13 kHz): $1000 \pm 2 \Omega$ Phase (13 kHz): $0,2^\circ$ Dummy probe (half-bridge), sensitivity 73.75 mV/V/mm</p> <p>Suitable for instruments characterized as follows: Frequency: $13 \pm 0,65 \text{ kHz}$ Voltage: $3 \pm 0,015 \text{ Vrms}$ (2 symmetrical voltages of 1,5 Vrms) Output and input impedance: $\leq 0,2 \Omega$ and 2000Ω, resp.</p>
Included in delivery	Measurement report

Article number	Designation
S41078077	Dummy probe, $\pm 0 \mu\text{m}$
S41078079	Dummy probe, $\pm 3 \mu\text{m}$
S41078231	Dummy probe, $\pm 5 \mu\text{m}$
S41078081	Dummy probe, $\pm 10 \mu\text{m}$
S41078228	Dummy probe, $\pm 100 \mu\text{m}$
S41078230	Dummy probe, $\pm 190 \mu\text{m}$
S41078087	Dummy probe, $\pm 300 \mu\text{m}$
S41078332	Dummy probe, $\pm 500 \mu\text{m}$
S41078751	Dummy probe, $\pm 1000 \mu\text{m}$
S41078752	Dummy probe, $\pm 1900 \mu\text{m}$
S41077249	Set of 3 dummy probes, $\pm 0 \mu\text{m}$, $\pm 100 \mu\text{m}$, $\pm 1000 \mu\text{m}$
S41078654	Set of 2 dummy probes, $\pm 190 \mu\text{m}$, $\pm 1900 \mu\text{m}$

Standard for UNIMASTER

Setting standard for UNIMASTER



01110501

Article number	Designation
01110501	Setting standard for UNIMASTER



Non destructive dimensional control



TESA
TECHNOLOGY

Non-destructive control

Non-destructive control (NDC) is a discipline that brings together processes and techniques that allow a user to measure and ensure the conformity and integrity of a material or a part without having to destroy or alter it. Non-destructive control can even avoid the need to dismantle or move a part.

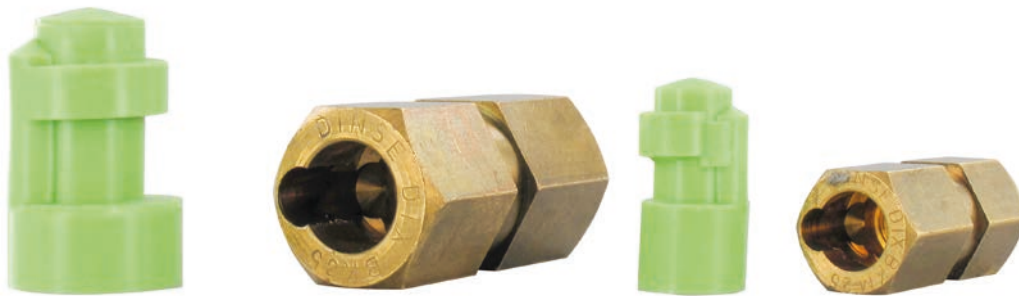
The use of non-destructive measurement techniques is essential for industry. Indeed, NDC techniques are very important for a company because they allow to save a lot of money by not destroying parts that can sometimes be very expensive.

There are several very popular non-destructive evaluation techniques today. The metrology and quality control industries are improving these technologies year after year and are allowing them to replace more and more destructive testing, which is still too present in the industry.

One of these techniques is inspection by impression. This control procedure aims at injecting a liquid or pasty product on the surface or in the part whose conformity is to be checked. The products being bi-components, their contact in the part or on the surface causes a polymerization reaction which transforms the liquid into solid.

Once the liquid is hard, we have a perfect negative impression of the part or the surface. All that is left to do is to extract it thanks to the elastic properties of the product.

The advantages of impression taking are that it can be used on almost all materials. It allows a user to highlight a lot of defects: dimensions, angles and geometry of the part, surface condition, surface roughness, presence of micro defects, etc.



Dimensional control of internal shapes

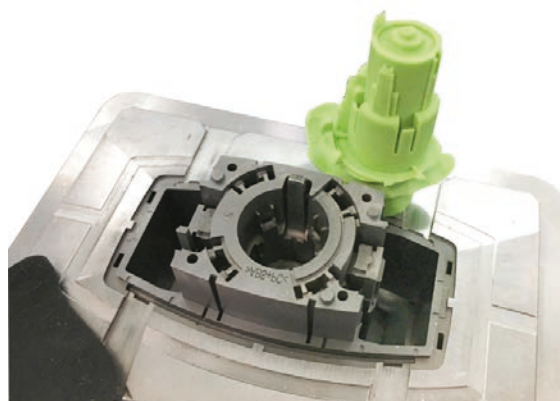
Dimensional inspection is a very important step to ensure the conformity of your parts after their production.

When you undertake to make the impression of a specific area inside a part, the first imperative is to evaluate its constraints.

The most important constraint is the extraction constraint, which is a simple mathematical calculation that allows you to evaluate the possibility of demolding the impressions. The higher the extraction stress, the more difficult it will be to extract the impression, and therefore, the choice of the product to be used will have to be adapted.

The extraction stress (or undercut) is a ratio that is calculated as follows:

$$\text{(Minimum dimension of the extraction hole)} / \text{(Maximum internal dimension)} = \text{extraction stress in \%}$$



Non destructive dimensional control

Dimensional control of external shapes

Measuring an external shape requires to consider additional elements compared to measuring an internal shape. The choice of the product is made according to the zone to be controlled, how difficult to control the zone is and its external environment (orientation, etc).

TESA non-destructive dimensional control range includes products of different consistencies (rigid, semi-flexible, pasty, malleable, etc). Each of them can be suitable for an external impression, even if pasty or malleable solutions are recommended because of their non-flowing properties.

When the surface to be controlled does not have a complex shape that could prevent demolding (zero extraction stress), it is recommended to choose a product with a semi-flexible final consistency. The result can be sliced by the double blade cutter, which makes it much easier to control.

If the constraint is too high, it will be necessary to opt for the softest products.



Ra roughness measurement

Some products have the technical capacity to carry out indirect Ra roughness controls.

In fact, the P80Ra, as its name indicates, is a product capable of copying the roughness of a part and retranscribing it identically on its impression which, sometimes, is not accessible for measuring instruments.

When the Ra of the surface to be controlled is greater than or equal to $0,4 \mu\text{m}$, the roughness can be measured directly on the impression using a roughness gauge, and the result is faithful to the original. For a lower roughness, the inspection of the impression can be done with a laser metrology instrument, or an interferometer.



Molding product M70, malleable

- USE
 - Malleable
 - Can be applied by hand
 - With a consistency similar to modeling clay, it is convenient for controlling shapes that are difficult for the injector gun to reach



Final consistency	Semi-flexible
Final hardness	70
Max. extraction coefficient	5%
Working time at 20°C	± 0,75 min
Setting time at 20°C	± 4 min
Included in delivery	1x jar A, 450 ml 1x jar B, 450 ml Measuring spoon

Article number	Designation
06869121	M70, 2 x 450 ml

Accessories

Article number	Designation
06869111	Cutter with two blades



Molding product

Molding product P80Ra, pasty

- USE
 - Non-flowing (pasty)
 - Can be applied on hard to reach surfaces (vertical, overhanging, etc)
 - Specially developed for roughness control
 - Recommended for surfaces Ra > 0,4 µm



Final consistency	Rigid
Final hardness	80
Max. extraction coefficient	0%
Working time at 20°C	± 0,5 min
Setting time at 20°C	± 6 min

Article number	Designation
06869118	P80Ra, 8 x 50 ml + 48 nozzles + 6 fine nozzles

Accessories

Article number	Designation
06869106	Nozzle, 48 pcs + 6 nozzle's tips
06869107	Nozzle, 96 pcs + 12 nozzle's tips
06869108	Nozzle, 192 pcs + 24 nozzle's tips
06869109	Nozzle's tip, 20 pcs
06869112	Injector gun



Molding product F20, liquid

• USE

- Flowing, it infiltrates the interior of any type of part, whether small (diameter up to 0,1 mm) or medium size
- Very flexible final impression, which allows it to be strongly stretched and deformed during demolding
- Recommended for impressions in complex internal shapes (threads, internal grooves and grooves)
- High precision final impression, all surface details (shape, size, aspect, surface condition, etc) are reproduced to the μm
- Unaltered replica during the extraction stage, leaves no trace in the controlled area
- Can also be used for protection (can substitute a gasket for example)



Final consistency	Flexible
Final hardness	20
Max. extraction coefficient	30%
Working time at 20°C	± 1,5 min
Setting time at 20°C	± 8 min

Article number	Designation
06869102	F20, 8 x 50 ml + 48 nozzles + 6 fine nozzles
06869120	F20, 8 x 50 ml + 48 nozzles + 6 fine nozzles

Accessories

Article number	Designation
06869106	Nozzle, 48 pcs + 6 nozzle's tips
06869107	Nozzle, 96 pcs + 12 nozzle's tips
06869108	Nozzle, 192 pcs + 24 nozzle's tips
06869109	Nozzle's tip, 20 pcs



Molding product

Molding product F50, liquid

- USE
 - Semi-flowing
 - Semi-flexible final impression, can be used in shapes that are not very complex to demould
 - Efficient to create custom-made protections, caps, and savings against surface treatments
 - Very high precision final impression, all the surface details (shape, dimension, aspect, surface condition, etc) are reproduced in μm



Final consistency	Semi-flexible
Final hardness	50
Max. extraction coefficient	10%
Working time at 20°C	± 1 min
Setting time at 20°C	± 8 min

Article number	Designation
06869101	F50, 8 x 50 ml + 48 nozzles + 6 fine nozzles
06869119	F50, 8 x 50 ml + 48 nozzles + 6 fine nozzles

Accessories

Article number	Designation
06869106	Nozzle, 48 pcs + 6 nozzle's tips
06869107	Nozzle, 96 pcs + 12 nozzle's tips
06869108	Nozzle, 192 pcs + 24 nozzle's tips
06869109	Nozzle's tip, 20 pcs



Case



Included in delivery

- 1x injector gun
- 1x double blade cutter
- 1x cutter extractor
- 1x cutting guide for cutter
- 1x Plastin (0,25 kg)
- 3x rings, Ø 4 mm, H = 15 mm
- 3x rings, Ø 6 mm, H = 15 mm
- 3x rings, Ø 8 mm, H = 16 mm
- 3x rings, Ø 12 mm, H = 18 mm
- 3x rings, Ø 15 mm, H = 20 mm
- 3x rings, Ø 20 mm, H = 20 mm
- 3x rings, Ø 25 mm, H = 25 mm
- 3x cartridges F50, 50 ml
- 3x cartridges F20, 50 ml
- 2x cartridges P80Ra, 50 ml
- 50x nozzles
- 12x nozzle's tips

Article number	Designation
06869122	Case

Accessories

Article number	Designation
06869106	Nozzle, 48 pcs + 6 nozzle's tips
06869107	Nozzle, 96 pcs + 12 nozzle's tips
06869108	Nozzle, 192 pcs + 24 nozzle's tips
06869109	Nozzle's tip, 20 pcs

Molding product

Tips for standard nozzle

- USE
 - To control the output of the injector-mixers and avoid air bubbles
 - Bird's beak shape to reach hard to reach spaces
 - Can be used to stir the product inside the part



Article number	Designation
06869109	Nozzle's tip, 20 pcs

Nozzles

- USE
 - For mixing cartridges' components
 - Mixes the two components of a cartridge with a 1 to 1 ratio, making them homogeneous at its exit
 - Fits all cartridges



Article number	Designation
06869106	Nozzle, 48 pcs + 6 nozzle's tips
06869107	Nozzle, 96 pcs + 12 nozzle's tips
06869108	Nozzle, 192 pcs + 24 nozzle's tips

Accessories

Article number	Designation
06869109	Nozzle's tip, 20 pcs



Manual gun

- USE
 - Manual, allows to control the injection flow
 - Guarantees a precise and constant 1:1 mixing ratio



Article number	Designation
06869112	Injector gun

Technical modelling paste



Article number	Designation
06869110	Plastin

Double blade cutter



Article number	Designation
06869111	Cutter with two blades

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