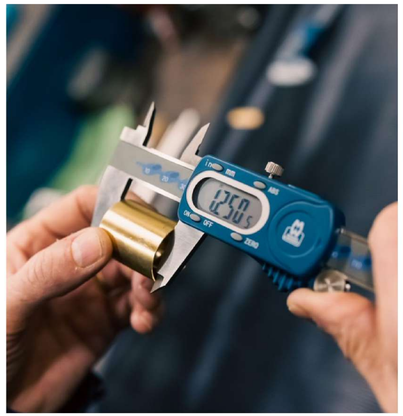
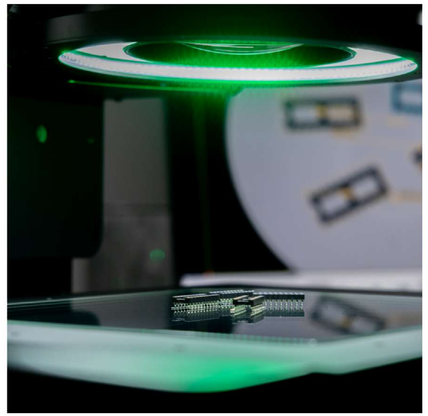
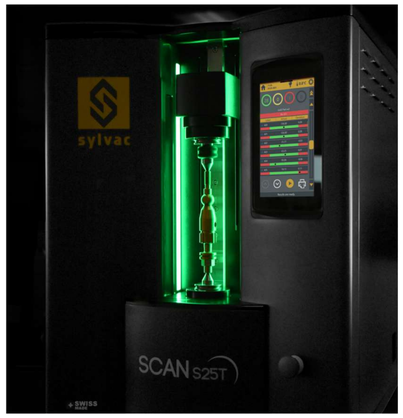



**BOWERS GROUP**



# *Connected Metrology Solutions*

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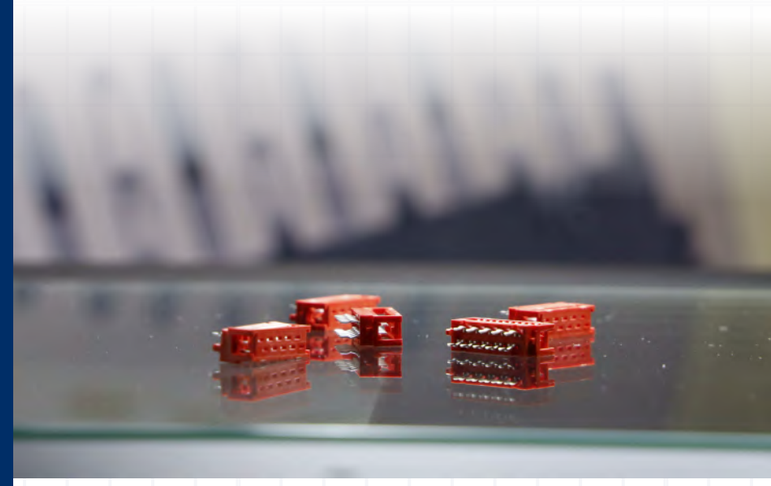

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## NEW PRODUCTS

Bowers Group is delgihted to introduce our latest product lineup, catering to both our valued existing customers and those new to our connective metrology solutions. Our new range includes the Bowers DigiHeight and Surface Finish & Geometry products, as well as the recently introduced Baty Venture FV.

Explore our new product pages below for more information on these innovative new additions.

Venture FV

## CONNECTED METROLOGY SOLUTIONS

### Accurate Non-Contact Measurement

**Discover Air Gauging** - a fast, user-friendly measurement method providing high precision results. Reliable, repeatable technology well suited for applications that demand sub-micron precision tolerancing.

Connected Metrology

Tel: 08780 50 90 50 sales@bowersgroup.co.uk www.bowersgroup.co.uk

BOWERS GROUP

# Who Are We?

## Bowers Group

As a leading supplier of quality metrology instruments to organisations throughout the world, Bowers Group has developed into a respected global leader in the field of measurement. Our first-class reputation has been built on the continuing Group ethos of striving for excellence in both the comprehensive range of products that we supply and the many quality services that we provide to our customers. The Group's aim is to build on its hard-won reputation and continue to exceed customers' expectations. Our brands include:

## A Spear & Jackson Company

We are part of the world renowned Spear & Jackson Group. With a 250 year history, the Spear & Jackson Group is now a multi-national organization with divisions covering garden tools, metrology equipment, woodworking tools and magnetic equipment. In addition to the famous Spear & Jackson brand it owns other world famous brand names such as Bowers Group, Robert Sorby, Moore & Wright, Eclipse, WHS and Tyzack.

Who Are We?

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## Bowers

Bowers provides the widest choice of cost effective, quality measuring instruments currently available. Supplementing Bowers' own range of gauges, our sole UK agent status means that we offer our UK customers superior products from many preeminent metrology companies, such as Trimos, Sylvac, Gagemaker and Wyler.

In response to customer demand and as a result of the company's continued investment in cutting-edge technology, we now produce an increasingly comprehensive range of affordable, quality instruments intended for other applications, such as depth and external gauging. A past recipient of the coveted Queens Award for Export, we currently export 82% of our output.

# Who Are We?


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Have you seen our video
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## Baty

**Baty** has a rich history dating back to 1932 when it originally specialised in manufacturing high precision dial indicators and related instruments such as cylinder bore gauges. Over time, the company diversified into non-contact measurement, introducing Optical Profile Projectors and the renowned Baty 'Shadograph' series, which has set the industry standard. These acclaimed products are proudly made in Bradford, England, holding the prestigious Made in Britain Accreditation.

Building on its gauging heritage, Baty expanded its portfolio by acquiring John Bull and British Indicators, broadening its offerings to include calipers and flexible fixturing. The product range was further enhanced in the eighties with the introduction of Baty's pioneering camera-based Video Inspectors, later improved by Video Edge Detection (VED) technology, which significantly increased accuracy, repeatability, and measuring speed.

In 2010, Baty joined the Bowers Group, a move that strengthened its position in the metrology industry by offering a comprehensive range of metrology instruments, from hand tools to advanced vision systems, catering to diverse measurement needs in modern manufacturing. In 2023, the Baty manufacturing facility relocated to Bradford from Burgess Hill, integrating seamlessly with Bowers Group's operations to facilitate faster and more efficient production of Baty products.

Bowers Group

# Who Are We?


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## Moore & Wright

Welcome to the world of **Moore & Wright** precision measurement tools, where quality meets innovation.

For over a century, Moore & Wright has been a trusted name in the industry, delivering precision instruments renowned for their accuracy and reliability. Founded in Sheffield, the company began by manufacturing a diverse range of engineer's tools, including calipers, screwdrivers, and punches.

Today, as part of the Bowers Group, Moore & Wright continues to deliver reliable solutions to industry. With a dedication to research and development, the brand remains committed to innovation, constantly seeking to stay ahead of the curve.

With a rich heritage and a dedication to staying at the forefront of technological advancements, Moore & Wright continues to provide professionals across a wide range of sectors, including engineering, manufacturing, aerospace, automotive, and R&D, with the tools they need to achieve precision in their work. Explore our extensive range and discover the perfect instrument to meet your measurement needs.

# Our Brands

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## Sylvac

Driven by a passion for innovation and a relentless pursuit of quality, **Sylvac** continues to push the boundaries of precision measurement technology.

Since 1968, the Switzerland-based brand has been at the forefront of designing and manufacturing high-quality precision measuring tools. Our extensive product range includes digital indicators, digital calipers, micrometers, height gauges, and more, all crafted with precision and care.

Well-known for their accuracy, speed, and user-friendly interfaces, Sylvac instruments are trusted by professionals across a variety of industries. Whether in the aerospace, automotive, electronics, or medical sectors, Sylvac's instruments deliver reliable results time and time again.

At Bowers Group, we also understand that every customer's needs are unique. That's why we offer customised solutions tailored to meet specific requirements. Whether it's modifying existing products or developing entirely new solutions, using our extensive range of Sylvac equipment, we can deliver precisely what you need.

Have you seen our video
**Who Are We?**
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# Our Brands



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## Trimos

Specialising in the development and production of precision measuring instruments, **Trimos** offers a comprehensive range of products that are tailored to meet the increasingly diverse needs of many industries worldwide. From height gauges to surface measurement systems, calibration equipment, and software solutions, Trimos is committed to providing innovative solutions that redefine precision.

With a commitment to innovation, quality, and customer satisfaction, Trimos has established itself as a trusted partner for industries spanning aerospace, automotive, medical, and mechanical engineering.

Backed by a global presence and Bowers Group's team of dedicated experts, this extensive range of measurement solutions continues to lead the way in precision measurement technology.

# Our Brands

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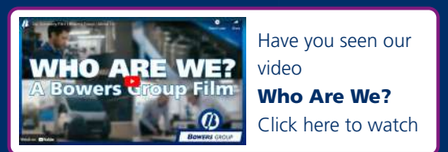


Have you seen our video
**Who Are We?**
Click here to watch

## Gagemaker

**GageMaker** specialises in manufacturing measurement equipment and software for the oil and gas industry. Its products are designed to ensure accuracy and reliability in manufacturing processes while also meeting industry standards for quality control and safety. Gagemaker offers a variety of solutions, including precision measurement tools and software for managing calibration and inspection data.

Committed to continuous improvement and the needs of its users, Gagemaker is established as a trusted partner in the oil and gas sector.

BOWERS GROUP

# Our Brands

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## Wyler

**WYLER AG** is the world's leading manufacturer of precision spirit levels, clinometers, electronic inclination measuring instruments, inclination sensors, and software for inclination measurement. As the sole UK agent, Bowers Group can exclusively offer its customers a variety of solutions for precision measuring angularity, pitch, roll, flatness, inclination, parallelism, and more.

## Diavite AG

**DIAVITE AG** have been producing tactile and optical roughness measuring instruments for over 65 years. Based in Bülach, Switzerland, DIAVITE are the experts when it comes to roughness measurement, and produce high quality, Swissmade products to meet all of your workshop and measuring room needs. As UK agents, Bowers Group offers a selection of high precision surface roughness meters for universal use.

# Our Brands


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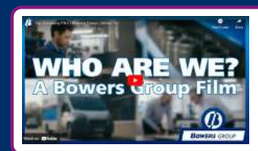


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**Who Are We?**
Click here to watch

ASH

## ASH

As a valued and trusted brand partner, ASH has revolutionised the world of inspection with cutting-edge solutions for manufacturers across the globe. The ASH range digital microscopes are the perfect addition to Bowers Group's diverse range of quality metrology equipment.

In 2018, ASH became the first to use integrated software Apps for inspection, setting the benchmark for innovation and advancement. Building upon this foundation, ASH introduced the AshCam+™ in 2019, the world's first pure-inspection camera platform. ASH has since achieved the highly coveted Red Dot and IF Design awards and are now recognised as industry frontrunners in technology and design.

BOWERS GROUP

# Our Commitment To Quality



bsi ISO 9001 Quality Management Systems CERTIFIED ISO 14001 Environmental Management CERTIFIED UKAS CALIBRATION 0268

We are proud that our calibration laboratory is accredited in accordance with International Standard ISO/IEC 17025:2017, which covers General Requirements for the competence of testing and calibration laboratories. In addition, we operate a Quality Management System which complies with the requirements of ISO 9001: 2015 for the following scope: Design, manufacture, distribution and service of precision measuring equipment and solutions. We are also proud to have achieved the environmental standard ISO 14001 across the Bowers Group business.

As approved members of the Made in Britain scheme, Bowers Group's UK manufactured products carry the prestigious Made in Britain trademark, which is a recognised symbol of both quality and reliability. We are also committed to keeping up with the latest developments in our key market sectors and are pleased to be members of the distinguished trade associations MTA, GTMA and BTMA.

## Quality Policy Statement



Bowers Group's commitment to the very highest levels of quality is continued and unfaltering. Quality underpins everything we do as a business, from the development of innovative products, the talent and commitment of our employees, to the quality of the metrology solutions that we provide. We strive to ensure that our metrology solutions contribute to the future of manufacturing, making processes smarter, improving standards and data acquisition, as well as contributing to a sustainable future.

# Our Journey To Net Zero

As part of our **Net Zero Journey**, we have now calculated the total Greenhous Gas Emissions for the benchmark year of FY21 – 22 ending 30th September 2022.

This total across Scope 1, 2 and 3 totalled 3,149 tCO2e.

Scope 1 and 2 emissions represent 11.1% of the total emissions and Scope 3 emissions represent 88.9% of the total emissions.

The most significant emissions source is from the embedded emissions in goods and services that Bowers Group purchases - this Scope 3 category accounted for 43% of the company's total carbon footprint.

Emissions from use of sold products and upstream transportation and distribution are also significant contributors to Scope 3 emissions.

All emissions have been calculated following the GHG Protocol's Corporate Accounting and Reporting Standard. All seven greenhouse gases defined by the Kyoto Protocol have been accounted for and reported on a tonnes of carbon dioxide equivalent tCO2e basis.

The next part of our journey will be to set out our Net Zero targets for Scope 1 and 2 and then for Scope 3.

In the coming weeks we should have data for the previous financial year ending 30th September 2023 and what reductions we have already been able to achieve.

Our commitments to reducing our Carbon Footprint continues as we seek to play our part in the global reduction of Greenhouse Gas Emissions.

Have you seen our video
**Who Are We?**
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# Let Us Bring Our Products to You!

## WHO ARE WE?

That's why we have our **Mobile Metrology Centre** – to bring our products directly to your door. Nothing beats seeing first-hand how our metrology equipment can help your business.

Ben Brand, our Metrology Specialist, will be on hand to demonstrate how our latest cost-effective measurement solutions can resolve your inspection problems, provide full traceability, de-skill the operation and save you both time and money. We can show you how to measure parts, answer your technical questions, and prove how our products will benefit you.

Get in touch now and we'll come to you!

## Whats on Board

- Bowers Bore Gauges
- Baty Venture XT
- Sylvac Shaft Scanning Machine
- Trimos THV Mini Horizontal Calibration Machine
- Trimos Portable Arm

## Mobile Metrology Centre

**Demonstration Manager:** Ben Brand
**Telephone:** 08708 50 90 50
**Email:** bbrand@bowersgroup.co.uk

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> We find Bowers Group's products very reliable as well as accurate. The internal bore mics are easy to use, accurate, and the adjustable fit is very useful. The guys on the shop floor love them; they are so precise and straightforward.
>
> **Leigh Howarth - Business Development Manager - M-CNC**

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BOWERS

Bowers

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BOWERS

Bore Gauging

# Analogue
# Bore Gauges

## At a Glance

**Range: 2-300mm (0.080"-12")**

## Features

- 2-6mm 2 point / 6-300mm 3 point measurement
- Graduation XTA Micro 2-6mm: 0.001mm, 6-20mm: 0.002mm
- Graduation XTA 20-300mm: 0.005mm
- Graduation XTA Micro 0.080"-1/4": 0.0001",1/4"-3/4": 0.0001"
- Graduation XTA 3/4-12": 0.00025"
- Tungsten carbide measuring faces on all 3-point heads from 12.5mm
- Blind bore measurement from 2mm-6mm and above 12.5mm (0.500")
- Extensions available above 6mm for deep hole measurement
- Ratchet stop to ensure consistent measurement
- Setting rings included with individual instruments and sets
- UKAS certificates supplied as standard with all setting rings
- UKAS certificate supplied as standard with all XT mechanical gauges
- Serial number on all gauges
- Bore gauges manufactured according to DIN 863, part 4
- Supplied in fitted case

## XTA Micro Features

- More compact mechanical controller
- Lighter and ergonomically designed
- Improved functionality
- Vernier scale added to 2-20mm range to improve resolution

## Visit our Website

For more information please click here

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# **Analogue** Bore Gauges



**Bowers XT Analogue Bore Gauges** are an economical solution to accurate shop-floor bore measurement. The extended mechanical travel of these advanced two or three point gauges ensures that exchanging measuring anvils is now unnecessary. Their wide application range, 2-300mm, rugged construction and easy read scale, ensure both accuracy and ease of use. XT measuring heads and setting rings are supplied with UKAS certification.

Bowers has developed **XTA Micro** to cover the measuring range 2-20mm. The XTA Micro incorporates a more compact mechanical controller and Vernier scale for improved resolution.

SMXTA3M



SMXTA3W

MXTA10M – XTA Micro

**XTA Micro:** Individual instruments supplied with setting ring and UKAS

| Code No | Code No (without Ring) | Range (mm) | Accuracy (mm) | Depth (mm) | Setting Ring (mm) | Code No | Range (inch) | Accuracy (inch) | Depth (inch) | Setting Ring (inch) |
|---|---|---|---|---|---|---|---|---|---|---|
| MXTA1M | MXTA1W | 2-2.5 | 0.004 | 9 | 2.50 | MXTA1i | 0.080-0.100 | 0.00015 | 0.35 | 0.1000 |
| MXTA2M | MXTA2W | 2.5-3 | 0.004 | 9 | 2.50 | MXTA2i | 0.100-0.120 | 0.00015 | 0.35 | 0.1000 |
| MXTA3M | MXTA3W | 3-4 | 0.004 | 12 | 4.00 | MXTA3i | 0.120-0.160 | 0.00015 | 0.47 | 0.1600 |
| MXTA4M | MXTA4W | 4-5 | 0.004 | 18 | 4.00 | MXTA4i | 0.160-0.200 | 0.00015 | 0.70 | 0.1600 |
| MXTA5M | MXTA5W | 5-6 | 0.004 | 18 | 5.00 | MXTA5i | 0.200-0.250 | 0.00015 | 0.70 | 0.2000 |
| MXTA6M | MXTA6W | 6-8 | 0.004 | 58 | 8.00 | MXTA6i | 1/4-5/16 | 0.00015 | 2.28 | 0.3125 |
| MXTA8M | MXTA8W | 8-10 | 0.004 | 58 | 8.00 | MXTA8i | 5/16-3/8 | 0.00015 | 2.28 | 0.3125 |
| MXTA10M | MXTA10W | 10-12.5 | 0.004 | 58 | 12.50 | MXTA10i | 3/8-1/2 | 0.00015 | 2.28 | 0.500 |
| MXTA12M | MXTA12W | 12.5-16 | 0.004 | 62 | 12.50 | MXTA12i | 1/2-5/8 | 0.00015 | 2.44 | 0.500 |
| MXTA16M | MXTA16W | 16-20 | 0.004 | 62 | 20.00 | MXTA16i | 5/8-3/4 | 0.00015 | 2.44 | 0.750 |



**XTA Standard:** Individual instruments supplied with setting ring and UKAS

| Code No | Range (mm) | Accuracy (mm) | Depth (mm) | Setting Ring (mm) | Code No | Range (inch) | Accuracy (inch) | Depth (inch) | Setting Ring (inch) |
|---|---|---|---|---|---|---|---|---|---|
| XTA20M | 20-25 | 0.004 | 66 | 20.00 | XTA20i | 3/4-1 | 0.00015 | 2.62 | 0.750 |
| XTA25M | 25-35 | 0.004 | 66 | 35.00 | XTA25i | 1-1 3/8 | 0.00015 | 2.62 | 1.375 |
| XTA35M | 35-50 | 0.004 | 80 | 35.00 | XTA35i | 1 3/8-2 | 0.00015 | 3.15 | 1.375 |
| XTA50M | 50-65 | 0.005 | 80 | 65.00 | XTA50i | 2-2 5/8 | 0.00020 | 3.15 | 2.625 |
| XTA65M | 65-80 | 0.005 | 80 | 65.00 | XTA65i | 2 5/8-3 1/4 | 0.00020 | 3.15 | 2.625 |
| XTA80M | 80-100 | 0.005 | 100 | 80.00 | XTA80i | 3 1/4-4 | 0.00020 | 3.94 | 3.250 |
| XTA100M | 100-125 | 0.006 | 115 | 125.00 | XTA100i | 4-5 | 0.00025 | 4.53 | 5.000 |
| XTA125M | 125-150 | 0.006 | 115 | 125.00 | XTA125i | 5-6 | 0.00025 | 4.53 | 5.000 |
| XTA150M | 150-175 | 0.007 | 115 | 175.00 | XTA150i | 6-7 | 0.00030 | 4.53 | 7.000 |
| XTA175M | 175-200 | 0.007 | 115 | 175.00 | XTA175i | 7-8 | 0.00030 | 4.53 | 7.000 |
| XTA200M | 200-225 | 0.008 | 118 | 225.00 | XTA200i | 8-9 | 0.00030 | 4.65 | 9.000 |
| XTA225M | 225-250 | 0.008 | 118 | 225.00 | XTA225i | 9-10 | 0.00030 | 4.65 | 1.375 |
| XTA250M | 250-275 | 0.009 | 118 | 275.00 | XTA250i | 10-11 | 0.00035 | 4.65 | 11.000 |
| XTA275M | 275-300 | 0.009 | 118 | 275.00 | XTA275i | 11-12 | 0.00035 | 4.65 | 11.000 |

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**XT Setting Rings**

| Code No | Setting Ring (mm) | Code No | Setting Ring (inch) |
|---|---|---|---|
| XTR3M | 2.5 | XTR3i | 0.1000 |
| XTR5M | 4.00 | XTR5i | 0.1600 |
| XTR7M | 5.00 | XTR7i | 0.2000 |
| XTR8M | 8.00 | XTR8i | 0.3125 |
| XTR12M | 2.50 | XTR12i | 0.500 |
| XTR20M | 20.00 | XTR20i | 0.750 |
| XTR35M | 35.00 | XTR35i | 1.375 |
| XTR65M | 65.00 | XTR65i | 2.625 |
| XTR80M | 80.00 | XTR80i | 3.250 |
| XTR125M | 125.00 | XTR125i | 5.000 |
| XTR175M | 175.00 | XTR175i | 7.000 |
| XTR225M | 225.00 | XTR225i | 9.000 |
| XTR275M | 275.00 | XTR275i | 11.000 |

**XTA Standard Sets:**
Supplied with individual instrument, setting rings and UKAS

| Code No | Range (mm) | Measuring Heads | Setting Rings | Code No | Range (inch) |
|---|---|---|---|---|---|
| SXTA5M | 20-50 | 3 | 2 | SXTA5i | 3/4-2 |
| SXTA6M | 50-100 | 3 | 2 | SXTA6i | 2-4 |
| SXTA7M | 100-150 | 2 | 1 | SXTA7i | 4-6 |
| SXTA8M | 150-200 | 2 | 1 | SXTA8i | 6-8 |

**Extensions**

| Code No | Length (mm) | Length (inch) | To Fit Heads (mm) | To Fit Heads (inch) |
|---|---|---|---|---|
| EGX0200 | 63 | 2.5 | 6-10 | 1/4-3/8 |
| EGX0400 | 76 | 3.0 | 10-12.5 | 3/8-1/2 |
| EGX0500 | 100 | 4.0 | 12.5-20 | 1/2-3/4 |
| EGX0001 | 150 | 6.0 | 20-50 | 3/4-2 |
| EGX0004 | 150 | 6.0 | 50-300 | 2-12 |

EGX0200

**XTA Micro Sets:** Supplied with individual instrument, setting rings and UKAS

| Code No | Code No (without Ring) | Range (mm) | Measuring Heads | Setting Rings | Code No | Range (inch) |
|---|---|---|---|---|---|---|
| SMXTA1M | SMXTA1W | 2-3 | 2 | 1 | SMXTA1i | 0.080-0.120 |
| SMXTA2M | SMXTA2W | 3-6 | 3 | 2 | SMXTA2i | 0.120-0.250 |
| SMXTA3M | SMXTA3W | 6-10 | 2 | 1 | SMXTA3i | 1/4-3/8 |
| SMXTA4M | SMXTA4W | 10-20 | 3 | 2 | SMXTA4i | 3/8-3/4 |

XTR35i

XTR35M

# Digital Bore Gauges

## At a Glance

**Range:** 2-300mm (0.080" – 12")

Bluetooth — **Non Bluetooth is available upon request**

IP67 sealed

WiFi Option

RS232

## Features

- Ergonomic design with larger and clearer LCD display
- Simple 2-button operation
- 4 preset memories
- Proximity output with built-in Bluetooth
- Bi-directional communication
- 2-6mm 2 point/ 6-300mm 3 point measurement
- Tungsten carbide measuring faces on all 3-point heads from 12.5mm
- Blind bore measurement from 2mm – 6mm and above 12.5mm (0.500")
- RS-232C output
- IP67 Electronics
- Extensions available above 6mm for deep hole measurement
- Ratchet stop to ensure consistent measurement
- Setting rings included with individual instruments and sets
- UKAS certificates supplied as standard with all setting rings and gauges
- Serial number on all digital readouts and measuring heads
- Heads with special anvils available to suit specific customer requirements (e.g. Threads, grooves, 2-point, spherical, splines etc)
- Bore gauges manufactured according to DIN 863, part 4
- Supplied in a fitted case

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# Digital Bore Gauges



**Bowers' Bluetooth XT3-BT** digital internal micrometers offer an ergonomic design - including a larger and clearer LCD display - along with IP67 electronics protection, proximity output; allowing bi-directional communication giving greater flexibility for data acquisition and storage. The extended mechanical travel of the XT range means that special heads can also be manufactured to accommodate users most awkward measuring problems. Measuring heads for threads, splines, slots, grooves, deep-holes and many more applications are available on request.

The **Bowers XT3-BT** range can be supplied as individual instruments or in complete sets, with UKAS certification of both measuring head and setting ring as standard.

SXTD5U-BT

SXTD5M-BT

# Digital Bore Gauges

**Technical Specification:** Individual instruments supplied with digital display unit, head, ring and UKAS

| Code No (with BT) | Range (mm) | Accuracy (mm) | Depth (mm) | Setting Ring (mm) | Code No (with BT) | Range (inch) | Accuracy (inch) | Depth (inch) | Setting Ring (inch) | Display Unit (with BT) |
|---|---|---|---|---|---|---|---|---|---|---|
| XTD1M-BT | 2-2.5 | 0.004 | 9 | 2.50 | XTD1i-BT | 0.080-0.100 | 0.00015 | 0.35 | 0.1000 | XTDU2M-BT |
| XTD2M-BT | 2.5-3 | 0.004 | 9 | 2.50 | XTD2i-BT | 0.100-0.120 | 0.00015 | 0.35 | 0.1000 | XTDU2M-BT |
| XTD3M-BT | 3-4 | 0.004 | 12 | 4.00 | XTD3i-BT | 0.120-0.160 | 0.00015 | 0.47 | 0.1600 | XTDU2M-BT |
| XTD4M-BT | 4-5 | 0.004 | 18 | 4.00 | XTD4i-BT | 0.160-0.200 | 0.00015 | 0.70 | 0.1600 | XTDU2M-BT |
| XTD5M-BT | 5-6 | 0.004 | 18 | 5.00 | XTD5i-BT | 0.200-0.250 | 0.00015 | 0.70 | 0.2000 | XTDU2M-BT |
| XTD6M-BT | 6-8 | 0.004 | 58 | 8.00 | XTD6i-BT | 1/4-5/16 | 0.00015 | 2.28 | 0.3125 | XTDU6M-BT |
| XTD8M-BT | 8-10 | 0.004 | 58 | 8.00 | XTD8i-BT | 5/16-3/8 | 0.00015 | 2.28 | 0.3125 | XTDU6M-BT |
| XTD10M-BT | 10-12.5 | 0.004 | 58 | 12.50 | XTD10i-BT | 3/8-1/2 | 0.00015 | 2.28 | 0.500 | XTDU10M-BT |
| XTD12M-BT | 12.5-16 | 0.004 | 62 | 12.50 | XTD12i-BT | 1/2-5/8 | 0.00015 | 2.44 | 0.500 | XTDU10M-BT |
| XTD16M-BT | 16-20 | 0.004 | 62 | 20.00 | XTD16i-BT | 5/8-3/4 | 0.00015 | 2.44 | 0.750 | XTDU10M-BT |
| XTD20M-BT | 20-25 | 0.004 | 66 | 20.00 | XTD20i-BT | 3/4-1 | 0.00015 | 2.62 | 0.750 | XTDU20M-BT |
| XTD25M-BT | 25-35 | 0.004 | 66 | 35.00 | XTD25i-BT | 1-1 3/8 | 0.00015 | 2.62 | 1.375 | XTDU20M-BT |
| XTD35M-BT | 35-50 | 0.004 | 80 | 35.00 | XTD35i-BT | 1 3/8-2 | 0.00015 | 3.15 | 1.375 | XTDU20M-BT |
| XTD50M-BT | 50-65 | 0.005 | 80 | 65.00 | XTD50i-BT | 2-2 5/8 | 0.00020 | 3.15 | 2.625 | XTDU50M-BT |
| XTD65M-BT | 65-80 | 0.005 | 80 | 65.00 | XTD65i-BT | 2 5/8-3 1/4 | 0.00020 | 3.15 | 2.625 | XTDU50M-BT |
| XTD80M-BT | 80-100 | 0.005 | 100 | 80.00 | XTD80i-BT | 3 1/4-4 | 0.00020 | 3.94 | 3.250 | XTDU50M-BT |
| XTD100M-BT | 100-125 | 0.006 | 115 | 125.00 | XTD100i-BT | 4-5 | 0.00025 | 4.53 | 5.000 | XTDU100M-BT |
| XTD125M-BT | 125-150 | 0.006 | 115 | 125.00 | XTD125i-BT | 5-6 | 0.00025 | 4.53 | 5.000 | XTDU100M-BT |
| XTD150M-BT | 150-175 | 0.007 | 115 | 175.00 | XTD150i-BT | 6-7 | 0.00030 | 4.53 | 7.000 | XTDU100M-BT |
| XTD175M-BT | 175-200 | 0.007 | 115 | 175.00 | XTD175i-BT | 7-8 | 0.00030 | 4.53 | 7.000 | XTDU100M-BT |
| XTD200M-BT | 200-225 | 0.008 | 118 | 225.00 | XTD200i-BT | 8-9 | 0.00030 | 4.65 | 9.000 | XTDU200M-BT |
| XTD225M-BT | 225-250 | 0.008 | 118 | 225.00 | XTD225i-BT | 9-10 | 0.00030 | 4.65 | 9.000 | XTDU200M-BT |
| XTD250M-BT | 250-275 | 0.009 | 118 | 275.00 | XTD250i-BT | 10-11 | 0.00035 | 4.65 | 11.000 | XTDU200M-BT |
| XTD275M-BT | 275-300 | 0.009 | 118 | 275.00 | XTD275i-BT | 11-12 | 0.00035 | 4.65 | 11.000 | XTDU200M-BT |

SXTD5M-BT

SXTD5U-BT



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# Digital Bore Gauges



**Sets:** Supplied with one digital display unit, heads, rings and UKAS

| Code No (with BT) | Range (mm) | Measuring Heads | Setting Rings | Code No (with BT) | Range (inch) |
|---|---|---|---|---|---|
| SXTD1M-BT | 2-6 | 5 | 3 | SXTD1i-BT | 0.080-0.250 |
| SXTD3M-BT | 6-10 | 2 | 1 | SXTD3i-BT | 1/4-3/8 |
| SXTD4M-BT | 10-20 | 3 | 2 | SXTD4i-BT | 3/8-3/4 |
| SXTD5M-BT | 20-50 | 3 | 2 | SXTD5i-BT | 3/4-2 |
| SXTD6M-BT | 50-100 | 3 | 2 | SXTD6i-BT | 2-4 |
| SXTD7M-BT | 100-150 | 2 | 1 | SXTD7i-BT | 4-6 |
| SXTD8M-BT | 150-200 | 2 | 1 | SXTD8i-BT | 6-8 |
| SXTD9M-BT | 100-200 | 4 | 2 | SXTD9i-BT | 4-8 |

**Depth Stop**

| Code No | Range (mm) | Range (inch) |
|---|---|---|
| DSTOP01 | 2-6 | 0.080-0.25 |

The Sylvac Sylcom and Sylvac Anywhere apps allows communication with Bowers Bluetooth gauges. Android 8.0 IOS 10 Bluetooth 4.0 required

**Sets:** Supplied with digital display units with each head, rings and UKAS

| Code No (with BT) | Range (mm) | Measuring Heads | Setting Rings | Note |
|---|---|---|---|---|
| SXTD3U-BT | 6-10 | 2 | 1 | with 2 display units |
| SXTD4U-BT | 10-20 | 3 | 2 | with 3 display units |
| SXTD5U-BT | 20-50 | 3 | 2 | with 3 display units |
| SXTD6U-BT | 50-100 | 3 | 2 | with 3 display units |

**Extensions**

| Code No | Length (mm) | Length (inch) | To Fit Heads (mm) | To Fit Heads (inch) |
|---|---|---|---|---|
| EGX0200 | 63 | 2.5 | 6-10 | 1/4-3/8 |
| EGX0400 | 76 | 3.0 | 10-12.5 | 3/8-1/2 |
| EGX0500 | 100 | 4.0 | 12.5-20 | 1/2-3/4 |
| EGX0001 | 150 | 6.0 | 20-50 | 3/4-2 |
| EGX0004 | 150 | 6.0 | 50-300 | 2-12 |

**Note:** BT denotes Bluetooth. Non-BT available upon request

# Digital Pistol Grip
## Bore Gauge

### At a Glance

**Range:** 2-300mm (0.080" – 12")

Bluetooth — Non Bluetooth is available upon request

IP67 sealed — WiFi Option — RS232

### Features

- Ergonomic design with larger and clearer LCD swivel display
- IP67 Electronics
- Simple 2-button operation
- 4 preset memories
- Proximity output with built-in Bluetooth
- Bi-directional communication
- Self-centring heads
- Fast, accurate measurement
- Range 2–300mm (0.080" – 12")
- 2-6mm 2 point/ 6-300mm 3 point measurement
- Resolution 0.001mm/0.00005"
- Tungsten carbide measuring faces on all 3-point heads from 12.5mm
- Blind bore measurement from 2mm – 6mm and above 12.5mm (0.500")
- Extensions available above 6mm for deep hole measurement
- Setting rings included with individual instruments and sets
- UKAS certificates supplied as standard with all setting rings and gauges
- Serial number on all digital readouts and measuring heads
- Heads with special anvils available to suit specific customer requirements (e.g. Threads, grooves, 2-point, spherical, splines etc)
- Bore gauges manufactured according to DIN 863, part 4
- Supplied in a fitted case

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**Bowers' XT3-BT Holematic** offers an ergonomic design with a larger and clearer LCD display, along with IP67 electronics protection, proximity output with built-in Bluetooth; allowing bi-directional communication giving greater flexibility for data acquisition and storage. The extended mechanical travel of the XT range means that special heads can also be manufactured to accommodate users most awkward measuring problems. Measuring heads for threads, splines, slots, grooves, deep-holes and many more applications are available on request.

The **Bowers XT3-BT** range can be supplied as individual instruments or in complete sets, with UKAS certification of both measuring head and setting ring as standard.

SXTH5M-BT

**Technical specification:** Individual instruments supplied with digital pistol grip, head, ring and UKAS

| Code No (with BT) | Range (mm) | Accuracy (mm) | Depth (mm) | Setting Ring (mm) | Code No (with BT) | Range (inch) | Accuracy (inch) | Depth (inch) | Setting Ring (inch) | Display Unit (with BT) |
|---|---|---|---|---|---|---|---|---|---|---|
| XTH1M-BT | 2-2.5 | 0.004 | 9 | 2.50 | XTH1i-BT | 0.080-0.100 | 0.00015 | 0.35 | 0.1000 | XTPG01-BT |
| XTH2M-BT | 2.5-3 | 0.004 | 9 | 2.50 | XTH2i-BT | 0.100-0.120 | 0.00015 | 0.35 | 0.1000 | XTPG01-BT |
| XTH3M-BT | 3-4 | 0.004 | 12 | 4.00 | XTH3i-BT | 0.120-0.160 | 0.00015 | 0.47 | 0.1600 | XTPG01-BT |
| XTH4M-BT | 4-5 | 0.004 | 18 | 4.00 | XTH4i-BT | 0.160-0.200 | 0.00015 | 0.70 | 0.1600 | XTPG01-BT |
| XTH5M-BT | 5-6 | 0.004 | 18 | 5.00 | XTH5i-BT | 0.200-0.250 | 0.00015 | 0.70 | 0.2000 | XTPG01-BT |
| XTH6M-BT | 6-8 | 0.004 | 58 | 8.00 | XTH6i-BT | 1/4-5/16 | 0.00015 | 2.28 | 0.3125 | XTPG02-BT |
| XTH8M-BT | 8-10 | 0.004 | 58 | 8.00 | XTH8i-BT | 5/16-3/8 | 0.00015 | 2.28 | 0.3125 | XTPG02-BT |
| XTH10M-BT | 10-12.5 | 0.004 | 58 | 12.50 | XTH10i-BT | 3/8-1/2 | 0.00015 | 2.28 | 0.500 | XTPG02-BT |
| XTH12M-BT | 12.5-16 | 0.004 | 62 | 12.50 | XTH12i-BT | 1/2-5/8 | 0.00015 | 2.44 | 0.500 | XTPG02-BT |
| XTH16M-BT | 16-20 | 0.004 | 62 | 20.00 | XTH16i-BT | 5/8-3/4 | 0.00015 | 2.44 | 0.750 | XTPG02-BT |
| XTH20M-BT | 20-25 | 0.004 | 66 | 20.00 | XTH20i-BT | 3/4-1 | 0.00015 | 2.62 | 0.750 | XTPG03-BT |
| XTH25M-BT | 25-35 | 0.004 | 66 | 35.00 | XTH25i-BT | 1-1 3/8 | 0.00015 | 2.62 | 1.375 | XTPG03-BT |
| XTH35M-BT | 35-50 | 0.004 | 80 | 35.00 | XTH35i-BT | 1 3/8-2 | 0.00015 | 3.15 | 1.375 | XTPG03-BT |
| XTH50M-BT | 50-65 | 0.005 | 80 | 65.00 | XTH50i-BT | 2-2 5/8 | 0.00020 | 3.15 | 2.625 | XTPG03-BT |
| XTH65M-BT | 65-80 | 0.005 | 80 | 65.00 | XTH65i-BT | 2 5/8-3 1/4 | 0.00020 | 3.15 | 2.625 | XTPG03-BT |
| XTH80M-BT | 80-100 | 0.005 | 100 | 80.00 | XTH80i-BT | 3 1/4-4 | 0.00020 | 3.35 | 3.250 | XTPG03-BT |
| XTH100M-BT | 100-125 | 0.006 | 115 | 125.00 | XTH100i-BT | 4-5 | 0.00025 | 3.94 | 5.000 | XTPG04-BT |
| XTH125M-BT | 125-150 | 0.006 | 115 | 125.00 | XTH125i-BT | 5-6 | 0.00025 | 3.94 | 5.000 | XTPG04-BT |
| XTH150M-BT | 150-175 | 0.007 | 115 | 175.00 | XTH150i-BT | 6-7 | 0.00030 | 3.94 | 7.000 | XTPG04-BT |
| XTH175M-BT | 175-200 | 0.007 | 115 | 175.00 | XTH175i-BT | 7-8 | 0.00030 | 3.94 | 7.000 | XTPG04-BT |
| XTH200M-BT | 200-225 | 0.008 | 118 | 225.00 | XTH200i-BT | 8-9 | 0.00030 | 3.94 | 9.000 | XTPG04-BT |
| XTH225M-BT | 225-250 | 0.008 | 118 | 225.00 | XTH225i-BT | 9-10 | 0.00030 | 4.05 | 9.000 | XTPG04-BT |
| XTH250M-BT | 250-275 | 0.009 | 118 | 275.00 | XTH250i-BT | 10-11 | 0.00035 | 4.05 | 11.000 | XTPG04-BT |
| XTH275M-BT | 275-300 | 0.009 | 118 | 275.00 | XTH275i-BT | 11-12 | 0.00035 | 4.05 | 11.000 | XTPG04-BT |

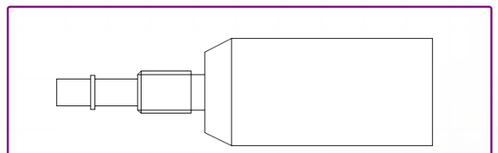
# Digital Pistol Grip
## Bore Gauge

**Sets:** Supplied with digital pistol grip, heads, rings and UKAS

| Code No (with BT) | Range (mm) | Measuring Heads | Setting Rings | Code No (with BT) | Range (inch) |
|---|---|---|---|---|---|
| SXTH1M-BT | 2-6 | 5 | 3 | SXTH1i-BT | 0.080-0.250 |
| SXTH3M-BT | 6-10 | 2 | 1 | SXTH3i-BT | 1/4-3/8 |
| SXTH4M-BT | 10-20 | 3 | 2 | SXTH4i-BT | 3/8-3/4 |
| SXTH5M-BT | 20-50 | 3 | 2 | SXTH5i-BT | 3/4-2 |
| SXTH6M-BT | 50-100 | 3 | 2 | SXTH6i-BT | 2-4 |
| SXTH7M-BT | 100-150 | 2 | 1 | SXTH7i-BT | 4-6 |
| SXTH8M-BT | 150-200 | 2 | 1 | SXTH8i-BT | 6-8 |

**Large Sets:** Supplied with digital pistol grip, heads, rings and UKAS

| Code No (with BT) | Range (mm) | Measuring Heads | Setting Rings | Code No (with BT) | Range (inch) |
|---|---|---|---|---|---|
| SXTH10M-BT | 6-20 | 5 | 3 | SXTH10i-BT | 1/4-3/4 |
| SXTH11M-BT | 20-100 | 6 | 4 | SXTH11i-BT | 3/4-4 |
| SXTH9M-BT | 100-200 | 4 | 2 | SXTH9i-BT | 4-8 |



XTHADAPTOR 6-10mm Head Adapter required for the use of XTPG02-BT with 6-8 and 8-10mm heads if display unit purchased separately.

# Digital Pistol Grip
## Bore Gauge

**Extensions**

| Code No | Length (mm) | Length (inch) | To Fit Heads (mm) | To Fit Heads (inch) |
|---|---|---|---|---|
| EGX0200 | 63 | 2.5 | 6-10 | 1/4-3/8 |
| EGX0400 | 76 | 3.0 | 10-12.5 | 3/8-1/2 |
| EGX0500 | 100 | 4.0 | 12.5-20 | 1/2-3/4 |
| EGX0001 | 150 | 6.0 | 20-50 | 3/4-2 |
| EGX0004 | 150 | 6.0 | 50-300 | 2-12 |

**Depth Stop**

| Code No | Range (mm) | Range (inch) |
|---|---|---|
| DSTOP01 | 2-6 | 0.080-0.25 |

**Data Transmission**

| Code No | Description |
|---|---|
| 30-926-6721 | Sylvac Proximity USB Cable |
| 30-981-7100 | USB Dongle BT Smart for PC/D300S/D400S |

The Sylvac Sylcom and Sylvac Anywhere apps allows communication with Bowers Bluetooth gauges. Android 8.0 IOS 10 Bluetooth 4.0 required

# XTHSY Pistol Grip Bore Gauge with Indicator

## At a Glance

**Range:** From 6-100mm

Non Bluetooth is available upon request

WiFi Option

RS232

## Features

- Standard: DIN 863 - Part 4
- Ergonomically designed pistol grip body
- Functions include 2 pre-set memories, tolerance indicator lights and mm/inch conversion
- Proximity RS-232 and Powered Opto Output facility
- Self centring measuring heads with tungsten carbide contact points above 12.5mm
- Setting rings provided with each instrument complete with traceable certification
- Blind bore measurement on all instruments above 12.5mm

Blind bore measurement on all instruments above 12.5mm

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The **XTHSY Pistol Grip bore gauge** is a useful option for those requiring pistol ergonomics with a large digital indicator.

The LCD digital indicator fits into a standard 8mm clamping shaft at the rear of the pistol-grip. Pistols of this type are available for all measuring heads in the XT range.

Connected Metrology

### Boxed Sets

| Code No | Code No (with BT) | Range (mm) | Depth (mm) | Accuracy (mm) |
|---|---|---|---|---|
| SXTHSY3M | SXTHSY3M-BT | 6-10 | 58 | 0.004 |
| SXTHSY4M | SXTHSY4M-BT | 10-20 | 62 | 0.004 |
| SXTHSY5M | SXTHSY5M-BT | 20-50 | 66 | 0.004 |
| SXTHSY6M | SXTHSY6M-BT | 50-100 | 82 | 0.005 |
| SXTHSY10M | SXTHSY10M-BT | 6-20 | 58-62 | 0.004 |
| SXTHSY11M | SXTHSY11M-BT | 20-100 | 66-82 | 0.005 |

### Data Transmission

| Code No | Description |
|---|---|
| 30-926-6821 | Powered Opto / USB |
| 30-926-6721 | Sylvac Proximity USB Cable |

Note: BT denotes Bluetooth

BOWERS GROUP



# Engineering Students at Weymouth College Benefit from Bore Gauge Donation

Geoff Williams, Lecturer in Engineering at Weymouth College said:

> "The XT Digital Bore Gauge from Bowers Group is of great benefit to my students. It allows them to measure internal dimensions, including bore diameters, to exceptionally tight tolerances. We are delighted that Bowers Group has kindly donated the bore gauge to the college, and that they recognise the value in contributing to the quality education of the engineers of the future.
>
> It's great that the students understand that time is money in industry, and that investing in a decent piece of kit can eliminate expensive mistakes, therefore reducing scrap. This guarantee of accurate measurement allows businesses to make up the cost of kit quickly, providing a great return on investment."

As part of their engineering qualifications, the students at Weymouth College need to be able to demonstrate that they can carry out a range of measurement techniques and use the equipment competently. The college required students to carry out the inspection of a shallow 40mm bore, but previously could only offer digital calipers to perform this task. Unfortunately, in relatively inexperienced hands, the digital calipers were not nearly reliable enough.

The college, therefore, needed an instrument that would be better suited to inexperienced hands, in order to achieve the measurement task required and enable the students to demonstrate their competence with metrology equipment to meet the demands of their Engineering course.

Bowers Group supplied Weymouth College with an XT Digital Bore Gauge Set, with a measurement capacity of 20-50mm. The XT digital internal Micrometer boasts a large, clear LCD display and IP67 electronics protection. Its proximity output allows bi-directional communication, giving greater flexibility for data acquisition and storage, which could be useful for the collection of SPC data in a later part of the students' course.

The extended mechanical travel of the XT range means that special heads can also be manufactured to accommodate users most awkward measuring problems, for example; threads, splines, slots, grooves, deep-holes and many more applications.

The bore gauge is perfect for use at Weymouth College. The ratchet stop ensures consistent measurement, and the precision setting rings mean that the bore gauge is set and ready for the students to use. The 3 point design means that the bore gauge naturally centres itself in the bore, making measurement quick and simple, and unlikely to be mistaken by the students. It is also more representative of the equipment likely to be encountered in industry.

Engineering student Louis Poulter said:

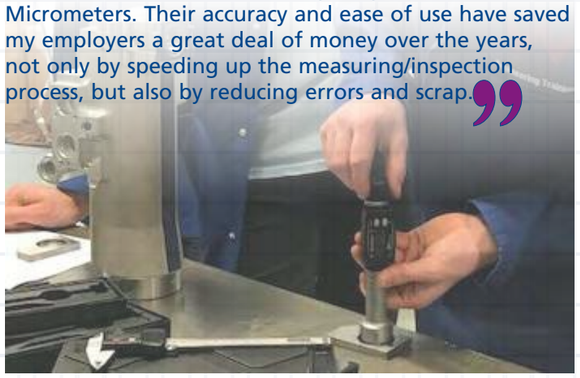
> "The Bowers Group bore gauge is clearly much more advanced than anything else available. It's really accurate and reliable, so perfect for measuring the dimensions of components."

To illustrate the fool proof nature of the bore gauge, 2 engineering students used it for the first time and compared measurements. Although they had only been briefly shown how to use it, the first time they handled the bore gauge and made a measurement revealed only a micron difference in their measurements, which is the equivalent to one thousandths of a millimeter. Bearing in mind that the width of the average human hair is 75 microns, this is an exceptionally small discrepancy in the two measurements taken by extremely inexperienced hands.

More traditional methods of measurement, for example; calipers, micrometres, and telescopic gauges, do have their drawbacks in an educational environment. Although a skilled inspector can achieve accurate results with a good level of experience and practice, students often find them fiddly and struggle to achieve accurate, repeatable measurements. When measuring bores, students need to make sure that the micrometer in use is placed exactly over the widest part of the hole in order to achieve an accurate result. And with Vernier calipers, excellent eyesight is needed to read them to 100th of a millimeter, therefore differing measurements from operators can occur. In addition, equipment such as this needs calibrating once a year, which takes time and can be expensive.

Geoff Williams continued:

> "Throughout a long career in Engineering in the Defence industry, mainly at the Defence Research Agency and its predecessors at Portland, I have been a keen advocate of Bowers Group's 3 point bore Micrometers. Their accuracy and ease of use have saved my employers a great deal of money over the years, not only by speeding up the measuring/inspection process, but also by reducing errors and scrap."



# Digital Lever
## Bore Gauge

### At a Glance

**Range:** 6-100mm

Non Bluetooth is available upon request

WiFi Option

RS232

### Features

- Excellent for vertical bore measurement
- Large easy-to-read swivel display (20-100 sizes only)
- 2 preset memories
- RS-232C output
- Self-centering heads
- Constant measuring pressure
- Fast, accurate measurement
- Resolution 0.001mm (0.00005")
- Tungsten carbide measuring faces on all 3-point heads from 12.5mm
- Blind bore measurement above 12.5mm (0.500")
- Extensions available above 6mm for deep hole measurement
- Setting rings included with individual instruments and sets
- UKAS certificates supplied as standard with all setting rings
- UKAS certificates supplied with all gauges
- Serial number on all gauges and measuring heads
- Heads with special anvils available to suit specific customer requirements (e.g. Threads, grooves, 2-point, spherical, splines etc)
- Bore gauges manufactured according to DIN863, part4
- BT is standard below 20mm. BT option also available on larger sizes.

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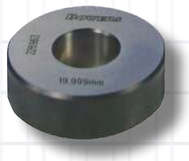
# Digital Lever
## Bore Gauge

The robust **Bowers XTL Lever** range is perfect for vertical bore measurement, providing accurate and repeatable bore gauging under inspection department or shop-floor conditions. The XTL has a simple ergonomic action and can be fitted with a wide variety of analogue and digital indicators or even transducer probes. The range can be provided with IP67 rated digital indicators, rendering it resistant to coolant, water and airborne particles. A 'wireless' gauge module is also available, enabling cable free communication with remote data collectors, PCs etc.

The cost-effective new XTL boasts hardwearing extended travel carbide measuring anvils and is able to measure diameters up to 100mm.

XTL16M-BT



**Individual instruments:** Supplied with head, ring and UKAS certificates

| Code No | Range (mm) | Accuracy (mm) | Depth (mm) | Setting Ring (mm) | Code No | Range (inch) | Accuracy (inch) | Depth (inch) | Setting Ring (inch) |
|---|---|---|---|---|---|---|---|---|---|
| XTL6M-BT | 6-8 | 0.004 | 58 | 8.00 | XTL6i-BT | 1/4-5/16 | 0.00015 | 2.28 | 0.312 |
| XTL8M-BT | 8-10 | 0.004 | 58 | 8.00 | XTL8i-BT | 5/16-3/8 | 0.00015 | 2.28 | 0.312 |
| XTL10M-BT | 10-12.5 | 0.004 | 58 | 12.50 | XTL10i-BT | 3/8-1/2 | 0.00015 | 2.28 | 0.500 |
| XTL12M-BT | 12.5-16 | 0.004 | 62 | 12.50 | XTL12i-BT | 1/2-5/8 | 0.00015 | 2.44 | 0.500 |
| XTL16M-BT | 16-20 | 0.004 | 62 | 20.00 | XTL16i-BT | 5/8-3/4 | 0.00015 | 2.44 | 0.750 |
| XTL20M | 20-25 | 0.004 | 66 | 20.00 | XTL20i | 3/4-1 | 0.00015 | 2.62 | 0.750 |
| XTL25M | 25-35 | 0.004 | 66 | 35.00 | XTL25i | 1-1 3/8 | 0.00015 | 2.62 | 1.375 |
| XTL35M | 35-50 | 0.004 | 80 | 35.00 | XTL35i | 1 3/8-2 | 0.00015 | 3.15 | 1.375 |
| XTL50M | 50-65 | 0.005 | 80 | 65.00 | XTL50i | 2-2 5/8 | 0.00020 | 3.15 | 2.625 |
| XTL65M | 65-80 | 0.005 | 80 | 65.00 | XTL65i | 2 5/8-3 1/4 | 0.00020 | 3.15 | 2.625 |
| XTL80M | 80-100 | 0.005 | 85 | 80.00 | XTL80i | 3 1/4-4 | 0.00020 | 3.35 | 3.250 |

**Sets:** Supplied with heads, rings and UKAS certificates

| Code No | Range (mm) | Description | Range (inch) | Code No |
|---|---|---|---|---|
| SXTL3M-BT | 6-10 | Mini Indicator | 1/4-3/8 | SXTL3i-BT |
| SXTL4M-BT | 10-20 | Mini Indicator | 3/8-3/4 | SXTL4i-BT |
| SXTL5M | 20-50 | Standard Indicator | 3/4-2 | SXTL5i |
| SXTL6M | 50-100 | Standard Indicator | 2-4 | SXTL6i |

**20-100mm Lever Gauge Data Transmission**

| Code No | Description |
|---|---|
| 30-926-6721 | Sylvac Proximity USB Cable |
| 25-604-064 | Wireless Proximity Module Transmitter |
| 25-604-001 | USB Receiver |

SXTL4M-BT

# XT500 Large Diameter 3-point Bore Gauge

## At a Glance

**Range:** 300-500mm

Non Bluetooth is available upon request

IP67 sealed

WiFi Option

RS232

## Features

- New constant-force digital readout
- Single 300mm setting ring covers full range
- Radiussed anvils of tool-steel for optimum centering
- Accuracy: 15µm
- Repeatability: 3µm
- IP67 electronics
- Proximity output with built-in Bluetooth
- Resolution 0.01/0.001mm. Metric/inch switchable
- Fast accurate measurement
- Extensions available for deeper bores
- UKAS certificate with setting ring
- Certificate of conformity with bore gauge
- Supplied in a fitted case

Have you seen our video
**XT500 Bore Gauge Overview**

## Visit our Website

For more information please click here

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# XT500 Large Diameter 3-point Bore Gauge

The **Bowers XT500 large diameter 3-point bore-gauge** has been designed specifically for the measurement of internal diameters between 300 and 500mm. The newly designed constant-force digital readout ensures that the measuring pressure remains constant throughout the measurement whilst radiussed measuring anvils provide optimum centralisation in the part. Anvil sets are supplied in 25mm steps (300-325, 325-350 etc) and each set has been manufactured to the exact toleranced size. The 300-325mm anvils are the master reference set and are used for setting the gauge in the setting ring. The other anvil sets are then fitted as required without further re-setting. This means that only one 300mm setting ring is required to set the gauge for all diameters in the full 300-500mm range of the instrument.

Connected Metrology

**Individual instruments:** Supplied with digital display unit, measuring head with exchangeable anvils and setting ring with UKAS certificate

| Code No | Range (mm) | Accuracy (µm) | Depth (mm) | Setting Ring (mm) |
|---|---|---|---|---|
| XT5001M-BT | 300-325 | 15 | 120 | 300 |
| XT5002M-BT | 300-325, 325-350 | 15 | 120 | 300 |
| XT5003M-BT | 300-325, 350-375 | 15 | 120 | 300 |
| XT5004M-BT | 300-325, 375-400 | 15 | 120 | 300 |
| XT5005M-BT | 300-325, 400-425 | 15 | 120 | 300 |
| XT5006M-BT | 300-325, 425-450 | 15 | 120 | 300 |
| XT5007M-BT | 300-325, 450-475 | 15 | 120 | 300 |
| XT5008M-BT | 300-325, 475-500 | 15 | 120 | 300 |

**Sets:** Supplied with digital display unit, measuring head with exchangeable anvils and setting ring with UKAS certificate

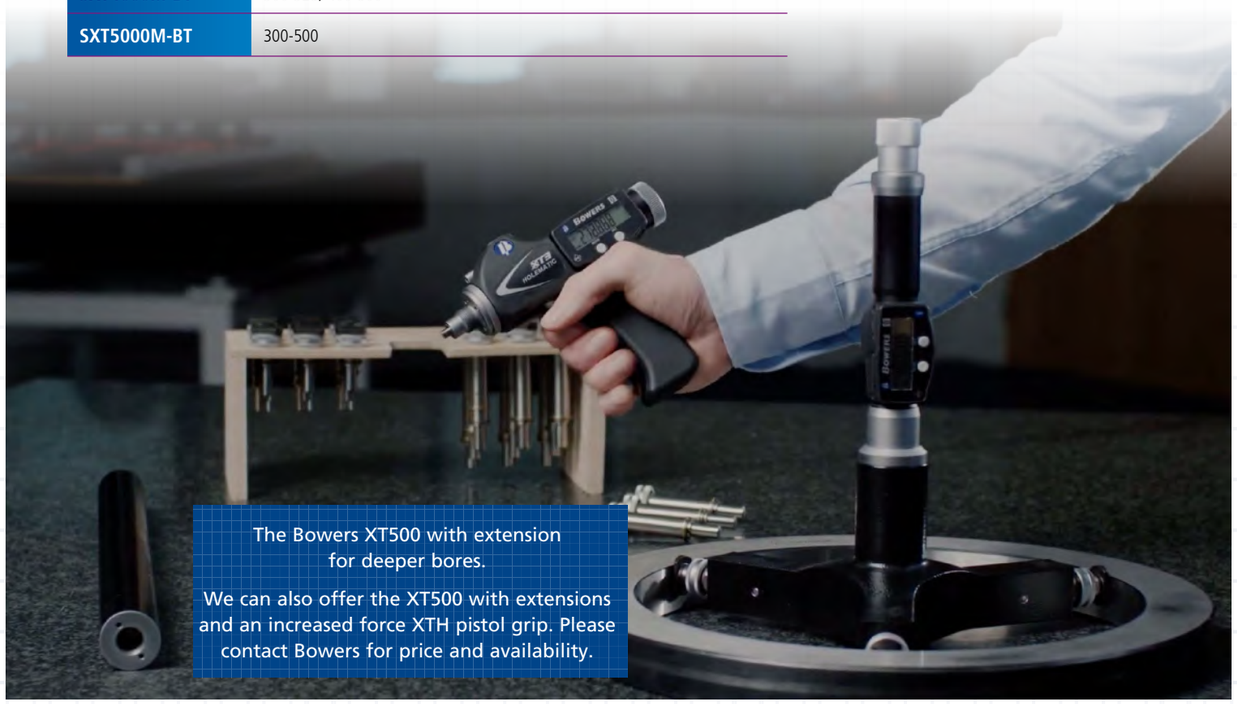
| Code No | Range (mm) |
|---|---|
| SXT3000M-BT | 300-400 |
| SXT4000M-BT | 300-325, 400-500 |
| SXT5000M-BT | 300-500 |

**Data Transmission**

| Code No | Description |
|---|---|
| 30-926-6721 | Sylvac Proximity USB Cable |
| 25-604-064 | Wireless Proximity Module Transmitter |
| 25-604-001 | USB Receiver |

**Extensions to the XT500**

| Code No | Range (mm) |
|---|---|
| DHEXT500 | 500 |
| DHEXT1000 | 1000 |



The Bowers XT500 with extension for deeper bores.

We can also offer the XT500 with extensions and an increased force XTH pistol grip. Please contact Bowers for price and availability.

# Electronic Bore Gauge - **Ultima**

## At a Glance

**Range:** 2-310mm (0.080"-12.000")

WiFi Option

RS232

## Features

- UKAS certificates standard for all measuring heads and setting rings
- Resolution: 0.0001mm (0.00001")
- Constant spring pressure for improved repeatability
- Good positive feel as heads self-centre in the bore
- Bowers Fastfit measuring heads for rapid changeover
- Ceramic anvils on heads above 12mm
- Blind-bore measurement standard above 12mm
- Possible to connect 2 probe holders to one single readout to measure different bore sizes at one measuring station
- The complete range of Bowers special heads is available for the Ultima (grooves, threads, splines, deep-bores etc)
- Depth stops available for all heads
- Alternative displays available on request
- Available without digital readout unit (if not required)
- Interchangeable probe option, to allow use of other manufacturers probes and displays

## Visit our Website

For more information please click here

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**Bowers Ultima Bore Gauge** offers a choice of resolutions up to 0.0001mm. Featuring the Bowers **'FASTFIT'** measuring heads with extended measuring range (above 14mm), the Ultima boasts a simple lever operation and a constant measuring force, ensuring outstanding ease of use and repeatability under laboratory or shop-floor conditions.

Have you seen our video
**Ultima Bore Gauge Overview**

Connected Metrology

# Electronic Bore Gauge - **Ultima**



**Ultima Specification**

| Code No | Range (mm) | Range (inch) | Accuracy (mm) | Accuracy (inch) | Repeatability (mm) | Repeatability (inch) | Measuring Depth (mm) | Measuring Depth (inch) | Code No | Setting Ring (mm) | Setting Ring (inch) | Holder Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ULH6 | 2.0-2.5 | 0.078-0.098 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 9 | 0.35 | ULR2 | 2.5 | 0.098 | PH2D |
| ULH7 | 2.5-3.0 | 0.098-0.118 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 9 | 0.35 | ULR2 | 2.5 | 0.098 | PH2D |
| ULH8 | 3.0-4.0 | 0.118-0.157 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 12 | 0.47 | ULR4 | 4 | 0.157 | PH2D |
| ULH9 | 4.0-5.0 | 0.157-0.197 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 18 | 0.71 | ULR5 | 5 | 0.197 | PH2D |
| ULH10 | 5.0-6.0 | 0.197-0.236 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 18 | 0.71 | ULR5 | 5 | 0.197 | PH2D |
| ULH11 | 6-8 | 0.236-0.315 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 60 | 2.36 | ULR8 | 8 | 0.315 | PH3D |
| ULH12 | 8-10 | 0.315-0.393 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 60 | 2.36 | ULR8 | 8 | 0.315 | PH3D |
| ULH13 | 10-12 | 0.393-0.472 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 61 | 2.40 | ULR12 | 12 | 0.472 | PH3D |
| ULH14 | 12-14 | 0.472-0.550 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 61 | 2.40 | ULR12 | 12 | 0.472 | PH3D |
| ULH15 | 14-17 | 0.550-0.670 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 61 | 2.40 | ULR17 | 17 | 0.670 | PH3D |
| ULH16 | 17-20 | 0.670-0.787 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 61 | 2.40 | ULR17 | 17 | 0.670 | PH3D |
| ULH17 | 20-24 | 0.787-0.945 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 69 | 2.72 | ULR24 | 24 | 0.945 | PH4D |
| ULH18 | 24-28 | 0.945-1.100 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 69 | 2.72 | ULR24 | 24 | 0.945 | PH4D |
| ULH19 | 28-32 | 1.100-1.260 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 69 | 2.72 | ULR32 | 32 | 1.260 | PH4D |
| ULH20 | 32-38 | 1.260-1.500 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 72 | 2.83 | ULR32 | 32 | 1.260 | PH4D |
| ULH21 | 38-44 | 1.500-1.730 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 72 | 2.83 | ULR44 | 44 | 1.730 | PH4D |
| ULH22 | 44-50 | 1.730-1.970 | 0.0010 | 0.00004 | 0.0010 | 0.00004 | 72 | 2.83 | ULR44 | 44 | 1.730 | PH4D |
| ULH23 | 50-60 | 1.970-2.360 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR60 | 60 | 2.360 | PH4D |
| ULH24 | 60-70 | 2.360-2.756 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR60 | 60 | 2.360 | PH4D |
| ULH25 | 70-80 | 2.756-3.150 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR80 | 80 | 3.150 | PH4D |
| ULH26 | 80-90 | 3.150-3.543 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR80 | 80 | 3.150 | PH4D |
| ULH27 | 90-100 | 3.543-3.940 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR100 | 100 | 3.940 | PH4D |
| ULH28 | 100-110 | 3.940-4.330 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR100 | 100 | 3.940 | PH5D |
| ULH29 | 110-120 | 4.330-4.725 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR120 | 120 | 4.725 | PH5D |
| ULH30 | 120-130 | 4.725-5.120 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR120 | 120 | 4.725 | PH5D |
| ULH31 | 130-140 | 5.120-5.510 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR140 | 140 | 5.510 | PH5D |
| ULH32 | 140-150 | 5.510-5.900 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR140 | 140 | 5.510 | PH5D |

# Electronic Bore Gauge - **Ultima**

## Ultima Specification ...continued

| Code No | Range (mm) | Range (inch) | Accuracy (mm) | Accuracy (inch) | Repeatability (mm) | Repeatability (inch) | Measuring Depth (mm) | Measuring Depth (inch) | Code No | Setting Ring (mm) | Setting Ring (inch) | Holder Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ULH33 | 150-160 | 5.900-6.300 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR160 | 160 | 6.300 | PH5D |
| ULH34 | 160-170 | 6.300-6.690 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR160 | 160 | 6.300 | PH5D |
| ULH35 | 170-180 | 6.690-7.090 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR180 | 180 | 7.090 | PH5D |
| ULH36 | 180-190 | 7.090-7.480 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR180 | 180 | 7.090 | PH5D |
| ULH37 | 190-200 | 7.480-7.875 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR200 | 200 | 7.875 | PH5D |
| ULH38 | 200-210 | 7.875-8.270 | 0.0015 | 0.00006 | 0.0015 | 0.00006 | 80 | 3.15 | ULR200 | 200 | 7.875 | PH5D |
| ULH39 | 210-220 | 8.270-8.661 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR220 | 220 | 8.661 | PH5D |
| ULH40 | 220-230 | 8.661-9.055 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR220 | 220 | 8.661 | PH5D |
| ULH41 | 230-240 | 9.055-9.449 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR240 | 240 | 9.449 | PH5D |
| ULH42 | 240-250 | 9.449-9.842 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR240 | 240 | 9.449 | PH5D |
| ULH43 | 250-260 | 9.842-10.236 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR260 | 260 | 10.236 | PH5D |
| ULH44 | 260-270 | 10.236-10.630 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR260 | 260 | 10.236 | PH5D |
| ULH45 | 270-280 | 10.630-11.024 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR280 | 280 | 11.024 | PH5D |
| ULH46 | 280-290 | 11.024-11.417 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR280 | 280 | 11.024 | PH5D |
| ULH47 | 290-300 | 11.417-11.811 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR300 | 300 | 11.811 | PH5D |
| ULH48 | 300-310 | 11.811-12.200 | 0.0020 | 0.00008 | 0.0020 | 0.00008 | 80 | 3.15 | ULR300 | 300 | 11.811 | PH5D |

## Ultima Holders

| Code No | Range (mm) | Description |
|---|---|---|
| PH2D | 2-6 | With Probe |
| PH3D | 6-20 | With Probe |
| PH4D | 20-100 | With Probe |
| PH5D | 100-310 | With Probe |
| PW2 | 2-6 | Without Probe |
| PW3 | 6-20 | Without Probe |
| PW4 | 20-100 | Without Probe |
| PW5 | 100-310 | Without Probe |

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# Electronic Bore Gauge - **Ultima**

## Ultima Sets

| Code No | Range (mm) | Description |
|---|---|---|
| USET2D | 2-6 | With Sylvac D62S display |
| USET3D | 6-10 | With Sylvac D62S display |
| USET4D | 10-20 | With Sylvac D62S display |
| USET7D | 6-20 | With Sylvac D62S display |
| USET8D | 20-50 | With Sylvac D62S display |
| USET9D | 50-100 | With Sylvac D62S display |
| USET10D | 20-100 | With Sylvac D62S display |
| USET2DW | 2-6 | Without Sylvac D62S display |
| USET3DW | 6-10 | Without Sylvac D62S display |
| USET4DW | 10-20 | Without Sylvac D62S display |
| USET7DW | 6-20 | Without Sylvac D62S display |
| USET8DW | 20-50 | Without Sylvac D62S display |
| USET9DW | 50-100 | Without Sylvac D62S display |
| USET10DW | 20-100 | Without Sylvac D62S display |

USET7D 6-20mm Set

## Ultima Standard Extensions

| Code No | Length (mm) | To Fit Heads (mm) |
|---|---|---|
| UEXT0200 | 63 | 6-10 |
| UEXT0300 | 75 | 10-12 |
| UEXT0001 | 100 | 12-20 |
| UEXT0002 | 150 | 20-50 |
| UEXT0004 | 150 | 50+ |

## Ultima Short Extensions

| Code No | Length (mm) | To Fit Heads (mm) |
|---|---|---|
| UXSH4 | 50 | 20-50 |
| UXSH5 | 50 | 50+ |

# SmartPlugs

## At a Glance

**Range:** 6-280mm

Non Bluetooth is available upon request

WiFi Option

RS232

## Features

- Plug body coatings: Hard-chrome (standard), wear resistant coatings available on request
- Measuring contacts: Tungsten carbide, (standard), hard-chrome, ruby, ceramic
- Tough, robust construction
- Easy-to-use
- Long life
- Cost-effective
- High visibility displays
- Repeatability ≤1 µm
- Flexible, modular hand-held measurement
- Quick and reliable measurement
- High accuracy dedicated plug-gauges
- High durability, long-life plugs and contacts
- Can be incorporated into automated measuring systems (in-series)
- Suitable for through bores or blind bores
- 2-point measurement as standard
- Depth-stops available
- Extensions available for deeper bores
- Pilot chamfer for easy entry into bore
- Protective indicator shroud available (with some indicators)
- All setting rings supplied as standard with UKAS calibration certificates

## Visit our Website

For more information please click here



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# SmartPlugs
## Indicators



The robust, easy to use **SmartPlug** range is designed to give the operator greater speed of use, unmatched measuring accuracy and superb repeatability, especially in harsh shop-floor environments.

Advanced hand held ergonomics allied to an ingenious mechanical / electronic system render SmartPlugs the easiest to operate Bowers bore gauging system to date. The flexible nature of Bowers SmartPlugs range means that they can be supplied fitted with easy to read electronic indicators. (ideal for automatic data collection), conventional analogue indicators, or transducer probes linked to remote digital readout units.

High accuracy dedicated plug-gauges

Connected Metrology

Have you seen our video
**SmartPlug Introduction**

- Waterproof MIni Indicator with Shroud
- Preset value maximum 130mm

- Mechanical Dial Gauge

### Type C

- Standard Digital Indicator also available with shroud

### P12D

- Transducer probe

### MGU2

- MicroGauge Display

# SmartPlugs
## Holders

### M6 Holders

**SMA001M**
- M6 Holder short 8mm stem

**SMA002M**
- M6 Holder long 8mm stem

**SMA003**
- M6 100mm extension

**SMA004**
- M6 Probe holder 8mm stem

**SMA028**
- M6-M10 Adapter (to use M10 holders with M6 plugs)

**SMPDS00-09**
- Depth Stop

### M10 Holders

**SMA005M**
- M10 Holder short 8mm stem

**SMA006M**
- M10 Holder long 8mm stem

**SMA007**
- M10 100mm extension

**SMA008**
- M10 Probe holder 10mm stem

**SMPDS00-09**
- Depth Stop

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# SmartPlugs

### SmartPlugs

**M6 Thread Range 6-20mm**

Please state size to be measured

**M10 Thread Range 15-280mm**

Please state size to be measured

### Contact Options

Tungsten Carbide (standard), Hard Chrome, Ruby, Ceramic

### Plug-Body Options

Hard Chrome Plated (standard), Titanium Nitride, Plain Steel

# SmartPlugs
## Applications & Options

SmartPlug with TiN coated body

SmartPlug with MicroGauge head

SmartPlug with ceramic contacts

SmartPlug for blind bore measurement

SmartPlug with depth stop

SmartPlug with extension measurement

SmartPlug with transducer holder and standalone display

SmartPlug for large diameters (up to 280mm)

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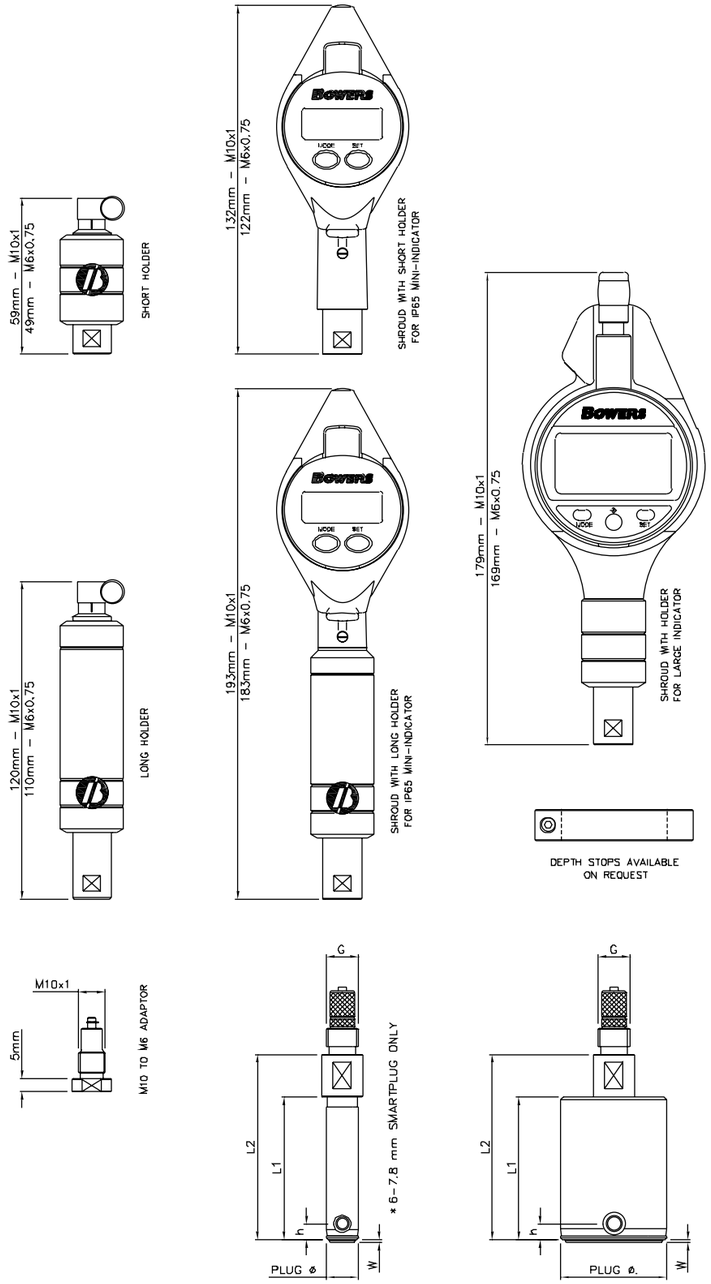
# SmartPlugs
## Technical Detail





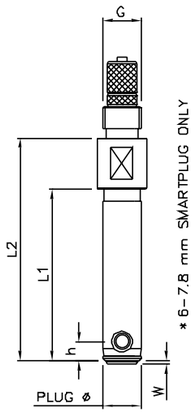
# SmartPlugs

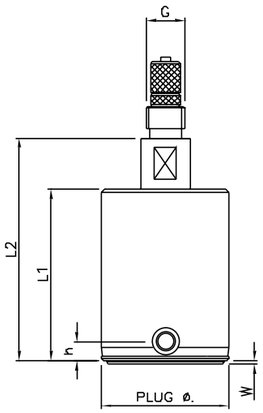
| Example SmartPlug Heads | | |
|---|---|---|
| **Code No** | **Description** | **Note** |
| 1SP6 | 6-8mm / 0.235"-0.315" | M6 thread |
| 5SP45 | 45-49mm / 1.772"-1.929" | M10 thread |
| 5SP130 | 130-140mm / 5.118"-5.512" | M10 thread |
| 5SP270 | 270-280mm / 10.630"-11.024" | M10 thread |

Sizes from 2.98mm - 6mm available on request, also available as Blind Bore heads (BB)

| Smartplugs | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Size (mm)** | **Range** | **h** | **h(BB)** | **L1** | **L2** | **W** | **G** |
| 6-7.8* | 0.15 | 3 | 1.5 | 27 | 35 | 0.5 | M6x0.75 |
| 7.9-20 | 0.15 | 3 | 1.75 | 27 | 35 | 0.5 | M6x0.75 |
| 15-45 | 0.2 | 3.5 | 2.5 | 28 | 43.5 | 1 | M10x1 |
| 45.1-70 | 0.2 | 4 | 2.5 | 28 | 44 | 1.5 | M10x1 |
| 70.1-100 | 0.2 | 4 | 2.5 | 35 | 44 | 1.5 | M10x1 |
| 100-280 | 0.2 | 4 | n/a | 35 | 44 | 1.5 | M10x1 |

*max measuring depth 27mm between 6 and 7.8mm
Sizes from 2.98mm - 6mm available on request



Nitron MC coated body

Ceramic contacts

Ruby contacts



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# SmartPlugs Accessories

| SmartPlug Accessories | |
|---|---|
| **Code No** | **Description** |
| SMA001M | M6 Holder short 8mm stem |
| SMA028 | M6-M10 Adapter (to use M10 holders with M6 plugs) |
| SMA013 | Type C Indicator with shroud & M6 holder 8mm stem |
| SMA002M | M6 Holder long 8mm stem |
| SMA013-BT | Type C Bluetooth Indicator with shroud & M6 holder 8mm stem |
| SMA021 | *Type 'A' digital Mini indicator. Res. 0.001mm |
| SMA009M | *Type A Mini indicator with shroud & M6 short holder 8mm stem |
| SMA003 | M6 100mm extension |
| SMA022 | Type 'B' mechanical dial-gauge. 0.001mm graduation |
| SMA011M | *Type A Mini indicator with shroud & M6 long holder 8mm stem |
| SMA004 | M6 Probe holder 8mm stem |
| SMPDS00-09 | Depth Stop |
| SMA005M | M10 Holder short 8mm |
| SMA006M | M10 Holder long 8mm stem |
| SMA007 | M10 100mm extension |
| SMA008 | M10 Probe holder 8mm stem |
| SMA015M-BT | Type A Mini Bluetooth indicator with shroud & M10 short holder 8mm stem |
| SMA019 | Type C Indicator with shroud & M10 holder 8mm stem |
| SMA019-BT | Type C Bluetooth Indicator with shroud & M10 holder 8mm stem |
| SMA019-NANO | Type C Nano Indicator with shroud & M10 holder 8mm stem (0.0001mm res) |

| SmartPlug Indicating Units | |
|---|---|
| **Code No** | **Description** |
| SMA021-BT | *Type A Bluetooth Digital Mini Indicator. Res. 0.001mm |
| SMA022 | Type B Mechanical Dial-gauge. 0.001mm graduation |
| SMA023 | Type C digital indicator. Res. 0.001mm |
| SMA023-BT | Type C Bluetooth digital indicator. Res. 0.001mm |
| P12D-M8 | P12D Absolute Digital Probe with M8 connector for use with D62S digital readout |

**Note:** BT denotes Bluetooth

# SmartPlug Setting Rings

Complete with UKAS Calibration Certificates

We can custom make setting rings for your specific application in Grades N, X and XX.

Visit our Website

For more information please click here

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# SmartPlug Setting Rings



## Complete with UKAS Calibration Certificates

| Setting Ring (mm) Grade Nominal | |
|---|---|
| Code No | Setting Ring (mm) |
| SPR1N | 1.50 - 3.00 |
| SPR3N | 3.00 - 6.10 |
| SPR6N | 6.10 - 9.27 |
| SPR9N | 9.27 - 12.95 |
| SPR12N | 12.95 - 20.96 |
| SPR20N | 20.96 - 28.83 |
| SPR28N | 28.83 - 38.35 |
| SPR38N | 38.35 - 51.05 |
| SPR51N | 51.05 - 63.75 |
| SPR63N | 63.75 - 76.45 |
| SPR76N | 76.45 - 89.15 |
| SPR89N | 89.15 - 101.85 |
| SPR101N | 101.85 - 120.90 |
| SPR120N | 120.90 - 139.95 |
| SPR139N | 139.95 - 159.00 |
| SPR159N | 159.00 - 178.05 |
| SPR178N | 178.05 - 197.10 |
| SPR197N | 197.10 - 203.20 |

(+/- 0.005mm and marked to actual size)

| Setting Ring (mm) Grade "X" | |
|---|---|
| Code No | Setting Ring (mm) |
| SPR1X | 1.50 - 3.00 |
| SPR3X | 3.00 - 6.10 |
| SPR6X | 6.10 - 9.27 |
| SPR9X | 9.27 - 12.95 |
| SPR12X | 12.95 - 20.96 |
| SPR20X | 20.96 - 28.83 |
| SPR28X | 28.83 - 38.35 |
| SPR38X | 38.35 - 51.05 |
| SPR51X | 51.05 - 68.75 |
| SPR63X | 68.75 - 76.45 |
| SPR76X | 76.45 - 89.15 |
| SPR89X | 89.15 - 101.85 |
| SPR101X | 101.85 - 120.90 |
| SPR120X | 120.90 - 139.95 |
| SPR139X | 139.95 - 159.00 |
| SPR159X | 159.00 - 178.05 |
| SPR178X | 178.05 - 197.10 |
| SPR197X | 197.10 - 203.20 |

Larger setting rings are available upon request

| Setting Ring (mm) Grade "XX" | |
|---|---|
| Code No | Setting Ring (mm) |
| SPR1XX | 1.50 - 3.00 |
| SPR3XX | 3.00 - 6.10 |
| SPR6XX | 6.10 - 9.27 |
| SPR9XX | 9.27 - 12.95 |
| SPR12XX | 12.95 - 20.96 |
| SPR20XX | 20.96 - 28.83 |
| SPR28XX | 28.83 - 38.35 |
| SPR38XX | 38.55 - 51.05 |
| SPR51XX | 51.05 - 63.75 |
| SPR63XX | 63.75 - 76.45 |
| SPR76XX | 76.45 - 89.15 |
| SPR89XX | 89.15 - 101.85 |
| SPR101XX | 101.85 - 120.90 |
| SPR120XX | 120.90 - 139.95 |
| SPR139XX | 139.95 - 159.00 |
| SPR159XX | 159.00 - 178.05 |
| SPR178XX | 178.05 - 197.10 |
| SPR197XX | 197 10 - 203.20 |

| Depth Stops | |
|---|---|
| Code No | Range (mm) |
| SMPDS00 | below 6 |
| SMPDS01 | 6-8.5 |
| SMPDS02 | 8.5-13 |
| SMPDS03 | 13-17.5 |
| SMPDS04 | 17.5-25 |
| SMPDS05 | 25-32.5 |
| SMPDS06 | 32.5-40 |
| SMPDS07 | 40-47.5 |
| SMPDS08 | 47.5-55 |
| SMPDS09 | 55-62.5 |
| SMPDS10 | 62.5-70 |
| SMPDS11 | 70-77.5 |
| SMPDS12 | 77.5-85 |
| SMPDS13 | 85-92.5 |
| SMPDS14 | 92.5-100 |

Depth Stop

# MicroGauge 2-Point
## Bore Gauge

### At a Glance

**Range:** 1-10mm

IP65 protection

WiFi Option

RS232

### Features

- Slimline digital display
- Switchable resolution 0.01/0.001/0.0005mm
- Simple 2-button operation
- Clear LCD display
- Data output: RS232 / USB proximity sensor
- Linearity: Diameter 1.0-1.5 max 2% of measuring travel, min 0.001mm. Diameter 1.5-10 max 1% of measuring travel, min 0.001mm
- Repeatability: 0.001mm
- Available as individual instruments or sets
- UKAS-certificates as standard with all setting rings
- Hard-chromed ball-contacts
- Depth-stops available

Have you seen our video
**MircroGauge Introduction**

### Visit our Website

For more information please click here

Go back to **Contents**



The **MicroGauge 2-point bore gauging** system has been designed specifically for the measurement of small bores between 1.0-10.0mm. Featuring a digital readout and extremely compact overall dimensions, the MicroGauge is truly a pocket-sized instrument. The digital readout and measuring head together are about the same size and format as a ballpoint pen which represents a big advantage for those needing to measure small precision parts and who need to have their gauge with them all the time. The clear LCD display is easily set using only two buttons and results are shown with switchable 0.01/0.001/0.0005mm resolution. Data transfer is via Proximity-RS232 or Proximity-USB output. The measuring heads are equipped with spherical hard-chromed contact points and are set in appropriate setting rings. Like all Bowers bore gauging products the MicroGauge system is available as individual instruments or as full sets. All setting rings are supplied as standard with UKAS certification.

Depth Stop



# MicroGauge 2-Point
## Bore Gauge

**Technical Specification: Individual measuring heads, readouts and setting rings**

| Head Code No | Range (mm) | Range (inch) | Measuring Depth (mm) | Digital Readout | Cone | Setting Ring | Setting Ring (mm) |
|---|---|---|---|---|---|---|---|
| MG011W | 0.95-1.15 | 0.037-0.045 | 0.6-11 | MGU1 | MGC1 | MGR100 | 1.00 |
| MG012W | 1.07-1.25 | 0.042-0.049 | 0.6-11 | MGU1 | MGC1 | MGR110 | 1.10 |
| MG013W | 1.17-1.35 | 0.046-0.053 | 0.6-11 | MGU1 | MGC1 | MGR120 | 1.20 |
| MG014W | 1.27-1.45 | 0.050-0.057 | 0.6-11 | MGU1 | MGC1 | MGR130 | 1.30 |
| MG015W | 1.37-1.55 | 0.054-0.061 | 0.6-11 | MGU1 | MGC1 | MGR140 | 1.40 |
| MG016W | 1.50-1.90 | 0.059-0.075 | 0.9-17 | MGU2 | MGC2 | MGR175 | 1.75 |
| MG017W | 1.80-2.20 | 0.071-0.087 | 0.9-17 | MGU2 | MGC2 | MGR200 | 2.00 |
| MG018W | 2.05-2.45 | 0.081-0.096 | 0.9-17 | MGU2 | MGC2 | MGR225 | 2.25 |
| MG019W | 2.25-2.75 | 0.089-0.108 | 1.2-22 | MGU2 | MGC3 | MGR250 | 2.50 |
| MG020W | 2.50-3.00 | 0.098-0.118 | 1.2-22 | MGU2 | MGC3 | MGR275 | 2.75 |
| MG021W | 2.75-3.25 | 0.108-0.128 | 1.2-22 | MGU2 | MGC3 | MGR300 | 3.00 |
| MG022W | 3.00-3.50 | 0.118-0.138 | 1.2-22 | MGU2 | MGC3 | MGR325 | 3.25 |
| MG023W | 3.25-3.75 | 0.128-0.148 | 1.2-22 | MGU2 | MGC3 | MGR350 | 3.50 |
| MG024W | 3.50-4.00 | 0.138-0.157 | 1.2-22 | MGU2 | MGC3 | MGR375 | 3.75 |
| MG025W | 3.75-4.25 | 0.148-0.167 | 1.2-22 | MGU2 | MGC3 | MGR400 | 4.00 |
| MG026W | 3.65-4.35 | 0.144-0.171 | 2.0-40 | MGU2 | MGC4 | MGR400 | 4.00 |
| MG027W | 4.15-4.85 | 0.163-0.191 | 2.0-40 | MGU2 | MGC4 | MGR450 | 4.50 |
| MG028W | 4.65-5.35 | 0.183-0.211 | 2.0-40 | MGU2 | MGC4 | MGR500 | 5.00 |
| MG029W | 5.15-5.85 | 0.203-0.230 | 2.0-40 | MGU2 | MGC4 | MGR550 | 5.50 |
| MG030W | 5.65-6.35 | 0.222-0.250 | 2.0-40 | MGU2 | MGC4 | MGR600 | 6.00 |
| MG031W | 6.15-6.85 | 0.242-0.270 | 2.0-40 | MGU2 | MGC4 | MGR650 | 6.50 |
| MG032W | 6.65-7.35 | 0.262-0.290 | 2.0-40 | MGU2 | MGC4 | MGR700 | 7.00 |
| MG033W | 7.15-7.85 | 0.281-0.309 | 2.0-40 | MGU2 | MGC4 | MGR750 | 7.50 |
| MG034W | 7.65-8.35 | 0.301-0.329 | 2.0-40 | MGU2 | MGC4 | MGR800 | 8.00 |
| MG035W | 8.15-8.85 | 0.321-0.349 | 2.0-50 | MGU2 | MGC4 | MGR850 | 8.50 |
| MG036W | 8.65-9.35 | 0.340-0.368 | 2.0-50 | MGU2 | MGC4 | MGR900 | 9.00 |
| MG037W | 9.15-9.85 | 0.360-0.388 | 2.0-50 | MGU2 | MGC4 | MGR950 | 9.50 |
| MG038W | 9.65-10.35 | 0.380-0.408 | 2.0-50 | MGU2 | MGC4 | MGR1000 | 10.00 |

**Note:** MicroGauge individual set configurations available on request

# MicroGauge 2-Point
## Bore Gauge

| SETS: including digital readout, measuring heads and setting rings with UKAS certificate | |
|---|---|
| **Code No** | **Range (mm)** |
| SMG001M | 0.95-1.55 |
| SMG002M | 1.50-2.45 |
| SMG003M | 2.25-4.25 |
| SMG004M | 3.65-6.35 |
| SMG005M | 6.15-10.35 |

| Standard Depth Stop | |
|---|---|
| **Code No** | **Range (mm)** |
| MGSTOP1 | 0.95-1.55 |
| MGSTOP2 | 1.50-2.45 |
| MGSTOP3 | 2.25-4.25 |
| MGSTOP4 | 3.65-6.35 |
| MGSTOP5 | 6.15-10.35 |

| Data Transmission | |
|---|---|
| **Code No** | **Description** |
| 30-926-6721 | Sylvac Proximity USB Cable |
| 25-604-064 | Wireless Proximity Module Transmitter |
| 25-604-001 | USB Receiver |

| Large SETS: including digital readout, measuring heads and setting rings with UKAS certificate | |
|---|---|
| **Code No** | **Range (mm)** |
| SMG010M | 0.95-2.45 |
| SMG011M | 1.50-4.25 |
| SMG012M | 2.25-6.35 |

| Stands | |
|---|---|
| **Code No** | **Description** |
| EST0001 | MicroGauge Bench Stand |
| FTS001 | Floating Table Stand |
| MGSA | MicroGauge Adapter |

SMG004M

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# Indicator/ Microgauge Floating Table Stand

The Bowers Floating Table Stand is designed to lift the product up to the measuring instrument for speed, accuracy and convenience.

This robust floating table ensures that the product is level with the measuring instrument, enabling fast, accurate measurement, as well as convenience.

### Features

- Floating table stand
- Optional microgauge adaptor

FTS001
Floating Table

| Indicator / Microgauge Floating Table Stand | |
|---|---|
| **Code No** | **Description** |
| FTS001 | Floating Table Stand |
| MGSA | MicroGauge Adapter |

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BOWERS

Application Gauging

# Thread Gauging

## At a Glance

Bluetooth SMART — Non Bluetooth is available upon request

IP67 sealed

## Individual Thread Gauging Heads

- M4 – M300 (metric)
- No8 – 12" (imperial)
- Metric, UN, Buttress, Acme, Trapezoidal, Ball screw and non-standard forms available
- Left and right handed available
- 2 Point or 3 Point available
- Very rapid measurement of threads
- Reduce machining time by giving the operator an actual measurement when forming the thread
- Negates the need for many different hard gauges, incl. pre/post plate, pre/post H/T, different classes, etc. Therefore annual re-calibration costs reduced massively
- Effective (Functional), Pitch & Major measurement
- Calibrate from thread rings (Plain ring for Major Diameter)
- Rings marked with actual PD
- Each of these application heads can be fitted directly to our Bluetooth XT range of internal micrometers in seconds for fast, efficient use with incredibly accurate results that can be digitally recorded.

Click here to download our **XT Thread Heads** Catalogue

## Visit our Website

For more information please click here

Go back to **Contents**



# Thread Gauging

Although Bowers produces the most comprehensive series of bore gauges and internal measuring equipment available, not all applications can be covered by our standard instrument range. In line with our customer care ethos, Bowers has earned a reputation for manufacturing special heads for measuring non-standard applications.

The following information illustrates some of the many difficult measuring problems easily solved by these special heads. Find out more about how our custom gauging solutions can easily solve measurement problems.

> The gauge is also 'future proof', as the need arises to measure different thread-forms and sizes, we will be able to purchase further measuring heads and fit them to our existing Bowers gauge.
>
> **Simon Cavill - Metrology Engineer - Nuclear ARMC**

## XT Threads - The Best Way to Measure Internal Thread Diameters

Each of these application heads can be fitted directly to our Bluetooth XT range of internal micrometers in seconds for fast, efficient use with incredibly accurate results that can be digitally recorded.

## Custom Thread Gauges

If our generic thread anvil profile is not suitable for your application, please contact us with your requirements and our team will design a bespoke head, perfectly tailored to fit your specific application. Our custom application heads can be fitted directly onto our XT range of internal micrometers to create a flexible, modular measuring system.

Contact our sales team for more information on how we can help.



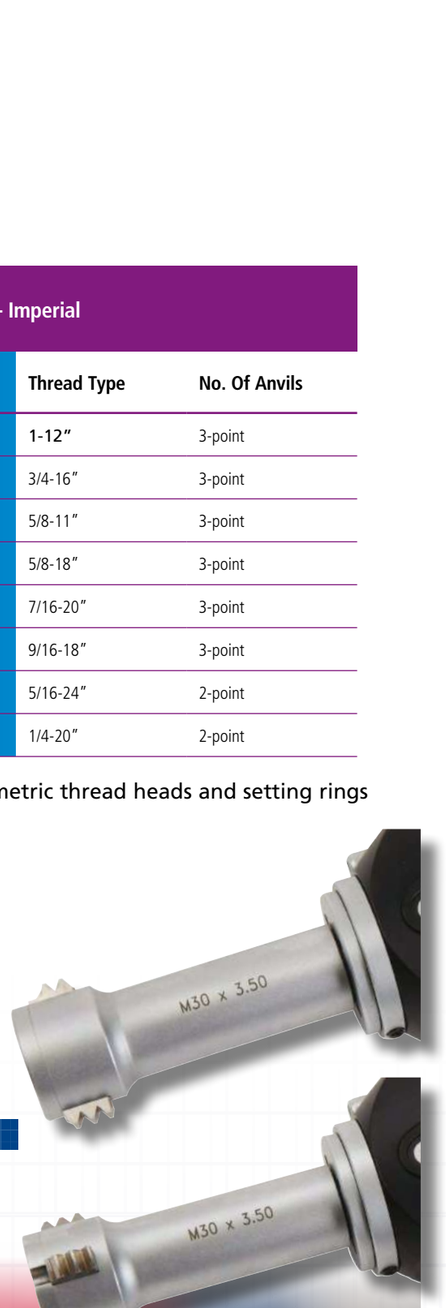

Have you seen our video **The New Thread Sets**

# Thread Gauging

| XT Thread Heads - Metric | | |
|---|---|---|
| **Code No** | **Thread Type** | **No. Of Anvils** |
| **THRH-M10X1** | M10 x 1 | 3-point |
| **THRH-M10x1.25** | M10 x 1.25 | 3-point |
| **THRH-M10x1.5** | M10 x 1.5 | 3-point |
| **THRH-M12x1** | M12 x 1 | 3-point |
| **THRH-M12x1.25** | M12 x 1.25 | 3-point |
| **THRH-M12x1.5** | M12 x 1.5 | 3-point |
| **THRH-M12x1.75** | M12 x 1.75 | 3-point |
| **THRH-M14x1.5** | M14 x 1.5 | 3-point |
| **THRH-M16x1** | M16 x 1 | 3-point |
| **THRH-M16x1.5** | M16 x 1.5 | 3-point |
| **THRH-M16x2** | M16 x 2 | 3-point |
| **THRH-M18x1.25** | M18 x 1.25 | 3-point |
| **THRH-M18x1.5** | M18 x 1.5 | 3-point |
| **THRH-M20x1** | M20 x 1 | 3-point |
| **THRH-M20x1.5** | M20 x 1.5 | 3-point |
| **THRH-M20x2.5** | M20 x 2.5 | 3-point |
| **THRH-M5x0.8** | M5 x 0.8 | 2-point |
| **THRH-M6x1** | M6 x 1 | 2-point |
| **THRH-M8x1.25** | M8 x 1.25 | 2-point |

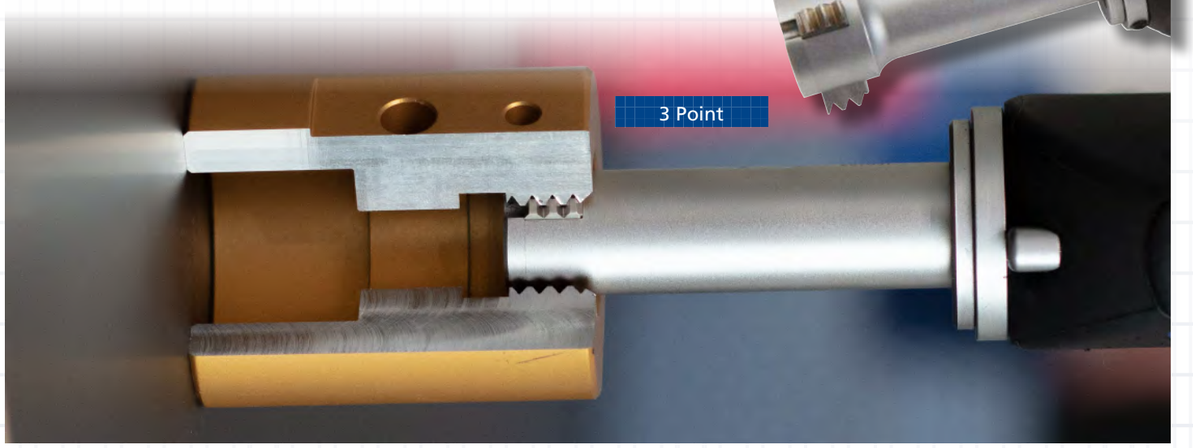
| XT Thread Heads - Imperial | | |
|---|---|---|
| **Code No** | **Thread Type** | **No. Of Anvils** |
| **THRH-1-12** | 1-12" | 3-point |
| **THRH-3/4-16** | 3/4-16" | 3-point |
| **THRH-5/8-11** | 5/8-11" | 3-point |
| **THRH-5/8-18** | 5/8-18" | 3-point |
| **THRH-7/16-20** | 7/16-20" | 3-point |
| **THRH-9/16-18** | 9/16-18" | 3-point |
| **THRH-5/16-24** | 5/16-24" | 2-point |
| **THRH-1/4-20** | 1/4-20" | 2-point |

Standard inch / metric thread heads and setting rings are ex-stock




2 Point

3 Point





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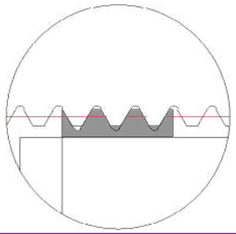
Thread Gauging

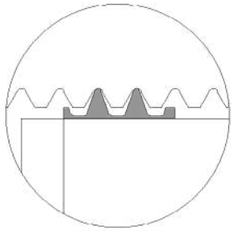


## Threads Explained

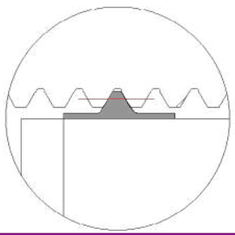
M24 x 3 Effective Diameter



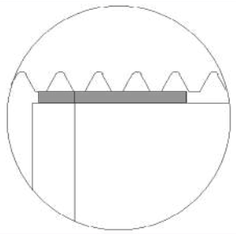
M24 x 3 Major Diameter

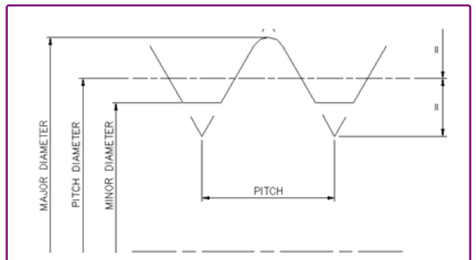


M24 x 3 Actual Pitch Diameter



Minor Diameter (Standard Head)






Connected Metrology

## Ball Screws Threads

- Internal measurement of ball-screws for the defence, aerospace, automotive and machine tool industry
- 2 and 3 Point head solution based on the popular Bowers XT system
- Single start or multi start solution
- Optimised anvil form featuring customised contacts for high accuracy
- Automated systems tooling can be supplied

# Groove Gauging

## At a Glance

Bluetooth SMART — Non Bluetooth is available upon request

IP67 sealed

## Features

- Available from 6-300mm diameter
- 300mm + available on request
- 2 Point or 3 Point available
- Interchangeable with standard heads
- XTD, XTH, Ultima
- Special forms, Radius, Ball contacts, Brake Calipers
- Depth stops available for quick location
- Depth stops enable a plain diameter to be easily measured
- Annular grooves possible
- Can be used with standard or custom extensions

## Custom Groove Gauging

If our generic groove anvil profile is not suitable for your application, please complete the Custom Groove Gauge Enquiry Form below and our team will design a bespoke head, perfectly tailored to fit your specific application.

Our custom application heads can be fitted directly onto our XT range of internal micrometers to create a flexible, modular measuring system.

Click here to download our **XT Groove Sets** Catalogue

## Visit our Website

For more information please click here

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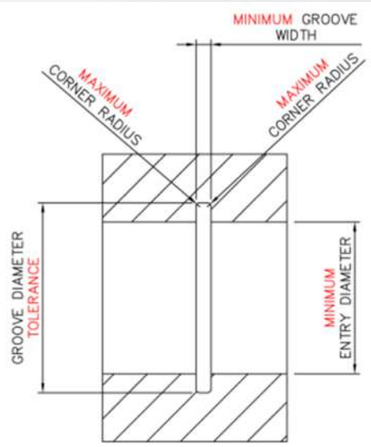
# Groove Gauging

## XT Grooves - The Best Way to Measure Internal Groove Diameters

As the world's leading bore gauge manufacturer, we offer a range of both standard and bespoke solutions for precision groove diameter measurement.

Groove Head with Depth Stop




To accuately quote for a custom groove head. Please send us an enquiry with the following dimentions included

- Entry diameter - minimum
- Groove diameter - size and tolerance
- Groove width - minimum
- Groove corner radius - maximum
- Bore diameter after groove

# Groove Gauging Sets

## At a Glance

Standard sets available to cover diameters 6 – 100mm (1/4" – 4")

With free data collection App

IP67 sealed

## Standard XT Groove Set Features

- Generic sets available, 6-20mm, 20-50mm & 50-100mm (imperial equivalent available)
- Generic anvil profile suits common groove sizes – see table
- 3 point, self-centring, interchangeable heads for repeatability
- 0.001mm 0.00005" resolution
- Depth stops included
- Extensions available
- Setting rings with UKAS certificates included

Have you seen our video
**The New XT Groove Sets**

## Visit our Website

For more information please click here

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**Bowers XT3 digital** internal micrometers offer a new ergonomic design - including a larger and clearer LCD display - along with IP67 electronics protection, proximity output with built-in Bluetooth; both allow bi-directional communication giving greater flexibility for data acquisition and storage.

**The XT Groove sets** are based on the standard self-aligning 3-point XT head design but with a stepped anvil to allow entry into grooves for fast and repeatable groove diameter measurement. The gauge is set using the calibrated setting rings provided and each ring size is stored in the gauge memory enabling quick and easy setting with each head change.

The trigger action pistol-grip controller enables the operator to retract the anvils instantly and pass the gauge through the entry diameter, then extend the anvils to engage with the groove diameter for an immediate absolute measurement.

Other versions of the standard XT head are also available for internal threads, splines, slots, deep hole and many more applications.

# Groove Gauging Sets

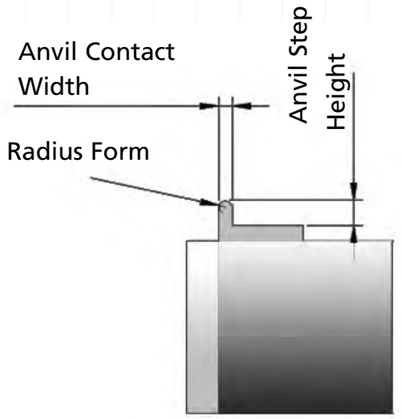
**XT Holematic Groove Sets**

| Code No | Set Range | Included Heads | Anvil Step Height | Anvil Contact Width | Depth Stop OD | Setting Ring Sizes |
|---|---|---|---|---|---|---|
| SP-SXTH10M-BT-GRO | 6-20mm | 6-8mm<br>8-10mm<br>10-12.5mm<br>12.5-16mm<br>16-20mm | 1.25mm<br>1.25mm<br>1.5mm<br>2.0mm<br>2.5mm | 1.5mm<br>1.5mm<br>1.5mm<br>1.5mm<br>1.5mm | 18mm<br>20mm<br>22mm<br>26mm<br>33mm | 8mm<br><br>12.5mm<br><br>20mm |
| SP-SXTH10I-BT-GRO | 1/4"- 3/4" | 1/4" - 5/16"<br>5/16" - 3/8"<br>3/8" - 1/2"-<br>1/2" - 5/8"<br>5/8" - 3/4" | 0.049"<br>0.049"<br>0.059"<br>0.079"<br>0.098" | 0.059"<br>0.059"<br>0.059"<br>0.059"<br>0.059" | 0.709"<br>0.787"<br>0.866"<br>1.024"<br>1.299" | 5/16"<br><br>1/2"<br><br>3/4" |
| SP-SXTH5M-BT-GRO | 20-50mm | 20-25mm<br>25-35mm<br>35-50mm | 3.175mm<br>5.5mm<br>4mm | 2mm<br>2mm<br>2mm | 39mm<br>45mm<br>60mm | 20mm<br>35mm |
| SP-SXTH5I-BT-GRO | 3/4"- 2" | 3/4" - 1"<br>1" - 1 3/8"<br>1 3/8" - 2" | 0.108"<br>0.217"<br>0.157" | 0.079"<br>0.079"<br>0.079" | 1.535"<br>1.772"<br>2.362" | 3/4"<br>1 3/8" |
| SP-SXTH6M-BT-GRO | 50-100mm | 50-65mm<br>65-80mm<br>80-100mm | 8mm<br>8mm<br>10.5mm | 3mm<br>3mm<br>3mm | 80mm<br>95mm<br>115mm | 65mm<br>80mm |
| SP-SXTH6I-BT-GRO | 2"- 4" | 2" - 2 5/8"<br>2 5/8" - 3 1/4"<br>3 1/4" - 4" | 0.315"<br>0.315"<br>0.413" | 0.118"<br>0.118"<br>0.118" | 3.150"<br>3.740"<br>4.528" | 2 5/8"<br>3 1/4" |

**Individual Heads**

| Code No (with BT) | Range (mm) | Code No (with BT) | Range (inch) |
|---|---|---|---|
| XTHD6M-GRO | 6-8 | XTHD6I-GRO | 1/4 - 5/16 |
| XTHD8M-GRO | 8-10 | XTHD8I-GRO | 5/16 - 3/8 |
| XTHD10M-GRO | 10-12.5 | XTHD10I-GRO | 3/8 - 1/2 |
| XTHD12M-GRO | 12.5-16 | XTHD12I-GRO | 1/2 - 5/8 |
| XTHD16M-GRO | 16-20 | XTHD16I-GRO | 5/8 - 3/4 |
| XTHD20M-GRO | 20-25 | XTHD20I-GRO | 3/4 - 1 |
| XTHD25M-GRO | 25-35 | XTHD25I-GRO | 1 - 1 3/8 |
| XTHD35M-GRO | 35-50 | XTHD35I-GRO | 1 3/8 - 2 |
| XTHD50M-GRO | 50-65 | XTHD50I-GRO | 2 - 2 5/8 |
| XTHD65M-GRO | 65-80 | XTHD65I-GRO | 2 5/8 - 3 1/4 |
| XTHD80M-GRO | 80-100 | XTHD80I-GRO | 3 1/4 - 4 |

## Standard Groove Anvil Detail



# Spline Gauging

## Internal Spline Gauging Features

- XT or Ultima systems available
- 2 point between pin most popular. Also available with carbide ball contact
- 3 point also available with irregular spacing if necessary
- Heads for Major and Minor dia. available
- Popular sizes held in stock for quick delivery
- Calibrate from standard plain rings
- Interchangeable with standard heads
- Negates the need for many different hard gauges, incl. pre/post plate, pre/post H/T, different classes, etc. Massively reduces annual gauge calibration costs
- External spline frames available

## External Spline Gauging Features

- 0-600mm External splines can be measured using a snap gauge with custom ball contacts & a rotating pin
- 0-100mm Bowers Digi-mic ball/ball contacts
- Custom checkmaster bench available for high volume measurement

Have you seen our video
**Spline Measuring Heads**

## Visit our Website

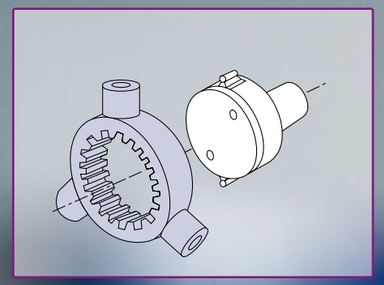
For more information please click here

Go back to **Contents**

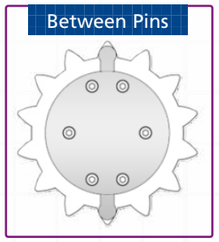
As the world's leading bore gauge manufacturer, we offer a range of both standard and bespoke solutions for precision spline measurement.

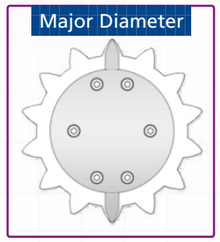
Each of these application heads can be fitted directly to our Bluetooth XT range of internal micrometers in seconds for fast, efficient use with incredibly accurate results that can be digitally recorded.

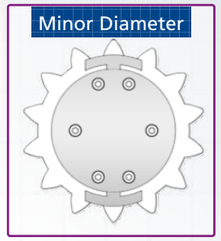
| Popular 2 Point Spline Heads Held in Stock Include: |
|---|
| 20–25mm over 2mm pins |
| 20–25mm over 2.032mm pins |
| 24–29mm over 2mm pins |
| 24–29mm over 2.032mm pins |
| 25–35mm over 2mm pins |
| 25–35mm over 2.032mm pins |



## Internal Spline Measuremen Options




External Spline measurement with rotating contact.

# Spherical Bore Gauging

## XT Spherical

The Best Way to Measure Deep-Bore/spherical Diameters. Each of these application heads can be fitted directly to our XT range of internal micrometers in seconds for fast, efficient use with incredibly accurate results.

- 2 point (ovality) available from 3mm, 3 point available from 6mm
- 6-300mm range, 300-500mm XT500 System
- Guide sleeves available, 2 point to maintain centralisation, 3 point to protect the head/ bore
- Allows for misalignment in bore
- XTH, Ultima, XT 500
- Depth stops available for quick location
- Ease of use for operator
- Interchangeable with standard heads
- Blind Bore option available



Visit our Website

For more information please click here

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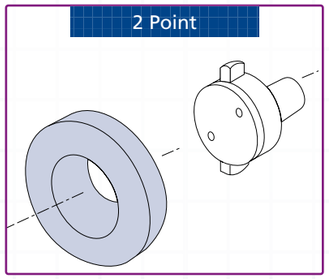
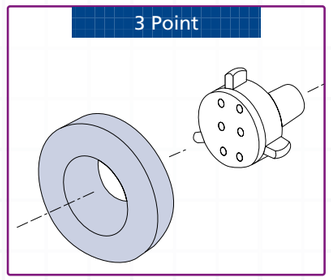
# Spherical Bore Gauging




**Custom Made Extensions**

| Code No | Length (mm) | To Fit Heads (mm) | Code No | Length (mm) | To Fit Heads (mm) |
|---|---|---|---|---|---|
| SP-EGX0001-500C | 500mm (Max. 2m) | 19.05 | SP-EGX0001-75 | 75 | 20-35 |
| SP-EGX0001-500P | 500 (Max. 2m) | 20* | SP-EGX0004-75 | 75 | 35+ |
| SP-EGX0005-500 | 500 (Max. 2m) | 35 | SP-EGX0001-100 | 100 | 20-35 |
| SP-EGX0005-1000 | 1000 (Max 2m) | 35 | SP-EGX0004-100 | 100 | 35+ |
| CF EXT | Custom Length (Max. 1m) | 6-8 | | | |
| CF EXT | Custom Length (Max. 1m) | 8-10 | | | |
| CF EXT | Custom Length (Max. 1.5m) | 10-12.5 | | | |
| CF EXT | Custom Length (Max. 1.5m) | 12.5-20 | | | |

# Custom Bore Measurement Deep Hole Pneumatic

## Features

- Measures diameters from 50-500mm, up to 15m deep
- 6 Bar air pressure required either from compressor or factory air supply
- Spherical, Tungsten Carbide anvils
- 2 point and 3 point heads available
- Accuracy +/-0.005mm (subject to bore condition)
- Quick set-up time
- Easy to use
- Not adversely effected by temperature fluctuation
- Robust design
- Various readouts available
- Portable compressor can be provided
- Guide sleeves recommend on heads and every other extentions

Have you seen our video
**Deep Bore Gun Barrel Measurement**

## Visit our Website

For more information please click here

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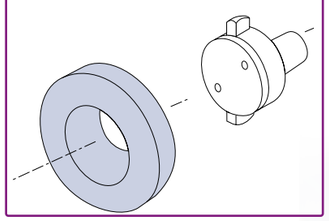
# Custom Bore Measurement Deep Hole Pneumatic

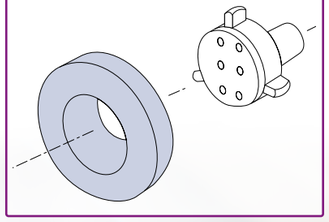
## Deep Hole Pneumatic Bore Gauging

Operated by a pneumatic actuator powered by a 3 bar compressed air supply - either from a compressor or a workshop air-line. The measurement data is collected by a capacitive probe fitted just behind, and in constant contact with the measuring head. This direct contact ensures high-quality transducer-type accuracy, even at great depths. Measurements are taken by pressing a footswitch connected to the airline and the data is then passed automatically via cable back down the bore to the digital readout at the operator end.

2 Point



3 Point



> A visit from a Company Sales Engineer gave Bowers an in-depth appreciation of our complex mould measuring problems and resulted in Bowers designing and quoting a custom designed bore gauging system. Having recently taken delivery of the Bowers system, we are delighted with its performance.
>
> **Shaun Simmons - Celsa Manufacturing UK**

# Custom Bore Measurement Miscellaneous

## Custom Bore Solutions

As the world's leading bore gauge manufacturer, Bowers Group has also earned a reputation for manufacturing custom heads for non-standard applications.

Examples of our custom gauging solutions are as follows:

- Irregular Spacing
- Right Angled Adapter
- Gun Barrel Head
- Slot Width
- Dovetail Slots & Turbine Blade Grooves
- Seat Pockets

Have you seen our video
**Deep Bore Gun Barrel Measurement**



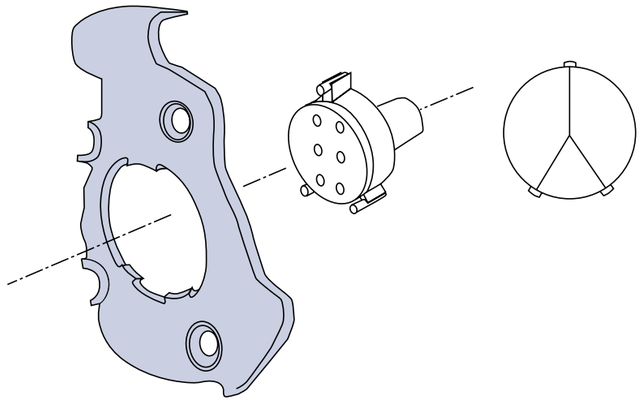
## Visit our Website

For more information please click here

Go back to **Contents**

## Irregular Spacing

- Available between 16-300mm diameter to measure between odd spaced lobes



## Right Angled Adaptor

- Custom one piece RA Adapter available
- Single RA Adapter available

Right angled adaptor for hard-to-reach bores.



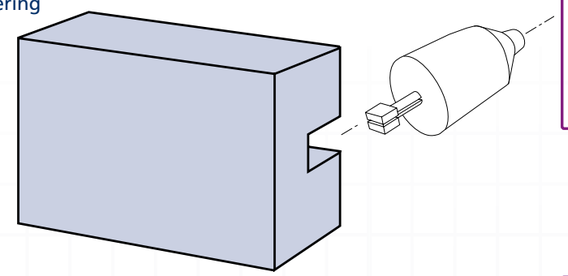
# Custom Bore Measurement Miscellaneous

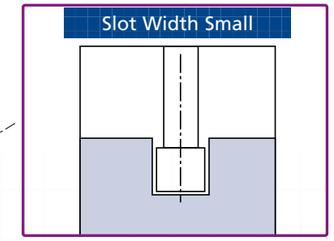
## Gun Barrel Head

- Systems available to suit most calibre sizes from 4mm (0.172") – 500mm (19.685")
- XT /Ultima system or pneumatic system available
- Rifled or smooth bore measurement available
- Major or minor dia. measurement available

## Small Slot Width

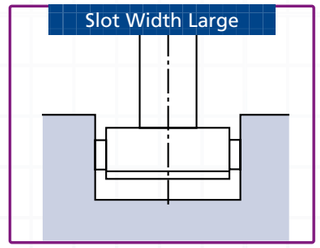
- Available between 2-6mm
- Gap gauges supplied for mastering






## Large Slot Width

- Available between 6-300mm
- Gap gauges supplied for mastering



# Custom Bore Measurement Internal Measurement of Dovetail Slots & Turbine Blade Grooves

## At a Glance

Bluetooth



## Features

- Internal/external systems available.
- Custom systems designed to suit customers requirement.
- 1 stage & 2 stage production measurements available.
- Wide range of options from XT to lever gauge style gauges
- BT Capacity for easy data capture
- Setting masters available to enable quick & accurate setting and measurement

## Visit our Website

For more information please click here

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## The Challenge

Bowers was approached by a well-known industrial turbine manufacturer to develop a method of measuring dovetail slot width and position in a circular component. The datum for the measurements was taken from the shoulder of the slot replicating the final 'In Service' blade datums.

## The Solution

Bowers' Special Applications Team developed a special 2 Point head solution based on the popular Bowers XT system. The system incorporates tungsten carbide ball contacts for high accuracy. The Bowers XT digital readout offers the capability to send data for SPC and part traceability.

## Advantages over Competitor Solutions

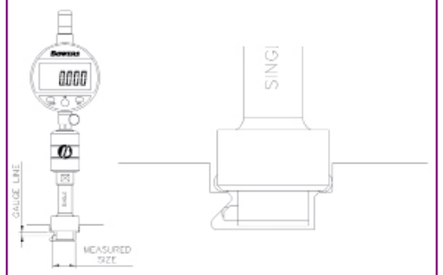
The Bowers dovetail variable gauge is able to output the actual size and position as opposed to competitors' attribute (Go / No Go) gauging. The gauge has a long working life and doesn't wear like attribute gauging.

## Potential Industries

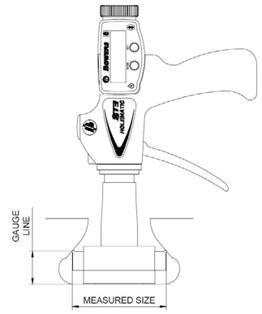
- Aerospace
- Nuclear
- Turbines
- Power Generation

# Custom Bore Measurement Internal Measurement of Dovetail Slots & Turbine Blade Grooves

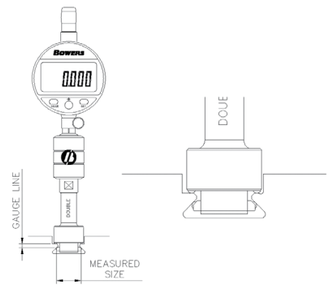
### Single side measurement for set-up / symmetry



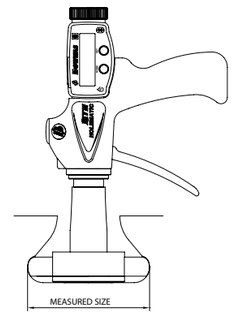

### Measurement of dovetail seat face width



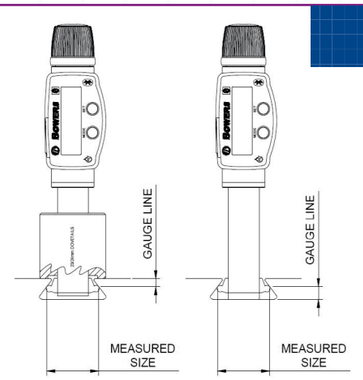

### Double side measurement for overall width

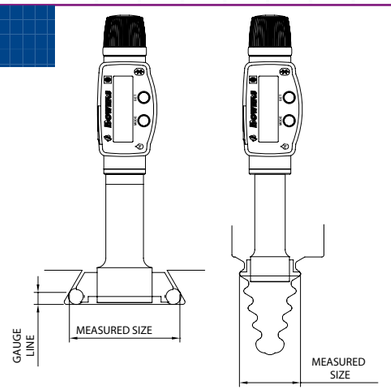



### Measurement of bottom lobe width




### Other Dovetail & Fir Tree Slots



# Custom Bore Measurement Internal Measurement of Surface/ Subsea Valve Cavity-Seat Pockets

## At a Glance

Bluetooth

- Internal measurement of surface/subsea valve cavity-seat pockets mainly for the oil and gas industry
- Seat pocket diameter
- Across flats/ Parallelism
- Symmetry
- Optimised anvil form and eccentric guide pieces to aid entry and position the measuring head correctly for higher accuracy measurements and ease of use for operator.

## Visit our Website

For more information please click here

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## The Challenge

Bowers was approached by a well-known solutions provider to the global oil & gas industry to develop a method of measuring the internal cavity in valve bodies.

## Features to Measure Include

- Internal diameters inside seat pocket
- Internal spot face distance between flats
- Internal spot face to diameter measurement

## The Solution

Bowers' Special Applications Team developed a solution utilising a one-piece right angle adapter to allow entry down a perpendicular bore. This allows measurement to take place at 90 degrees to entry of the bore. An optimised anvil form and guide pieces aid entry and position the measuring head correctly for higher accuracy measurements and ease of use for operator.

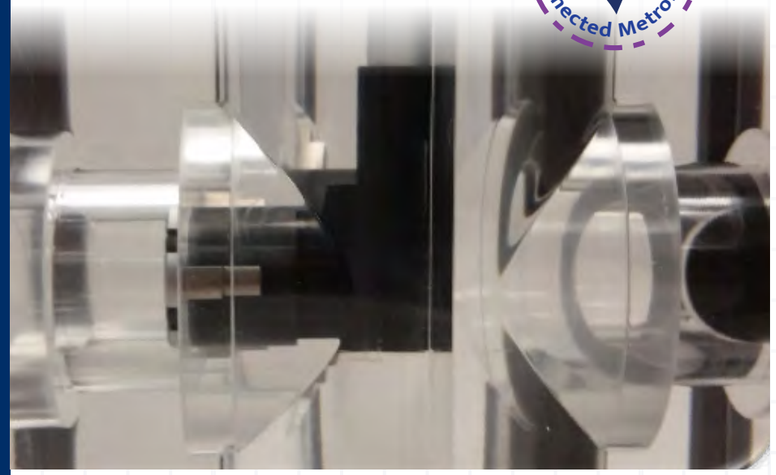
## Features

- Higher accuracy
- Improved ease of use
- Faster inspection

## Potential Industries

- Oil & Gas
- Hydraulics
- Industrial Pipework

Connected Metrology

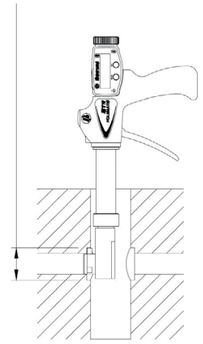


BOWERS GROUP

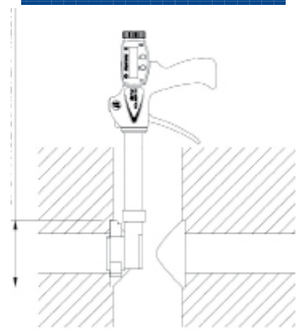


# Custom Bore Measurement Internal Measurement of Surface/Subsea Valve Cavity-Seat Pockets

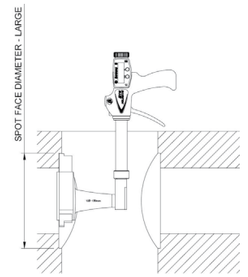
Spot Face Diameter - Small



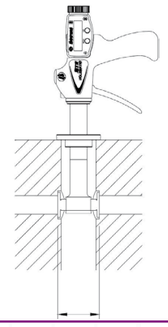
Spot Face Diameter - Medium



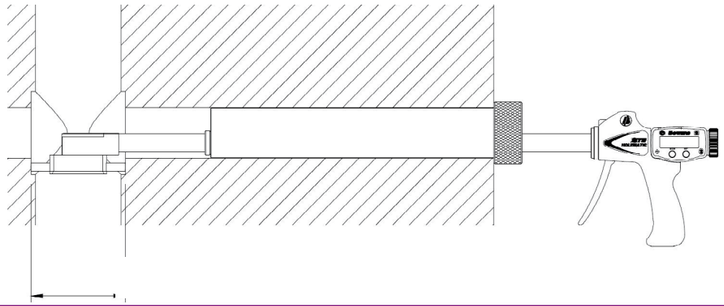
Spot Face Diameter - Large



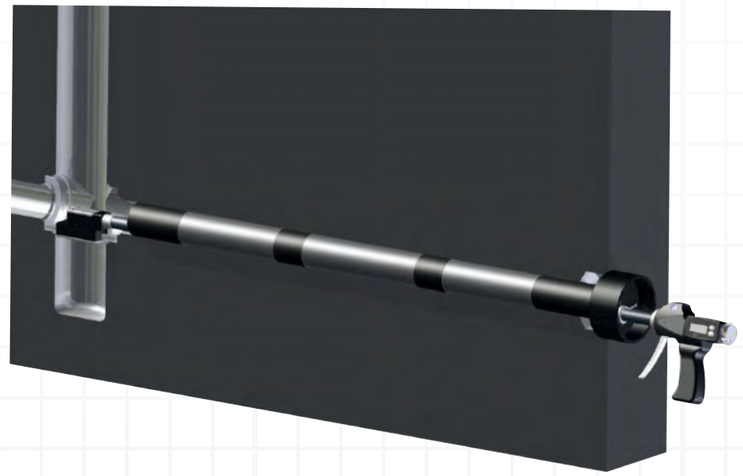

Spot Face Width - Small



Spot Face Width - Medium



Typical Part



# Digital Countersink Gauge

## At a Glance

**Alternative size ranges can be manufactured to order.**

Non Bluetooth is available upon request

## Features

- Switchable resolution - inch/metric true conversion
- Preset facility
- Tolerance mode
- RS-232 data output
- Robust construction, hardened plunger, induction hardened body
- Standard plungers available to cover 100° and 130°
- Other sizes and angles available on request
- Setting master supplied as standard
- Bluetooth option available

Have you seen our video
**The Bowers Countersink Gauge**

## Visit our Website

For more information please click here

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The Bowers Countersink Gauge can be used to check the major diameters of countersinks in the aircraft outer skin, prior to the application of rivets.

The gauge can also be used for countersink measurement in general applications within the aerospace, automotive and other related industries.

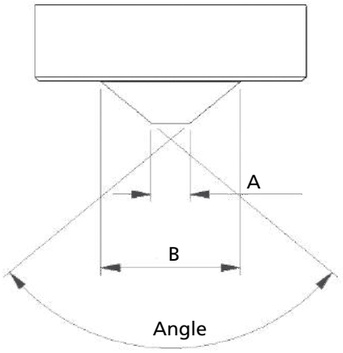
Alternative size ranges and angles can be manufactured to order

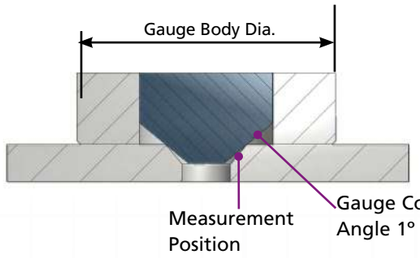
BOWERS GROUP

# Digital Countersink Gauge



| Digital Countersink Gauge | | | | | | |
|---|---|---|---|---|---|---|
| Code No | Range (mm) | Range (inch) | Setting Ring (mm) | Dim - A (mm) | Dim - B (mm) | Standard Angle Plunger (°) |
| BCSG-001M | 4.76-12.7 | 3/16-1/2 | 8 Ø Conical | 3 | 14 | 100 |
| BCSG-002M | 12.7-19.05 | 1/2-3/4 | 16 Ø Conical | 10 | 21 | 100° |
| BCSG-003M | 19.05-28.57 | 3/4-1 1/8 | 23 Ø Conical | 17 | 30 | 100° |
| BCSG-004M | 28.57-38.01 | 1 1/8-1 1/2 | 32 Ø Conical | 26 | 40 | 100° |
| BCSG-005M | 38.01-47.625 | 1 1/2-1 7/8 | 42 Ø Conical | 36 | 50 | 100° |
| BCSG-006M | 47.625-57.15 | 1 7/8-2 1/4 | 52 Ø Conical | 46 | 60 | 100° |
| BCSG-007M | 57.15-66.675 | 2 1/4-2 5/8 | 62 Ø Conical | 54 | 70 | 100° |



Also available with MicroGauge* readout for small sizes. 2-6mm BT Not currently available

## Custom Digital Countersink Gauges

**Restricted Entry and Increased Depth**

**Reduced Seating Face and Guide Pin**

**Ball Contact with Guide Pin**

# Rivet Height Gauge

## At a Glance

**Rivet diameters:** 3/16", 1/4", 5/16", 3/8" available as standard
**Resolution:** 0.0005" / 0.001mm

Non Bluetooth is available upon request

## Features

- Rivet diameters : 3/16", 1/4", 5/16", 3/8" available as standard
- Other rivet diameters available on request
- Digital display with mm / inch conversion and preset function
- Resolution : 0.0005" / 0.001mm
- Repeatablility +/- 0.003µm
- RS-232 data output
- Scalloped base to facilitate visual location over the rivet
- Very easy to use
- Small portable format
- Robust construction
- Bluetooth option available



## Visit our Website

For more information please click here

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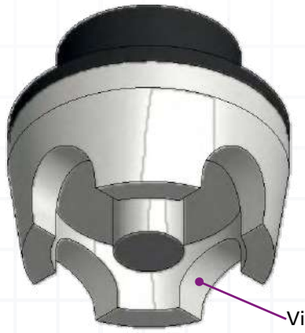
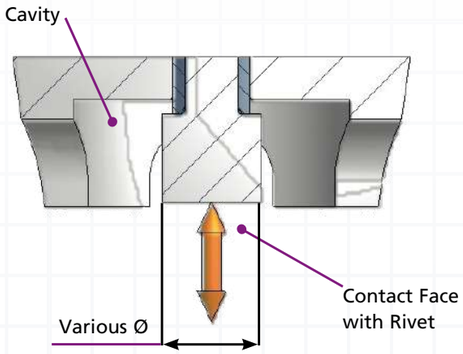
# Rivet Height Gauge

The Bowers Rivet Height Gauge has been specially designed to measure the height of rivets used on aircraft outer skin. If the top of the rivet is too high above or too low below the level of the rivet-hole, the streamlining of the aircraft will be affected.

This wind-resistance will be magnified many times depending on the number of rivets present in the outer hull of the aircraft. The rivet-height gauge measures the height of the top of the rivet in relation to the level of the surrounding aircraft skin, enabling tolerances to be maintained and providing a valuable reference measurement to help determine the streamlining of the aircraft and the consequent effects on its aerodynamics and fuel efficiency.

We have 3/16", 1/4", 5/16", 3/8" as standard diameters, different diameter and contact point options are available on request.



# INTEX Comparator Beam Gauge

## At a Glance

**Custom ranges available upon request**

Non Bluetooth is available upon request

## Features

- Lightweight and rigid
- Measuring ranges: 200-400mm, 400-600mm, 600-800mm, 800-1000mm
- Sizes over 1000mm available on request
- Internal and external measurement
- 2mm travel on moving contacts
- Adjustable fixed contacts with up to 250mm adjustment range
- Digital or analogue indicator available
- Hardened steel wear pads locate gauge onto component aiding repeatability and prolonging service life
- Setting master required to set the instrument
- Instrument supplied without tooling
- Custom contacts available upon request



## Visit our Website

For more information please click here

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# INTEX Comparator Beam Gauge



Developed to measure both internal and external diameters and lengths, the Intex gauge's aluminium extrusion beam gives it a rigid yet lightweight quality, making it ideal for shop-floor environments. The simple release of a locking thumbscrew enables the gauge's measuring direction to be changed quickly and easily.

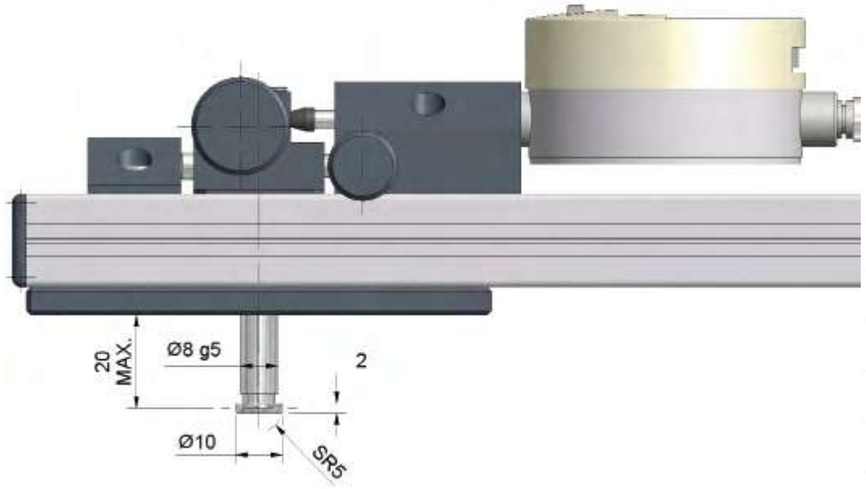
Developed to measure both internal and external diameters and lengths, the Intex gauge's aluminium extrusion beam gives it a rigid yet lightweight quality, making it ideal for shop-floor environments. The simple release of a locking thumbscrew enables the gauge's measuring direction to be changed quickly and easily.

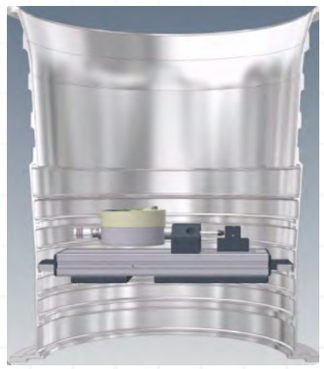
| Intex Beam Gauge - Without Indicator | |
|---|---|
| **Code No** | **Range (mm)** |
| INTEX01 | 200-400 |
| INTEX02 | 400-600 |
| INTEX03 | 600-800 |
| INTEX04 | 800-1000 |

| Code No | Description |
|---|---|
| INTEXA01 | Standard contacts - 10 diameter (pair) |

| Intex Beam Gauge - With Indicator (Bluetooth) | |
|---|---|
| **Code No** | **Range (mm)** |
| INTEX01IND-BT | 200-400 |
| INTEX02IND-BT | 400-600 |
| INTEX03IND-BT | 600-800 |
| INTEX04IND-BT | 800-1000 |

Note: BT denotes Bluetooth



Custom contacts and gauging available

# Carbon Fibre Comparator Beam Gauge

## At a Glance

**Measuring capacity of standard set:** External: 0 > 1930mm
Internal: 150 > 2150mm

Non Bluetooth is available upon request

## Features

- Extremely lightweight even at 4m span
- Extremely low co-efficient of thermal expansion
- Modular design of beam allows infinate level of adjustment within the above ranges
- Additional 1000mm extensions add quickly and cost effectively to the gauge capacity
- Internal and external measurement: 0 > 105 (150)mm measurement depth from component face
- 12mm anvil travel
- Digital or mechanical readout
- Tooling included for presetting gauge on Trimos horizontal machines and Bowers Unviversal Setting Master
- Bluetooth option available
- Customized system available upon request

## Sets include

- Pair gauge legs
- Fixed leg tube
- Moving leg tube
- 250mm Carbon Fibre Extension Tube
- 500mm Carbon Fibre Extension Tube
- 1000mm Carbon Fibre Extension Tube
- Tooling to suit Trimos setting machine and storage/travel case

## Visit our Website

For more information please click here

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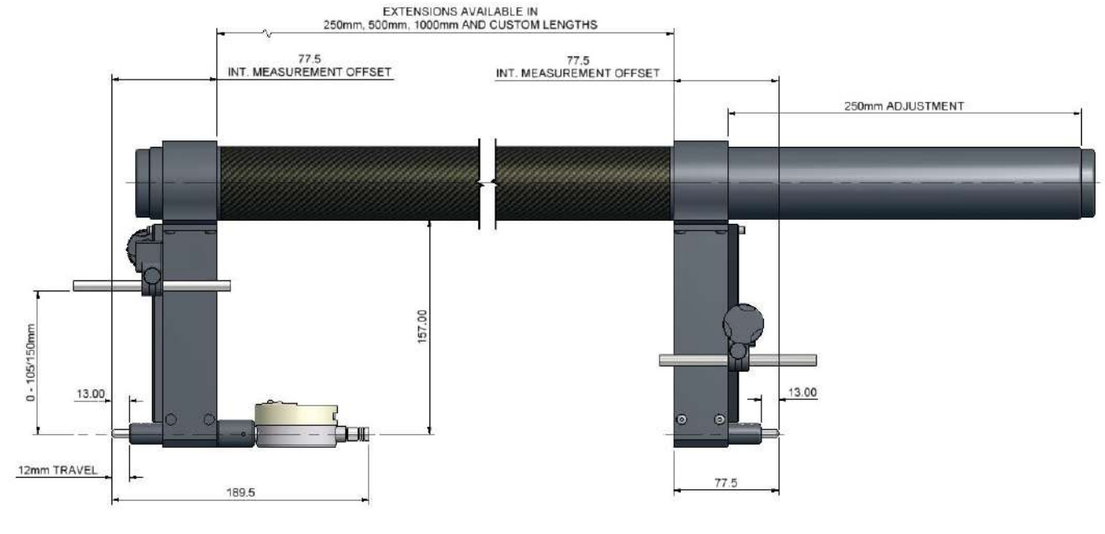
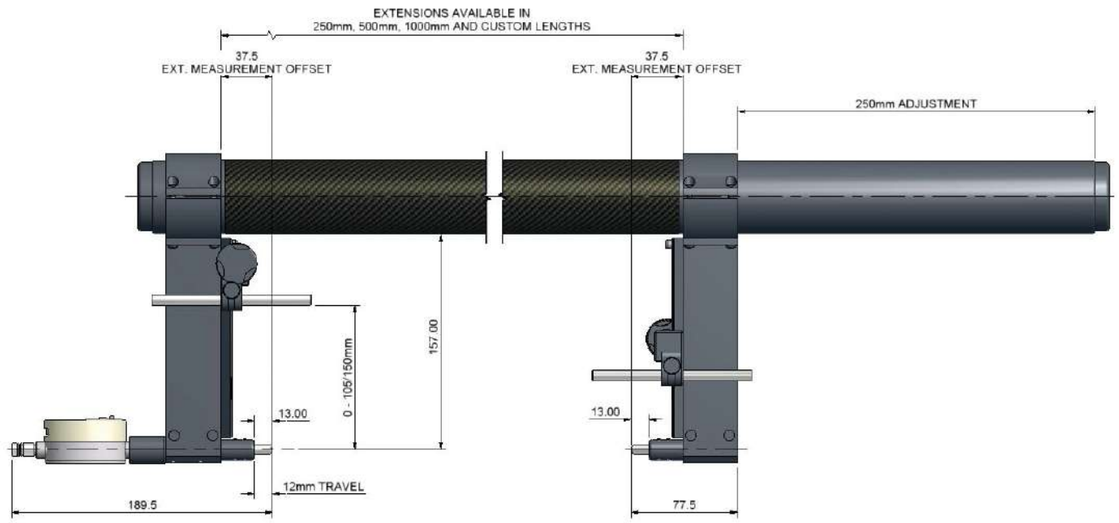
# Carbon Fibre Comparator Beam Gauge

Designed to measure both internal and external diameters and lengths, the high modulus carbon fibre beam is stiff, lightweight and has an extremely low co-efficient of thermal expansion (CTE). Suitable for measuring high accuracy diameters and lengths up to 4000mm+.

CFBG01 - Carbon Fibre Beam Gauge Set



# Boosting Efficiency in Compliance: Bowers Group Custom Measurement Solution Accelerates Inspection Speed by 92% at Virtue Aerospace

Bowers Group has successfully assisted Virtue Aerospace with its compliance procedures using a bespoke measurement solution.

Bowers Group has successfully supported precision engineering company Virtue Aerospace with its compliance procedures using a bespoke measurement solution, supplied to them by Bowers Group's popular distribution partner in the South East, Mech Metrology, that has been designed to speed up the inspection process of aviation fuel pump impellers.

Based in Hampshire, Virtue Aerospace manufactures and oversees the balancing of pump impellers and inducers for the aerospace industry. Precision measurement forms a prerequisite to fulfilling stringent contract requirements for the business, therefore the need for accurate measurements is driven by the demands and expectations of its customers and the strict compliance requirements of the industries it serves.

To ensure the highest quality output, Virtue Aerospace entrusted Bowers Group to provide them with a bespoke measurement solution to assist in the delivery of parts that meet the tightest tolerances and the highest levels of accuracy and consistency.

Ian Smith, Quality & Environmental Manager at Virtue Aerospace, said:

> “The introduction of the measurement system from Bowers Group has reduced inspection time on a specific volume produced part, reducing the process time by a significant margin. The system is easy to set up, user-friendly and reliable, and we’re extremely impressed with the benefits it has brought to our workflow.”

As part of their engineering qualifications, the students at Virtue Aerospace manufacture complex precision components for many industries including aerospace & defence. Its reputation for delivering high-quality products has established the company as a respected partner for challenging projects, and its drive to explore new ideas has ensured that the Virtue is a well-respected name in the aerospace industry.

The geometry of the fuel pump impellers is absolutely critical for fuel system as it impacts efficiency, flow, durability, and performance. A well-designed impeller enhances fuel delivery and reduces energy losses, as well as improving engine performance and reliability. It also affects noise, vibration, and maintenance costs. Finding the right balance between performance and manufacturability is essential.

Virtue Aerospace’s specific product had a 0.016mm total tolerance that requires 100% inspection to confirm compliance. The previous method of measurement was undertaken by a CMM machine and whilst the measurements were accurate, they were both time-consuming and costly.

The solution that Bowers Group provided has transformed measurements by enabling the simultaneous assessment of three tight tolerance diameters, providing multiple benefits that enhance efficiency and productivity.

Since installing the system, inspection time for the part has significantly improved, falling from 180 seconds (3 minutes) carrying out the measurements on the CMM, to just 15 seconds with the newly implemented measurement system, resulting in an impressive 91.6% reduction in inspection time.

A key advantage is the straightforward setup of the system, featuring a user-friendly interface that reduces preparation time and maximises efficiency. Simultaneous measurements have helped reduce inspection time, and the system has been engineered for reliability, ensuring consistent and accurate results.

The Applications Team at Bowers Group are dedicated to creating custom measurement systems for niche applications. Their combined knowledge of various industries allows them to work closely with clients, understanding their unique requirements and creating solutions that precisely meet their needs.

Contact our Applications Team for more information

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> Bowers Universal was supplied with a wide range of extensions and accessories, meaning that we are able to construct the gauge to suit a wide range of diameters and uses on features such as plain diameters and undercuts. Since being issued to the shop floor, the new Bowers gauge has slashed our large diameter measuring times and also improved our already high accuracy standards.
>
> **Andrew Morris - Engineering Manager - Silcoms Ltd**

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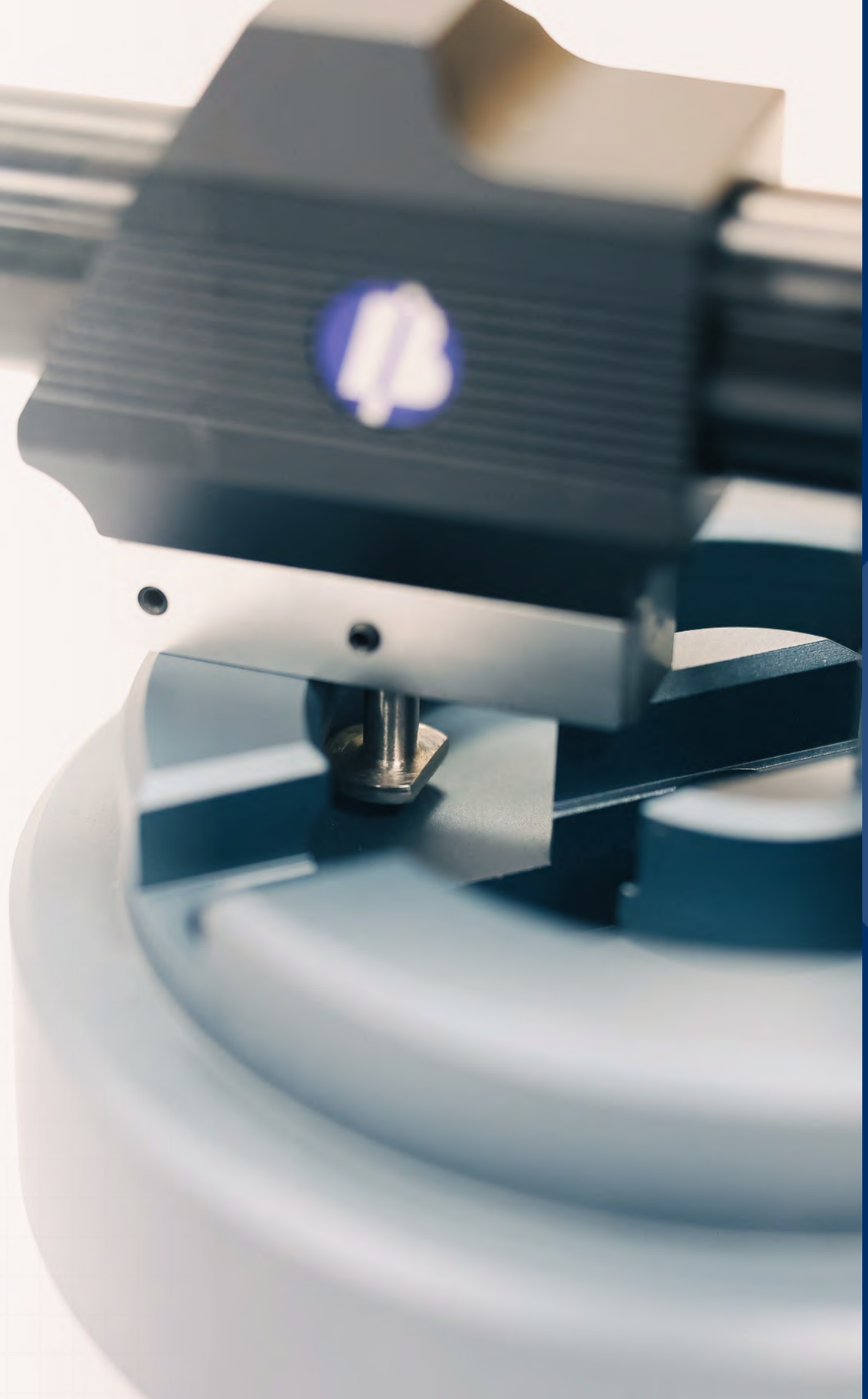

BOWERS

# Universal Gauging

# Universal Gauge **Sets**

## At a Glance

30-255mm Internal / 0-220mm External with 20mm Anvil Travel

Bluetooth® Non Bluetooth is available upon request

## Features

- Internal and external measurement
- Large measuring range possible 0-3000mm (0-118")
- Extensions available 150mm (Steel) 500mm and 1000mm (Carbon Fibre)
- Constant measuring force
- Supplied with digital readout
- Large range of accessories for standard measurement of threads, grooves, splines, diameters, lengths, shallow spigots and recess diameters etc
- Custom anvil designs available
- Custom arm designs available
- Custom length arms 150mm, 200mm and 250mm stocked
- Additional sizes available upon request

Have you seen our video
**Universal Gauge An Overview**

## Visit our Website

For more information please click here

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# Universal Gauge **Sets**



The Bowers universal gauges are perfect for measuring internal and external dimensions such as grooves, shoulders, recesses, threads, tapers, gears, splines, hole centres.

Available with a wide range of measuring contacts to enable measurement of a variety of features, Bowers universal gauges are perfect for measuring internal and external dimensions such as grooves, shoulders, recesses, threads, tapers, gears, splines, hole centres.

Connected Metrology

**Set Contents - TGUSET1**

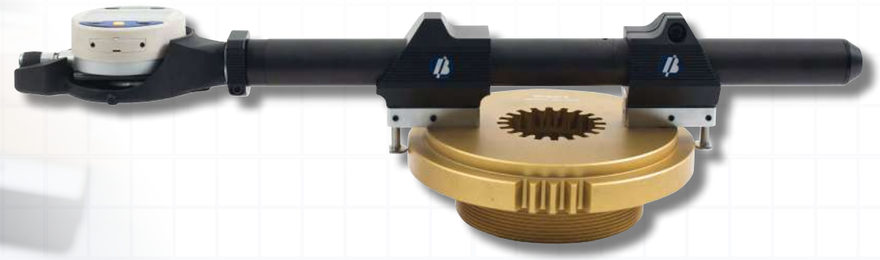
| Code No | Description |
|---|---|
| TGU1000-XT | Universal with Box but without Indicator or Accessories |
| TGUA001-AN | Digital / Analogue Indicator 25mm / 0.001mm c/w COWL |
| TGUA006 | Measuring arms 50mm (Pair) |
| TGUA007 | Measuring Arms 75mm (Pair) |
| TGUA008 | Measuring Arms 100mm (Pair) |
| TGUA013 | 20mm Disc Anvils for measuring grooves (Pair) |
| TGUA014 | 12mm Disc Anvils Int/Ext for measuring grooves (Pair) |
| TGUA011 | Shoulder anvils flat outside spigot diameter (Pair) |
| TGUA012 | Semi-cylindrical anvils for inside register diameters (Pair) |
| TGUA010 | Depth-stops (Pair) |
| TGUA003 | Clamping inserts (Pair) |
| TGUA004 | Flat Measuring Anvil (Pair) |
| TGUA005 | Spherical contacts (Pair) |
| TGUA009 | Mounting Attachment (Pair) |

**Set Contents - TGUSET2**

| Code No | Description |
|---|---|
| TGU1000-XT | Universal with Box but without Indicator or Accessories |
| TGUA001-AN | Digital / Analogue Indicator 25mm / 0.001mm c/w COWL |
| TGUA003 | Clamping inserts (Pair) |
| TGUA005 | Spherical contacts (Pair) |
| TGUA006 | Measuring arms 50mm (Pair) |
| TGUA010 | Depth-stops (Pair) |

**Universal Gauge Sets**

| Code No | Description |
|---|---|
| TGUSET1 | Large Set with Box |
| TGUSET2 | Small Set with Box |



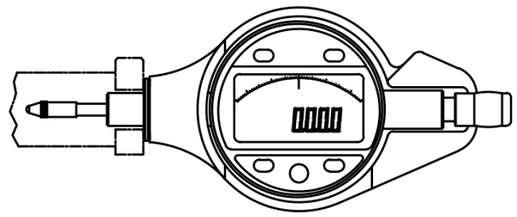
TGUSET1

TGUSET2

# Universal Gauge & Accessories

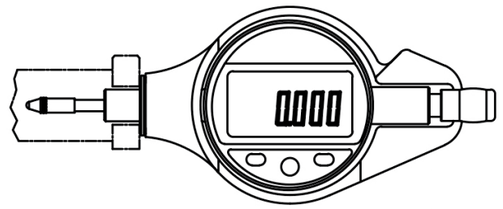
## Digital Indicator and Protective Shroud

| Code No | TGUA001-AN |
|---|---|

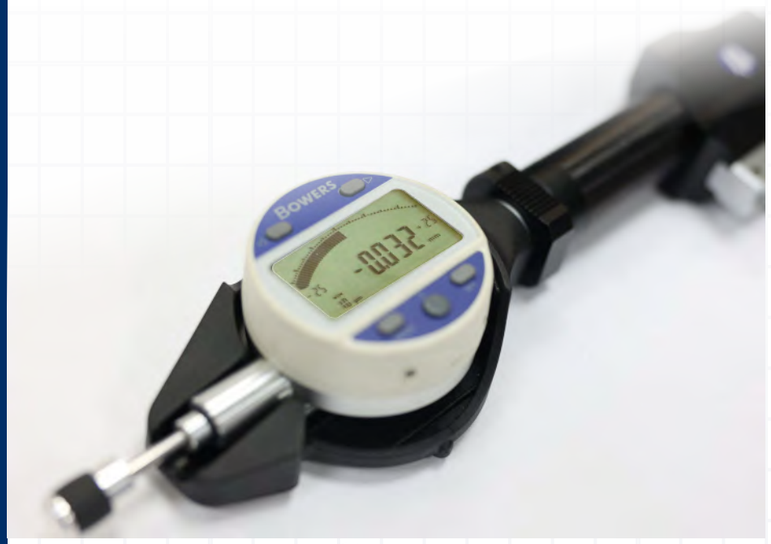


Note: AN denotes Analogue

| Code No |
|---|
| TGUA001 |
| TGUA001-BT |

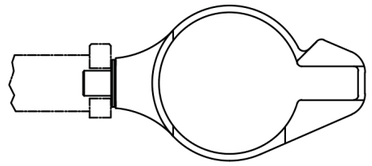


Note: BT denotes Bluetooth



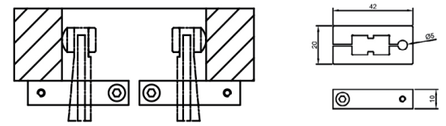

## Protective Shroud for Dial/Digital Indicator

| Code No | TGUA002 |
|---|---|



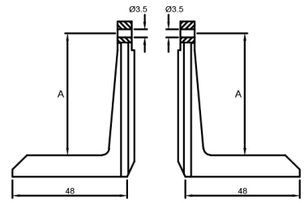
## Adjustable Depth Stops for Measuring Arms (Pair)

| Code No | TGUA010 |
|---|---|



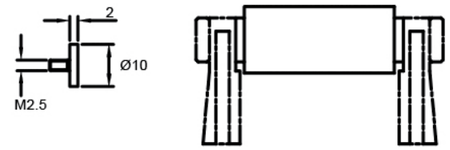

## Measuring Arms (Pair)

| Code No | Dimn A (mm) |
|---|---|
| TGUA006 | 50 |
| TGUA007 | 75 |
| TGUA008 | 100 |



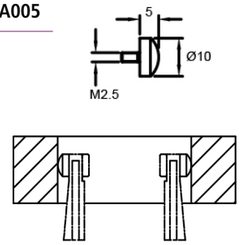

## Flat Tips (Single)

| Code No | TGUA004 |
|---|---|



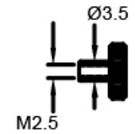

## Spherical Tips (Single)

| Code No | TGUA005 |
|---|---|



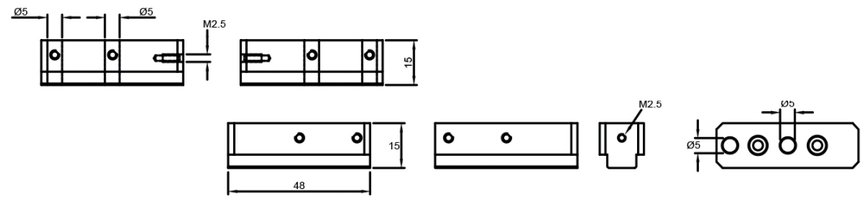

## Clamping Insert (Single)

| Code No | TGUA003 |
|---|---|




## Mounting Attachments for use with the following Anvils (Pair)

| Code No | TGUA009 |
|---|---|





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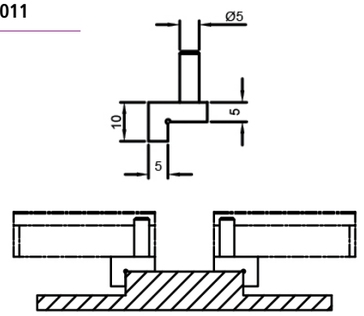
# Universal Gauge & Accessories





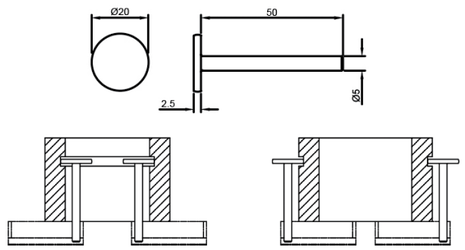
## Shoulder Anvils Flat Outside Spigot Diameter (Pair)

**Code No** TGUA011



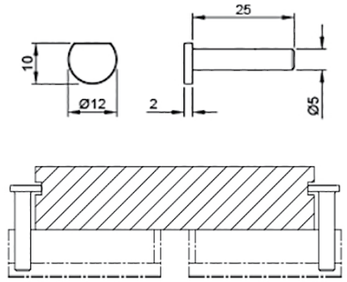

## DISC Anvils for measuring Groove Diameter (Pair)

**Code No** TGUA013



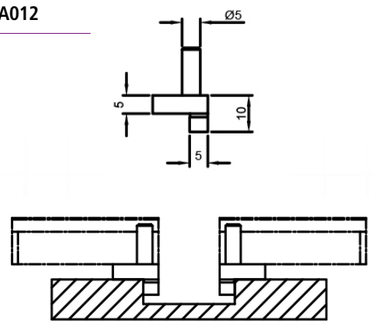

## DISC Anvils for measuring Groove Diameter (Pair)

**Code No** TGUA014



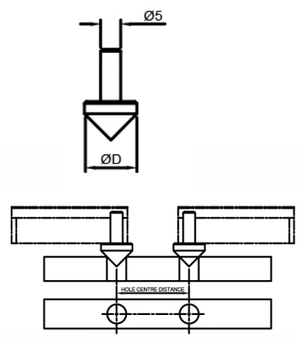

## Semi-Cylindrical Anvils for Inside Register Diameters (Pair)

**Code No** TGUA012



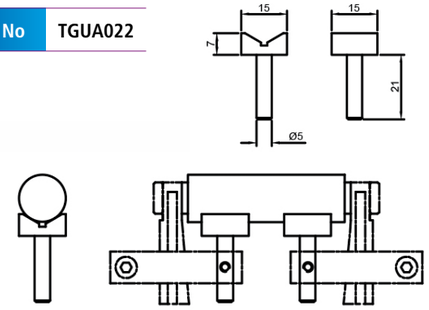

## Cone Anvils for Measuring Hole Centre Distance (Pair)

| Code No | Dimn D (mm) |
|---|---|
| TGUA019 | 13 |
| TGUA020 | 25 |
| TGUA021 | 50 |




## Vee Support for Length Measurement (Single)

**Code No** TGUA022




## Universal Gauging Extensions

| Code No | Description | Length (mm) |
|---|---|---|
| TGUA035 | Extension Steel | 150 |
| TGUA036 | Extension Carbon Fibre | 500 |
| TGUA037 | Extension Carbon Fibre | 1000 |

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# Universal
# Setting Gauge

## At a Glance

**Available in 3 different lengths:**

- Up to 550mm Internal - 650mm External
- Up to 1050mm Internal - 1150mm External
- Up to 1550mm Internal - 1650mm External

## Features

- Setting gauge has flat face contact anvils
- Ideal for use in the workshop area
- Easily adjustable gauge mounting supports
- Requires Length Setting Rods for setting (Spherical ends advised)
- Length adjustment can also be achieved by fitting an optional digital indicator
- Can be orientated vertically up to 1050mm internal / 1150 external when a base and vertical guide, (USGS) are fitted

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# Universal
# Setting Gauge

To improve the quality of your large diameter machined parts, the portable **Universal Setting Gauge** from Bowers has been developed as an easy to use comparator tool which can be set up next to the gauge being utilised.

This Universal Setting Gauge has been designed to improve the ongoing accuracy levels; when setting the master, the spring loaded setting anvil ensures a constant force is maintained thereby giving repeatable setting readings. The Universal Setting Gauge guide bars offer two adjustable supports for the pillars which are used at the airy points of the setting rod, all designed to reduce the amount of deflection.

Due to its rugged construction the Universal Setting Gauge is ideally suited to the shop floor environment. It has been designed to work primarily in conjunction with the Bowers Universal Gauge and the INTEX Comparator Beam Gauge, although will allow other instruments to be set. The portability of the Universal Setting Gauge ensures that it can be utilised next to the gauge in use, so any deviations in measurements can be reset with the minimum amount of time and error.

| Universal Setting Gauge | | |
|---|---|---|
| **Code No** | **Description** | **Range (mm)** |
| **USG550** | Universal Setting Gauge | 550mm internal to 650mm external |
| **USG1050** | Universal Setting Gauge | 1050mm internal 1150mm external |
| **USG1550** | Universal Setting Gauge | 1550mm internal 1650mm external |
| **USGS** | Universal Setting Gauge Vertical Stand | |

Digital Indicators available on request

# Universal Gauge **Applications**

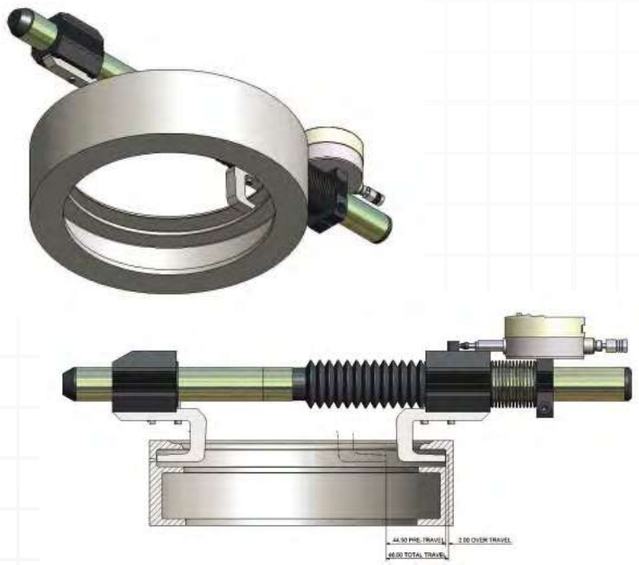
At a Glance

Customized universal gauges available



## Universal Gauge Incorporating On-Board Indicator and Extra Reach Contact Points.

## Extended Travel Application Universal Gauge.




# Universal Gauge **Applications**

## Application Universal Gauge measuring across large diameter component with central boss.

## Taper Measurement Gauge

Int/Ext Slot Measurement

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For more information please click here

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# Checkmaster Comparator

## At a Glance

- Unique 3 gauge station and readout capability
- Accepts most dial indicators, digital indicators (12.7mm travel) and Gauging Probes

## Features

- Remarkable versatility and repeatability
- Excellent gauge repeatability and reproducibility (G.R. & R.) capability
- Exceptionally tough for shopfloor on-line inspection
- Measuring force, with adjustable setting
- Multi functional
- Ideal for SPC and 100% inspection
- Left or right hand operation
- Custom configurations available upon request



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# Checkmaster Comparator

Checkmaster is the flexible gauging solution for short production runs. Simply setup your Universal Tooling set to suit your application (see opposite), fit your preferred indicator and zero against a master for fast accurate and incredibly repeatable results. Gauging force can be adjusted for softer materials and biased for either internal or external dimensions by a simple lever selection. This enables multi-dimension setups to be easily catered for.

## Need Absolute Results?

Using Bowers' standard digital indicator, the master size can be pre-set. Now the results are displayed as Absolute dimensions. Tolerances can be entered and an out of tolerance symbol will flash for even quicker reference.

## Tooling

The Universal Tooling Set includes 2 x universal tooling blocks, combination blade / radius anvil, Mushroom anvils and mounting bars to allow a variety of internal and external features to be measured.

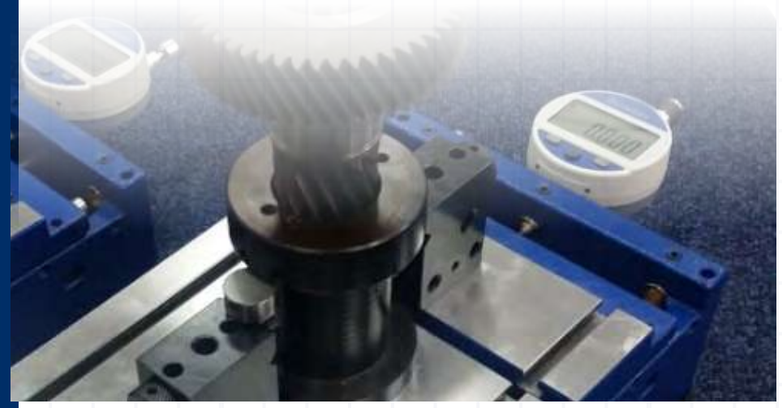
Checkmasters can be supplied with or without indicators. If ordered 'Less Indicator' the Checkmaster will be supplied with a set of split bushes to suit any 8mm or 3/8" stem mount gauge with a suitable reach.

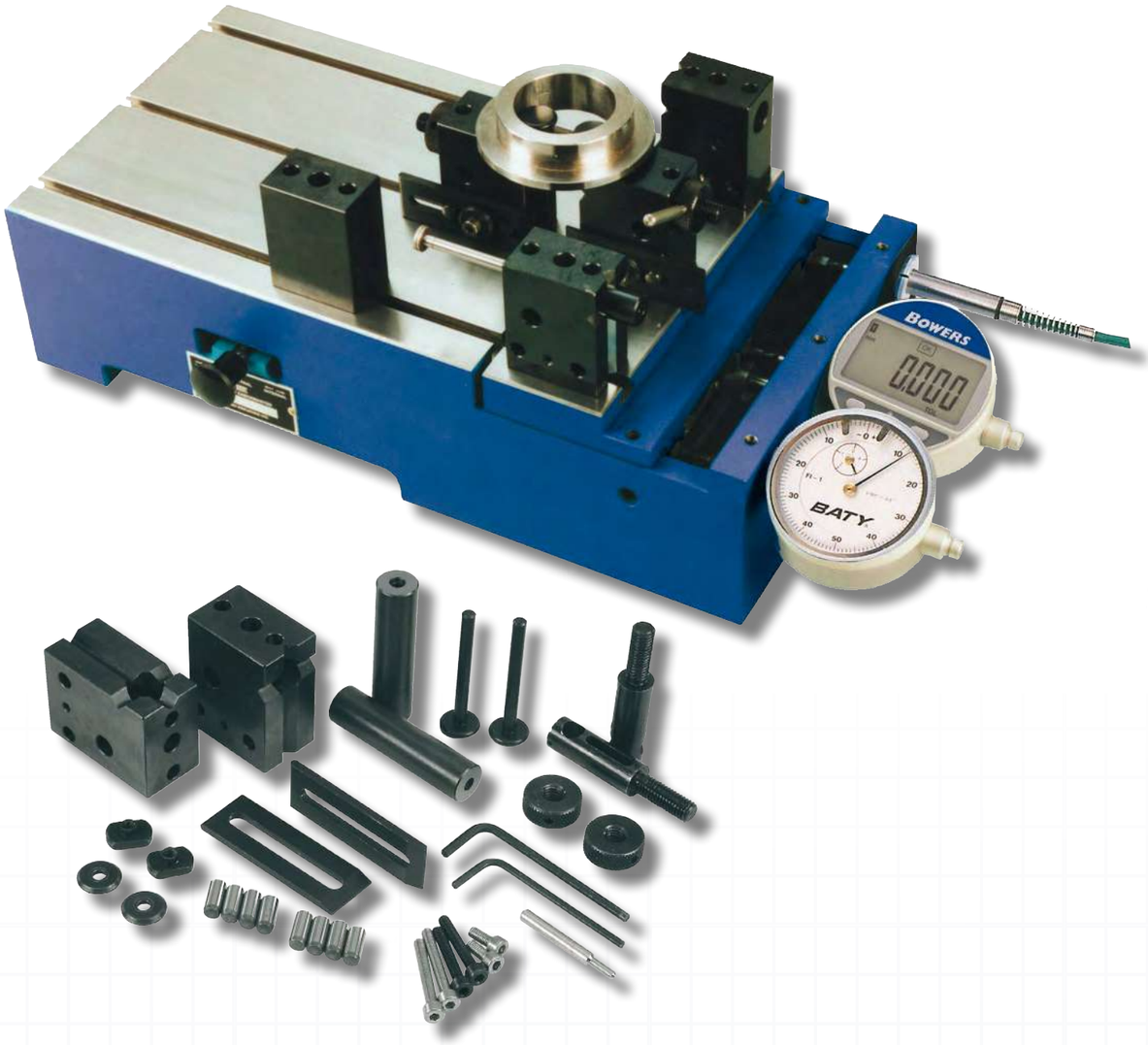
## Need SPC, Printed Reports Data Storage?

Replacing the conventional indicator with a transducer linked to our Sylvac D300S digital readout will allow you to setup and store multiple parts each with pre-toleranced dimensions. Just setup the correct tooling situation, select the part / job number required from the D300S memory and you are ready to go.

SPC Data from previous measurements of the same part type can be viewed on the large colour screen and even printed direct from the D300S or transferred to a PC.

Full maths functionality included: take dynamic measurements such as roundness / concentricity or solve more complex applications by using multiple transducers.






| Universal Setting Gauge | |
|---|---|
| **Code No** | **Description** |
| 1050 | Checkmaster Comparator without indicator |

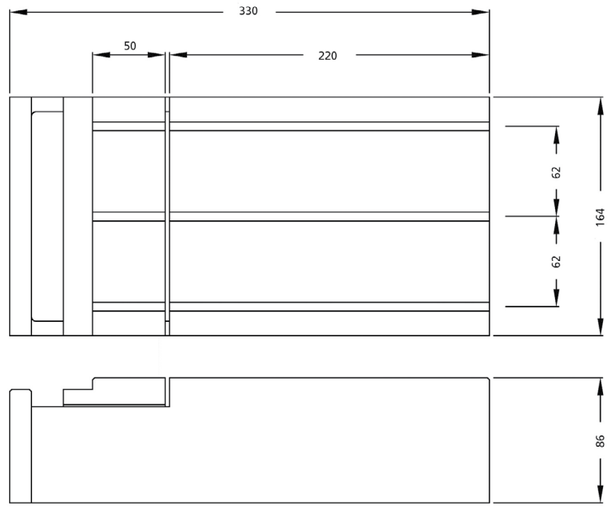
# Checkmaster Tooling Applications and Dimensions

## Features

- Diameters, internal and external
- Undercuts, 0 ring grooves, ball tracks internal and external
- Gear and spline pitch diameter internal and external
- Rolling gear test, gear to gear or gear to master
- Gear pitch diameter to shaft bore run out
- Holes centre to centre
- Concentricity bore to O.D.
- Step height, lengths, depths

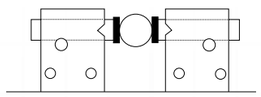


Custom tooling available on request

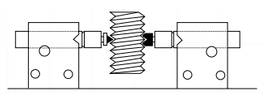



Checkmaster 1060
Code No: 1060

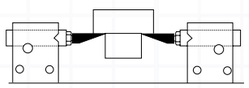
Outside Diameter



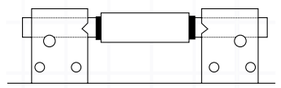
Thread Features



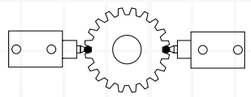
Undercut Depth



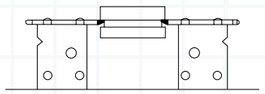
Length



External Spline / Gear PCD



External Diameter



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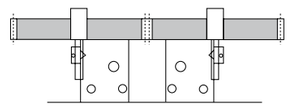
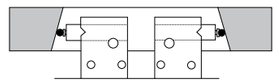
# Checkmaster Tooling Applications and Dimensions

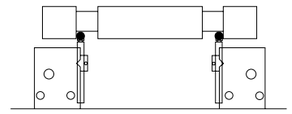
Rolling Gear Test



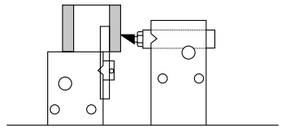
Internal Taper



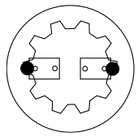
Bearing Face Distance



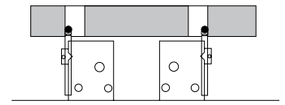
Concentricity / Wall Thickness



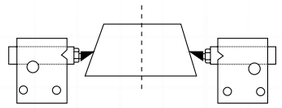
Internal Spline (Large Diameter)



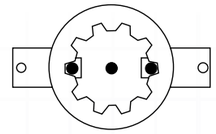
Hole / Slot Position



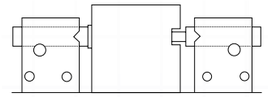
Concentricity / Wall Thickness



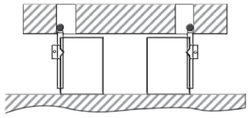
Internal Spline (Small Diameter)



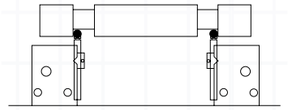
Slot Depth



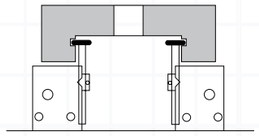
Hole Centres



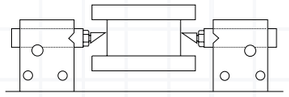
Web Thickness



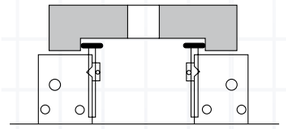
Internal Recess Diameter



Recess Diameter



Bore Diameter



# Universal UNICAL 2 Digital Caliper

## At a Glance

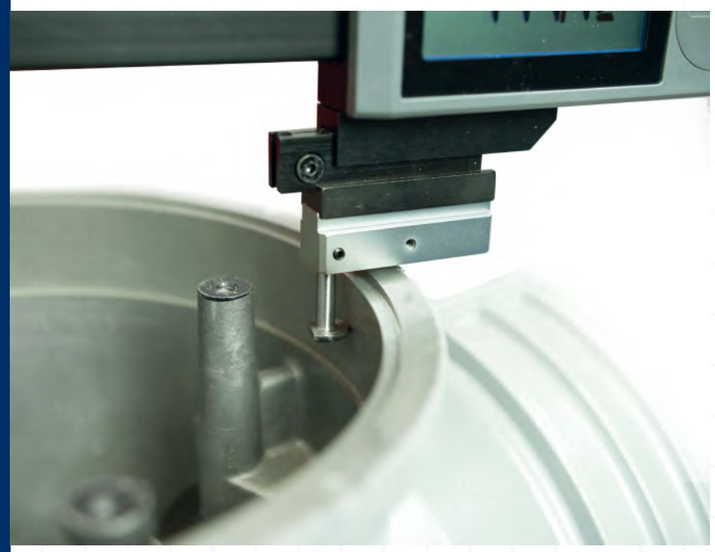
**IP67 Electronics**

Non Bluetooth is available upon request

## Features

- Integrated Bluetooth Smart Low Energy data transmission
- Maximum speed of displacement: 2 m/sec
- Internal and external measurement
- System ensures smooth carriage movement and protects the beam against shocks
- Displays upper and lower tolerances
- Extremely light instrument
- IP67 protection
- 2 references
- Min/Max function
- Tolerance limit indicators
- Supplied complete with adapters for Bowers Universal accessories

Available in four standard sizes covering most large caliper applications, these revolutionary **NEW digital gauges** have lightweight reinforced main beams, giving them both incredible strength and lightness, aiding both accuracy and ease of use. All gauges have integrated Bluetooth transmission and IP67 protection. A range of flexible accessories further improves the usability of these advanced gauges.



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# Universal UNICAL 2 Digital Caliper

**UNICAL 2 Universal Digital Caliper**

| Code No | Range (mm) | Maximum Error (µm) | Repeatability (µm) | Force (N) | Output | Weight (kg) |
|---|---|---|---|---|---|---|
| UNICAL2-400 | 0-400 | 30 | 20 | 5-10 | Bluetooth / RS232 / USB | 1.5 |
| UNICAL2-600 | 0-600 | 40 | 20 | 5-10 | Bluetooth / RS232 / USB | 1.6 |
| UNICAL2-1000 | 0-1000 | 50 | 20 | 5-10 | Bluetooth / RS232 / USB | 1.9 |
| UNICAL2-1500 | 0-1500 | 90 | 20 | 5-10 | Bluetooth / RS232 / USB | 2.3 |

UNICAL2-400

UNICAL2-400 with accessories

Custom tooling available on request

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| Air3 Multifunctional/ Multichannel Display Applications | 103 |
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The **Bowers Air Gauging** system ensures that every component can be checked with guaranteed high precision results in a matter of seconds.

**Addmore Engineering Ltd**

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BOWERS

Air Gauging

# Air Gauging A New Approach

## Bowers Air1/2 Features*

- TFT colour touch screen display 4,3'', resolution 480x272
- Static or dynamic measurements (Max, Min, Max-Min, Average, Median)
- Analogue or digital display
- 1 or 2 measurement configurations (2 characteristics)
- Possibility to automatically select the characteristic by using the air gauge or by touching the screen
- Relative or absolute display
- Display resolution (up to 0.1µm)
- Metric (mm or µm) or Imperial (Inches) measurement or DMS
- Classification/Grading: Up to 16 classes with colour representation
- RS232 port for communication with a PC
- USB port for communication and/or power supply
- USB Stick for data saving on a CSV file
- Optional connection of M-Bus modules
- Measurement transfer by pressing a key, footswitch input or retro- command on the RS232 port
- Operating temperature: +15°C to +30°C
- Power supply from 85 to 265 VAC by using the supplied main transformer (or by connecting it directly on your PC USB port, or through the 24 VDC screw terminal
- Relative humidity: maximum 80%
- Dimensions : width 130 mm, height 111 mm, depth 105 mm
- Mass: 600 grams (700g with the power supply)
- Working parameters set by QR Code Scanner
- No additional hardware required other than QR scanner
- Footpedal to make measurements quicker and easier
- ECO Mode Compatible with energy saving, Air Bypass Filtration Kit

* Based on firmware 1.2 or later

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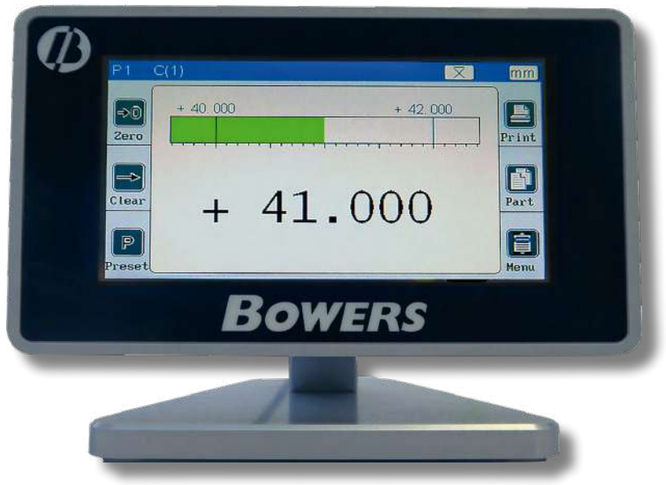

Have you seen our video
**What is Air Gauging**

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## Bowers Air1 (Single Channel) Air2 (Twin Channel)

The user friendly modern design of the Bowers Air1/2 Gauge has a touch screen for ease of use and readability

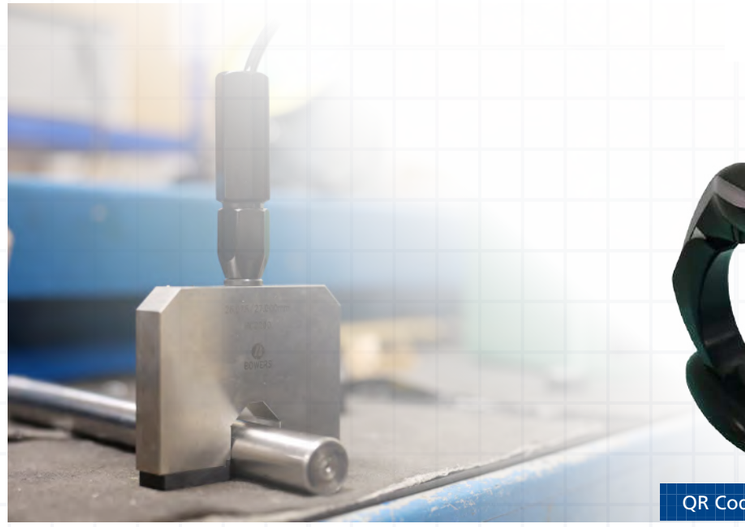
For improved accuracy the Bowers Air1/2 benefits from two or three points of calibration, the minimum, the maximum and the mid: this offers greater linearity. Air gauging on the shop floor is a simple yet robust method of measurement that offers a myriad of measurement capability but with the smallest of footprint in a busy crowded factory floor. With no moving parts the toughened glass touch screen requires no special maintenance making this device suitable for harsh working environments. It does have a number of connectivity options, all designed to make the measuring process more user friendly.

- Simplicity with USB connectors for laptops and keyboards
- Data output from this device is exceptionally straightforward
- Fast reaction time of measurement, reduces the cycle times on machines
- QR Code Configuration (contact us for recommended QR reader model)
- Foot pedal for preset-clear-part characteristic-hold-data transfer

Configuration is always important. By using the Bowers Air1/2 you can set up the defined working parameters with speed, accuracy and ease by using nothing more complicated than a QR code, which is pre-loaded with the correct measurements and tolerances. The QR scanner plugs straight into the device and does not require any external hardware other than the QR code scanner.

Bowers Air1 Single Channel

Bowers Air2 Twin Channel



QR Code Scanner

Printer

# Air3
# Multifunctional/ Multichannel

## Features

- 7" touchscreen display and customizable display interface
- Bench stand or panel mount
- Aluminium body
- 12VDC/30VDC Power supply
- RJ-45 Ethernet TCP4 for Network Interface
- USB host (for usb key) and USB device (virtual keyboard)
- Up to 99 device connection
- Footswitch
- M-BUS Module Connection
- RS232
- Static and dynamic (Mini, Maxi, Maxi-mini, Average, Median)
- Trigonometrical measurements
- Analogical and digital display
- Manage up to 32 fixtures with automatic fixture detection by probe motion
- Up to 32 characteristics by fixture
- Displays resolution up to 5 decimals
- SPC functions
- Upgradeable, Non Windows Firmware
- Measurement transfer by USB or RS232
- PLC programming
- QR Reader Compatible
- ECO Mode Compatible with energy saving, Air Bypass Filtration Kit
- On board measurement storage of up to 1,000 measurements



The Air3 allows users to display readings simultaneously from multigauging applications. All of which offers readings for each dimension, the MIN, MAX and DELTA etc.

The AIR 3 is a **NEW** addition to the Bowers Air Gauge range of displays

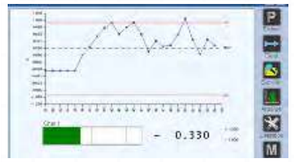
## Display types preview:

Multiple: (up to 32 bargraphs)

Analog

Digital: (= without tolerance indication)

Live SPC (advanced mode)

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# **Sylcom** Data Processing Software

The Sylcom Software can be used with the MB-AG air gauge modules in conjunction with the MB-RS module. The MB-RS Module also allows the air gauge modules to be connected to a PLC or Network via USB or RS232.

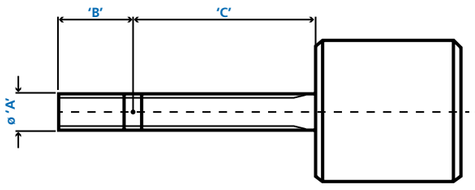
- BlueTooth compatible, export data to Microsoft Excel
- Software compatible with Windows 7, 8.1 and 10
- Display values in different modes
- Upload parts drawing in the background
- Classify results from tolerances
- Multigauges and sequence mode
- Sylcom Advanced Package allowing to connect many probes and instruments through M-BUS modules, including Air Gauge modules
- Free Sylcom Lite version with 1 instrument connection, free 30 days trial for Sylcom Standard, not compatible with MB-AG modules

| Sylcom Software Specifications | | |
|---|---|---|
| **Specification** | **Sylcom Standard** | **Sylcom Advanced** |
| **Max Number of Instruments** | 16 (max 8 Bluetooth) | 254 |
| **Software Requirements** | Windows 7 / 8.1 / 10 (64-bit) | Windows 7 / 8.1 / 10 (64-bit) |
| **Minimum Hardware Requirements** | Intel i5, 4GB RAM (8GB recommended) | Intel i5, 4GB RAM (8GB recommended) |
| **Compatible M-BUS** | No | Yes |
| **Export to Microsoft Excel** | Yes | Yes |
| **Data Export by Timer** | Yes | Yes |
| **Tolerances and Control Limits** | Yes | Yes |
| **Selectable Display Modes** | Yes | Yes |
| **Multigage Mode** | Yes | Yes |
| **Sequence Mode** | Yes | Yes |
| **User Management** | Yes | Yes |
| **Configuration of Digital Indicator Menu** | Yes | Yes |

# **Standard** Air Gauge Tooling

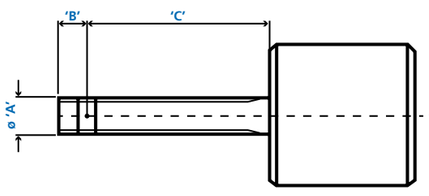
## Standard: 3.00 - 14.10mm

Through Bore




| ø'A' Range | 'B' | 'C' |
|---|---|---|
| ø3.00 - 4.70 | 4.76 | 20.65 |
| ø4.70 - 6.30 | 12.70 | 22.30 |
| ø6.30 - 14.10 | 12.70 | 25.40 |

Blind Bore



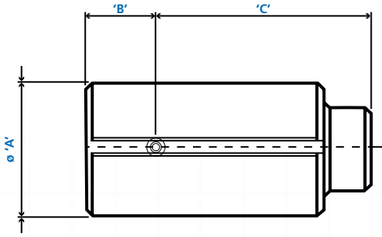

| ø'A' Range | 'B' | 'C' |
|---|---|---|
| ø3.00 - 4.70 | 3.97 | 21.45 |
| ø4.70 - 6.30 | 3.97 | 31.05 |
| ø6.30 - 14.10 | 3.97 | 34.15 |

### Connection Options

- **Bowers System** Hexagonal Handle (included)
- 3/8" - 32 NS Internal Thread
- Bayonet Adapter (included)

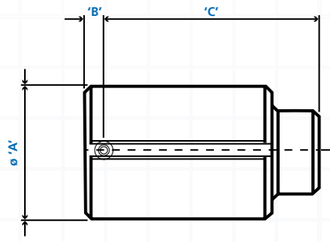
## Standard: 14.10 - 76.45mm

Through Bore




| ø'A' Range | 'B' | 'C' |
|---|---|---|
| ø14.10 - 37.85 | 15.90 | 35.20 |
| ø37.85 - 76.45 | 19.05 | 34.95 |

Blind Bore




| ø'A' Range | 'B' | 'C' |
|---|---|---|
| ø14.10 - 37.85 | 3.97 | 47.15 |
| ø37.85 - 76.45 | 3.97 | 50.00 |

### Connection Options

- **Bowers System** Hexagonal Handle (included)
- 3/8" - 32 NS Internal Thread
- Bayonet Adapter (included)

**Note:** For more information about connections please contact our sales team.



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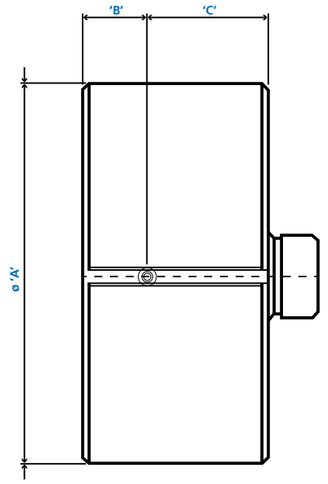
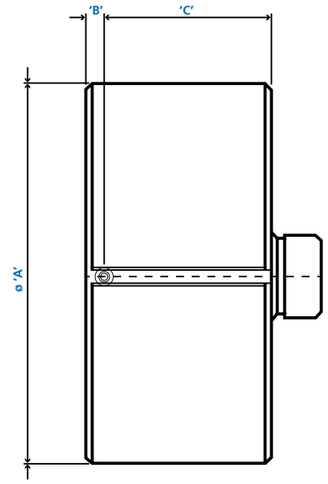
# **Standard** Air Gauge Tooling

## Standard: 76.45 - 203.20mm



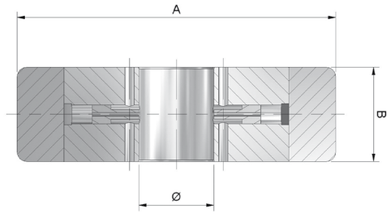

| ø'A' Range | 'B' | 'C' |
|---|---|---|
| ø76.45 - 203.2 | 19.05 | 31.75 |



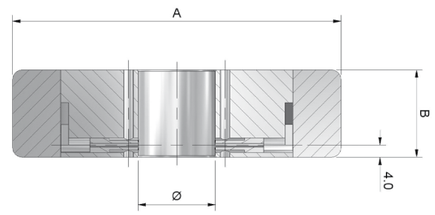

| ø'A' Range | 'B' | 'C' |
|---|---|---|
| ø76.45 - 203.2 | 3.97 | 46.60 |

## Standard Air Rings

Air Rings are supplied with jets in central position as standard, see diagram. Air rings are designed to be hand held, bench mounted versions are available on request.




Central Jets




Offset Jets

**Air Rings Specifications**

| Size Range (mm) | Size Range (in) | Dim A (mm) | Dim A (in) | Dim B (mm) | Dim B (in) |
|---|---|---|---|---|---|
| 3.17-6.35 | 1/8 - 1/4 | 63.50 | 2.5 | 19.05 | 3/4 |
| 6.35-25.4 | 1/4 - 1 | 82.55 | 3 1/4 | 25.40 | 1 |
| 25.4-38.10 | 1 - 1.5 | 107.95 | 4 1/4 | 28.58 | 1 1/8 |
| 38.10-50.80 | 1.5 - 2 | 120.65 | 4 3/4 | 28.58 | 1 1/8 |
| 50.80-63.50 | 2 - 2.5 | 133.35 | 5 1/4 | 28.58 | 1 1/8 |

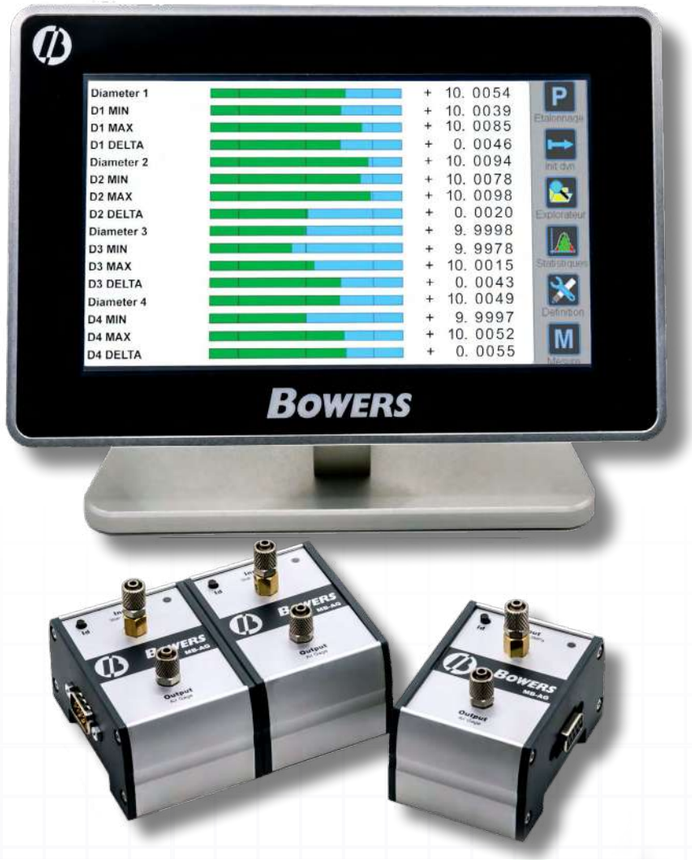
**Note:** All Bowers Air tooling is cutomisable to suit your application. Please contact our sales team for more information.

# Air3 Multifunctional/ Multichannel Display Applications

## Application Example:

Display several characteristics for each dimension e.g. (MIN, MAX and DELTA).

The AIR 3 is an exciting new addition to the **Bowers Air Gauge** range of displays. With its versatile and easy to use touchscreen display, the AIR 3 can be used in conjunction with the M-BUS MB-AG modules as a simple display or as a fully networked, **integrated measuring station** capable of machine tool control. With on board measurement storage of up to 30,000 measurements, collected data can be used locally on the display or via network for SPC analysis.




4 dimensions measured, 16 Values displayed

## Visit our Website

For more information please click here

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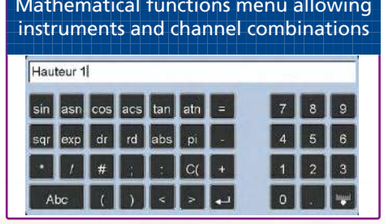
# Air3 Multifunctional /Multichannel Display Applications

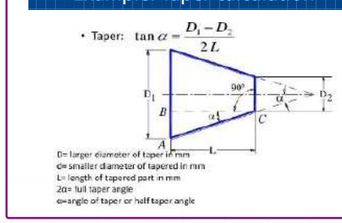
Bowers Air 3. Optional Rear Mount Kit for modules. (Modules not included)

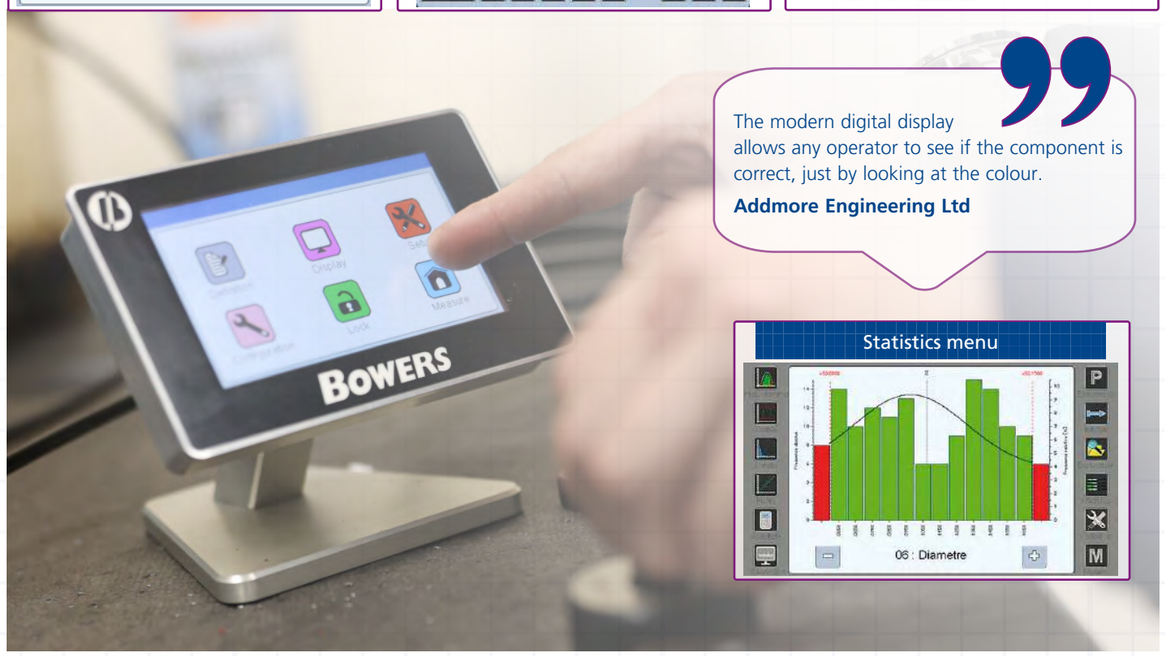
Smartphone style user interface

Mathematical functions menu allowing instruments and channel combinations




Example: Taper calculation



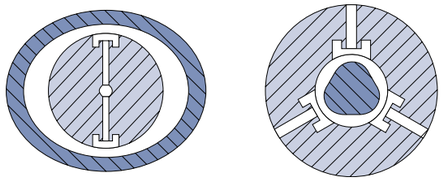

> The modern digital display allows any operator to see if the component is correct, just by looking at the colour.
>
> **Addmore Engineering Ltd**

Statistics menu

# Air Gauge
## Tooling Applications

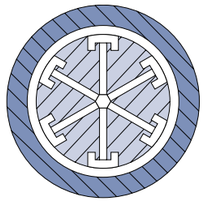
The following are some examples of how Air Gauge tooling can be configured.

### Out-of-Roundness



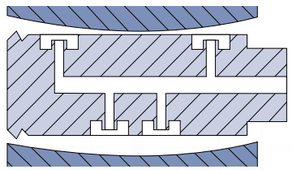
Air tools can gauge a part for roundness. For two-point out-of-round conditions, a standard two-nozzle air tool can be used. If lobing exists in the part, an odd number of nozzles must be used, depending on the number of lobes.

### Averaging



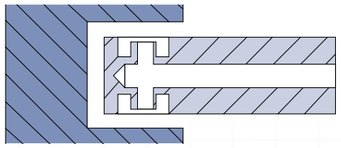
Multiple nozzles are equally located about the circumference of the air tool to allow for average size measurement. Commonly used for thin-walled or out-of-round parts — four, six, or more nozzles are utilised, depending on the tool size.

### Straightness



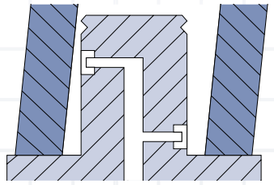
A common application of Air Gauging is to dynamically measure the straightness or “bow” of an inside or outside diameter. In this case, a custom designed air plug makes verifying a part’s straightness simple and fast. (A straightness air plug cannot be used to measure diameter).

### Groove Width



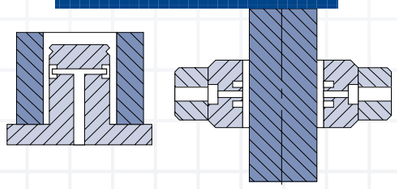
The measurement of grooves is conveniently achieved with flat, blade-type air tools. Air Gauging not only determines groove size, but with exploration around the workpiece, parallelism of the groove faces can also be determined.

### Squareness



To determine squareness of a part, for example a bore to a face, air nozzles configured as a “z” are used with dynamic measurement to change the back-pressure from square to out of square conditions.

### Inside & Outside Diameters



Air Gauges are most commonly used for measuring the size and form of inside diameters and outside diameters. Two-nozzle air plugs, with nozzles diametrically opposed, are used for internal measuring, and two-nozzle air rings are used for external dimensions.



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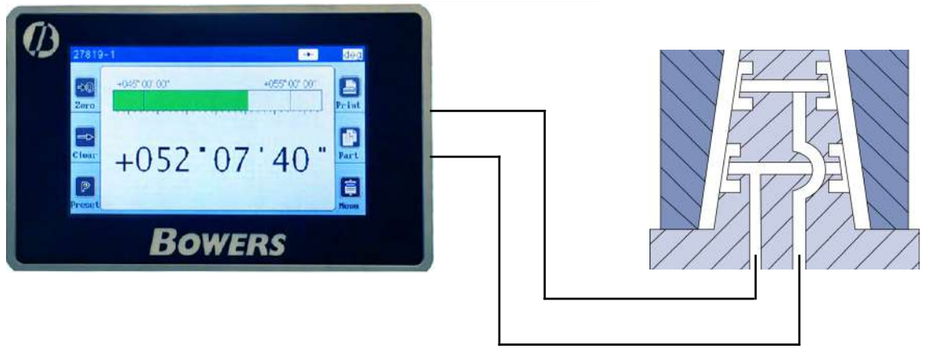
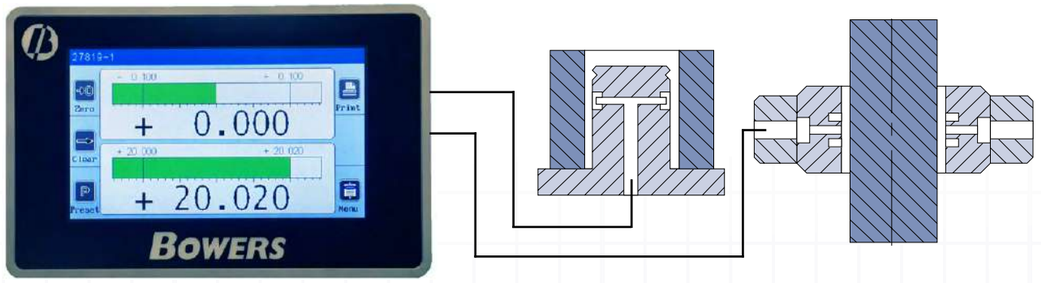
# Air Gauge
## Tooling Applications

### Taper




Angle variation of tapered surfaces is commonly checked with air gauging as the difference of two diameters. The Bowers Air2 (Firmware 1.2 or later) has DMS (Degree-Minute-Second) capability build in.

### Matching




A specified clearance between two mating parts is often required to assure proper part operation. The Bowers Air2 allows for the individual display of the bore size, or shaft size and the clearance between the two parts. Operators need only observe the clearance display to determine if the two components have the required match dimension.

**The Bowers Air2**
**Allows for the individual display of the bore size, or shaft size and the clearance between the two parts.**

# Bypass Air Preparation Kit

## At a Glance

£££ **Super Savings!**

**Eco Mode**

> The **Bowers Air Gauging** system ensures that every component can be checked with guaranteed high precision results in a matter of seconds.
>
> **Addmore Engineering Ltd**

## Visit our Website

For more information please click here

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NEW

With ever increasing energy costs, Bowers have introduced an Air Preparation Kit that incorporates a built in air bypass valve. This works in conjunction with the **Eco Mode** within the Air 1,2 and 3.

When the **Eco Mode** is active, the bypass valve reduces the air flowing through the tooling. This greatly reduces the consumption of air whilst maintaining a small flow of air. This ensures the tooling temperature is held constant ready for immediate use when required. **Please contact Bowers for more information.**

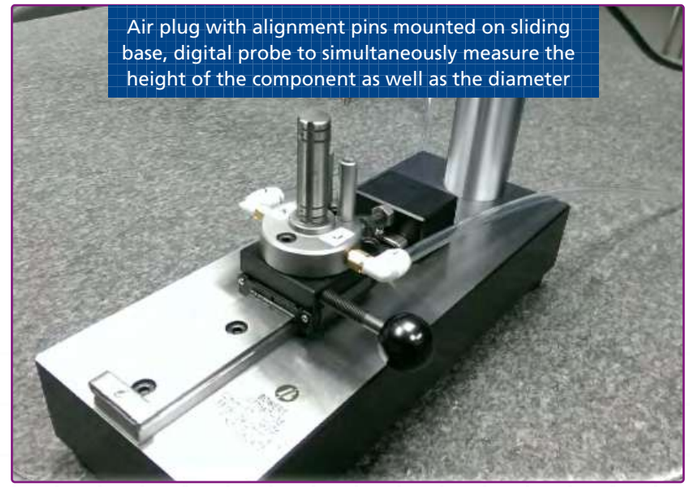
BOWERS GROUP

# Custom Air Gauging

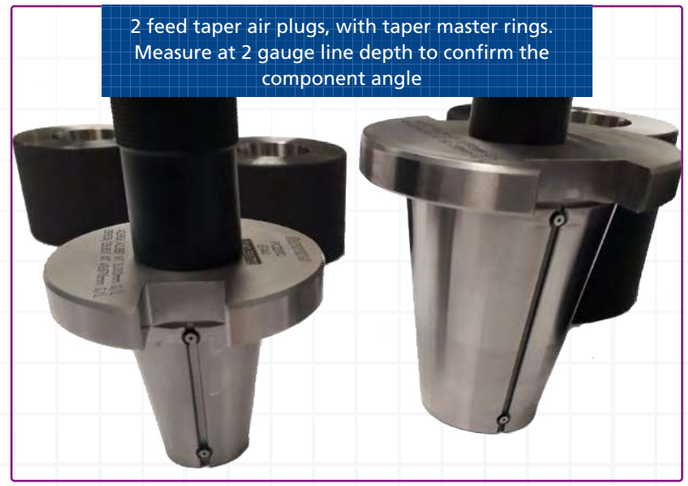
If you would like to know more please contact our Applications Team



Within our range of measurement technologies, Bowers Group also deliver exceptional quality in air gauging. Air gauging is a highly reliable and repeatable method, particularly suited for applications requiring sub-micron precision tolerances. Leveraging the power of airflow volumes and pressures, air gauging systems deliver enhanced accuracy making them an undeniable solution for industries such as automotive, aerospace, and manufacturing. With our commitment to innovation and quality, Bowers Group continues to provide state-of-the-art air gauging solutions, including **custom solutions** tailored to specific needs, empowering businesses to achieve absolute reliability in their measurement processes.



Air plug with alignment pins mounted on sliding base, digital probe to simultaneously measure the height of the component as well as the diameter



2 feed taper air plugs, with taper master rings. Measure at 2 gauge line depth to confirm the component angle

# Addmore Engineering Streamlines Measurement of Safety & Performance Critical Components with Bowers Air Gauging System

Custom Air Gauging Solutions available. Please contact our Applications Team

The air gauging system from Bowers Group provides the perfect solution to ensure 100% customer satisfaction for Addmore Engineering.

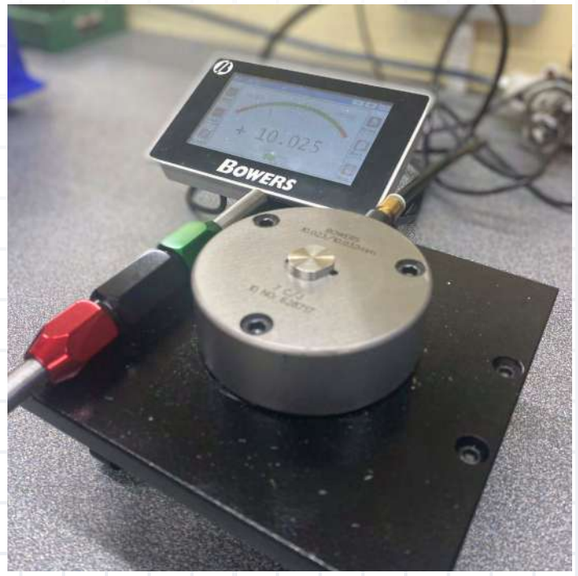
Addmore Engineering has found the perfect way to measure safety and performance critical components with an air gauging system from Bowers Group. As a family run business which has supplied precision CNC turned and milled components for over 40 years, Addmore Engineering supplies precision components and sub-assemblies into the aerospace, automotive, hydraulic, autosport, fastener, instrumentation, oil & gas, and medical sectors.

As part of its inspection process, Addmore Engineering need to measure bolts, which are critical components on braking systems. It is, therefore, imperative that 100% of the parts produced are within tolerance. The air gauging system from Bowers Group ensures that the performance critical parts manufactured by Addmore Engineering satisfy customers requirement to 100% inspect safety critical characteristics and meet tight tolerances.

Ben Vasquez, Managing Director at Addmore Engineering Ltd said:

> The Bowers air gauging system is the perfect solution for us because it standardises the measurement process and eliminates the potential for human error. The system allows multiple operators to accurately check the diameter of the components in minimal time, and the modern control panel gives a quick yes/no output that allows each bolt to be checked with guaranteed high precision results in a matter of seconds.

Addmore Engineering manufactures in excess of 10,000 of the bolts every month, therefore a fast, repeatable, and user-friendly solution was key. The business had previously experienced some difficulties whereby operators were achieving differing readings with micrometers; a significant problem when trying to measure 7-micron tolerances. The Bowers air gauging system allows many members of the team to check component diameters in a short space of time, and the touchscreen display with its customisable display interface is easy to read and interpret results. Using air flow volumes and pressures to measure parts, air gauging is a reliable, repeatable technology well suited for applications that demand sub-micron precision tolerancing.




Air gauging technology is very flexible, enabling measurement of not only dimensions, but geometric and relational characteristics, such as squareness, parallelism, ovality, taper and straightness. Bowers air gauging systems provide a simple yet robust method of measurement with a myriad of measurement capability, and its small footprint means it's perfect for the busy shop floor. The Bowers air gauging system at Addmore Engineering is used by inspectors and machine operators on a daily basis.

Ben continues:

> Personally, I have always been aware of the benefits of air gauging. During my apprenticeship I regularly used the older dial/clock-based systems. The advantage of the modern digital display is that anybody can see if the component is correct just by looking at the colour.
>
> The sales and technical support from Bowers has been first class and we have already begun discussions about further projects.

Addmore Engineering machines a wide range of components ranging from 0.5mm diameter to over 350mm in diameter which are supplied into a variety of markets. With a machine shop consisting of 25 CNC turning machines, 14 CNC milling machines and 3 centreless grinders, Addmore Engineering offers the highest quality components to meet any specification and delivery requirements. Operating out of 3 buildings, each with its own inspection departments, the philosophy of the business is that each department is fully autonomous and has all the equipment required to measure the specific components manufactured within that building. By investing heavily in automating processes with equipment such as a CMMs and optical measuring machines, Addmore Engineering has already made much progress in its inspection departments across the business.





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BOWERS

Hand Tools

# TGM Digital Major Caliper

## At a Glance

**Switchable Resolution:** 0.01mm / 0.0005"

## Features

- High contrast digital display
- Switchable resolution
- Zero and preset facility for absolute and comparative readings
- Proximity USB output
- Carbide measuring faces as standard
- Hold function for ease of reading
- Min / max function



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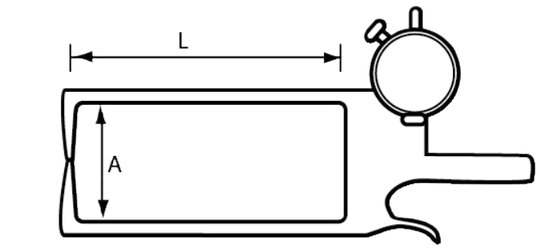
**Digital Major Calipers** have a direct Inch/Metric indicator with switchable resolution 0.01mm / 0.0005". They have zero and preset facility for both absolute and comparative measurement.

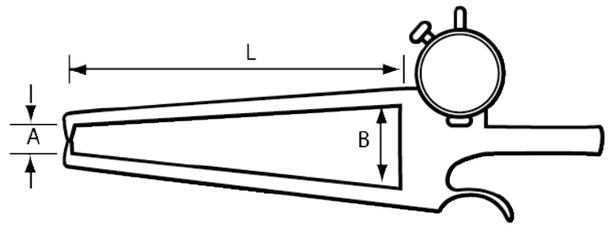
TGIC060

TGEC100

# TGM Digital Major Caliper






## TGM Digital Major Caliper



| Code No | Range (mm) | Range (inch) | Length (mm) | Length (inch) | Resolution (mm) | Resolution (inch) | Dim-A | Dim-B |
|---|---|---|---|---|---|---|---|---|
| TGIC060 | 0-50 | 0-2 | 150 | 6 | 0.02 | 0.001 | 55 | |
| TGEC060 | 0-50 | 0-2 | 150 | 6 | 0.02 | 0.001 | 25 | 55 |
| TGIC100 | 0-50 | 0-2 | 250 | 10 | 0.02 | 0.001 | 55 | |
| TGEC100 | 0-50 | 0-2 | 250 | 10 | 0.02 | 0.001 | 25 | 55 |
| TGIC200 | 0-50 | 0-2 | 550 | 22 | 0.1 | 0.005 | 55 | |
| TGEC200 | 0-50 | 0-2 | 550 | 22 | 0.1 | 0.005 | 25 | 55 |

**Accuracy:** Linear accuracy +/- 3 Divisions over the full range.
**Repeatability**: +/- 1 division across the full range

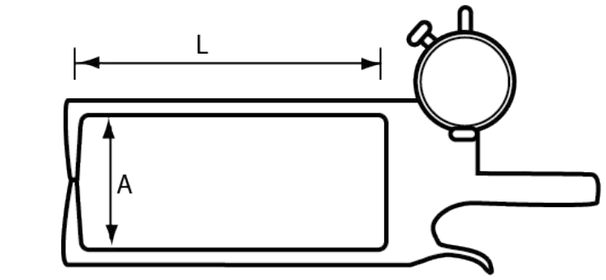
# TGM Major Calipers **Analogue**

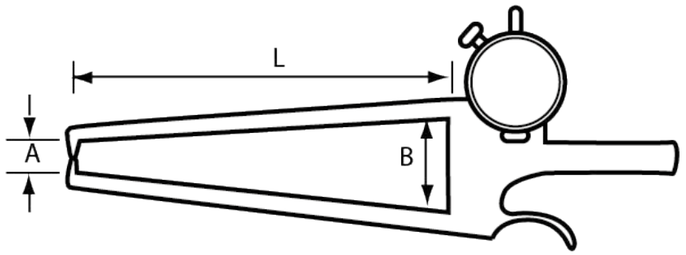


The major versions of **Bowers TGM Calipers** include hard wearing carbide contact points as standard. These versions come with an imperial dial indicator.

As with other Bowers TGM products, non-standard applications can be quoted against a component drawing.

TGIC061




## TGM Major Calipers Analogue - Metric

| Code No | Range (mm) | Length (mm) | Resolution (mm) | Dimn-A | Dimn-B |
|---|---|---|---|---|---|
| TGIC063 | 0-50 | 150 | 0.02 | 55 | |
| TGIC064 | 0-50 | 150 | 0.1 | 55 | |
| TGIC103 | 0-50 | 250 | 0.02 | 55 | |
| TGIC104 | 0-50 | 250 | 0.1 | 55 | |
| TGEC063 | 0-50 | 150 | 0..02 | 25 | 55 |
| TGEC064 | 0-50 | 150 | 0.1 | 25 | 55 |
| TGEC103 | 0-50 | 250 | 0.02 | 25 | 55 |
| TGEC104 | 0-50 | 250 | 0.1 | 25 | 55 |

**Accuracy:** Linear accuracy +/- 3 division over the full range.
Repeatability = +/- 1 division

## TGM Major Calipers Analogue - Imperial

| Code No | Range (inch) | Length (inch) | Resolution (inch) | Dimn-A | Dimn-B |
|---|---|---|---|---|---|
| TGIC061 | 0-2 | 6 | 0.001 | 55 | |
| TGEC061 | 0-2 | 6 | 0.001 | 25 | 55 |
| TGEC062 | 0-2 | 6 | 0.01 | 55 | |
| TGIC101 | 0-2 | 10 | 0.001 | 55 | |
| TGEC101 | 0-2 | 10 | 0.001 | 25 | 55 |
| TGIC102 | 0-2 | 10 | 0.01 | 55 | |
| TGEC102 | 0-2 | 10 | 0.01 | 25 | 55 |

**Accuracy:** Linear accuracy +/- 3 division over the full range.
Repeatability = +/- 1 division

# DigiMic Digital External Micrometer

## At a Glance

**Accuracy** - Max permissible error = 2 µm, max error range = 2 µm

Non Bluetooth is available upon request

IP67 sealed

## Features

- Compatible with Sylcom software and free mobile app
- Resolution 0.001mm
- Large LCD display
- mm / inch conversion
- Solid Carbide contact faces
- Rotary Encoder & Spindle
- Spindle Ø 6.5 mm
- CR2032 lithium battery
- UKAS to BS 870 certification
- Exceeds DIN863/1 & ISO3611
- Custom variants available for eternal grooves, splines, threads

Have you seen our video **Introducing... DigiMic from Bowers Group**

## Visit our Website

For more information please click here

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# DigiMic Digital External Micrometer

## Making External Measurement Quick and Easy

Bowers Group has extended its own manufactured core product range with the introduction of **DigiMic**, the Bowers digital micrometer. This device boasts an impressive accuracy of 2 µm max permissible error and 2 µm max error range. Ergonomically designed to fit comfortably in the hand, the DigiMic is an exceptionally robust micrometer, suitable for use in the harshest environments. DigiMic is manufactured with IP67 protection rating making it equally functional in a clean room or the factory floor. The extra-large digital display makes reading data straightforward; the user has an immediate visual confirmation of measurement in hand.

DM025

DM050

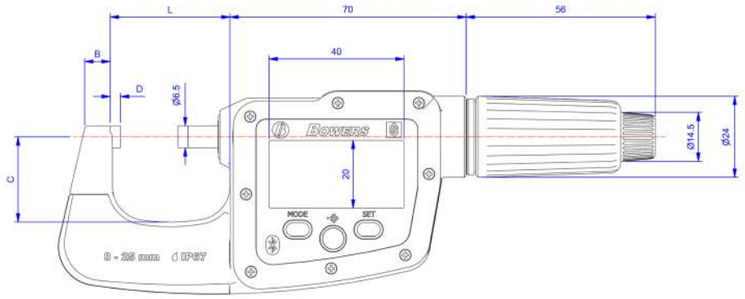
## Interconnected

The **DigiMic** belongs to Bowers Group's existing range of Bluetooth ready products, including Bowers bore gauges and Sylvac hand tools. This bi-directional communication capability enables users to link the DigiMic with a range of IOT ready products. Options include Sylvac's Sylcom software products which range from a free APP enabling data collection on a smart phone or tablet, to a comprehensive multi-gauge package making data capture for every dimension on the part easy, and reporting efficient.

## Size Ranges and Further Features

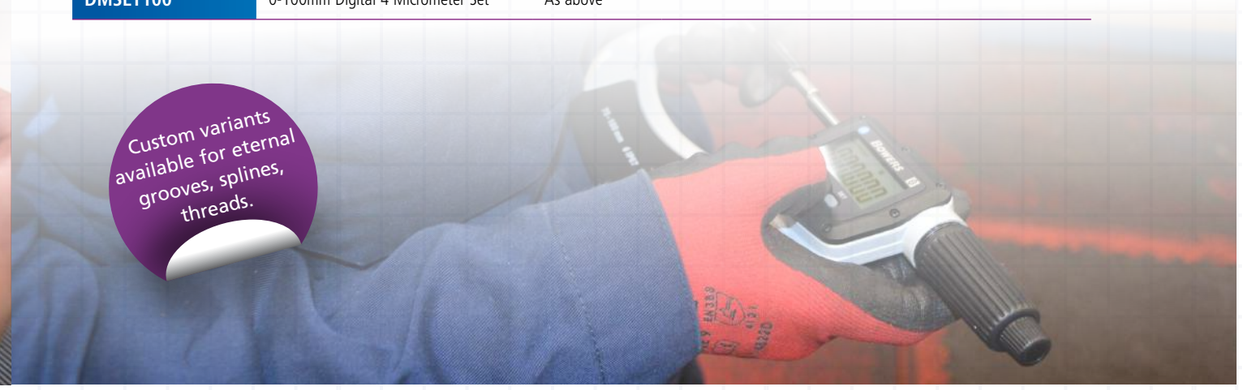
Using the micrometer has been made as simple as possible with minimal set up required. To reduce the battery consumption without losing the current reference position, a standby mode is automatically activated after 10 minutes of downtime. DigiMic has an automatic wake up activated by movement on the thimble.

DigiMic is sold singularly or in sets.




**DigiMic - Digital External Micrometer**

| Code No | Description | Max Error Range (mm) | B (mm) | C (mm) | D (mm) | L (mm) |
|---|---|---|---|---|---|---|
| DM025 | 0-25mm Digital Micrometer | 0.002 | 8 | 25 | 3 | 35 |
| DM050 | 25-50mm Digital Micrometer | 0.002 | 10 | 33 | 3 | 61 |
| DM075 | 50-75mm Digital Micrometer | 0.003 | 11 | 46 | 3 | 86 |
| DM100 | 75-100mm Digital Micrometer | 0.003 | 12 | 59 | 3 | 112 |
| DMSET100 | 0-100mm Digital 4 Micrometer Set | As above | | | | |



# Hewland Engineering Ltd. Boosts Inspection Accuracy and Efficient Data Transfer with DigiMic

Hewland's history walks proudly alongside the heritage of motorsport, manufacturing bespoke and OEM Gearboxes for racing applications, Internal Combustion and EV sectors in performance vehicles, and in the marine and aviation sectors. Its dedicated Advanced Engineering and Design Group is tasked with ensuring that all technical considerations are to the highest standard, therefore it is essential that projects are completed with precision accuracy.

Adrian Jarych, QHSE Engineer at Hewland, said:

> As a quality engineer and inspector I find the DigiMic really useful for everyday component inspection work. It's easy to turn on, easy to calibrate, and it's ready to use. The thimble is smooth, and the accuracy is great.
>
> The parts we produce are used in the manufacturing of motorsport and automotive transmissions and gearboxes where precision is key. I feel confident of the accuracy and know I'm getting trustworthy readings from the DigiMic.

Used by Hewland Engineering to measure diameters and widths of metal components, such as layshafts, pinion shafts, gears, hubs, clutch shafts, drive shafts and many other gearbox components, the DigiMic has already proven its reliability with pinpoint accuracy.

The DigiMic boasts an impressive accuracy of 2 µm max permissible error and 2 µm max error range. Ergonomically designed to fit comfortably in the hand, the device is an exceptionally robust micrometer perfect for shop floor use.

Manufactured with an IP67 protection rating, the extra-large digital display makes reading data straightforward with the user having an immediate visual confirmation of measurement in hand.

Feedback from Hewland Engineering has indicated that the DigiMic has helped achieved an accurate thickness of gears and bearing journal diameters within its .010mm tolerance. It offers them an easy-to-use device with a large, clear digital screen, with the weight of the micrometer providing a substantial, high-quality feel. The Bluetooth connectivity to Sylvac software means that reporting has never been easier, making the creation of control plan reports more efficient by recording digital data rather than handwriting results. The 'favourite button' has also proven to be useful in transferring and storing data to the Sylvac Anywhere software.

The bi-directional communication capability of the DigiMic enables users to link the device with a range of IoT ready products, including Sylvac's Sylcom software products which range from a free app enabling data collection on a smartphone or tablet, to a comprehensive multi-gauge package making data capture for every dimension on the part easy and reporting efficient.

Adrian explained:

> I have used the SylcomLite software where I found useful capabilities to familiarise myself with the software. With Bowers' recommendation, I shall trial the Pro version of Sylcom and use this to kickstart digital recording of results for control plans.



BOWERS

# Stands & Accessories

MST-58

| Stands & Accessories | |
|---|---|
| **Code No** | **Description** |
| MST-58 | SmartPlug Stand |
| SH-T | Floating Holder |

# Comparator Stands

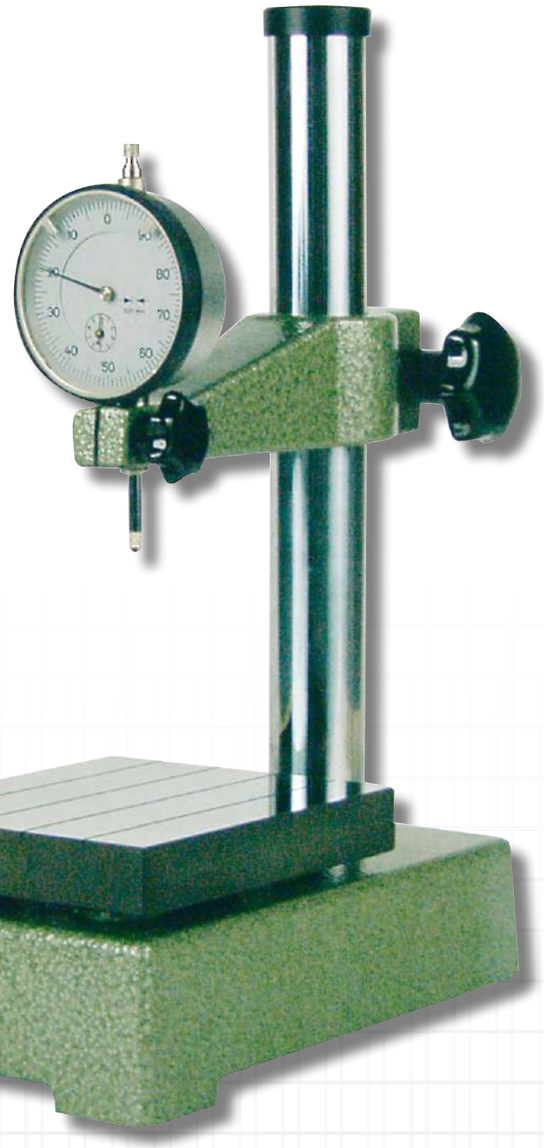
## At a Glance

Adapter Hole for dial gauge 8mm H7

## Features

- Hard chrome column
- Table surface is lapped
- One piece bracket for high rigidity and constant parallelism





13-03304



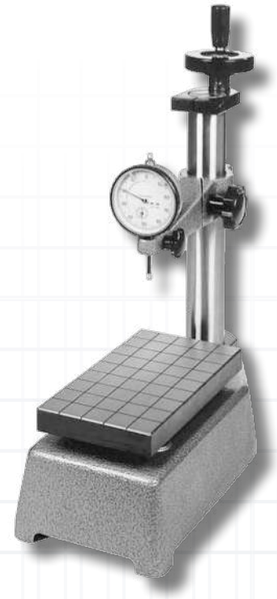
# Comparator Stands

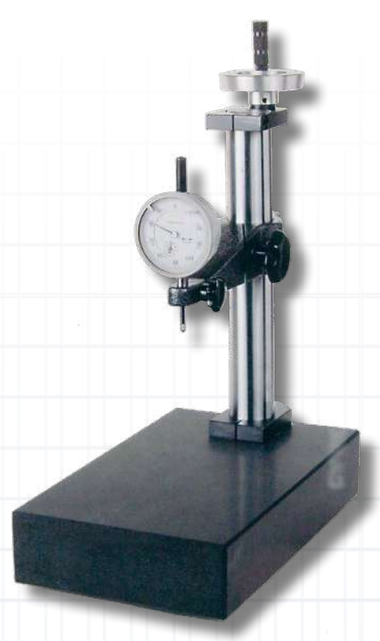
Bowers Group offers a range of **Comparator Stands** suitable for most types of indicator and transducer probes.

Bowers Group comparator stands offer rigid construction and quality materials, giving the user both a solid component support and a strong fixing for most types of indicators, transducer probes etc.

| Comparator Stands | | | | | | |
|---|---|---|---|---|---|---|
| Code No | Height (mm) | Load Range (mm) | Overhang (mm) | Weight (kg) | Measuring Table Area (mm) | Type |
| 13-03304 | 284 | 150 | 76 | 7 | 98 x 115 | Plain Column |
| 13-03305 | 320 | 160 | 104 | 12 | 98 x 180 | Plain Column |
| 13-03306 | 320 | 160 | 104 | 12 | 98 x 180 | Threaded Column |
| 13-03308 | 320 | 160 | 104 | 12 | 98 x 180 | Handwheel Column |
| 13-03309 | 320 | 320 180 | 104 | 9.5 | 150 x 200 | Handwheel Column |
| 13-1423102 | 250 | 200 | 130 | 14 | 230 x 200 x 50 | Granite, grade 00 |

Note Indicator sold separately







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BOWERS

# Height Gauges

# DigiHeight
## Height Gauge

### At a Glance

**406mm Height Capacity**

### Features

- Manual Digital Height Gauge
- High contrast display unit
- Fast diameter measurement with intelligent Smart-Reverse
- Single front located 8mm probe holder
- Fixed carriage balance
- Battery operation with Power supply
- Lapped cast iron base
- Setting gauge with 4 mm gauge block
- User manual available online

# DigiHeight
## Height Gauge

The Bowers **DigiHeight** is an excellent entry-level height gauge that utilises renowned Swiss technology to offer accurate and reliable measurement with a simple, easy-to-use interface. The DigiHeight has been developed for the most challenging workshop environments, delivered with a declaration of conformity and calibrated by Trimos. The V2 is manufactured entirely in Switzerland and is robust, precise and reliable. Enhance your measurement capabilities with the DigiHeight, a reliable digital height gauge manufactured for robust value. With a generous 406mm height capacity, this instrument offers versatility in measurements.

The DigiHeight features a large 2-line Black Mask display, setting it apart with exceptional contrast under any lighting conditions. This unique characteristic ensures clear and accurate readings in any environment.

The front-located probe holder streamlines measurements for efficiency. Constructed on a sturdy cast iron base, the DigiHeight ensures stability. Benefit from battery operation with an included external power supply.

Simplifying height measurements, the DigiHeight eliminates problematic balancing difficulties and includes a simple gauge block setting master, offering a quick-start measurement solution. Access the user's manual online for convenient and user-friendly guidance.

| DigiHeight Height Gauge | | | | |
|---|---|---|---|---|
| **Code No** | **Range (mm)** | **Maximum Error (µm)** | **Resolution (mm)** | **Resolution (inch)** |
| **DH400** | 406 | 8 | 0.001 | 0.00005 |

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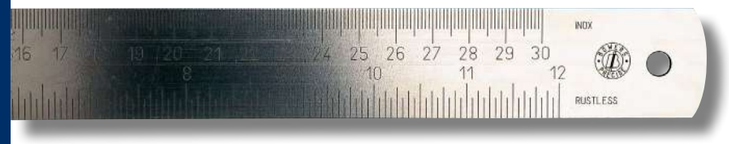
# Graduated Steel Rules

## At a Glance

- The top of the rule is graduated in inch readings 1/16", 1/32" and 1/64". The bottom is graduated in metric readings of 1/2mm and 1/1mm

## Features

- Manufactured to DIN 866/2 these round ended steel rules start their graduations on the left edge
- Manufactured to DIN 866/2
- Manufactured out of spring steel




80-460-241

**Graduated Steel Rules**

| Code No | Size (mm) |
|---|---|
| 80-460-241 | 150 x 13 x 0.5 |
| 80-460-243 | 250 x 15 x 0.5 |
| 80-460-247 | 300 x 30 x 1 |
| 80-460-248 | 500 x 30 x 1 |
| 80-460-249 | 1000 x 30 x 1 |
| 80-460-250 | 1500 x 30 x 1 |
| 80-460-251 | 2000 x 30 x 1 |
| 80-460-252 | 3000 x 30 x 1 |



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# Graduated Steel Straight Edge

## At a Glance

- Manufactured to DIN 866/1 the gauging surfaces have been precision ground.

## Features

- The clear and easy to read metric graduations start 5mm in from the ends
- Manufactured to DIN 866/1
- Manufactured out of spring steel

80-451-101

**Graduated Steel Straight Edge**

| Code No | Size (mm) |
|---|---|
| 80-451-101 | 500 x 30 x 6 |
| 80-451-102 | 1000 x 40 x 8 |
| 80-451-103 | 1500 x 40 x 8 |

# Circumference Tapes

## Features

- Manufactured to DIN 866/2
- Read to 0.1mm
- Manufactured from spring steel

**Bowers Circumference Tapes** measure both circumference and external diameters on the Vernier cover plate.

Graduated ruled are circumference tape made from spring steel, perfect for measuring both circumference and external diameters.

80-458-102

**Circumference Tapes**

| Code No | Size (mm) | Diameter (mm) |
|---|---|---|
| 80-458-102 | 60-95 | 20-300 |
| 80-458-103 | 940-2200 | 300-700 |
| 80-458-104 | 2190-3460 | 700-1100 |
| 80-458-105 | 3450-4720 | 1100-1500 |
| 80-458-106 | 4710-5980 | 1500-1900 |
| 80-458-107 | 5960-7230 | 1900-2300 |
| 80-458-108 | 7220-8500 | 2300-2700 |
| 80-458-109 | 8490-9760 | 2700-3100 |
| 80-458-110 | 9730-11010 | 3100-3500 |
| 16-1122 | Grade 2 | M112 (112 pieces) |
| 16-2121 | Grade 1 | M112 (112 pieces) |
| 16-2122 | Grade 2 | M112 (112 pieces) |



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> The vision system is very impressive. It is fast, accurate, and user friendly. Being able to import DXF files gives us the option of comparison as well as direct measurement. The software is intuitive and easy to use, yet very powerful with recognising features and alignment. We can very quickly give basic training to many users, so we are not reliant on a single person. There is one particular feature on our guide plates that previously was near-impossible to measure with any sort of accuracy and repeatability. The Baty now makes this measurement very easy and has already proved its worth.
>
> **Daryl Fletcher - Mould Shop Manager - Beatson Clark**

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baty

Baty

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Hand Tools

# Harpenden Skinfold Calipers

## At a Glance

**Range: 0 mm to 80 mm**

## Features

- Dial Graduation: 0,20 mm
- Measuring Pressure: 10 gms/mm2 (constant over range)
- Accuracy: 99.00%
- Repeatability: 0,20 mm

## Visit our Website

For more information please click here

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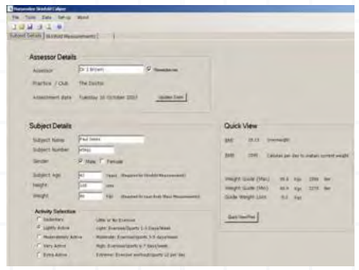
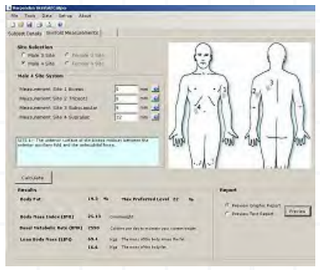
# Harpenden Skinfold Calipers



The **Harpenden Skinfold Caliper** is a precision instrument designed for use in the performance of Skinfold thickness measurements (from which estimates of body fat are derived). The use of this instrument has been well established and documented over the past 40 years.

Widely recognised as the industry standard, the Harpenden Skinfold Caliper is used all over the world on projects of international importance and is the most prestigious Caliper available. Designed in 1958 in collaboration with D. J. M. Tanner, a prominent force in the use of Skinfold measurements in the derivation of body fat measurement, the Harpenden Skinfold Caliper is a precision instrument designed for use in the performance of Skinfold thickness measurements.





## Service & Calibration

As a medical device, the Harpenden Skinfold Caliper should be serviced and calibrated every year.

Baty offer this service to keep your Harpenden Skinfold Caliper in top condition including clean, service, calibration and *repair* Damaged calipers only (customer advised of cost).

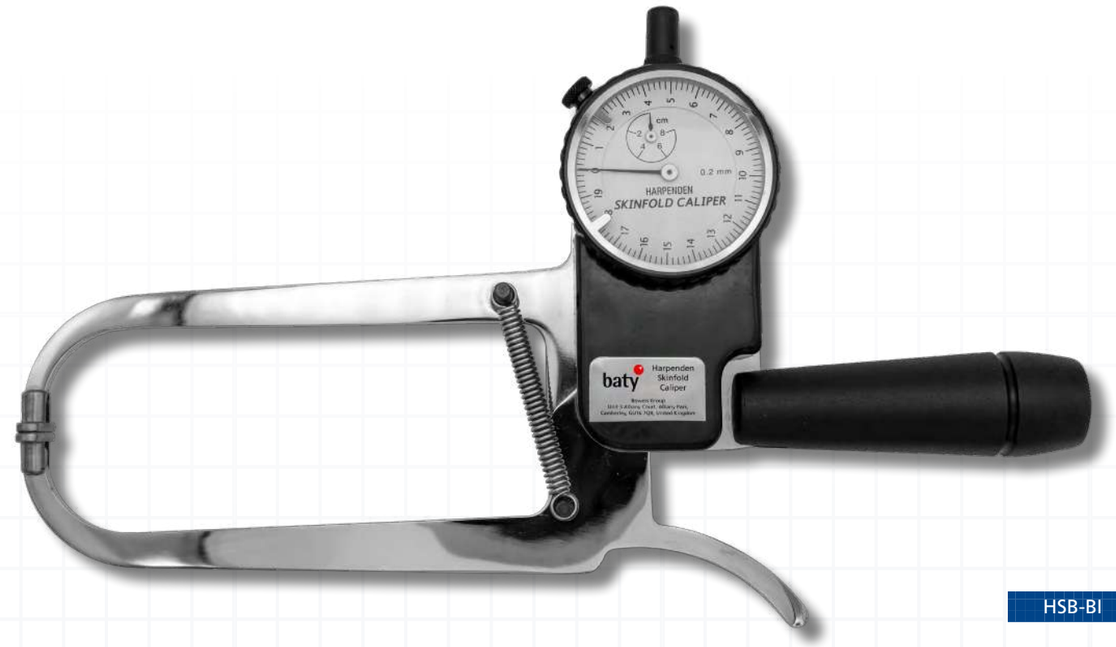
| Baty Harpenden Skinfold Calipers | |
|---|---|
| **Code No** | **Description** |
| **HSB-BI** | Harpenden Skinfold Caliper |
| **HSB-SERV/CAL** | Service & calibration |
| **HSB-SOFTWARE** | Body Assessment Software on USB stick |

## Body Assesment Software

We also offer Harpenden Skinfold Caliper Body Assessment Software which calculates the mathematics for you. Results are quick, easy and printable.

Software allows the following assessment of a subject:

- Body fat % content
- Body fat % preferred level
- Body mass index
- Basal metabolic rate
- Lean body mass
- Fat mass
- Min/Max weight guide
- Child BMI Growth Charts
- Using 4 Site Durnin & Womersley system or 7 or 3 Site Jackson & Pollock system




HSB-BI

# baty
# Plunger Dial Indicators FM Series

## Features FM Series

- Solid brass case
- 57mm diameter bezel
- Tolerance pointers
- Precision movement
- Coarse and fine dials
- Range of contact tips and back plates available
- 3mm diameter carbide ball anvil
- Calibration certificate supplied with all Group 2 indicators reading 0.01mm or finer.



The Baty range of **Plunger Dial Indicators** includes a model for all applications. Building on decades of experience we offer standard indicators in most popular sizes.

All units are supplied with 8mm stems, M2.5 threads and offset lug backs as standard.

Calibration certificate supplied with all Group 2 indicators reading 0.01mm or finer.

FM-1

# Plunger Dial Indicators FM Series



| Baty Plunger Dial Indicators -FM Series | | | | | |
|---|---|---|---|---|---|
| **Code No** | **Description** | **Range (mm)** | **Dial Reading (mm)** | **Graduation** | **Notes** |
| D-5 | Range Per Rev - 1.0mm | 8 | 0.01 | 0-100 | Standard: Factory |
| FM-1 | Range Per Rev - 1.0mm | 10 | 0.01 | 0-50-0 | Standard: DIN 878 |
| FM-2 | Range Per Rev - 1.0mm | 10 | 0.01 | 0-50-0 | Standard: DIN 878 |
| FM-3 | Range Per Rev - 1.0mm | 25 | 0.01 | 0-100 | Standard: Factory |
| FM-4 | Range Per Rev - 0.2mm | 5 | 0.002 | 0-20/0-10-0 | Standard: Factory |
| FM-5 | Range Per Rev - 0.2mm | 1 | 0.001 | 0-200/0-100-0 | Standard: JIS B 7503 |
| FM-6 | Range Per Rev - 10.0mm | 10 | 0.1 | 0-10 | Standard: Factory |
| FM-7 | Range Per Rev - 10.0mm | 25 | 0.1 | 0-10 | Standard: Factory |
| FM-8 | Range Per Rev - 0.2mm | 12 | 0.002 | 0-10-0/0-20 | Standard: Factory |
| FM-302 | Range Per Rev - 1.0mm | 50 | 0.01 | 0-100 | Standard: Factory |

Linear accuracy +/-3 diviisions over full range.
Repeatability is +/1 1 division.

D-5

FM-3

FM-302

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# Dial Indicators
# FI Series - Group 3

## Features

- 8mm stems
- M2.5 threads
- Offset lug backs as standard
- Non-standard configurations are also available on request.

The Baty range of **Plunger Dial Indicators** includes a model for all applications. Building on decades of experience we offer standard indicators in most popular sizes.

All units are supplied with 8mm stems, M2.5 threads and offset lug backs as standard.

Non-standard configurations are also available on request.

FI-3

**Plunger Dial Indicators - FI Series**

| Code No | Description | Range (inch) | Dial Reading (inch) | Graduation | Notes |
|---|---|---|---|---|---|
| FI-1 | Range Per Rev - 0.1" | 0.5 | 0.001 | 0-50-0 | Standard: ASME B89.1.10M |
| FI-2 | Range Per Rev - 0.1" | 0.5 | 0.001 | 0-100 | Standard: ASME B89.1.10M |
| FI-3 | Range Per Rev - 0.1" | 1 | 0.001 | 0-100 | Standard: ASME B89.1.10M |
| FI-4 | Range Per Rev - 0.05" | 0.5 | 0.0005 | 0-50 / 0-25-0 | Standard: ASME B89.1.10M |
| FI-5 | Range Per Rev - 0.1" | 0.2 | 0.0001 | 0-50 / 0-25-0 | Standard: ASME B89.1.10M |
| FI-6 | Range Per Rev - 0.1" | 0.5 | 0.0001 | 0-50 / 0-25-0 | Standard: Factory |
| FI-301 | Range Per Rev - 0.1" | 2 | 0.001 | 0-100 | Standard: ASME B89.1.10M |

Linear accuracy +/-3 diviisions over full range.
Repeatability is +/1 1 division.

FI-6

FI-301



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For more information please click here

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# Lever Type Dial Test Indicator

## Features

- High sensitivity, repeatability and accuracy
- Conforms to DIN 2270, BS, DIN, Federal and other national standards
- Anti-magnetic
- Automatic reverse action stylus – hand always rotates clockwise
- Adjustable bezel for zeroing
- Precision ball bearing mounted, interchangeable carbide point swivels through 240°
- M1.4 thread

## Baty Lever Type Dial Test Indicators are supplied with

- 2mm diameter contact point – fitted
- Contact point key
- Dovetail stem 8mm/H7
- Tough plastic case

**Note:** Models HL3 and HL7 are not supplied with additional contact points.

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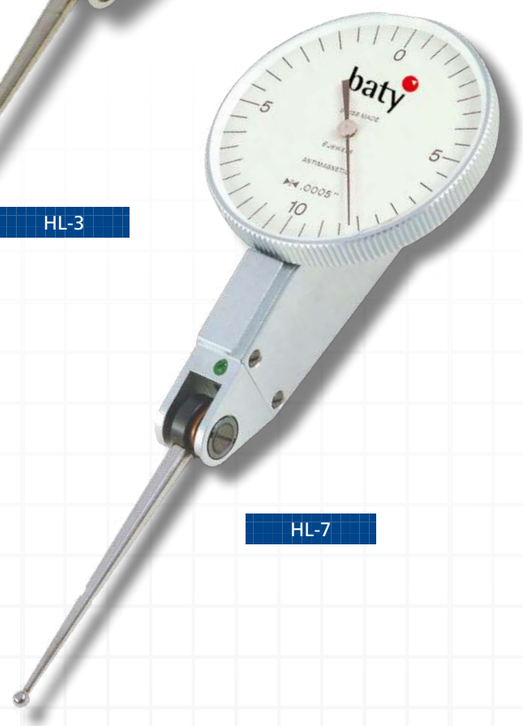
# Lever Type Dial Test Indicator

The **Baty HL series** of lever-type dial test indicators are top quality, Swiss-made precision instruments.

Low inertia jewelled movements and rugged construction make them suitable for universal applications in the workshop and inspection departments.

HL-3




HL-7

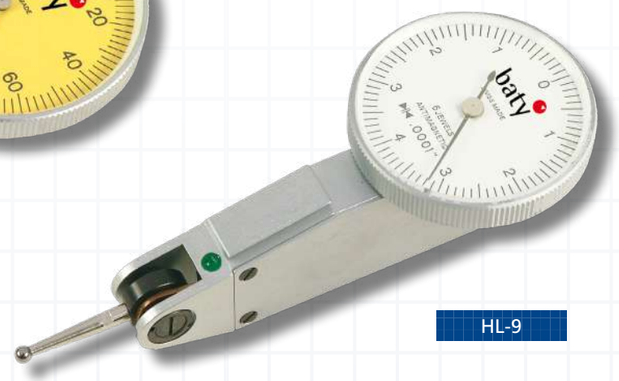
**Lever Type Dial Test Indicator - Metric**

| Code No | Range (mm) | Length (mm) | Resolution (mm) | Dial Reading (mm) | Dial Diameter (mm) |
|---|---|---|---|---|---|
| HL-1 | 0.8 | 12 | 0.01 | 0-40-0 | 27 |
| HL-2 | 0.8 | 12 | 0.01 | 0-40-0 | 37 |
| HL-3 | 0.5 | 36 | 0.01 | 0-25-0 | 37 |
| HL-4 | 0.2 | 12 | 0.002 | 0-100-0 | 37 |

**Lever Type Dial Test Indicator - Imperial**

| Code No | Range (inch) | Length (inch) | Resolution (inch) | Dial Reading (inch) | Dial Diameter (inch) |
|---|---|---|---|---|---|
| HL-5 | 0.03 | 0.5 | 0.0005 | 0-15-0 | 1 |
| HL-6 | 0.03 | 0.5 | 0.0005 | 0-15-0 | 1.5 |
| HL-7 | 0.02 | 1.437 | 0.0005 | 0-10-0 | 1.5 |
| HL-8 | 0.008 | 0.5 | 0.0001 | 0-4-0 | 1.5 |
| HL-9 | 0.008 | 0.5 | 0.0001 | 0-4-0 | 1 |

HL-4




HL-9

# Lever Type Dial Test Indicator **Accessories**

## At a Glance

- Compatible with the Baty Lever Type Dial Test Indicators

331-1.4

333-1.4

322-1.4

911-G

934

**Lever Type Dial Test Indicator**

| Code No | Description |
|---|---|
| 912-G | Dovetail Stem 5.5mm |
| 917 | Dovetail Swivel Clamp Ø 5.5mm and Ø 9.5mm |
| 928 | Dovetail Swivel Clamp 25mm long x Ø 9.5mm |
| 332-1.4 | Stylus 37mm long x Ø 2mm (M1.4 thread) |
| 331-1.4 | Stylus 37mm long x Ø 1mm (M1.4 thread) |
| 321-1.4 | Stylus 12mm long x Ø 1mm (M1.4 thread) |
| 322-1.4 | Stylus 12mm long x Ø 2mm (M1.4 thread) |
| 323-1.4 | Stylus 12mm long x Ø 3mm (M1.4 thread) |
| 333-1.4 | Stylus 37mm long x Ø 3mm (M1.4 thread) |



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# Dial Thickness Gauges

## Features

- The gauge covers web-to-web distances of 57-500mm ($2\frac{1}{4}$"-20")
- Set supplied in a wooden case
- The special dial indicators may be purchased separately

FTM-1

Baty dial thickness gauges are direct reading instruments for quick and accurate measurement of rod, strip or sheet material.

All standard instruments are supplied with 10mm (0.39") diameter flat contacts.

The well balanced frame and handgrip make these thickness gauges very easy to use for the measurement of sheet materials.

The range of throat depths permit measurements to be made across the sheet. The lifting lever and springloaded spindle ensures controlled contact pressure on the work.

**Dial Thickness Gauges**

| Code No | Range (mm) | Capacity (mm) | Depth (mm) | Resolution (mm) | Graduation |
|---|---|---|---|---|---|
| FTM-1 | 10 | 10 | 30 | 0.01 | Dial-0-100 |
| FTM-5 | 10 | 25 | 50 | 0.01 | Dial-0-100 |

# Tyre Tread Depth Gauge

## Features

- The gauge can be supplied with a calibration certificate traceable to national standards if required.
- Tyre gauge comes supplied in a pvc wallet.

The **Baty tyre tread depth gauge** has been specially designed to measure the remaining tread depth on motor vehicle tyres to a very high degree of accuracy.

Many simple gauges currently available give only an approximate indication of depth, and have been found inaccurate up to 0.5mm. Such errors could be the difference between legal and illegal!

The Baty tyre tread gauge has colour-coded bands on the dial

**GREEN BAND**: tread depth in excess of 2mm and is therefore safe/legal

**YELLOW BAND:** tread depth between 2mm and 1.6mm: depth legal but CAUTION – tyre will need replacing very soon

**RED BAND**: tread depth less than 1.6mm: ILLEGAL! Tyre must be replaced

TG10-BM/1

| Tyre Tread Depth Gauge | |
|---|---|
| **Code No** | **Description** |
| **TG10-BM/1** | Tyre Tread Depth Gauge Kit |
| **TG10-13/B** | Tyre Tread Depth Gauge Setting Piece |

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# Crankshaft Alignment Gauge Set

## Features

- The gauge covers web-to-web distances of 57-500mm (21/4"-20")
- Set supplied in a wooden case
- The special dial indicators may be purchased separately



If an engine crankshaft is not correctly aligned in its bearings, it distorts and becomes subject to damaging stresses. Any misalignment causes a change in the distance between webs when the shaft revolves and can be detected by placing an indicating device between the webs.

The **Baty Crankshaft Alignment Gauge** is designed for this purpose. Its contacts are pointed and fit into dimples in the webs. A heavy spring pressure ensures that the gauge is retained but is free to turn in relation to the crankshaft and an adjustable balance weight restrains the gauge against rotation of the crankshaft so that the dial always faces the inspector.

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Optical Measurement

# R14
# Profile Projector

## Features

- 340mm (14") screen with 90° crosslines and chart clips
- Profile illumination with halogen lamp and green filter
- Lens magnification choice: 10x, 20x, 50x
- Surface illumination (fibre optic)
- Helix adjustment of light source ± 7° for accurate thread form projection
- Cast Iron workstage with with machined slot for holding accessories
- Workstage measuring range of 175mm x 100mm (7" x 4")
- Digital angle measurement to 1 minute
- 0.5 micron resolution

## Available Options

- Internally fitted automatic edge sensor
- Swing over lamphouse to allow access the end face of longer parts to be measured using fibre optic surface illumination
- Various digital readout units are available to suit individual requirements
- Cabinet stand ensures a solid base and provides storage
- Range of workholding options. See page 18

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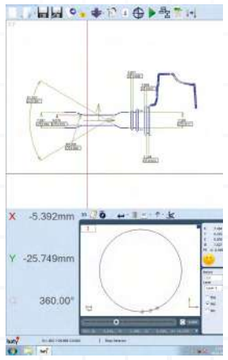
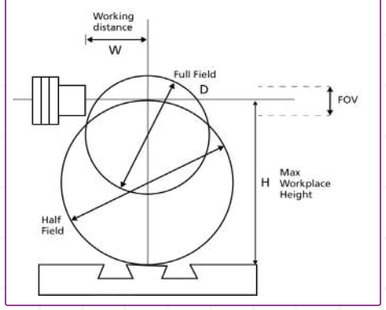
The **Baty R14 Bench Mount Profile Projector** with its 340mm screen combines high accuracy non-contact measurement and inspection with a large 175mm x 100mm measuring range.

Choice of digital readouts and optional automatic profile edge detection ensures that you can have the projector that fits your requirements. The horizontal light path configuration is ideally suited to turned machined parts that can be secured to the workstage using a range of optional accessories from the Baty fixture family. The compact and robust lightweight chassis makes the R14 ideal for workshop environments.

R14-FT2-E




### Horizontal Stage Systems




# R14
# Profile Projector

Horizontal Bench Profile Projector XY DRO with 340mm diameter screen. Slotted cast iron workstage with 175mm lateral & 100mm vertical travel, 0.5 micron resolution as standard. The R14 is available with the following readout options:

## R14-XLS

Two axis digital readout featuring a colour LCD display, Absolute / Incremental modes, Zero reset, mm/inch & Radius/ Diameter conversion.

## R14-GXL

Geometric readout with 7" colour, touch screen, measurement functions for point, line, circle, slot, distance and angle. Automatic feature list and graphical view with program creation and tolerance function. Simple measurement result output through 9-pin RS232 & USB 2.0 ports.

## R14-FT2-E

A complete touch screen DRO with 2D Fusion software using the built-in automatic optical edge sensor. Measured features appear in a graphical view with custom dimensions and geometric tolerances, colour coded to display a pass or fail. This view can be exported as part of a suite of report options including tabulated dimensions, form error and historical SPC data. DXF compatible to create overlays for comparison to measured data or to automatically produce inspections from drawing files. Supplied with screen mounted optical edge sensor. Integrated Mini PC running Windows 11 and built in 22" touch screen monitor.

| Projector Type | R14 | | |
|---|---|---|---|
| Magnification | 10x | 20x | 50x |
| Field Of View FOV | 35mm | 18mm | 7mm |
| Working Distance (W) | 82mm | 38mm | 15mm |
| Maximum Half Field | 103mm | 103mm | 45mm |
| Working Diameter Full Field (D) | 120mm | 109mm | 31mm |

All dimensions in mm, ref diagram on page 4

| Lens Systems | |
|---|---|
| Code No | Description |
| 122-600-X10 | Lens system - magnification 10x |
| 122-601-X20 | Lens system - magnification 20x |
| 122-603-X50 | Lens system - magnification 50x |

| Baty R14 | | |
|---|---|---|
| Code No | Description | Functions |
| R14-XLS | Horizontal projector with Acu-rite DC102 readout | Basic X, Y and rotation measurement |
| R14-GXL | Horizontal projector with Metlogix MX200 touch screen display | Geometric measurement functions and tolerancing |
| R14-FT2-E | Horizontal projector with Fusion 2D touch screen DRO & optical edge detection | Windows 22" touch screen with full reporting and optical edge detection |



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# R400
# Profile Projector

## Features

- 400mm (16") screen with 90° crosslines and chart clips
- Profile illumination is LED with a green filter
- Lens magnification choice: 10x, 20x, 50x and 100x
- Surface illumination (fibre optic)
- Helix adjustment of light source ± 7° for accurate thread form projection
- Cast Iron workstage with 2 machined slots for holding accessories
- Workstage measuring range of 300mm x 150mm (12" x 6")
- Digital angle measurement to 1 minute
- 0.5 micron resolution

## Available Options

- Internally fitted automatic edge sensor
- Swing over lamphouse to allow access the end face of longer parts to be measured using fibre optic surface illumination
- Various display units to suit individual requirements
- Cabinet stand ensures a solid base and provides storage
- Other options include foot switch control

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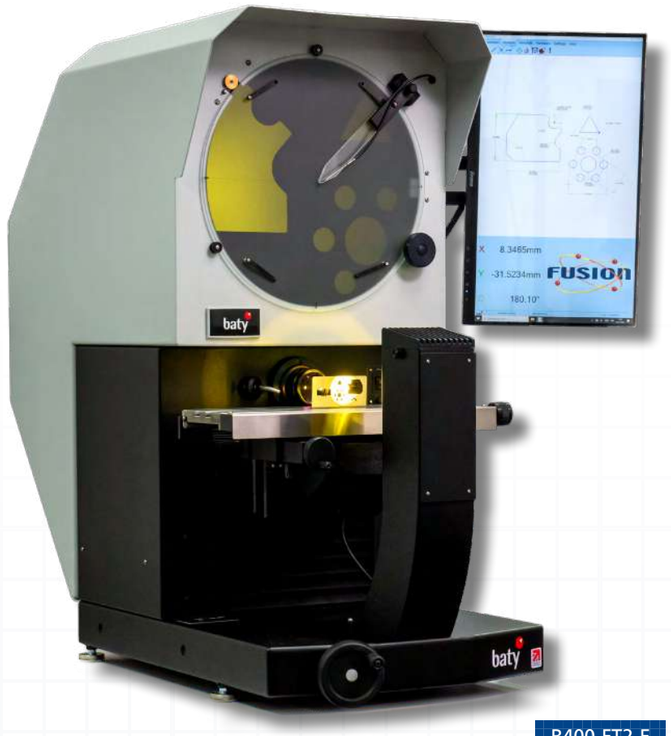
The Baty R400 bench mounted profile projector with its 400mm screen combines high accuracy non-contact measurement and inspection with a large 300mm x 150mm measuring range.

Choice of digital readouts and optional automatic profile edge detection ensures that you can have the projector that fits your requirements. The horizontal light path configuration is ideally suited to turned machined parts that can be secured to the workstage using a range of optional accessories from the Baty fixture family. The robust design of the R400 makes it suitable for both the shop floor and the standards room.




R400-FT2-E

Horizontal Bench Profile Projector XY DRO with 400mm diameter screen. Twin slotted cast iron workstage with 300mm lateral & 150mm vertical travel. The R400 is available with the following readout options:

## R400-XLS

Two axis digital readout featuring a colour LCD display, Absolute / Incremental modes, Zero reset, mm/inch & Radius / Diameter conversion.

## R400-GXL

Geometric readout with 7" colour, touch screen, measurement functions for point, line, circle, slot, distance and angle. Automatic feature list and graphical view with program creation and tolerance function. Simple measurement result output through 9-pin RS232 & USB 2.0 ports.

## R400-FT2-E

A complete touch screen DRO with 2D Fusion software using the built-in automatic optical edge sensor. Measured features appear in a graphical view with custom dimensions and geometric tolerances, colour coded to display a pass or fail. This view can be exported as part of a suite of report options including tabulated dimensions, form error and historical SPC data. DXF compatible to create overlays for comparison to measured data or to automatically produce inspections from drawing files. Supplied with screen mounted optical edge sensor. Integrated Mini PC running Windows 11 and built in 22" touch screen monitor.

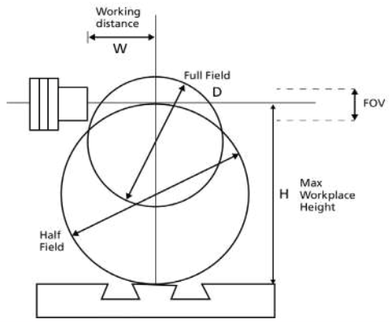
| Projector Type | R400 | | | |
|---|---|---|---|---|
| Magnification | 10x | 20x | 50x | 100x |
| Field Of View FOV | 40mm | 20mm | 8mm | 100mm |
| Working Distance (W) | 80mm | 82mm | 53mm | 43mm |
| Max Workpiece Height (H) | 184mm | 185mm | 185mm | 143mm |
| Working Diameter (D) | 179mm | 176mm | 147mm | 122mm |

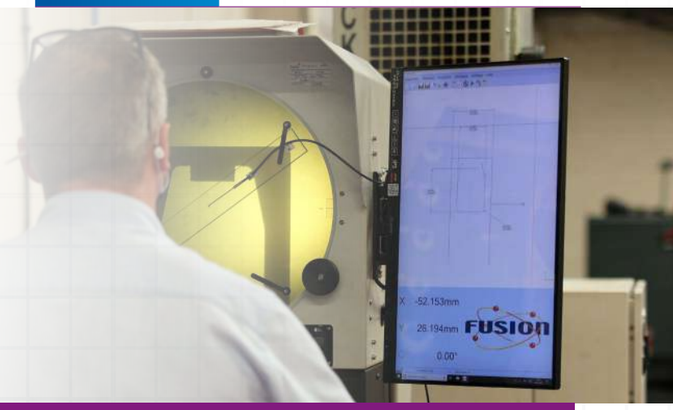
All dimensions in mm

| Lens Systems | |
|---|---|
| Code No | Description |
| R400-030-X10 | Lens system - magnification 10x |
| R400-031-X20 | Lens system - magnification 20x |
| R400-032-X50 | Lens system - magnification 50x |
| R400-033-X100 | Lens system - magnification 100x |



Horizontal Stage Systems




| Baty R400 | | |
|---|---|---|
| Code No | Description | Functions |
| R400-XLS | Horizontal projector with Acu-rite DC102 readout | Basic X, Y and rotation measurement |
| R400-GXL | Horizontal projector with Metlogix MX200 touch screen display | Geometric measurement functions and tolerancing |
| R400-FT2-E | Horizontal projector with Fusion 2D touch screen DRO & optical edge detection | Windows 22" touch screen with full reporting and optical edge detection |

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# R600
# Profile Projector

## Features

- 600mm (24") screen with 90° cross lines and chart clips
- Heavy duty cast iron workstage with 450mm x 200mm (18" x 8") measuring range and 2 machined slots for workpiece holders
- Helix rotation of ± 15° on workstage for measuring threadforms or cutting tools
- Vertical 200mm (8") Y axis power driven with joystick control
- Lens magnification choice -10x, 20x, 50x
- 4 position rotating lens turret for ease of lens changing
- Profile illumination with halogen lamp and green filter
- Screen hood and curtains for use in bright ambient light conditions
- Surface illumination (fibre optic)
- Digital angle measurement to 1 minute
- 0.5 micron resolution



## Available Options

- Internally fitted automatic edge sensor to allow the use of overlay charts on an unobstructed screen
- Motorised X axis with control added to existing joystick
- Various digital readout units are available to suit individual requirements

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The **Baty R600** with its 600mm (24") screen and high specification presents the capability to make simple comparative non-contact measurement through to complex programmed measuring sequences with SPC capability and automatic edge detection.

The horizontal light beam configuration is ideally suited to large machined or turned workpieces for mounting in vee blocks and centres.

R600-FT2-E



# R600
# Profile Projector

Horizontal light path, floor standing Profile Projector with XY DRO and 600mm diameter screen. Slotted cast iron workstage with 450mm lateral & 200mm vertical travel, as well as 0.5-micron resolution as standard. The R600 is available with the following readout options:

## R600-XLS

Two axis digital readout featuring a colour LCD display, Absolute / Incremental modes, Zero reset, mm/inch & Radius / Diameter conversion.

## R600-GXL

Geometric readout with 7" colour, touch screen, measurement functions for point, line, circle, slot, distance and angle. Automatic feature list and graphical view with program creation and tolerance function. Simple measurement result output through 9-pin RS232 & USB 2.0 ports.

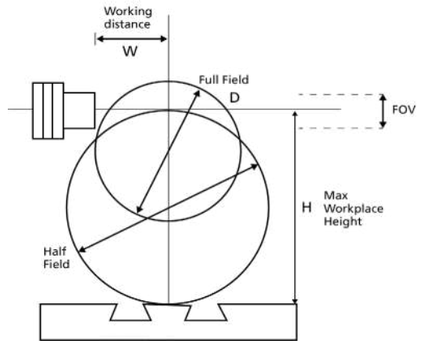
## R600-FT2-E

A complete touch screen DRO with 2D Fusion software using the built-in automatic optical edge sensor. Measured features appear in a graphical view with custom dimensions and geometric tolerances, colour coded to display a pass or fail. This view can be exported as part of a suite of report options including tabulated dimensions, form error and historical SPC data. DXF compatible to create overlays for comparison to measured data or to automatically produce inspections from drawing files. Supplied with screen mounted optical edge sensor. Integrated Mini PC running Windows 11 and built in 22" touch screen monitor.

| Projector Type | R600 | | |
|---|---|---|---|
| Magnification | 10x | 20x | 50x |
| Field Of View FOV | 60mm (2.36") | 30mm (1.8") | 12mm (.47") |
| Working Distance (W) | 135mm (5.31") | 132mm (5.19") | 93mm (3.15") |
| Max Workpiece Height (H) | 343mm (13.50") | 343mm (13.50") | 343mm (13.50") |
| Working Diameter | 343mm (13.50") | 343mm (13.50") | 343mm (13.50") |

All dimensions in mm / (inches)

**Horizontal Stage Systems**






**Lens Systems**

| Code No | Description |
|---|---|
| 54-650-X10 | Lens system - magnification 10x |
| 202-1852-X20 | Lens system - magnification 20x |
| 202-1854-X50 | Lens system - magnification 50x |

**Baty R600**

| Code No | Description | Functions |
|---|---|---|
| R600-XLS | Horizontal projector with Acu-rite DC102 readout | Basic X, Y and rotation measurement |
| R600-GXL | Horizontal projector with Metlogix MX200 touch screen display | Geometric measurement functions and tolerancing |
| R600-FT2-E | Horizontal projector with Fusion 2D touch screen DRO & optical edge detection | Windows 22" touch screen with full reporting and optical edge detection |

# SM300
# Profile Projector

## Features

- Workstage measuring range of 150mm (6") x 50mm (2")
- Highly versatile and easy to operate
- Large travel range as standard
- Linear scale stage with 0.0005mm resolution
- Fine ground glass screen for clear image
- Screen complete with cross hair lines and chart clips
- Built-in profile and surface illumination
- Projection lens 10x with half reflecting mirror
- Projection lens 20x with half reflecting mirror
- Projection lens 50x with half reflecting mirror
- Projection lens 100x with half reflecting mirror
- Display-readout unit GMR included in standard delivery

## Available Options

- Rotary table 360°
- Swivel centre support
- Holder with clamp
- V-block with clamp
- Blue filter

300mm screen vertical light path projector with multi-function readout unit and printer.

Robust design with full geometric measuring functionality ideal for the shop floor.

SM300-GMR

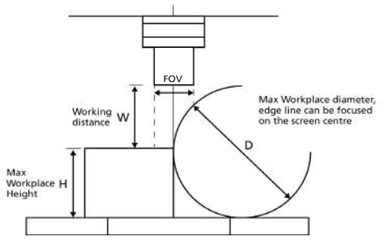
Vertical light path, bench mounted Profile Projector with XY DRO and 300mm (12") diameter screen. Linear scale, glass workstage with 150mm lateral & 50mm (6" x 2") longitudinal travel, as well as 0.5-micron resolution as standard.

## GMR Readout

The Baty GMR readout features geometric measuring functions including skew, cartesian/polar coordinates, mm/inch selection and angle readout, all on an easy-to-read LCD screen.

| Projector Type | SM300 | | | |
|---|---|---|---|---|
| Magnification | 10x | 20x | 50x | 100x |
| Field Of View FOV | 30mm | 15mm | 6mm | 3mm |
| Working Distance W | 77.7mm | 44.3mm | 24.5mm | 25.3mm |
| Max Workpiece Height H | 80mm | 80mm | 80mm | 80mm |
| Max Workpiece Diameter D | 160mm | 130mm | 55mm | 60mm |

### Vertical Stage Systems




### Lens Systems

| Code No | Description |
|---|---|
| W-SM300-50 | Lens system - magnification 10x, with reflecting mirror |
| W-SM300-55 | Lens system - magnification 20x, with reflecting mirror |
| W_SM300-60 | Lens system - magnification 50x, with reflecting mirror |
| W-SM300-65 | Lens system - magnification 100x, with reflecting mirror |

### Baty SM300

| Code No | Description |
|---|---|
| SM300-GMR | Vertical projector with geometric readout |

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# SM350
# Profile Projector

## Features

- 350mm dia (14") screen
- Digital angle measurement to 1 minute
- Built in helix adjustment
- Sturdy all-steel design
- Heavy duty cross roller bearings
- Backlash free plain rod drives with rapid traverse and fine adjust
- Easy-view vertical screen
- Lens magnification choice: 10x, 20x, 50x
- Large stage travel 250mm x 125mm (10" x 5")
- Rotating chart clips
- Fibre optic illumination for surface measurement
- 0.5 micron resolution

## Available Options

- Automatic screen-mounted edge sensing (FT2-E model only)
- Heavy duty cabinet stand
- 3-position rotating lens turret

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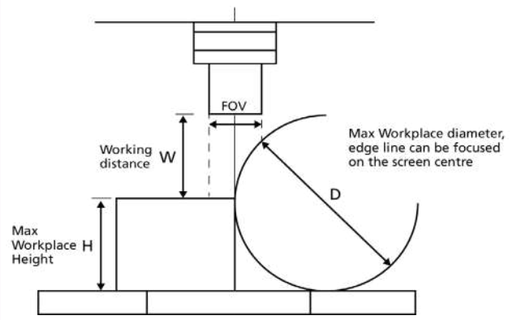
This vertical light path 350mm / 14" diameter screen bench projector features a large, heavy duty high precision workstage with 250mm x 125mm (10" x 5") measuring range and 0.5 micron resolution. Another feature is the option of a three lens turret for instant lens changes.

SM350-FT2-E

### Vertical Stage Systems




# SM350
# Profile Projector

Vertical Bench Profile Projector XY DRO with 350mm diameter screen. Complete with 250mm x 125mm (10" x 5") work stage with ultra smooth plain rod drives & rapid traverse on BOTH axis, 0.5 micron resolution as standard. Digital Angle Protractor & 2 'XLS' AXIS DIGITAL DISPLAY. Surface illumination included. The SM350 is available with the following readout options:

## SM350-XLS

The XLS is a simple two axis digital readout featuring a colour LCD display, Absolute / Incremental modes, Zero reset, Mm/inch & Radius / Diameter conversion.

## SM350-GXL

Vertical Bench Profile Projector 2D DRO with 340mm diameter screen. Complete with SA-2510-05, 250mm x 125mm workstage with ultra smooth plain rod drives & rapid traverse on BOTH axis, 0.5 micron resolution as standard. Digital Angle Protractor & 2 axis 'GXL' digital display with GEOMETRIC FUNCTIONS. Surface illumination.

## SM350-FT2-E

A complete touch screen DRO with 2D Fusion software using the built-in automatic optical edge sensor. Measured features appear in a graphical view with custom dimensions and geometric tolerances, colour coded to display a pass or fail. This view can be exported as part of a suite of report options including tabulated dimensions, form error and historical SPC data. DXF compatible to create overlays for comparison to measured data or to automatically produce inspections from drawing files. Supplied with screen mounted optical edge sensor. Integrated Mini PC running Windows 11 and built in 22" touch screen monitor.

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| Projector Type | SM350 | | |
|---|---|---|---|
| Magnification | 10x | 20x | 50x |
| Field Of View FOV | 35mm | 17mm | 7mm |
| Working Distance | 84mm | 37mm | 17mm |
| Max. Half Field | 220mm | 162mm | 51mm |
| Working Diameter Full Field | 171mm | 130mm | 37mm |
| Max. Height Object | 114mm | 113mm | 111mm |

**Lens Systems**

| Code No | Description |
|---|---|
| 122-600-X10 | Lens system - magnification 10x |
| 122-601-X20 | Lens system - magnification 20x |
| 122-603-X50 | Lens system - magnification 50x |

**Baty SM350**

| Code No | Description | Functions |
|---|---|---|
| SM350-XLS | Vertical projector with Acu-rite DC102 readout | Basic X, Y and rotation measurement |
| SM350-GXL | Vertical projector with Metlogix MX200 touch screen readout | Geometric measurement functions and tolerancing |
| SM350-FT2-E | Vertical projector with Fusion 2D touch screen DRO & optical edge detection | Windows 11 22" touch screen with full reporting and optical edge detection |

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# SM20
# Profile Projector

## Features

- 500mm (20") screen with 90 degree crosslines and chart clips
- Angled screen for easy viewing
- Profile illumination with halogen lamp and green filter
- Surface illumination through twin fibre optics for bright full colour surface inspection
- Single lens mounting
- Lens magnification choice: 10x, 20x, 50x
- Helix adjustment of light source for accurate thread form projection
- Large stage travel 250mm x 125mm (10" x 5")
- Digital angle measurement
- 0.5 micron resolution

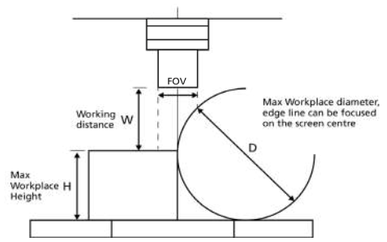
## Available Options

- Screen hood and curtains with generous proportions for use in bright ambient light conditions
- 3 position lens turret for easy lens changing
- Range of workholding options

The Baty SM20 is a vertical light path floor standing profile projector with a 500mm / 20" screen which features a large heavy duty high precision workstage with 250mm x 125mm measuring range and a 0.5 micron resolution.

SM20-FT2-E

Vertical Stage Systems




Vertical light path, floor standing Profile Projector with XY DRO and 500mm diameter screen Linear scale, glass workstage with 250mm lateral & 125mm longitudinal travel, as well as 0.5-micron resolution as standard. The SM20 is available with the following readout options:

## SM20-XLS

Two axis digital readout featuring a colour LCD display, Absolute / Incremental modes, Zero reset, mm/inch & Radius / Diameter conversion.

## SM20-GXL

Geometric readout with 7" colour, touch screen, measurement functions for point, line, circle, slot, distance and angle. Automatic feature list and graphical view with program creation and tolerance function. Simple measurement result output through 9-pin RS232 & USB 2.0 ports.

## SM20-FT2-E

A complete touch screen DRO with 2D Fusion software using the built-in automatic optical edge sensor. Measured features appear in a graphical view with custom dimensions and geometric tolerances, colour coded to display a pass or fail. This view can be exported as part of a suite of report options including tabulated dimensions, form error and historical SPC data. DXF compatible to create overlays for comparison to measured data or to automatically produce inspections from drawing files. Supplied with screen mounted optical edge sensor. Integrated Mini PC running Windows 11 and built in 22" touch screen monitor.

| Projector Type | SM20 | | |
|---|---|---|---|
| Magnification | 10x | 20x | 50x |
| Condenser | L | L | S |
| Field of view | 50mm | 25mm | 10mm |
| Max. Diameter D | 200mm | 200mm | 180mm |
| Max. Focal Plane Height (Profile lighting) | 205mm | 203mm | 240mm |
| Max. End Mill Height (surface lighting) | 150mm | 153mm | 150mm |

**Lens Systems**

| Code No | Description |
|---|---|
| 54-650-X10 | Lens system - magnification 10x |
| 202-1852-X20 | Lens system - magnification 20x |
| 202-1854-X50 | Lens system - magnification 50x |

**Baty SM20**

| Code No | Description | Functions |
|---|---|---|
| SM20-XLS | Vertical projector with Acu-rite DC102 readout | Basic X, Y and rotation measurement |
| SM20-GXL | Vertical projector with Metlogix MX200 touch screen readout | Geometric measurement functions and tolerancing |
| SM20-FT2-E | Vertical projector with Fusion 2D touch screen DRO & optical edge detection | Windows 22" touch screen with full reporting and optical edge detection |

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# Readout Options



All units are fully compatible with our full range of profile projectors, allowing for upgrades as required, excluding the SM300 that is only available with the GMR readout.

## XLS Readout

The new Acu-rite DRO-100 Series LCD display unit. A simple two axis digital readout for point to point X,Y or R,A measurements with absolute/incremental readings. Functions also include a zero reset, an instant inch/mm conversion and an instant radius/diameter conversion.

XLS Readout

## GXL Readout

As XLS with geometric functions for skew alignment, angle, radius, point, line, circle. Automatic feature list and graphical view. Macro programming facility guides the operator through the measurement process. Feature tolerancing and standard report printout. Footswitch compatible.

- Graphical display of measured feature
- Radius, angle, line, point, skew
- Inch, metric, polar, cart
- Data output to PC/printer
- Store inspection routines to prompt operator
- Tolerancing
- Multi-language menu
- On-screen help

GXL Readout

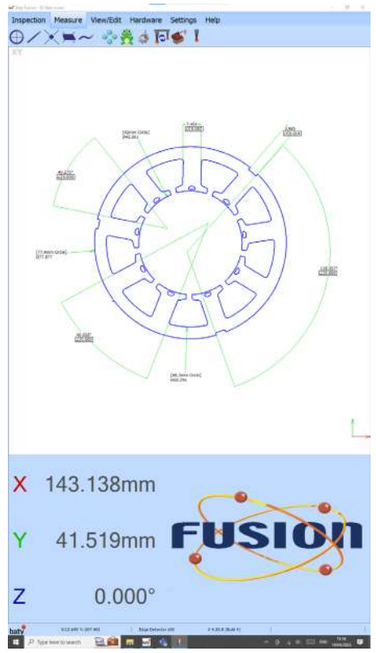
## Fusion Touch Screen Readout

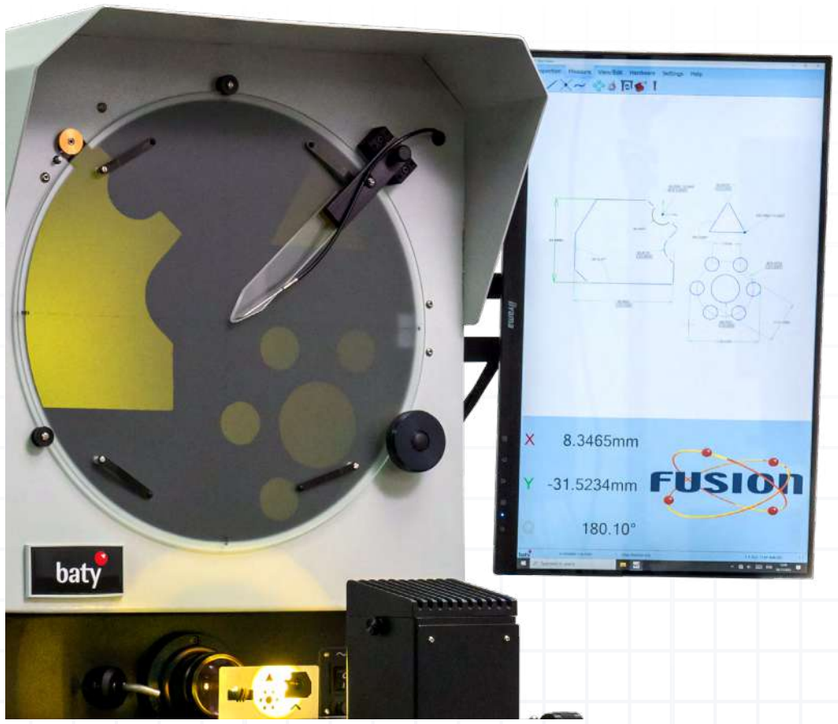
The **FT2-E** is our comprehensive touch screen DRO running 2D Fusion software, using a built-in optical edge detector to automatically take data points on the fly. A datapoint will automatically be taken whenever an edge on the projected image is passed under the screen-mounted fibre optic sensor, or the optional internally mounted edge sensor on the R400. Points can also be taken manually via the touchscreen, or the optional footswitch.

The software allows easy dimensioning between features, for quick and accurate measurement of distances, angles, and other geometric relationships. Fusion can also generate comprehensive reports with the measured data, including tabulated dimensions, graphic details and SPC. These reports can be viewed in the software, opened it Excel or data can be exported as a CSV file.

Importing DXF overlays allows operators to compare live measurements on parts to drawings or golden samples to easily verify their accuracy. Using Leapfrog allows users to measure parts larger than the stage, by stitching together smaller sections of the part to view or dimension the full part in one inspection.

The FT2-E offers our most comprehensive suite of features to maximise the capability of our profile projectors, making it a powerful tool for precision and inspection tasks in any industry.

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# Options & Accessories
## Profile Projectors

SA-527

SA-250

52-602

SA-256 / SA-258

52-701 / 52-604

SA-152

52-600 / 52-603

SA-260

52-605

SA-542 Large V Blocks and Centres

SA-543 Riser Blocks

R600 only

Rotary Glass Stage SA-245-2

SA-370 Back Stop

SA-371 Side Stop

FM-2510 Open Frame Fixturing

SM350 & SM20 stages only



# Options & Accessories
## Profile Projector

| R14 / R400 Accessories | |
|---|---|
| **Code No** | **Description** |
| SA-328-KIT | Cabinet stand |
| SA-250 | Iris diaphragm |
| SA-256 | V blocks |
| SA-258 | Spring loaded centres |
| SA-259 | Riser blocks 38mm ( 1 1/2") for SA-256 |
| SA-152 | Vice stage and vice |
| SA-260 | Swivel vice |
| SA-276 | Single vee and clamp (Vee parallel to optic axis) |
| SA-153 | Fixture base |
| SA-527 | Glass plate work holder |

| R600 Accessories | |
|---|---|
| **Code No** | **Description** |
| SA-551 | Iris diaphragm for SM350, R600 and SM20 |
| SA-542 | Large vee blocks and centres |
| SA-543 | Riser blocks |
| SA-527 | Glass plate work holder |
| SA-606 | Screen chart rest bar |

| Fixture Family Accessories | |
|---|---|
| **Code No** | **Description** |
| 52-600 | Self centering vice |
| 52-601 | Dual axis vee block and clamp to Ø 15mm |
| 52-602 | Dual axis V block and clamp to Ø 30mm |
| 52-603 | Precision rotary base |
| 52-604 | Universal base |
| 52-605 | Precision ground steel alignment feature |
| 52-701 | Dual axis vee block fitted with side base |

| SM350 / SM20 Accessories | |
|---|---|
| **Code No** | **Description** |
| SA-245-2 | Rotary glass stage |
| SA-370 | Back stop |
| SA-371 | Side stop |
| FM-2510 | Open frame fixturing for 2510 stage |
| SA-551 | Iris diaphragm for SM350, R600 & SM20 |



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# baty Reprorubber Metrology Grade Casting Material

## Why choose Reprorubber?

- Advantages over other hard-copy replicating materials include:
- Quick casting – zero shrinkage
- No release agent required – will not stick to part
- Surface finish replication is exact with excellent optical properties easily checked on an optical comparator or video inspection machine
- Copies can be re-copied from original mould
- Replicas are permanent – will not leach out, ooze out, or gas out
- No more 16 hour cure time as with RTV silicones
- More accurate than all other RTV compounds



## Applications

You can take impressions of:

- All metals
- Non metals
- Paper or cardboard items
- Wood, marble etc
- All plastics
- Rubber
- Ceramic and glass items

## Other Uses Include

- Prototypes of rubber type components such as gaskets, washers, etc
- Making joints where flexibility is required
- As a mask for high temperature plasma spray of metallic coatings
- Fixturing where semi-rigid structure is desired

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## Original Reprorubber® Thin Pour Final Colour: Light Green

For internal-shape applications where a thin pour will completely fill the cavity without voids. A complete replica casting is quickly formed.

- Pour equal parts of the catalyst and base into the mixing cups and stir for 30 seconds until combined. This is now active and must be poured within 4-4.5 minutes
- Pour the mixture into the cavity and wait for 8-10 minutes for it to cure
- Kits include graduated mixing cups, wooden spatulas and instructions

## Original Reprorubber® Quick Setting Putty Final Colour: Light Blue

Excellent for moulding over external shapes, and can also be used for internal cavities where pressure can be applied or a weighted object can be placed on top.

- Roll two equal-sized balls of catalyst putty and base putty and simply knead them together like dough for 30 seconds.
- You can manipulate the putty for 1-2 minutes. Spread over the master, pushing down with fingers and wait for 8-10 minutes for it to cure

## New Reprorubber® Orange – Medium Body Pre-filled Cartridges - Final Colour: Orange

New Medium Body (Medium Viscosity – Medium Durometer) casting material ideal for both internal and external applications. Disposable pre-filled dual barrel 50ml cartridges can quickly dispense casting material utilising the REPRO-MIX II Gun System.

- The catalyst and base are extruded from the double-barrelled cartridge in a uniform mixture
- Cover the part with the mixture, the paste can be manuplulated for 1-2 minutes
- Cure time is 5-6 minutes

BOWERS GROUP

# Reprorubber Metrology Grade Casting Material



## Quick Dispense Cartridge System Kit

Contains everything you need to easily create highly accurate, zero shrinkage replicas.

Each kit includes 1 each:

- Repro-Mix II reusable dispensing gun
- 6 each 50ml pre-filled Reprorubber disposable cartridges
- 15 disposable mixing nozzles
- 2 micro injector snap-on nozzles
- Deluxe fitted carrying case

## Physical advantages over the hard-copy replicas

- Replica is easy to remove – even if they are in under cuts or grooves
- Cross-sectioning of replica is easily accomplished with a knife or razor
- It can then be checked on an optical comparator or microscope
- Surface finish replication is exact with excellent optical properties
- Reprorubber copies can be re-copied (copy from a 'female mould' yields a male-shaped replica)
- Replicas are permanent – will not leach or ooze out nor gas out
- No more 16 hour cure time as with RTV silicones
- More accurate than all other RTV compounds
- Reprorubber putty will withstand up to 600°F (or more)

16305

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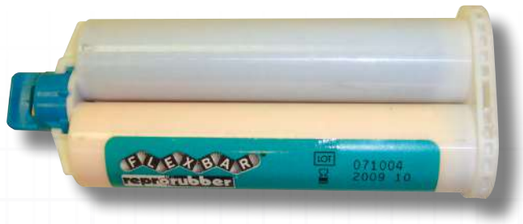
# **Reprorubber** Metrology Grade Casting Material

| Projector Type | Reprorubber Thin Pour | Reprorubber Medium Body Orange | Reprorubber Quick Setting Putty |
|---|---|---|---|
| Mixing Time | 30 seconds | | 30-60 seconds |
| Manipulation Time | 4-4.5 minutes | 2.5 minutes | 2.5-3 minutes |
| Setting Time (at room temperature) | 8-9 minutes | 5-6 minutes | 5-6.5 minutes |
| Permanent Deformation | 0.2% | 0.3% | 0.3% |
| Dimensional Stability | less than 0.50% | less than 0.40% | less than 0.25% |
| Tear Strength | 44 pounds per sq inch | 300 pounds per sq inch | 105 pounds |
| Elongation | 60% at break | 70% at break | 6.3% at break |
| Durometer (Shore A-2) | 30 (at 15 minutes) | 40 (at 10 minutes) | 50 (at 7 minutes) |
| Temperature Stability | 1 week @ 23°C (72°F) | 1 week @ 23°C (72°F) | 1 week @ 23°C (72°F) |
| Detail Reproduction | Excellent | Excellent | Excellent |

16301




16306



# **Reprorubber** Metrology Grade Casting Material

| Reprorubber | |
|---|---|
| **Ordering Complete Kits:** | |
| **Code No** | **Description** |
| 16300 | Reprorubber Thin Pour (Green) Quick Dispense Cartridge System Kit Complete |
| 16305 | Reprorubber Orange (Medium Body) Quick Dispense Cartridge System Kit Complete |
| 16309 | Reprorubber Combo Kit Quick Dispense Cartridge System Kit, Includes 3 each Thin Pour & 3 each Orange |
| **Ordering Original Mix Your Own Kits: Original Reprorubber® Thin Pour - Final Colour: LIGHT GREEN** | |
| 16116 | Thin Pour 130ml Mix Your Own Trial Kit - Final Colour: Light Green |
| 16135 | Thin Pour 380ml Mix Your Own Kit - Final Colour: Light Green |
| **Ordering Original Mix Your Own Kits: Original Reprorubber® Quick Setting Putty - Final Colour: LIGHT BLUE** | |
| 16129 | 220ml Trial Quick Setting Putty Mix Your Own Kit - Final Colour: Light Blue |
| 16130 | 1 3/4 lb (520ml) Introductory Mix Your Own Kit - Final Colour: Light Blue |
| 16131 | 7lb (2150ml) Economy Mix Your Own Kit - Final Colour: Light Blue |
| **System Refills** | |
| 16301 | Reprorubber Thin Pour (Green) 50ml Cartridge, 1 each |
| 16302 | Reprorubber Thin Pour (Green) 50ml Cartridges, 6 pack |
| 16306 | Reprorubber Orange (Medium Body) 50ml Cartridge, 1 each |
| 16307 | Reprorubber Orange (Medium Body) 50ml Cartridges, 6 pack |
| 16311 | Repro-Mix II Dispensing Gun (reusable) |
| 16313 | Repro-Mix II Helix Mixing Nozzles, 15 Pack |
| 16316 | Repro-Mix II Helix Mixing Nozzles, 100 Pack |
| 16315 | Quick Dispense Cartridge System Fitted Case (without contents) |
| 16314 | Micro Injector Snap-On Nozzle, Pack of 15 |



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# baty Venture Vision System

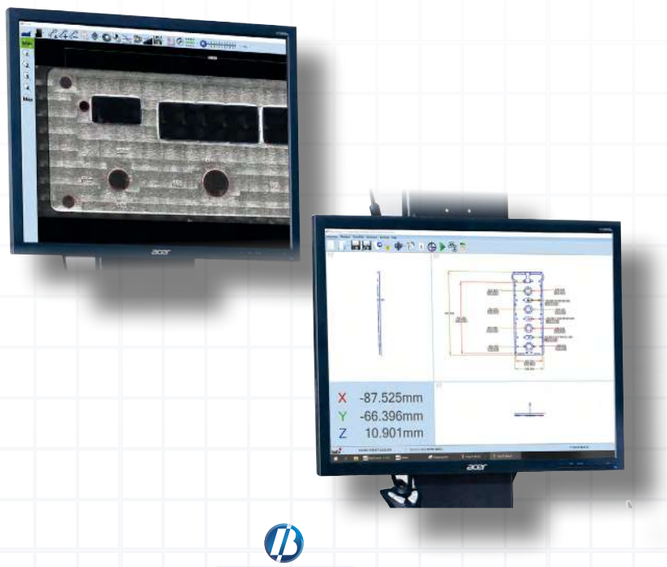
## Features

- 250mm x 125mm x 150mm X, Y, Z measuring range
- Fully dimensioned part view
- CAD import / export
- Profile scanning and best fit to CAD master
- SPC batch information including control charts
- Microsoft Excel compatible
- 64 LED programmable segmented surface illumination
- Advanced video edge detection
- Heavy duty stage with cross roller rail guides
- TTL light and collimated profile illumination
- Manually operated 6.5.1 zoom lens

## Optional

- Steel machine stand with granite top

VI 2510-MAN

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# Venture



| Code No | Description |
|---|---|
| VI-2510-MAN | Manual XYZ Venture with Fusion software, 250mm x 125mm x150mm X, Y, Z measuring range |
| VI-Vision-Stand | All steel machine stand with granite top. (Optional add-on) |

## Venture Manual 3D

Baty's advanced Manual Vision systems provide fantastic 3D measuring and reporting capabilities at an entry level budget. The optional steel stand provides a granite base with anti-vibration mounts and PC controller integration.

## Fusion Software

The Venture Manual is equipped with Fusion metrology software, combining easy to use software with advanced edged detection for full geometric measuring capability. Circles, lines, arcs and points can be measured using dedicated tools and data points are automatically taken along the edge of the feature using Video Edge Detection. All measurements are automatically saved should the inspection need to be replayed for a batch of parts.

Measured features are displayed in the form of a drawing that can be dimensioned to match part drawings. Tolerances can be set for each dimension so that the final inspection reports can classify each dimension as a pass or fail. The dimensional part view that can then be exported or printed along with any other reports made.

## Inspection Playback

During this process the operator is visually guided through the moves in the inspection, the required distance and direction of movement is shown on the part view and the DRO. Once the stage has been positioned correctly and the feature appears in the camera's view, the Video Edge Detection tools take over and measure the feature automatically. All lighting and magnification conditions are also recorded and re-created as each feature is visited. The end result is a highly repeatable process with no operator influence.

## Lighting

The programmable LED lighting is also controlled using the Fusion software. Segmented surface illumination, co-axial, through the lens and profile lighting conditions which can be adjusted to ensure that the feature edge is perfectly illuminated.

## Zoom Lens

The Venture Manual features a high precision zoom lens as standard. This CNC lens has 6 preset zoom positions which provide a magnification range from approx. 30x – 200x* which can be extended with the use of auxiliary lenses. Each preset position is pre-calibrated enabling the user to quickly select the optimum magnification for each measurement and continue measuring.

## Easy Reporting

In addition to a graphical representation of the measured part, detailed reports can be instantly created showing the feature name, nominal dimension, actual, error, upper and lower limits and a green pass or red fail label for each measured dimension in tabulated format. Geometric tolerance details can also be displayed along with a thumbnail view of the part, batch and customer information. These reports can be exported as a Microsoft Excel spreadsheet.



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# Venture 3030 XT CNC

## Multi-sensor System

### Standard XT CNC System

### Features

- Teach and Repeat programming
- Programmable segmented LED lighting
- 6.5:1 zoom optics (with optional CNC control)
- High resolution 0.5µm scales for increased accuracy
- Auto program from CAD
- Scanning and best fitting to DXF
- Fully dimensioned part view
- SPC included
- All reports can be opened directly in Excel™
- Autofocus
- 300mm x 300mm x 200mm XYZ measuring range
- Touch screen joystick controller

### Optional

- Renishaw TP20 touch probe kit
- Renishaw 6 port rack changer
- 12x zoom optics
- Program from CAD and CAD compare modules available
- Vision stand
- CNC zoom
- Smaller 250mm x 115mm stage

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The Venture - CNC machines include a controller and 2 x 19 inch monitors. With Fusion 3D software, 250 x 115 x 150 and 300mm x 300mm x 200mm XYZ stages.

Venture CNC models take the power of fusion software one stage further by completely automating the inspection process and combining contact and non-contact measurements in the same inspection.

CNC programming is a simple teach and repeat process. Just measure the part once and a full CNC program is created automatically. The zoom lens can also be controlled so that magnification and auto focus changes are all recorded into the program.

Venture 3030 CNC XT

### Venture 3D

Baty's CNC Vision systems provide fast, repeatable measurements with easy setup allowing for automatic repeat inspections that don't require additional operator time. The Ventures feature a fully integrated PC controller and an optional steel and granite base.

| Venture XT-CNC | |
|---|---|
| **Code No** | **Description** |
| VI-2510-CNC | Venture 2510 CNC with Fusion 3D software, 250mm to 115mm x 150mm stage, inc. controller, mouse, keyboard and touch screen joystick controller - monitors ordered separately |
| VI-3030-CNC-XT | Venture XT CNC with Fusion 3D software, 300mm x 300mm x 200mm stage, inc. controller, mouse, keyboard and touch screen joystick controller - monitors ordered separately |
| TP-20 Kit | Touch probe kit incl ref ball, module and stylus (Optional add-on) |

### Fusion Software

All machines in the Venture range are equipped with Fusion metrology software, combining easy to use software with advanced edged detection for full geometric measuring capability. standard geometric features and curve profiles' can be measured using dedicated tools and data points are automatically taken along the edge of the feature using Video Edge Detection. All measurements are automatically saved should the inspection need to be replayed for a batch of parts.

Measured features are displayed in the form of a drawing that can be dimensioned to match part drawings. Tolerances can be set for each dimension so that the final inspection reports can classify each dimension as a pass or fail. The dimensional part view that can then be exported or printed along with any other reports made.

### Inspection Playback

Once a program has been created, it can be played back via CNC control. The machine will drive to each measurement position where Video Edge Detection tools will remeasure the features. The same lighting and magnification conditions will be used as originally set. The end result is a highly repeatable process with no operator influence.

### Lighting

The programmable LED lighting is also controlled using the Fusion software. Segmented surface illumination, co-axial, through the lens and profile lighting conditions which can be adjusted to ensure that the feature edge is perfectly illuminated.

### Zoom Lens

All Ventures feature a high precision manually operated zoom lens as standard. This can be upgraded to CNC operation enabling multiple preset magnifications to be stored and pre-calibrated for immediate use. Magnification range as standard is approx. 30x - 200x* and this can be extended with the use of auxiliary lenses.

### Easy Reporting

In addition to a graphical representation of the measured part, detailed reports can be instantly created showing the feature name, nominal dimension, actual, error, upper and lower limits and a green pass or red fail label for each measured dimension in tabulated format. Geometric tolerance details can also be displayed along with a thumbnail view of the part, batch and customer information. These reports can be exported as a Microsoft Excel spreadsheet.

### CNC Functionality



This cutting-edge machine combines both vision and touch probes to measure complex geometries and surface features with unparalleled accuracy.

The vision system captures high-resolution images of the object being measured, while the touch probe is used to collect precise measurements of critical features. This combination of technologies allows for comprehensive measurement data to be collected quickly and accurately, making it an ideal solution for industries such as aerospace, automotive, and medical devices.

The integration of a touch probe into a CNC system optimises the measurement process by combining data points taken by the touch probe with those collected through video edge detection. This combination of technologies enables faster and more efficient inspections, reducing inspection times and improving overall productivity.

To further enhance the measurement capabilities of the system, a probe changer rack can be installed. This rack allows for the use of probe modules with a variety of pre-calibrated styli, enabling inspections of different features with ease. The system automatically switches between the styli as needed, with the current probe module being returned to the rack and the next one picked up seamlessly. This feature not only saves time but also eliminates the need for manual intervention, reducing the risk of errors and ensuring consistent and accurate measurements.

With this technology, manufacturers can improve their quality control processes and reduce production time, ultimately leading to increased productivity and profitability.

# baty Venture Plus Multi-sensor System

## Standard CNC System Features

- Rigid, low mass bridge construction
- Integral 6.5:1 CNC zoom optics
- Teach and repeat programming
- Programmable segmented LED lighting
- High resolution 0.1µm scales for increased accuracy
- DXF scanning and best fitting
- Fully dimensioned part view
- SPC included
- All reports can be opened directly in Excel™
- Autofocus
- Integrated machine stand and adjustable dual monitor mounting arm with keyboard and mouse shelf
- Automatic temperature compensation
- Touch screen joystick controller



## Optional

- Program from CAD and CAD compare modules available
- 12:1 zoom optics
- Renishaw SP25 scanning probe
- Renishaw TP20 touch probe kit

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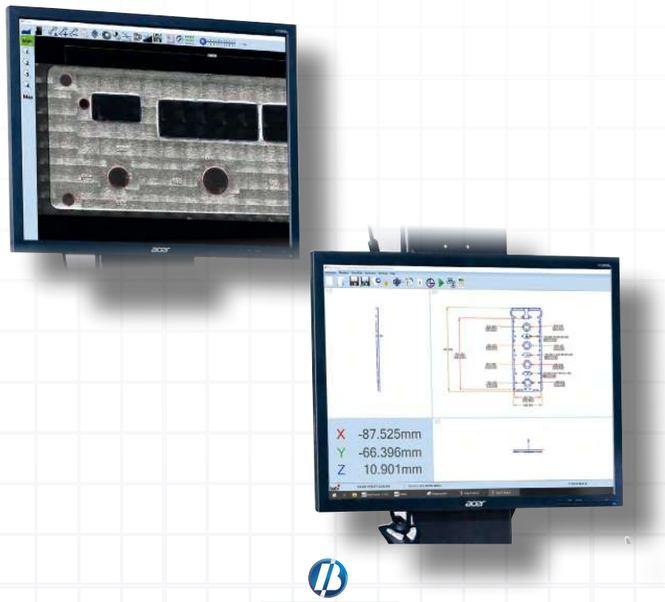
# Venture Plus



The Venture Plus range includes all of the standard Venture features with a little more... measuring range, that is.




## Large Measurement Volume

The Venture Plus is available in two models:

- VP-6460-CNC with 640mm x 600mm x 250mm measuring range
- VP-6490-CNC with 640mm x 900mm x 250mm measuring range

The bridge type construction is all aluminium resulting in low inertia and low thermal mass. Air bearings are used on all axes and a granite Y beam is used for increased accuracy. This ensures that the machine will expand and contract uniformly with temperature changes ensuring minimal distortion and subsequent errors. Ambient temperature can be compensated for within the Fusion software making Venture Plus ideal for use on the shop floor.

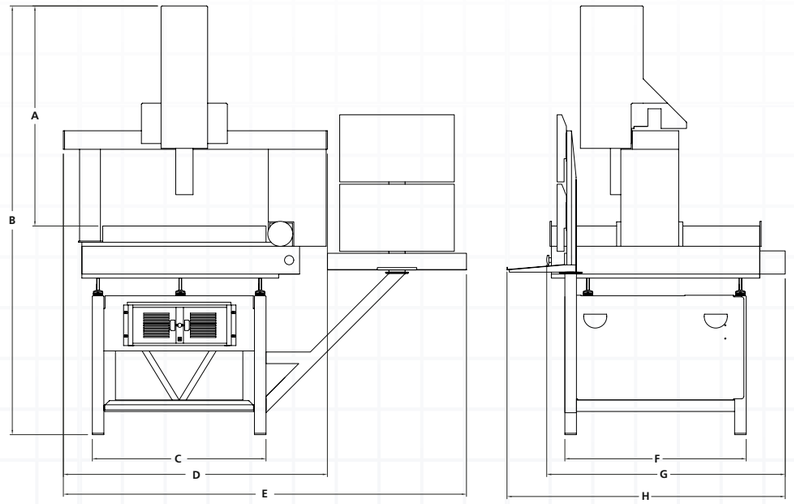
Complete with our standard zoom optics and programmable, segmented LED surface lighting, Venture Plus XT offers the same level of camera based functionality as every other Venture.

The use of a touch probe is optimised on a CNC system. Measurements from data points taken using the touch probe can be combined with those taken using Video Edge Detection for optimum speed and reduced inspection times.

A probe changer rack can be installed so that probe modules fitted with a variety of pre- calibrated styli can also be used in the same inspection. When a change of stylus is required, the system automatically puts the current probe module back in the rack and picks up the next to continue the inspection process. This functionality can be combined with our sophisticated Edge Detection to offer the ultimate in large format multi-sensing Vision systems - Venture Plus XT.

**Venture Options**

| Code No | Description | Dim A (mm) | Dim B (mm) | Dim C (mm) | Dim D (mm) | Dim E (mm) | Dim F (mm) | Dim G (mm) | Dim H (mm) |
|---|---|---|---|---|---|---|---|---|---|
| VP-6460-CNC | Venture Plus (640 x 600 x 250mm) | 950 | 1851 | 750 | 1140 | 1741 | 783 | 1030 | 1201 |
| VP-6490-CNC | Venture Plus (640 x 900 x 250mm) | 950 | 1851 | 750 | 1140 | 1083 | 1083 | 1330 | 1501 |



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# Venture Plus XT Multi-sensor System

## Standard CNC System Features

- 1.9um first term accuracy
- Granite table and Y-axis rail
- Non-contact linear motors
- Integral 6.5:1 CNC zoom optics
- Teach and repeat programming
- Programmable segmented LED lighting
- High resolution 0.1µm scales for increased accuracy
- DXF scanning and best fitting
- Fully dimensioned part view
- SPC included
- All reports can be opened directly in Excel™
- Autofocus
- Automatic temperature compensation
- Integrated machine stand and adjustable dual monitor mounting arm with keyboard and mouse shelf
- Driveless, linear motor technology reduces service requirements

## Optional

- 12:1 zoom optics
- Renishaw SP25 scanning probe
- Renishaw TP20 touch probe kit
- Various probe changer options
- Program from CAD and CAD compare modules available

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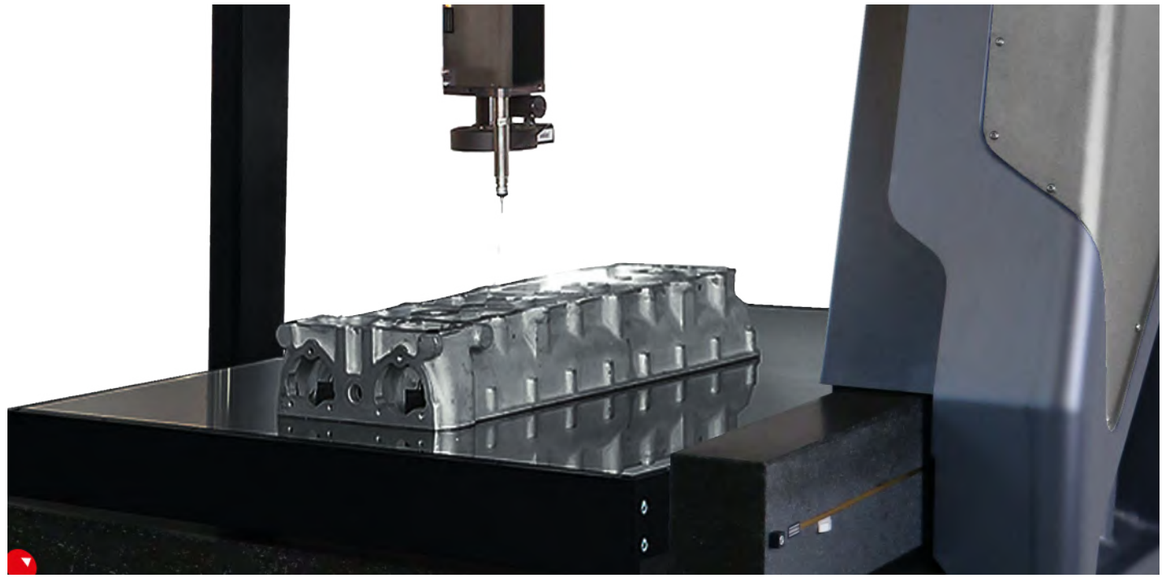
The Venture Plus XT breaks new ground in design and innovation using frictionless linear drives, which are the key to its fast and exceptionally smooth motion. The Venture Plus XT is available in 4 models. Models from 800mm x 1000mm x 490mm to 1000mm x 2000mm x 800mm XYZ measuring range.

The machine base and Y-axis rail are constructed from granite to take full advantage of its outstanding natural thermal density, and the non-contact linear motors have no wearing parts which improve reliability and reduce maintenance. The drives are strategically positioned to allow any heat generated to be absorbed by the granite, thermally isolating them from the axis encoders.

As a result of this ground-breaking innovation, the Venture Plus XT is an exceptionally fast, smooth, and silent machine with a first-term accuracy specification of under two microns.

# Venture Plus XT





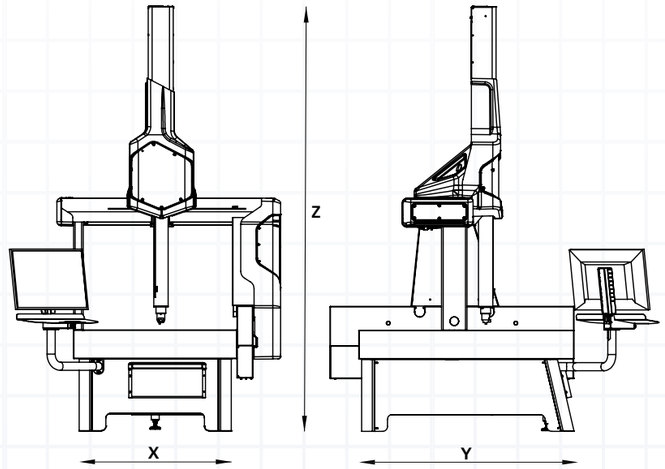


**Venture Plus XT Specification - Axis Travel (mm)**

| Code No | X | Y | Z |
|---|---|---|---|
| VP-80100-CNC-XT | 800 | 1000 | 490 |
| VP-80160-CNC-XT | 800 | 1600 | 490 |
| VP-100120-CNC-XT | 1000 | 1200 | 800 |
| VP-100200-CNC-XT | 1000 | 2000 | 800 |

**Venture Plus XT Specification - Machine Footprint (mm)**

| Code No | X | Y | Z |
|---|---|---|---|
| VP-80100-CNC-XT | 1403 | 1530 | 2700 |
| VP-80160-CNC-XT | 1403 | 2130 | 2700 |
| VP-100120-CNC-XT | 1603 | 1830 | 3070 |
| VP-100200-CNC-XT | 1603 | 2630 | 3070 |

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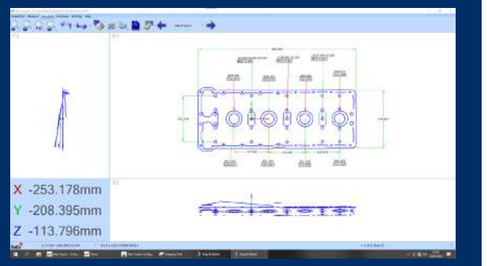
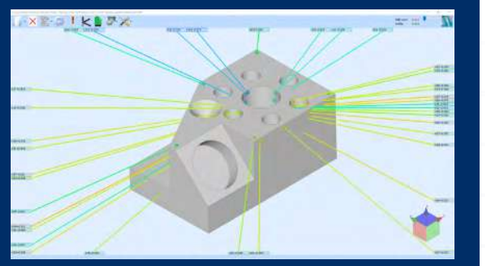
# baty Fusion Software





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# Fusion Software



**Fusion metrology software has been the foundation for Baty's camera based inspection systems for the last decade. The combination of ease of use, advanced edge detection and graphical reporting has established this remarkable software as the standard by which other vision packages are measured.**

## Dimensioned Part View

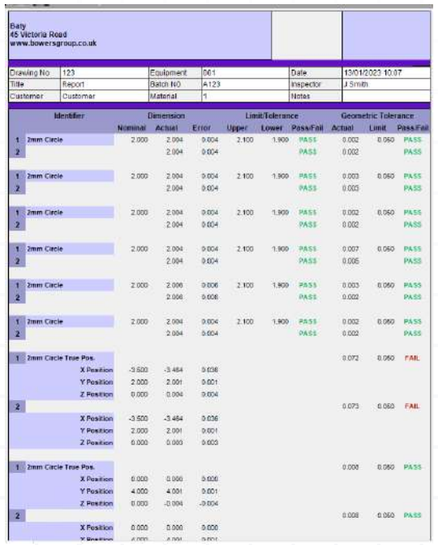
Measured results are displayed in the form of a drawing that can be fully dimensioned to match part drawings. Dimensions within the specified tolerance are shown in green whilst dimensions out of tolerance are shown in red for immediate visual status of the measured part. Geometric tolerances can also be displayed using the standard drawing practice. The final dimensioned part view can then be printed as an engineering drawing with a traditional drawing frame containing company details, customer and part details, date and inspection name.

## SPC Data Included

Baty Fusion software will also display SPC batch information for multiple components. Information given includes maximum value in batch, minimum value, user definable sigma value, CP and CPK value, mean shift and also plots two different charts of the batch data.

## Easy Reporting

In addition to the graphical representation above, detailed reports can be instantly created showing the feature name, nominal dimension, actual, error, upper and lower limits and a green pass or red fail label for each measured dimension in tabulated format. Geometric tolerance details can also be displayed along with a thumbnail view of the part and batch/customer information. The entire report can be exported as a Microsoft Excel spreadsheet



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45 Victoria Road
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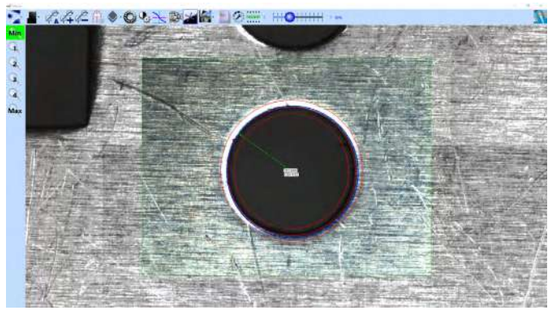
| | | | | | |
|---|---|---|---|---|---|
| Drawing No | 123 | Equipment | 001 | Date | 13/01/2023 10:07 |
| Title | Report | Batch No | A123 | Inspector | J Smith |
| Customer | Customer | Material | 1 | Notes | |

| | Identifier | Dimension | | | Limit/Tolerance | | | Geometric Tolerance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal | Actual | Error | Upper | Lower | Pass/Fail | Actual | Limit | Pass/Fail |
| 1 | 2mm Circle | 2.000 | 2.004 | 0.004 | 2.100 | 1.900 | PASS | 0.002 | 0.050 | PASS |
| 2 | | | 2.004 | 0.004 | | | PASS | 0.002 | | PASS |
| 1 | 2mm Circle | 2.000 | 2.004 | 0.004 | 2.100 | 1.900 | PASS | 0.003 | 0.050 | PASS |
| 2 | | | 2.004 | 0.004 | | | PASS | 0.003 | | PASS |
| 1 | 2mm Circle | 2.000 | 2.004 | 0.004 | 2.100 | 1.900 | PASS | 0.002 | 0.050 | PASS |
| 2 | | | 2.004 | 0.004 | | | PASS | 0.002 | | PASS |
| 1 | 2mm Circle | 2.000 | 2.004 | 0.004 | 2.100 | 1.900 | PASS | 0.007 | 0.050 | PASS |
| 2 | | | 2.004 | 0.004 | | | PASS | 0.005 | | PASS |
| 1 | 2mm Circle | 2.000 | 2.006 | 0.006 | 2.100 | 1.900 | PASS | 0.003 | 0.050 | PASS |
| 2 | | | 2.006 | 0.006 | | | PASS | 0.002 | | PASS |
| 1 | 2mm Circle | 2.000 | 2.004 | 0.004 | 2.100 | 1.900 | PASS | 0.002 | 0.050 | PASS |
| 2 | | | 2.004 | 0.004 | | | PASS | 0.002 | | PASS |
| 1 | 2mm Circle True Pos. | | | | | | | 0.072 | 0.050 | FAIL |
| | X Position | -3.500 | -3.464 | 0.036 | | | | | | |
| | Y Position | 2.000 | 2.001 | 0.001 | | | | | | |
| | Z Position | 0.000 | 0.004 | 0.004 | | | | | | |
| 2 | | | | | | | | 0.073 | 0.050 | FAIL |
| | X Position | -3.500 | -3.464 | 0.036 | | | | | | |
| | Y Position | 2.000 | 2.001 | 0.001 | | | | | | |
| | Z Position | 0.000 | 0.003 | 0.003 | | | | | | |
| 1 | 2mm Circle True Pos. | | | | | | | 0.006 | 0.050 | PASS |
| | X Position | 0.000 | 0.000 | 0.000 | | | | | | |
| | Y Position | 4.000 | 4.001 | 0.001 | | | | | | |
| | Z Position | 0.000 | -0.004 | -0.004 | | | | | | |
| 2 | | | | | | | | 0.008 | 0.050 | PASS |
| | X Position | 0.000 | 0.000 | 0.000 | | | | | | |

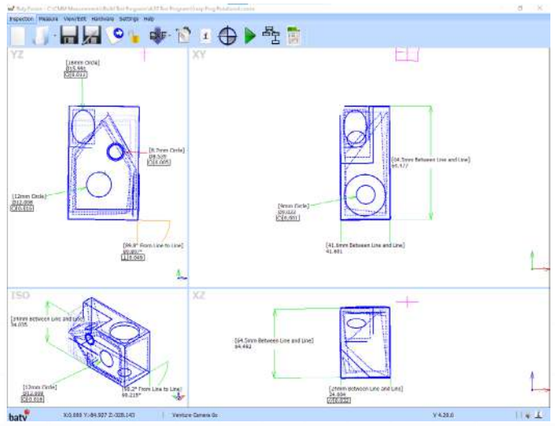
## Video Edge Detection

Video Edge Detection (VED) ensures a repeatable result without relying on the skill of the operator. Hundreds of data points can be taken in an instant to calculate standard geometric features. Standard VED tools include arc, circle, line, point and curve.



## Image Stitching and Profile Scanning

A camera image can be taken and stored every time the XY stage is paused. These images may be "stitched" together to allow the user to zoom out and view the entire component in the camera image view. Imported DXF files may be used as overlays which can be super imposed on top of the stitched image, providing a visual comparison of the entire part to the tolerance bands shown on the DXF. If a profile measurement is required the curve tool can be used to automatically trace the profile of the part. The resulting polyline curve can then be viewed both in the part view, for reporting, as well as the stitched camera image. A profile dimension can easily be added to define the best fit profile error. Image stitching can also be used to quickly grab all of the features of a large 2D component. A CNC inspection routine can then be created by simply clicking on the feature to be measured using the "one click" feature or "all features in an area" tools.

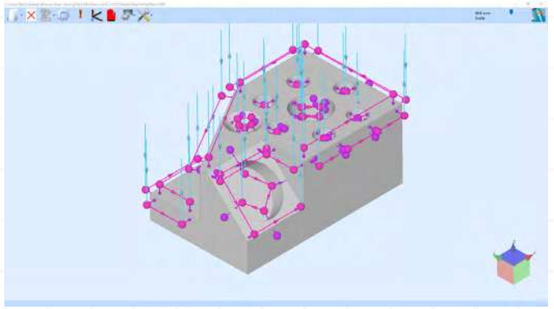


## Touch Probe Compatible

Fusion metrology software is ready to accept touch probe measurements as well as optical and camera based. Offsets for each measuring system can be calculated enabling you to use a combination of contact and non-contact measurements in the same inspection. An optional probe storage rack can also be used to allow automatic probe changes mid program. For touch probe scanning applications, Renishaw's SP25 scanning probe option can be specified.

## CNC Operation

The CNC option enables fully automatic part inspection with teach and repeat programming and manual joystick control. Parts can be suitably arranged for batch inspection and reports are generated automatically.



## CAD Option

Baty Fusion has two optional CAD modules to enhance its measuring capabilities; CAD Programming and CAD Comparison. Your STEP or IGES files can be used to create inspection programs or compare measured points to 3D models of a part.



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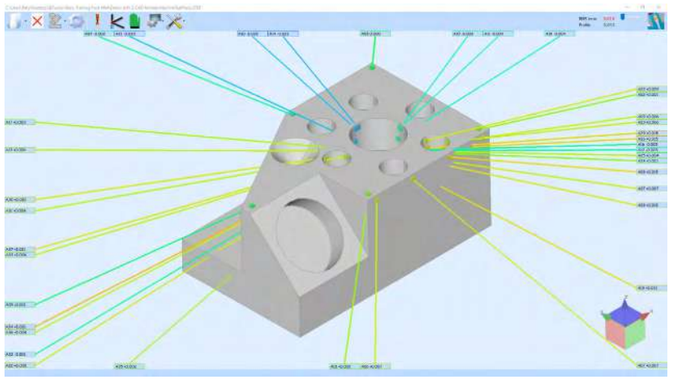
## CAD

Baty Fusion has two optional CAD modules to enhance its measuring capabilities; CAD Programming and CAD Comparison. Your STEP or IGES files can be used to create inspection programs or compare measured points to 3D models of a part.



## CAD Programming

The CAD programming module allows you to quickly and easily use a CAD model to create an inspection program. This can either be done on your machine or offline on a PC, freeing up valuable machine time. Rather than taking measurement points on a component, just click on the surface of the model where you would like the points to be taken and generate all the features needed for your inspection.

## CAD Comparison

After an automatic alignment routine, the points measured in your inspection can be compared to the CAD model. These data points are classified according to their deviation from the nominal surface and displayed by colour to visually indicate the error of each point. This 3D profile analysis is ideal the ideal way to measure complex geometries or inspect parts for which drawings do not exist.



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# Venture CNC Accessories



## VI-3030-UFB

Universal fixture base provides fixture mounting slots compatible compatible with 300mm stages

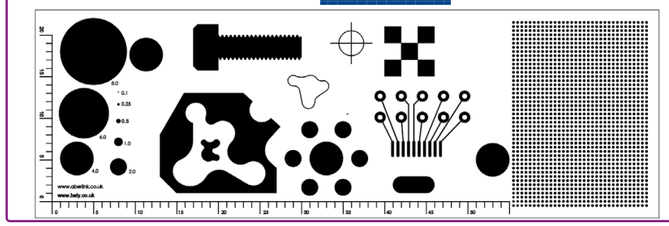
## Vision Stand

Rigid steel stand with granite top and integral PC / controller shelf for Venture 2510 and 3030 models.

## Glass Reference Standard

Calibration standard with nominal diameters for field of view measurement verification and pixel calibration. Included free-of-charge with every machine purchase.

CAL-MAG-2



| Venture Options | |
|---|---|
| **Code No** | **Description** |
| **AB3D-CAD-Comp** | CAD comparison software |
| **AB3D-CAD-Prog** | CAD programming software |
| **SB-A-1371-0163** | Probe module change rack - stores up to 6 probe modules for automatic changing |
| **VI-3030-UFB** | Universal fixture base |
| **VI-Vision-Stand** | All steel machine stand with granite top. Suitable for all Venture 2510 and 3030 models |
| **CAL-MAG-2** | Glass calibration artefact (Included free-of-charge) |

VI-3030-UFB

VI-Vision-Stand

SB-A-1371-0163

# Flexmaster
# Fixtures





Flexmaster components introduce new technology. Our self-wedging clamps offer near zero clamping force. Sliding T-nut tooling blocks provide an infinite variety of fixture solutions.

Even the corner joiners for our frame are dual purpose, providing ridges that allow backlighting to illuminate edges for inspection.

## Fixture frame assembly, includes the following

- 4 off linear slide-frames with T-slots, and laser marked reference scales
- 4 off ridged two-way T-nuts for corner joining and part location
- 4 off sliding hold-down brackets with slots for 2 axis adjustment to mount T-slot frames to venture stage frame

## Fasteners

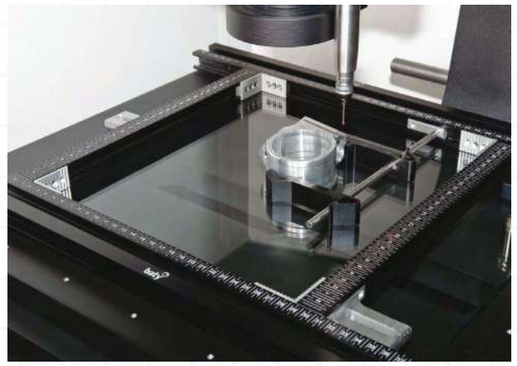
- 30 off stainless grub screws
- 3 off long T-nuts
- 6 off short T-nuts
- 2 off T-nuts with machined vee in end
- 12 off locknut with threaded ID.
  (For use with clamp rods, thumbscrew, and spherical locator pin)

## Clamps and Rods

- 2 off narrow 'soft-touch' self-wedging tail-spring clamp
- 2 off wide 'soft-touch' self-wedging tail-spring clamp
- 2 off self-wedging V-clamp
- 2 off ridged corner locator clamp
- 3 off stainless clamp rod.
  (Use with locknut to attach rods to slideframe, for self-wedging clamps)
- 3 off stainless clamp rod
- 2 off stainless clamp rod

## Locators

- 3 off sliding tool blocks with threaded holes for vertical clamp and adjustment
- 4 off adjustable rest button, stainless, spherical top
- 2 off additional ridged two-way T-nuts for part location
- 1 off case



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# Technical Specification

| Technical Specification | |
|---|---|
| | **VI-2510-MAN Venture** |
| X Y Z measuring range (mm) | 250 x 125 x 150 |
| Workstage area (mm) | 414 x 262 |
| Max workpiece load (kg) | 25 |
| Drive type | Manual |
| Bearings | Cross roller rail guide |
| Camera type | 2048 x 1536 Pixel, Colour USB2 Camera with 8 x 9mm chip and dynamic latch |
| Optics / lighting | 6.5:1 detent zoom lens. Fully programmable software controlled white LED segmented surface lighting head with understage and through the lens (TTL) lighting as standard |
| Optional | 12:1 zoom lens option for increased FOV |
| Resolution (mm) | 0.0005 |
| Accuracy (µm) | 2+L / 100 |
| Max field of view (FOV) (mm) | 16* |
| Magnification | 30x - 150x (typical 250mm x 190mm window size) |
| Touch probe option available | Yes |
| Probe type | Renishaw TP20 |

*using optional 0.5x adapter lens



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# Technical Specification



| Technical Specification CNC SYSTEMS | | | | |
|---|---|---|---|---|
| | **VI-2510-CNC Venture** | **VI-3030-CNC-XT Venture XT CNC** | **VP-6460-CNC Venture Plus** | **VP-6490-CNC Venture Plus** |
| X Y Z measuring range (mm) | 250 x 115 x 150 | 300 x 300 x 200 | 640 x 600 x 250 | 640 x 900 x 250 |
| Workstage area (mm) | 414 x 262 | 464 x 462 | 700 x 940 | 700 x 1240 |
| Max workpiece load (kg) | 25 | 25 | 75 | 75 |
| Drive type | CNC / joystick | CNC / joystick | CNC / joystick | CNC / joystick |
| Bearings | Cross roller rail guide | Cross roller rail guide | Air bearings | Air bearings |
| Max drive speed (mm / sec) | 200 | 200 | 350 | 350 |
| Camera type | 2048 x 1536 pixel colour USB2 camera with 8 x 9mm chip and dynamic latch | | | |
| Optics / lighting | 6.5:1 CNC zoom lens. Fully programmable software controlled white LED segmented surface lighting head with understage and through the lens (TTL) lighting as standard | | | |
| Optional | 12:1 CNC zoom lens option for increased FOV | | | |
| Resolution (mm) | 0.0005 | 0.0005 | 0.0001 | 0.0001 |
| Accuracy (µm) | 2 + L / 100 | 2 + L / 100 | 2.4 + L / 250 (vol) | 2.4 + L / 250 (vol) |
| Max field of view (FOV) (mm) | 16* | 16* | 16* | 16* |
| Magnification | approx. 30x - 280x according to monitor size and digital zoom | | | |
| Touch probe option available | Yes | Yes | Yes | Yes |
| Probe type | Renishaw TP20 | Renishaw TP20 | Renishaw TP20 | Renishaw TP20 |
| Optional | | | Renishaw SP25 scanning probe | Renishaw SP25 scanning probe |
| Change rack compatible? | Yes | Yes | Yes | Yes |

*using optional 0.5x adapter lens

# Technical Specification

| Technical Specification CNC SYSTEMS | | | | |
|---|---|---|---|---|
| | VP-80100-CNC-XT | VP-80160-CNC-XT | VP-100120-CNC-XT | VP-100200-CNC-XT |
| X Y Z measuring range (mm) | 800 x 1000 x 490 | 800 x 1600 x 490 | 1000 x 1200 x 800 | 1000 x 2000 x 800 |
| Workstage area (mm) | 1403 x 1530 x 2700 | 1403 x 2130 x 2700 | 1603 x 1830 x 3070 | 1603 x 2630 x 3070 |
| Max workpiece load (kg) | 75 | 75 | 75 | 75 |
| Drive type | CNC / joystick | CNC / joystick | CNC / joystick | CNC / joystick |
| Bearings | Air bearings rail guide | Air bearings rail guide | Air bearings rail guide | Air bearings rail guide |
| Max drive speed (mm/sec) | 1000 | 1000 | 1000 | 1000 |
| Camera type | 2048 x 1536 pixel colour USB2 camera with 8 x 9mm chip and dynamic latch | | | |
| Optics / lighting | 6.5:1 CNC zoom lens. Fully programmable software controlled white LED segmented surface lighting head with understage and through the lens (TTL) lighting as standard | | | |
| Optional | 12:1 CNC zoom lens option for increased FOV | | | |
| Resolution (mm) | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Volumetric Accuracy (using STD TP20) (µm) | 1.9 + L/250 | 1.9 + L/250 | 1.9 + L/250 | 1.9 + L/250 |
| Volumetric Accuracy (Using optional SP25 Scanning Probe) (µm) | 1.75 +L/250 | 1.75 +L/250 | 1.75 +L/250 | 1.75 +L/250 |
| Max field of view (FOV) (mm) | 16* | 16* | 16* | 16* |
| Magnification | approx. 30x - 280x according to monitor size and digital zoom | | | |
| Touch probe option available | Yes | Yes | Yes | Yes |
| Probe type | Renishaw TP20 | Renishaw TP20 | Renishaw TP20 | Renishaw TP20 |
| Optional | Renishaw SP25 scanning probe | Renishaw SP25 scanning probe | Renishaw SP25 scanning probe | Renishaw SP25 scanning probe |
| Change rack compatible? | Yes | Yes | Yes | Yes |

*using optional 0.5x adapter lens



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# **Beatson Clark** Solve "Near-Impossible" Mould Measurement Accuracy Problem with Baty Venture XT Vision System from Bowers Group

**Looking for ways to improve the inspection of its critical components, Beatson Clark sought the help of Bowers Group.**

## Quality, Flexibility and Innovation

One of the UK's largest manufacturers of pharmaceutical glass containers, Beatson Clark has been designing and manufacturing glass bottles and jars for 270 years and is still leading the way in quality, flexibility and innovation.

Whilst constantly striving to provide superior performance in its quality and service, the company also has an ongoing commitment to continuous improvement, investing in future technologies.

## Food, Pharmaceutical and Beverage Markets

Offering a wide range of glass containers for the food, pharmaceutical and beverage markets, and working with clients such as Gaviscon, Hendricks and Baxters, the products Beatson Clark produce must be of the highest quality to protect its reputation and that of its customers' brands.

As highly specified tooling is the start to the process at Beatson Clark, an improved inspection system was the next logical step in its evolution as the company looks for improvements across the whole factory. The Baty Venture XT offered the ideal solution for its unique measurement requirements for presented within its mould shop.

Used every day, primarily by quality department inspectors, the Baty Venture measures components that form the neck area of bottles and jars. These components have many critical dimensions and form the bulk of the systems work, allowing the team to check batch parts thoroughly and ensure only quality components are used in production. With its user-friendly design making the machine quick and easy to learn, the XT is also utilised to qualify machinist's work, allowing for all components that make up a tooling set to be inspected along the manufacturing process.

## Fast, Accurate, and user Friendly

Daryl Fletcher, Mould Shop Manager at Beatson Clark, said:

> "The vision system is very impressive. It is fast, accurate, and user friendly. Being able to import DXF files gives us the option of comparison as well as direct measurement. The software is intuitive and easy to use, yet very powerful with recognising features and alignment. We can very quickly give basic training to many users, so we are not reliant on a single person. There is one particular feature on our guide plates that previously was near-impossible to measure with any sort of accuracy and repeatability. The Baty now makes this measurement very easy and has already proved its worth."

The Venture XT has a 300mm x 300mm x 200mm XYZ stage and includes a controller and two 19-inch monitors. With its simple teach and repeat process, the powerful CNC model takes the power of fusion software one step further by completely automating the inspection process. This allows advanced features, such as scanning and best fitting, to be done quickly without taking up the time of skilled operators.

The critical features that make up the neck equipment are extremely difficult to measure with any form of accuracy using traditional equipment, leading to the inspection of components being both difficult and time-consuming. The XT now renders the process simple and reliable with its ability to measure with complete accuracy, ensuring good tooling through to the moulding machines which translates into fewer quarantined products.

## A Great Addition

Speaking of the success of the Venture system, Daryl said:

> "The Baty Venture 3030 has been a great addition to Beatson Clark. So far it has improved speed and accuracy when inspecting the mould components that has translated to improvements in production, and we are still finding uses for it due to its ease of use and versatility. As a previous user of Baty, I was pleased to see that the team has continued to be extremely professional with good communication from the start and everything promised has been delivered. The ongoing support and backup have been excellent."

MADE IN BRITAIN

# The Baty Venture FV Series

The Baty Venture FV series offers a range of high accuracy, field-of-view inspection machines.

Instant high resolution measurements and user-friendly software.

## Auto Part Recognition



## Intuitive Software

## 20 Megapixel Camera

## Split Ring & Telecentric LED Lighting

Visit our Website

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# Venture FV

## Instant

- Instant measurements at the push of a button
- Ultra-fast reporting with SPC included
- Character recognition automatically reads & reports individual part numbers during batch measurement
- Hundreds of dimensions in 1 second

## Highly Accurate

- Double telecentric optics for high resolution
- Motorised auto focus
- Auto feature edge detection removes operator influence

## User Friendly

- Simple, intuitive software and user interface
- Automatic measuring and dimensioning
- Auto Import dimensions and tolerances from CAD



## Visit our Website

For more information please click here

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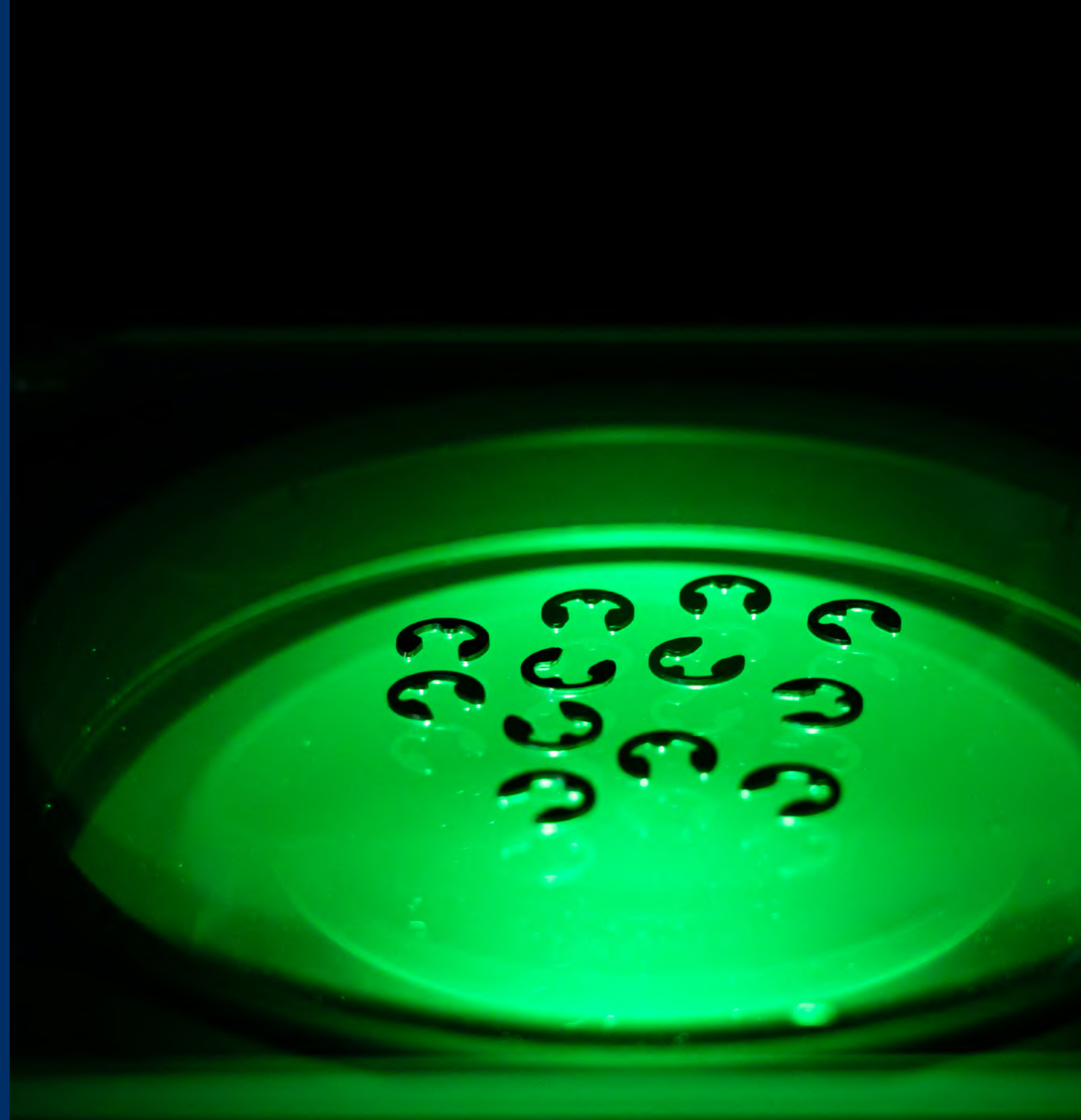
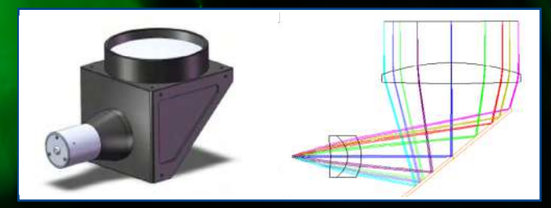


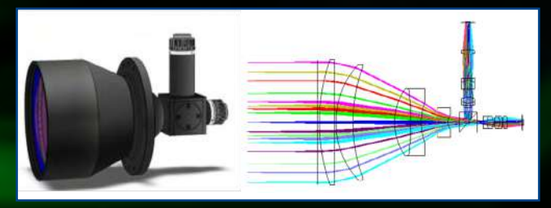
## Easy Batch Measurement

- Single or batch measurements performed in seconds
- Multiple lighting options for surface and profile features
- Intuitive, simple user interface

## High Quality Optics

- 20-Megapixel CMOS
- Large telecentric optics
- Newly developed sub-pixel edge detection algorithms





BOWERS GROUP

Venture FV

## Ultra Fast Dimensional Measurement

Create instant measurements by simply placing known components randomly on the stage. New parts can be easily measured by automatically extracting features from the scanned image and adding dimensions to create an inspection which is then saved for future use.

Automated part inspection with additional CNC playback for parts larger than the field of view. Fast set up and inspection time to achieve reduced production costs.

## Automatic Part Recognition

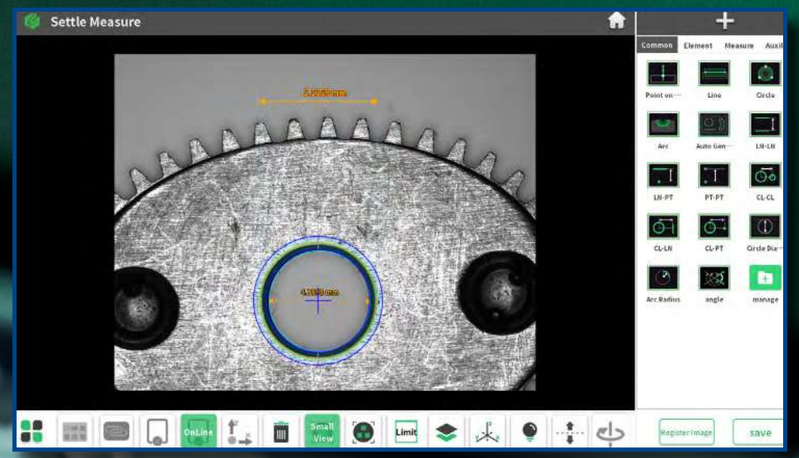
No need to select a program or orientate a part with automatic part recognition. The intuitive software will recognise the part, select the inspection program and measure each part in the batch, saving time and eliminating operator error.

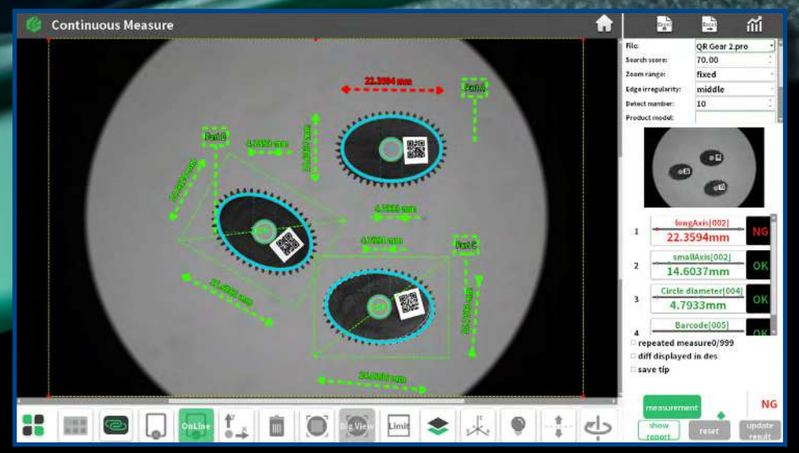
## Simultaneously Measure Multiple Parts & Measurements

Quickly and accurately measure hundreds of dimensions on hundreds of parts in seconds using multiple lighting conditions. Instant on screen pass/fail classification for the inspector, with detailed reports automatically saved to your preferred location.

## Visit our Website

For more information please click here



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BOWERS GROUP

Venture FV

## Large Field-Of-View

Large diameter telecentric optics with motorised auto-focus range of 75mm combined with a measurement area of up to 300x200mm. Motorised split-ring LED ring light, and telecentric profile lighting as standard on all models.

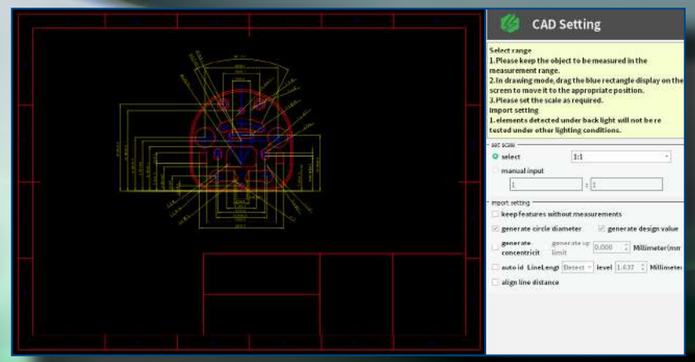
## Programmable Led Ring Illumination

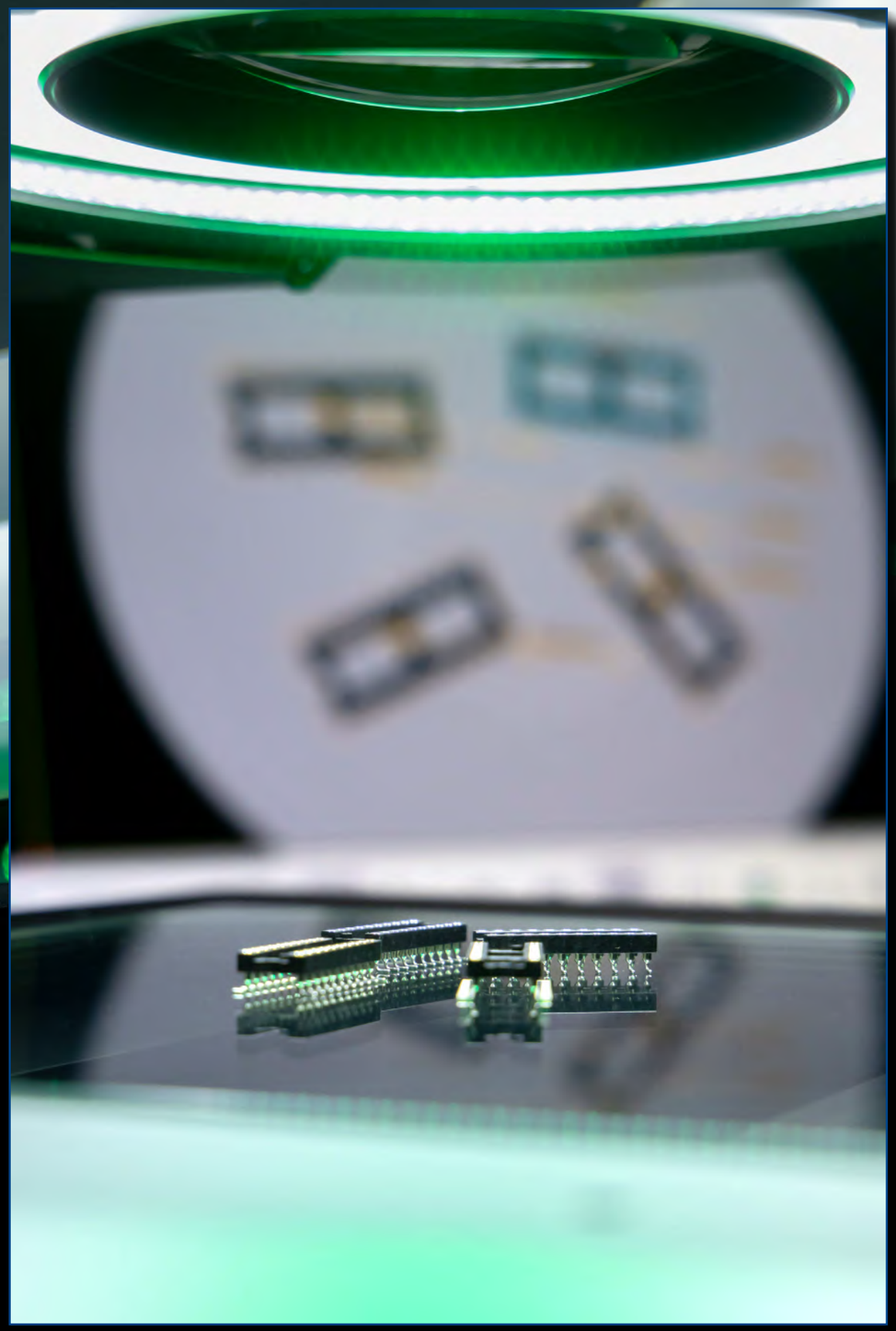
Programmable, segmented, split ring LED surface lighting is standard on all FV models. This allows the edges of features to be accurately defined for automatic detection by the software.

The motorised ring light can also be driven in the vertical axis to highlight features with minimal height.  In addition, optional Coaxial lighting can be introduced for parts with surface features such as blind bores.

## Automatic Programming From CAD

Create full inspection programs before the part is made. Our 'PROGRAM FROM CAD' feature can import all features, dimensions and their associated tolerances directly from the CAD file. Ready for the parts to be measured and classified as soon they are placed on the stage.standard on all models.



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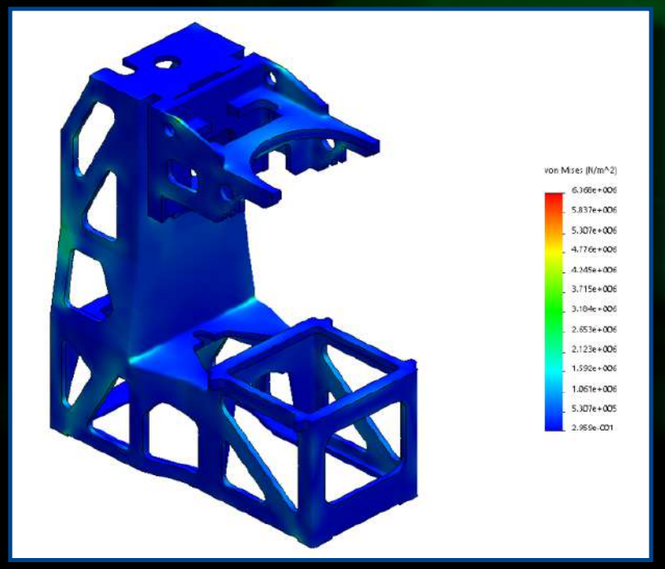
# Stable & Robust Construction

The high precision, CNC work stage utilises heavy duty cross-roller rail guides for optimum performance and accuracy.

The heavy duty chassis casting provides a stable foundation for the substantial motorised X-Y measuring stage. Ensuring correct alignment is maintained to the motorised focus and lighting axes.




## Optional Coax Lighting

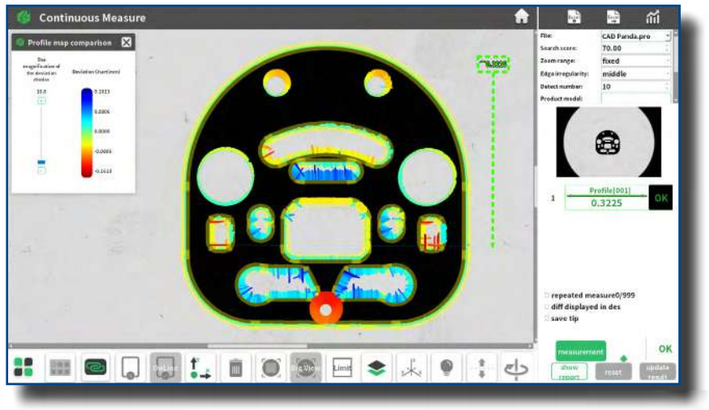
Coaxial lighting enables a crisp high resolution image to be achieved on all surface features, even at the bottom of a blind bore or taper. This option is available on all models.

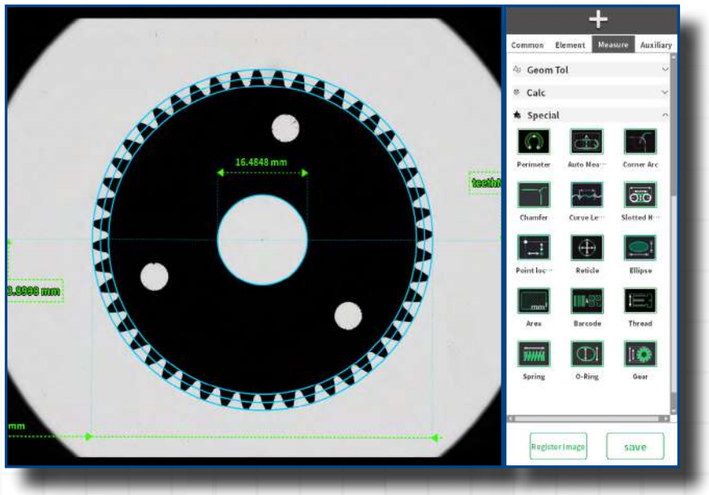
## Visit our Website

For more information please click here

## User Friendly Software

- Simple and intuitive user interface designed with operator in mind.
- Easy to use software allows creation of new inspections quickly and easily with minimal experience.
- Dedicated functions for measuring gears, threads, O rings and springs.
- CAD Import enables user to compare profiles to CAD model.
- Auto-create complete inspections from an imported .dwg file, including dimensions and tolerance information.
- Easy reporting including on screen pass / fail classification.

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# Automatic Inspection Reports

A range of Excel compatible reports are immediately available after each inspection, providing measurement data for each measurement including a pass / fail classification. Single part reports include a dimensioned image of the part for easy comparison to the drawing.

Batch inspection results are conveniently compiled into a single batch report. Using character recognition, the sw automatically detects identification numbers on each part and then lists the measured results against each part number.

SPC data reports are also included as standard including normal distribution curves and CP, CPK calculations to monitor process capability.

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For more information please click here

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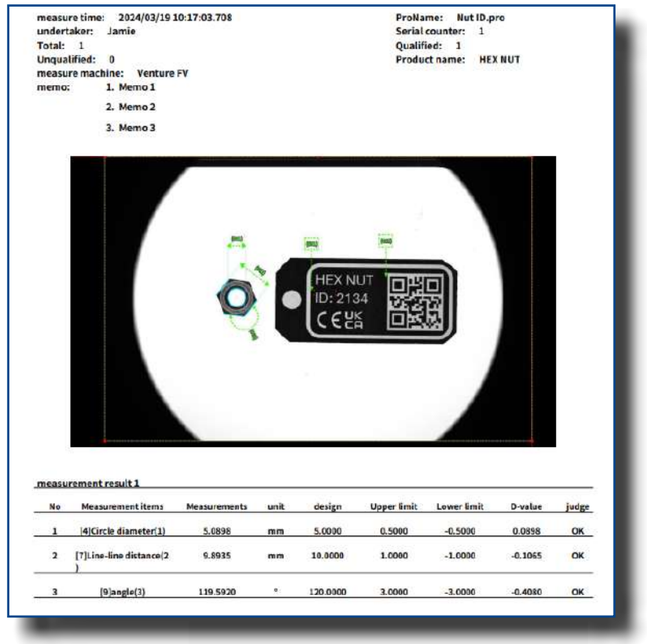


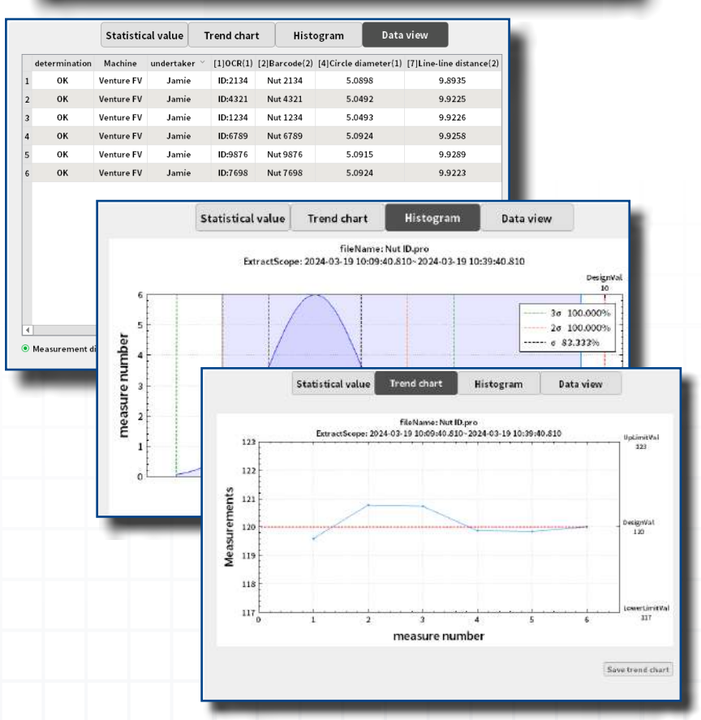
measure time: 2024/03/19 10:17:03.708
undertaker: Jamie
Total: 1
Unqualified: 0
measure machine: Venture FV
memo: 1. Memo 1
2. Memo 2
3. Memo 3

ProName: Nut ID.pro
Serial counter: 1
Qualified: 1
Product name: HEX NUT



measurement result 1

| No | Measurement items | Measurements | unit | design | Upper limit | Lower limit | D-value | judge |
|---|---|---|---|---|---|---|---|---|
| 1 | [4]Circle diameter(1) | 5.0898 | mm | 5.0000 | 0.5000 | -0.5000 | 0.0898 | OK |
| 2 | [7]Line-line distance(2) | 9.8935 | mm | 10.0000 | 1.0000 | -1.0000 | -0.1065 | OK |
| 3 | [0]angle(3) | 119.5920 | ° | 120.0000 | 3.0000 | -3.0000 | -0.4080 | OK |





| System Configurator | FV-1080 | FV-2020 | FV-3020 |
|---|---|---|---|
| Measuring Range | 100 x 80mm | 200 x 200mm | 300 x 200mm |
| Single / Dual Field | Single | Dual | Dual |
| Camera | 20 Megapixel | 20 Megapixel | 20 Megapixel |
| Motorised Auto-focus | Standard | Standard | Standard |
| Stage | Fixed | CNC | CNC |
| Split Ring Motorised LED Ringlight | Standard | Standard | Standard |
| Optional Coaxial Lighting | Yes | Yes | Yes |
| Optional 3D Chromatic confocal sensor (Z axis measurement) | No | No | Yes |

FV-1080 with Optional Coaxial Lighting

FV-2020 with Optional Coaxial Lighting

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baty

# Height Gauging

# Dual Plane Digital Height Gauge

## At a Glance

**Range:** Up to 0-600mm

## Features

- Measures offset components
- Can be used as an ordinary digital caliper
- Easy to use clear readout
- Large ground face to ensure component square when being measured
- 0.01mm resolution (0.0005")

## DHG-300 and DHG-600

- 300mm and 600mm models supplied with dial indicator mounting feature as shown



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For more information please click here

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DHG-300



# Dual Plane Digital Height Gauge

The **Baty Dual Plane Digital Height Gauge** is available in 300mm and 600mm and can be supplied with a dial indicator mounting feature as shown.

Featuring an easy to use and clear readout and boasting 0.01mm resolution, the Baty Dual Plane Digital Height Gauges have a range of up to 600mm and can be used as an ordinary digital caliper.

**Dual Plane Digital Height Gauge**

| Code No | Range (mm) | Range (inch) | Accurancy (mm) | Accurancy (inch) | Resolution (mm) | Resolution (inch) |
|---|---|---|---|---|---|---|
| DHG-300 | 0-300 | 0-12 | +/-0.04 | 0.0015 | 0.01 | 0.0005 |
| DHG-600 | 0-600 | 0-24 | +/-0.05 | 0.002 | 0.01 | 0.0005 |

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> Moore & Wright hand tools are the backbone of precision and have been invaluable in the manufacturing of Robert Sorby's woodworking tools. With the exceptional accuracy and reliability, these tools enable our craftsmen to create the finest quality products that stand the test of time. Our partnership with Bowers Group is longstanding and the continued support from the team is second-to-none.
>
> **Mark Furniss - Quality & Technical Engineer - Robert Sorby**

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Moore & Wright

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MOORE & WRIGHT

Bore Gauging

# Dial / Digital Bore Gauge Sets - 316 Series

## At a Glance

- With interchangeable contact points
- Set of carbide tipped contact points included

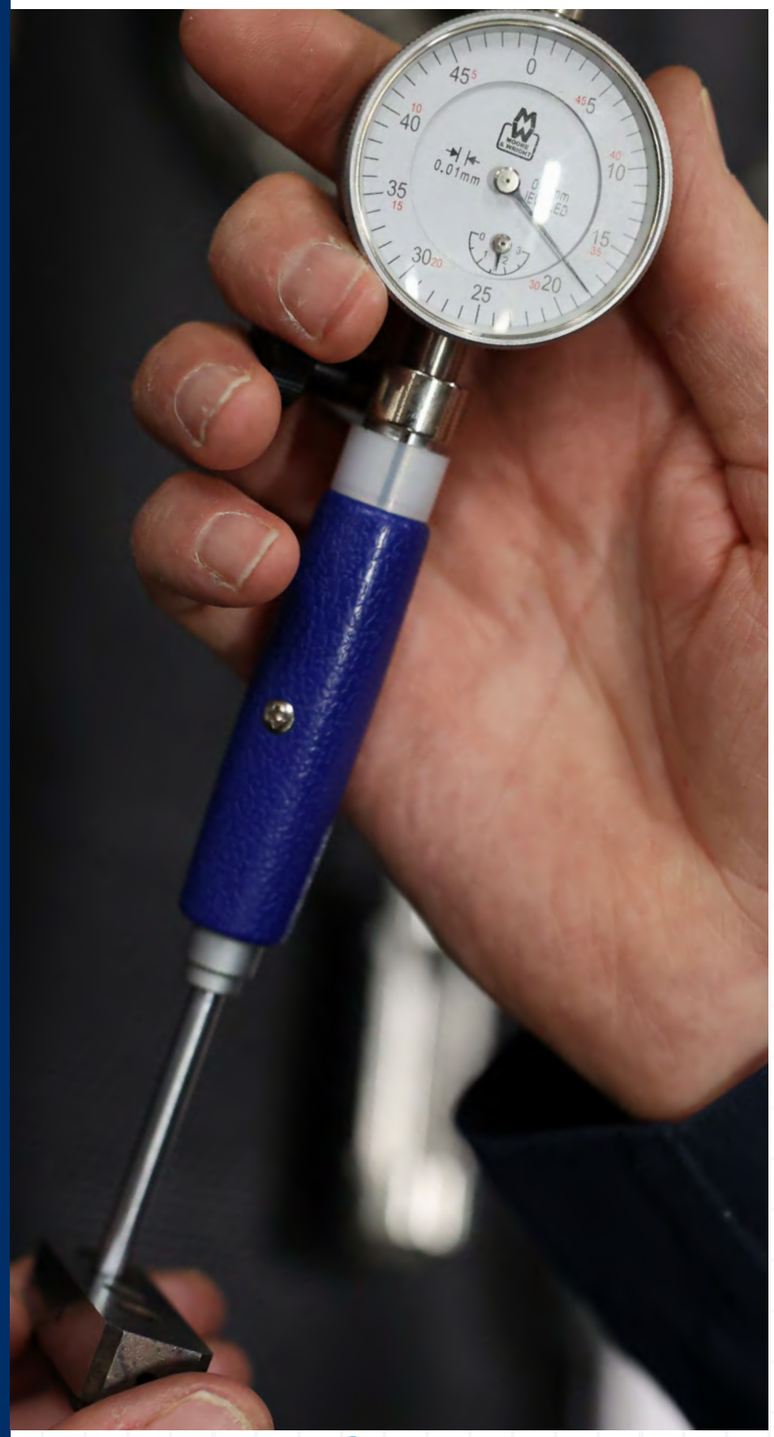
## Features

- Unique self centring device
- Supplied with dial indicator, resolution 0.01mm
- Packed as set with all necessary accessories to measure the complete range as shown

## Digital Bore Gauge Sets

- Supplied with digital indicator with bar graph and numerical display





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# Dial / Digital Bore Gauge Sets - 316 Series

MW316-05

Boasting interchangeable contact points, the **Moore & Wright Dial Bore Gauge Sets** include the full set of carbide tipped contact points and are supplied with a dial indicator with a resolution of 0.01mm.

Digital bore gauge sets are supplied with a digital indicator featuring a bar graph and numerical display.

**Dial / Digital Bore Gauge Sets - 316 Series**

| Code No | Range (mm) | Resolution (mm) |
|---|---|---|
| MW316-01 | 6-10 | 0.01 |
| MW316-02 | 10-18 | 0.01 |
| MW316-03 | 18-35 | 0.01 |
| MW316-04 | 35-50 | 0.01 |
| MW316-05 | 50-160 | 0.01 |
| MW316-06 | 160-250 | 0.01 |

**Dial / Digital Bore Gauge Sets - 316 Series**

| Code No | Range (mm) | Resolution (mm) | Resolution (inch) | Measuring Depth (mm) | Measuring Depth (inch) |
|---|---|---|---|---|---|
| MW316-12D | 35-160 | 0.001 | 0.0005 | 150 | 6 |

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Hand Tools

# Digital
# Engineers' Set

## Features

### Digital Workshop Engineers' Set

- Includes MW200-01DBL Digital micrometer and MW110-15DBL Digital caliper
- Combined set for extra value

### Digital IP54 Engineers' Set

- Includes MW201-01DAB Digital micrometer and MW110-15WR Digital caliper
- Combined set for extra value

MW200-SET3

MW200-SET4

**Digital Workshop Engineers' Set**

| Code No | Description |
|---|---|
| MW200-SET3 | Workshop Digital Micrometer and Caliper Set |

**Digital IP54 Engineers' Set**

| Code No | Description |
|---|---|
| MW200-SET4 | IP54 Digital Micrometer and Caliper Set |



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# Engineers' **Rule** Set

## Features

### Micrometer, Vernier Caliper and Engineers' Rule Set

- Includes MW200-01, 0-25mm micrometer, MW110-15 Vernier caliper and ER106F 150mm / 6" rule
- Combined set for extra value

### Micrometer, Vernier Caliper and Engineers' Rule Set

- Includes MW200-01, 0-25mm micrometer, MW146-01 dial caliper and ER106F 150mm / 6" rule
- Combined set for extra value

MW200-SET2

**Micrometer, Vernier Caliper and Engineers' Rule Set**

| Code No | Description |
|---|---|
| MW200-SET1 | Set includes 1x MW110-15 caliper, 1x E106F ruler, 1x MW200-01 external micrometer. Micrometer, Vernier Caliper and Engineers' Rule Set |

**Micrometer, Dial Caliper and Engineers' Rule Set**

| Code No | Description |
|---|---|
| MW200-SET2 | Set includes a 0-25mm Micrometer, dial caliper and 150mm/6" rule |

# Workshop Digital Caliper 110-DBL Series

## At a Glance

- Standard: DIN 862
- Functions: mm/inch conversion, on/off, zero-setting, ABS/INC, Auto off

## Features

- 4-way measurement
- All metal parts made of hardened stainless steel
- Thumb wheel for fine adjustment
- CR2032 battery
- Supplied in case

MW110-15DBL

**Workshop Digital Caliper - 110-DBL Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Jaws (mm) |
|---|---|---|---|---|
| MW110-15DBL | 0-150 | 0.01 | 0.03 | 40 |
| MW110-20DBL | 0-200 | 0.01 | 0.03 | 50 |
| MW110-30DBL | 0-300 | 0.01 | 0.04 | 60 |

**Workshop Digital Caliper - 110-DBL Series - Imperial**

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW110-15DBL | 0-6 | 0.0005 |
| MW110-20DBL | 0-8 | 0.0005 |
| MW110-30DBL | 0-12 | 0.0005 |

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# Fractional Reading Digital Caliper DFC Series

## At a Glance

- Extra large, easy-to-read LCD display
- High measuring speed: 120" per second

## Features

- Functions: mm / inch / fraction conversion, on / off, zero-setting
- Reading options: Metric / Inch / Fraction
- 4-way measurement
- Stainless steel frame with extra smooth movements
- Thumb wheel for fine adjustment
- CR2032 battery

MW110-15DFC

**Fractional Reading Digital Caliper - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Jaws (mm) |
|---|---|---|---|---|
| MW110-15DFC | 0-150 | 0.01 | 0.03 | 40 |
| MW110-20DFC | 0-200 | 0.01 | 0.03 | 50 |
| MW110-30DFC | 0-300 | 0.01 | 0.04 | 60 |

**Fractional Reading Digital Caliper - Imperial**

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW110-15DBL | 0-6 | 0.0005 |
| MW110-20DBL | 0-8 | 0.0005 |
| MW110-30DBL | 0-12 | 0.0005 |

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# Large Digital Workshop Caliper 150 Series

## At a Glance

- Digital functions: mm / inch conversion, on/off, data-output, zero-setting, ABS / zero, battery low indication

## Features

- Digital functions: mm / inch conversion, on/off, data-output, zero-setting, ABS / zero, battery low indication
- Long jaws with internal measuring nibs
- Ground micro-lapped measuring surfaces
- Thumb wheel for fine adjustment

MW150-50DDL

**Large Digital Workshop Caliper - 150 Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Jaws | Internal Nibs |
|---|---|---|---|---|---|
| MW150-50DDL | 0-500 | 0.01 | ±0.05 | 100mm | 18 x 10mm |
| MW150-60DDL | 0-600 | 0.01 | ±0.05 | 100mm | 24 x 10mm |
| MW150-75DDL | 0-1000 | 0.01 | ±0.07 | 125mm | 24 x 10mm |

**Large Digital Workshop Caliper - 150 Series - Imperial**

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW150-50DDL | 0-20 | 0.0005 |
| MW150-60DDL | 0-24 | 0.0005 |
| MW150-75DDL | 0-40 | 0.0005 |



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# Heavy Duty Digital Workshop Caliper 160-D Series



## At a Glance

- Heavy duty design
- Digital functions: mm / inch conversion, on/off, zero-setting, battery low indication

## Features

- Standard jaws with nibs for internal measuring, top knife jaws for external measuring
- Ground micro-lapped measuring surfaces
- Thumb wheel for fine adjustment

MW160-20D

**Heavy Duty Digital Workshop Caliper - 160-D Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Jaws | External Knife Edge | Internal Nibs |
|---|---|---|---|---|---|---|
| MW160-20D | 0-200 | 0.01 | ±0.03 | 60mm | 12mm | 33.5 x 5mm |
| MW160-30D | 0-300 | 0.01 | ±0.04 | 60mm | 12mm | 38 x 5mm |

**Heavy Duty Digital Workshop Caliper - 160-D Series - Imperial**

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW160-20D | 0-8 | 0.0005 |
| MW160-30D | 0-12 | 0.0005 |

# Digital Long Jaw Caliper 110-DLJ Series

## At a Glance

- Digital functions: mm / inch conversion, on/off, zero-setting, ABS / zero, battery low indication

## Features

- Digital functions: mm / inch conversion, on/off, zero-setting, ABS / zero, battery low indication
- Heavy duty design
- Long jaws with internal measuring nibs
- Ground micro-lapped measuring surfaces
- Thumb wheel for fine adjustment

**Digital Long Jaw Caliper - 110-DLJ Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Jaws | Internal Nibs |
|---|---|---|---|---|---|
| MW110-15DLJ | 0-150 | 0.01 | ±0.03 | 60mm | 10 x 5mm |

**Digital Long Jaw Caliper - 110-DLJ Series - Imperial**

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW110-15DLJ | 0-6 | 0.0005 |



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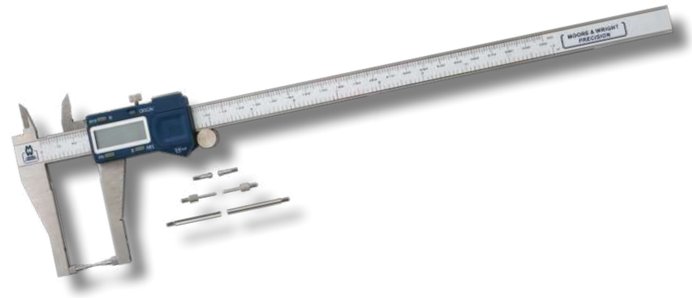
# Digital Caliper with Interchangable Anvils

## At a Glance

- Interchangeable anvils for internal and external groove measurements

## Features

- Preset of measuring anvils required
- Glass Scale
- IP54
- SPC Data Output via cable (optional)
- CR2032 Battery
- Anvil set included
- Anvils have M2.5 thread



**Digital Caliper with Interchangable Anvils - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) |
|---|---|---|---|
| MW127-30DABS | 0-300 | 0.01 | 0.04 |

**Digital Caliper with Interchangable Anvils - Imperial**

| Code No | Range (inch) | Resolution (inch) | Accuracy (inch) |
|---|---|---|---|
| MW127-30DABS | 0-12 | 0.0005 | 0.0015 |

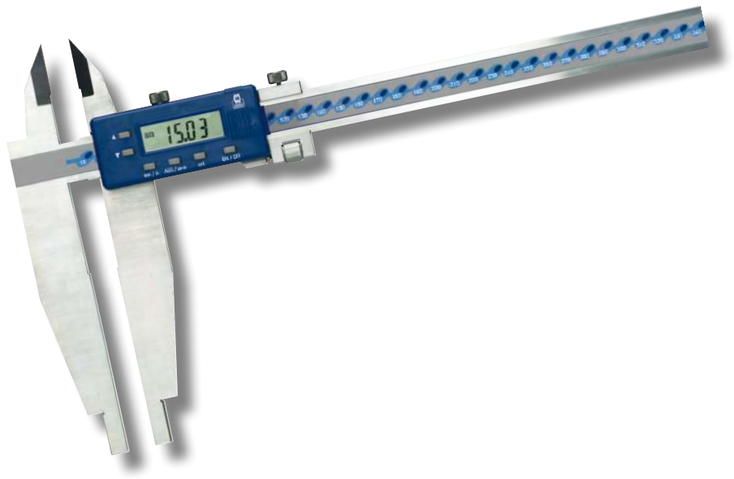
# Long Jaw Heavy Duty Digital Workshop Caliper 160-D Series

## At a Glance

- Internal measuring nibs on the external jaws and knife edge external jaws

## Features

- Standard: Factory standard
- Digital functions: mm / inch conversion, on/off, zero-setting, ABS / zero, battery low indication
- 'Soft keys' for maximum operating comfort
- Ground micro-lapped measuring surfaces
- Thumb wheel for fine adjustment



### Long Jaw Heavy Duty Digital Workshop Caliper 160-D Series - Metric

| Code No | Range (mm) | Resolution (mm) | Jaws (mm) | External Knife Edge (mm) | Internal Nibs (mm) |
|---|---|---|---|---|---|
| MW160-50D | 0-500 | 0.01 | 150 | 18 | 50 x 10 |

### Long Jaw Heavy Duty Digital Workshop Caliper 110-15DLJ Series - Imperial

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW110-15DLJ | 0-20 | 0.0005 |

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# Polycarbonate Digital Caliper

## At a Glance

- Digital functions: mm/inch conversion, ABS/ INC, on/off, zero setting
- 4-way measurement

## Features

- Polycarbonate frame
- CR2032 battery
- Supplied retail packed with vinyl pouch

### Polycarbonate Digital Caliper - Metric

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Jaws |
|---|---|---|---|---|
| MW110-15DPC | 0-150 | 0.01 | 0.2 | 40mm |



### Polycarbonate Digital Caliper - Imperial

| Code No | Range (inch) | Resolution (inch) | Accuracy (inch) | Jaws |
|---|---|---|---|---|
| MW110-15DPC | 0-6 | 0.0005 | 0.008 | 1.57" |

# Digital Pocket Caliper 110 Series

## At a Glance

- Digital Functions: mm/inch conversion, on / off, ZERO setting
- 4-way measurement

## Features

- All metal parts made of hardened steel

**Digital Pocket Caliper - 110 Series**

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) | Jaw (mm) |
|---|---|---|---|---|---|
| MW110-10DPT | 0-100 | 0-4 | 0.01 | 0.0005 | 30 |



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# Plastic Digital Caliper



## At a Glance

- Measure outside, inside, depth and step measurement, (4 way) measurements

## Features

- Plastic jaws to reduce the risk of scratching, marking or damaging delicate objects
- Standard: Factory standard
- Digital functions: mm/inch, zero setting, auto off
- Manufactured from glass reinforced nylon material
- Highly durable design
- Plastic depth rod

**Plastic Digital Caliper - Metric**

| Code No | Range (mm) | Accuracy (mm) | Resolution (mm) | Jaws (mm) |
|---|---|---|---|---|
| ECP015D | 0-150 | ±0.05 | 0.01 | 40 |

**Plastic Digital Caliper - Imperial**

| Code No | Range (inch) | Accuracy (inch) | Resolution (inch) |
|---|---|---|---|
| ECP015D | 0-6 | ±0.002 | 0.0005 |

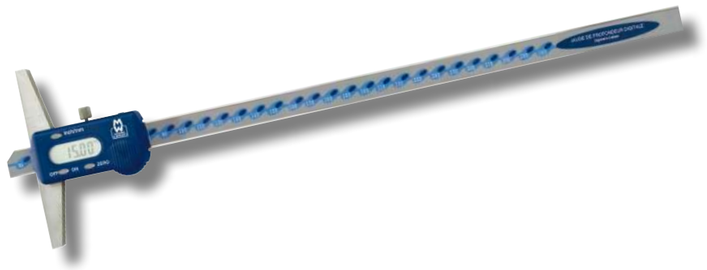
# Digital Depth Gauge Caliper 170-DB Series

## At a Glance

- Standard workshop model made of alloyed stainless steel

## Features

- Ground micro-lapped measuring surfaces
- Functions: mm/inch conversion, on/off, zero setting, battery low indication
- Supplied without Hook (B) available with Hook (H)- On Request



MW170-15DB

**Digital Depth Gauge Caliper - Without Hook**

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) | Accuracy (mm) | Size of Base (mm) |
|---|---|---|---|---|---|---|
| MW170-15DB | 0-150 | 0-6 | 0.01 | 0.0005 | 0.03 | 100 |
| MW170-20DB | 0-200 | 0-8 | 0.01 | 0.0005 | 0.03 | 100 |
| MW170-30DB | 0-300 | 0-12 | 0.01 | 0.0005 | 0.04 | 100 |
| MW170-30DB /100 | 0-300 | 0-12 | 0.01 | 0.0005 | 0.04 | 100 |



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# Digital Depth Gauge Caliper 170-DH Series With Hook

## At a Glance

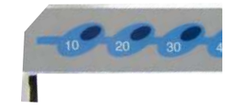
- Standard workshop model made of alloyed stainless steel

## Features

- Ground micro-lapped measuring surfaces
- Functions: mm/inch conversion, on/off, zero setting, battery low indication
- Supplied without Hook (B) available with Hook (H)- On Request

MW170-15DH

H - With Hook




**Digital Depth Gauge Caliper - With Hook**

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) | Accuracy (mm) |
|---|---|---|---|---|---|
| MW170-15DH | 0-150 | 0-6 | 0.01 | 0.0005 | 0.03 |

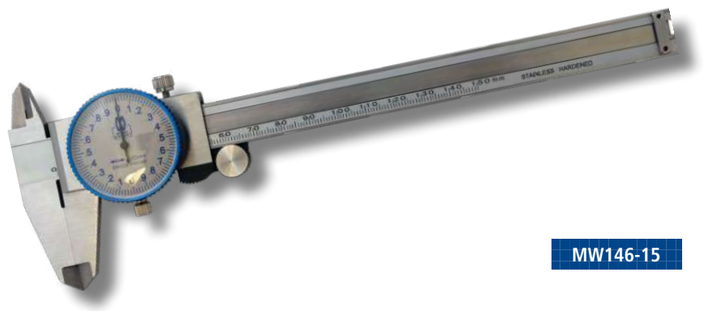
# Dial Caliper

## At a Glance

- Adjustable dial for easy zero setting
- Shockproof

## Features

- Made of Stainless Steel
- Extra smooth operation
- Blue anodized bezel



MW146-15

**Dial Caliper - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) |
|---|---|---|---|
| MW146-15 | 0-150 | 0.02 | +/- 0.02 |
| MW146-20 | 0-200 | 0.02 | +/- 0.02 |
| MW146-30 | 0-300 | 0.02 | +/- 0.03 |

**Dial Caliper- Imperial**

| Code No | Range (inch) | Resolution (inch) | Accuracy (inch) |
|---|---|---|---|
| MW146-15I | 0-6 | 0.001 | +/- 0.001 |

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# Workshop Vernier Caliper 100 Series

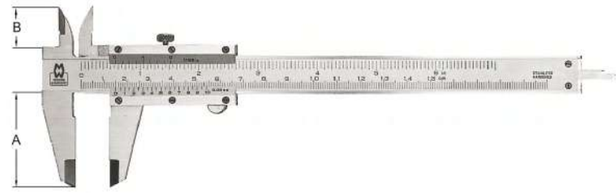
## At a Glance

- Standard DIN 862
- Standard workshop model with locking screw
- 4-way measurement

## Features

- Made of hardened stainless steel
- Chromed scale with laser engraved graduations
- Measuring surface is micro-lapped
- Supplied in case

MW100-15B






**Workshop Vernier Caliper 100 Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | A (mm) | B (mm) |
|---|---|---|---|---|---|
| MW100-15B | 0-150 | 0.05 | ±0.05 | 40 | 16 |
| MW100-20B | 0-200 | 0.05 | ±0.05 | 50 | 20 |
| MW100-30B | 0-300 | 0.05 | ±0.08 | 55 | 20 |
| MW100-15BI | 0-150 | 0.02 | ±0.02 | 40 | 16 |
| MW100-20BI | 0-200 | 0.02 | ±0.03 | 50 | 20 |
| MW100-30BI | 0-300 | 0.02 | ±0.04 | 55 | 20 |

**Workshop Vernier Caliper 100 Series - Imperial**

| Code No | Range (inch) | Resolution (inch) | Accuracy (inch) | A (inch) | B (inch) |
|---|---|---|---|---|---|
| MW100-15B | 0-6 | 1/128 | ±0.05 | 40 | 16 |
| MW100-20B | 0-8 | 1/128 | ±0.05 | 50 | 20 |
| MW100-30B | 0-12 | 1/128 | ±0.08 | 55 | 20 |
| MW100-15BI | 0-6 | 0.001 | ±0.02 | 40 | 16 |
| MW100-20BI | 0-8 | 0.001 | ±0.03 | 50 | 20 |
| MW100-30BI | 0-12 | 0.001 | ±0.04 | 55 | 20 |

# Workshop Vernier Caliper 105 Series

## At a Glance

- Standard DIN 862
- Standard workshop model with locking screw
- 4-way measurement

## Features

- With fine adjustment
- Made of hardened stainless steel
- Chromed scale with laser engraved graduations
- Measuring surface is micro-lapped
- Packed in plastic box

MW105-20

**Workshop Vernier Caliper - 105 Series**

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) | Jaws (mm) |
|---|---|---|---|---|---|
| MW105-20 | 0-200 | 0-8 | 0.05 | 0.05 | 50 |
| MW105-30 | 0-300 | 0-12 | 0.05 | 0.05 | 55 |
| MW105-20I | 0-200 | 0-8 | 0.02 | 0.02 | 50 |
| MW100-30I | 0-300 | 0-12 | 0.02 | 0.02 | 55 |



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# Precision Vernier Caliper 110 Series

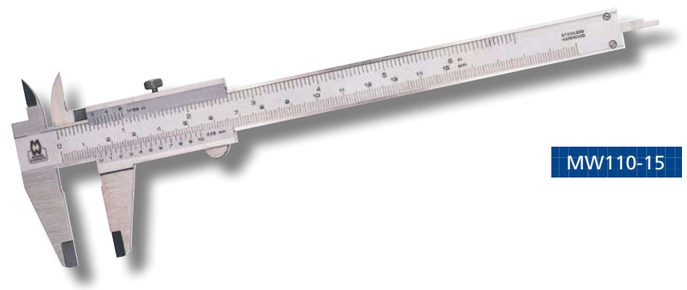


## At a Glance

- Standard DIN 862
- Extra small precision vernier caliper
- 4-way measurement

## Features

- Mono block
- Made of hardened stainless steel
- Chromed scale with laser engraved graduations
- The scale shows both mm and inch value
- Measuring surface is micro-lapped
- Supplied with leather-look wallet



MW110-15

**Precision Vernier Caliper - 110 Series**

| Code No | Range (mm) | Resolution (mm) | Jaws |
|---|---|---|---|
| MW110-15 | 0-150 | 0.05 | 40mm |
| MW110-15I | 0-150 | 0.02 | 40mm |
| MW110-20 | 0-200 | 0.05 | 40mm |
| MW110-30 | 0-300 | 0.05 | 55mm |

# Fine Adjustment Vernier Caliper 111 Series

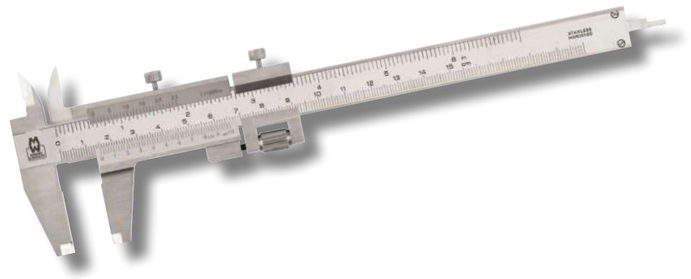
## At a Glance

- Standard DIN 862
- High precision vernier caliper
- With fine adjustment
- 4-way measurement

## Features

- Mono block
- Made of hardened stainless steel
- Measuring surface is micro-lapped
- Supplied in plastic box





**Fine Adjustment Vernier Caliper - 111 Series**

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) | Jaws |
|---|---|---|---|---|---|
| MW111-15I | 0-150 | 0-6 | 0.05 | 1/128 | 40mm |

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# Thumb Lock Vernier Caliper 115 Series



## At a Glance

- Standard DIN 862
- Precision vernier caliper
- 4-way measurement

## Features

- Mono block
- Made of hardened stainless steel
- Chromed scale with laser engraved graduations
- The scale shows both mm and inch value
- Measuring surface is micro-lapped
- Supplied with leather-look wallet

MW115-15

**Thumb Lock Vernier Caliper - 115 Series**

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) | Jaws (mm) |
|---|---|---|---|---|---|
| MW115-15 | 0-150 | 0-6 | 0.05 | 1/128 | 40mm |
| MW115-15I | 0-150 | 0-6 | 0.02 | 0.001 | 40mm |

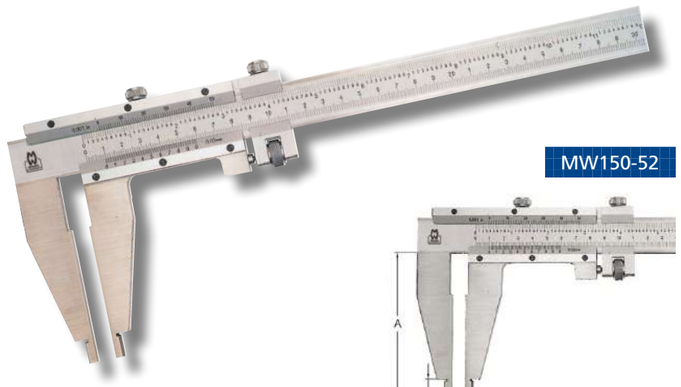
# Large Workshop **Vernier** Caliper **150 Series**

## At a Glance

- Standard workshop model with locking screw
- Jaws for internal and external measurement

## Features

- Standard workshop model with locking screw
- Made of hardened alloyed stainless steel
- Chromed scale with laser engraved graduations
- Measuring surface is micro-lapped
- With fine adjustment
- Supplied in wooden box




**Large Workshop Vernier Caliper - 150 Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | A (mm) | B (mm) | B (mm) |
|---|---|---|---|---|---|---|
| MW150-52 | 0-500 | 0.02 | ±0.05 | 100 | 12 | 5 |
| MW150-55 | 0-500 | 0.05 | ±0.07 | 100 | 12 | 5 |
| MW150-62 | 0-600 | 0.02 | ±0.05 | 100 | 12 | 5 |
| MW150-65 | 0-600 | 0.05 | ±0.08 | 100 | 12 | 5 |
| MW150-72 | 0-1000 | 0.02 | ±0.07 | 125 | 18 | 10 |
| MW150-75 | 0-1000 | 0.05 | ±0.10 | 125 | 18 | 10 |
| MW150-82 | 0-1500 | 0.02 | ±0.11 | 150 | 18 | 10 |
| MW150-85 | 0-1500 | 0.05 | ±0.16 | 150 | 18 | 10 |

**Large Workshop Vernier Caliper - 150 Series - Imperial**

| Code No | Range (inch) | Resolution (inch) | Accuracy (mm) | A (mm) | B (mm) | B (mm) |
|---|---|---|---|---|---|---|
| MW150-52 | 0-20 | 0.001 | ±0.05 | 100 | 12 | 5 |
| MW150-55 | 0-20 | 1/128 | ±0.07 | 100 | 12 | 5 |
| MW150-62 | 0-24 | 0.001 | ±0.05 | 100 | 12 | 5 |
| MW150-65 | 0-24 | 1/128 | ±0.08 | 100 | 12 | 5 |
| MW150-72 | 0-40 | 0.001 | ±0.07 | 125 | 18 | 10 |
| MW150-75 | 0-40 | 1/128 | ±0.10 | 125 | 18 | 10 |
| MW150-82 | 0-60 | 0.001 | ±0.11 | 150 | 18 | 10 |
| MW150-85 | 0-60 | 1/128 | ±0.16 | 150 | 18 | 10 |



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# Precision Miniature **Vernier** Caliper **110 Series**

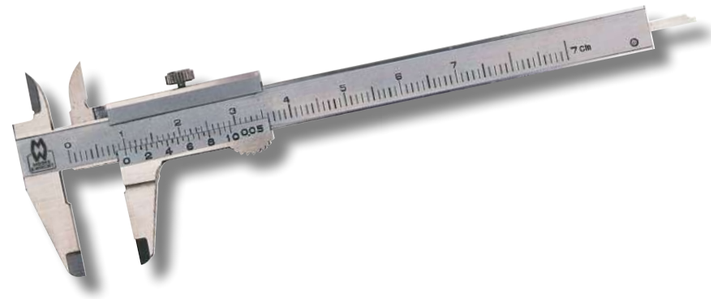


## At a Glance

- Standard DIN 862
- Extra small precision vernier caliper
- 4-way measurement

## Features

- Made of hardened stainless steel
- Mono block
- Chromed scale with laser engraved graduations
- Measuring surface is micro-lapped
- Supplied with leather-look wallet



**Precision Miniature Vernier Caliper - 110 Series**

| Code No | Range (mm) | Resolution (mm) | Jaws (mm) |
|---|---|---|---|
| MW110-07 | 0-70 | 0.05 | 20 |

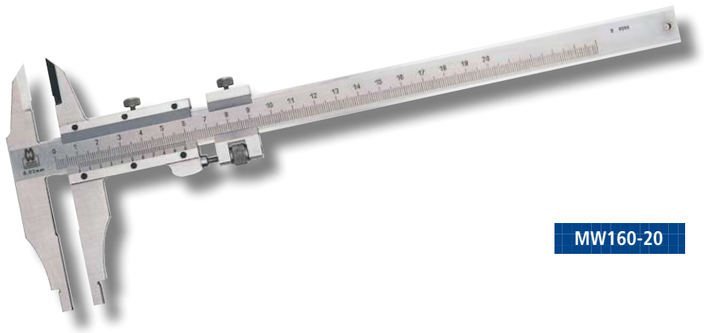
# Workshop Vernier Caliper 160 Series

## At a Glance

- Combination-jaw model
- Standard jaws for internal and external measurement, with top knife edge jaws for external measurement

## Features

- Locking screw for locking the slider/jaws
- Made of hardened stainless steel
- Chromed scale with engraved graduations
- Measuring surface is micro-lapped
- With fine adjustment



MW160-20

**Workshop Vernier Caliper - 160 Series**

| Code No | Range (mm) | Resolution (mm) | Jaws (mm) |
|---|---|---|---|
| MW160-20 | 0-200 | 0.05 | 60 |
| MW160-22 | 0-200 | 0.02 | 60 |
| MW160-30 | 0-300 | 0.05 | 90 |
| MW160-32 | 0-300 | 0.02 | 90 |



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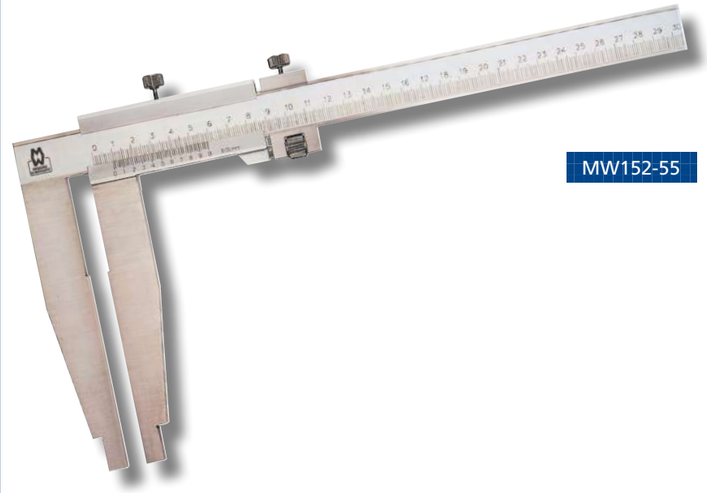
# Mono Block Large Workshop Vernier Caliper 152 Series

## At a Glance

- Standard workshop model with locking screw
- Jaws for internal and external measurement

## Features

- Mono block solid slider
- Made of hardened alloyed stainless steel
- Chromed scale with laser engraved graduations
- Measuring surface is micro-lapped
- With fine adjustment
- Packed in wooden box



MW152-55

**Mono Block Large Workshop Vernier Caliper - 152 Series**

| Code No | Range (mm) | Resolution (mm) | Jaws (mm) |
|---|---|---|---|
| MW152-55 | 0-500 | 0.05 | 100 |
| MW152-65 | 0-600 | 0.05 | 100 |
| MW152-75 | 0-1000 | 0.05 | 125 |

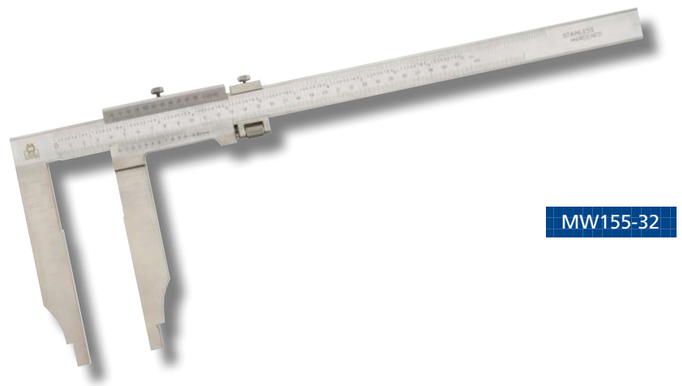
# Long Jaw Vernier Caliper 155 Series

## At a Glance

- With longer jaws which permit the measurement of large workpieces
- Jaws for internal and external measurement

## Features

- Locking screw for locking the slider
- Made of hardened stainless steel
- Chromed scale with engraved graduations
- Measuring surface is micro-lapped
- With fine adjustment
- Locking screw



MW155-32

**Long Jaw Vernier Caliper - 155 Series**

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) | Jaws (mm) |
|---|---|---|---|---|---|
| MW155-32 | 0-300 | 0-12 | 0.02 | 0.001 | 150 |
| MW155-35 | 0-300 | | 0.05 | | 150 |
| MW155-52 | 0-500 | 0-20 | 0.02 | 0.001 | 200 |
| MW155-55 | 0-500 | | 0.05 | | 200 |
| MW155-62 | 0-600 | 0-24 | 0.02 | 0.001 | 300 |
| MW155-65 | 0-600 | | 0.05 | | 300 |
| MW155-72 | 0-1000 | 0-40 | 0.02 | 0.001 | 300 |



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# Digital External Groove IP54 Caliper

## At a Glance

Range: 0-200mm (0-8")

## Features

- IP54 Electronics (water and dust resistant)
- SPC Data Output via cable (optional)
- Glass scale
- Thumb wheel for fine adjustment
- Locking Screw
- mm-inch conversion
- Absolute or incremental measurements
- Zero setting at any point

**Digital External Groove IP54 Caliper - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) |
|---|---|---|---|
| MW120-20DABS | 0-200 | 0.01 | ± 0.03 |

**Digital External Groove IP54 Caliper - Imperial**

| Code No | Range (inch) | Resolution (inch) | Accuracy (inch) |
|---|---|---|---|
| MW120-20DABS | 0-8 | 0.0005 | 0.0015 |

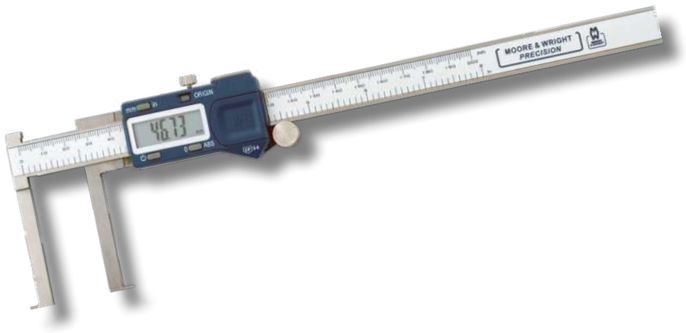
# Digital External Groove Caliper 120-DABS Series

## At a Glance

Range: 11-300mm

## Features

- Digital Groove Caliper
- IP54 Rated
- SPC Data Output via cable (optional)
- Glass scale




**Digital External Groove Caliper - 120-DABS Series**

| Code No | Range (mm) | Resolution (mm) | Resolution (inch) | Accuracy (mm) |
|---|---|---|---|---|
| MW-125-DABS | 11-300 | 0.01 | 0.0005 | ± 0.03 |



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# Plastic Dial Caliper

## At a Glance

- 4-way measurement
- Highly durable design

## Features

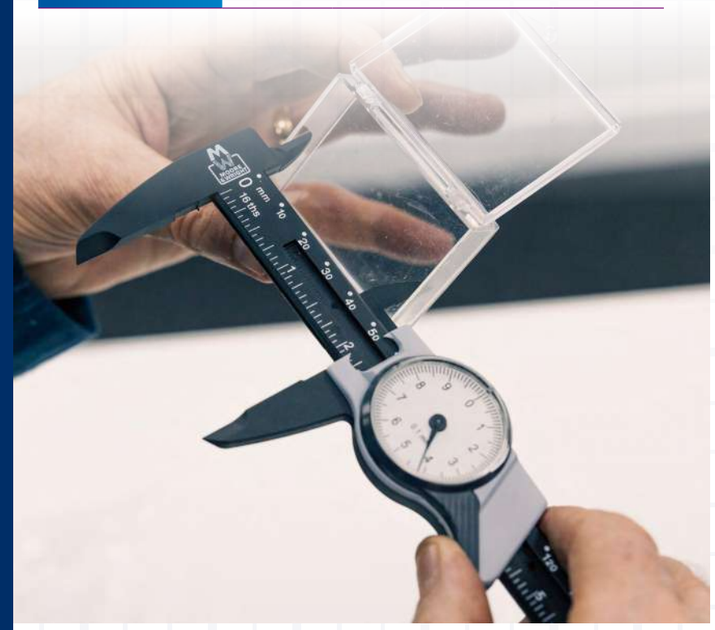
- Manufactured from glass reinforced nylon material
- Plastic depth rod

**Plastic Dial Caliper - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Jaws (mm) |
|---|---|---|---|---|
| CP150M | 0-150 | 0.1 | ± 0.1 | 40 |

**Plastic Dial Caliper - Imperial**

| Code No | Range (inch) | Resolution (inch) | Accuracy (inch) | Jaws (inch) |
|---|---|---|---|---|
| CDP006E | 0-6 | 0.01 | ± 0.004 | 1.57 |



# IP54 Water Resistant Caliper

## At a Glance

- Standard: DIN 862
- Water and dust resistant to IP54 specification

## Features

- Digital functions: mm/inch conversion, on/off, zero setting, ABS/INC
- Patented ceramic capacitive sensor
- 4-way measurement
- Thumb wheel for fine adjustment
- CR2032 battery

MW110-15WR

**IP54 Water Resistant Caliper - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Jaws (mm) |
|---|---|---|---|---|
| MW110-15WR | 0-150 | 0.01 | 0.03 | 40 |
| MW110-20WR | 0-200 | 0.01 | 0.03 | 50 |
| MW110-30WR | 0-300 | 0.01 | 0.04 | 60 |

**IP54 Water Resistant Caliper - Imperial**

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW110-15WR | 0-6 | 0.0005 |
| MW110-20WR | 0-8 | 0.0005 |
| MW110-30WR | 0-12 | 0.0005 |

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# Vernier Depth Gauge 170 Series

## At a Glance

- Standard workshop model made of alloyed stainless steel

## Features

- Mono block with locking screw
- With laser engraved graduations
- Measuring surface is micro-lapped

MW170-15

**Vernier Depth Gauge - 170 Series**

| Code No | Range (mm) | Resolution (mm) | Resolution (inch) | Size of Base (mm) |
|---|---|---|---|---|
| MW170-15 | 0-150 | 0.02 | 0.001 | 100 |
| MW170-15B | 0-150 | 0.05 | 1/128 | 100 |
| MW170-20 | 0-200 | 0.02 | 0.001 | 100 |
| MW170-20B | 0-200 | 0.05 | 1/128 | 100 |
| MW170-30 | 0-300 | 0.02 | 0.001 | 100 |
| MW170-30B | 0-300 | 0.05 | 1/128 | 100 |
| MW170-50B | 0-500 | 0.05 | 1/128 | 150 |
| MW170-50BI | 0-500 | 0.02 | 0.001 | 150 |

# Internal Digital Caliper

## At a Glance

- For measuring bores, internal grooves and other hard to reach inside dimensions

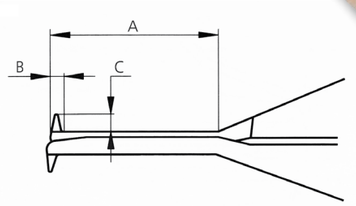
RS232

## Features

- Large LCD display
- Functions: mm/inch conversion, on/off, zero setting, battery low indication
- Auto adjusting analogue display
- 0.005mm or 0.0002" resolution

Incorporating advanced electronics, these advanced gauges have the benefit of a large digital readout and an auto adjusting analogue display. These gauges are ideally suited for measuring bores, internal grooves and other hard to reach inside dimensions.

MW432-01DC




**Internal Digital Caliper**

| Code No | Range (mm) | Range (inch) | Accuracy (mm) | Contact Radius (mm) |
|---|---|---|---|---|
| MW432-01DC | 5-15 | 0.2-0.6 | ±0.02 | 0.3 |
| MW432-02DC | 10-20 | 0.4-0.8 | ±0.02 | 0.3 |
| MW432-03DC | 20-30 | 0.8-1.2 | ±0.02 | 0.5 |
| MW432-04DC | 30-40 | 1.2-1.6 | ±0.02 | 0.5 |
| MW432-05DC | 40-50 | 1.6-2.0 | ±0.02 | 0.5 |

**Dimensions**

| Code No | A (mm) | B (mm) | C (mm) |
|---|---|---|---|
| MW432-01DC | 20.0 | 1.0 | 1.5 |
| MW432-02DC | 25.0 | 1.5 | 3.0 |
| MW432-03DC | 30.0 | 2.0 | 6.5 |
| MW432-04DC | 30.0 | 2.5 | 9.0 |
| MW432-05DC | 30.0 | 2.5 | 9.0 |



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# External Digital Caliper



## At a Glance

- For measuring bores, internal grooves and other hard to reach inside dimensions

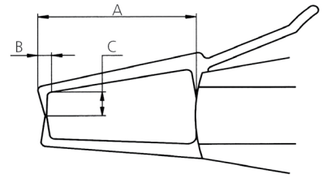
RS232

## Features

- Large LCD display
- Functions: mm/inch conversion, on/off, zero setting, battery low indication
- Auto adjusting analogue display
- 0.005mm or 0.0002" resolution

Incorporating advanced electronics, these advanced gauges have the benefit of a large digital readout and an auto adjusting analogue display. These gauges are ideally suited for measuring external grooves and other hard to reach outside dimensions.

MW442-01DC




**External Digital Caliper**

| Code No | Range (mm) | Range (inch) | Accuracy (mm) | Contact Radius (mm) |
|---|---|---|---|---|
| MW442-01DC | 0-10 | 0.2-0.4 | ±0.02 | 0.5 |
| MW442-02DC | 10-20 | 0.4-0.8 | ±0.02 | 0.5 |
| MW442-03DC | 20-30 | 0.8-1.2 | ±0.02 | 0.5 |
| MW442-04DC | 30-40 | 1.2-1.6 | ±0.02 | 0.5 |
| MW442-05DC | 40-50 | 1.6-2.0 | ±0.02 | 0.5 |

**Dimensions**

| Code No | A (mm) | B (mm) | C (mm) |
|---|---|---|---|
| MW442-01DC | 40.0 | 3.0 | 8.0 |
| MW442-02DC | 40.0 | 3.0 | 8.0 |
| MW442-03DC | 40.0 | 3.0 | 8.0 |
| MW442-04DC | 40.0 | 3.0 | 8.0 |
| MW442-05DC | 40.0 | 3.0 | 8.0 |

# Traditional External Micrometer 1961 Series

## At a Glance

- Standard: BS870, DIN 863/1, ISO361
- Tungsten carbide measuring faces
- 5mm spindle diameter

## Features

- Tapered bow frame
- Pearl-chrome plated frame with insulation pads
- Speeder type ratchet
- Choice of standard or vernier type sleeve
- Locking lever
- Adjusting key
- Supplied in plastic pocket case

1961M

**Traditional External Micrometer - 1961 Series**

| Code No | Range (mm) | Resolution (mm) | Code No | Range (inch) | Resolution (inch) |
|---|---|---|---|---|---|
| 1961M | 0-25 | 0.01 | 1961 | 0-1 | 0.001 |
| 1961MB | 0-25 | 0.01 | 1961B | 0-1 | 0.0001 |

**Accuracy**

| Micrometer Range Max Size up to | Measuring Faces Flatness | Screw Pitch Parallelism | Accuracy |
|---|---|---|---|
| 25mm | 0.001mm | 0.003mm | 0.003mm |
| 1" | 0.00005" | 0.0001" | 0.0001" |

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BOWERS GROUP

# External Micrometer 200 Series

## At a Glance

- Standard: DIN 863 / 1
- Tungsten carbide measuring faces
- Satin chrome scale

## Features

- Hammertone finish frame with insulated grip
- Tapered for easier access to difficult areas
- Constant force ratchet on thimble
- Locking lever
- Adjusting key
- Supplied in case with setting standard

MW200-01

**External Micrometer - 200 Series - Metric**

| Code No | Range (mm) | Resolution (mm) |
|---|---|---|
| MW200-01 | 0-25 | 0.01 |
| MW200-02 | 25-50 | 0.01 |
| MW200-03 | 50-75 | 0.01 |
| MW200-04 | 75-100 | 0.01 |

**External Micrometer - 200 Series - Imperial**

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW200-01I | 0-1 | 0.0005 |
| MW200-02I | 1-2 | 0.0005 |
| MW200-03I | 2-3 | 0.0005 |
| MW200-04I | 3-4 | 0.0005 |

# Traditional External Micrometer **1965 Series**

## At a Glance

- Standard: BS870, DIN 863/1, ISO361
- Tungsten carbide measuring faces
- 6.5mm spindle diameter

## Features

- Blue textured tapered bow frame
- Speeder type ratchet
- Choice of standard or vernier type sleeve
- Locking lever
- Adjusting key
- Supplied in plastic pocket case

1965M

**Traditional External Micrometer - 1965 Series**

| Code No | Range (mm) | Resolution (mm) | Code No | Range (inch) | Resolution (inch) |
|---|---|---|---|---|---|
| 1965M | 0-25 | 0.01 | 1965 | 0-1 | 0.001 |
| 1965MB | 0-25 | 0.002 | 1965B | 0-1 | 0.0001 |

**Accuracy**

| Micrometer Range Max Size up to | Measuring Faces Flatness | Screw Pitch Parallelism | Accuracy |
|---|---|---|---|
| 25mm | 0.001mm | 0.003mm | 0.003mm |
| 1" | 0.00005" | 0.0001" | 0.0001" |

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# Digital External Micrometer **IP65**

## At a Glance

Range up to 300mm

IP65

## Features

- 2 Button design
- SPC Data output
- Carbide measuring faces
- mm/inch conversion

MW203-01DABI

**Digital External Micrometer IP65**

| Code No | Range (mm) | Resolution (mm) | Resolution (inch) |
|---|---|---|---|
| MW203-01DABI | 0-25 | 0.001 | 0.00005 |
| MW203-02DABI | 25-50 | 0.001 | 0.00005 |
| MW203-03DABI | 50-75 | 0.001 | 0.00005 |
| MW203-04DABI | 75-100 | 0.001 | 0.00005 |
| MW203-05DABI | 100-125 | 0.001 | 0.00005 |
| MW203-06DABI | 125-150 | 0.001 | 0.00005 |
| MW203-07DABI | 150-175 | 0.001 | 0.00005 |
| MW203-08DABI | 175-200 | 0.001 | 0.00005 |
| MW203-09DABI | 200-225 | 0.001 | 0.00005 |
| MW203-10DABI | 225-250 | 0.001 | 0.00005 |
| MW203-11DABI | 250-275 | 0.001 | 0.00005 |
| MW203-12DABI | 275-300 | 0.001 | 0.00005 |

# Digital Absolute Snap Micrometer 202 Series

## At a Glance

- Absolute Measuring System
- USB Data output
- Digital functions: mm/Inch conversion, on/off, data-output, 0...ABS

## Features

- Non rotating spindle
  Constant measuring force on thimble
- Quick & repeatable measurement
- CR2032 battery

MW202-01DABS

**Digital Absolute Snap Micrometer - 202 Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) |
|---|---|---|---|
| MW202-01DABS | 0-25 | 0.001 | 0.003 |
| MW202-02DABS | 25-50 | 0.001 | 0.003 |
| MW202-03DABS | 50-75 | 0.001 | 0.004 |
| MW202-04DABS | 75-100 | 0.001 | 0.004 |

**Digital Absolute Snap Micrometer - 202 Series - Imperial**

| Code No | Range (inch) | Resolution (inch) | Accuracy (inch) |
|---|---|---|---|
| MW202-01DABS | 0-1 | 0.00005 | 0.00015 |
| MW202-02DABS | 1-2 | 0.00005 | 0.00015 |
| MW202-03DABS | 2-3 | 0.00005 | 0.0002 |
| MW202-04DABS | 3-4 | 0.00005 | 0.0002 |



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# Workshop Digital Micrometer 200 Series



## At a Glance

- Standard: DIN 863
- Large LCD display
- Functions: mm/inch conversion, ABS/INC, on/off, zero-setting

## Features

- Tungsten carbide measuring faces
- Hammertone finished frame with high quality insulated grip
- Tapered for easier access to difficult areas
- Constant force ratchet on thimble
- Locking lever
- Supplied with settings standard over 25mm
- Supplied in case

MW200-01DBL

**Workshop Digital Micrometer - 200 Series**

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) |
|---|---|---|---|---|
| MW200-01DBL | 0-25 | 0-1 | 0.001 | 0.00005 |
| MW200-02DBL | 25-50 | 1-2 | 0.001 | 0.00005 |
| MW200-03DBL | 50-75 | 2-3 | 0.001 | 0.00005 |
| MW200-04DBL | 75-100 | 3-4 | 0.001 | 0.00005 |

# Digital External Micrometer - 201 Series

## At a Glance

- Standard: DIN 863
- Protected to IP54 specifications
- Large LCD display

## Features

- Digital functions: mm/inch conversion, ABS/INC, on/off, zero-setting
- Rugged steel design
- Tungsten carbide measuring faces
- Hammertone finished frame with high quality insulated grip
- Tapered for easier access to difficult areas
- Constant force ratchet on thimble
- Locking lever
- Ball attachment included
- Supplied with settings standard over 25mm
- Supplied in case

MW201-01DAB

### Digital External Micrometer - 201 Series

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (mm) |
|---|---|---|---|---|
| MW201-01DAB | 0-25 | 0-1 | 0.01 | 0.0005 |
| MW201-02DAB | 25-50 | 1-2 | 0.01 | 0.0005 |
| MW201-03DAB | 50-75 | 2-3 | 0.01 | 0.0005 |
| MW201-04DAB | 75-100 | 3-4 | 0.01 | 0.0005 |

### Data Cable

| Code No | Description |
|---|---|
| MW-Y100/700USB | Data Cable-USB to suit all DABS products |

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# Workshop Outside Micrometer - 200 Series

## At a Glance

- Can be fitted to the anvil or spindle on external micrometer series 1961, 1965 and 1966 to enable round or irregular surfaces to be measured

## Features

- Standard: DIN 863
- Standard workshop model
- Resolution 0.01mm
- Satin-chrome scale
- Painted frame
- Tapered for easier access to difficult areas
- With tungsten carbide measuring face and constant force ratchet
- Packed in plastic box with standard and adjusting key

MW200-01BL

### Workshop Outside Micrometer - 200 Series

| Code No | Range (mm) | Resolution (mm) |
|---|---|---|
| MW200-01BL | 0-25 | 0.01 |
| MW200-02BL | 25-50 | 0.01 |
| MW200-03BL | 50-75 | 0.01 |
| MW200-04BL | 75-100 | 0.01 |

# Traditional External Micrometers - 966 Series

## At a Glance

- Complies with: BS870, DIN 863/1, ISO361
- Tungsten carbide measuring faces
- Speeder type ratchet

## Features

- Tungsten carbide measuring faces
- Blue textured frame finish
- Locking lever
- Adjusting key
- Supplied in case
- Choice of standard or vernier type sleeve
- Spindle diameter 6.5mm
- Supplied with setting standard

# Traditional External Micrometers - **966 Series**

**Traditional External Micrometer - Metric - 25 -150mm**

| Code No | Range (mm) | Description | Code No | Range (mm) | Description |
|---|---|---|---|---|---|
| 1966M50 | 25-50 | 0.01mm Carbide anvils | 1966MB50 | 25-50 | 0.002mm Carbide anvils |
| 1966M75 | 50-75 | 0.01mm Carbide anvils | 1966MB75 | 50-75 | 0.002mm Carbide anvils |
| 1966M100 | 75-100 | 0.01mm Carbide anvils | 1966MB100 | 75-100 | 0.002mm Carbide anvils |
| 1966M125 | 100-125 | 0.01mm Carbide anvils | 1966MB125 | 100-125 | 0.002mm Carbide anvils |
| 1966M150 | 125-150 | 0.01mm Carbide anvils | 1966MB150 | 125-150 | 0.002mm Carbide anvils |

**Traditional External Micrometer - Imperial - 1-6"**

| Code No | Range (mm) | Description | Code No | Range (mm) | Description |
|---|---|---|---|---|---|
| 19662 | 1-2 | 0.001" Res, Carbide anvils | 1966B2 | 1-2 | 0.0001" Res, Carbide anvils |
| 19663 | 2-3 | 0.001" Res, Carbide anvils | 1966B3 | 2-3 | 0.0001" Res, Carbide anvils |
| 19664 | 3-4 | 0.001" Res, Carbide anvils | 1966B4 | 3-4 | 0.0001" Res, Carbide anvils |
| 19665 | 4-5 | 0.001" Res, Carbide anvils | 1966B5 | 4-5 | 0.0001" Res, Carbide anvils |
| 19666 | 5-6 | 0.001" Res, Carbide anvils | 1966B6 | 5-6 | 0.0001" Res, Carbide anvils |

**Accuracy**

| Micrometer Range Max Size up to | Measuring Faces | | Screw Pitch Accuracy |
|---|---|---|---|
| | Flatness | Parallelism | |
| 50mm | 0.001mm | 0.003mm | 0.003mm |
| 2" | 0.00005" | 0.0001" | 0.0001" |
| 150mm | 0.001mm | 0.005mm | 0.003mm |
| 6" | 0.00005" | 0.0002" | 0.0001" |

1966M50

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# Workshop External Micrometer Set 215 Series

## At a Glance

- Standard: DIN 863
- Tungsten carbide measuring faces
- Satin-chrome scale

## Features

- Satin-chrome forged steel frame with insulated grip
- Constant force ratchet on thimble
- Adjusting key
- Supplied with setting standards
- Supplied in wooden box

MW215-01BL

**Workshop External Micrometer Set - 215 Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Quantity |
|---|---|---|---|
| MW215-01BL | 0-75 | 0.01 | 3 Micrometers In Set |
| MW215-02BL | 0-100 | 0.01 | 4 Micrometers In Set |
| MW215-03BL | 0-150 | 0.01 | 6 Micrometers In Set |
| MW215-04BL | 0-200 | 0.01 | 8 Micrometers In Set |

**Workshop External Micrometer Set - 215 Series - Imperial**

| Code No | Range (mm) | Resolution (mm) | Quantity |
|---|---|---|---|
| MW215-01BI | 0-3 | 0.001 | 3 Micrometers In Set |
| MW215-02BI | 0-4 | 0.001 | 4 Micrometers In Set |
| MW215-03BI | 0-6 | 0.001 | 6 Micrometers In Set |
| MW215-04BI | 0-8 | 0.001 | 8 Micrometers In Set |

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# Micrometer with Interchangeable Anvils 217 Series

## At a Glance

- Standard: DIN 863
- Features wide measuring range with interchangeable anvils

## Features

- Hardened and ground spindles/anvils
- Tungsten carbide measuring faces
- Satin-chrome scale
- Strong forged steel hammertone finish frame with insulated grip
- Constant force ratchet on thimble
- Adjusting key
- Supplied with setting standards
- Supplied in wooden box

MW217-01

**Micrometer with Interchangeable Anvils - 217 Series**

| Code No | Range (mm) | Resolution (mm) |
|---|---|---|
| MW217-01 | 0-100 | 0.01 |
| MW217-02 | 0-150 | 0.01 |
| MW217-03 | 100-200 | 0.01 |
| MW217-04 | 150-300 | 0.01 |
| MW217-05 | 200-300 | 0.01 |

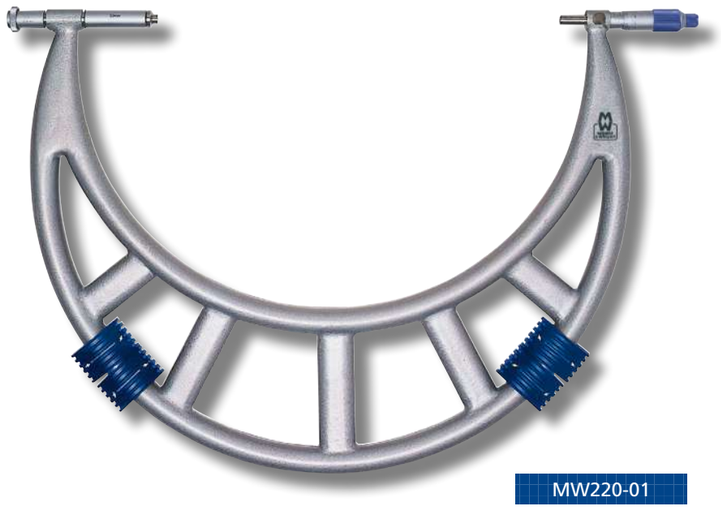
# Large Adjustable External Metric Micrometer 220 Series

## At a Glance

- Standard: DIN 863
- Features wide measuring range with interchangeable anvils

## Features

- Low weight tubular frame with insulated grips
- Tungsten carbide measuring faces
- Hardened and ground spindles/anvils
- Satin-chrome scale
- Constant force ratchet on thimble
- Adjusting key
- Supplied with setting standards
- Supplied in wooden box



MW220-01

**Large Adjustable External Metric Micrometer - 220 Series**

| Code No | Range (mm) | Resolution (mm) |
|---|---|---|
| MW220-01 | 300-400 | 0.01 |
| MW220-02 | 400-500 | 0.01 |
| MW220-03 | 500-600 | 0.01 |
| MW220-04 | 600-700 | 0.01 |
| MW220-05 | 700-800 | 0.01 |
| MW220-06 | 800-900 | 0.01 |
| MW220-07 | 900-1000 | 0.01 |
| MW220-08 | 1000-1200 | 0.01 |
| MW220-09 | 1200-1400 | 0.01 |

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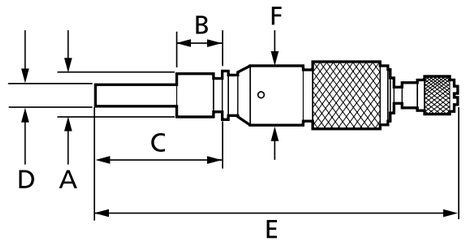
# Small Micrometer Head 310 Series

## At a Glance

- Spindle diameter 5mm

## Features

- Standard: Factory Standard
- Universal micrometer head for X-Y stages or other purposes
- Satin-chrome finished body
- Laser engraved graduations




**Small Micrometer Head - 310 Series**

| Code No | Range (mm) | Note | Resolution (mm) |
|---|---|---|---|
| MW310-15 | 0-13 | Spherical anvil | 0.01 |

**Dimensions**

| Code No | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) |
|---|---|---|---|---|---|---|
| MW310-15 | 9.50 | 10.50 | 24.00 | 5.00 | 59.00 | 13.50 |

# Workshop Blade Micrometer 275 Series

## At a Glance

- Measuring grooves, keyways etc.
- Blade 6.5mm non-rotating spindle
- Blade 1.25mm thick

## Features

- Standard: DIN 863
- Satin chrome scale
- Hammertone finish frame with insulated grip
- Tapered for easier access to difficult areas
- Constant force ratchet on thimble
- Adjusting key
- Supplied in case

MW275-01

### Workshop Blade Micrometer - 275 Series

| Code No | Range (mm) | Resolution (mm) |
|---|---|---|
| MW275-01 | 0-25 | 0.01 |
| MW275-02 | 25-50 | 0.01 |
| MW275-03 | 50-75 | 0.01 |
| MW275-04 | 75-100 | 0.01 |



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# Tube Micrometer 255 Series

## At a Glance

- Standard: DIN 863
- Spherical anvil for measuring tube wall thickness

## Features

- Tungsten carbide measuring faces on spindle
- Satin chrome scale
- Hammertone finished frame with insulated grip
- Constant force ratchet on thimble
- Supplied in case

### Tube Micrometer - 255 Series

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) |
|---|---|---|---|
| MW255-01 | 0-25 | 0.01 | 0.006 |

### Dimensions

| Code No | A (mm) | B (mm) |
|---|---|---|
| MW255-01 | 4.75 | 27.5 |

# Traditional Depth Micrometer

## At a Glance

- Complies with BS6468:1984

## Features 890 Series

- Fixed depth rod, 6.5mm diameter
- 63.5mm / 2 1/2" base length 16mm / 0.63" width
- 'Speeder' type ratchet
- Lock screw

## Features 891 Series

- Interchangeable depth rods, 4.5mm diameter
- 63.5mm / 2 1/2" base length, 16mm / 0.63" width



## Features 891 Series

- As 891 Series except for: 100mm / 4" base length

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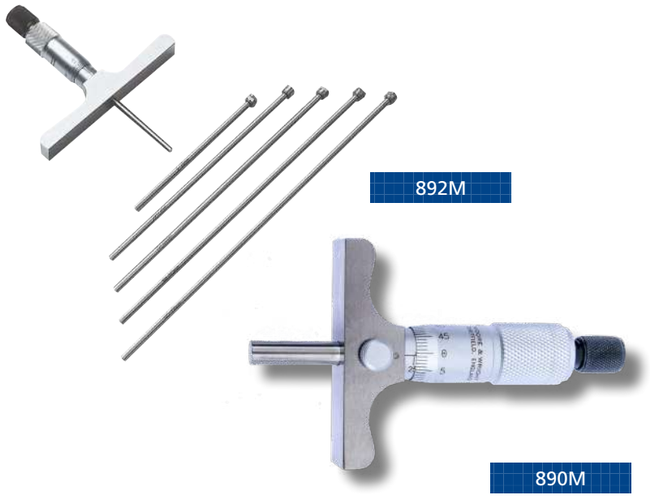


**Traditional Depth Micrometer**

| Code No | Range (mm) | Code No | Range (inch) |
|---|---|---|---|
| 890M | 0-25 | 890 | 0-1 |
| 891M75 | 0-75 | 8913 | 0-3 |
| 891M150 | 0-150 | 8916 | 0-6 |
| 891M300 | 0-300 | 89112 | 0-12 |
| 892M75 | 0-75 | 8923 | 0-3 |
| 892M150 | 0-150 | 8926 | 0-6 |
| 892M300 | 0-300 | 89212 | 0-12 |

# Micrometer Ball Attachment

## At a Glance

- Can be fitted to the anvil or spindle on external micrometer series 1961, 1965 and 1966 to enable round or irregular surfaces to be measured

## Features

- The ball is hardened and moves freely to allow contact with the object being measured

Note: Always deduct the ball diameter from any reading.

878M

**Micrometer Ball Attachment**

| Code No | Description | Diameter (mm) | Diameter (inch) |
|---|---|---|---|
| 878M | 6.5mm and 6.8mm | 6.5 ball | |
| 878 | 0.256" and 0.268" | | 0.250 ball |

Note 1 of each spindle size supplied

# Micrometer **Stand**

## At a Glance

- Designed for micrometers up to 100mm

## Features

- Hammertone painted
- Angle adjustable

| Micrometer Stand | |
|---|---|
| **Code No** | **Description** |
| MW279-01A | Stand for micrometers up to 100mm |

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# **Large Adjustable External Digital** Micrometer **220 Series**

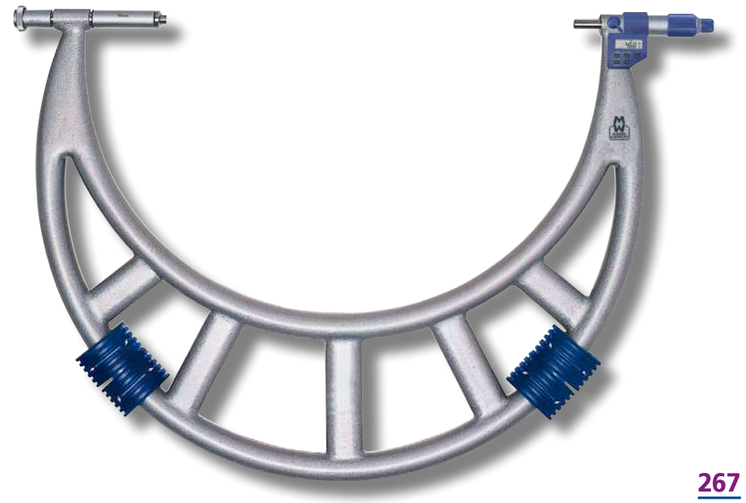
## At a Glance

- Standard: DIN 863
- Digital functions: tolerance indication, on/off, zero-setting, battery low indication

## Features

- Features wide measuring range with interchangeable anvils
- Low weight tubular frame with insulated grips
- Tungsten carbide measuring faces
- Hardened and ground spindles/anvils
- Satin-chrome scale
- Constant force ratchet on thimble
- Adjusting key
- Supplied with setting standards
- Supplied in wooden box





MW220-01DDL

| Large Adjustable External Digital Micrometer - 220 Series | | |
|---|---|---|
| **Code No** | **Range (mm)** | **Resolution (mm)** |
| MW220-01DDL | 300-400 | 0.001 |
| MW220-02DDL | 400-500 | 0.001 |
| MW220-03DDL | 500-600 | 0.001 |
| MW220-04DDL | 600-700 | 0.001 |
| MW220-05DDL | 700-800 | 0.001 |
| MW220-06DDL | 800-900 | 0.001 |
| MW220-07DDL | 900-1000 | 0.001 |

# Analogue Indicating Snap Micrometer

## At a Glance

Measuring range 0-25mm & 25-50mm

- Micrometer accuracy 0.003mm

## Features

- Retractable anvil with an indicator for precise measurement of mass produced parts
- Indicator accuracy 0.001mm
- Adjustable depth stop

MW290-01

**Analogue Indicating Snap Micrometer**

| Code No | Range (mm) | Resolution (mm) | Indicator Range |
|---|---|---|---|
| MW290-01 | 0-25 | 0.001 | +/- 0.04mm |
| MW290-02 | 25-50 | 0.001 | +/- 0.04mm |



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# Digital Tube Micrometer 255-DDL Series



## At a Glance

- Standard: DIN 863
- Digital functions: mm/inch conversion, on/off, zero-setting, battery low indication, hold, 0...ABS

## Features

- Spherical anvil for measuring tube wall thickness
- Tungsten carbide measuring faces on spindle
- Chrome plated frame with high quality insulated grip
- Constant force ratchet on thimble
- Supplier with battery cover key
- Supplied in case
- IP54 rated

**Tube Micrometer - 255 Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) |
|---|---|---|---|
| MW255-01DDL | 0-25 | 0.01 | 0.003 |

**Tube Micrometer - 255 Series - Imperial**

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW255-01DDL | 0-1 | 0.00005 |

**Dimensions**

| Code No | A (mm) | B (mm) |
|---|---|---|
| MW255-01DDL | 27.5 | 4.75 |

# Workshop Digital Point Micrometer 270 Series

## At a Glance

- Standard: DIN 863
- Large LCD display
- Digital functions: mm/inch conversion, ABS/INC, on/off, zero-setting, battery low indication

## Features

- Pointed spindle and anvil for measuring hard to reach places like the web thickness of drills, small grooves, keyways
- Tungsten carbide measuring faces
- Hammertone finished frame with high quality insulated grip
- Tapered for easier access to difficult areas
- Constant force ratchet on thimble
- Locking lever
- Adjusting key
- Supplied with settings standard
- Supplied in case

MW270-01DDL

**Workshop Digital Point Micrometer - 270 Series - Metric**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Point Angle |
|---|---|---|---|---|
| MW270-01DDL | 0-25 | 0.001 | 0.004 | 30° |
| MW270-02DDL | 25-50 | 0.001 | 0.004 | 30° |
| MW270-03DDL | 50-75 | 0.001 | 0.005 | 30° |
| MW270-04DDL | 75-100 | 0.001 | 0.005 | 30° |

**Workshop Digital Point Micrometer -270 Series - Imperial**

| Code No | Range (inch) | Resolution (inch) | Point Angle |
|---|---|---|---|
| MW270-01DDL | 0-1 | 0.00005 | 30° |
| MW270-02DDL | 1-2 | 0.00005 | 30° |
| MW270-03DDL | 2-3 | 0.00005 | 30° |
| MW270-04DDL | 3-4 | 0.00005 | 30° |



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# Mechanical Digit Outside Micrometer 230 Series

## At a Glance

- Standard: DIN 863
- Low cost, mechanical/digital read-out micrometer

## Features

- Satin-chrome scale
- Forged steel frame with insulated grip
- Tapered for easier access to difficult areas
- With tungsten carbide measuring faces and constant force ratchet
- Packed in wooden/plastic box with standard and adjusting key

MW230-01MDB

**Mechanical Digit Outside Micrometer - 230 Series**

| Code No | Range (mm) | Resolution (mm) |
|---|---|---|
| MW230-01MDB | 0-25 | 0.01 |
| MW230-02MDB | 25-50 | 0.01 |

# Digital Depth Micrometer 305-DDL Series

## At a Glance

- Standard: DIN 863

## Features

- Digital functions: mm / inch conversion, set, on/off, zero-setting, battery low indication, hold, 0...ABS
- Interchangeable rods (spherical ends)
- Rods are hardened and spherically lapped
- Satin chrome finished base
- Constant force ratchet on thimble

MW305-01DDL

### Digital Depth Micrometer - 305-DDL Series - Metric

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Size of Base (mm) |
|---|---|---|---|---|
| MW305-00DDL | 0-25 | 0.001 | 0.004 | 100 |
| MW305-01DDL | 0-50 | 0.001 | 0.004 | 100 |
| MW305-02DDL | 0-100 | 0.001 | 0.005 | 100 |
| MW305-03DDL | 0-150 | 0.001 | 0.006 | 100 |
| MW305-04DDL | 0-200 | 0.001 | 0.007 | 100 |
| MW305-05DDL | 0-300 | 0.001 | 0.009 | 100 |

### Digital Depth Micrometer - 305-DDL Series - Imperial

| Code No | Range (inch) | Resolution (inch) |
|---|---|---|
| MW305-00DDL | 0-1 | 0.00005 |
| MW305-01DDL | 0-2 | 0.00005 |
| MW305-02DDL | 0-4 | 0.00005 |
| MW305-03DDL | 0-6 | 0.00005 |
| MW305-04DDL | 0-8 | 0.00005 |
| MW305-05DDL | 0-12 | 0.00005 |



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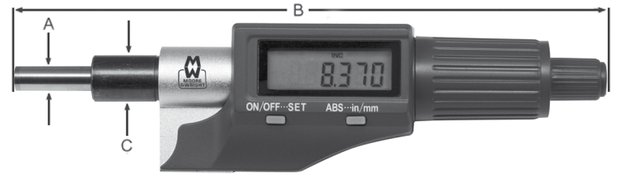
# Digital Micrometer Head 312 Series

## At a Glance

- Standard: DIN 862

## Features

- Functions: mm/inch conversion, ABS/INC, on/off, zero-setting
- Universal micrometer head for X-Y stages or other purposes
- Large LCD display
- Constant force ratchet on thimble




### Digital Micrometer Head - 312 Series

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) |
|---|---|---|---|---|
| MW312-25D | 0-25 | 1 | 0.001 | 0.00005 |

### Dimensions

| Code No | A (mm) | B (mm) | C (mm) |
|---|---|---|---|
| MW312-25D | 6.5 | 150 | 12.0 |

# Traditional Internal Micrometers 900 Series

## At a Glance

- Complies with: BS959

## Features

- All models supplied in a fitted case

Each model comprises a measuring head, a set of extension rods and a spacing collar to facilitate alternative measuring ranges. The smaller models (901, 902 & 903) have detachable extension handles.

901M

903M

### Traditional Internal Micrometers - 900 Series - Metric

| Code No | Range (mm) | Accuracy (mm) | Head Range (mm) |
|---|---|---|---|
| 901M | 25-55 | 0.003 | 5 |
| 902M | 50-210 | 0.003 | 10 |
| 903M | 50-310 | 0.003 | 10 |
| 908M825 | 200-825 | | 25 |

### Traditional Internal Micrometers - 900 Series - Imperial

| Code No | Range (inch) | Accuracy (inch) | Head Range (inch) |
|---|---|---|---|
| 901 | 1-2 | 0.0001 | 0.25 |
| 902 | 2-8 | 0.0001 | 0.50 |
| 903 | 2-12 | 0.0001 | 0.50 |

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# Tubular Internal Micrometer 300 Series

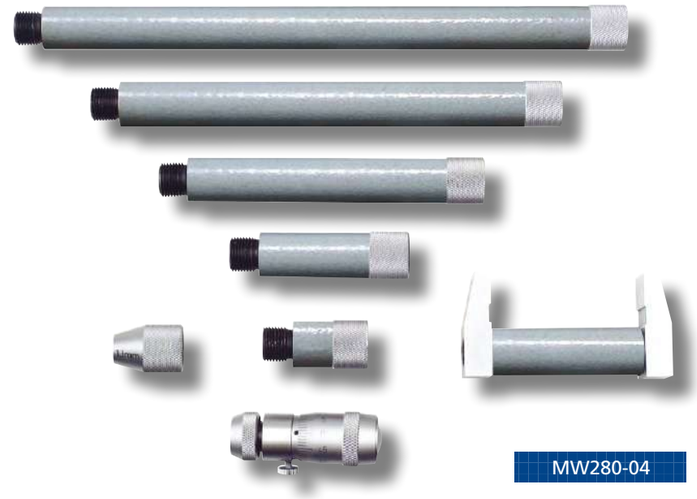


## At a Glance

- Standard: DIN 863
- Ideal for large diameters
- Tungsten carbide measuring faces

## Features

- All measuring faces are micro-lapped
- Satin-chromed scale and body with lock screw
- Supplied with setting piece
- Supplied in a wooden box



MW280-04

Assembled Micrometer

### Tubular Internal Micrometer - 300 Series

| Code No | Range (mm) | Resolution (mm) |
|---|---|---|
| MW300-01 | 50-250 | 0.01 |
| MW300-02 | 50-600 | 0.01 |
| MW300-04 | 150-2000 | 0.01 |

# Digital Internal Micrometer

## At a Glance

Range up to 2000mm

## Features

- Standard: DIN 863
- Tungsten carbide measuring faces
- All measuring faces are micro-lapped
- Satin-chromed scale and body with lock screw
- Supplied with setting piece
- Supplied in a wooden box

MW300-05DABI

**Digital Internal Micrometer**

| Code No | Range (mm) | Resolution (mm) |
|---|---|---|
| MW300-05DABI | 150-1000 | 0.001 |
| MW300-06DABI | 150-1500 | 0.001 |
| MW300-07DABI | 150-2000 | 0.001 |

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# Caliper Type Inside Micrometer 280 Series

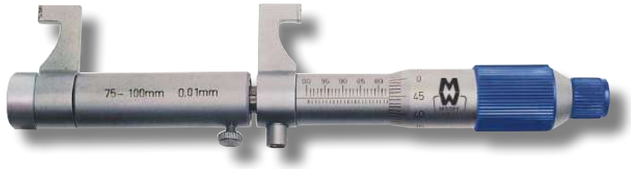
## At a Glance

- Standard: DIN 863
- Measuring the inside of a bore or hole
- Pin diameter 2mm, length 5mm (only applicable to MW280-01)

## Features

- Satin chrome finished frame
- Constant force ratchet thimble
- Locking clamp for positive locking of spindle
- Adjusting key
- Supplied in case

MW280-01




MW280-04

**Caliper Type Inside Micrometer - 280 Series**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Setting Rings |
|---|---|---|---|---|
| MW280-01 | 5-30 | 0.01 | 0.005 | Yes |
| MW280-02 | 25-50 | 0.01 | 0.005 | Yes |
| MW280-03 | 50-75 | 0.01 | 0.005 | No |
| MW280-04 | 75-100 | 0.01 | 0.005 | No |
| MW280-05 | 100-125 | 0.01 | 0.005 | No |
| MW280-06 | 125-150 | 0.01 | 0.005 | No |
| MW280-07 | 150-175 | 0.01 | 0.005 | No |
| MW280-08 | 175-200 | 0.01 | 0.005 | No |

# Digital Inside Micrometer 280-DDL Series

## At a Glance

- Standard: DIN 863
- Digital functions: mm/inch conversion, on/off, zero-setting, battery low indication, hold, 0...ABS

## Features

- Measuring the inside of a bore or hole
- Pin diameter 2mm, length 5mm (only applicable to MW280-01DDL)
- Satin chrome finished frame
- Constant force ratchet thimble
- Locking clamp for positive locking of spindle
- Setting rings (only applicable MW280-01DDL and MW280-02DDL)
- Supplied in case

MW280-01DDL

MW280-05DDL

**Digital Inside Micrometer - 280-DDL Series**

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) | Accuracy (mm) |
|---|---|---|---|---|---|
| MW280-01DDL | 5-30 | 0.2-1.2 | 0.001 | 0.00005 | 0.003 |
| MW280-02DDL | 25-50 | 1-2 | 0.001 | 0.00005 | 0.003 |
| MW280-03DDL | 50-75 | 2-3 | 0.001 | 0.00005 | 0.004 |
| MW280-04DDL | 75-100 | 3-4 | 0.001 | 0.00005 | 0.004 |
| MW280-05DDL | 100-125 | 4-5 | 0.001 | 0.00005 | 0.005 |
| MW280-06DDL | 125-150 | 5-6 | 0.001 | 0.00005 | 0.005 |



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# Point Micrometer 270 Series

## At a Glance

- Standard: DIN 863
- Pointed spindle and anvil for measuring hard to reach places like the web thickness of drills, small grooves, keyways

## Features

- Tungsten carbide measuring faces
- Hammertone finished frame with high quality insulated grip
- Tapered for easier access to difficult areas
- Constant force ratchet on thimble
- Locking lever
- Adjusting key
- Supplied with settings standard
- Supplied in case

MW270-01

**Point Micrometer - 270 Series**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Point Angle |
|---|---|---|---|---|
| MW270-01 | 0-25 | 0.01 | 0.004 | 15° |
| MW270-02 | 25-50 | 0.01 | 0.004 | 15° |
| MW270-03 | 50-75 | 0.01 | 0.005 | 15° |
| MW270-04 | 75-100 | 0.01 | 0.005 | 15° |
| MW270-05 | 0-25 | 0.01 | 0.004 | 30° |
| MW270-06 | 25-50 | 0.01 | 0.004 | 30° |
| MW270-07 | 50-75 | 0.01 | 0.005 | 30° |
| MW270-08 | 75-100 | 0.01 | 0.005 | 30° |

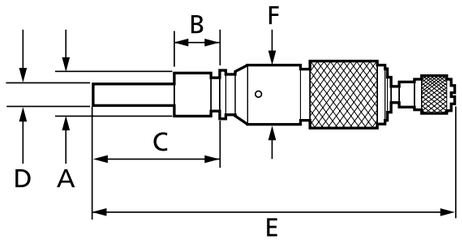
# Standard Micrometer Head 310 Series

## At a Glance

- Spindle diameter 6.5mm

## Features

- Universal micrometer head for X-Y stages or other purposes
- Satin-chrome finished body
- Laser engraved graduations
- With constant force ratchet




**Standard Micrometer Head - 310 Series**

| Code No | Range (mm) | Note | Resolution (mm) |
|---|---|---|---|
| MW310-25 | 0-25 | Flat anvil | 0.01 |

**Dimensions**

| Code No | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) |
|---|---|---|---|---|---|---|
| MW310-25 | 12.00 | 16.00 | 46.00 | 6.50 | 115.00 | 18.00 |

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# Sheffield Steel Stockholders Meet Tight Tolerances with a Moore & Wright Micrometer

Until recently, Phoenix Steels relied on a traditional Moore & Wright micrometre that was at least 30 years old. Although this model was still working well for them, Bowers has supplied the company with a brand new Moore & Wright digital external micrometer with a large LCD display, as well as a Moore & Wright workshop digital caliper.

Phoenix Steels is involved in the day-to-day processing of all popular grades of tool steels, including the manufacture of ground flat stock. In addition, the company also supplies and stocks key steel and silver steel, along with O1 , D2, H13 , P20, M2, and 1.2767, bar from its 8000sq ft warehouse in the centre of Sheffield. They also stock and supply O1 sheet from 2.4mm thick up to 6mm which can be cropped and precision roller flattened to customer specifications.

Micrometers are used to measure the sheet prior to the cutting and roller flattening process, giving the surface grinding machine operators an accurate measurement of the starting size of the steel. After the grinding process, during which various sizes of ground flat stock are produced, micrometers are used again to check that the finished product is within tolerance.

Phoenix Steels manufactures and stocks a full range of standard metric and imperial sizes, and tolerances are typically tight; +/- 0.001 inch or – nil + 0.05mm. Tolerances for finished products are industry standard for ground flat stock, and as long as these standards are met with accuracy they can be passed for sale. The company has an in house grinding facility to ensure speedy, small batch production in order to keep the stock programme up to date.

Steve Thompson, formerly of Sheffield based Tool Steel Blanks, runs the cropping and roller flattening operation at Phoenix Steels. Steve is in charge of the quality control of the finished products, and uses the micrometers to ensure accurate measurement. Steve said:

> “Meeting the tight tolerances of our ground flat stock is imperative to the quality and repeatability of the products we sell. Our customers trust that the steel we provide them with is consistently accurate, ensuring that they can manufacture their products with confidence.”

Phoenix Steels is very satisfied with the Moore & Wright products, and firmly believes they are the best on the market. Steve continued:

> “Compared to other generic copies on the market, Moore & Wright micrometers are noticeably more accurate, more reliable, and of higher quality. We use them several times a day and trust them completely to provide an accurate readout. They are a key instrument in the day to day working of the business. The new micrometer has a large digital display, which is clear, convenient and easy to use.”

Phoenix Steels’ supply of ground flat stock is predominantly used in tool making, as well in the making of knives, punches, jigs and fixtures. The company is also well equipped to produce special sizes for the bespoke requirements of customers; whether these are individual pieces, small batch, or full production quantities of ground flat stock or pre-machined bar.

Mark Skinner, Production Director at Phoenix Steels said:

> “We have developed the supply of special sizes of ground tool steel down to a fine art. The Moore & Wright micrometers are very useful as they enable us to ensure that the steel we provide matches standard tolerances, as well as the specialist requirements of customers. It is our aim to produce stock with precision, accuracy and quality, directly meeting the required customer specification.”

# Digital Indicator **405 Series**

## At a Glance

- Digital functions: Direct mm / inch conversion, ABS/ INC, zero-setting

## Features

- 58mm dial face
- Lugback and 8mm stem mountings
- Also supplied with flatback

MW405-04DB

### Dial Indicator - 405 Series - Metric

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) |
|---|---|---|---|
| MW405-04DB | 0-12.7 | 0.01 | ±0.02 |
| MW405-06DB | 0-25.0 | 0.01 | ±0.03 |

### Dial Indicator - 405 Series - Imperial

| Code No | Range (inch) | Resolution (inch) | Accuracy (inch) |
|---|---|---|---|
| MW405-04DB | 0-0.5 | 0.0005 | ±0.0008 |
| MW405-06DB | 0-1.0 | 0.0005 | ±0.0012 |



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# Digital **Absolute** Indicator **430-DABS Series**

## At a Glance

- Absolute Measuring System
- USB Data Output

## Features

- Functions: tolerances, mm/inch conversion, preset capability, data-output, zero-setting, on/off
- 8mm/H7 clamping diameter
- IP54 protection
- CR2032 battery
- Supplied with lugback and flat back

MW430-01DABS

### Digital Absolute Indicator - 430-DABS Series

| Code No | Range (mm) | Range (inch) | Resolution (mm) | Resolution (inch) | Accuracy (mm) | Accuracy (inch) |
|---|---|---|---|---|---|---|
| MW430-01DABS | 0-12.5 | 0-0.5 | 0.001 | 0.00005 | ±0.004 | ±0.0002 |
| MW430-02DABS | 0-25.4 | 0-1.0 | 0.001 | 0.00005 | ±0.005 | ±0.00025 |
| MW430-03DABS | 0-50.8 | 0-2.0 | 0.001 | 0.00005 | ±0.006 | ±0.0003 |

### Digital Absolute Indicator - 430-DABS Series

| Code No | Description |
|---|---|
| MW-Y100/700USB | Data Cable-USB to suit all DABS products |

# Dial Indicator 401 Series

## At a Glance

- Standard: ANSI B89.1.10
- Aluminium body

## Features

- With tungsten carbide contact point
- Adjustable bezel with stop screw
- Tolerance indicators
- Lug back (flat back is optional)

MW401-01

MW401-02

MW401-05



### Dial Indicator - 401 Series - Metric

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Bezel Diameter (mm) | Stem Diameter (mm) |
|---|---|---|---|---|---|
| MW401-05 | 0-25.0 | 0.01 | ±0.035 | 60 | 8 |

### Dial Indicator - 401 Series - Imperial

| Code No | Range (inch) | Resolution (inch) | Stem Diameter (inch) |
|---|---|---|---|
| MW401-01 | 0-0.5 | 0.001 | 3/8 |
| MW401-02 | 0-1.0 | 0.001 | 3/8 |

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# Dial Test Indicator 420 Series

## At a Glance

- Standard: ANSI B89.1.10, DIN2270
- Automatic reversal of measuring direction

## Features

- High precision fully jewelled bearings
- Rotating dial
- Two dovetail clamps
- Carbide points
- Styli length: 12mm / 1/2", M1.4 thread

MW420-03



### Dial Test Indicator - 420 Series - Metric

| Code No | Range (mm) | Graduation (mm) | Dial Reading (mm) | Dial Diameter (mm) | Accuracy (mm) |
|---|---|---|---|---|---|
| MW420-03 | 0.8 | 0.01 | 0-40-0 | 25 | 0.013 |
| MW420-04 | 0.8 | 0.01 | 0-40-0 | 37 | 0.013 |

### Dial Test Indicator - 420 Series - Imperial

| Code No | Range (inch) | Graduation (inch) | Dial Reading (inch) | Dial Diameter (inch) | Accuracy (inch ) |
|---|---|---|---|---|---|
| MW420-03I | 0.030 | 0.0005 | 0-15-0 | 1 | 0.0005 |
| MW420-04I | 0.030 | 0.0005 | 0-15-0 | 1 1/2 | 0.0005 |

# Dial Indicator 400 Series

## At a Glance

- Standard: DIN 878
- Satin-chromed body

## Features

- With tungsten carbide contact point
- With double dial indicator for measuring mm stroke
- Shockproof
- Micron versions are jewelled
- Adjustable bezel with stop screw
- Packed in foam box

MW400-02

MW400-03

MW400-04

MW400-05

MW400-06

MW400-06B

MW400-08

MW400-09

DIP223M

**Dial Indicator - 400 Series**

| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Dial Diameter (mm) | Description |
|---|---|---|---|---|---|
| MW400-01 | 0-1.0 | 0.001 | ±0.004 | 58 | Flat back |
| MW400-02 | 0-1.0 | 0.001 | ±0.004 | 58 | Lug back |
| MW400-03 | 0-3.0 | 0.01 | ±0.012 | 42 | Lug back and flat back |
| MW400-04 | 0-5.0 | 0.01 | ±0.014 | 42 | Lug back |
| MW400-05 | 0-10.0 | 0.01 | ±0.016 | 58 | Flat back |
| MW400-06 | 0-10.0 | 0.01 | ±0.016 | 58 | Lug back |
| MW400-06B | 0-10.0 | 0.01 | ±0.02 | 54 | Waterproof |
| MW400-08 | 0-30.0 | 0.01 | ±0.035 | 58 | Lug back |
| MW400-09 | 0-50.0 | 0.01 | ±0.04 | 58 | Lug back |

**DIP223M**

| Code No | Range (mm) | Graduation (mm) | One Revolution of Pointer | Scale Reading | Bezel Diameter | Stem Diameter | Lug Back No. |
|---|---|---|---|---|---|---|---|
| DIP223M† | 10 | 0.01 | 1mm | 0-100 | 58mm | 8mm h6 | DIS848X |

* Waterproof † Shockproof

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# Dial Test Indicator 421 Series

## At a Glance

- Rotating dial and two dovetail clamp

## Features

- Standard: ANSI B89.1.10, DIN2270
- Automatic reversal of measuring direction
- High precision fully jewelled bearings
- Carbide points
- Styli length: 12mm / 1/2"

MW421-01

### Dial Test Indicator 421 Series - Metric

| Code No | Range (mm) | Accuracy (mm) | Dial Reading (mm) | Dial Diameter (mm) | Graduation (mm) |
|---|---|---|---|---|---|
| MW421-01 | 0.2mm | 0.004 | 0-100-0 | 25 | 0.002 |
| MW421-02 | 0.2mm | 0.004 | 0-100-0 | 37 | 0.002 |

### Dial Test Indicator 421 Series - Imperial

| Code No | Range (inch) | Accuracy (inch) | Dial Reading (inch) | Dial Diameter (inch) | Graduation |
|---|---|---|---|---|---|
| MW421-01i | 0.008 | 0.0002 | 0-4-0 | 1 | 0.0001 |
| MW421-02i | 0.008 | 0.0002 | 0-4-0 | 1 1/2 | 0.0001 |

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# Dial Test Indicator 422 Series

## At a Glance

- Long range - twice the range of most indicators.

## Features

- Standard: ANSI B89.1.10, DIN2270
- Automatic reversal of measuring direction
- High precision fully jewelled bearings
- Rotating dial
- Two dovetail clamps
- Carbide points
- Styli length: 12mm / 1/2"

MW421-01

### Dial Test Indicator 422 Series - Metric

| Code No | Range (mm) | Accuracy (mm) | Dial Reading (mm) | Dial Diameter (mm) | Graduation (mm) |
|---|---|---|---|---|---|
| MW422-01 | 1.6 | 0.013 | 0-40-0 | 37 | 0.01 |

### Dial Test Indicator 422 Series - Imperial

| Code No | Range (inch) | Accuracy (inch) | Dial Reading (inch) | Dial Diameter (inch) | Graduation |
|---|---|---|---|---|---|
| MW422-01I | 0.060 | 0.0005 | 0-15-0 | 1 1/2 | 0.0005 |

# Universal Centre Finder with Indicator

## At a Glance

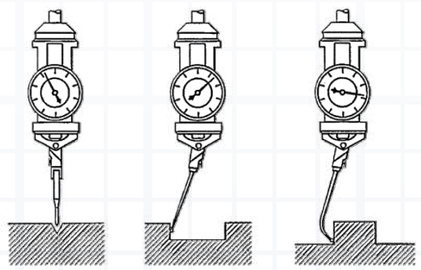
- Universal equipment for finding the centre of a bore or to measure the concentricity of work pieces

## Features

- Indicator always faces operator, also when spindle runs
- With double indicator for maximum accuracy
- For vertical and horizontal use
- Includes 6 touch points for internal and external measurement

**Universal Centre Finder with Indicator**

| Code No | Range - Internal (mm) | Range - External (mm) | Concentricity (mm) | Accuracy (mm) | Indicator Range (mm) |
|---|---|---|---|---|---|
| MW612-01 | 3.5-300 | 0-300 | 0.005 | 0.01 | 0-3 |



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# Dial Test Indicator Accessories

**Dial Test Indicator Accessories**

| Code No | Description |
|---|---|
| MW-Z40010 | Universal Holder |
| MW-Z40012 | Contact point 12mm length, 1mm steel ball |
| MW-Z40013 | Contact point 12mm length, 2mm carbide ball |
| MW-Z40014 | Contact point 12mm length, 3mm carbide ball |

**Dial Test Indicator Accessories**

| Code No | Description |
|---|---|
| MW-Z40016 | Contact point 1/2" length, 0.040" steel ball |
| MW-Z40018 | Contact point 1/2" length, 0.120" carbide ball |
| MW-Z40020 | Dovetail stem 4mm clamping diameter |
| MW-Z40022 | Dovetail stem 8mm clamping diameter |

# Magnetic
## Indicator Stand
## 475 Series

### At a Glance

- Magnetic force 80Kg / 175lbs

### Features

- Basic type, with fine adjustment, can be used with indicators with or without lug back
- With powerful on / off magnetic base
- Accepts dial test indicators, digital indicators and normal indicators
- Extra rigid

**Magnetic Indicator Stand - 475 Series**

| Code No | Description |
|---|---|
| MW475-01 | With fine adjustment |

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# Magnetic
## Indicator Stand
## 470 Series



### At a Glance

- Magnetic force 80Kg / 175 LBS

### Features

- Basic type, without fine adjustment, can be used with indicators with or without lug back
- With powerful on/off magnetic base
- Accepts dial test indicators, digital indicators and normal indicators
- Extra rigid

**Magnetic Indicator Stand - 470 Series**

| Code No | Description |
|---|---|
| MW470-01 | Without fine adjustment |

# Flexible Magnetic Base 496 Series

## At a Glance

- Magnetic force 40kg / 85lbs

## Features

- Corrosion resistant chrome plated flex arm
- Holds rigidly in almost any position
- V -base for mounting on rounded surfaces

**Flexible Magnetic Base - 496 Series**

| Code No | Description |
|---|---|
| MW496-01 | Mechanically locking flexible arm |

# Hydraulic Magnetic Base 485 Series

## At a Glance

- Magnetic force 80Kg / 175lbs

## Features

- Features a unique hydraulic central lock for all arms and swivel positions
- Super solid model
- With fine adjustment
- With powerful on/off magnetic base
- Universal model which can be used for indicators with or without lug on back plate
- Accepts dial test indicators, digital indicators and normal indicators
- Dovetail groove for clamping a dial test indicator
- Super rigid

**Hydraulic Magnetic Base - 485 Series**

| Code No | Description |
|---|---|
| MW485-01 | Universal arm with single hydraulic locking knob |

# Articulating Magnetic Base with Fine Adjustment 477 Series

## At a Glance

- 30kg clamp force

## Features

- Versatile magnetic base that can be adjusted in almost unlimited ways
- With fine adjustment
- V -base for mounting on rounded surfaces

**Articulating Magnetic Base with Fine Adjustment - 477 Series**

| Code No | Description |
|---|---|
| MW477-01 | Articulating arm with fine adjustment |

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# Mini Magnetic Base 497 Series

## At a Glance

- 1 universal ball socket

## Features

- Microfine adjustment screw
- Dovetail mounting
- Chuck adapter

MW497-01

**Mini Magnetic Base - 497 Series**

| Code No | Description |
|---|---|
| MW497-01 | Mini mag base |

# Magnetic Base and Indicator Set

## At a Glance

- Includes MW475-01 magnetic base with fine adjustment and MW400-06 0-10mm/0.01mm dial indicator

## Features

- Combined set for extra value

| Magnetic Base and Indicator Set | |
|---|---|
| **Code No** | **Description** |
| **MW475-SET1** | Magnetic base with MW400-06 dial indicator |



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# Magnetic Base and Indicator Set

## At a Glance

- Includes MW475-01 magnetic base with fine adjustment and MW405-04DB 0-12.5mm/0.01mm digital indicator

## Features

- Combined set for extra value

| Magnetic Base and Indicator Set | |
|---|---|
| **Code No** | **Description** |
| **MW475-SET2** | Magnetic base with MW405-04DB digital indicator |

# Universal Bevel Protractor

## At a Glance

- Made of high quality hardened and ground stainless steel

## Features

- High precision satin chromed scale
- Minimum reading 5 minutes
- Magnifying glass for easy reading
- With fine adjustment and acute angle attachment
- 300mm / 12" and 150mm / 6" rule
- Packed as set in plastic box

**Universal Bevel Protractor**

| Code No | Range |
|---|---|
| MW500-01 | 360° |

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# Dial Bevel Protractor

## At a Glance

- Features high quality indicator
- Made of high quality hardened and ground stainless steel

## Features

- High precision satin chromed scale
- Minimum reading 5 minutes
- With fine adjustment and acute angle attachment
- 300mm / 12" rule and 150mm / 6" rule
- Packed as set in plastic box

**Dial Bevel Protractor**

| Code No | Range |
|---|---|
| MW510-01 | 360° |

# Protractor **with Rule 946 Series**

## At a Glance

- Rule 80-200mm Diameter

## Features

- Made of tool steel
- Satin chromed laser engraved scale
- Robust and durable design

MW946-01

**Protractor With Rule - 946 Series**

| Code No | Length (mm) | Diameter of Scale (mm) |
|---|---|---|
| MW946-01 | 120 | 80 |
| MW946-02 | 150 | 120 |
| MW946-03 | 200 | 150 |
| MW946-04 | 300 | 200 |

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# **Digital** Protractor

## At a Glance

- Hold function
- Reversible reading

## Features

- Large LCD display
- Strong magnets on all blade edges
- Easy-to-use and strong lock device

MW505-01

**Digital Protractor**

| Code No | Accuracy ° | Range | Size | Resolution |
|---|---|---|---|---|
| MW505-01 | ±0.2 | 360° | 100mm / 4" | 0.05° |
| MW505-02 | ±0.2 | 360° | 200mm / 8" | 0.05° |
| MW505-03 | ±0.2 | 360° | 300mm / 12" | 0.05° |

# PROJECTORS & COMBINATION SETS

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# Traditional Precision Combination Set - CSME12 - Metric/Imperial

## At a Glance

- Protractor has full 360° scale plate, graduated 0 - 180° - 0

## Features

- Fully hardened and tempered precision rules with deeply etched graduations on both sides
- Metric/Imperial Traditional Precision Combination Set
- Fully hardened and ground datum faces to resist wear
- Centrally mounted protractor vial allows unrestricted viewing
- Satin chrome scale plate on protractor
- Unique rule clamp allows positive location and clamping
- Square head offers the following fixed angles: 15°, 30°, 45°, 60°, 75° & 90°
- Centre head offers a fixed 90° angle, for finding the centre of round bar stock up to 120mm diameter
- Clipped corner on rule to maximise capability

CSME12

**Traditional Precision Combination Set - CSME12 - Metric/Imperial**

| Code No | Application Range | Description |
|---|---|---|
| CSME12 | Precision Combination Set | Full set inc. 300mm / 12" rule, Protractor head, Square head & Centre head |
| CSRME12 | Rule, 300mm / 12" | Metric graduations: in 0.5mm, numbered every 10mm Imperial graduations: 32nds and 64ths numbered every 1/8" |
| CSRME24 | Rule, 600mm / 24" | Metric graduations: in 0.5mm, numbered every 10mm. Imperial graduations: 32nds and 64ths numbered every 1/8" |

**Replacement Components (To suit CSM300 & CSME12)**

| | |
|---|---|
| CSPRO | Protractor head |
| CSSH | Square head |
| CSCH | Centre head |
| RPCSCS-S | Replacement rule clamp screw |

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# Workshop Combination Set 521 Series

## At a Glance

- Square head, protractor head and centre head

## Features

- Three measuring heads are attached to the 300mm / 12" stainless steel ruler, allowing versatile measurements on various types of work pieces
- For various measuring and marking applications
- Hardened and ground slide ways
- Stainless steel rule with engraved graduations; one side metric, one side imperial

**Workshop Combination Set - 521 Series**

| Code No | Range | Description |
|---|---|---|
| MW521-01 | 180° | 4 items in set |

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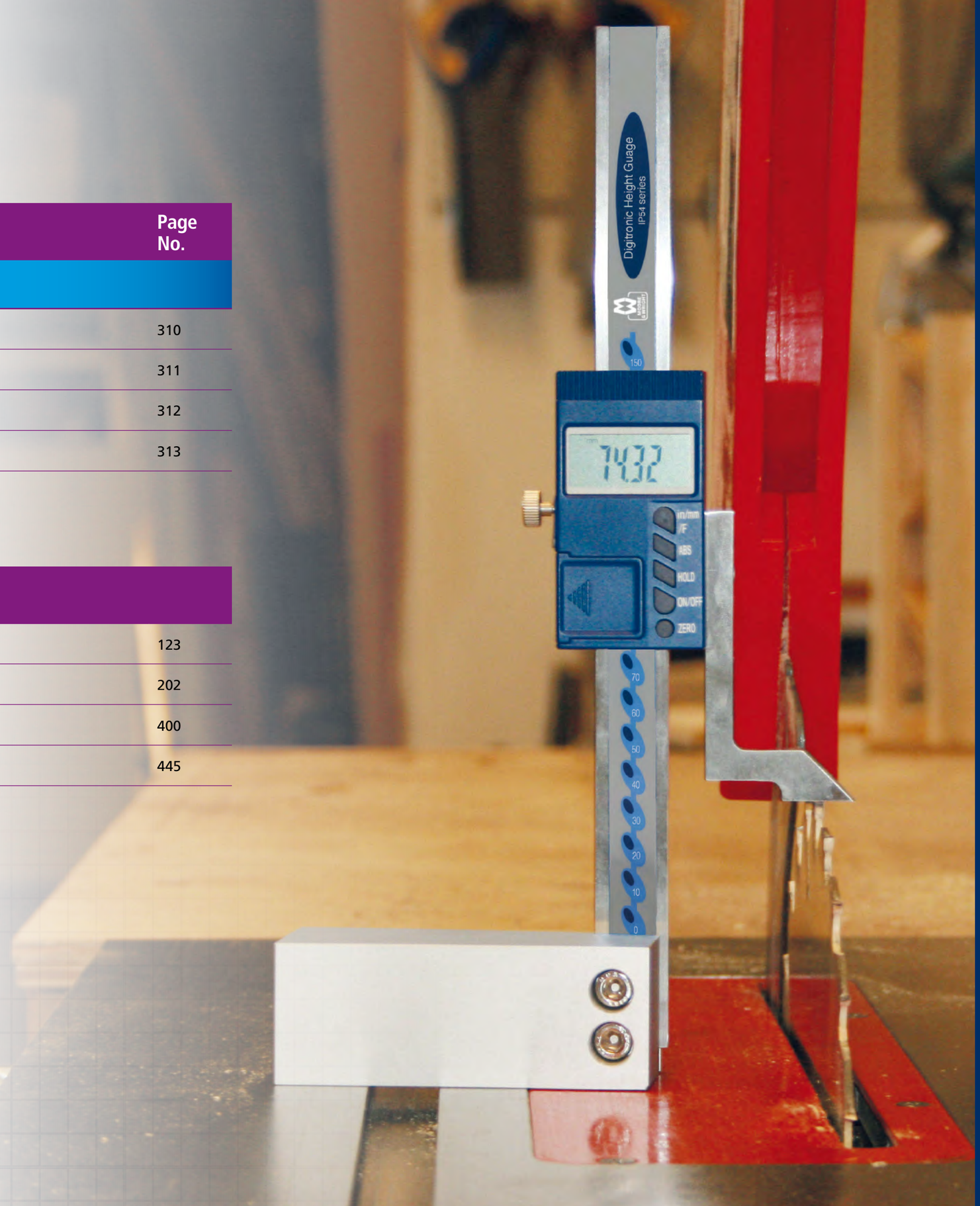


MOORE & WRIGHT

# Height Gauges

# 192 Digital Mini Height Gauge

## At a Glance

**Range:** 0-150mm (0-6")

## Features

- Standard: Factory standard
- Large LCD display
- Solid aluminium alloy base with magnets
- Hardened stainless steel beam
- Digital functions: inch/metric/fractional, ABS, HOLD, power saving functions
- IP54 water, dust and oil resistant protection

Experience the ultimate precision in your measurements with our **Moore & Wright Digital Mini Height Gauge**. This compact and versatile measuring tool is designed to deliver accurate height measurements with ease and efficiency. Whether you need to measure the height of a workpiece, set up machinery, check drill depths, or perform quality control inspections, our adaptable height gauge delivers accurate and reliable results every time.

Experience the ultimate precision in your measurements with our Moore & Wright Digital Mini Height Gauge. This compact and versatile measuring tool is designed to deliver accurate height measurements with ease and efficiency. Whether you need to measure the height of a workpiece, set up machinery, check drill depths, or perform quality control inspections, our adaptable height gauge delivers accurate and reliable results every time.

**192 Digital Mini Height Gauge**

| Code No | Range (mm) | Range (inch) | Accuracy (mm) | Accuracy (inch) |
|---|---|---|---|---|
| MW192-20D | 0-150 | 0-6 | 0.03 | 0.001 |

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# 190 Series Height Gauge

## At a Glance

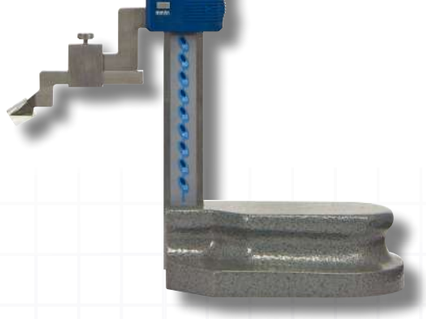
**Range:** 0-600mm (0-24")

## Features

- Easy to read LCD display
- Functions: mm/inch conversion, on/off, zero setting, battery low indication
- Soft keys for maximum operating comfort
- Ground micro-lapped measuring surfaces

The **Moore & Wright 190 series digital height gauge** is a robust, easy to use height gauge featuring fine adjustment for high precision measurement.

With an easy to read LCD display and range of useful functions, the Moore & Wright 190 series digital height gauge is a great addition to any workshop.



MW190-30DBL

**190 Series Height Gauge (Metric)**

| Code No | Range (mm) | Accuracy (mm) | Resolution (mm) | Size of base (mm) |
|---|---|---|---|---|
| MW190-30DBL | 0-300 | 0.04 | 0.01 | 90 x 140 |
| MW190-50DBL | 0-500 | 0.05 | 0.01 | 120 x 180 |
| MW190-60DBL | 0-600 | 0.05 | 0.01 | 120 x 180 |

**190 Series Height Gauge - (Imperial)**

| Code No | Range (inch) | Accuracy (mm) | Resolution (inch) |
|---|---|---|---|
| MW190-30DBL | 0-12 | 0.04 | 0.001 |
| MW190-50DBL | 0-20 | 0.05 | 0.001 |
| MW190-60DBL | 0-24 | 0.05 | 0.001 |

# Digital 193 Series
## Height Gauge

### At a Glance

**Range:** 0-600mm

### Features

- Easy to read LCD Display
- Functions: mm/inch conversion, on/off, zero setting, battery low indication
- Ground & Micro lapped measuring surfaces
- Fine adjustment for high precision measurement
- Hand wheel operation with positive lock
- Supplied with carbide tipped scriber

MW193-30DDL

The **Moore & Wright 193 series digital height gauge** is a robust, easy to use height gauge featuring fine adjustment for high precision measurement.

With an easy to read LCD display and range of useful functions, the Moore & Wright 193 series digital height gauge is a great addition to any workshop.

**Digital 193 Series Height Gauge**

| Code No | Range (mm) | Accuracy (mm) | Repeatability (mm) | Resolution (mm) |
|---|---|---|---|---|
| MW193-30DDL | 0-300 | +/- 0.040 | 0.01 | 0.01 |
| MW193-60DDL | 0-600 | +/- 0.050 | 0.01 | 0.01 |

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# Double Column 195 Series
## Height Gauge

### At a Glance

**Range:** 0-600mm

### Features

- Provided with a hand feed wheel for easy up and down feeding
- The mechanical digital counters can be set to zero at any position
- The double column combines high stability with absolute accuracy
- With carbide tipped scriber
- The counter reads steps of 1mm

MW195-30

**The Moore & Wright 195 Series Double Column Height Gauge** is a stable, accurate, easy to use height gauge.

Featuring dual directional mechanical counters and dial indicator for fast, error free measurements, the Moore & Wright 195 series double column height gauge offers high stability with absolute accuracy.

**Double Column 195 Series Height Gauge**

| Code No | Range (mm) | Resolution (mm) | Size of Base (mm) |
|---|---|---|---|
| MW195-30 | 0-300 | 0.01 | 125 x 85 |
| MW195-50 | 0-600 | 0.01 | 180 x 120 |

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MOORE & WRIGHT

Levelling

# IP65 Magnetic Digital Level

## At a Glance

- Measuring range 4 x 90°
- IP65 Electronics

## Features

- Level measuring function
- Relative angle measuring
- Magnets on bottom measuring surface
- Built in battery with Micro USB charging
- Wireless connectivity (MW575-01WIP)
- IP65 rated

MW575-01DIP

**IP65 Magnetic Digital Level**

| Code No | Description | Accuracy (°) | Resolution (°) |
|---|---|---|---|
| MW575-01DIP | Magnetic Digital Level | ±0.2 | 0.05 |
| MW575-01WIP | Magnetic Digital Level (Wireless) | ±0.2 | 0.05 |

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# Digital Height Pre-Setter

## At a Glance

- Range <2.5mm / <0.12"
- IP65 Electronics

## Features

- Inductive measurement system
- 2.5mm travel
- 2 button design (On/Off + Set / mm/inch)
- LCD lights up when display shows 0.000
- Auto-on when measuring surface is moved
- CR2032 battery

**Digital Height Pre-Setter - Metric**



| Code No | Range (mm) | Resolution (mm) | Accuracy (mm) | Repeatability (mm) |
|---|---|---|---|---|
| MW620-03DIP | <2.5 | 0.001 | 0.005 | 0.003 |

**Digital Height Pre-Setter - Imperial**

| Code No | Range (inch) | Resolution (inch) | Accuracy (inch) | Repeatability (inch) |
|---|---|---|---|---|
| MW620-03DIP | <0.12 | 0.00005 | 0.0002 | 0.0001 |

# Digital Mini-Mag Level 570 Series

## At a Glance

Measuring range 360° (4 x 90°)

## Features

- Embedded magnets on two sides
- Standard 9V battery
- Dimensions: L60mm x H60mm x W35mm
- Wireless connectivity (MW570-01W)

MW570-01W

**Digital Mini-Mag Level - 570 Series**

| Code No | Description | Accuracy (°) | Resolution (°) |
|---|---|---|---|
| MW570-01 | Digital Mini-Mag Level | ±0.2 | 0.05 |
| MW570-01W | Digital Mini-Mag Level (Wireless) | ±0.2 | 0.05 |

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# Digital Level 580 Series

## At a Glance

Measuring: 4x90°

## Features

- Precision inclinometer sensor
- CNC machined super flat edge
- Heavy duty aluminium alloy body, chrome finish
- Laser accurately extends level capabilities
- Strong magnets on underside
- Battery: standard 9V

MW580-01

**Digital Level - 580 Series**

| Code No | Size (mm) | Size (inch) | Resolution (°) |
|---|---|---|---|
| MW580-01 | 150 | 6 | 0.05 |
| MW580-02 | 225 | 9 | 0.05 |
| MW580-03 | 600 | 24 | 0.05 |

# Traditional Engineers' Level

The **Moore & Wright Traditional Engineers' Level** is a key item in any engineer's toolkit.

Boasting a main vial sensitivity of 1 minute, the Moore & Wright Traditional Engineers' Level has a precision ground cast base with vee groove for location on cylindrical work.

## At a Glance

- Main vial sensitivity of 1 minute
- Each level is fitted with a main, cross and plumb vial

## Features

- Main vial protected by rotating shroud
- Vial solution maintains colour and fluidity under all workshop conditions
- Precision ground cast base with vee groove for location on cylindrical work

ELM

ELS

**Traditional Engineers' Level**

| Code No | Length (mm) | Length (inch) | Width (mm) | Width (inch) | Height (mm) | Height (inch) | Resolution (mm) | Resolution (inch) |
|---|---|---|---|---|---|---|---|---|
| ELM | 310 | 12 | 36 | 1.42 | 58 | 2.28 | 0.3mm per metre | 0.0035" per foot |
| ELS | 165 | 6.5 | 34 | 1.34 | 46 | 1.81 | 0.3mm per metre | 0.0035" per foot |

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# Engineers' Level 550 Series

## At a Glance

- With four ground measuring faces

## Features

- Features zero-point adjustment
- With V-slot on base
- Made of cast iron, solid and rigid construction
- With sub-level tube

**Engineers' Level - 550 Series**

| Code No | Size of Base (mm) | Sensitivity (mm/m) |
|---|---|---|
| MW550-03 | Mini Level | 0.02 |

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MOORE & WRIGHT

Workshop

# Traditional 'V' Blocks - Standard Pairs

## Features

- Manufactured from close grained cast iron
- Ground faces
- Supplied in matched and numbered pairs

The **Moore & Wright Traditional 'V' Blocks** are supplied in matched and numbered pairs only.

Manufactured from close grained cast iron, The Moore & Wright Traditional 'V' Blocks boast ground faces and are supplied in matched and numbered pairs. Please see specification table for further product information.

213

### Traditional 'Vee' Blocks - Standard Pairs - Metric

| Code No | Accuracy (mm) | Capacity (mm) | Length (mm) | Width (mm) | Height (mm) |
|---|---|---|---|---|---|
| 211 | 0.04 | 63 | 39 | 84 | 3.3 |
| 212 | 0.04 | 80 | 44 | 104 | 104 |
| 213 | 0.05 | 100 | 49 | 134 | 5.27 |
| 214 | 0.05 | 125 | 54 | 154 | 6.06 |
| 215 | 0.06 | 160 | 64 | 184 | 7.24 |
| 216 | 0.06 | 200 | 74 | 224 | 8.82 |

### Traditional 'Vee' Blocks - Standard Pairs - Imperial

| Code No | Accuracy (mm) | Capacity (mm) | Length (mm) | Width (mm) | Height (mm) |
|---|---|---|---|---|---|
| 211 | 0.0015 | 2.48 | 1.55 | 3.3 | 2.52 |
| 212 | 0.0015 | 3.15 | 1.75 | 104 | 2.91 |
| 213 | 0.0020 | 3.94 | 1.95 | 5.27 | 3.7 |
| 214 | 0.0020 | 4.92 | 2.15 | 6.06 | 4.09 |
| 215 | 0.0025 | 6.30 | 2.54 | 7.24 | 5.27 |
| 216 | 0.0025 | 7.87 | 2.94 | 8.82 | 6.45 |



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# Traditional 'V' Blocks & Clamps



## Features

### 230 General Workshop Grade

- Manufactured from close grained cast iron
- Supplied in matched and numbered pairs
- One steel clamp and screw supplied per pair

### 231 Precision Vee Blocks

- Manufactured to BS3731 grade B
- Manufactured from case hardened and ground mild steel
- Supplied in matched pairs only
- Two malleable iron clamps with steel screws supplied with each pair of blocks

**Moore & Wright Traditional 'V' Blocks & Clamps** are designed for checking precision machine parts, general workshop use, and holding stock when drilling and milling.

Spare screws are available:

- 23001 - Spare Clamp and Screw for 230
- 23101 - Spare Clamp and Screw for 231

231

230

### Traditional 'Vee' Blocks & Clamps - Metric

| Code No | Range (mm) | Accuracy (mm) | Length (mm) | Width (mm) | Height (mm) |
|---|---|---|---|---|---|
| 230 | 40 | 0.05 | 50 | 40 | 40 |
| 231 | 25 | 0.01 | 42 | 32 | 32 |

### Traditional 'Vee' Blocks & Clamps - Imperial

| Code No | Range (inch) | Accuracy (inch) | Length (inch) | Width (inch) | Height (inch) |
|---|---|---|---|---|---|
| 230 | 1 1/2 | 0.020 | 2 | 1 1/2 | 1 1/2 |
| 231 | 1 | 0.004 | 1 5/8 | 1 1/4 | 1 1/4 |

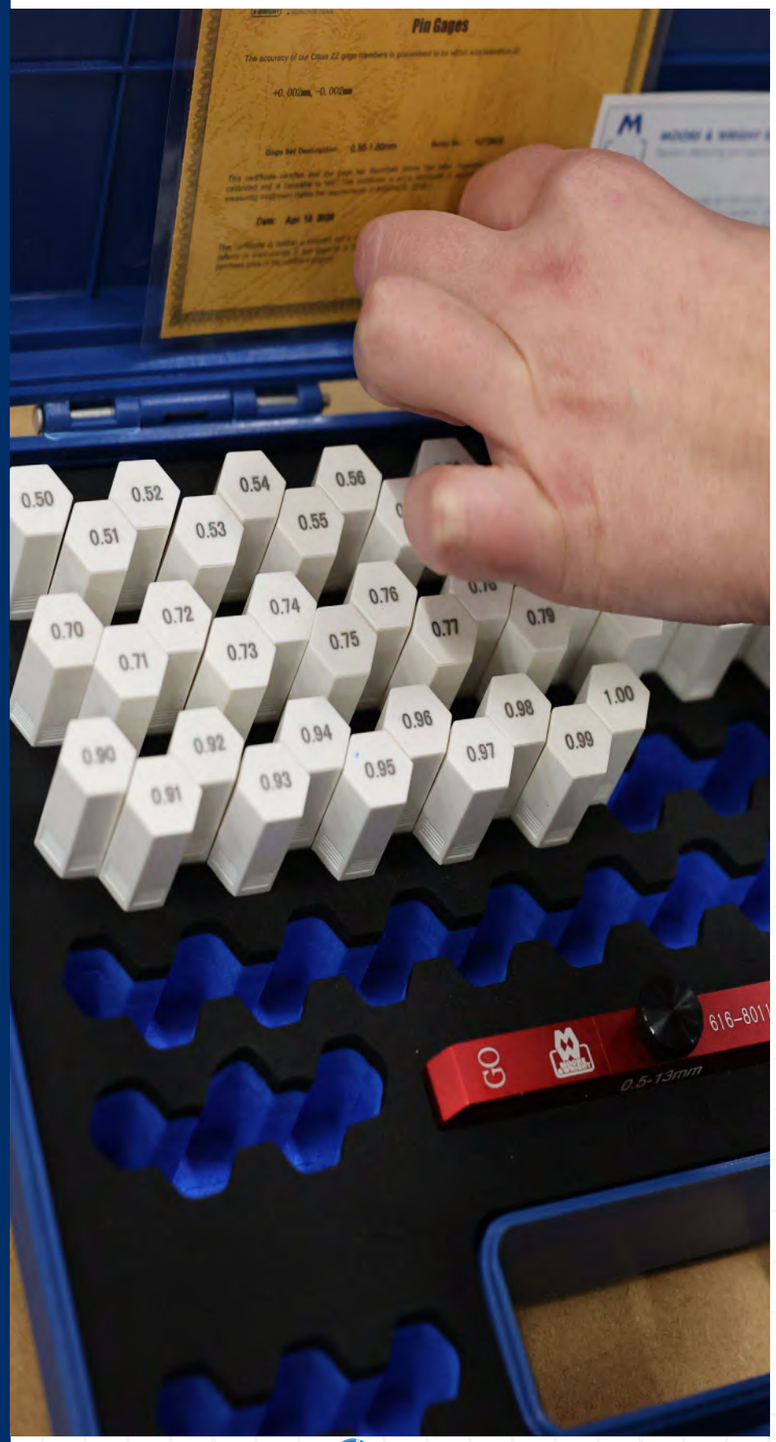
# Steel Pin Gauge Sets

## At a Glance

Manufacturing tolerance
+/- .002mm

## Features

- Standard: Factory Standard
- Boxed sets complete with handle
- Each pin is laser engraved with its size
- above 1.5mm
- Each pin is stored in its own tube,
- marked with the pin size
- Pin length 50mm
- Supplied with a certificate of conformity
- Fully hardened to 60/62 HRC




# Steel Pin Gauge Sets

| Steel Pin Gauge Sets | | |
|---|---|---|
| **Code No** | **Description** | |
| MW725-01 | Steel Pin Gauge Set 51pce | 0.50-1.00x.01mm<br>+/- 0.002mm C/W Handle |
| MW725-02 | Steel Pin Gauge Set 100pce | 1.01-2.00x.01mm<br>+/- 0.002mm C/W Handle |
| MW725-03 | Steel Pin Gauge Set 100pce | 2.01-3.00x.01mm<br>+/- 0.002mm C/W Handle |
| MW725-04 | Steel Pin Gauge Set 100pce | 3.01-4.00x.01mm<br>+/- 0.002mm C/W Handle |
| MW725-05 | Steel Pin Gauge Set 100pce | 4.01-5.00x.01mm<br>+/- 0.002mm C/W Handle |
| MW725-06 | Steel Pin Gauge Set 100pce | 5.01-6.00x.01mm<br>+/- 0.002mm C/W Handle |
| MW725-07 | Steel Pin Gauge Set 100pce | 6.01-7.00x.01mm<br>+/- 0.002mm C/W Handle |
| MW725-08 | Steel Pin Gauge Set 100pce | 7.01-8.00x.01mm<br>+/- 0.002mm C/W Handle |
| MW725-09 | Steel Pin Gauge Set 100pce | 8.01-9.00x.01mm<br>+/- 0.002mm C/W Handle |
| MW725-10 | Steel Pin Gauge Set 100pce | 9.01-10.00x.01mm<br>+/- 0.002mm C/W Handle |

MW570-01

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# Metric Steel Gauge Blocks - 700 Series

## Features

### 700 Series

- Made from high quality stress relieved alloy steel
- Hardened to HV820 (HRC65)
- Excellent rigidity
- Size and serial number are engraved on each individual gauge block
- Available in 2 grades
  - Grade 1 for Inspection
  - Grade 2 for Workshop
- All sets have a MOORE & WRIGHT certificate
- All sets can be issued with a UKAS certificate at extra cost

### 710 Series

- Standard: DIN 861
- Made from solid carbide with high precision
- Service life is up to 6 times that of steel
- Excellent wringability due to micro polished surfaces
- Every gauge block has its own serial number
- Available in 3 grades
- - Grade 0 for calibration
  - Grade 1 for inspection
  - Grade 2 for workshop
- All sets have MOORE & WRIGHT certificate
- All sets can be issued with UKAS certificate at extra cost

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MW700-05

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# Metric Steel Gauge Blocks - 700 Series

**Steel Gauge Block Sets**

| Code No | Description | No. of Blocks |
|---|---|---|
| MW700-02 | Grade 1 | 103 |
| MW700-03 | Grade 2 | 103 |
| MW700-05 | Grade 1 | 87 |
| MW700-06 | Grade 2 | 87 |
| MW700-08 | Grade 1 | 47 |
| MW700-09 | Grade 2 | 47 |
| MW700-11 | Grade 1 | 32 |
| MW700-12 | Grade 2 | 32 |

**Carbide Gauge Block Sets**

| Code No | Description | No. of Blocks |
|---|---|---|
| MW710-01 | Grade 0 | 103 |
| MW700-03 | Grade 1 | 103 |
| MW700-04 | Grade 0 | 87 |
| MW700-05 | Grade 1 | 87 |
| MW700-06 | Grade 2 | 87 |
| MW700-07 | Grade 0 | 47 |
| MW700-08 | Grade 1 | 47 |
| MW700-09 | Grade 2 | 47 |
| MW700-10 | Grade 0 | 32 |
| MW700-11 | Grade 1 | 32 |
| MW700-12 | Grade 2 | 32 |

329

**Block Set Configuration**

| No. blocks | Nominal size | Qty | Step (mm) |
|---|---|---|---|
| 103 | 1.005 | 1 | |
| | 1.01-1.49 | 49 | 0.01 |
| | 0.50-24.50 | 49 | 0.5 |
| | 25.0-100.0 | 4 | 25 |
| 47 | 1.005 | 1 | |
| | 1.01-1.09 | 9 | 0.01 |
| | 1.10-1.90 | 9 | 0.1 |
| | 1.0-24.0 | 24 | 1 |
| | 25.0-100.0 | 4 | 25 |
| 87 | 1.001-1.009 | 9 | 0.001 |
| | 1.01-1.49 | 49 | 0.01 |
| | 0.50-9.50 | 19 | 0.5 |
| | 10.0-100.0 | 10 | 10 |
| 32 | 1.005 | 1 | |
| | 1.01-1.09 | 9 | 0.01 |
| | 1.10-1.90 | 9 | 0.1 |
| | 1.0-9.0 | 9 | 1 |
| | 10.0-30.0 | 3 | 10 |
| | 60 | 1 | |

# Mic-Check Gauge Block Set - 715 Series

## At a Glance

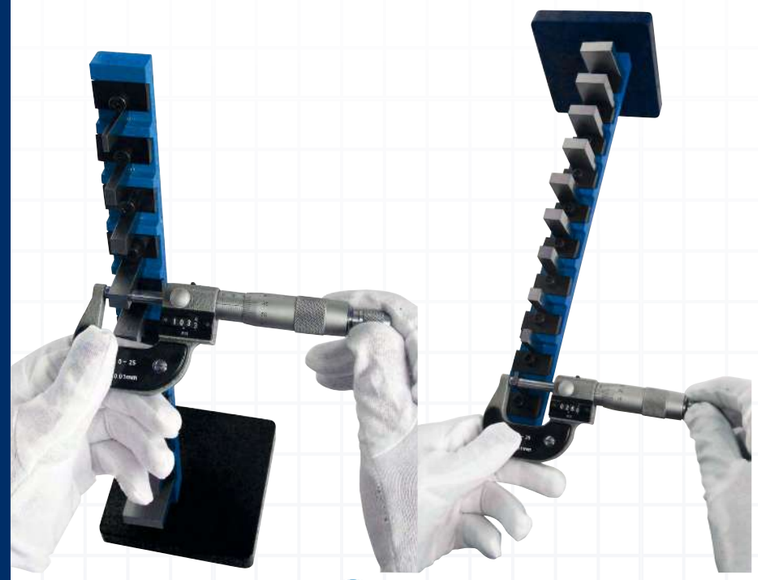
- For the inspection of Metric Micrometers according to DIN 863

## Features

- Nominal Gauge Sizes: 2.5, 5.1, 7.7, 10.3, 12.9, 15.0, 17.6, 20.2, 22.8, 25.0mm
- Inspection Grade: Grade 0
- Optical Flat: 30mm diameter, 12.0mm thick
- Supplied with a stand to conveniently hold the slip gauges
- Can be used horizontally or vertically
- Supplied in a fitted case with a M&W Calibration certificate

**Mic-Check Gauge Block Set - 715 Series**

| Code No | Desciption |
|---|---|
| MW715-01 | 10 Piece Mic-Check Gauge Block Set plus Optical Flat |



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# Dial Bore Gauge Setting Master - 720 Series

## At a Glance

- For accurately setting any 2 point bore gauge up to 160mm in diameter to an accuracy of 0.01mm

## Features

- Bore Gauge Setting Master Kit

Setting master and 33 piece metric gauge block set supplied in plastic case

## Setting Device

- Internal range 160mm
- Depth range 25mm
- Centraliser width 70mm
- Quick-release holder for fast adjustment

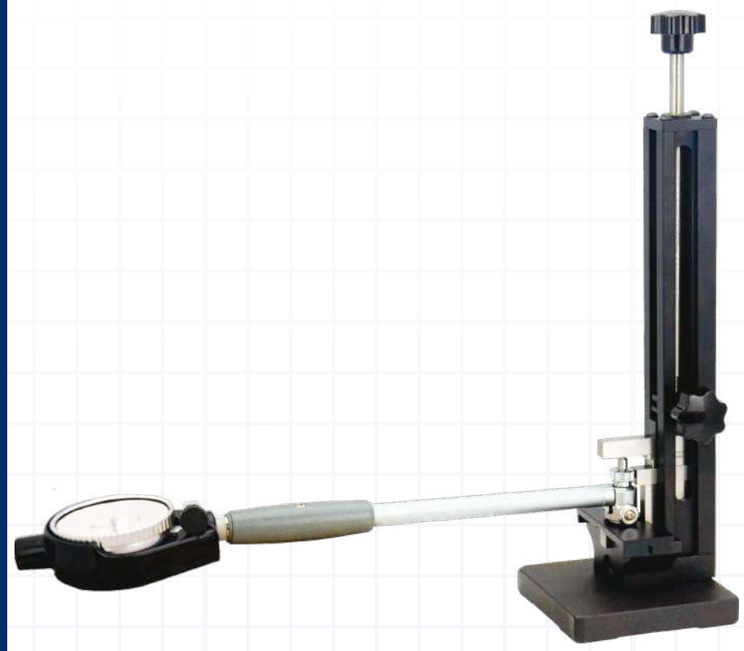
## Gauge Block Set

- Accuracy to DIN 861, Grade2
- 33 piece metric steel set
- Supplied in a fitted case with a M&W Calibration certificate

**Dial Bore Gauge Setting Master - 720 Series**



| Code No | Desciption |
|---|---|
| MW720-01 | Bore Gauge Setting Master Kit |



# 126M Feeler Strip Singles - Imperial

## At a Glance

- Hardened, tempered and polished steel.

## Features

- Marked for easy identification
- Standard: DIN 2275
- Nominal thickness is marked on each strip
- Supplied 10pc each pack

1260001

**126M Feeler Strip Singles - Imperial**

| Code No | Length (inch) | Width (inch) | Thickness (inch) | Code No | Length (inch) | Width (inch) | Thickness (inch) |
|---|---|---|---|---|---|---|---|
| 1260001 | 12 | 0.5 | 0.001 | 1260013 | 12 | 0.5 | 0.013 |
| 12600015 | 12 | 0.5 | 0.0015 | 1260014 | 12 | 0.5 | 0.014 |
| 1260002 | 12 | 0.5 | 0.002 | 1260015 | 12 | 0.5 | 0.015 |
| 1260003 | 12 | 0.5 | 0.003 | 1260016 | 12 | 0.5 | 0.016" |
| 12600025 | 12 | 0.5 | 0.0025 | 1260017 | 12 | 0.5 | 0.017" |
| 1260004 | 12 | 0.5 | 0.004 | 1260018 | 12 | 0.5 | 0.018" |
| 1260005 | 12 | 0.5 | 0.005 | 1260019 | 12 | 0.5 | 0.019" |
| 1260006 | 12 | 0.5 | 0.006 | 1260020 | 12 | 0.5 | 0.020" |
| 1260007 | 12 | 0.5 | 0.007 | 1260021 | 12 | 0.5 | 0.021" |
| 1260008 | 12 | 0.5 | 0.008 | 1260022 | 12 | 0.5 | 0.022" |
| 1260009 | 12 | 0.5 | 0.009 | 1260023 | 12 | 0.5 | 0.023" |
| 1260010 | 12 | 0.5 | 0.01 | 1260024 | 12 | 0.5 | 0.024" |
| 1260011 | 12 | 0.5 | 0.011 | 1260025 | 12 | 0.5 | 0.025" |
| 1260012 | 12 | 0.5 | 0.012 | | | | |



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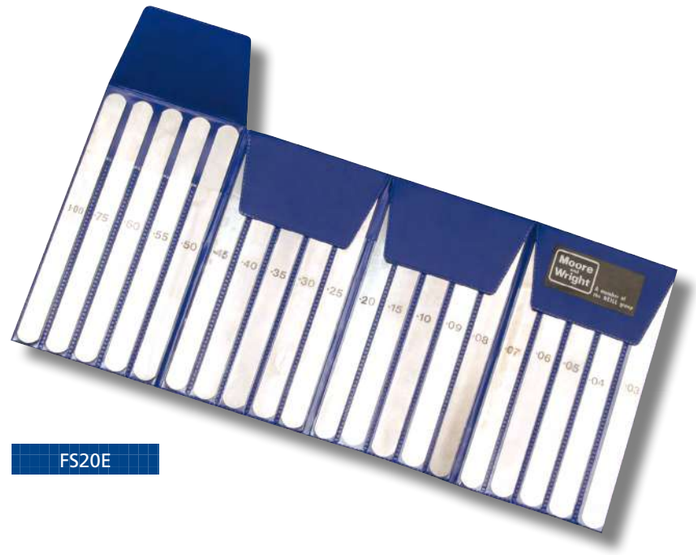
# Feeler Strip Sets

## At a Glance

- Hardened, tempered and polished steel.

## Features

- Standard: DIN 2275
- 20 piece feeler strip in wallet
- Nominal thickness is marked on each strip
- Imperial Set: Length 6", Range 1-25 Thou
- Metric Set: Length 150mm, Range 0.03 to 1.00mm




FS20E



**Feeler Strip Sets**

| Code No | Desciption |
|---|---|
| FS20E | Imperial 20 Piece Feeler Strip Set |

# Traditional Radius Gauges

## At a Glance

- Accurately milled steel blades

## Features

- Designed to check both internal and external radii
- Marked with nominal size on each blade
- Mounted either on a ring or in a steel sleeve

204M

### Traditional Radius Gauges - Ring

| Code No | Range (mm) | Range (inch) | No. of Blades | Graduation (mm) | Graduation (inch) |
|---|---|---|---|---|---|
| 204M | 0.75-5 | | 18 | 0.25 | |
| 204 | | 1/32 - 17/64 | 16 | | 1/64 |

### Traditional Radius Gauges - Metric

| Code No | Desciption | Range (mm) | No. of Blades | Graduation (mm) |
|---|---|---|---|---|
| 206M | Sleeve | 0.75-5 | 18 | 0.25 |
| 204MA | Ring | 5.5-13 | 16 | 0.5 |
| 206MA | Sleeve | 5.5-13 | 16 | 0.5 |

### Traditional Radius Gauges - Imperial

| Code No | Desciption | Range (inch) | No. of Blades | Graduation (inch) |
|---|---|---|---|---|
| 206 | Sleeve | 1/32 - 17/64 | 16 | 1/64 |
| 204A | Ring | 9/32 - 33/64 | 16 | 1/64 |
| 206A | Sleeve | 9/32 - 33/64 | 16 | 1/64 |



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# Traditional Screw Pitch Gauges

## Features

- Accurately milled steel blades
- Designed to check both internal and external thread forms
- Marked with nominal size on each blade
- All blades fixed in a steel sleeve
- Screw cutting gauge included

801R

### Traditional Screw Pitch Gauges

| Code No | Desciption | No.of Blades | Threads per (mm) |
|---|---|---|---|
| 801 | S.I. Metric | 30 | 0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.75, 0.8, 0.85, 0.9, 1.0, 1.1, 1.2, 1.25, 1.3, 1.4, 1.5, 1.6, 1.7, 1.75, 1.8, 1.9, 2.0, 2.5, 3.0 |
| 804 | SI Metric & Whitworth | 49 | Metric: 0.4, 0.5, 0.7, 0.75, 0.8, 0.9, 1.0, 1.25, 1.50, 1.75, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0 Imperial: 4, 4.5, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 36, 40, 48, 60 |
| 806 | Unified | 30 | 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 11.5, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42 |
| 809 | ISO Metric | 22 | 0.35, 0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 1.0, 1.25, 1.5, 1.75, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0 |

Note: SI (System International) metric blades should not be used to check ISO (International Standards Organisation) metric threads due to interference of the thread forms; but ISO metric blades can be used to check SI metric threads.

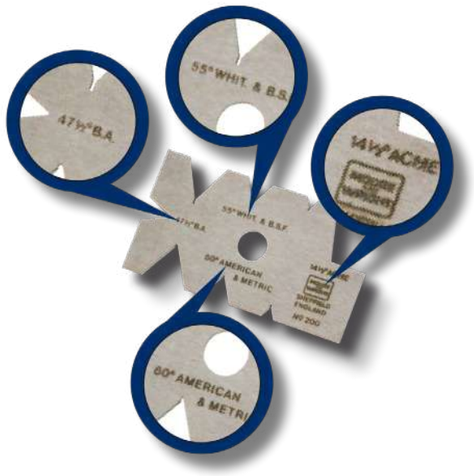
# Traditional Screw Cutting Gauge

## At a Glance

- Suitable for most standard metric and imperial thread forms

## Features

- Accurately milled angles for precise evaluation of thread form
- Supplied in packs of 10




**Traditional Screw Cutting Gauge**

| Code No | Description | Pack Quantity |
|---|---|---|
| 200 | Thread form: SI, ISO, US Std. 60°.<br>Thread form: Whitworth 55°.<br>Thread form: British Association (BA). 47.5°. Thread form: ACME. 14.5°. | 10 |



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**CASE STUDY** **WORKSHOP**

# Scottish Furniture Maker Achieves Precision and Quality with Moore & Wright Tools

Ebony Hill uses a Moore & Wright Straight Edge and Precision Engineers Square to make high qualityTo assist with this process, Ebony Hill needed a quality straight edge that would be certain not to flex. In addition, an engineer's square was required as opposed to a combination square, in order to avoid fractional variations and achieve the highest levels of precision and accuracy.

Ben Lock, Managing Director and Furniture Restorer and Maker at Ebony Hill said:

> "Using the Moore & Wright engineers' square is the best way for me to set the angle of the straight edge; then I know that it is perfectly square. I used to panic doing long trenches, but since buying a the spring steel straight edge from Moore & Wright I'm finding them so much easier - the straight edge is great quality and never flexes due to it being 10mm thick!
>
> Combine that with some F-clamps and a large Moore and Wright engineers' square, and perfect accuracy is a given. I prefer to use the engineers' square as I know it will be true every time, while in my experience, a combination square may vary a fraction from time to time. Once the straight is set and clamped, I run the base of the router off that, and the result is a perfectly straight and square groove."

Ebony Hill uses a 300mm Moore & Wright Precision Engineers' Square to set the angle of the Moore & Wright Spring Steel Straight Edge. The Moore & Wright Precision Engineers' Square meets DIN 875 tolerance of the angle, with an accuracy of 0 (µm), and is made from heat treated steel which has been precision ground and micro-lapped. The two knife-form sides have an angle of 40°.

The Moore & Wright Spring Steel Straight Edge is manufactured to DIN 866/1, with a precision ground gauging surface manufactured out of spring steel, and clear metric graduations starting 5mm in from the ends. Once the Moore & Wright Spring Steel Straight Edge is set and clamped using F-clamps, Ebony Hill runs the base of the router using the straight edge as a guide to ensure that the result is straight, accurate and precise.

Based in Edinburgh, Scotland, Ebony Hill is a small business specialising in fine furniture restoration and conservation. In addition, the business also takes commission for custom pieces of furniture including cabinets, tables and gin trolleys.

Part of Ebony Hill's ethos revolves around the understanding that pieces of furniture, and heirlooms, deserve the highest levels of attention to detail. Every piece of furniture they restore has been lovingly made by persons who share this passion for quality and craftsmanship, and every piece they make is made with the very same care.

# Feeler Gauges

## At a Glance

- Standard: DIN 2275

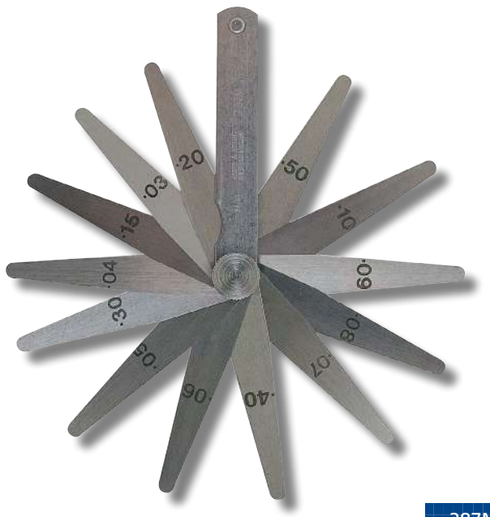
## Features

- All blades are hardened, tempered and polished
- Nominal thickness marked on each blade
- Replacement blades available
- 3" / 75mm & 4" / 100mm available in Retail Pack



These Feeler Gauges by Moore & Wright are compact and perfect for measuring small gaps between parts. We offer a range of sets with varying blade counts and thicknesses, as well as two types of blade shapes. Manufactured to the DIN2275 standard, each gauge is made from hardened steel.

Available in two types (see table description for details):



387M-13-A

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# Feeler Gauges

- Type A

- Type B

**Feeler Gauges - Metric**

| Code No | Desciption | No. of Blades | Blade Length (mm) | Thickness x 0.01 (mm) |
|---|---|---|---|---|
| 911M-10-B | Feeler Gauge Set, Safe&Sure, Blade Type 'B' | 10 | 100 | 5, 10, 15, 20, 30, 40, 50, 60, 70, 80 |
| 388M-13-B | Feeler Gauge Set, Precision, Blade Type 'B' | 13 | 100 | 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 40, 50 |
| 390M-20-B | Feeler Gauge Set, Precision, Blade Type 'B' | 20 | 100 | 5, 10, 15, 20, 25, 30, 35, 40, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100 |
| 390M-32-B | Feeler Gauge Set, Precision, Blade Type 'B' | 32 | 100 | 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 18, 20, 23, 25, 28, 30, 33, 35, 38, 40, 45, 50, 55, 60, 63, 65, 70, 75, 80, 85, 90, 100 |
| 391M-11-A | Feeler Gauge Set, Precision, Blade Type 'A' | 11 | 75 | 5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80 |
| 387M-13-A | Feeler Gauge Set, Precision, Blade Type 'A' | 13 | 75 | 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 40, 50 |
| 393M-20-A | Feeler Gauge Set, Precision, Blade Type 'A' | 20 | 75 | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100 |
| 395M-20-A | Feeler Gauge Set, Precision, Blade Type 'A' | 20 | 150 | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100 |
| 399M-20-A | Feeler Gauge Set, Precision, Blade Type 'A' | 20 | 300 | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100 |

**Feeler Gauges - Imperial**

| Code No | Desciption | No. of Blades | Blade Length (inch) | Thickness x 0.001 (inch) |
|---|---|---|---|---|
| 911-10-B | Feeler Gauge Set, Safe & Sure, Blade Type 'B' | 10 | 4 | 1.5, 2, 3, 4, 6, 8, 10, 12, 15, 25 |
| 12-26-A | Feeler Gauge Set, Precision, Blade Type 'A' | 26 | 3 | 1.5, 2, 2.5, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21,, 22, 23, 24, 25 |
| 1246-10-A | Feeler Gauge Set, Precision, Blade Type 'A' | 10 | 6 | 1.5, 2, 3, 4, 6, 8, 10, 12, 15, 25 |
| 12412-10-A | Feeler Gauge Set, Precision, Blade Type 'A' | 10 | 12 | 1.5, 2, 3, 4, 6, 8, 10, 12, 15, 25 |

# Traditional Drill & Standard Wire Gauges

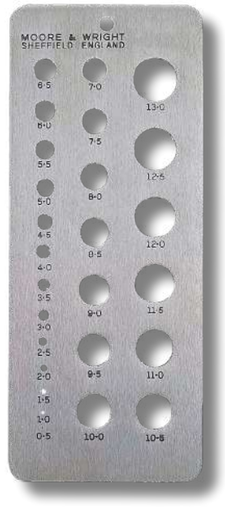
## Features

### Standard Wire Gauges

- Two part space saving design, with corner pivot
- Marked with nominal size of each slot
- Made from high grade tool steel, with a brushed finish
- 1067M & 1053M available in retail packs

### Drill Gauges

- Made from high grade tool steel, with a brushed finish
- Marked with nominal size of each hole




**Traditional Drill & Standard Wire Gauges**

| Code No | No. Slots | Range of Slot Size | Graduation (mm) |
|---|---|---|---|
| 1053M | 40 | 0.2-10.0mm | |
| 1052 | 36 | 1-36 SWG | |
| 1067M | 26 | 0.5-13.0mm | 0.5 |
| 1066M | 96 | 0.5-10.0mm | 0.1 |



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# Telescopic Gauges Set

## At a Glance

- For quick economical inside measurements

## Features

- Spring loaded plunger that expands in the bore or groove
- Satin-chromed body
- With auto extension and direct locking
- Measuring faces are hardened and micro-lapped

MW315-01

**Telescopic Gauges Set**

| Code No | Range (mm) |
|---|---|
| MW315-01 | 8-150 |

# Traditional Engineers' Rules

## Features

- D shaped end with hanging hole
- Satin chrome anti-glare finish
- Permanent black high definition scale markings
- Metric scales front and rear face graduations 0.5mm, 1.0mm
- Metric / Imperial scales front face graduations 1/16th, 1/32nd, 1/64th 1/10th, 1/20th, 1/50th, 1/100th of an inch
- Metric / Imperial scales rear face graduations 0.5mm, 1.0mm

Metric and imperial **Traditional Engineer's Rules** from Moore & Wright.

Made from fine quality steel which has been hardened and tempered to provide the ideal balance between flexibility and durability.

ER312

**Traditional Engineers' Rules**

| Code No | Description | Width (mm) | Thickness (mm) |
|---|---|---|---|
| ER106 | 150mm/ 6" Engineers' Rigid Rule | 19 | 1.2 |
| ER112 | 300mm/ 12" Engineers' Rigid Rule | 25 | 1.2 |
| ER212 | 300mm/ 12" Engineers' Rigid Rule | 12.5 | 1.2 |
| ER206 | 150mm/ 6" Engineers' Rigid Rule<br>300mm/ 12" Engineers' Rigid Rule | 12.5 | 1.2 |
| ER306 | 150mm Engineers' Rigid Rule | 19 | 1.2 |
| ER312 | 300mm Engineers' Rigid Rule | 25 | 1.2 |
| ER424 | 600mm/ 24" Engineers' Rigid Rule | 25 | 1.2 |

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# Precision Engineers' Bevelled Edge Square

## Features

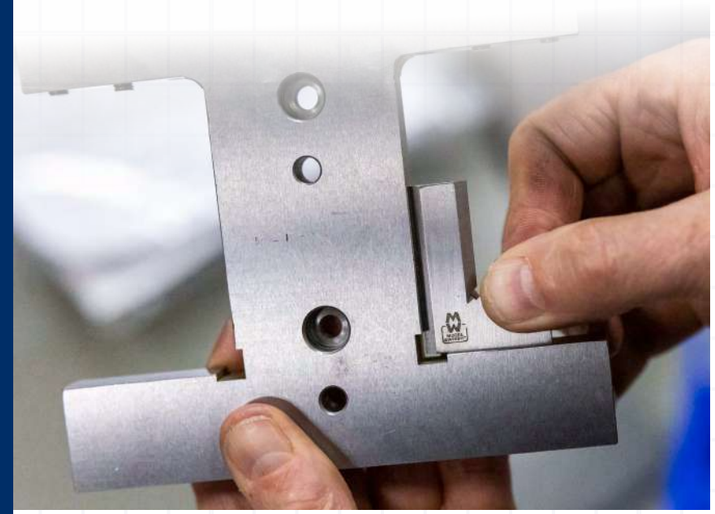
- Standard: DIN 875 Grade 0
- Precision ground and micro-lapped
- 2 knife-form sides with angle of 40°

MW910-01

**Precision Engineers' Bevelled Edge Square** is made from heat treated steel for extra strength.

**Precision Engineers' Bevelled Edge Square**

| Code No | Description |
|---|---|
| MW910-01 | 40 x 30mm |
| MW910-02 | 50 x 40mm |
| MW910-03 | 75 x 50mm |
| MW910-04 | 100 x 70mm |
| MW910-05 | 150 x 100mm |
| MW910-06 | 200 x 130mm |



# Sliding 'T' Squares

## Features

- Working surfaces of the stock are ground
- Hardened and tempered blade with a satin chrome finish

The **Moore & Wright Sliding 'T' Squares** are practical, time saving tools for marking-out applications.

Suitable for use as a parallel or as a double square, the Moore & Wright sliding 'T' Squares has ground working surfaces and features a hardened, tempered blade with a satin chrome finish.

DS71041

DS71056

**Sliding 'T' Squares - Metric**

| Code No | Length (mm) | Stock Length (mm) | Graduation (mm) |
|---|---|---|---|
| DS71041 | 100 | 62 | 1, 0.5 |
| DS71051 | 150 | 62 | 1, 0.5 |

**Sliding 'T' Squares - Metric/Imperial**

| Code No | Length (mm/inch) | Stock Length (mm) | Graduation (mm/inch) |
|---|---|---|---|
| DS71044 | 100 / 4 | 62 | 0.5, 1 / 1/16 |
| DS71056 | 150 / 6 | 62 | 0.5, 1 / 1/16 |

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# Traditional Depth Gauge

## Features

### Depth Gauge

- Available with either reversible base or protractor
- Full range rule adjustment
- Readings can be fixed by means of a locknut
- Rules graduated on both sides
- Metric scales front face graduations 0.5mm, 1.0mm
- Metric scales rear face graduations 1.0mm
- Metric / Imperial scales front face graduations 1/32nd
- Metric / Imperial scales rear face graduations 1.0mm
- Length of blade 195mm / 7.68"

### Reversible Base Type

- Accurately ground top and bottom faces allow base to be reversed, for use in confined spaces

### Protractor Type

- Protractor plate is graduated 0° - 180° - 0° degrees
- Scale resolution 1/2 degree

43

44



**Traditional Depth Gauge - Metric**

| Code No | Description | Width (mm) | Side of Base (mm) | Thickness (mm) |
|---|---|---|---|---|
| 43 | Reversible Base | 5.5 | 18, 56 | 1.0 |
| 44 | Protractor | 5.5 | 79 | 1.0 |

**Traditional Depth Gauge - Imperial**

| Code No | Description | Width (inch) | Side of Base (inch) | Thickness (inch) |
|---|---|---|---|---|
| 43 | Reversible Base | 0.22 | 0.71, 2.21 | 0.04 |
| 44 | Protractor | 0.22 | 3.11" | 0.04 |

# Traditional Inside & Outside Calipers

## Outside & Inside Calipers, Firm Joint

- Standard: BS3123
- Manufactured from polished tool steel
- A large headed nut & screw assembly provides a firm & rigid friction joint, with no play
- The sizes listed are the effective leg length which is measured from the joint assembly

Note: Firm joint caliper capacities are generally 1/3 greater than the effective leg length.

## Outside Calipers, Spring Joint

- Standard: BS3123
- Bow spring ensures uniform tension over working range
- Centrally mounted adjustment screw offers finer setting, than firm joint type

## Inside Calipers, Spring Joint

- Standard: BS3123
- Bow spring ensures uniform tension over working range
- Centrally mounted adjustment screw
- Manufactured from polished tool steel

Note: Firm joint caliper capacities are generally 1/3 greater than the effective leg length.

## Spring Dividers

- Standard: BS3123
- Manufactured from polished tool steel
- Points are hardened to over 550Hv
- Bow spring ensures uniform tension over working range
- Centrally mounted adjustment screw

Note: The nominal size is the distance between the centre of the roller and the working ends of the legs.

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BOWERS GROUP

# Traditional Inside & Outside Calipers

RETAIL PACKS

| Inside Calipers Firm Joint | | | |
|---|---|---|---|
| Code No | Size (mm) | Size (inch) | Pack Quantity |
| 3306R | 150 | 6 | 5 |
| 3308R | 200 | 8 | 1 |
| 33012R | 300 | 12 | 1 |

| Outside Calipers Firm Joint | | | |
|---|---|---|---|
| Code No | Size (mm) | Size (inch) | Pack Quantity |
| 3316R | 150 | 6 | 5 |
| 3318R | 200 | 8 | 1 |
| 33112R | 300 | 12 | 1 |
| 33118R | 450 | 18 | 1 |
| 33124R | 600 | 24 | 1 |

| Dividers & Inside / Outside Calipers Spring Joint | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Code No | Description | Code No | Description | Code No | Description | Size (mm) | Size (inch) | Pack Quantity |
| 503R | Dividers | 513R | Inside | 523R | Outside | 75 | 3 | 5 |
| 504R | Dividers | 514R | Inside | 524R | Outside | 100 | 4 | 5 |
| 506R | Dividers | 516R | Inside | 526R | Outside | 150 | 6 | 5 |
| 508R | Dividers | 518R | Inside | 528R | Outside | 200 | 8 | 1 |
| 5010R | Dividers | 5110R | Inside | 5210R | Outside | 250 | 10 | 1 |
| 5012R | Dividers | 5112R | Inside | 5212R | Outside | 300 | 12 | 1 |

# Traditional (Hermaphrodite) Calipers

## Firm Joint Adjustable Point

- Manufactured from polished tool steel
- A large headed nut and screw assembly provides a firm and rigid friction joint, with no play
- The sizes listed are the effective leg length which is measured from the joint assembly
- Leg which holds the round adjustable hardened point is offset
- Model 341 has a locating spur on the straight leg

Note: Firm joint caliper capacities are generally 1/3 greater than the effective leg length.

## Spring Joint

- Manufactured from polished tool steel
- The marking leg is hardened to over 550Hv at the point
- Bow spring ensures uniform tension over working range
- Centrally mounted adjustment screw offers finer setting than firm joint type

**Traditional (Hermaphrodite) Calipers**

| Code No | Description | Size (mm) | Size (inch) | Pack Quantity |
|---|---|---|---|---|
| 341R | Firm Joint | 125 | 5 | 5 |
| 3366R | Firm Joint | 150 | 6 | 5 |
| 56R | Spring Joint | 150 | 6 | 5 |



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# Traditional Mini Level

## Features

- Ultra compact dimensions and a single vial
- Machined from a solid block of carbon steel

**Traditional Mini Level - Metric**

| Code No | Length (mm) | Width (mm) | Height (mm) | Accuracy (inch) |
|---|---|---|---|---|
| ELT001XR | 51 | 19 | 19 | ± 1° / 0.0035" per foot |

**Traditional Mini Level - Imperial**

| Code No | Length (inch) | Width (inch) | Height (inch) | Accuracy (inch) |
|---|---|---|---|---|
| ELT001XR | 2.0 | 0.75 | 0.75 | ± 1° / 0.0035" per foot |

# Traditional Engineers' Square

## Features

- Standard: To BS939 / Grade B
- Precision ground blade and stock
- Blind rivetted construction
- Hardened and tempered blades
- Supplied boxed

4006R

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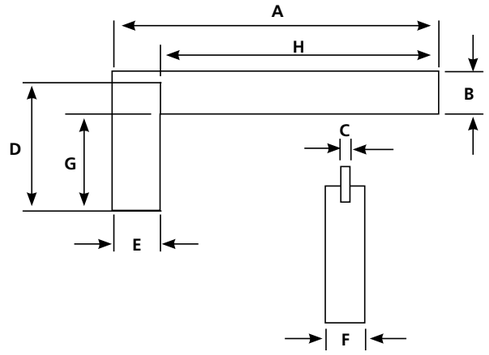
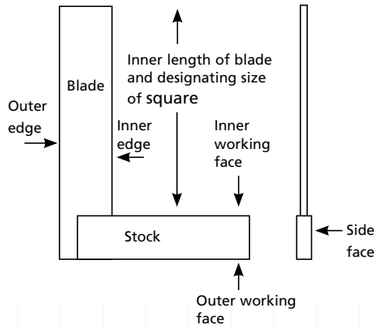
# Traditional Engineers' Square



| Workshop Square: Grade B | | | |
|---|---|---|---|
| Code No | Blade Length (mm) | Blade Length (inch) | Approx. Stock Length (mm) (inside face) |
| 4003R | 75 | 3 | 49 |
| 4004R | 100 | 4 | 56 |
| 4006R | 150 | 6 | 82 |
| 4009R | 225 | 9 | 108 |
| 40012R | 300 | 12 | 139 |




| Dimensions (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Square Size | Blade Length (mm) | | Stock | | | | Inner Working | |
| Faces (inch / mm) | A | B | C | D | E | F | G | H |
| 3 / 75 | 104.8 | 25.4 | 1.42 | 68.5 | 25.4 | 12.7 | 49.3 | 79.4 |
| 4 / 100 | 130.2 | 25.4 | 1.42 | 76.2 | 25.4 | 12.7 | 57.0 | 104.8 |
| 6 / 150 | 181.0 | 25.4 | 1.42 | 101.6 | 25.4 | 12.7 | 82.4 | 155.6 |
| 9 / 225 | 273.1 | 38.1 | 3.15 | 139.7 | 38.1 | 19.05 | 107.9 | 234.95 |
| 12 / 300 | 355.6 | 44.4 | 3.15 | 177.8 | 44.4 | 22.2 | 139.7 | 311.2 |




| 400R Series Engineers Squares Tolerances (Microns) | | | | | |
|---|---|---|---|---|---|
| | Size of Square | | | | |
| | 3" / 75mm | 4" / 100mm | 6" / 150mm | 9" / 225mm | 12" / 300mm |
| Straightness of Blade Edges | 8 | 8 | 8 | 8 | 12 |
| Parallelism of Blade Edges | 8 | 8 | 8 | 12 | 12 |
| Flatness of Working Faces of Stock (any deviation must be concave) | 4 | 6 | 6 | 8 | 8 |
| Parallelism of Working Faces of Stock | 5 | 5 | 5 | 8 | 8 |
| Parallelism of Side Faces of Stock | 25 | 25 | 25 | 50 | 50 |
| Squareness of Side Faces of Stock to Working Faces of Stock | 57 | 57 | 75 | 114 | 134 |
| Squareness of Edges of Blade to Side Faces of Stock | 15 | 15 | 15 | 15 | 15 |
| Squareness of Edges of Blade to Working Faces of Stock | 16 | 16 | 16 | 16 | 24 |
| Lateral Squareness of Blade | 125 | 250 | 250 | 375 | 375 |

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Quality is absolutely paramount to our customers – supporting industries such as aerospace, defence, military and F1, there is zero room for defects, in both time and cost. We have an outstanding record for perfect quality and investing in equipment such as the Sylvac demonstrates our commitment to continuous improvement in our metrology capabilities.

**Stacy Denton-Beaumont - Operations Manager - Boneham & Turner**

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sylvac

Sylvac

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Handtools

# S_Cal EVO Bluetooth Caliper

## At a Glance

**Range:** 0 - 300mm

Bluetooth

IP67

Swiss Precision

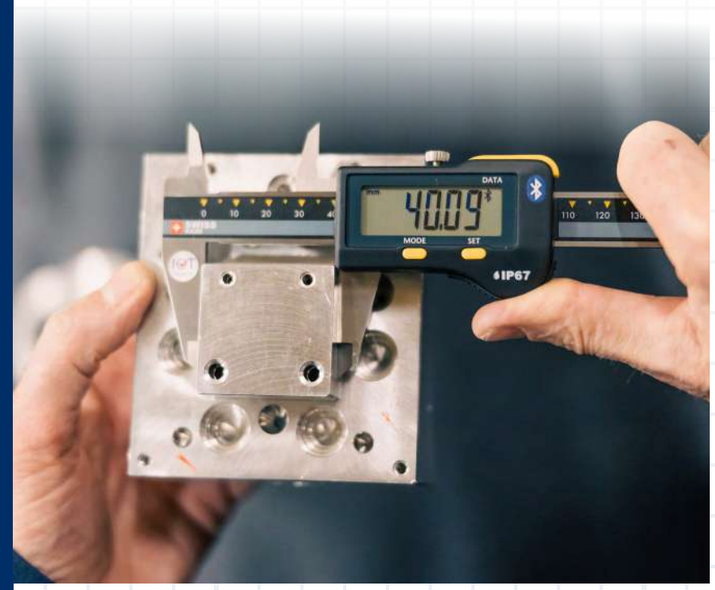
## Features

- Standard: DIN 862
- Max. error 20 µm
- Built-in Bluetooth® 4.0 transmitter
- Transmission distance up to 15m
- Absolute system
- Automatic wake-up
- Powered by standard CR2032 battery
- Battery life up to 3 years
- Mechanical frame in stainless steel

30-810-1506

**S_Cal EVO Bluetooth Caliper**

| Code No | Description | Range (mm) | Note |
|---|---|---|---|
| 30-810-1506 | Sylvac S_Cal EVO Bluetooth | 0-150 | With flat depth rod |
| 30-810-1526 | Sylvac S_Cal EVO Bluetooth | 0-200 | With flat depth rod |
| 30-810-1536 | Sylvac S_Cal EVO Bluetooth | 0-300 | Without depth rod |
| 30-810-1522/NO | Sylvac S_Cal EVO | 0-200 | With flat depth rod |

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# Limited Edition BT Digital Caliper

## At a Glance

Bluetooth Non Bluetooth is available upon request

IP67

Swiss Precision

## Features

- Extra-large display
- Programmable to your needs
- Rated to IP67
- Automatic wake up and sleep mode

Sylvac Limited Edition BT Digital Caliper will connect to all **IOT devices** and can easily be demonstrated using a smart phone and the Sylvac Anywhere App.

**Limited Edition BT Digital Caliper**

| Code No | Range (mm) | Accuracy (µm) | Functions |
|---|---|---|---|
| 30-810-1506/50 | 150 | 20 | Zero setting, preset (max 999.99), mm/inch, Hold, Data |

357

# S_Cal EVO Caliper

## (without output)

### At a Glance

**Range:** 0 - 300mm

IP67

Swiss Precision

### Features

- Absolute system
- Automatic wake-up
- Powered by standard CR2032 battery
- Battery life up to 3 years

**S_Cal EVO Bluetooth Caliper**

| Code No | Range (mm) | Notes |
|---|---|---|
| 30-810-1502 | 0-150 | With flat depth rod |
| 30-810-1522 | 0-200 | With flat depth rod |
| 30-810-1532 | 0-300 | With flat depth rod |



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# S_Cal EVO Carbide and EVO µm Calipers



### At a Glance

**Range:** 0 - 150mm

IP67

Swiss Precision

Bluetooth

### Features S_Cal EVO µm Caliper

- Standard: DIN 862
- New extra-large micron display
- Carbide jaws
- New extra-large display
- Programmable button according to needs (depending on model)
- Automatic wake-up by moving the electronic on his frame (Absolute System SIS)
- Sleeping mode after 20 min. of no use. (Absolute System SIS)
- Maximum speed of displacement: 2.5 m/sec
- Mechanical frame in stainless steel

### Features S_Cal EVO µm with Carbide Jaws

- Carbide jaws
- New extra-large display
- Programmable button according to needs (depending on model)
- Automatic wake-up by moving the electronic on his frame (Absolute System SIS)
- Sleeping mode after 20 min. of no use. (Absolute System SIS)
- Maximum speed of displacement: 2.5 m/sec
- Mechanical frame in stainless steel

30-810-1509
with Carbide Jaws

30-810-9506

**S_Cal EVO with Carbide Jaws**

| Code No | Description | Range (mm) | Note |
|---|---|---|---|
| 30-810-1509 | Sylvac S_Cal EVO Carbide Caliper | 0-150 | With flat depth rod |

**S_Cal EVO µm Caliper**

| Code No | Description | Range (mm) | Note |
|---|---|---|---|
| 30-810-9506 | Sylvac S_Cal EVO µm Caliper | 0-150 | With flat depth rod |
| 30-810-9516 | Sylvac S_Cal EVO µm Caliper | 0-150 | With round depth rod |

# Ultra Light Caliper Mark 4 Special Application - Jaw Type A

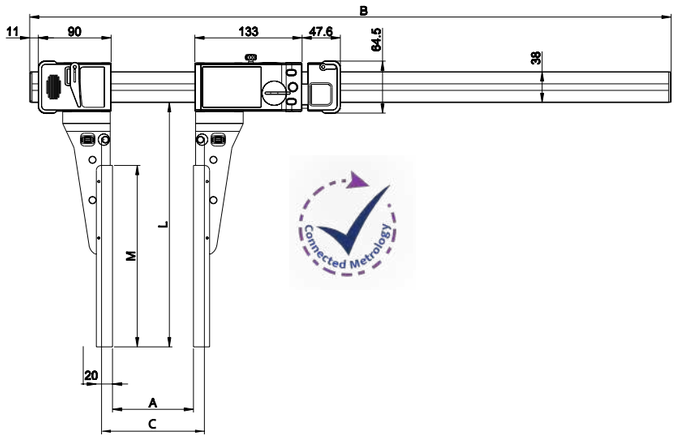
## At a Glance

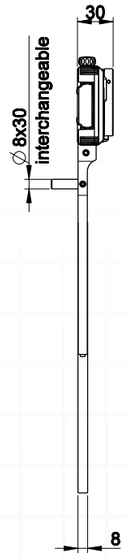
IP67 | Swiss Precision | Bluetooth

## Features

- Integrated Bluetooth Smart data transmission
- Mobile jaws
- Maximum speed of displacement: 2 m/sec
- Internal and external measurement
- This system ensures a perfect guidance and protects the beam against shocks
- Displays the upper and lower tolerances
- Extremely light instrument



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# Ultra Light Caliper Mark 4 Special Application - Jaw Type A

| Special Application - Jaws Type A | |
|---|---|
| **Code No** | **Jaws** |
| 30-811-2316-99 | L = ≤ 300mm, M = L - 75mm L = ≤ 300mm, M = L - 75mm |
| 30-811-2317-99 | L = ≤ 400mm, M = L - 75mm L = ≤ 400mm, M = L - 75mm |

| Max error (um) / Repeatability (um) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **UL Specification** | **With Jaws 30-811-2316-99** | **With Jaws 30-811-2317-99** | **Measuring Range (mm)** | **Resolution (mm)** | **A (mm)** | **B (mm)** | **C (mm)** |
| UL400 | 40/20 | 70/40 | 400 | | 0-478 | 796 | 27-505 |
| UL600 | 50/20 | 80/40 | 600 | | 0-683 | 1001 | 27-710 |
| UL1000 | 70/20 | 120/40 | 1000 | | 0-1093 | 1411 | 27-1110 |
| UL1500 | 130/30 | 200/50 | 1500 | 0.01 | 0-1608 | 1926 | 27-1635 |
| UL2000 | 180/40 | 300/60 | 2000 | | 0-2123 | 2441 | 27-2150 |
| UL2500 | 220/40 | 400/70 | 2500 | | 0-2638 | 2956 | 27-2665 |
| UL3000 | 320/40 | 500/80 | 3000 | | 0-3153 | 3471 | 27-3180 |

# Ultra Light Caliper Mark 4 - Special Application - Jaws Type C

## At a Glance

IP67 | Swiss Precision | Bluetooth

## Features

- Integrated Bluetooth Smart data transmission
- Mobile jaws
- Maximum speed of displacement: 2 m/sec
- Internal and external measurement
- This system ensures a perfect guidance and protects the beam against shocks
- Displays the upper and lower tolerances
- Extremely light instrument

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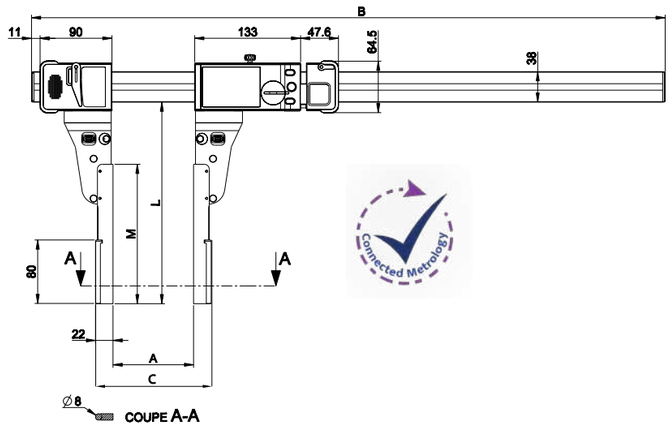


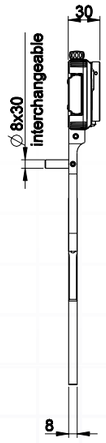




# Ultra Light Caliper Mark 4 - Special Application - Jaws Type C

| Special Application - Jaws Type C | |
|---|---|
| **Code No** | **Jaws** |
| 30-811-2319-99 | L = ≤ 300mm, M = L - 75mm L = ≤ 300mm, M = L - 75mm |

**Max error (um) / Repeatability (um)**

| UL Specification | With Jaws ≤ 200 | With Jaws ≤ 300 | Measuring Range (mm) | Resolution (mm) | A (mm) | B (mm) | C (mm) |
|---|---|---|---|---|---|---|---|
| UL400 | 40/20 | 50/30 | 400 | | 0-478 | 796 | 44-522 |
| UL600 | 50/20 | 60/30 | 600 | | 0-683 | 1001 | 44-727 |
| UL1000 | 70/30 | 90/30 | 1000 | | 0-1093 | 1411 | 44-1137 |
| UL1500 | 120/30 | 150/30 | 1500 | 0.01 | 0-1608 | 1926 | 44-1652 |
| UL2000 | 170/30 | 200/40 | 2000 | | 0-2123 | 2441 | 44-2167 |
| UL2500 | 210/30 | 300/40 | 2500 | | 0-2638 | 2956 | 44-2682 |
| UL3000 | 300/40 | 400/50 | 3000 | | 0-3153 | 3471 | 44-3197 |

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# Ultra Light Caliper Mark 4

## At a Glance

IP67 | Swiss Precision | Bluetooth

## Features

- Integrated Bluetooth Smart data transmission
- Adjustable jaws
- Maximum speed of displacement: 2 m/sec
- Internal and external measurement
- This system ensures a perfect guidance and protects the beam against shocks
- Displays the upper and lower tolerances
- Extremely light instrument



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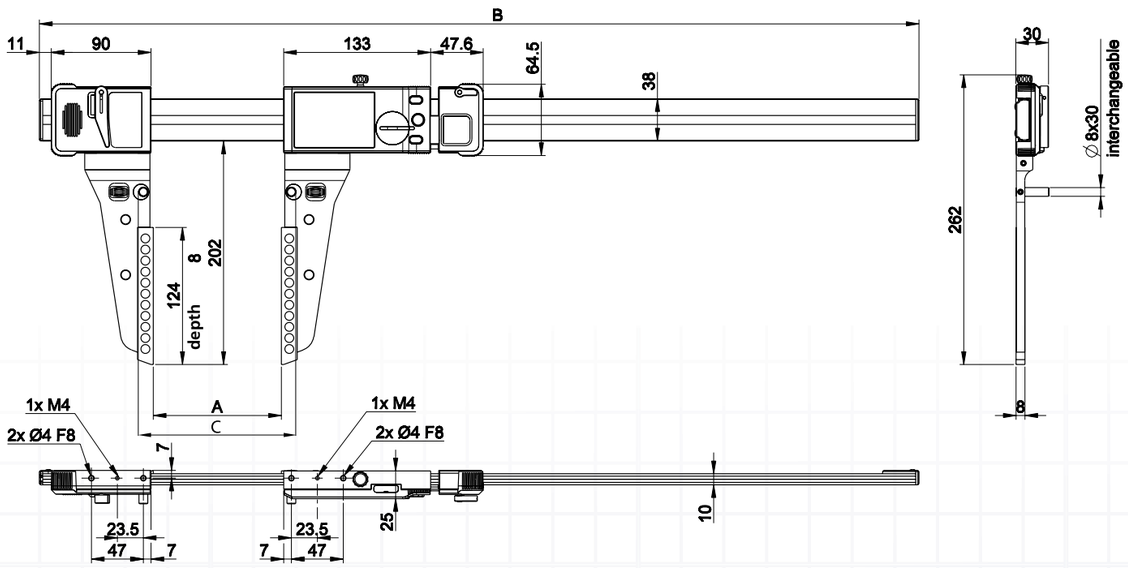
# Ultra Light Caliper Mark 4

30-811-1404




### Ultra Light Caliper Mark 4

| Code No | Range (mm) | Maximum Error (µm) | Repeatability (µm) | Force (N) | Weight (kg) |
|---|---|---|---|---|---|
| 30-811-1404 | 0-400 | 30 | 20 | 5-10 | 1.5 |
| 30-811-1406 | 0-600 | 40 | 20 | 5-10 | 1.6 |
| 30-811-1410 | 0-1000 | 50 | 20 | 5-10 | 1.9 |
| 30-811-1415 | 0-1500 | 90 | 20 | 5-10 | 2.3 |
| 30-811-1420 | 0-2000 | 120 | 20 | 5-10 | 2.6 |
| 30-811-1425 | 0-2500 | 150 | 30 | 5-10 | 2.9 |
| 30-811-1430 | 0-3000 | 200 | 30 | 5-10 | 3.3 |

### Dimensions

| Code No | A (mm) | B (mm) | C (mm) |
|---|---|---|---|
| 30-811-1404 | 0-478 | 27-505 | 796 |
| 30-811-1406 | 0-683 | 27-710 | 1001 |
| 30-811-1410 | 0-1093 | 27-1110 | 1411 |
| 30-811-1415 | 0-1608 | 27-1635 | 1926 |
| 30-811-1420 | 0-2123 | 27-2150 | 27-2665 |
| 30-811-1425 | 0-2638 | 27-2665 | 2956 |
| 30-811-1430 | 0-3153 | 27-3180 | 3471 |

# S_Cal EVO Bridge Depth Gauge

## At a Glance

IP67 · Swiss Precision · Bluetooth

## Features

- Programmable button according to needs
- Water protected for heavy-duty work with coolants and lubricants, protection rating IP67 according to IEC 60529
- Automatic wake-up (Absolute System SIS)
- Sleeping mode after 20 min. of no use. (Absolute System SIS)
- Maximum speed of displacement: 2.5 m/sec
- Mechanical frame in stainless steel

30-812-1611

**Sylvac S_Cal EVO Bridge Depth Gauge** has Integrated Bluetooth® Smart data transmission.

Special depth gauge with bridge 100mm and clamping screw.

**S_Cal EVO Bridge Depth Gauge**

| Code No | Measuring Depth (mm) | Resolution (mm) | Output |
|---|---|---|---|
| 30-812-1611 | 200 | 0.01 | Built-in Bluetooth 4.0 |
| 30-812-1613 | 300 | 0.01 | Built-in Bluetooth 4.0 |
| 30-812-1615 | 500 | 0.01 | Built-in Bluetooth 4.0 |



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# S_Cal EVO Double Depth Gauge

## At a Glance

IP67 · Swiss Precision · Bluetooth

## Features

- Programmable button according to needs
- Water protected for heavy-duty work with coolants and lubricants, protection rating IP67 according to IEC 60529
- Automatic wake-up (Absolute System SIS)
- Sleeping mode after 20 min. of no use. (Absolute System SIS)
- Maximum speed of displacement: 2.5 m/sec
- Mechanical frame in stainless steel

30-812-1621

**Sylvac S_Cal EVO Double Depth Gauge** is Integrated Bluetooth® Smart data transmission.

Special depth gauge double with adjustable anvil and clamping screw.

**S_Cal EVO Double Depth Gauge**

| Code No | Measuring Depth (mm) | Resolution (mm) | Output |
|---|---|---|---|
| 30-812-1621 | 200 | 0.01 | Built-in Bluetooth 4.0 |
| 30-812-1623 | 300 | 0.01 | Built-in Bluetooth 4.0 |
| 30-812-1625 | 300 | 0.01 | Built-in Bluetooth 4.0 |

# S_Cal EVO SVE Special Caliper

## At a Glance

IP67 · Swiss Precision · Bluetooth

## Features

- External groove with a range of 0 - 150mm
- Programmable button according to your needs
- Water protected for heavy-duty work with coolants and lubricants, protection rating IP67 according to IEC 60529,
- Automatic wake-up by moving the electronic on his frame. (Absolute System S.I.S)
- Sleeping mode after 20 min. of no use. (Absolute System S.I.S)
- Position memorised in sleeping mode, Absolute System S.I.S*
- Maximum speed of displacement : 2.5 m/sec
- Mechanical frame in stainless steel, hardened and grinded
- Great comfort of use thanks to its ergonomic frame
- Integrated Bluetooth® Smart data transmission

**S_Cal EVO SVE Special Caliper**

| Code No | Range (mm) | Note |
|---|---|---|
| 30-810-1602 | 0-150 | With flat depth rod |



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# S_CAL EVO Smart IG Bluetooth Caliper

## At a Glance

IP67 · Swiss Precision · Bluetooth

## Features

- Water protected for heavy-duty work with coolants and lubricants
- Protection rating IP67 according to IEC 60529
- Integrated Bluetooth® Smart data transmission
- Special jaws for measuring grooves and internal seatings
- Programmable button according to your needs
- Automatic wake-up by moving the electronic on his frame. (Absolute System S.I.S)
- Sleeping mode after 20 min. of no use. (Absolute System S.I.S)
- Position memorised in sleeping mode, Absolute System S.I.S*
- Maximum speed of displacement : 2.5 m/sec
- Mechanical frame in stainless steel, hardened and grinded
- Great comfort of use thanks to its ergonomic frame

**S_CAL EVO Smart IG Bluetooth Caliper**

| Code No | Range (mm) | Note |
|---|---|---|
| 30-810-1600 | 0-150 | With flat depth rod |

# S_Cal EVO Smart PJ (Point Jaws) Bluetooth Caliper

## At a Glance

IP67 · Swiss Precision · Bluetooth

## Features

- Special jaws for measuring grooves and internal seatings, with interchangeable, lapped, round-tipped anvils (M2.5 thread)
- Integrated Bluetooth ® Smart data transmission
- Programmable button according to your needs
- Water protected for heavy-duty work with coolants and lubricants, protection rating IP67 according to IEC 60529,
- Automatic wake-up by moving the electronic on his frame. (Absolute System S.I.S)
- Sleeping mode after 20 min. of no use. (Absolute System S.I.S)
- Position memorised in sleeping mode, Absolute System S.I.S*
- Maximum speed of displacement : 2.5 m/sec
- Mechanical frame in stainless steel, hardened and grinded
- Great comfort of use thanks to its ergonomic frame

**S_Cal EVO Smart PJ (Point Jaws) Bluetooth Caliper**

| Code No | Range (mm) | Note |
|---|---|---|
| 30-810-1601 | 0-150 | With flat depth rod |



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# S_CAL EVO Smart Deep Measurement Caliper

## At a Glance

IP67 · Swiss Precision · Bluetooth

## Features

- High-quality, ergonomic caliper with integrated Bluetooth® system
- Model with long 45 mm jaws for deep internal measurements
- 3.5 mm thick hardened and ground stainless steel frame
- New extra-large display unit with 11.5 mm high digits
- Convenient push button for sending data that can also be programmed with another function
- Memorising the home position even when the instrument is switched off
- Measuring range 150mm with rectangular depth rod
- Wheel available as an option

**S_CAL EVO Smart Deep Measurement Caliper**

| Code No | Range (mm) | Note |
|---|---|---|
| 30-810-1603 | 0-150 | With flat depth rod |

# Ultra Light Digital Scale

## At a Glance

IP67 · Swiss Precision · Bluetooth

## Features

- Displays the upper and lower tolerances
- Extremely light instrument

30-814-1510

A slim ultra light linear scale suitable for milling machines, XY tables, jigs and similar applications. With Integrated Bluetooth® technology.

**Ultra Light Digital Scale**

| Code No | Range (mm) | Maximum Error (µm) | Repeatability (µm) | Weight (kg) |
|---|---|---|---|---|
| 30-814-1510 | 0-1000 | 60 | 20 | 1.2 |
| 30-814-1515 | 0-1500 | 90 | 20 | 1.5 |
| 30-814-1520 | 0-2000 | 120 | 20 | 1.8 |
| 30-814-1525 | 0-2500 | 150 | 20 | 2.2 |
| 30-814-1530 | 0-3000 | 200 | 20 | 2.5 |



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# S_Mike Pro - Box Set

## At a Glance

IP67 Electronics with or without connector

Swiss Precision

## Features

- Automatic wake-up by moving the measuring spindle
- Sleep mode after 20 min. of no use
- Position memorised in sleep mode
- Measuring range 0-102mm covered with 3 instruments only
- Set of 3 micrometers 0-102mm available
- Quick displacement of the measuring spindle 12mm / rotation
- Battery life 12,000 hours
- Non-rotating spindle
- Preset function

The **Sylvac S_Mike Pro** is water protected for heavy-duty work with coolants and lubricants, protection rating IP67 according to IEC 60529, with or without connector.

**S_Mike Pro - Box Set**

| Code No | Range (mm) | Proximity |
|---|---|---|
| 30-903-1300 | 0-102 | USB / RS 232 / Digimatic / Wireless |

# S_Mike Pro Ø2

## At a Glance

IP67 · Swiss Precision · Bluetooth

## Features

- Automatic wake-up by moving the measuring spindle
- Sleep mode after 20 min. of no use
- Position memorised in sleep mode
- Quick displacement of the measuring spindle 12mm / rotation
- Battery life 12,000 hours
- Non-rotating spindle
- Preset function
- Bluetooth available with different anvils on request

| S_Mike Pro Ø2 | | | | |
|---|---|---|---|---|
| Code No | Range (mm) | Maximum Error (µm) | Repeatability (µm) | Proximity |
| 30-903-0301 | 0-25 | 3 | 1 | USB / RS 232 / Digimatic / Wireless |



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# S_Mike PRO Disc Micrometer

## At a Glance

IP67 · Swiss Precision · Bluetooth

## Features

- Linear spindle feed 10 mm per drum revolution
- 0.001 mm Display resolution
- Ratchet system eliminates operator influence and guarantees excellent repeatability
- Switchable measuring force: 5 or 10 N
- Bluetooth® data output (Proximity data output for non-Bluetooth® models)
- Measuring ranges up to 102 mm
- Protection class IP67

30-803-0313

**Sylvac S_Mike PRO Disc Micrometer** High-speed micrometer with non-rotating spindle.

| S_Mike PRO Disc Micrometer | | | |
|---|---|---|---|
| Code No | Range (mm) | Maximum Error (µm) | Repeatability (µm) |
| 30-803-0313 | 0-30 | 4 (full-touch-contact) / 10 (partial contact) | 1 |
| 30-903-0613 | 30-66 | 5 (full-touch-contact) / 11 (partial contact) | 1 |
| 30-903-1013 | 66-102 | 6 (full-touch-contact) / 12 (partial contact) | 1 |

# Measuring Stand - PS15

## At a Glance

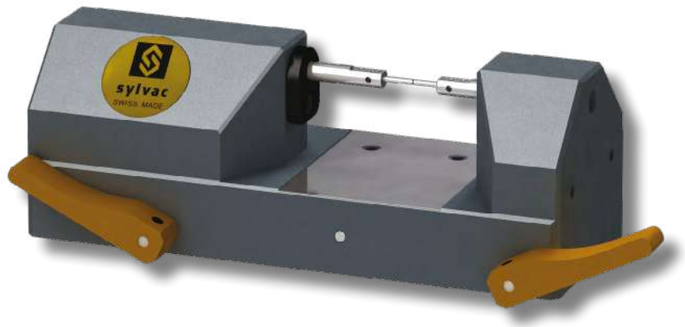
Check small parts up to 10mm

Compatible with Sylvac Ø 1.5 mm and Cary type spindle

Swiss Precision

## Features

- Small horizontal bench table designed to easily and quickly check small parts up to 10mm
- Measuring spindle guided by linear ball bearing
- This bench table can be equipped with different kind of tables as well as with several types of anvils of any shapes
- Standard spindle Ø 1.5 mm (908.2175)
- Compatible with Sylvac Ø 1.5 mm and Cary type spindle



30-808-1215

The **Sylvac Mini-Measuring Stand** is the perfect solution to the rapid and accurate inspection of small parts. This extremely robust device exerts a low measuring force and is activated by one of the two convenient operating levers.

The flexible Mini-Measuring Stand can be fitted with most analogue or digital indicators, or transducer probes.

The measured value will be displayed either by a Sylvac digital dial gauge range 12.5mm, up to 0.1 µm resolution or by a Sylvac measuring probe P10 (P10L) linked to a digital display unit. Using a pair display unit / measuring probe an overall accuracy of 0.6 µm and a repeatability of 0.2 µm can be reached.

**Measuring Stand - PS15**

| Code No | Description | Weight (kg) |
|---|---|---|
| 30-808-1215 | Horizontal stand with anvils Ø 1.5mm without support table | 1.8 |
| 30-808-1216 | Vertical stand with 5mm / M2.5 flat anvils without support table | 1.8 |
| 30-808-1218 | Vertical stand with anvils Ø 1.5mm without support table | 1.8 |



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# Horizontal Measuring Bench Table: PS16 V2

## At a Glance

Swiss Precision

Bluetooth

## Features

- Integrated Bluetooth
- Brand new design
- Designed to check dimensions up to 50mm
- Equipped with various tables / anvils to fit the user's needs
- Adjustable measuring force
- Data output via USB or Bluetooth
- Standard measuring anvils Ø 1.5mm

Connected Metrology

30-808-1231

The easy to use **Sylvac Horizontal Measuring Table** is capable of very accurate external and internal (with attachment) measurement.

The easy to use Sylvac Horizontal Measuring Table is capable of very accurate external and internal (with attachment) measurement.

Ideal for repeatable small part batch measurements, the ingenious gauge has adjustable measuring force and can be supplied with a built-in digital display or connected to a multi-function Sylvac readout unit.

**Horizontal Measuring Bench Table: PS16 V2**

| Code No | Description |
|---|---|
| 30-808-1231 | Horizontal stand, integral display, 25mm |
| 30-808-1232 | Horizontal stand, integral display, 50mm |

# S_Dial Work Digital Indicator

## At a Glance

IP67

Swiss Precision

## Features

- Robust construction
- Functions: mm/inch, preset, direction of measurement (only programmable on a PC)
- Automatic wake-up and sleeping mode (S.I.S system), absolute System
- Note: No lug back is available

30-805-1201

### S_Dial Work Digital Indicator - Metric

| Code No | Range (mm) | Maximum Error (µm) | Repeatability (µm) | Resolution (mm) |
|---|---|---|---|---|
| 30-805-1201 | 12.5 | 10 | 2 | 0.01 |
| 30-805-1301 | 12.5 | 4 | 2 | 0.001 |
| 30-805-1401 | 25 | 10 | 2 | 0.01 |
| 30-805-1501 | 25 | 5 | 2 | 0.001 |
| 30-805-1601 | 50 | 7 | 2 | 0.001 |

### S_Dial Work Digital Indicator - Imperial

| Code No | Range (inch) | Maximum Error (µm) | Repeatability (µm) | Resolution (inch) |
|---|---|---|---|---|
| 30-805-1201 | 0.5 | 10 | 2 | 0.0005 |
| 30-805-1301 | 0.5 | 4 | 2 | 0.00005 |
| 30-805-1401 | 1 | 10 | 2 | 0.0005 |
| 30-805-1501 | 1 | 5 | 2 | 0.00005 |
| 30-805-1601 | 2 | 7 | 2 | 0.00005 |



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# S_Dial ONE Digital Indicator

## At a Glance

IP67

Swiss Precision

## Features

- Large LCD digital readout
- Direct metric/inch conversion
- Preset
- Zero setting
- Extended battery life of 3,300 hours
- Selection of measuring direction
- Programmable by PC
- Direct RS232, USB, Digimatic output
- Lithium CR2302 battery included

### S_Dial ONE Digital Indicator - Metric

| Code No | Range (mm) | Accuracy (µm) | Resolution (mm) |
|---|---|---|---|
| 30-905-0121 | 12.5 | 10 | 0.01 |

### S_Dial ONE Digital Indicator - Imperial

| Code No | Range (inch) | Accuracy (µm) | Resolution (inch) |
|---|---|---|---|
| 30-905-0121 | 0.5 | 10 | 0.0005 |

# S_Dial WORK Nano Digital Indicators

## At a Glance

Bluetooth Available

Swiss Precision

## Features

- 0.1µm resolution
- Robust construction
- Water and coolant resistant
- New technology with configurable menus
- Broad choice of functions (MIN/MAX/DELTA, TOL, Factor, PRESET, AUTO OFF, etc.)
- Automatic wake-up and sleeping mode (S.I.S system), absolute System
- Maximum error of 1.8µm

30-805-5306

### S_Dial WORK Nano Digital Indicators - Metric

| Code No | Description | Range (mm) | Maximum Error (µm) | Repeatability (µm) |
|---|---|---|---|---|
| 30-805-5306 | Advanced Nano | 12.5 | 1.2 | 0.3 |
| 30-805-5506 | Advanced Nano | 25 | 1.6 | 0.3 |
| 30-805-6306 | Advanced Nano, Bluetooth | 12.5 | 1.2 | 0.3 |
| 30-805-6506 | Advanced Nano, Bluetooth | 25 | 1.6 | 0.3 |

### S_Dial WORK Nano Digital Indicators - Imperial

| Code No | Description | Range (inch) | Maximum Error (µm) | Repeatability (µm) |
|---|---|---|---|---|
| 30-805-5306 | Advanced Nano | 0.5 | 1.2 | 0.3 |
| 30-805-5506 | Advanced Nano | 1.0 | 1.6 | 0.3 |
| 30-805-6306 | Advanced Nano, Bluetooth | 0.5 | 1.2 | 0.3 |
| 30-805-6506 | Advanced Nano, Bluetooth | 1.0 | 1.6 | 0.3 |

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# S_Dial Mini Bluetooth Indicator



## At a Glance

Bluetooth

IP54 or IP67 Electronics

Swiss Precision

## Features

- Compact, small diameter (Ø45 mm)
- Water and coolant resistant, protection rating IP54 or IP67 according to IEC 60529 (depends on model)
- Data output RS 232 combined with external power supply and Bluetooth® (depends on model)
- Interchangeable contact point M2.5
- Clamping stem Ø 8-h6 of hardened and ground stainless steel. Dovetail back
- Min/max/delta display
- Multiplication factor
- Automatic power shut down

The **Sylvac S_Dial Mini Indicator** has been updated with a new look and the popular Bluetooth capability available as an option. The simple to operate instrument has an impressive list of advanced features including a large easy to read display, relative/absolute modes, preset function, metric/inch modes.

### S_Dial Mini Bluetooth Indicator

| Code No | Range (mm) | Maximum Error (µm) | Repeatability (µm) | Force (N) | Resolution (mm) |
|---|---|---|---|---|---|
| 30-805-6121 | 12.5 | 10 ± 1 digit | 2 | 0.5 - 0.9 | 0.01 |
| 30-805-6125 | 12.5 | 10 ± 1 digit | 2 | 0.6 - 1.3 | 0.01 |
| 30-805-6521 | 12.5 | 4 | 2 | 0.5 - 0.9 | 0.01 |
| 30-805-6525 | 12.5 | 4 | 2 | 0.6 - 1.3 | 0.01 |

# S_Dial Test **Smart** Indicator

## At a Glance

Swiss Precision

IP54 Electronics

Bluetooth

## Features

- Integrated BT
- New internal mechanism without gears eliminating hysteresis errors
- IP54 Rated
- Two interchangeable contact points 12.5mm and 36.5mm
- Display can be rotated through 270° without any need for resetting
- Three button interface including favourite button
- Adjustable display and larger digits, 8mm from 6mm
- Analogue Display Option

Now available with integrated Bluetooth technology, the **Sylvac S_Dial TEST Smart Indicator** includes an easy-to-read digital display and is IP54 rated.

30-805-4321

**S_Dial Test Smart Indicator**

| Code No | Range (mm) | Accuracy (µm) | Resolution (mm) |
|---|---|---|---|
| 30-805-4321 | 0.8 | 3 | 0.001 |
| 30-805-4322 | 2.0 | 8 | 0.001 |
| 30-805-4323 | 0.8 / 2.0 | | 0.001 |



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# Quadra Test **Lever** Indicator

## At a Glance

Swiss Precision

IP65 Electronics

## Features

- 4 measuring modes: Min, Max, TIR, and Direct
- 4 measuring resolutions 0.01mm, 0.001mm, 0.0005", 0.00005", except 30-705-
- 4321 (0.01 / 0.0005" only)
- mm / inch conversion
- RS-232 output
- Water, oil and coolant resistant to IP65 - IEC 529 specification
- 44mm diameter dial face, rotates through 360°
- Clear bar-graph
- Easy to read numeric digital display
- Meets or exceeds Din/ISO standards
- Available with 12.5mm or extra-long 36.5mm contact point

The unique **Sylvac Quadra Test** series gives the user all of the advantages of a sturdy, conventional analogue lever indicator, with the numerous useful facilities that can only be found in a quality digital gauge.

**S_Dial Test Smart Indicator - Metric**

| Code No | Description | Range (mm) | Resolution (mm) |
|---|---|---|---|
| 30-905-4321 | With 12.5mm contact point | 0.8 | 0.001 |
| 30-905-4322 | With 36.5mm contact point | 0.5 | 0.001 |

**S_Dial Test Smart Indicator - Imperial**

| Code No | Description | Range (inch) | Resolution (inch) |
|---|---|---|---|
| 30-905-4321 | With 12.5mm contact point | 0.03 | 0.00005 |
| 30-905-4322 | With 36.5mm contact point | 0.02 | 0.00005 |

# Dial Gauge Lifting Devices

## At a Glance

- 35mm threaded column with knurled nut for fine adjustment

Swiss Precision

## Features

- Steel Base standard column
- Highly stable granite base to DIN 876/00
- 8mm H7 stem mounting





Sylvac Dial Gauge Lifting Device has one piece bracket for high rigidity and constant parallelism.

Note: Not supplied with dial gauge.

30-905-2214

### Dial Gauge Lifting Devices

| Code No | Description |
|---|---|
| 30-905-2214 | Lifting lever (suits all Dial Gauges) |
| 30-905-2215 | Upper lifting device to suit S_Dial WORK 12.5 - 25mm indicators |
| 30-905-2216 | Lifting device with photo-cable, suits S_Dial WORK 12.5 - 25mm indicators |
| 30-905-4214 | Lower lifting lever, suits S233 mini indicator, range 12.5mm |
| 30-905-4215 | Upper lifting type, suits S233 mini indicator, range 12.5mm |

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# Comparator Stand

## At a Glance

- 8mm H7 stem mounting

Swiss Precision

## Features

- Highly stable base to DIN 876/00
- One piece bracket for high rigidity and constant parallelism

30-808-1204

### Comparator Stand

| Code No | Height (mm) | Load Range (mm) | Overhang (mm) | Weight (kg) | Type | Size of Base |
|---|---|---|---|---|---|---|
| 30-808-1204 | 360 | 0-260 | 115<br>0-260 | 13.4 | Fine adjustment Granite grade 00 | 300 x 210 x 60mm |
| 30-908-1209 | 215 | 0-115 | 78 | 4.3 | Cast iron, ceramic table | 85 x 85 x 25mm |
| 30-808-1206 | 270 | 0-190 | 70 | 2.9 | Granite, grade 00 | 100 x 150 x 40mm |

# Multiplexer Unit D302 / D304

## At a Glance

- Protection Rating: IP40

Swiss Precision

## Features

- Multiplexing unit with 2 or 4 inputs for Sylvac probes P2 to P50
- Dynamic measurement (10 - 20 meas./Sec. according to resolution)
- Analogue output for PC connection
- Standalone use possible
- Programmable by PC

30-804-1302

A wide range of flexible **Sylvac Multiplexers** are available to enable the connection of multiple transfer probes (up to 64) or instruments containing an Opto RS232 output to the Sylvac range of digital display units. Plus other types of digital instruments.

The Sylvac Multiplexing unit is a perfect solution for multi-gauging systems.

| Multiplexer Unit D302 / D304 | |
|---|---|
| **Code No** | **Description** |
| 30-804-1302 | D302 Multiplexer Unit |
| 30-804-1303 | D302 Multiplexer Unit with Analogue Output |
| 30-804-1304 | D304 Multiplexer Unit |
| 30-804-1305 | D304 Multiplexer Unit with Analogue Output |

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# Inductive Probes

## At a Glance

IP65 Electronics

Swiss Precision

## Features

- Inductive measuring probes specially designed for measurement by comparison
- Long life precision bearing guidance (tested up to 13 million cycles)
- Resolution <0.0001 mm
- Repeatability 0.15 µm
- Measuring range +/- 2mm and +/- 5 mm
- High data speed
- Operating temperature +10 to +80°C

30-900-1101

Made with Swiss Precision the **Sylvac inductive (PXi) Probes** are available in 2 versions, spring force or pneumatic force.



The Sylvac inductive (PXi) probes are compatible with D300S V2 and D400S units through M-Bus multiplexer units.

| Inductive Probes | |
|---|---|
| **Code No** | **Description** |
| 30-900-1101 | P2i Inductive Probe - Spring Force |
| 30-900-1102 | P2iP Inductive Probe - Pneumatic Force |
| 30-900-1102P | P2i Inductive Probe - Pneumatic Force |
| 30-900-1111 | P5i Inductive Probe - Spring Force |
| 30-900-1112P | P5i Inductive Probe - Pneumatic Force |
| 30-900-1112 | P5iP Inductive Probe - Pneumatic Force |

# Capacitive Measuring Probes

## At a Glance

**Measuring Range:** 5 to 25 mm

Swiss Precision

## Features

- Capacitive absolute measuring probes, plunger type
- Resolution 0.0001 mm
- Plain bearing or ball bearing, integrated vacuum lifter on P5
- Compatible with all Sylvac digital units
- Excellent linearity
- Interchangeable cables on most types

30-900-1001

30-900-1010

**Sylvac long travel probes** have built-in capacitive transducers which allow them to function for both absolute and comparative measurements.

The Sylvac capacitive probes can be used with all Sylvac digital display units.

| Digital Protractor | |
|---|---|
| **Code No** | **Description** |
| 30-900-1001 | P5 Transducer Probe Sylvac P5 Transducer Probe |
| 30-900-1001B | P5BL Transducer Probe |
| 30-900-1002 | P5BL Transducer Probe |
| 30-900-1003B | P5BVL Transducer Probe |
| 30-900-1006 | P5L Transducer Probe |
| 30-900-1007 | P5BVL Transducer Probe |
| 30-900-1008 | P5VL Transducer Probe |
| 30-900-1010 | P10 Transducer Probe |
| 30-900-1014 | P10L Transducer Probe |
| 30-900-1025 | P25 Transducer Probe |



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# Digital Protractor

## At a Glance

Swiss Precision

Bluetooth

IP54 Electronics

## Features

- 59.5mm Diameter housing that can rotate through 270°
- Large display with colour tolerance status indicator
- Three buttons including central button with favourite function
- Rule length 200mm with other option lengths available
- Measuring Range 1 x 360°, 2 x 180°, 4 x 90°
- Additional Data outputs including proximity and power
- Angular value display

## Read-Out

- 1 minute of arc or 0.01 degrees of arc
- For accurate settings the instrument is fitted with a micro-fine adjustment

## Accuracy

- 4 minutes of arc

## Range

- With the aid of a push button the range can be selected according to the application. i.e 1 x 360°, 2 x 180° or 4 x 90°. Changing from reading of arc minutes to decimal indication by pressing a button.

The **Sylvac Digital Protractor** gives the operator access to a multitude of useful functions within an easy to use format. The instrument's easy to read display, digital output and range of useful accessories mean that it can undertake most angular measuring tasks with great ease.

Large 8.5mm LCD digits for ease of viewing.

Zero setting is made against a fixed stop and internal angles from 40° to 160° inclusive can be measured.

Accessories include an acute angle attachment and a support stand for vertical applications.

| Digital Protractor | |
|---|---|
| **Code No** | **Description** |
| 30-820-2420 | Replacement Blade 200mm |
| 30-820-2430 | Additional Blade 300mm |
| 30-820-2450 | Additional Blade 500mm |
| 30-820-2460 | Support stand for protractor |
| 30-820-2461 | Acute Angle Attachment |
| 30-820-1706 | Sylvac SMART Protractor with Integrated Bluetooth |

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Optical Measurement

# Scan S25T

## At a Glance

- Reduce inspection time
- Reduce CNC downtime
- Reduce investment for control
- Reduce scrappage
- Increase inspection frequency
- Improve process control capabilities
- Instant report generated by one machine
- Use directly on the shopfloor
- Avoid QC bottle necks
- SAVE COSTS

## Features

- High resolution and high accuracy <1µm diameters / <3µm length
- Moving optics with tilt 0-30° for comprehensive thread measurement
- Scan speed 60mm/s, move 100mm/s,
- Full 2D scan of part in 4 seconds!
- High resolution rotary axis 0.0003°
- Compact design W450 x D520 x H590mm (desktop)
- Easy to use yet powerful Reflex-Scan+ software
- New touch pad operator control panel for ease of use on the shop floor (In addition to standard PC)
- New custom thread wizard software
- Automation ready, motorised tailstock, I/O connectivity and pneumatic preparation
- Quick release tooling with ISO MT2 adaptor
- Dynamic LED status bar (classification, status & tailstock force)

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## THE Sylvac Scan S25T is the Latest Addition to Optical Measuring Systems from Sylvac

Using the latest **Sylvac-Scan technology**, this high resolution, high accuracy machine is ideal for rapid measurement of small cylindrical parts up to 26mm diameter and 200mn in length, such as, watch parts, dental implants, bone-screws, automotive, aerospace and general cylindrical parts where inspection time and accuracy matters.

Small yet powerful, the Sylvac-Scan S25T comes equipped with Sylvac's renowned tilt axis, for comprehensive thread measurement, capable of measuring threads with helix angles up to 30°. Delivered automation ready, with a motorised tailstock for automated clamping, quick release tooling, external I/O connectivity and communication protocols. Easy to use, with an all new operator touch screen interface panel, offering intuitive operation directly on the shop floor, with one click automatic measurement and part recognition.

A NEW touch pad operator control panel, enhancing the ease of use for operators directly on the shop floor. The touch pad can be used to, measure parts, review results, print and make programs with Reflex-Click auto measure. No need for operators to interact with the mouse and keyboard of the main PC.

# Scan F60 Range

## At a Glance

- Part measurement from 0.2 – 64mm diameter and up to 500mm length
- Complete 2D smart scan (500mm) in < 5 seconds

## Features

- Concept Reflex SCAN patented for measuring cylindrical workpieces without pre-programming
- Reduce inspection time, scrap and increase productivity
- Exclusive helix tilting system for thread measurements (only on T models)
- Quick return of investment, typically < 6 months
- New software Reflex SCAN+: advanced programming and functions
- Quick release tooling



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# Scan F60 Range

The **Sylvac Scan F60 Range** is designed for use on the shop floor with a new enclosure including a door and safety curtain, integrated calibration master, temperature sensors and LED status light.

The F60 uses the renowned Reflex One Click technology offering part recognition and auto measure, all with one button click.

Quick release tooling for making rapid part change overs, combined with sophisticated software giving immediate visual results, assist in providing essential efficiencies in a busy working environment.

30-902-4065

## Delivery Includes

- Instrument according to technical specifications
- 2 male centers
- Small diamond coated drive centre
- Small rotating (live) centre
- Computer
- Mouse
- Keyboard
- Windows multilingual operating system
- Screen
- Manual
- Reflex-Scan software

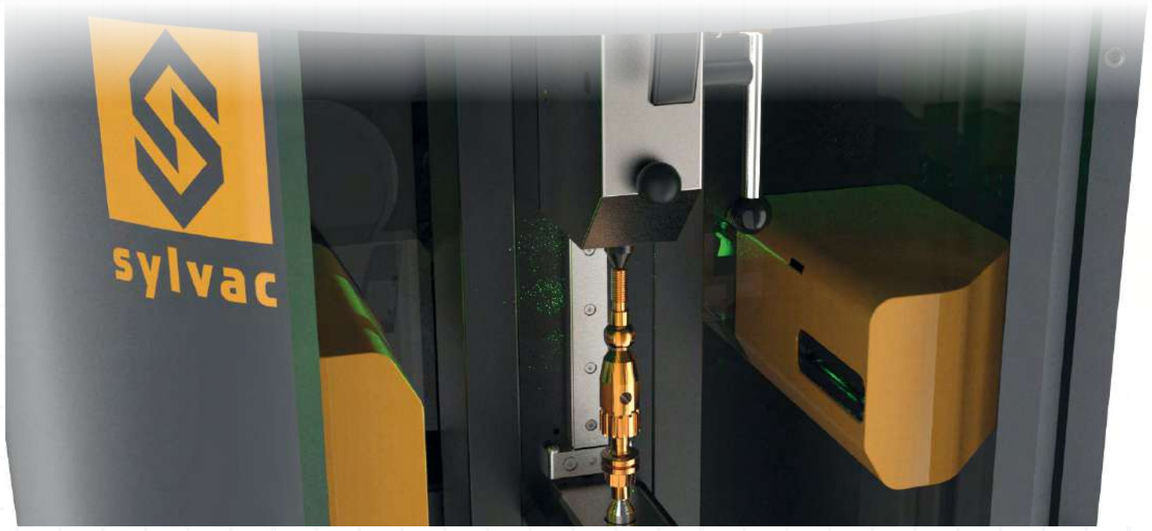


| Functions | | |
|---|---|---|
| **Code No** | **SYLVAC Reflex SCAN** | **SYLVAC Reflex SCAN+** |
| **Automatic Measurement of the Main Features (diameters, lengths, angles, radius)** | YES | YES |
| **Automatic Parts / Program Recognition** | YES | YES |
| **Off-Line Programming** | | Option |
| **Advanced Dust Filtering** | | YES |
| **Statistic View** | | YES |
| **CAD Import** | | YES |
| **Reports Editor** | YES | YES |
| **Data Export** | YES | YES |
| **SPC Basic Calculations** | YES | YES |
| **Script Function** | | Option |
| **SPC Software** | On request | On request |
| **Access Management - Security Lever** | 1 | Multiple |

# Scan F60 Range

| Geometrical Tolerancing - Features Summary | | |
|---|---|---|
| **Code No** | **Sylvac Reflex SCAN** | **Sylvac Reflex SCAN+** |
| **Diameters** | YES | YES |
| **Lengths, Heights, Distances** | YES | YES |
| **Angles, Chamfers** | YES | YES |
| **Radii** | YES | YES |
| **Threads (parallel)** | YES | YES |
| **Threads (root detail, taper, multi-starts, ball screws, worm screws, special threads)** | | YES |
| **Perpendicularity** | | YES |
| **Form Deviation** | | YES |
| **2 and 3D Alignment of the Parts (axis correction)** | YES | YES advanced |
| **Rotational Diameters** | YES | YES advanced |
| **Run Out** | YES | YES |
| **Concentricity** | YES | YES |
| **Roundness** | YES | YES |
| **Cylindricity** | YES | YES |
| **Across Flats** | YES | YES |
| **Straightness** | YES | YES |
| **Interrupted Parts (splines, turbines)** | | YES |







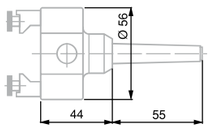

# Scan F60 Range - Accessories



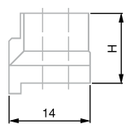
| Technical Specification | | | | |
|---|---|---|---|---|
| **Code No** | | **Morse 2 Sylvac-Scan 52/F60** | **Notes** | **Description** |
| **30-902-6220** | | Morse 1 | External clamping for manual use. Requires 30-902-6360 | Two-jaw gripper |
| **30-902-6231** | H=22 | Yes | In pairs | Raising blocks for external jaws |
| **30-902-6141** | 0÷6mm T=1.5 | Yes | For 30-902-6620 | External jaws, in pairs |
| **30-902-6142** | 0÷6mm T=3 | Yes | For 30-902-6620 | External jaws, in pairs |
| **30-902-6143** | 6÷12mm T=3 | Yes | For 30-902-6620 | External jaws, in pairs |
| **30-902-6144** | 12÷18mm T=6 | Yes | For 30-902-6620 | External jaws, in pairs |
| **30-902-6145** | 18÷24mm T=9 | Yes | For 30-902-6620 | External jaws, in pairs |
| **30-902-6152** | 0÷6mm T=6 | Yes | For 30-902-6620 | External jaws, in pairs |
| **30-902-6153** | 0÷6mm T=15 | Yes | For 30-902-6620 | External jaws, in pairs |
| **30-902-6140** | 6÷12mm T=15 | Yes | For 30-902-6620 | External jaws, in pairs |
| **30-902-6154** | Set of jaws including | Yes | For 30-902-6620 | External jaws, in pairs |
| | 30-902-6141 | | | 30-902-6141 : Jaws dia 0-6mm, T1=1.5mm |
| | 30-902-6142 | | | 30-902-6142 : Jaws dia 0-6mm, T1=3mm |
| | 30-902-6143 | | | 30-902-6143 : Jaws dia 6-12mm, T1=3mm |
| | 30-902-6144 | | | 30-902-6144 : Jaws dia 12-18mm, T1=6mm |
| | 30-902-6145 | | | 30-902-6145 : Jaws dia 18-24mm, T1=9mm |
| **30-902-6251** | | Yes | | Center adapter with a 6mm dia. coupling bore |
| **30-902-6360** | | Yes | | Reduction sleeve. Morse 2 to 1 |
| **30-902-6202** | | Yes | 2 items provided with SYLVAC-SCAN F60 and SYLVAC-SCAN 52 Reflex-Click | Extra male center. 17.78mm |
| **30-902-6161** | | Yes | | Rotation center. Morse 2 |
| **30-902-6162** | | Yes | | Extra male center. 17.78mm |
| **30-902-6380** | | Yes | | Rotation center. Morse 2 |
| **30-902-6204** | | Yes | Requires 30-902-6251 | Female center. 10mm dia. |
| **30-902-6205** | | Yes | Requires 30-902-6251 | Female centre |
| **30-902-6300** | | Yes | | 3-jaw chuck, clamping range 1-15 mm |
| **30-902-6301** | | Yes | Clamping capacity: outside 2-50mm, inside 23-50mm | 3- jaw chuck Morse 2, clamping range 2-50mm |
| **30-902-6210** | | Yes | Diamond Coated | Drive centre, 40mm diameter |
| **30-902-6340** | | Yes | | Female centre, 40mm diameter |

# Scan F60 Range - Accessories

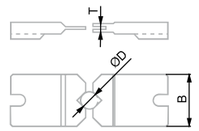
### 30-902-6220



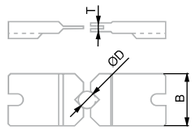

### 30-902-6231




### From 30-902-6141 to 30-902-6140




### 30-902-6154 set of anvils

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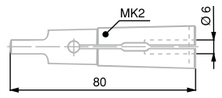


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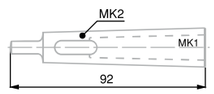
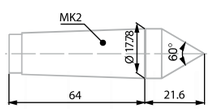
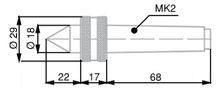


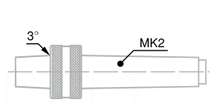

### 30-902-6202



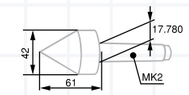

### 30-902-6161



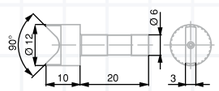

### 30-902-6162




### 30-902-6380




### 30-902-6204



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# Scan S145 & S145L

## At a Glance

- Max part weight 100kg
- Axial measuring speed mm/s 80
- Axial positioning speed mm/s up to 160mm/s

## Features

- Easy to use Reflex Scan software
- One Click Measure facility
- Auto Part Recognition
- Detailed Reporting
- Statistics View
- Data Export
- Optional CAD Import & Offline Programming

## Sylvac-Scan S145 Benefits

- Reduce inspection time
- Reduce CNC downtime
- Reduce investment for control
- Reduce scrappage
- Increase inspection frequency
- Improve process control capabilities
- Instant report generated by one machine
- Use directly on the shopfloor
- Avoid QC bottle necks
- SAVE COSTS

Click here to download **Sylvac Scan S145 - 3D Probe** Catalogue



The **Sylvac Scan S145** has been developed as an optical measuring centre, to measure mid to large size cylindrical parts up to 145mm diameter and 1280mm in length.

The S145 offers fast, accurate and repeatable measurements equipped with quick release tooling and motorised tailstock, making this the ideal solution for full automation.

The Sylvac Scan 145 can be located easily on the shop floor with integrated temperature sensors and on-board calibration master to ensure optimum performance.

Bowers Group | sales@bowersgroup.co.uk | www.bowersgroup.co.uk

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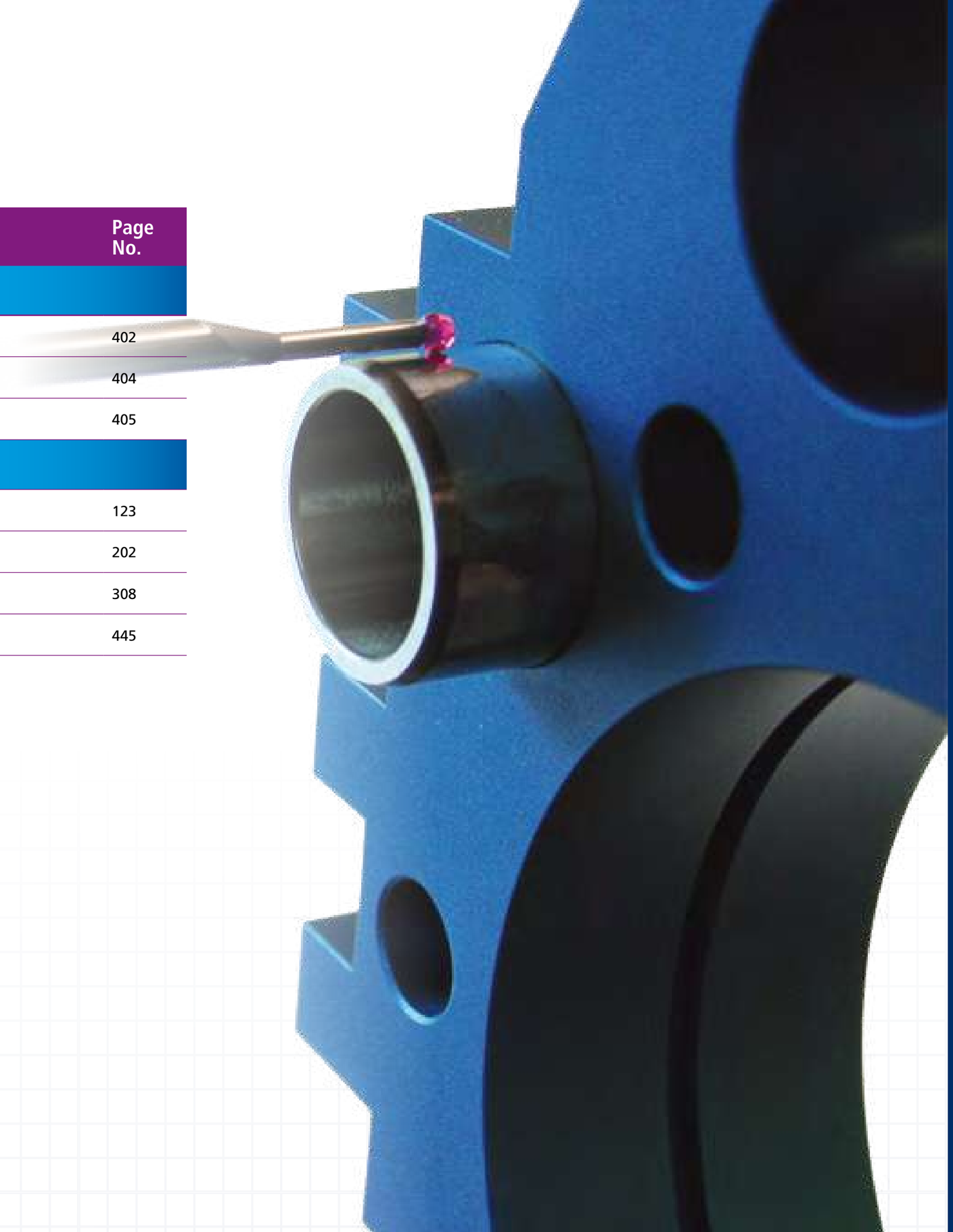

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Height Gauging

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# Hi_Cal Digital Motorised Height Gauge

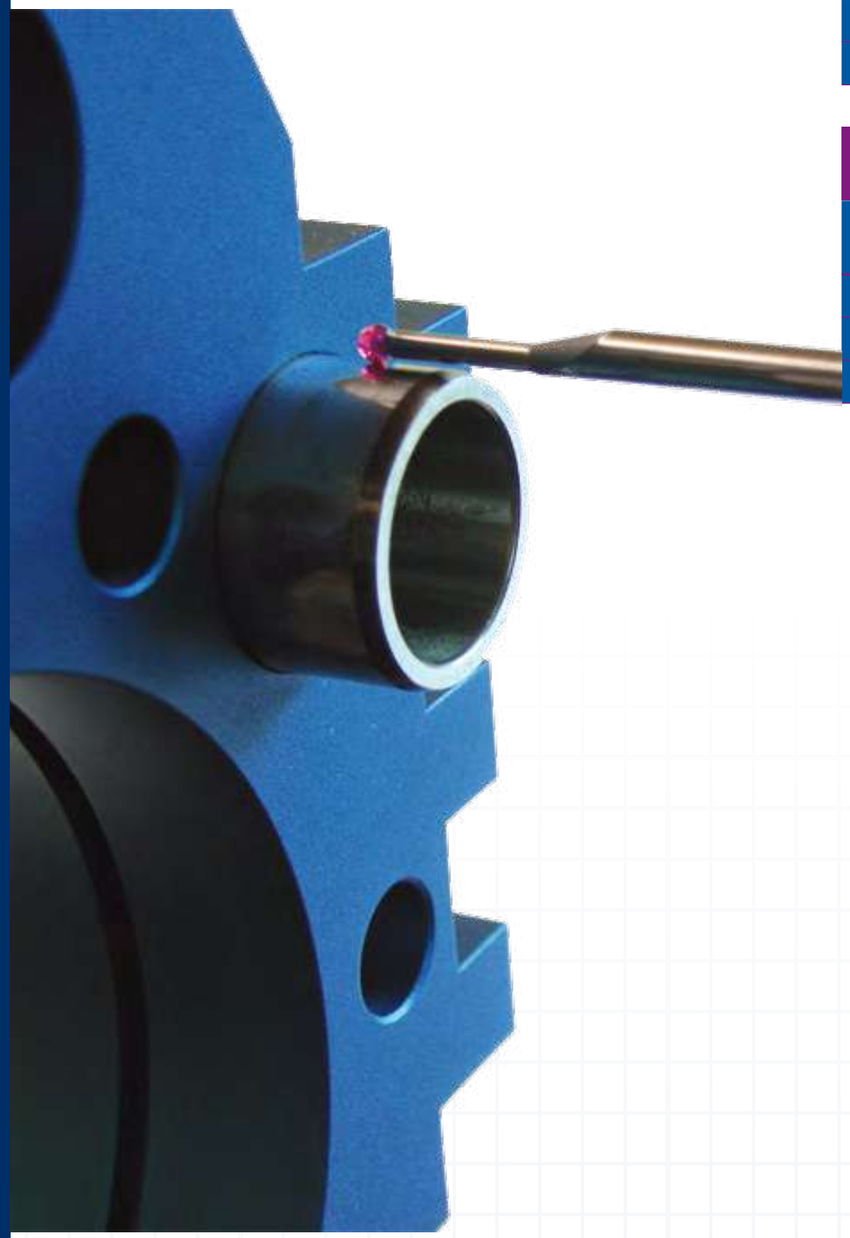
## At a Glance

- Available in three models: 150mm, 300mm and 450mm

## Features

- Motorised carriage with 2 progressive speed ranges
- Light and compact with a small footprint
- Simultaneous display of diameter and centerline
- Measures internal and external diameter, centerline, height, thickness and depth
- Extremely low measuring force
- USB data output or RS232
- Supplied with setting master and standard probe





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# Hi_Cal Digital Motorised Height Gauge

The **Sylvac Hi_Cal Digital Motorised Height Gauge** is perfect for a variety of measuring tasks including step heights, internal/external diameters and centre-line distances.

The height gauge benefits from Sylvac's patented inductive measuring electronics and the latest motorised probing system, to give excellent repeatability and ease of use.

**Hi_Cal Digital Motorised Height Gauge - Metric**

| Code No | Description | Range (mm) | Application Range (mm) | Accuracy (mm) | Repeatability (um) | Height (mm) | Weight (kg) | Resolution (mm) |
|---|---|---|---|---|---|---|---|---|
| 30-830-0156 | Bluetooth Enabled | 150 | 0-155 | 2.5 + L / 175 | 2 | 379 | 3.9 | 0.01 / 0.001 |
| 30-830-0306 | Bluetooth Enabled | 300 | 0-320 | 2.5 + L / 175 | 2 | 529 | 4.6 | 0.01 / 0.001 |
| 30-830-0456 | Bluetooth Enabled | 450 | 0-470 | 2.5 + L / 175 | 2 | 679 | 6.8 | 0.01 / 0.001 |

**Hi_Cal Digital Motorised Height Gauge - Imperial**

| Code No | Description | Range (Inch) | Application Range (inch) |
|---|---|---|---|
| 30-830-0156 | Bluetooth Enabled | 6 | 6 |
| 30-830-0306 | Bluetooth Enabled | 12 | 12 |
| 30-830-0456 | Bluetooth Enabled | 18 | 19 |

# Hi_Cal Digital Motorised Height Gauge - **Accessories**

## At a Glance

- Available in two models: 150mm and 300mm

## Features

- Motorised carriage with 2 progressive speed ranges
- Light and compact with a small footprint
- Simultaneous display of diameter and centerline
- Measures internal and external diameter, centerline, height, thickness and depth
- Extremely low measuring force
- USB data output or RS232
- Supplied with setting master



The **Sylvac Hi_Cal Digital Motorised Height Gauge** is the latest, high specification electronic height gauge available from Bowers.

With further improved accuracy, the Hi-Cal is perfect for a variety of measuring tasks including step heights, internal/external diameters and centre-line distances.

The height gauge benefits from Sylvac's patented inductive measuring electronics and the latest motorised probing system, to give excellent repeatability and ease of use.

| Hi_Cal Digital Motorised Height Gauge - Accessories | |
|---|---|
| **Code No** | **Description** |
| 30-930-2150 | Full accessories set in wooden box - 13 probes and holders |
| 30-930-2151 | Basic accessories set in wooden box - 4 probes and holders |

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# Hi_Gage ONE Height Gauge - **Accessories**

## At a Glance

- Available in 400mm and 600mm capacities

## Features

- Robust conception
- Quick manual displacement
- Locking device
- Fine adjustment
- Favourite function Key



The new robust **Sylvac Hi_Gage ONE Height Gauge** is water and coolant resistant and designed to provide high levels of accuracy and repeatability throughout extended shop floor use.

| Hi_Gage ONE Height Gauge - Accessories | |
|---|---|
| **Code No** | **Description** |
| 30-840-9001 | Ball Probe Ø 8mm |
| 30-840-9002 | Replacement scriber |
| 30-905-2247 | Lever indicator dovetail holder |

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Software & Displays

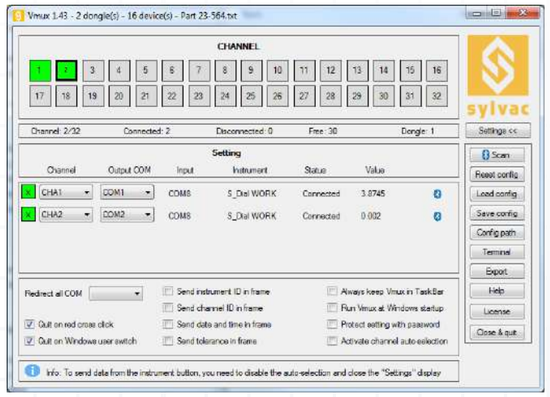
# Anywhere App

This software may be considered a virtual interface which assigns a COM port to instruments connected by wireless Bluetooth® transmission or by USB cable and then redirects the values from these instruments to any Windows software (SPC or other).

This is more basic software than the VMUX and is great if you require the data to be entered into a predesigned template or report.

| Code No | Description |
|---|---|
| Free Download | Vmux LITE (1 instrument) |
| Free Download | Vmux LITE (8 Instrument) |
| 30-981-7161 | Vmux STANDARD |
| 30-981-7100 | USB Dongle |

This can be programmed in sequence to allow a single data trigger to take multiple points and then export the results.




If you have any questions or would like to discuss using the Bluetooth functionality within your application please let us know on 01276 469 866 or sales@bowergroup.co.uk

The gauges can be connected to your phone or tablet using the Sylvac Anywhere app (IOS/Android). This free download allows the user to remotely monitor and preset the gauge and store the data onto the device.

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# D400S Digital Display

## At a Glance

- Digital multifunctional unit with 7'' touch screen display
- Up to 99 input (probes, instruments, I/O) through M-BUS multiplexers

## Features

- Multi-brands compatible through M-BUS multiplexers (possibility to mix the transducer brands)
- Designed for multi-gauging applications
- Automatic detection of connected instruments
- Storage of up to 128 different parts configurations
- Up to 30,000 measurements can be saved by configuration
- Display of up to 32 channels simultaneously (on the same screen)
- Single or multi-gauging display mode
- SPC functions (run chart, pareto, histogram with Gaussian curve, etc.)
- PLC functions and PLC communication protocols
- Formula editor, free combination between all instruments connected to the M-BUS
- Configurable by PC
- Ethernet connection
- Footpedal input
- User friendly interface
- Very robust construction

Multifunctional unit for connecting up to 99 Sylvac instruments of different makes via M-BUS modules (the unit itself has no inputs for the instruments).

Connected Metrology

**D400S Digital Display**

| Code No | Weight (kg) | Size (mm) | Output |
|---|---|---|---|
| 30-804-2400 | 1.3 | 200 x 143 x 151.6 | Mini-USB / RS232 |

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## Visit our Website

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# D300S V2 Digital Display

## At a Glance

- Digital display with 8.5" touch screen IP65 Rated
- 6 USB inputs for Sylvac instruments

## Features

- Optional embedded inputs for Sylvac probe, 2, 4 or None
- Capability to connect transducers and instruments from other manufacturers using M-Bus
- Automatic detection of connected instruments
- Maths functions for each channel
- Switchable and configurable interface / display
- Compatible with Bluetooth instruments (USB Dongle required)

The **D300s V2** digital display from Swiss Metrology manufacturer, Sylvac is able to display the absolute displacement position of Sylvac's extremely accurate capacitive and Inductive transducer probes, to a resolution of 0.1um, as well as now being capable of connecting probes and instruments from other manufacturers due to the introduction of the new M-Bus input.

The D300S has a highly visible 8.5" LCD touch screen digital display and is capable of accepting readings from up to 64 instruments via USB, RS232 and various other types of transducer probes from multiple manufacturers at the same time. The D300S can memorise previously input configurations and values and can recall both individual or group preset values. Each of the D300s' 64 channels has a separate maths function, whilst all of the channels have switchable numeric / analogue and statistical displays.

Connected Metrology

**D300S V2 Digital Display**

| Code No | Description | Output |
|---|---|---|
| 30-804-1300 | D300S Display Unit 2 Probes 6USB | USB / RS232 Output / LAN |
| 30-804-1310 | D300S Display Unit MBUS 6USB | USB / RS232 Output / LAN |
| 30-804-1320 | D300S Display Unit 4 Probes 6USB | USB / RS232 Output / LAN |

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# D70S/H/I Digital Displays

## At a Glance

- Large 4.3'' colour touch screen with intuitive functions
- Compact display units for measuring probes

## Features

- Extremely robust aluminium housing
- Display in different modes (possibility to display the 2 values simultaneously)
- Resolution up to 0.0001 mm (0.1 µm) and 0.00001 mm (0.01 µm) for version D70H
- Extensive choice of functions including MIN/MAX/DELTA and channel combinations
- Connector for optional pedal 904-4101 (D70S) and 904-4102 (D70H and D70I)
- Powered by USB cable, the unit is detected as an «external keyboard» when connected to the computer, allowing
- for easy data transfer.
- USB and RS232 data outputs
- Connector for Mbus
- IP54 liquid-proof front panel for workshop use

The Sylvac D70S/H/I has 2 probe inputs that provide multiple probe combinations, high resolution touch screen operation and the option of a simple user display or double display with an additional analogue bar-graph.

Available in 3 versions with 2 probe inputs:

D70H = for HEIDENHAIN touch probes type ST/MT

D70I = for SYLVAC inductive probes

D70S = for SYLVAC capacitive probes

30-804-2070

30-804-2071

**D70S/H/I Digital Displays**

| Code No | Description |
|---|---|
| 30-804-2070 | D70S digital display 0.0001mm resolution |
| 30-804-2071 | D70I digital display 0.0001mm resolution |
| 30-804-2072 | D70H digital display 0.0001mm resolution |

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# D62S Digital Display

## At a Glance

- Large 4.3'' colour touch screen with intuitive functions
- New table display unit for digital P12D measuring probes

## Features

- Shockproof construction
- 2 inputs with M8 connectors type
- Automatic detection and display of the channel used
- Resolution up to 0.00001 mm (0.01 µm)
- Central button with selectable favourite function
- Wide range of functions, including MIN/MAX/DELTA
- Connector for optional pedal 904-4101
- USB and RS232 data outputs
- IP54 liquid-proof front panel for workshop use
- Advanced version with battery, Bluetooth® system and tolerance status indication via integrated LED bar

The new Sylvac digital display unit is perfect for use with digital P12D measuring probes and made of sturdy, shockproof construction.

Featuring 2 inputs with connectors type M8, the large 4.3'' colour touch screen is intuitively functional with a resolution up to 0.00001 mm (0.01 µm).

The table display unit features a central button with selectable favourite function and a wide range of functions, including MIN/MAX/DELTA. With both USB and RS232 data outputs, the unit boasts an IP54 liquid-proof front panel suitable for workshop use. The advanced version includes battery, Bluetooth® system and tolerance status indication via integrated LED bar.

Possible applications include the connection of probes P12D to a D62S, and the ability to send data on the Sylvac Anywhere App for smartphones.

**D62S Digital Display**

| Code No | Description |
|---|---|
| 30-804-1062 | D62S Display Unit, 2 inputs M8 |
| 30-804-1063 | D62S Advanced Display Unit, Bluetooth |

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> We have used Bowers Group before for a lot of different measuring devices we own, so we knew we were in good hands. They even loaned us a smaller unit for us to trial as they were confident that we would be impressed by the quality, accuracy and ease of use of the Trimos height gauge.
>
> **L Michael Horsfall - Production Director - Chelburn Precision**

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TRIMOS

Trimos

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TRIMOS

Calibration

# Horizon
## Calibration Series

### At a Glance

**Range:** 350mm/13" - 3050mm/120"

### Features

- Ideal for use in laboratory and workshop
- New ergonomic concept
- Measuring carriage with fine adjustment

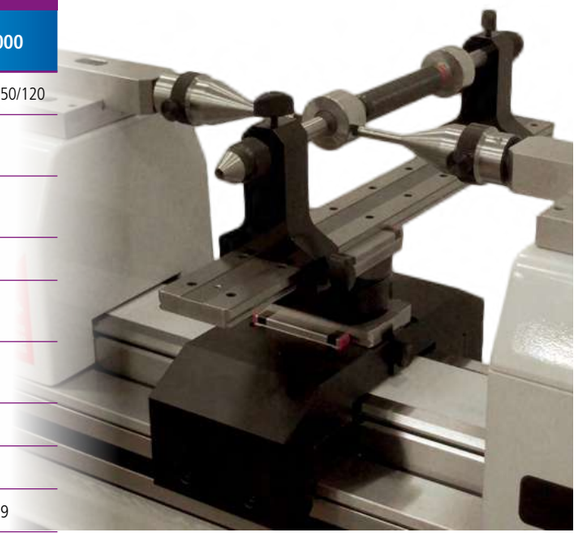
The **Horizon Calibration HC3, HC4 and HC5** instruments fulfil today's requirements of high accuracy quality control equipment in production areas and take into consideration EN ISO 9000 standards.

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

All are equipped with a standalone PC, TFT screen and Trimos-WinDHI software. The System is also fully compatible with QMSoft, for those that require a gauge database solution.

Trimos HC3

| HC3 | | | | | |
|---|---|---|---|---|---|
| **Code No** | **500** | **1000** | **1500** | **2000** | **3000** |
| **Range (mm/inch)** | 550/20 | 1050/40 | 1550/60 | 2050/80 | 3050/120 |
| **Max. Permissable Errors, B MPE [1] (µm)** | 0.6+L/1200 | | | | |
| **Repeatability, RMPE (2s) (µm)** | 0.1 | | | | |
| **Max. Resolution (mm)** | 0.00001 | | | | |
| **Adjustable Measuring Force (N)** | 0.3 [2,3] | 0.5 [2,3] | 1 - 12 [3] | | |
| **Max. Travel Speed (mm/s)** | 4000 | | | | |
| **Operating Temperature (˚C)** | +10 - +40 | | | | |
| **Relative Humidity (%)** | 20 - 80 | | | | |
| **Weight (kg)** | 94 | 123 | 152 | 181 | 239 |



| HC4 | | | | | |
|---|---|---|---|---|---|
| **Code No** | **500** | **1000** | **1500** | **2000** | **3000** |
| **Range (mm/inch)** | 550/20 | 1050/40 | 1550/60 | 2050/80 | 3050/120 |
| **Max. Permissable Errors, B MPE [1] (µm)** | 0.3+L/2000 | | | | |
| **Repeatability, RMPE (2s) (µm)** | 0.1 | | | | |
| **Max. Resolution (mm)** | 0.00001 | | | | |
| **Adjustable Measuring Force (N)** | 0.3 [2,3] | 0.5 [2,3] | 1 - 12 [3] | | |
| **Max. Travel Speed (mm/s)** | 4000 | | | | |
| **Operating Temperature (˚C)** | +10 - +40 | | | | |
| **Relative Humidity (%)** | 20 - 80 | | | | |
| **Weight (kg)** | 94 | 123 | 152 | 181 | 239 |

| HC5 | | | |
|---|---|---|---|
| **Code No** | **300** | **500** | **1000** |
| **Range (mm/inch)** | 350/13 | 550/20 | 1050/40 |
| **Max. Permissable Errors, B MPE [1] (µm)** | 0.1+L/2000 | 0.15+L/2000 | |
| **Repeatability, RMPE (2s) (µm)** | 0.05 | | |
| **Max. Resolution (mm)** | 0.00001 | | |
| **Adjustable Measuring Force (N)** | 0.3 [2,3] | 0.5 [2,3] | 1 - 12 [3] |
| **Max. Travel Speed (mm/s)** | 4000 | | |
| **Operating Temperature (˚C)** | +10 - +40 | | |
| **Relative Humidity (%)** | 20 - 80 | | |
| **Weight (kg)** | 78 | 94 | 123 |

1) Values determined at a temperature of 20± 0.2˚C and a relative

2) With electric probe

3) Force display in the WinDHI software window only

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# Horizon Granite

## At a Glance

**Range:** 3000mm/118" - 8000mm/315"

## Features

- Ideal for use in the workshop area
- Very simple manipulation
- Precise checking and setting made easy
- Wide selection of accessories

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The **Horizon Granite** responds to the current requirements for quality inspection in manufacturing areas. They allow a quick and precise checking and setting process.

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

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

The Horizon Granite instrument exists from 3000 to 800mm. A wide selection of easy interchangeable accessories completes the application possibilities.

| Horizon Granite | | | | | |
|---|---|---|---|---|---|
| **Code No** | **HG3000** | **HG4000** | **HG5000** | **HG6000** | **HG8000** |
| **Range (mm/inch)** | 3000/118 | 4000/157 | 5000/196 | 6000/236 | 8000/315 |
| **Max. Permissable Errors** [1] **(µm)** | 0.7+L/750 | | | | |
| **Repeatability (2s) (µm)** | 0.5 | | | | |
| **Resolution (mm/inch)** | (0.01/0.001) | (0.001/0.0001) | (0.0001/0.00001) | | |
| **Max. Displacement Speed (mm/s)** | 2000 | | | | |
| **Measuring Force (N)** | 3 | | | | |
| **Interfaces** | RS232/USB | | | | |
| **Operating Temperature (°C)** | +10 - +40 | | | | |
| **Storage Temperature (°C)** | +10 - +40 | | | | |
| **Relative Humidity (%)** | 20 - 80 | | | | |
| **Weight (kg)** | 1060 | 1980 | 3200 | 3700 | 4600 |

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

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TRIMOS

# Alesta N Setting Bench

## At a Glance

**Application Range External:**
300mm/12" - 1000mm/40"

**Application Range Internal:**
40 - 340/ 1.6 - 13
40 - 1040/ 1.6 -41.5

## Features

- Ideal for use in the workshop area
- Very simple manipulation
- Motorized carriage movement
- For inside, outside, 2 and 3 points instruments
- No need to buy and recalibrate gauge blocks and rings
- In-house calibration of instruments
- Time for setting operation reduced by 90%
- Connectivity and interface via USB and ETHERNET
- Adapters of ALESTA version compatible
- List of preset values for recall - optional bar code scanner



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# Alesta N Setting Bench

Motorized **Alesta N** is the ideal instrument for the control and calibration of measuring means with variable dimensions. Its high precision makes it a top-of-the-range model for workshop or laboratory use. It is the perfect answer to current needs in the manufacturing field.

This new model is based on the already well-known Trimos Horizon Setting line, but a new electronics and innovative colour display have been incorporated. A modern and ergonomic design, as well as great ease of use, guarantee optimal and high-productivity measuring results.

Trimos proposes a complete range of instruments. All measuring ranges are direct, which means that the whole measuring range is available without adjustment or intermediary re-calibration. A large selection of easily interchangeable accessories completes the possible applications and guarantees a correct positioning of the instruments to be calibrated.

Perfect for setting and zeroing gauges in the shopfloor, they can also be used as a calibration machine in compliance with ISO standards. The adapters ensure objective and precise setting of gauges in just a few seconds.

| Alesta N Setting Bench | | | |
|---|---|---|---|
| **Code No** | **300** | **600** | **1000** |
| **Application Range - External Measurements (mm / inch)** | 300 / 12 | 600 / 23 | 1000 / 40 |
| **Application Range - Internal Measurements (mm / inch)** | 40 - 340 / 1.6 - 13 | 40 - 640 / 1.6 - 23 | 40 - 1040 / 1.6 -41.5 |
| **Max. Permissable Errors [1] (µm)** | 1.5 + L mm / 500 | | |
| **Repeatability (2s) (µm)** | 0.8 | | |
| **Resolution (mm / inch)** | 0.0001 / 0.000001 | | |
| **Interfaces** | ETHERNET and USB | | |
| **Operating Temperature (°C)** | 10 ÷ +35 | | |
| **Temperature Storage (°C)** | -10 - +40 | | |
| **Weight (kg)** | 80 | 140 | 360 |

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

TRIMOS

# Mini-Horizontal TELS

## At a Glance

**Application Range Internal:**
from 10 - 100 mm
**Application Range External:**
from 0 - 100 mm





# Mini-Horizontal TELS

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

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

The reliable concept is easily suitable for the use in workshop environment. An electronic probe and digital display unit or simply a dial indicator can be applied to perform all measurements. The selection of the measuring system depends on the required accuracy.

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

| Mini-Horizontal TELS | |
|---|---|
| **Absolute Measuring Range (mm)** | 25 |
| **Application Range - External Measurements (mm)** | 100 |
| **Application Range - Internal Measurements (mm)** | 100 |
| **Max. Permissible Errors (According to Measuring Probe) [1] (µm)** | 1.5 |
| **Repeatability, RMPE (2s) (µm)** | 0.1 |
| **Resolutions (mm / inch)** | 0.00001 |
| **Temperature of Storage (°C)** | -10 - + 40 |
| **Measuring Force (Adjustable) (N)** | 3 - 8 |
| **Weight (kg)** | 15 |

[1] Instruments with intergrated measuring systems. Values valid at temperature of 20 ± 0.2°C and a relative humidity of 50 ± 5%

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# THV Mini Horizontal Calibration Machine

## At a Glance

**Application Range Internal:**
100 mm
**Application Range External:**
100mm

## Features

- Ideal for use in a clean space in the workshop
- ISO 9000 certified
- Easy to use
- Large accessories range
- According to the application, can be set up to 90° horizontally or inclined

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# THV Mini Horizontal
## Calibration Machine

The flexible **Trimos THV Calibration Machine** is capable of undertaking a wide range of internal and external calibration routines, belying its relatively inexpensive price. This flexible instrument can be supplied fitted with a variety of probes, scales and readouts, including Heidenhain units, dependent on the customers required accuracy specification.

The large range of ingenious, quick-fit accessories available for the THV, ensures great versatility of application. Simplicity of design and ease of use of the instrument allows rapid and accurate calibration of a wide variety of measuring instruments.

The basic instrument is supplied with a set of 6.5mm diameter carbide anvils for external measurements and a set of anvils for internal measurements, minimum diameter 10mm. Smaller diameters available on request. Resolution is dependant upon the display unit.

| THV Mini Horizontal Calibration Machine | |
|---|---|
| **Absolute Measuring Range (mm)** | 50 |
| **Application Range - External Measurements (mm)** | 100 |
| **Application Range - Internal Measurements (mm)** | 100 |
| **Max. Permissable Errors[1] (µm)** | 0.2+L mm/250 |
| **Repeatability (2s) (µm)** | 0.1 |
| **Resolutions (depending on display unit) (mm/inch)** | 0.1 - 0.00001 (.0001 - .0000001) |
| **Measuring Force (Adjustable) (N)** | 0 - 4 |
| **Operational Temperature (°C)** | +10 - +40 |
| **Temperature of Storage (°C)** | -10 - +40 |
| **Weight (kg)** | 22 |

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

# Horizontal Setting Measuring Bench

## At a Glance

**Range: 500mm -** 3050mm

## Specially Designed for Setting and Checking

- 2 point bore gauges
- 2 point internal and external comparative measuring equipment
- Dial indicators
- Calipers
- Setting of 2 point internal micrometers
- Checking of ring gauges
- Checking of plug gauges
- Checking of thread plug gauges
- Checking of snap gauges
- Checking of external micrometers

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**Horizontal Setting**

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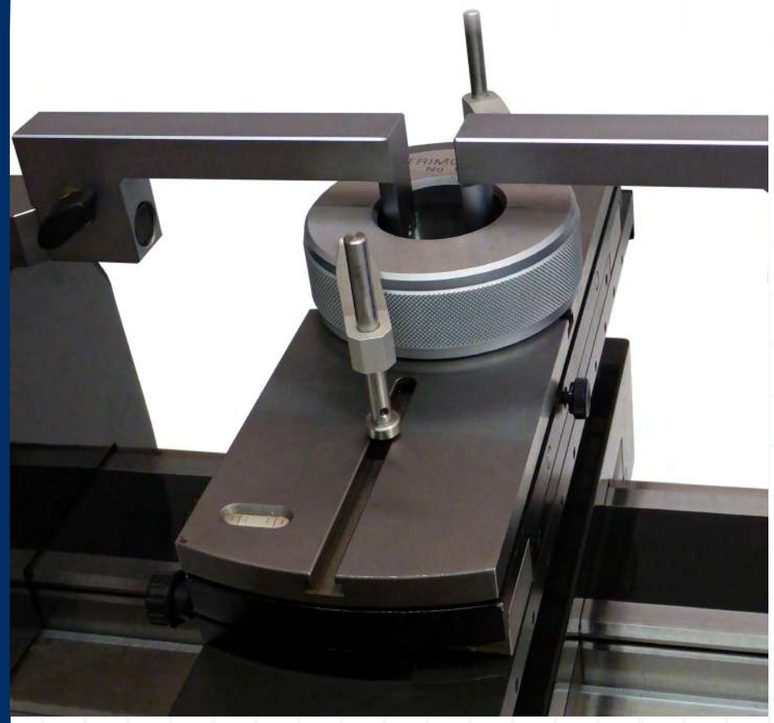
**Horizon Setting HS4, HS5 and HS6** are the ideal instruments for the control and calibration of measuring means with fixed and variable dimensions. Its high precision and finishing level position it as a top of the range model for workshop or laboratory use. It is the perfect answer to current needs in the manufacturing field.

This new model is based on the already well known Trimos Horizon Premium, but a new electronics and innovative display are incorporated. A modern and ergonomic design, as well as a great ease of use guarantee optimal and high productivity measuring results.

Trimos proposes a complete range of instruments from 550mm to 3050mm. All measuring ranges are direct, which means that the whole measuring range is available without adjustment or intermediary re-calibration. A large selection of easily interchangeable accessories completes the possible applications and guarantees a correct positioning of the instruments to be calibrated.

## Which Horizonal Setting should I choose?

- If you're looking for a fully manual setting machine, the HS4 is for you
- For more flexibility, the HS5 can be used manually or with its in-built motor
- If you're looking for higher levels of repeatability and a fine adjust carriage, the manual HS6 will suit your needs



Trimos HS4

Trimos HS5

Trimos HS6

# Horizontal Setting Measuring Bench

| Horizontal Setting Measuring Bench - HS4 | | | | | |
|---|---|---|---|---|---|
| **Code No** | **HS4-500** | **HS4-1000** | **HS4-1500** | **HS4-2000** | **HS4-3000** |
| **Measuring Range (mm / inch)** | 550 / 20 | 1050 / 40 | 1550 / 60 | 2050 / 80 | 3050 / 120 |
| **Maximum Permissable errors $E_{MPE}$ (µm)** | 0.7 - L/1000 | | | | |
| **Repeatability, $R_{MPE}$ (2s) (µm)** | 0.5 | | | | |
| **Maximal Resolution (mm / inch)** | 0.0001 / 0.000001 | | | | |
| **Measuring Force (0 Setting) (N)** | 15 | | | | |
| **Interfaces** | USB / RS232 | | | | |
| **Weight (kg)** | 94 | 123 | 152 | 181 | 239 |
| **Max. Displacement Speed (mm / s)** | 1500 | | | | |
| **Operating Temperature (°C)** | +10 ÷ +40 | | | | |

| Horizontal Setting Measuring Bench - HS5 | | | | | |
|---|---|---|---|---|---|
| **Code No** | **HS5-500** | **HS5-1000** | **HS5-1500** | **HS5-2000** | **HS5-3000** |
| **Measuring Range [1] (mm)** | 550 | 1050 | 1550 | 2050 | 3050 |
| **Maximum Permissable errors [2] (µm)** | 0.7 - L/1000 | | | | |
| **Measuring Range Motorised (mm)** | 0.8mm (0, -1mm) | | | | |
| **Repeatability (2s) [2] (µm)** | 0.5 | | | | |
| **Maximal Resolution (mm)** | 0.0001 | | | | |
| **Measuring Force (0 Setting) (N)** | 15 | | | | |
| **Interfaces** | USB / RS232 | | | | |
| **Weight (kg)** | 94 | 123 | 152 | 181 | 239 |
| **Max. Displacement Speed (mm / s)** | 1.5 | | | | |
| **Operating Temperature (°C)** | +10 ÷ +40 | | | | |
| **Operation Humidity Limit (%)** | 20 - 80 | | | | |

[1] May vary according to accessory used.
[2] The values have been measured at a temperature of 20 ± 0.2°C and a relative humidity of 50 ± 5%



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# Horizontal Setting Measuring Bench

| Horizontal Setting Plus - HS6 | | | | | |
|---|---|---|---|---|---|
| **Code No** | **HS6-500** | **HS6-1000** | **HS6-1500** | **HS6-2000** | **HS6-3000** |
| **Measuring Range [1] (mm / inch)** | 550 / 20 | 1050 / 41 | 1550 / 61 | 2050 / 80 | 3050 / 120 |
| **Maximum Permissable errors [2] (µm)** | 0.7 - L (mm) /1000 | | | | |
| **Repeatability (2s) (µm /inch)** | 0.2 (.000008) | | | | |
| **Maximal Resolution (mm / inch)** | 0.0001 / 0.0001 | | | | |
| **Measuring Force (N)** | 3 | | | | |
| **Max. Displacement Speed (mm / s)** | 1500 | | | | |
| **Operating Temperature (°C)** | +10 ÷ +40 | | | | |
| **Operating Humidity (°C)** | 20 - 80 | | | | |
| **Weight (kg)** | 94 | 123 | 152 | 181 | 239 |

# Labconcept Nano
## Calibration Machine

### At a Glance

**Range:** 350mm to 11000mm

### Features

- Unequaled high level of accuracy: 0.07µm + L/2000mm
- Exceptional repeatability: 0.03µm
- Motorised measuring carriage, X axis, selection of speed by software
- Motorised universal measuring table, Y/Z axis. 60Kg range
- Measuring force (0-12N) and locking of measuring anvil performed by software
- Integrated temperature compensation system (2 sensors)
- Integrated gauge management software (optional)

Have you seen our video
**Labconcept Nano**

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**The Labconcept Nano is a new reference in the field of dimensional metrology**

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

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

| Labconcept Nano Calibration Machine | | | |
|---|---|---|---|
| **Code No** | **20-32350N** | **20-32600N** | **20-321100N** |
| **Absolute Measuring Range** [1] **(mm / inch)** | 350 / 13 | 1050 / 41 | 1550 / 61 |
| **Application Range (mm / inch)** | 0 - 350 / 13 | 0 - 600 / 23 | 0 - 1100 / 43 |
| **Maximum Permissable errors** [2] **(µm)** | 0.07 - L (mm) / 2000 | | |
| **Maximal Resolution (mm / inch)** | 0.000001 / 0.0000001 | | |
| **Repeatability (2s)** [2] **(µm)** | 0.03 | | |
| **Measuring Force (Adjustable by Software) (N)** | 0 - 12 | | |
| **Measuring Force (N)** | 3 | | |
| **Operating Temperature (°C)** | +15 - 35 | | |
| **Stocking Temperature (°C)** | -10 - 50 | | |
| **Relative Humidity (%)** | 20 -80 | | |
| **Weight (kg)** | 350 | 420 | 500 |

| Measuring Table with Motorized Y and Z Axis | |
|---|---|
| **Z Axis, Displacement Range** [3] **(mm)** | 80 |
| **Y Axis, Displacement Range** [3] **(mm)** | 50 |
| **X Axis, Floating Movement (mm)** | ± 10 |
| **Angle of Rotation Y φ (°)** | ± 1.5 |
| **Angle of Inclination Z φ (°)** | ± 4 |
| **Maximum Weight of Parts (kg)** | 60 |

1) May vary according to accessory used.

2) Values valid at a temperature of 20 ± 0.2 °C and relative humidity of 50 ± 5%.

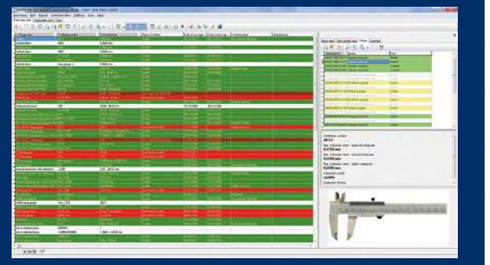
3) Both axes have an integrated measuring system.

# QMSOFT - Gauge Database Management Software

## Features

The systematic inspection of all measuring tools and gauges in your company is essential for your quality assurance system. This is also one of the fundamental requirements of an ISO 9000 certified system. This means for your company:

- The gauge stock including all related information about stock-taking, gauge locations and calibration records has to be managed.
- The use of gauges has to be controlled and the adherence to recalibration periods must be guaranteed.
- The calibration process has to be carried out in a correct, repeatable and provable way.



QMSOFT® gauge management meets the growing requirements of our customers and keeps pace with the current developments of operating systems because we are constantly developing the existing software systems in order to offer you system stability, user-friendliness, interface flexibility and security.

Includes DIN, ANSI/ASME and British Standards.

Recommended software for our range of Trimos Horizontal Calibration Machines.

- Gauge management and gauge inspection are integrated in the system with equal importance
- Specially developed modules make possible the calibration of all common gauges using any national, international, or user defined standard. It is not therefore necessary to define an inspection procedure for each gauge type
- Extensive support for directly connected measuring devices (list enclosed)
- All normal sizes and tolerances for gauges are calculated by the program system
- Inspection certificates may be customized for individual presentation
- QMSOFT® uses a variety of special modules to provide you with optimal support for inspecting various kinds of measuring tools and gauges. Each of these modules allows you to effectively carry out and record a complete inspection. Thus you are able to build a system according to your individual wishes.

**QMSOFT - Gauge - Database Management Software**

| Code No | Description |
|---|---|
| 20-SQ8PLAIN | Plain Gauge Calibration Module, QM-PLAIN |
| 20-SQ8BLOCK | Gauge Block Calibration Module, QM-BLOCK |
| 20-SQ8THREAD | Screw Thread Calibration Module, QM-THREAD |
| 20-SQ8MANP | Gauge Management database Module QM-MANAGE Professional |
| 20-SQ8DIAL | Dial Gauge Calibration Module, QM-DIAL |
| 20-3256 | Caliper Calibration Module, QM-CALIP |
| 20-SQ8PIN | Pin Gauge Calibration Module, QM-PIN |
| 20-3248 | Tapered Screw Thread Module, QM-TAPERTHREAD |

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For more information please click here

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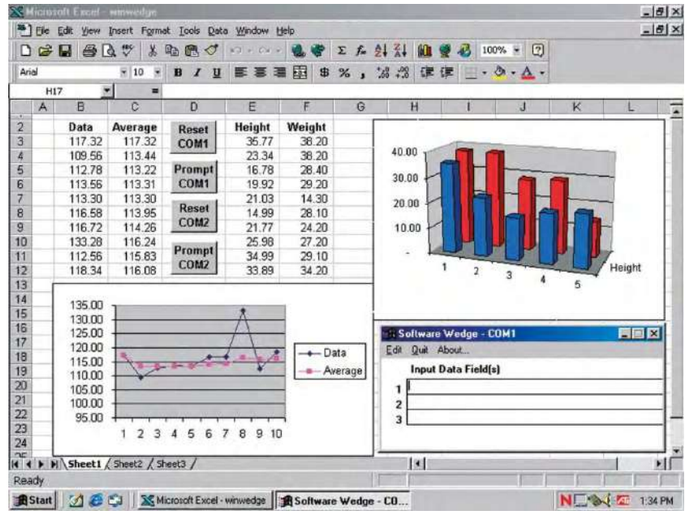
# WinWedge - Data Collection 32 BIT Software

## Features

- A powerful serial data analyser feature allows you to preview serial data and debug all serial communications problems
- Data transfer as keystrokes directly into any other application program
- Data filtering capabilities let you selectively filter out non-numeric characters from any field in your input data or ignore specific fields altogether

Supports all COM ports. Install on up to 32 serial ports on a PC for data collection from many devices simultaneously




**WinWedge - Data Collection 32 BIT Software**

| Code No | Description |
|---|---|
| 30-1522 | Software Wedge-Standard (32 & 64 Bit) |
| 30-1524 | Software Wedge-Pro (32 & 64 Bit) |

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TRIMOS

Portable Measurement

# TRIMOS
# A-Line Portable Measuring Arm

## At a Glance

- With a measuring range of 1,3 meters (smallest) up to 9 meters (largest)

## Features

- The most precise range
- Portable, Wireless with Bluetooth & battery
- No special arrangements required
- Autonomy due to the integrated wireless system
- Fixed or interchangeable probe
- Fixed counterweight for a perfectly stable and durable balance
- Buttons mounted on the probe for an improved measuring sensitivity



**Trimos A-line portable** articulated measuring arms allow extremely easy and accurate 3D measurements.

The A-line arms certified according to ISO10360-12 or ISO10360-02 standard allow quality control, inspection and verification of small to large size parts. Thanks to an extremely stable carbon structure, all models are light and easy to operate. With a measuring range of 1,3 meters (smallest) up to 9 meters (largest), the A-Line has a size to suit you. You can choose between the A3, A5, A6 depending on your application needs.

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# A-Line Portable Measuring Arm

## Trimos A3

The small 6 axis portable arm for extremely easy and accurate 3D measurements. The most precise arm from the A-Line range.

The 6-axis configuration arm is available at 1.3m and 1.8m measuring range. The carbon fiber tubes and aluminium mount base allow the A3 arm an extremely stable and light structure. The A3 provides an excellent handling experience due its mass counterbalance.

## Trimos A5

If you need to inspect a big and heavy part, don't move it, take the A5 arms and get your measurements done quickly and with great flexibility.

The A5 models are the 6 axis arms configurations offering the largest range of the market, from 1.8 m to 9.0 m measuring range. Its design is made to be adaptable in every environment and compatible with a huge variety of fixtures.

Its lateral mechanical spring-loaded system provides a tireless balance of the arm while offering a comfortable handling experience.

The A5 arm can be provided with a wireless Bluetooth device, batteries or the two options together for complete wireless portability.

## Trimos A6

The A6 is a 7 axis arm used in combination with the Laser Scanner ScanSurf for point cloud inspection or reverse-engineering.

Its design is the same as the A5 and offers the same measuring ranges.

However, the probe is a pistol handled with integrated buttons for a more comfortable scanning process.

20-A3-1800

**Trimos A-Line Portable Measuring Arm**

| Code No | Range (mm) | Accuracy (mm) | Repeatability (mm) | Weight (Kg) |
|---|---|---|---|---|
| 20-A3-1300 | 1300 | 0.015 (Volumetric) | 0.008 | 9.5 |
| 20-A3-1800 | 1800 | 0.018 (Volumetric) | 0.008 | 10.4 |
| 20-A5-1800 | 1800 | 0.02 (Volumetric) | 0.012 (Point) | 8.4 |
| 20-A5-2500 | 2500 | 0.026 (Volumetric) | 0.016 (Point) | 8.9 |
| 20-A5-3200 | 3200 | 0.036 (Volumetric) | 0.02 (Point) | 9.3 |
| 20-A5-4000 | 4000 | 0.046 (Volumetric) | 0.024 (Point) | 10 |
| 20-A6-1800 | 1800 | 0.027 (Volumetric) | 0.017 (Point) | 8.9 |
| 20-A6-2500 | 2500 | 0.034 (Volumetric) | 0.021 (Point) | 9.4 |
| 20-A6-3200 | 3200 | 0.045 (Volumetric) | 0.026 (Point) | 9.8 |
| 20-A6-4000 | 4000 | 0.056 (Volumetric) | 0.03 (Point) | 10.5 |

# C-Line Portable CMM

## At a Glance

- Working volume of X & Y of 700mm and Z 250mm

## Features

- Small footprint and very portable
- High precision measurement using Renishaw TP20 probe
- Ease of use thanks to the Aberlink software
- Fully CNC combined with manual operation
- Designed for workshop operation
- Ethernet communication or wireless (WiFi / Bluetooth)
- Non Bluetooth is available upon request

Have you seen our video **Trimos C- Line Portable CMM**

## Visit our Website

For more information please click here

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# C-Line Portable CMM

The **Trimos C-Line** is the world's first truly portable Coordinate Measuring Machine (CMM) and part of the new Trimos 3D product group along with the recently introduced Trimos Portable Arm. The C4 is only 13.5KG so allows you to take the machine right to the parts in the manufacturing process for inspection. The C4 is battery operated and available with Bluetooth for full portability.

Ease of use is provided with and intuitive icon-based touch screen mounted on the machine. Optional Aberlink Software is available that will assist in CAD programming and traditional CMM style reporting.

Software: The C-Line is delivered standard with the ControlC software, which allows you to perform many types of measurements: distance, circle, plane, line, point... To take full advantage of the C4, we advise the optional Aberlink software. Aberlink is a simple and easy to use 3D software that provides clear and precise reports.

20-C4-E

**C-Line Portable CMM**

| Code No | Description | Range | Operating Temperature (°C) | Accuracy (µm) | Weight (Kg) | Dimentions (mm) |
|---|---|---|---|---|---|---|
| 20-C4-E | 4 Motorised Axes (X, C, Z, P) | X and Y Ø 700, Z 250 | +10 - +40 | Diameter: 3.0 + D(mm)/100, Linear: 5.0 + L(mm)/100 | 13.6 | 420 x 172 x 620 (W x D x H) |
| 20-C4-B | 4 Motorised Axes (X, C, Z, P) | X and Y Ø 700, Z 250 | +10 - +40 | Diameter: 3.0 + D(mm)/100, Linear: 5.0 + L(mm)/100 | 13.6 | 420 x 172 x 620 (W x D x H) |

TRIMOS

# TR-Scan 2D

## At a Glance

- 90x90 mm scope of application
- Rigid X-Y table

## Features

- Simplicity of use for multiple operator usage
- Contactless surface measurement
- Results are comparable to conventional methods
- Nanometric resolution
- Large vertical measuring range
- Extremely stable cast-iron base
- Completely CNC-controlled
- Parts weight capacity up to 20kg
- Non Bluetooth is available upon request



Trimos has drawn on its vast experience in metrology to develop a fresh perspective for contactless measurement. The extremely stable mechanism enables contactless measurements down to a few nanometres.

The simple optical coupling system allows a quick change of measuring range, with a wide range of sensors to meet the measurement needs of the customer. The system is driven by the Trimos measurement software, Nanoware, which allows any type of 2D mode measurement. The integration of “vertical patching” (stitching) enables the system to exceed the measuring range of the sensor.

Macros can be created in the Nanoware software to enable an entirely automatic measurement with integration to component pallets from a production line environment.

The software analysis program can produce log sheets that are used in accordance with current roughness standards, such as Ra, Rz, Rq etc.

It is also possible to transform the profile into a contour analysis by using the contour option.

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BOWERS GROUP

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TRIMOS

# Height Gauges

# V3 Basic Manual
## Height Gauge

### At a Glance

**Range:** 400mm and 700mm

WiFi RS232

Bluetooth Non Bluetooth is available upon request

### Features

- Extremely easy to use
- Electronically adjustable measuring force
- Autonomy: 40 h (lithium-ion batteries)
- Larger than 300 mm probes as standard
- Vast range of accessories
- All adjustments possible without tools
- RS232 and USB interfaces
- Non Bluetooth is available upon request

Have you seen our video
**V3 Basic Manual Height Gauge**

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For more information please click here

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# V3 Basic Manual
## Height Gauge

20-V3-400

Connected Metrology

The **V3** and V4 vertical measuring instruments have been developed for the most difficult workshop environments. Manufactured in Switzerland, they guarantee a robust, precise and reliable product.

The display unit provides functions that are directly accessible and depicted with symbols that are easy to understand. This allows for easy and quick handling even by unqualified personnel. The large 2-line 'Black Mask' display offers an exceptional contrast in all lighting conditions, a unique characteristic on the market.

The V3 measuring column represents the entry level Trimos universal measuring column, benefiting from the very latest in product development. The V4 offers the same functions as the V3. In addition it is equipped with a second probe holder as well as with an air cushion for easy displacement on the measuring table. The programmable functions buttons on the handle allow quick access to the most used functions.

| V3 Basic Manual Height Gauge | | |
|---|---|---|
| **Code No** | **20-V3-400** | **20-V3-700** |
| **Measuring Range (mm / inch)** | 407 / 16 | 711 / 28 |
| **Measuring Range with Extension (mm / inch)** | 508 / 20 | 812 / 32 |
| **Maximum Permissible Errors, $B_{MPE}$ (µm)** | 7 | 8 |
| **Repeatability, $R_{MPE}$ (2s) (µm)** | 2 (Ø: 4) | |
| **Frontal Perpendicularity, $S_{MPE}$ (µm)** | 10 | 15 |
| **Maximum Resolution (mm / inch)** | 0.001 / 0.00005 | |
| **Measuring Force (N)** | 0.75 ÷ 1.5 | |
| **Autonomy (h)** | 40 | |
| **Interfaces** | USB / RS232 | |
| **Air Cushion** | No | |
| **Weight (kg)** | 21 | 24 |

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

TRIMOS

# V4 Basic Manual
## Height Gauge

### At a Glance

**Range:** 400mm and 700mm

WiFi RS232

Bluetooth Non Bluetooth is available upon request

### Features

- Extremely easy to use
- Electronically adjustable measuring force
- Autonomy: 20 hours (lithium-ion batteries)
- Probes up to 400mm long available
- Vast range of accessories
- All adjustments possible without tools
- RS232 and USB interfaces
- Non Bluetooth is available upon request

20-V4-700




Have you seen our video
**V4 Basic Manual Height Gauge**

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For more information please click here

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# V4 Basic Manual
## Height Gauge

The V3 and **V4** vertical measuring instruments have been developed for the most difficult workshop environments. Manufactured in Switzerland, they guarantee a robust, precise and reliable product.

The display unit provides functions that are directly accessible and depicted with symbols that are easy to understand. This allows for easy and quick handling even by unqualified personnel. The large 2-line 'Black Mask' display offers an exceptional contrast in all lighting conditions, a unique characteristic on the market.

The V3 measuring column represents the entry level Trimos universal measuring column, benefiting from the very latest in product development. The V4 offers the same functions as the V3. In addition it is equipped with a second probe holder as well as with an air cushion for easy displacement on the measuring table. The programmable functions buttons on the handle allow quick access to the most used functions.

| V4 Basic Manual Height Gauge | | |
|---|---|---|
| **Code No** | **20-V4-400** | **20-V4-700** |
| **Measuring Range (mm / inch)** | 407 / 16 | 711 / 28 |
| **Measuring Range with Extension (mm / inch)** | 719 / 28 | 1023 / 40 |
| **Maximum Permissible Errors, $B_{MPE}$ (µm)** | 4.5 | 6 |
| **Repeatability, $R_{MPE}$ (2s) (µm)** | 2 (Ø: 4) | |
| **Frontal Perpendicularity, $S_{MPE}$ (µm)** | 10 | 15 |
| **Maximum Resolution (mm / inch)** | 0.001 / 0.00005 | |
| **Measuring Force (N)** | 0.75 ÷ 1.5 | |
| **Autonomy (h)** | 20 | |
| **Interfaces** | USB / RS232 /Wireless | |
| **Air Cushion** | Yes | |
| **Weight (kg)** | 21 | 24 |

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

TRIMOS

# V5 Manual/ Motorised Height Gauge

## At a Glance

**Range:** 400mm, 700mm and 1100mm

WiFi RS232

## Features

- Extremely easy to use
- Electronically adjustable measuring force
- Manual or motor-driven displacement
- Larger than 300mm probes as standard
- Vast range of accessories
- All adjustments possible without tools
- RS232 and USB interfaces

Have you seen our video
**V5 Manual/ Motorised Height Gauge**

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20-V5-400

Connected Metrology

# V5 Manual/ Motorised Height Gauge



The vertical measuring instruments **V5** and V6 are the descendants of the legendary V+ line; universally recognised for its ease of use and high quality.

Their clear display and user-friendly functions offer exceptional ease of use. But that's not all: the **V5** and V6 are equipped with a revolutionary displacement hand-wheel offering its user the choice of displacement mode of the measuring carriage; either manual or motor-driven. Neither mode is compromised, which means that the user who prefers a manual instrument will not notice a difference from a classic manual instrument, and the same applies to the motor-driven displacement. This innovation avoids having to make a difficult choice during the purchasing process and can accommodate multiple users with the same instrument.

The design of the V5 with its side probe holders revives an old Trimos tradition: they enable measuring with long, robust probes guaranteeing excellent repeatability. The V6 is of the same calibre as the V5. It's equipped with a more precise measuring system and enables the use of an electronic perpendicular probe.

| V5 Manual/ Motorised Height Gauge | | | |
|---|---|---|---|
| **Code No** | **20-V5-400** | **20-V5-700** | **20-V5-1100** |
| **Measuring Range (mm / inch)** | 407 / 16 | 711 / 28 | 1100 / 44 |
| **Measuring Range with Extension (mm / inch)** | 719 / 28 | 1023 / 40 | 1422 / 56 |
| **Maximum Permissible Errors, $B_{MPE}$ (µm)** | 2.5 + L(mm) /300 | | |
| **Repeatability, $R_{MPE}$ (2s) (µm)** | 2 | | |
| **Frontal Squareness Diviation, $S_{MPE}$ (µm)** | 5 | 8 | 11 |
| **Maximum Resolution (mm / inch)** | 0.001 / 0.00005 | | |
| **Measuring Force (N)** | 0.75 ÷ 1.5 | | |
| **Autonomy (h)** | 12 | | |
| **Interfaces** | USB / RS232 | | |
| **Air Cushion** | Yes | | |
| **Weight (kg)** | 21 | 24 | 33 |

Note: The above values have been determined according to ISO 13225. They are valid with the standard measuring insert (TA-MI-101), at a temperature of 20 ± 0.5 °C and relative humidity of 50 ± 5%

| The V5 is supplied with | |
|---|---|
| **Instrument According to Specifications** | Charging unit (TA-EL-132) |
| **Measuring Insert with Ruby Ball Ø 4 mm (TA-MI-101)** | Calibration certificate |
| **Setting Gauge (TA-MG-104)** | User's manual (750 50 0045 03) |
| **Protection Cover (TA-TO-114/115/116)** | 43.7 |

TRIMOS

# V6 Manual/ Motorised Height Gauge

## At a Glance

**Range:** 400mm, 700mm and 1100mm

WiFi RS232

## Features

- Extremely easy to use
- Electronically adjustable measuring force
- Manual or motor-driven displacement
- Larger than 300mm probes as standard
- Vast range of accessories
- All adjustments possible without tools
- RS232 and USB interfaces



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20-V6-400

Connected Metrology

# V6 Manual/ Motorised Height Gauge



The vertical measuring instruments V5 and **V6** are the descendants of the legendary V+ line; universally recognised for its ease of use and high quality.

Their clear display and user-friendly functions offer exceptional ease of use. But that's not all: the V5 and **V6** are equipped with a revolutionary displacement hand-wheel offering its user the choice of displacement mode of the measuring carriage; either manual or motor-driven. Neither mode is compromised, which means that the user who prefers a manual instrument will not notice a difference from a classic manual instrument, and the same applies to the motor-driven displacement. This innovation avoids having to make a difficult choice during the purchasing process and can accommodate multiple users with the same instrument.

The design of the V5 with its side probe holders revives an old Trimos tradition: they enable measuring with long, robust probes guaranteeing excellent repeatability. The V6 is of the same calibre as the V5. It's equipped with a more precise measuring system and enables the use of an electronic perpendicular probe.

| V6 Manual/ Motorised Height Gauge | | | |
|---|---|---|---|
| **Code No** | **20-V6-400** | **20-V6-700** | **20-V6-1100** |
| **Measuring Range (mm / inch)** | 407 / 16 | 711 / 28 | 1100 / 44 |
| **Measuring Range with Extension (mm / inch)** | 719 / 28 | 1023 / 40 | 1422 / 56 |
| **Maximum Permissible Errors, $B_{MPE}$ (µm)** | 2.0 + L (mm) / 400 | | |
| **Repeatability, $R_{MPE}$ (2s) (µm)** | 1 (Ø:2) | | |
| **Frontal Squareness Diviation, $S_{MPE}$ (µm)** | 5 | 8 | 11 |
| **Maximum Resolution (mm / inch)** | 0.001 / 0.00005 | | |
| **Measuring Force (N)** | 0.75 ÷ 1.5 | | |
| **Autonomy (h)** | 12 | | |
| **Interfaces** | USB / RS232 | | |
| **Air Cushion** | Yes | | |
| **Weight (kg)** | 21 | 24 | 33 |

Note: The above values have been determined according to ISO 13225. They are valid with the standard measuring insert (TA-MI-101), at a temperature of 20 ± 0.5 °C and relative humidity of 50 ± 5%

| The V6 is supplied with | |
|---|---|
| **Instrument According to Specifications** | Charging unit (TA-EL-132) |
| **Measuring Insert with Ruby Ball Ø 4 mm (TA-MI-101)** | Calibration certificate |
| **Setting Gauge (TA-MG-104)** | User's manual (750 50 0045 03) |
| **Protection Cover (TA-TO-114/115/116)** | 43.7 |



BOWERS GROUP

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TRIMOS

# V7 2D
## Height Gauge

### At a Glance

**Range:** 400 to 1800 mm

WiFi · RS232 · Bluetooth

Non Bluetooth is available upon request

### Features

- Simple and easy-to-use graphic interface
- Electronically adjustable measuring force
- Manual or motorised displacement
- 2D, programming, statistics
- Large range of accessories
- All possible adjustments without tools
- Interfaces RS232 and USB
- Non Bluetooth is available upon request

20-V7-700

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# V7 2D
## Height Gauge

The **V7** combines technological innovation and tradition. With the touch-display and lateral insert holders, it truly is a universal instrument for the workshop. Functions, normally considered as complex, such as 2D, programming, statistics, become child's play, resulting in an unequalled ease of use and a substantial increase in productivity.

The pair of lateral insert holders come from generations of instruments that have forged the reputation of Trimos. Their great robustness and flexibility allow the use of very diverse probes up to 400 mm long with a breath-taking repeatability.

The V7, is equipped with the revolutionary displacement handwheel allowing the user to choose either the manual or motorised displacement mode.

| V7 2D Height Gauge | | | | |
|---|---|---|---|---|
| **Code No** | **20-V7-400** | **20-V7-700** | **20-V7-1100** | **20-V7-1800** |
| **Measuring Range (mm / inch)** | 407 / 16 | 711 / 28 | 1100 / 44 | 1810 / 71 |
| **Measuring Range with Extension (mm / inch)** | 719 / 28 | 1023 / 40 | 1422 / 56 | 2122 / 83 |
| **Maximum Permissible Errors, $B_{MPE}$ (µm)** | 2.0 + L (mm) / 400 | | | 2.5 + L(mm) /300 |
| **Repeatability, $R_{MPE}$ (2s) (µm)** | 1 (Ø:2) | | | |
| **Frontal Squareness Diviation, $S_{MPE}$ (µm)** | 5 | 8 | 11 | 25 |
| **Maximum Resolution (mm / inch)** | 0.0001 / 0.00001 | | | |
| **Measuring Force (N)** | 0.75 ÷ 1.5 | | | |
| **Autonomy (h)** | 12 | | | |
| **Interfaces** | USB / RS232 | | | |
| **Air Cushion** | Yes | | | |
| **Weight (kg)** | 22 | 25 | 34 | 41 |

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

> We have used Bowers Group before for a lot of different measuring devices we own, so we knew we were in good hands. They even loaned us a smaller unit for us to trial as they were confident that we would be impressed by the quality, accuracy and ease of use of the Trimos height gauge.
>
> **Michael Horsfall, Chelburn Precision**

# V8 Height Gauge with Fine Adjustment

## At a Glance

**Range:** 400 to 1100 mm

WiFi RS232

Bluetooth Non Bluetooth is available upon request

## Features

- Simple and easy-to-use graphic interface
- Electronically adjustable measuring force
- Manual
- Large range of accessories
- All possible adjustments without tools
- Interfaces RS232 and USB
- Non Bluetooth is available upon request

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20-V8-700RF

Connected Metrology

The **V8 range** has been specifically designed for applications requiring a fine adjustment of the carriage position.

The V8 guarantees, like its predecessors, an extremely easy-to-use gauge that is robust, flexible and highly precise.

The mechanical design and delivery scope of the V8 are identical to the V9. It shares the features that made the V9 so successful: extreme precision and repeatability, high resolution, and Swiss made finish. What is to underline about this new model is its specific handwheel for fine adjustment. Trimos developed this fine adjustment to answer to specific applications requiring a fine adjustment of carriage position.

| V8 Height Gauge with Fine Adjustment | | | |
|---|---|---|---|
| **Code No** | **20-V8-400** | **20-V8-700** | **20-V8-1100** |
| **Measuring Range (mm / inch)** | 406 / 16 | 710 / 28 | 1109 / 43 |
| **Measuring Range with Extension (mm / inch)** | 724 / 28 | 1028 / 40 | 1427 / 56 |
| **Maximum Permissible Errors, $B_{MPE}$ (µm)** | 1.2 + L(mm) /1000 | | |
| **Repeatability, $R_{MPE}$ (2s) (µm)** | 0.4 (Ø:1) | | |
| **Frontal Squareness Diviation, $S_{MPE}$ (µm)** | 5 | 8 | 11 |
| **Maximum Resolution (mm / inch)** | 0.0001 / 0.000005 | | |
| **Measuring Force (N)** | 0.75 ÷ 1.5 | | |
| **Autonomy (h)** | 12 | | |
| **Interfaces** | USB / RS232 / Wireless | | |
| **Air Cushion** | Yes | | |
| **Weight (kg)** | 21 | 24 | 33 |

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

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# V9 2D
## Height Gauge

### At a Glance

**Range:** 400 to 1100 mm

WiFi · RS232

Bluetooth® Non Bluetooth is available upon request

### Features

- Simple and easy-to-use graphic interface
- Electronically adjustable measuring force
- Electronic probe for squareness measurements
- Manual or motorised displacement
- 2D, programming, statistics
- Interfaces RS232 and USB
- Large range of accessories
- Smart Reverse
- Wireless data transfer (optional)
- Non Bluetooth is available upon request



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20-V9-700



# V9 2D
## Height Gauge

The **V9 height gauge** combines technological innovation and tradition. With the touch-display and lateral insert holders, they truly are universal instruments for the workshop. Functions, normally considered as complex, such as 2D, programming, statistics, become child's play, resulting in an unequalled ease of use and a substantial increase in productivity.

The V9 has been developed for the most demanding users.

Laboratories and workshops for whom measuring reliability is determining will fully appreciate its exceptional precision level and its "Swiss Made" finish.

The V9 is equipped with the revolutionary displacement handwheel allowing the user to choose either the manual or motorised displacement mode.

| Trimos V9 2D Height Gauge | | | |
|---|---|---|---|
| **Code No** | **20-V9-400** | **20-V9-700** | **20-V9-1100** |
| **Measuring Range (mm / inch)** | 406 / 16 | 710 / 28 | 1109 / 43 |
| **Measuring Range with Extension (mm / inch)** | 724 / 28 | 1028 / 40 | 1427 / 56 |
| **Maximum Permissible errors, $B_{MPE}$ (2s) (µm)** | 1.2 + L(mm)/1000 | | |
| **Repeatability, $R_{MPE}$ (2s) (µm)** | 0.4 (Ø: 1) | | |
| **Frontal Perpendicularity, $S_{MPE}$ (µm)** | 5 | 8 | 11 |
| **Measuring Force (N)** | 0.75 ÷ 1.5 | | |
| **Autonomy (h)** | 12 | | |
| **Interfaces** | USB / RS232 | | |
| **Air Cushion** | Yes | | |
| **Weight (kg)** | 21 | 24 | 33 |

**Note:** With Air Cushion

# Micro Height Gauge Accessories Set

## Features

- This comprehensive set of micro accessories includes a variety of inserts which are fully compatible with a the V3, V4, V5, V6, V7, V8 and V9 Trimos height gauges

| Micro Height Gauge Accessories Set | |
|---|---|
| 20-TA-SE-105 | Accessories Set (Micro) |

| Accessories Set (Micro) Includes | |
|---|---|
| TA-MI-115 | Measuring insert M1.4 with ball Ø1 mm, L=12.5 mm |
| TA-MI-116 | Measuring insert M1.4 with ball Ø2 mm, L=12.5 mm |
| TA-MI-117 | Measuring insert M1.4 with ball Ø3 mm, L=12.5 mm |
| TA-MI-118 | Measuring insert M2.5 with 4 interchangeable pins, L=16/26/36/46 mm |
| V-50.8 | Insert holder 90°, Ø4 mm |
| TA-IH-116 | Measuring insert holder, Ø1 x 10 mm, L=80 mm |
| V-50.6 | Measuring insert holder M2.5, L=80 mm |
| V-50.2.1 | Disc-shaped inserts M2.5, Ø7.7 mm |
| V-50.2.2 | Disc-shaped insert M2.5, Ø11.5 mm |
| V-50.10 | Knife-edge insert L=88/16mm |
| V-50.3 | Corner insert M2.5 Ø11.5mm |
| V-50.4 | Measuring insert M2,5 with ball contact |
| V-50.9 | Measuring insert with ruby ball Ø2 mm, L=88 mm |
| V-50.12 | Measuring insert Ø1 mm with holder, L=86 mm |
| TA-TO-003 | Allen key 1.5 mm |
| V-50.15 | Allen key 2.5 mm |
| V-50.13 | Wrench for measuring inserts |
| TA-IH-117 | Holder for measuring inserts M2.5, M1.6, M1.4 |
| TA-IH-128 | Measuring insert holder Ø4 mm |
| TA-IH-104 | Swivel holder Ø4 and Ø8 mm |



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# Macro Height Gauge Accessories Set

## Features

- This comprehensive set of macro accessories includes a variety of inserts which are fully compatible with a the V3, V4, V5, V6, V7 V8 and V9 Trimos height gauges.

| Macro Height Gauge Accessories Set | |
|---|---|
| 20-TA-SE-106 | Accessories Set (Macro) |

| Accessories Set (Macro) Includes | |
|---|---|
| TA-MI-115 | Measuring insert M1.4 with ball Ø1mm, L=12.5mm |
| TA-MI-116 | Measuring insert M1.4 with ball Ø2mm, L=12.5mm |
| TA-MI-117 | Measuring insert M1.4 with ball Ø3mm, L=12.5mm |
| TA-MI-118 | Measuring insert M2.5 with 4 interchangeable pins, L=16/26/36/46 mm |
| V-50.5 | Measuring insert holder M2.5, L=124mm |
| -IH-115 | Measuring insert holder M2.5, L=200mm |
| V-50.2.3 | Disc-shaped inserts M2.5, Ø18mm |
| V-50.4 | Measuring insert M2,5 with ball contact |
| V-50.15 | Allen key 2.5mm |
| V-50.13 | Wrench for measuring inserts |
| TA-MI-110 | Measuring insert with tungst. carb. ball Ø2mm, L=80mm |
| TA-MI-105 | Measuring insert with tungst. carb. ball Ø4mm, L=140mm |
| TA-MI-107 | Measuring insert with pin Ø1.5mm, L=78mm |
| TVA4 | Insert holder with pin Ø2 x 20mm |
| TA-IH-101 | Measuring insert holder M2.5, L=103mm |
| TA-IH-105 | Swivel holder Ø4 and Ø8mm, L=150mm |
| TA-IH-109 | Insert holder 90°, Ø4mm L=65mm |

TRIMOS

# Eco Height Gauge Accessories Set

## Features

- This comprehensive set of eco accessories includes a variety of inserts which are fully compatible with the Trimos Vectra Touch, Mestra Touch, V3, V4, V5, V6, V7, V8 and V9 height gauges.

| Macro Height Gauge Accessories Set | |
|---|---|
| 20-TA-SE-107 | Accessories Set (ECO) |

| Accessories Set (Eco) Includes | |
|---|---|
| V-50.5 | Measuring insert holder M2.5, L=124mm |
| V-50.2.3 | Disc-shaped inserts M2.5, Ø18 mm |
| V-50.4 | Measuring insert M2,5 with ball contact |
| V-50.15 | Allen key 2.5 mm |
| TA-MI-110 | Measuring insert with tungst. carb. ball Ø2 mm, L=80 mm |
| TVA4 | Insert holder with pin Ø2 x 20 mm |
| TA-IH-109 | Insert holder 90°, Ø4 mm L=65mm |

| Trimos Data Transfer | |
|---|---|
| 20-TA-EL-022 | Wireless Data Transfer Kit (Includes Wireless Module and Smart USB Dongle) |
| 20-TS-EL-021 | Additional Wireless Module (for addition instruments) |
| 30-981-7161 | Sylvac VMux Dongle (Single Licence) |

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# AES Precision Ensures High Quality Components with Trimos Height Gauge

**Precision turned parts manufacturer AES Precision has invested in a Trimos V5 height gauge from Bowers Group**

Mark Wilson, Director at AES Precision Engineering, said:

> "We have strict quality control procedures, and must meet tight tolerances, so accuracy is incredibly important to us. The Trimos height gauge is a great solution for our general inspection requirements."

AES Precision typically uses a CMM for the measurement of complex components. For basic parts requiring quick and accurate measurements, however, a simple solution was needed that would be fast and easy to use. The business previously used a basic digital height gauge, but decided it was time to upgrade to a more sophisticated model with a few more features.

The Trimos V5 height gauge can either be manually operated or motor driven, and has a clear display and user-friendly functions. It offers exceptional ease of use; so easy in fact that all shop floor operatives and inspectors at AES Precision use the height gauge on a daily basis. Mark continues;

> "We find the height gauge very accurate, and it has a great range of functions to suit our needs. Training was very straightforward and everyone here was confidently using the height gauge very quickly!"

Having the option of both manual and motor-driven operation means the height gauge can accommodate multiple users and achieve consistently accurate measurements regardless of which mode is used. The side probe holders enable measuring with long, robust probes, which guarantee excellent repeatability. AES Precision calibrates the height gauge in house at recommended intervals to ensure consistently accurate measurements.

As AES Precision serves industries renowned for their precision component parts, quality is extremely important. The business also offers First Article Inspection Reports (F.A.I.R), including tailored reporting and data collection to suit the individual requirements of clients. This, along with a fully traceable QMS system, means that AES Precision's quality system meets or exceeds the requirements of most clients manufacturing needs.

Based in Ashford, Kent, AES Precision Engineering offers a variety of services including CNC milling and turning, and new product development services including full mechanical design. Family run since 1987, AES Precision has two generations invested in the company who have built a team of hardworking, enthusiastic people to drive the business forward.

AES Precision has recently expanded its facility, including a full refurbishment, as well as investing in new machinery and processes to improve its services and strive for continual improvement in all areas of the business. Services include traditional 3 axis CNC milling and high speed 5 axis simultaneous milling, allowing AES Precision to produce complex, high precision components. The business also offers 24/7 lights out production with its fully automated process, offering customers great value and rapid production times.



BOWERS GROUP

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> The majority of machinists here at Atlas Copco in Wolverhampton use the Gagemaker system. It has enabled us to halve the number of gauges we buy because it offers such flexible measurement capabilities.
>
> **Atlas Copco's - Quality Inspection Manager - Darren Cleaver**

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GAGEMAKER

GageMa

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GAGEMAKER

Thread Measurement

# MIC TRAC™ Gauge Setting System

## At a Glance

**Accuracies range from +/- 0.0001" to +/- 0.0004"** depending on the machine capacity

## Features

- Standard resolution of base unit is 0.00005"
- Optional Incorporate the ForceLok™ feature

A huge range of Tapered, Thread and Special setting blocks are available upon request



## Visit our Website

For more information please click here

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# MIC TRAC™ Gauge Setting System

The **MIC TRAC™** System is an electronic, adjustable calibration and measurement centre that will inspect parts, preset indicator style gages, and calibrate a variety of hand held inspection gages. The MIC TRAC 3000 System (MT-3000) is suited for the shop floor or a calibration lab.

The system sets or zeros most gauges with the use of interchangeable anvils or blocks.

The MIC TRAC is also available as a multi-use gauge calibration system. These MIC TRACs incorporate the ForceLok™ feature to provide a constant anvil force that improves repeatability from operator to operator. Please contact the Bowers sales team for details.

90-MT3012-50

**MIC TRAC™ Gauge Setting System - Base Unit with DRO (Includes TF-PL Block Set)**

| Code No | Description | Internal Range | External Range | Resolution (inch) | Accuracy (inch) |
|---|---|---|---|---|---|
| 90-MT3012-50 | MIC TRAC™ 12" Base Unit with DRO | 0" – 12" (0 mm - 304.8 mm) | 1½" – 13½" (38.1 mm - 342.9 mm) | .00005" | ±.0001" |
| 90-MT3024-50 | MIC TRAC™ 24" Base Unit with DRO | 0" – 24" (0 mm - 609.6 mm) | 1½" – 25½" (38.1 mm - 647.7 mm) | .00005" | ±.0002" |
| 90-MT3036-50 | MIC TRAC™ 36" Base Unit with DRO | 0" – 36" (0 mm - 914.4 mm) | 1½" – 37½" (38.1 mm - 952.5 mm) | .00005" | ±.0003" |
| 90-MT3048-50 | MIC TRAC™ 48" Base Unit with DRO | 0" – 48" (0 mm - 1219.2 mm) | 1½" – 49½" (38.1 mm - 1257.3 mm) | .0000"5 | ±.0004" |

**MIC TRAC™ Gauge Setting System - Force-Lok™ Unit with DRO**

| Code No | Description | Internal Range | External Range | Resolution (inch) | Accuracy (inch) |
|---|---|---|---|---|---|
| 90-MT3012F-50 | MIC TRAC™ 12" Force-Lok Unit with DRO | 0" – 12" (0 mm - 304.8 mm) | 1½" – 13½" (38.1 mm - 342.9 mm) | .00005" | ±.0001" |
| 90-MT3024F-50 | MIC TRAC™ 24" Force-Lok Unit with DRO | 0" – 24" (0 mm - 609.6 mm) | 1½" – 25½" (38.1 mm - 647.7 mm) | .00005" | ±.0002" |
| 90-MT3036F-50 | MIC TRAC™ 36" Force-Lok Unit with DRO | 0" – 36" (0 mm - 914.4 mm) | 1½" – 37½" (38.1 mm - 952.5 mm) | .00005" | ±.0003" |
| 90-MT3048F-50 | MIC TRAC™ 48" Force-Lok Unit with DRO | 0" – 48" (0 mm - 1219.2 mm) | 1½" – 49½" (38.1 mm - 1257.3 mm) | .00005" | ±.0004" |

**Setting Blocks**

| Code No | Description |
|---|---|
| 90-TF1F | Flat Face Setting Blocks (1.500" outside Dimension) |
| 90-TFBX | 23° BXR Ring Groove Diameter/Width Setting Blocks, used with BX-1000 gages, set of 2 |
| 90-TF10 | Tapered Setting Blocks 10° half angle |
| 90-TF15 | Tapered setting Blocks 15° half angle |
| 90-TF20 | Tapered setting Blocks 20° half angle |
| 90-TF30 | Tapered setting Blocks 30° half angle |
| 90-TF45 | Tapered setting Blocks 45° half angle |

TF-PL

TF-1F

TF30

TF-BX

# MIC TRAC™ Gauge Setting System

| Tubing and Casing Taper Setting Blocks | |
|---|---|
| **Code No** | **Description** |
| 90-TF-STR | Straight Blocks |
| 90-TF-.75T | 3/4" Taper Blocks, 8 & 10 Round, 3/4" TPF Buttress, Line Pipe |
| 90-TF-1.0T | 1" Taper Blocks, 1" TPF Buttress |
| 90-TF-1.12T | 1 1/8" Taper Blocks, 1.125 TPF Connectors |
| 90-TF-1.75T | 1 3/4" Taper Blocks, 1.75 TPF Connectors |

| Rotary Shouldered Connector Setting Blocks | |
|---|---|
| **Code No** | **Description** |
| 90-TF-1.25RSC | 1 1/4" Taper Blocks, 1.25 TPF Rotary Shouldered Connectors |
| 90-TF-1.5RSC | 1 1/2" Taper Blocks, 1.5 TPF Rotary Shouldered Connectors |
| 90-TF-2.0RSC | 2" Taper Blocks, 2.0 TPF Rotary Shouldered Connectors |
| 90-TF-3.0RSC | 3" Taper Blocks, 3.0 TPF Rotary Shouldered Connectors |

| Riser Blocks for the Taper Blocks | |
|---|---|
| **Code No** | **Description** |
| 90-TF-RISER1 | 1.00" Riser Block (Set of 2) |
| 90-TF-RISER2 | 2.00" Riser Block (Set of 2) |
| 90-TF-RISER3 | 3.00" Riser Block (Set of 2) |

Taper Blocks

Special taper blocks a vailable on request



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BOWERS GROUP

CASE STUDY

THREAD MEASUREMENT

# Oil and Gas Work Prompts Standish Engineering Investment

Established in the early 1950s Standish Engineering Co Ltd remains a family business and is now run by the second and third generations.

Standish Engineering specialises in the production of one off through to large batch quantities of components that are produced on modern CNC machine tools. The stability provided by continuous family ownership has helped ensure the loyalty of the company's highly skilled, experienced work force and the continuity of its renowned quality ethos. A comprehensive, in-house manufacturing capability enables a diverse range of work to be undertaken. Customers' requirements can be satisfied, from initial concepts to final delivery of the competitively priced high quality product.

Building on the company's considerable experience in dealing with the Rail, Construction, Mechanical Handling, General Engineering, Automotive and Food industries, Standish Engineering is now earning a rapidly growing reputation within the demanding UK Oil and Gas industry.

Phil Ashcroft, Standish Engineering Quality Manager explained,

"Standish Engineering's quality culture permeates all aspects of the company and encompasses our entire manufacturing activities and all of our admin functions. This can be illustrated by Standish Engineering being one of the first companies in the North West to be recognised with the Quality Award BS 5750 back in October 1987.

Over the past couple of years, our reputation for delivering high quality components to a wide range of industrial sectors has enabled us to break-in to the demanding Oil and Gas industry. Although we use the latest Coordinate Measuring Machine technology for our final inspection checks, the demands of our new customers has meant that we have invested heavily in the best available Oil and Gas industry specific gauges.

As Oil and Gas industry threaded parts must meet very exacting engineering specifications, dimensional accuracy and consistency are vitally important factors. After extensive research into suitable, high-precision metrology instruments, that could measure both internal and external threads, we discovered the Gagemaker range on the Bowers Group website."

Complementing its wide range of metrology and testing products, Bowers UK is the agent for the well-known Gagemaker range. Gagemaker develops and manufactures high precision mechanical inspection equipment for the global Oil and Gas industry. The company is a leading provider of Tapered & Straight Thread Measurement Gauges, API Gauges & Products, in addition to ISO and ANSI & ASME Thread Measurement.

Phil Ashcroft continued;

"We now use Gagemaker thread diameter gauges to inspect internal and external, functional and pitch diameters. Our ingenious new gauges are now delivering higher levels of accuracy than our previously used, more subjective solid plug and ring gauges. A bonus of our new thread diameter gauges is that they eliminate the possibility of accidental damage to threads that can be caused by the use of ring and plug gauges.

Rather than our previously used comparative methods, the use of Gagemaker precision ground thread rolls now delivers precise inspection data. In addition to this, the flexible Gagemaker gauges cover a wide range of diameters, allowing us to make considerable savings on solid plug gauge purchases. This saving has been reflected in our keen pricing and has helped enable us to win several large Oil and Gas related contracts.

The use of Gagemaker's internal and external thread measuring products has proved extremely useful in enabling Standish Engineering to maintain our status as a premium quality manufacturer and to further extend this hard won reputation into the challenging Oil and Gas industry."

To ensure maximum accuracy, Gagemaker thread diameter gauges use matched sets of precision ground thread rolls that seat securely in the threads under inspection. Gagemaker thread diameter gauges are able to cover a full range of internal and external diameters from 5/8"- 24". The flexible format of the gauges means that users can quickly replace thread rolls or contact points and measure many different thread forms with the same gauge.

# Chrome Contact Points, Threaded Shank

## At a Glance

Threaded shanks are 4-48 UNF

## Features

- Metric threads are available upon request
- Most gages require two contact points
- Contact sizes are matched closely to thread inspection wire sizes. The contact diameters listed are used in the TDWIN Thread Disk for Windows software program for pitch diameter inspection.

# Chrome Contact Points, Threaded Shank

| UN Series 60° V | |
|---|---|
| **Code No** | **Thread Pitch (TPI)** |
| 90-T562C | 1 |
| 90-T288C | 2 |
| 90-T188C | 3 & 3 ½ |
| 90-T144C | 4 |
| 90-T128C | 4 ½ |
| 90-T115C | 5 |
| 90-T105C | 5 ½ |
| 90-T096C | 6 |
| 90-T072C | 8 |
| 90-T057C | 10 |
| 90-T050C | 11 ½ & 12 |
| 90-T041C | 14 & 16 |
| 90-T032C | 18 |

| 7° x 45° Buttress | |
|---|---|
| **Code No** | **Thread Pitch (TPI)** |
| 90-T562C | 1 |
| 90-T437C | 1 ¼ |
| 90-T375C | 1 ½ |
| 90-T281C | 2 |
| 90-T219TC | 2 ½ |
| 90-T188C | 3 |
| 90-T156C | 3 ½ |
| 90-T144C | 4 |
| 90-T115C | 5 |
| 90-T096C | 6 |
| 90-T072C | 8 |
| 90-T057C | 10 |
| 90-T050C | 12 |
| 90-T032C | 16 & 18 |

| Trapezoidal Thread | |
|---|---|
| **Code No** | **Thread Pitch (mm)** |
| 90-T144C | 7 |
| 90-T125C | 6 |
| 90-T096C | 5 |
| 90-T082C | 4 |
| 90-T072C | 3 ½ |
| 90-T062C | 3 |
| 90-T050C | 2 ½ |

| ISO Metric 60° | |
|---|---|
| **Code No** | **Thread Pitch (mm)** |
| 90-T096C | 4 |
| 90-T072C | 3 & 3 ½ |
| 90-T057C | 2 ½ |
| 90-T041C | 1 ½, 1¾ & 2 |



## Visit our Website

For more information please click here

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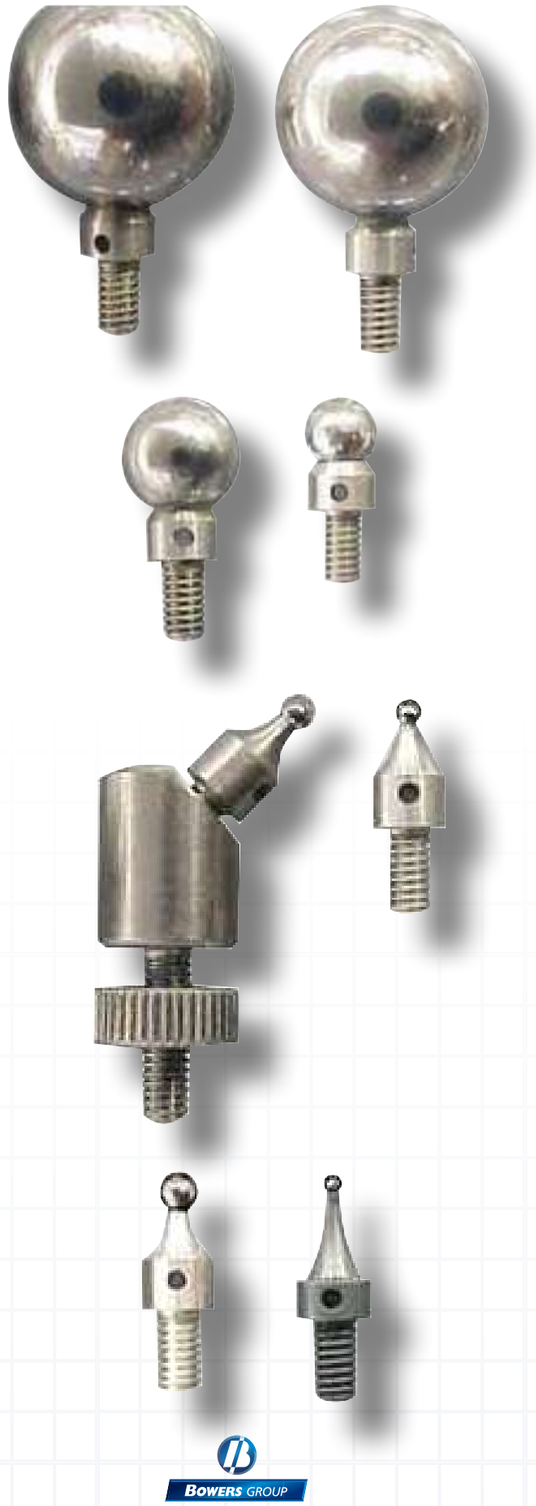
# Truncated Contact Points

## At a Glance

Threaded shanks are 4-48 UNF

## Features

- Contact sizes are matched closely to thread inspection wire sizes. The contact diameters listed are used in the TDWIN Thread Disk for Windows software program for pitch diameter inspection.



| Acme , Stub ACME, Stub ACME Modified-1, and Stub ACME Modified-2 Thread | |
|---|---|
| **Code No** | **Thread Pitch (TPI)** |
| 90-T531TC | 1 |
| 90-T344TC | 1.5 |
| 90-T266TC | 2 |
| 90-T219TC | 2.5 |
| 90-T188TC | 3 |
| 90-T144TC | 3.5 |
| 90-T128TC | 4 |
| 90-T105TC | 5 |
| 90-T090TC | 6, 7 |
| 90-T062TC | 8 |
| 90-T050TC | 10 |
| 90-T041TC | 12 & 14 |
| 90-T032TC | 16 |





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# Functional Gauge Thread Rolls

## At a Glance

- Comes complete with a Gagemaker calibration certificate

## Features

- Metric threads are available upon request
- All thread rolls are sold in matched pairs

90-TRVE-4P

90-TRA-6P

90-TRSA-8P

Specials - all other thread forms available upon request.

## Visit our Website

For more information please click here

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## TRV Thread Rolls

These thread rolls inspect the functional fit of machined parts with 60° "V" thread forms.

| TRV Thread Rolls - Internal | |
|---|---|
| **Code No** | **Description** |
| 90-TRVI-4P | 4 Pitch Internal 60° "V" |
| 90-TRVI-5P | 5 Pitch Internal 60° "V" |
| 90-TRVI-6P | 6 Pitch Internal 60° "V" |
| 90-TRVI-8P | 8 Pitch Internal 60° "V" |
| 90-TRVI-10P | 10 Pitch Internal 60° "V" |
| 90-TRVI-12P | 12 Pitch Internal 60° "V" |
| 90-TRVI-14P | 14 Pitch Internal 60° "V" |
| 90-TRVI-16P | 16 Pitch Internal 60° "V" |
| 90-TRVI-18P | 18 Pitch Internal 60° "V" |
| 90-TRVI-20P | 20 Pitch Internal 60° "V" |

| TRV Thread Rolls - External | |
|---|---|
| **Code No** | **Description** |
| 90-TRVE-4P | 4 Pitch External 60° "V" |
| 90-TRVE-5P | 5 Pitch External 60° "V" |
| 90-TRVE-6P | 6 Pitch External 60° "V" |
| 90-TRVE-8P | 8 Pitch External 60° "V" |
| 90-TRVE-10P | 10 Pitch External 60° "V" |
| 90-TRVE-12P | 12 Pitch External 60° "V" |
| 90-TRVE-14P | 14 Pitch External 60° "V" |
| 90-TRVE-16P | 16 Pitch External 60° "V" |
| 90-TRVE-18P | 18 Pitch External 60° "V" |
| 90-TRVE-20P | 20 Pitch External 60° "V" |

## ACME and STUB ACME Thread Rolls

TRA & TRSA thread rolls inspect the functional fit of parts with 29° ACME and STUB ACME threadforms.

| ACME and Stub ACME - Internal and External | | | |
|---|---|---|---|
| **Code No** | **Description** | **Code No** | **Description** |
| 90-TRA-3P | 3 Pitch 29° ACME | 90-TRSA-3P | 3 Pitch 29° STUB ACME |
| 90-TRA-4P | 4 Pitch 29° ACME | 90-TRSA-4P | 4 Pitch 29° STUB ACME |
| 90-TRA-5P | 5 Pitch 29° ACME | 90-TRSA-5P | 5 Pitch 29° STUB ACME |
| 90-TRA-6P | 6 Pitch 29° ACME | 90-TRSA-6P | 6 Pitch 29° STUB ACME |
| 90-TRA-8P | 8 Pitch 29° ACME | 90-TRSA-8P | 8 Pitch 29° STUB ACME |
| 90-TRA-10P | 10 Pitch 29° ACME | 90-TRSA-10P | 10 Pitch 29° STUB ACME |
| 90-TRA-12P | 12 Pitch 29° ACME | 90-TRSA-12P | 12 Pitch 29° STUB ACME |
| 90-TRA-14P | 14 Pitch 29° ACME | 90-TRSA-14P | 14 Pitch 29° STUB ACME |
| 90-TRA-16P | 16 Pitch 29° ACME | 90-TRSA-16P | 16 Pitch 29° STUB ACME |
| 90-TRA-18P | 18 Pitch 29° ACME | 90-TRSA-18P | 18 Pitch 29° STUB ACME |

# Functional Gauge Thread Rolls

## ISO Metric Series Thread Rolls

TRM thread rolls inspect the functional fit of machine threaded parts with ISO metric 60° "V" thread forms.

90-TRMI-4P

90-TRME-4P



| ISO Metric Series - Internal | |
|---|---|
| **Code No** | **Description** |
| **90-TRMI-4P** | 4mm Pitch Internal 60° "V" |
| **90-TRMI-35P** | 3.5mm Pitch Internal 60° "V" |
| **90-TRMI-3P** | 3mm Pitch Internal 60° "V" |
| **90-TRMI-25P** | 2.5mm Pitch Internal 60° "V" |
| **90-TRMI-2P** | 2mm Pitch Internal 60° "V" |
| **90-TRMI-175P** | 1.75mm Pitch Internal 60° "V" |
| **90-TRMI-15P** | 1.5mm Pitch Internal 60° "V" |

| ISO Metric Series - External | |
|---|---|
| **Code No** | **Description** |
| **90-TRME-4P** | 4mm Pitch External 60° "V" |
| **90-TRME-35P** | 3.5mm Pitch External 60° "V" |
| **90-TRME-3P** | 3mm Pitch External 60° "V" |
| **90-TRME-25P** | 2.5mm Pitch External 60° "V" |
| **90-TRME-2P** | 2mm Pitch External 60° "V" |
| **90-TRME-175P** | 1.75mm Pitch External 60° "V" |
| **90-TRME-15P** | 1.5mm Pitch External 60° "V" |

Specials - all other thread forms available upon request.

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BOWERS GROUP

GAGEMAKER

# Thread Disk for Windows Software

## At a Glance

- Calculates standard and non-standard product thread diameters from #000 to 99.8"

## Features

- Uses ANSI tables, formulas, and tolerances
- Calculates ANSI ring and plug gage dimensions
- Addresses pitches from 1 to 400
- Calculates Gagemaker style thread gage seting dimensions

## Sysem Requiements

- Windows XP or higher
- 64 MB RAM
- 3 MB of free hard disk space
- CD-ROM drive

The **Thread Disk™** engineering software (TDWin™ ) calculates critical dimensions for threads.

Thread types supported by the program include: UN, UNJ and UNR Series, Acme, Stub Acme, Stub Acme Modified I and II, Metric M & MJ, 7° X 45° Buttress, and General Purpose Pipe Threads.

To generate critical dimensions instantly, enter basic thread information on the Thread Type Entry screen, such as: thread type, thread class, nominal diameter, and threads per inch. Once the results are computed, tabs at the bottom of the program allow selection of several types of calculated information, including dimensions and tolerances for product threads, ring gages, set plugs, plug gages or Gagemaker's Thread Diameter gages.

If measuring internal and external shallow taper diameters is a problem, the Ball mic SET DIM Tool provides setting dimensions for ball micrometers or Gagemaker's BX-1000 groove gage. The program calculates ball mic settings for any tapered surface geometry.

Thread Type Entry Screen

Thread Dimension Screen

| TDWIN Thread Disk Software | |
|---|---|
| **Code No** | **Description** |
| **90-TDWIN** | Thread Disk for Windows Software |
| **90-TDWIN-UP** | Upgrade to TDWIN from TD-100 |
| **90-TDWINLIC5** | Multi-Licence Agreement, 5 Users |
| **90-TDWINLIC10** | Multi-Licence Agreement, 10 Users |

# Groove Diameter and Groove Width Gauges for Face Grooves

## At a Glance

- Standard gauge measures groove diameters from 2.6-13"
  and groove widths from 0.375-1.5"

## Features

- These gauges adjust to cover all sizes of R, RX, and BX ring grooves
- Provides accurate measurements at the critical sealing point of the face groove
- Allows use in a manufacturing or field environment due to durable construction
- Requires presetting using a micrometer or Gagemaker's MIC TRAC measurement center (setting dimensions and tolerances for API ring grooves supplied with gauge)



Optional rails extend the range of diameters from 13-37". The face groove gauges accurately measure the ring groove diameter and width at the critical sealing point of the face groove. Gauge indicators show actual deviation from a preset master dimension. The BX-1000 can be used to measure straight or tapered groove diameters, shallow bores, and hole locations. Contact points included are .188". The BXG-1000 measures widths of straight or tapered grooves and includes .072" contact points.

90-BX1000

90-BXG1000

### Groove Diameter and Groove Width Gauges for Face Grooves

| Code No | Description | Range (inch) |
|---|---|---|
| 90-BX1000 | Groove Diameter Gauge | Diameters 2.6-13" |
| 90-BXG1000 | Groove Width Gauge | Widths 0.375-1.5" |
| 90-BXR24 | Optional 24" Extension Rail | Groove Diameters to 25 3/4" |
| 90-BXR30 | Optional 30"Extension Rail | Groove Diameters to 31 3/4" |
| 90-BXR36 | Optional 36"Extension Rail | Groove Diameters to 37 3/4" |
| 90-TDWIN | Thread Disk for Windows Software | |

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# Functional Diameter Thread Gauges

## At a Glance

- Measure diameters of internal, and external threads

## Features

- Both series of these functional diameter gauges inspects the effects of all thread element variations and report deviations.
- The gauges must be preset to a Nominal predetermined dimension using gauge blocks, micrometers, or the MIC TRAC gauge setting system.

90-PG6000



### Functional Diameter Internal Thread Gauges

| Code No | Description | Range (inch) |
|---|---|---|
| 90-PG6000 | Internal Thread Roll Gauge, 4 1/2" reach | 1 1/2" to 9" |
| 90-PG6001 | Internal Thread Roll Gauge, 2 1/2" reach | 9 "to 16" |
| 90-SPG6000 | Internal Thread Roll Gauge, 1" reach | 5/8" to 1 1/2" |

# External Pitch Diameter Inspection Gauges

## At a Glance

- External Ball PD Gauge

90-PD8001

| External Pitch Diameter Inspection Gauges | |
|---|---|
| **Code No** | **Range (inch)** |
| **90-PD8001** | 0" - 6" |
| **90-PD8002** | 6" - 12" |
| **90-PD8004** | 12" - 16" |
| **90-PD8006** | 16" - 20" |
| **90-PD8008** | 20" - 24" |
| **90-PD8010** | 24"- 28" |
| **90-PD8012** | 28" - 36" |
| **90-PD8013** | 36" - 44" |
| **90-PD8014** | 44" - 52" |
| **90-PD8015** | 52" - 60" |
| **90-PD8016** | 60" - 72" |

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# Internal Pitch Diameter Inspection Gauges

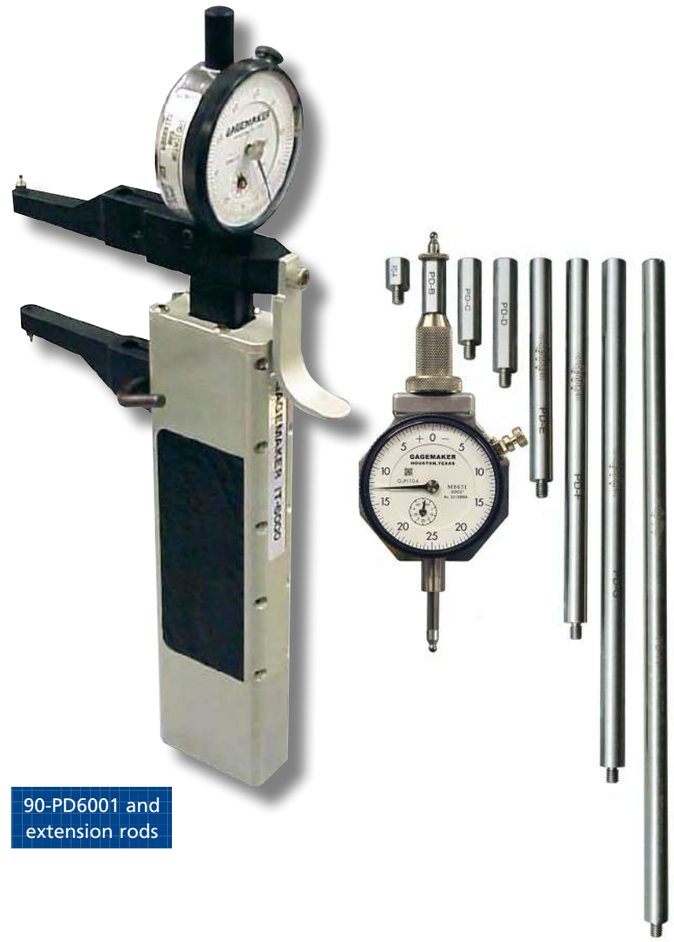


## At a Glance

Measures a large range of internal pitch diameters from 1 1/2" to 27"

## Features

- Uses interchangeable contact points for measurement of different thread pitches.
- Offers advantage over conventional ring and plug gages by providing actual diameter readings.
- Eliminates unnecessary damage to threads caused by ring and plug gages.
- Durable construction allows use in a manufacturing or field environment.
- Requires presetting using gage blocks, micrometers, or Gagemaker's MIC TRAC



90-PD6001 and extension rods

| External Pitch Diameter Inspection Gauges | | |
|---|---|---|
| **Code No** | **Description** | **Range (inch)** |
| **90-PD6000** | Internal PD Gauge, "V" & ACME | 1 1/2" to 9" |
| **90-PD6001** | Internal PD Gauge, "V" & ACME | 6" to 24" |
| **90-PD6000-02** | Replacement Arm Set, 2 1/2" Length | Standard |
| **90-PD6000-07** | Replacement Arm Set, 4 1/2" Length | |

# Thread Pitch Diameter Measurement for Rotary Shoulder Threads - External

90-PD8001RSC

## Thread Pitch Diameter Measurement for Rotary Shoulder Threads - External

| Code No | Description |
|---|---|
| 90-PD8001RSC | Shoulder pitch diameter gauge 0-6" w/ Electronic .500" travel digital indicator |
| 90-PD8002RSC | Shoulder pitch diameter gauge 6-12" w/ Electronic .500" travel digital indicator |
| 90-LPP3-1.25-SLH9 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 3 TPI, 1..25 TPF, 90-V-0.084 thread form |
| 90-LPP3.5-2-H9 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 3.5 TPI, 2 TPF, 90-V-0.050 thread form |
| 90-LPP3.5-3-H9 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 3.5 TPI, 3 TPF, 90-V-0.050 thread form |
| 90-LPP4-1.5-76 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 1.5 TPF, 90-V-0.076 thread form |
| 90-LPP4-2-38 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 2 TPF, 90-V-0.038 thread form |
| 90-LPP4-2-50 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 2 TPF, 90-V-0.050 thread form |
| 90-LPP4-3-38 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 3 TPF, 90-V-0.038 thread form |
| 90-LPP4-3-50 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 3 TPF, 90-V-0.050 thread form |
| 90-LPP6-1.5-55 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 6 TPI, 1.5 TPF, 90-V-0.055 thread form |
| 90-LPP6-2-32 | Pin Length Profile template for pitch diameter measurement on rotary shoulder connection. 6 TPI, 2 TPF, 90-V-0.032 thread form |

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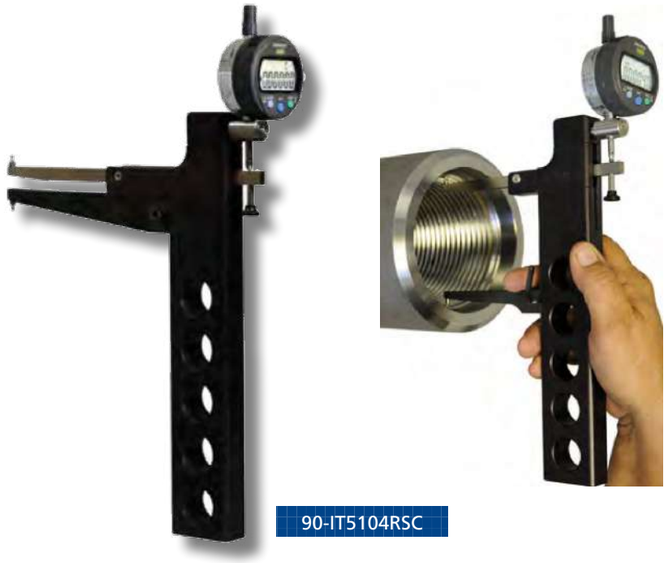
# Thread Pitch Diameter Measurement for Rotary Shoulder Threads - Internal





90-IT5104RSC



| Code No | Description |
|---|---|
| 90-IT5104RSC | Shoulder pitch diameter gauge 1 1/2" - 10" w/ Electronic .500" travel digital indicator |
| 90-LPB3-1.25-SLH9 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 3 TPI, 1..25 TPF, 90-V-0.084 thread form |
| 90-LPB3.5-2-H9 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 3.5 TPI, 2 TPF, 90-V-0.050 thread form |
| 90-LPB3.5-3-H9 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 3.5 TPI, 3 TPF, 90-V-0.050 thread form |
| 90-LPB4-1.5-76 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 1..5 TPF, 90-V-0.076 thread form |
| 90-LPB4-2-38 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 2 TPF, 90-V-0.038 thread form |
| 90-LPB4-2-50 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 2 TPF, 90-V-0.050 thread form |
| 90-LPB4-3-38 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 3 TPF, 90-V-0.038 thread form |
| 90-LPB4-3-50 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 3 TPF, 90-V-0.050 thread form |
| 90-LPB4-3.375-A094 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 4 TPI, 3.375 TPF, A-0.094 thread form |
| 90-LPB5-3-40 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 5 TPI, 3 TPF, 90-V-0.040 thread form |
| 90-LPB6-1.5-55 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 6 TPI, 1..5 TPF, 90-V-0.055 thread form |
| 90-LPB6-2-32 | Box Length Profile template for pitch diameter measurement on rotary shoulder connection. 6 TPI, 2 TPF, 90-V-0.032 thread form |

# MRP Air Pitch Diameter (Crest) & Ovality Gauges

## At a Glance

- Measures internal and external pitch diameters (Crest) of tapered threaded connectors

## Features

- Measure both external and internal parts with one gauge
- Avoid damaging rails with new block and clamping assembly
- Sturdier carbon fiber frame
- Minimises deflection for increased accuracy
- Save time with easier gauge setup



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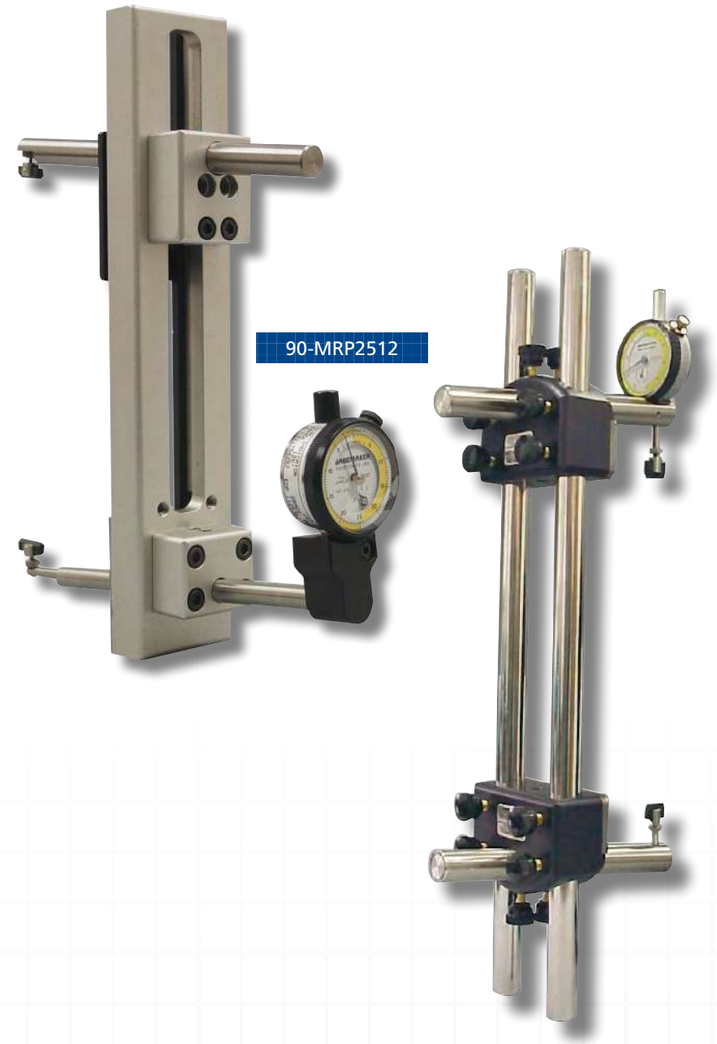
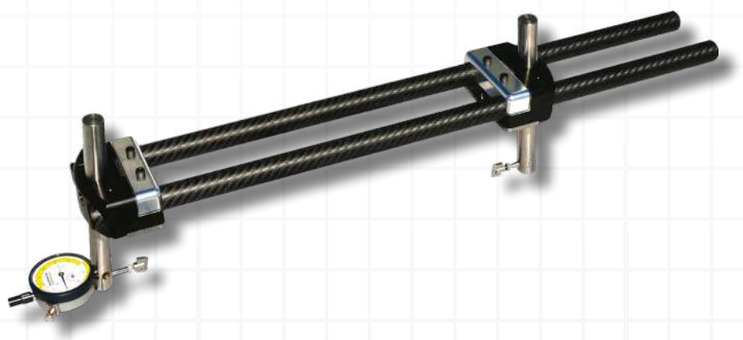


90-MRP2512



90-MRP-AIR-2001



# MRP Air Pitch Diameter (Crest) & Ovality Gauges

Gagemaker have introduced the **MRP® AIR Crest Diameter Carbon Fibre Gauge**, which is stronger, lighter and more accurate than ever, all of this is completed with no damaging rails locking them into place.

All of the MRP series of Pitch diameter (crest) gauges measures internal and external pitch diameters (crest) of tapered threaded connectors. The gauges use two pivoting thread shoes that rest on the crests of the threads. Variation in diameter is detected by the indicator readout.

The MRP gauges are preset to size before inspecting parts. A variety of setting standards are available. Alternatively the MIC TRAC setting system can be used.

**MRP Air Pitch Diameter (Crest) & Ovality Gauges**

| Code No | Description | Range (inch) |
|---|---|---|
| 90-MRP1500 | Internal / External PD (Crest) Gauge (Solid Frame Style) | Internal 1 1/2"- 4 1/2"<br>External 2 7/8"- 4 1/2" |
| 90-MRP-AIR-2003 | Internal / External PD (Crest) Gauge with 4 1/4" reach | 2 3/8"-20" |
| 90-MRP-AIR-2003-7 | Internal / External PD (Crest) Gauge with 7" reach | 2 3/8"-20" |
| 90-MRP-AIR-2003-10 | Internal / External PD (Crest) Gauge with 10" reach | 2 3/8"-20" |
| 90-MRP2513 | Internal / External PD (Crest) Gauge with 3 3/8" reach | 4 1/2" - 9 5/8" |
| 90-MRP2523 | Internal / External PD (Crest) Gauge with 3 3/8" reach | 4 1/2" - 13 3/8" |
| 90-MRP3003 | Internal / External PD (Crest) Gauge with 3 3/8" reach | 8 5/8" - 24" |
| 90-MRP3503 | Internal / External PD (Crest) Gauge with 6 1/4" reach | 8 5/8" - 24" |
| 90-MRP2512 | Internal PD (Crest) Gauge with 3 3/8" reach | 4 1/2" - 9 5/8" |
| 90-MRP2522 | Internal PD (Crest) Gauge with 3 3/8" reach | 4 1/2" - 13 3/8" |
| 90-MRP3002 | Internal PD (Crest) Gauge with 3 3/8" reach | 8 5/8" - 24" |
| 90-MRP3502 | Internal PD (Crest) Gauge with 6 1/4" reach | 8 5/8" - 24" |
| 90-MRP-AIR-2002 | Internal PD (Crest) Gauge with 4 1/4" reach | 2 3/8"-20" |
| 90-MRP-AIR-2002-7 | Internal PD (Crest) Gauge with 7" reach | 2 3/8"-20" |
| 90-MRP-AIR-2002-10 | Internal PD (Crest) Gauge with 10" reach | 2 3/8"-20" |
| 90-MRP-AIR-2001 | External PD (Crest) Gauge with 4 1/4" reach | 2 3/8"-20" |
| 90-MRP-AIR-2001-7 | External PD (Crest) Gauge with 7" reach | 2 3/8"-20" |
| 90-MRP-AIR-2001-10 | External PD (Crest) Gauge with 10" reach | 2 3/8"-20" |
| 90-MRP2511 | External PD (Crest) Gauge with 4" reach | 4 1/2" - 9 5/8" |
| 90-MRP2521 | External PD (Crest) Gauge with 4" reach | 4 1/2" - 13 3/8" |
| 90-MRP3001 | External PD (Crest) Gauge with 3 3/8" reach | 8 5/8" - 24" |
| 90-MRP3501 | External PD (Crest) Gauge with 6 1/4" reach | 8 5/8" - 24" |

# TDWIN Taper Thread Disk Software

## Features

- Follows API Specification 7.2, Dec. 2008, for Rotary Shouldered Connections
- Follows API Specification 5B, Oct. 2008, for Tubing and Casing Connections
- Presents "preferred" connections as well as interchangeable and obsolete connections
- Organises data compatible with API and industry knowledge offered by resources such as Smith, Joy, and Hughes
- Displays Gagemaker style thread gauges and gauge setting information
- Configures and prints reference drawings for manufacturing including; standard pin/box coupling, pin/box blanking etc.
- Relief groove, box modified bore-back relief, special clearance couplings, and SR grooved couplings
- Produces gauge setup reports for tubing, casing, RSC, and crossover combinations
- Provides inspection reports for all connection configurations selected
- Customises reports with your company logo
- Saves reports to job files and recalls them for future reference
- Provides web links to locate and purchase necessary gauges and standards



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Gagemaker's **TDWIN TAPER** software program produces dimensional drawings and inspection data for API downhole tubular connectors based on the most current industry standards. Everything you need to machine, inspect, and document tubular connection threads is available in this convenient software program.

TDWIN TAPER provides easy access to information for both preferred and non-preferred Rotary Shouldered Connections, Tubing and Casing Connections, and any combination of Crossover. The program offers standard connection types and sizes. TDWIN TAPER displays connection drawings, inspection gauge information and setup and inspection reports.

The software displays printable drawings suitable for manufacturing that follow ASME Y14.5 standards for industry compatibility. Print gauge setup and inspection reports with your company logo and work order information. The program also offers the choice to save reports and jobs for future reference.

| TDWIN Taper Thread Disk Software | |
|---|---|
| **Code No** | **Description** |
| 90-TD-TAPER-X | Thread Disk Software, Web Edition, 1 Year Licence |
| 90-TD-TAPER-X-3 | Thread Disk Software, Web Edition, 3 Year Licence |
| 90-TD-TAPER-X-AR | Thread Disk Software, Web Edition, Annual Renew |
| 90-TD-TAPER-X-U | Thread Disk Software, Web Upgrade Edition, 1 Year Licence |
| 90-TD-TAPER-X-U-3 | Thread Disk Software, Web Upgrade Edition, 3 Year Licence |

# TDWIN Taper Thread Disk Software



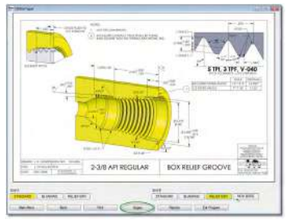
Select from 3 connection categories or review previous jobs and reports

Select a Thread Type

Select a Thread Size

Select View Drawings

Select the desired drawing and view gauge requirements




Select the required gauging method and gauge

View gauge details and tolerances

Customise, preview and print desired reports

# Functional PD Diameter Thread Gauges

## At a Glance

- External Thread Roll Gauge

## Features

- Both series of these functional diameter gauges inspects the effects of all thread element variations and report deviations.
- The gauges must be preset to a Nominal predetermined dimension using gauge blocks, micrometers, or the MIC TRAC measurement centre.

90-RG7000

**Functional PD Thread Gauges**

| Code No | Range (inch) |
|---|---|
| 90-RG7000 | 5/8" to 4" |
| 90-RG7001 | 4" to 8" |
| 90-RG7002 | 8" to 12" |
| 90-RG7003 | 12" to 16" |
| 90-RG7004 | 16" to 20" |
| 90-RG7005 | 20" to 24" |

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CASE STUDY

THREAD MEASUREMENT

# Atlas Copco Tightens Up on Internal Thread Measurement with Gauge Setting System from Bowers Group

Atlas Copco identified the need to further develop the way they checked internal threads on components. Instead of using 'Go/no-go' gauges, the company required a measurement method that was more specific for certain applications, and would meet its goal of continuous improvement.

Bowers Group provided Atlas Copco with the Gagemaker system to measure the internal threads on a variety of components, including hydraulic bolt tightening tools. The Gagemaker allows Atlas Copco to provide more detailed feedback on tolerance to customers. For example, instead of giving a 'pass' or 'fail' result, they are now able to specify the exact measurement by which the tolerance has been met; or indeed, missed. Therefore, if a middle tolerance is achieved, the exact figure can be determined; accurate down to 5 decimal places.

We use it primarily for measuring threads at the moment, but we plan to have several units in place for other manufactured parts throughout the business. Our next aim is to use a Gagemaker to measure internal and external splines, for increased accuracy and a higher level of control over the manufacturing process.Atlas Copco's Quality Inspection Manager, Darren Cleaver said:

"The majority of machinists here at Atlas Copco in Wolverhampton use the Gagemaker system. It has enabled us to halve the number of gauges we buy because it offers such flexible measurement capabilities.

Go/no go gauges are used at present, and although they are perfectly adequate, they are becoming an outdated method that we plan to upgrade. We have shown some of our customers around and they're amazed by the set-up we've got now; it's really working well for us!"

Many of the components manufactured by Atlas Copco are nickel plated in order to provide corrosion resistance for parts that will be typically be used in subsea conditions, and exposed to salt water. As saltwater can be extremely corrosive the components need to be exceptionally accurate considering the critical applications that they are part of. If a part doesn't meet tolerance, and is the wrong size, they will not meet stringent design criteria and will not be passed off by the inspection team.

Components used in the oil and gas industry are also subjected to extremely high pressures. For example, an error in machining or measurement could result in an oversized thread. If used in an application where high pressure is a factor, an oversized thread may result in what is commonly known as 'thread-strip', so it is imperative that manufacturing & inspection processes are adhered to stringent design principles.



The connectivity that the Gagemaker system offers is also a huge benefit to Atlas Copco. The business was extremely keen to streamline the manufacturing process, and the Gagemaker offers a SPI output cable to transfer data to spreadsheets at the touch of a button. Digital readouts allow Atlas Copco to produce reports in order to provide customers with definitive evidence that manufactured components meet ISO standards and British standards.

This electronic, adjustable calibration and measurement centre will inspect parts, preset indicator system gages, and calibrate a variety of hand held inspection gauges. Suitable for use on the shop floor or in the calibration lab, the Mic Trac system contains receiver pads, which are precision ground in matching sets, and used as parallel surfaces for measuring or holding fixtures.

Quality Inspection Manager, Darren Cleaver continued:

"We are very happy with the service and support we have received from Bowers Group and are confident that should be need further assistance they will be more than happy to help.

The Gagemaker has certainly helped us on our way to complete digitalisation, which is one of our aims for the future. Connectivity and data transfer capabilities provided by the Gagemaker are exceptional, and have really helped to streamline our processes. We are even looking at introducing virtual and augmented reality into our manufacturing and training; watch this space!"

# Thread Lead Gauge

## At a Glance

**Range:** 0 - 101.6mm

## Features

- Uses a three-point system for greater stability when inspecting parts (LG-5003)
- Uses interchangeable contact points to allow inspection on a variety of thread forms
- Requires presetting using Gagemaker's lead gage setting standards
- Supplied with one set of contact points. Customer may specify points

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# Thread Lead Gauge



The **Thread Lead Gauge** inspects thread lead using contact points that seat in the threads of a part. Thread lead is the distance between threads, measured on a plane parallel to the centerline of the threaded part. The pitch of the thread determines the diameter of the contact points required for taking measurements. API specification 7-2 requires thread inspection.

90-LG6001 & 90-LG6002 use a 2 point system which allows for a sweeping action to obtain the measurement.

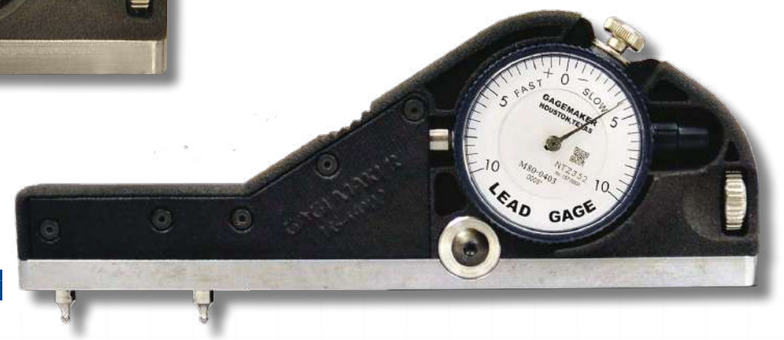
Both gauges are available with higher resolution indicators.

The LG-5003 uses the three-point system to inspect internal and external thread lead. Two fixed contact points at the rear of the gauge and one moveable contact point at the front of the gauge provide complete stability when taking thread lead measurements. This unique design does not require sweeping to obtain measurements.

Contact points can be easily changed to allow the gauge to be used on a variety of thread forms. Each gauge comes with a default set of contact points, but customers may specify another set.

Before inspecting parts, the lead gauge must be preset to a nominal predetermined dimension using a lead gauge setting standard. Lead standards are available for both straight and tapered threads. Our setting standards are manufactured according to ANSI and API specifications, respectively.

90-LG6001




90-LG6002

**Thread Lead Gauge**

| Code No | Description | Range (mm) | Range (inch) | Resolution |
|---|---|---|---|---|
| 90-LG6001 | 2-Point External Lead Gauge | 12.7 - 50.8mm | 1/2" - 2" | 0.0005" |
| 90-LG6001-1 | 2-Point External Lead Gauge | 12.7 - 50.8mm | 1/2" - 2" | 0.0001" |
| 90-LG6002 | 2-Point Internal Lead Gauge | 0 - 101.6mm | 1/2" - 4" | 0.0005" |
| 90-LG6002-1 | 2-Point Internal Lead Gauge | 0 - 101.6mm | 1/2" - 4" | 0.0001" |
| 90-LG6002M | 2-Point Internal Lead Gauge with Metric Indicator | 0 - 101.6mm | 1/2" - 4" | 0.01mm |
| 90-LG5003 | 3-Point External/Internal Lead Gage | 0 - 101.6mm | 1/2" - 4" | .0005" |
| 90-LG5003-1 | 3-Point External/Internal Lead Gage, ½" Travel | 0 - 101.6mm | 1/2" - 4" | .0001" |
| 90-LG5003-J | 3-Point External/Internal Lead Gage | 0 - 101.6mm | 1/2" - 4" | .0005" |
| 90-LG5003-1J | 3-Point External/Internal Lead Gage, ½" Travel | 0 - 101.6mm | 1/2" - 4" | 0001" |
| 90-LG5003-M | 3-Point External/Internal Lead Gage with Metric Indicator | 0 - 101.6mm | 1/2" - 4" | .01 mm |
| 90-LG5003-L | Load to Load 3-Point External/Internal Lead Gage | 0 - 101.6mm | 1/2" - 4" | .0005" |
| 90-LG5003-S | Stab to Stab 3-Point External/Internal Lead Gage | 0 - 101.6mm | 1/2" - 4" | .0005" |

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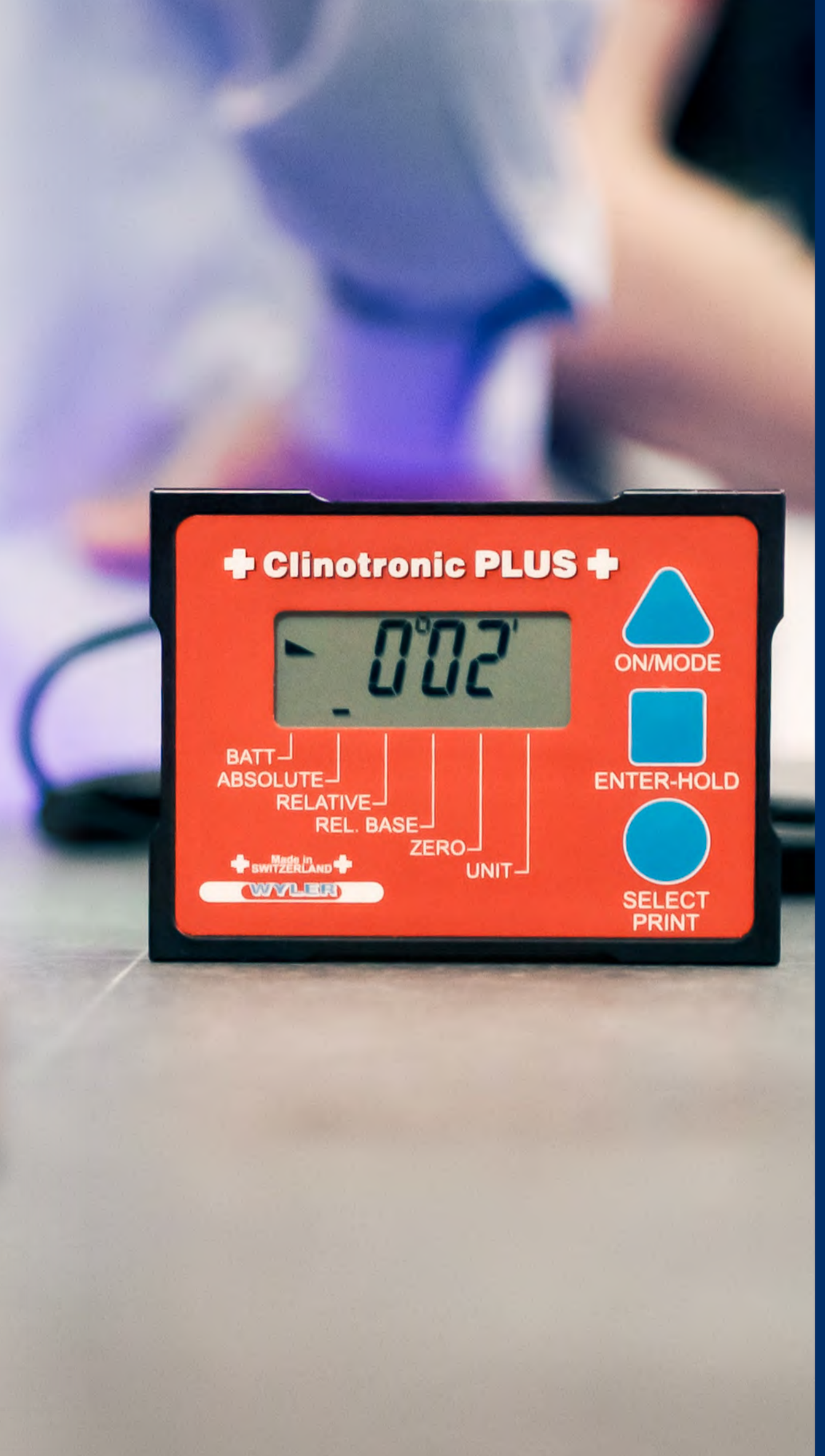


> The main benefit is that the WYLER Blue system is that it is much quicker and more efficient; it enables us to get immediate results. We're chasing microns here, and always aiming for the highest levels of accuracy. The WYLER enables us to achieve this.
>
> **Lee Turner - Director - D. Turner & Son**

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Wyler

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# Wyler BlueSYSTEM

## BlueLEVEL

The **BlueLEVEL** instruments are available in various configurations, with radio data transmission.

## Main Application Area

- Fine alignment of objects
- Straightness measurement
- Parallelism measurement
- Flatness measurement
- Squareness measurements
- Rotation measurement PITCH and ROLL

## BlueLEVEL-2D

The **BlueLEVEL-2D** combines 2 sensors for 2 axes measurements, with radio data transmission.

## Main Application Area

- Precise alignment of objects
- Time saving 2-axis flatness measurement
- Rotation measurement PITCH and ROLL

Pre-configured **BlueSYSTEM** bundles can be adapted to your specific application with the help of a streamlined set of options.

Easy to choose the optimal instruments for the application, due to clearly defi ned packages

- Flexible adaptation to the specifi c requirements with the help of a streamlined set of options
- Reliable wireless communication
- Open and compatible with future WYLER instruments
- Economical solutions

Contact our Product Specialist to explore your application

## Visit our Website

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# wylerCLINO Frame

## Features

The wylerLEVEL Frame is a compact measuring instrument with a frame base. It is equipped with radio data transmission.

## Main Application Area

- Precise alignment of objects
- Straightness measurement
- Parallelism measurement
- Flatness measurement
- Squareness measurement
- Rotation measurement PITCH and ROLL

## wylerCLINO Frame

- Offer various display methods such as bar graphs or spirit levels
- Rugged housing, with prismatic bases made of either aluminum hard anodized or cast iron, nickel plated
- Built-in cross vial for easy alignment of the vertical axis avoiding “lateral stability errors”
- Powered by standard 1.5 V batteries, rechargeable batteries or with mains adapter
- Magnetic inserts optional
- Versions with range ±60° can be recalibrated with the help of internal software in combination with simple calibration tools that are supplied together with the instrument.

# WylerCLINO Portable Precision Inclinometer

**WylerCLINO** instruments are portable precision measuring instrument for inclinations ±10° or 60° (formerly BlueCLINO).

Updated Hardware and Firmware, new Bluetooth connectivity makes it compatible with the whole Wyler BT range of equipment as well as all the new Wyler Software from this point forward.

## Features

- Large and very easy-to-read color display
- Radio transmission, based on Bluetooth technology
- Various color profiles can be chosen
- Various display methods are available, e.g. bar graphs or spirit levels can be chosen
- All current units can be indicated
- Simple zero-adjustment with the integrated software and a reversal measurement
- Powered by standard 1.5V batteries, rechargeable batteries or with mains adapter
- Fulfils the strict CE requirements (immunity against electromagnetic smog)
- The instrument can be adjusted to local gravitation

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# ZEROTRONIC - Digital Inclinometer Sensors

The **WYLER ZEROTRONIC** family of sensors are well established in the market as the benchmark when it comes to high-precision inclination measurement in demanding applications.

Featuring high resolution and high precision, the WYLER ZEROTRONIC sensors boast excellent temperature stability and measuring ranges of ±0.5 to ±60 degrees.

## Features

- High resolution and high precision
- Excellent temperature stability
- Measuring ranges of ±0.5 to ±60 degrees
- Synchronized registration of measuring values for several sensors
- High immunity to shock
- High immunity to electromagnetic fields

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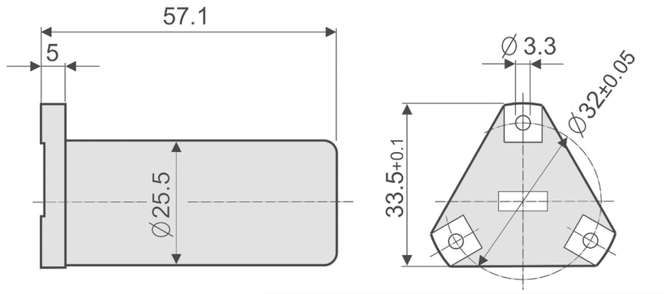
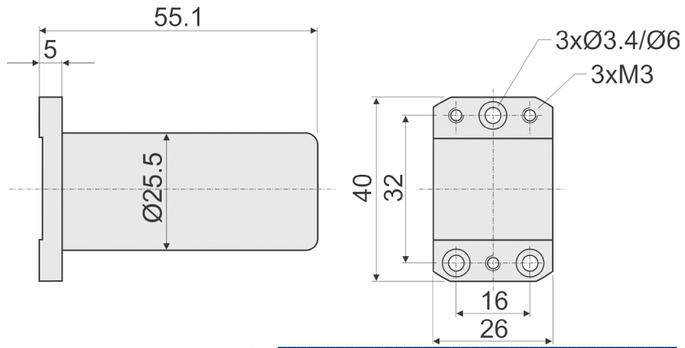
**ZEROTRONIC - Digital Inclinometer Sensors**

| Code No. | Description | Range |
|---|---|---|
| 60-6510 | Zerotronic 0.5 | Type 3 +/- 0.5° |
| 60-6511 | Zerotronic 1 | Type 3 +/- 1° |
| 60-6513 | Zerotronic 10 | Type 3 +/- 10° |
| 60-6514 | Zerotronic 30 | Type 3 +/- 30° |
| 60-6513C | Zerotronic 10 | Type C +/- 10° |
| 60-6514C | Zerotronic 30 | Type C +/- 30° |
| 60-6515C | Zerotronic 60 | Type C +/- 60° |

# ZEROTRONIC - Digital Inclinometer Sensors




Sensor with trianglar mounting surface




Sensor with rectangular mounting surface

| Technical Specification - ZEROTRONIC | | | |
|---|---|---|---|
| **Power Consumption ZEROTRONIC-sensors** | **Description** | **ZEROTRONIC-sensor Type 3** | **ZEROTRONIC-sensor Type C** |
| **Power Supply** | Sensor | 5 V ± 10 % | 5V ± 10 % |
| **External Power Supply** | System T/C | 12 ... 48 V | |
| **Digital Output** | RS485 / asynchr. , 7 DataBits, 2 StopBits, no parity | | |
| | Baudrate (automatic adjustment) | 2'400 ... 115'000 | 9'600 ... 57'600 |
| **Analog Output PWM** | | 0.5 V ... 2.5 V ... 4.5 V | |
| | | @ 5 V Supply | |
| **Temperature Range** | Operating | - 40°C to + 85°C | |
| | Storage | - 55°C to + 95°C | |
| **Net Weight Sensor** | | 118gr | 100gr |
| **Shock Resistance** | | Practically Indestructible | |



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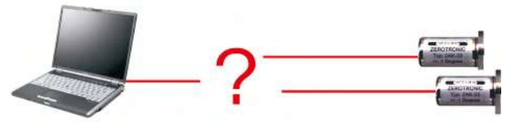
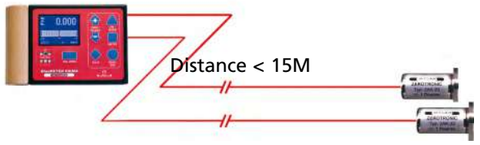
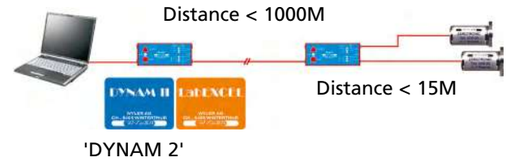
# ZEROTRONIC - Digital Inclinometer Sensors



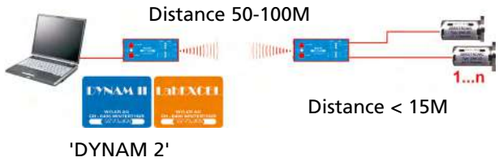
Standard configuration for ZEROTRONIC sensors. The customer can view and record the sensor output signal using their own in-house software



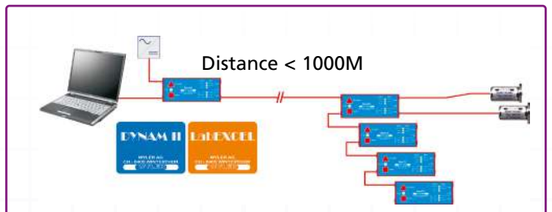

ZEROTRONIC sensors connected to a BlueMETER

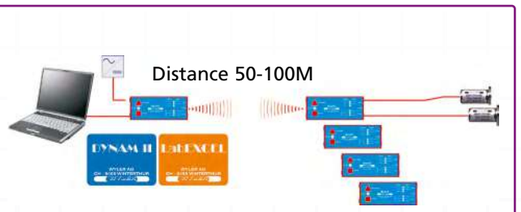



Data transmission through cables




Data transmission through a wireless connection




The BlueTC is used as an interface for data transmission through a cable or wireless connection. To each BlueTC up to eight sensors may be connected. In total, the system can handle 64 units. Because every TC also uses one address, a total of 56 sensors can be connected (64 minus 8 BlueTC addresses). Analysis of measuring results utilising LabEXCEL software.

# WYLERCONNECT PC Interface

## Features

- IR receiver to trigger measurements via wylerTRIGGER (standard equipment)
- Integrated license functions to manage software licenses
- RS-485/232 interface allows connection of ZEROTRONIC or ZEROMATIC sensors via cable

Based on the Microsoft Windows operating system, the wylerCONNECT interface connects WYLER software with WYLER instruments.

The **wylerCONNECT** interface is designed to effectively connect WYLER software with a variety of WYLER instruments. wylerCONNECT contains Bluetooth and Bluetooth Low Energy (BLE) modules to ensure direct wireless communication with the BlueSYSTEM family like BlueLEVEL, BlueLEVEL-2D, BlueCLINO series and also with the Clinotronic S.

Contact our Product Specialist to explore your application



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# nivelSWISS-D - Digital Level

## Features

- For the Wyler nivelSWISS-D the same two options with a horizontal or an angular base are available as with the analog nivelSWISS

Precision hand tool with digital display for the alignment of machine tools.

**Wyler nivelSWISS-D** is mechanically the same instrument as the nivelSWISS, but features a digital display as opposed to the analog display on a galvanometer, which characterizes the nivelSWISS. The mechanical properties, like the excellent zero-point stability, remain the same, but the digital display allows a higher resolution that is 10 times better than the nivelSWISS.

The measuring surfaces are scraped to ensure the high precision of the instrument.

# Clinotronic S

## Features

- Wireless functionality (APP wylerUNIVERSAL for Android™)
- Excellent colour display with low power consumption
- User friendly
- Adjustable to local gravity
- Improved mechanical accuracy
- Wireless functionality

The **Clinotronic S** is a multi purpose inclination measuring instrument.

The Clinotronic S builds on the success of the Clinotronic PLUS. It retains the main features of the Clinotronic PLUS, like its reliability and versatility, and adds the latest technology.

The Clinotronic S can be connected to an Android™ device, which can then be used as remote display. This new feature makes the instrument much more versatile and opens new applications. To ensure best possible accuracy the Clinotronic S can be adjusted to local gravity.

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# Clinotronic Plus

## Features

- Stable aluminium housing, hard anodized
- All four sides can be used as measuring bases
- Display of measuring value in all standard units
- Powered by standard 1.5V batteries, allowing cost-efficient reliability around the world
- Option to connect to a PC
- Optional magnetic inserts and threaded holes are available
- Optional ClinoMASTER allows a precise recalibration on site

Clinotronic PLUS is a portable precision instrument for measuring inclinations up to ±45° or up to ±60°.

The Clinotronic PLUS provides a measuring capacity of ±45 degrees. Four precisely machined exterior reference surfaces assure accuracy and repeatability of measurements in any quadrant. Selected by push-button, any units suitable for inclination measurement may be applied to the display. Even slope indication based on a relative base of selectable length is possible. Simple push-button operation automatically sets absolute as well as relative zero. The RS485 interface allows the connection to other WYLER instruments or directly to a PC using a special cable.

| Clinotronic Plus | |
|---|---|
| | **Description** |
| **Measuring Range** | +/- 45 deg |
| **Settle Time (seconds)** | ca.5 |
| **Sensitivity (mm/m)** | 0.02 |
| **Working Temp. (° C)** | 0 to 40 |
| **Output** | RS 485 |
| **Battery (V)** | Standard AA 1.5 |
| **Housing** | Aluminium hard anodised |
| **Dimensions (mm)** | 100 x 75 x 30 |
| **Weight (g)** | 400 |

# nivelSWISS - Electronic Analogue Level

**nivelSWISS** is a precise electronic inclination measuring instrument with an analogue display on a galvanometer. One of its key mechanical features is its excellent zero-point stability. The nivelSWISS is therefore well suited when adjusting machine tools.

Depending on the application, nivelSWISS is available either with a horizontal base or with an angular base. The measuring surfaces are scraped to ensure the high precision of the instrument.

Both instruments are standalone measurement instrument.

Suitable for measuring only horizontal surfaces. This model can have a choice of screw on granite bases in either 200mm, 250mm or 500mm lengths.

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# Adjustable Micrometer Spirit Level No.68

## Features

- Standard version with prismatic measuring base of hardened steel, finely rectified, 150mm long, without magnets, according to Standards DIN877 + DIN2276/1
- Main scale on micrometer: 1 division = 0.02 mm/m
- The prismatic bases are suitable for shaft diameters Ø 19 ... Ø 120mm
- The main vial has a sensitivity of 0.02 mm/m
- Precision: 0.02 mm/m
- Transversal vial with a sensitivity of 2-5 mm/m for easier handling of the level when measuring on horizontal shafts
- Packed in a wooden storage case

The **Adjustable Micrometer Spirit Level 68** is suitable for measuring inclinations from - 20 to + 4 mm/m.

Used to measure the flatness of surfaces, inclinations, taper or concentricity. With prismatic base, hardened and ground for measuring shafts and flat surfaces. The micrometer has a knurled knob for setting zero. Height 80mm, length 150mm and sensitivity 0.02mm/m.

| Adjustable Micrometer Spirit Level No.68 | | |
|---|---|---|
| **Code No.** | **Description** | **Sensitivity (m/m)** |
| **60-6242** | Adjustable Mic Level 68, 150mm, 0.02mm/m | 0.02 |

# Micrometric Spirit Level No. 53

## Features

- Metric version: 1 division = 0.02 mm
- Inch-version 1 division = 1 thou. inch
- The main vial in the standard version has a sensitivity of 0.02 mm/m (other sensitivities available)
- Packed in a wooden storage case

Standard version with flat measuring base and with a turnable lay-on shaft of hardened steel, according to Standards DIN877 + DIN2276/1

For measurement of irregular plane surfaces. Permits direct reading of the inclination in 0.001" on the scale of the micrometer. Finer displacements are obtainable from the displacement of the bubble. Support at each end means that uneven surfaces are bridged.

60-6243

**Micrometric Spirit Level No. 53**

| Code No. | Range (mm) | Sensitivity (m/m) |
|---|---|---|
| 60-6243 | ±5 mm on a distance of 100 | 0.02 |
| 60-6244 | ±5 mm on a distance of 100 | 0.05 |
| 60-153-120-121-100 | ±5 mm on a distance of 100 | 0.10 |



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# Frame Spirit Level No. 58S

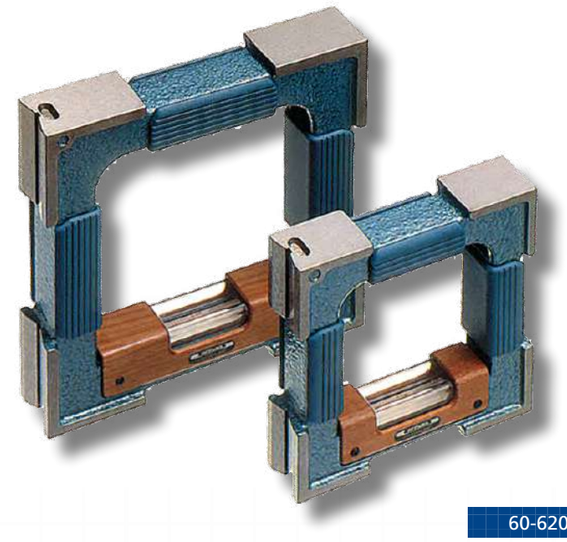
## Features

- Standard version with two prismatic measuring bases bottom horizontal and left hand vertical, contact faces hand scraped for sensitivity 0.05 mm/m and better and two flat measuring bases top horizontal and right hand vertical, according to Standards DIN877 + DIN2276/1.
- Simple adjustment of the zero-point and of rollover errors (twist) of the main vial, due to an ingenious adjusting system
- Excellent view on the vial from above and from the side
- Transversal vial with a sensitivity of 2-5 mm/m for easier handling of the level when measuring on horizontal shafts or in the vertical
- The prismatic bases are suitable for shaft diameters Ø 17 to Ø 135 mm, depending on the dimensions / Details see table below
- Special plastic handles on 3 sides eliminate the transfer of body temperature
- Packed in a wooden storage case

The **Frame Spirit Level 58** is suitable for measurements on vertical and horizontal surfaces and shafts.

With two prismatic and two flat base surfaces for checking horizontal and vertical surfaces, plane or cylindrical.

Magnetic inserts available.



60-6207

**Frame Spirit Level No. 58S**

| Code No. | Size of Base (mm) |
|---|---|
| 60-6207 | 100 |
| 60-6208 | 100 |
| 60-6209 | 100 |
| 60-6212 | 150 |
| 60-6213 | 150 |
| 60-6214 | 150 |
| 60-6217 | 200 |
| 60-6218 | 200 |
| 60-6219 | 200 |

# Magnetic Spirit Level 48

## Features

- Standard version with two prismatic measuring bases horizontal and vertical, vertical base with magnetic inserts, contact faces hand scraped for sensitivity 0.05 mm/m and better, manufactured and tested according to Standards DIN877 + DIN2276/1.
- Simple adjustment of the zero-point and of rollover errors (twist) of the main vial
- Excellent view on the vial from above and from the side
- Transversal vial with a sensitivity of 2-5 mm/m for easier handling of the level when measuring on horizontal shafts or vertically
- The prismatic base is suitable for shaft diameters Ø 19 to Ø 108 mm
- Wooden handle eliminates the transfer and influence of body temperature
- Packed in a wooden storage case



The **Magnetic Spirit Level 48** is a universal spirit level, particularly suitable for measurements on vertical and horizontal surfaces and shafts.

This level has strong magnetic inserts in its 150mm long vertical base. They provide a positive hold on both flat and cylindrical vertical surfaces.

Magnetic inserts in horizontal base available.

60-6201

| Magnetic Spirit Level 48 | | |
|---|---|---|
| Code No. | Size of Base (mm) | Sensitivity (m/m) |
| 60-6201 | 0.02 | 150 |
| 60-6201B | 0.05 | 150 |
| 60-6201C | 0.1 | 150 |

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# Horizontal Spirit Level No 55S

## Features

- Measuring base with flat contact faces
- Measuring base with magnetic inserts
- Simple adjustment of the zero-point and of rollover errors (twist) of the main vial, due to an ingenious adjusting system
- Excellent view on the vial from above and from the side
- Transversal vial with a sensitivity of 2-5 mm/m for easier handling of the level when measuring on horizontal shafts
- The prismatic bases are suitable for shaft diameters Ø 17 to Ø 160 mm, depending on the dimensions / Details see specifications
- Wooden handle eliminates the transfer and influence of body temperature
- Packed in a wooden storage case



The **Horizontal Spirit Level 55** is suitable for measurements on horizontal surfaces and shafts.

Standard version with prismatic measuring base, contact faces hand scraped for sensitivity 0.05 mm/m and better, according to Standards DIN877 + DIN2276/1

With prismatic base for checking horizontal surfaces, plane and cylindrical.

Magnetic inserts available.

| Level Sensitives | |
|---|---|
| 2 seconds | 0.0001" in 10" or 0.01mm/m |
| 4 seconds | 0.0002" in 10" or 0.02mm/m |
| 10 seconds | 0.0005" in 10" or 0.05mm/m |
| 20 seconds | 0.001" in 10" or 0.10mm/m |

# Shaft Spirit Level No. A63

## Features

- Measuring base flat, without magnetic inserts (standard)
- Measuring base prismatic, with magnetic inserts (on request)
- Transversal vial with a sensitivity of 2-5 mm/m for easier handling of the level when measuring on horizontal shafts
- The prismatic bases are suitable for shaft diameters Ø 17 to Ø 80 mm
- Packed in a wooden storage case

The **Shaft Spirit Level No. A63** is suitable for measurements on horizontal surfaces and shafts and, due to the side windows, it is particularly designed for measuring objects in a higher position where the reading from the side is necessary.

Standard version with prismatic measuring base, not recessed in the middle part, according to Standards DIN877 + DIN2276/1

**Shaft Spirit Level No. A63**

| Code No. | Size of Base (mm) | Sensitivity (m/m) |
|---|---|---|
| 60-6290 | 100 | 0.05 |
| 60-690B | 100 | 0.1 |
| 60-6290C | 100 | 0.3 |



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# Tubular Spirit Level No 59

## Features

- As an option the Tubular Spirit Level 59 in lengths 80 and 150mm can be obtained with 2 through holes for mounting on a measuring object (see full brochure under downloads).
- Vial is firmly sealed in a stable steel tube.
- Case not included.

The **WYLER Tubular Spirit Level 59** is particularly suitable for measurements on flat surfaces of machines, apparatus, etc. as well as for permanent mounting on measuring objects according to Standards DIN877 + DIN2276/1.

Available in various lengths and sensitivities, The WYLER Tubular Spirit Level 59 provides a flat measuring base without recession in the middle part, according to Standards DIN877 + DIN2276/1. It is particularly suitable for measurements on flat surfaces of machines, apparatus, etc. as well as for permanent mounting on measuring object.

**Tubular Spirit Level No 59**

| Code No. | Size of Base (mm) | Sensitivity (m/m) |
|---|---|---|
| 60-62105 | 80 x 9; Ø =16 | 0.10 |
| 60-62105A | 80 x 9; Ø =16 | 0.30 |
| 60-62106 | 100 x 10; Ø =20 | 1.00 |
| 60-62107 | 100 x 10; Ø =20 | 0.10 |
| 60-62107A | 100 x 10; Ø =20 | 0.30 |
| 60-62108 | 100 x 10; Ø =20 | 1.00 |
| 60-62109 | 100 x 10; Ø =20 | 0.05 |
| 60-62109A | 150 x 10; Ø =22 | 0.10 |
| 60-62109B | 150 x 10; Ø =22 | 0.30 |
| 60-62110 | 150 x 10; Ø =22 | 1.00 |
| 60-62111 | 200 x 11; Ø =22 | 0.05 |
| 60-62111A | 200 x 11; Ø =22 | 0.10 |
| 60-62111B | 200 x 11; Ø =22 | 0.30 |
| 60-62112 | 200 x 11; Ø =22 | 1.00 |

# Cross Spirit Level No.76

## Features

- Clear visual indication of levelling
- Enables the inclination of both axis
- Fast and accurate

A wide range of **WYLER Bubble Spirit Levels** are available, designed to be fitted onto machines and other applications where a clear visual indication of levelling is required.

Specially designed for the simultaneous measuring or levelling of surfaces on machines and apparatus, the WYLER Cross Spirit Level 76 enables the inclination of both axis (X- and Y-axis) to visualised at the same time.

| Cross Spirit Level No.76 | | |
|---|---|---|
| Code No. | Diameter (mm) | Sensitivity (m/m) |
| 60-62170 | 40 | 2.5 |
| 60-62170A | 50 | 2.0 |
| 60-62171 | 50 | 1.0 |
| 60-62170B | 60 | 2.0 |
| 60-62173 | 60 | 1.0 |
| 60-62172 | 60 | 0.3 |
| 60-62170C | 80 | 2.5 |
| 60-62175 | 80 | 1.0 |
| 60-62174 | 80 | 0.3 |

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DIAVITE AG

Diavite AG

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# DH-10 TOUCH
## Surface Finish Tester

### At a Glance

- Adjustable measuring speeds
- Calibration of up to 8 tracers

### Features

- Save and export on-the-spot measuring reports
- High-precision roughness measuring instrument for use in workshops and measuring rooms.
- Automatic Calibration
- 5 measuring lengths adjustable 0.5mm to 15mm
- Adjustable measuring speeds
- Calibration of up to 8 tracers
- Save measurements with images
- Multitude of tracer types for all applications
- Simple menu navigation, multilingual
- Tolerance display
- Many available accessories
- Optional powerbank for use away from mains power

522

With the DIAVITE DH-10 TOUCH you can work with tracers without and with skid. The entire DIAVITE tracer range is available to you with just one device.

On the 10.1“ Full HD Touch Display you will find all controls for a quick and easy measurement. You define the measurement (measuring length, filter, speed, etc.) and save it with an image and corresponding protocol.

Via the menu or a barcode scanner you select the program and execute it. The protocol is then printed via LAN (WLAN/ Bluetooth) or stored on the server, USB stick on the previously defined path. You have the choice whether to save in PDF, CSV or TXT format. A statistical evaluation of several measurements can also be recorded.

| DH-10 TOUCH Surface Finish Tester | | | |
|---|---|---|---|
| **Code No** | **Description** | **Range** | **Probe Type** |
| **13-DH-10/VHF** | Diavite DH-10 TOUCH Surface Finish Tester | Ra, Rq: 0 – 20.00 µm \| 0 – 800 µin<br>All other measurement values: 0 – 350.0 µm \| 0 – 1400 µin Ra, Rq: 0 – 20.00 µm \| 0 – 800 µin<br>All other measurement values: 0 – 350.0 µm \| 0 – 1400 µin | Diamond tip: 5 µm, 90° (standard)<br>or 2 µm, 60° (option) |
| **13-PB-10** | Powerbank for DH-10 | | |

| DH-10 TOUCH Surface Finish Tester | |
|---|---|
| **Code No** | **Description** |
| **Parameters Roughness** | ISO/DIN: Ra / Rz (DIN) / Rmax / R3z / Rt / Rq (RMS) / Rk / Rp / Rv / Rpk / Rvk / MR1 / MR2 / RPc / C1 / C2 / contact ratio Rmr / C0 / Cz / V0 / Rdg / RL0<br>JIS: Ra (JIS) / Rz (JIS)<br>ISO 12085: R / AR / Rx |
| **Connections** | 2x USB-3.0 / 1x mini HDMI / 1x LAN/RJ45 |
| **Languages** | German / English / French / Italian / Spanish / Polish / Chinese |
| **Cutoff** | 0.08 mm / 0.25 mm / 0.8 mm / 2.5 mm / “OFF” for pro☒le parameters |
| **Tracer Tip** | Diamond tip: 5 µm / 90° (standard) or 2 µm / 60° (option) |
| **Measurement Range in Z** | approx. 450 µm |
| **Tracing Speed** | 0.25 / 0.5 and 1.0 mm/s |
| **Motor Unit** | VHF (for all tracers without and with skid) / measuring length 0.48 to 16 mm |
| **Device Dimensions (LxWxH)** | approx. 265 x 175 x 75 mm |

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4x faster alignment.
75% reduction in waste
**Presige Watch Brand**

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ASH

Digital Inspection

AE
MF

# OMNI 3

## At a Glance

- Digital Microscope Inspection and Measurement

## Features

- Full HD video imaging
- Super Fast Auto-Focus™
- Spot Focus™*
- Manual Rocker Focus™ - to accurately adjust the focus level
- AshCam+™
- Image Stacking
- AshTruColour™
- Real-Time Lens Distortion Correction™ (RTLDC)*
- User privileges settings
- Improved Depth of Field (DoF)
- Interchangeable lighting
- Imaging Stamping
- On Screen Preset Buttons
- Save files and images to Network

* Patent pending

Have you seen our video
**OMNI 3 Digital Microscope**

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Leverage advanced technology to move to hyper speed, super precision, inspection. Omni 3 has been engineered to deliver one of the most advanced and intitive digital microscope experiences.

Powerful, embedded software can process complex imaging tasks without a PC. Custom designed to deliver maximum power.

4x faster alignment.
75% reduction in waste
**Presige Watch Brand**



## Apps

With the Omni 3 you are able to build your own solution by choosing the apps that, meet your specific requirements.

Our apps range from advanced measurement tools to help meet critical manufacturing tolerances to comparison tools ensuring the highest production quality. Evaluate the apps free of charge to determine which best meet your needs with our free 30 click trial of each app.

- Colour Analysis App
- Object Counting App
- Z Height Measurement App
- 2D Measurement & Graticules
- DXF Import & Export
- Imaging Stictching
- Image Comparator Side by Side
- Image Comparator Overlay

**Camera Specifications**

| | Lens Type | +5 Lens | +10 Plan 1x | +25 | +50 |
|---|---|---|---|---|---|
| **Optical** | Magnification Range (X) | 2.5 - 68 | 4.8 - 136 | 54.7 - 336 | 109.4 – 673 |
| | X-axis FOV (mm) | 200 - 7.5 | 76 - 3.8 | 9.3 - 1.5 | 4.6 - 0.76 |
| | Y-axis FOV (mm) | 112 - 4.2 | 59.5 - 2.1 | 5.4 - 0.85 | 2.6- 0.43 |
| **Digital** | Magnification Range (X) | 69d - 136.5d | 137d - 272d | 337d - 673.3d | 674d – 1346d |
| | X-axis FOV (mm) | 7.5 x 3.75 | 3.8 x 1.9 | 1.5 x 0.75 | 0.76 – 0.37 |
| | Y-axis FOV (mm) | 4.2 x 2.1 | 2.1 x 1.1 | 0.85 x 0.425 | 0.43 – 0.22 |
| | Working Distance (mm) | 195 | 78 | 36 | 34 |
| | Depth of Field (mm) | 80 (min. zoom) / 0.5 (max. optical) | 35 (min. zoom) / 0.1 (max. optical) | 0.3 (min. zoom) / 0.1(max. optical) | 0.1 ( min. zoom) / 0.05 (max.optical) |
| **2D Measurement** | Accuracy % | +/ -1 | +/ -1 | +/ -1 | +/ -1 |
| **Z-Height** | Range | 0 - 25mm | 0 - 25mm | | |
| | Accuracy | 100 µm | 100 µm | | |

# OMNI 3

## Included Systems Components

- +5 Lens
- LED Ring light
- Wireless Keyboard and Mouse
- USB Memory Stick
- HDMI Cable

| Techincal Specification | |
|---|---|
| Magnification Range (with supplied +5 lens) | 2.5 - 68 (Optical)<br>69d - 136.5d (Digital) |
| Camera Resolution | 1920 x 1080 Pixels |
| Monitor Connections | HDMI / DVI |
| Monitor Requirements | HD Ready / Full HD (Recommended) |
| Input / Output | HDMI Output<br>USB 2.0 (x4 Ports)<br>Mini USB Port<br>General Purpose IO (x3 Ports)<br>DC Power Jack 24V |
| Internal Storage | 16GB |
| Image Capture | Internal Storage<br>Removable USB Image Storage<br>USB on the Go (PC Connectivity) |
| Power | 24W |
| Dimentions | 216mm x 125mm x 136mm |
| Weight | 1.5kg |
| Operating Temperature | Storage 10°C to 60°C<br>Operating 5°C to 40°C |

BOWERS GROUP

## Optional Accessories

| Stands & Stages | | | |
|---|---|---|---|
| Code No | Stage | Code No | Stands |
| AI 100-011 | XY Stage for Uplight | AI 100-040 | Premium Illuminated Track Stand |
| AI 100-010 | XY Stage | AI 100-043 | Premium Track Stand |
| AI 100-057 | Large XY Stage | AI 100-039 | Articulated Arm Stand |
| | | AI 100-038 | Dual Arm Boom Stand |
| AI 801-414 | Oblique Tilting Stage | | |

| Lenses | |
|---|---|
| Code No | Description |
| AI 280-150 | +5 Lens |
| AI 100-055 | +10 plan 1x Lens |
| AI 100-053 | +25 Lens |
| AI 801-422 | ASH 360 Rotating Viewer |
| AI 100-041 | Polarising Lens (Analyser) |
| AI 801-835 | Sub-Stage Polarising Film & Analyser |
| AI 801 836 | Substage Polarising Film |
| AI 801-423 | Polarised Ringlight & Anayser (58mm) |

| Lights | |
|---|---|
| Code No | Description |
| AI 100-045 | Diffused LED Dome Light |
| AI 801-421 | UV Ring Light 367nm |
| A1 801-423 | Polorised Ringlight & Analyser (58mm) |

| Controllers | |
|---|---|
| Code No | Description |
| FI 806-002 | KPII External Keypad |
| FI 806-003 | KPIII Extended Keypad |

| Others | |
|---|---|
| Code No | Description |
| AI 100-052 | ASH PC Capture |
| AI 801-416 | 24" Monitor |
| AI 801-563 | Hard Carry Case |

AI 801-835

AI 801-422

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# INSPEX 3

## At a Glance

- Digital Microscope Inspection and Measurement

## Features

- Full HD video imaging
- Super Fast Auto-Focus™
- Spot Focus™*
- Manual Rocker Focus™ - to accurately adjust the focus level
- ASHCal™ - No recalibration when changing magnification levels
- Image Stacking
- 2D measurement & graticules
- Preset & graticules
- AshTruColour™
- Networking - enables direct saving to the server or cloud for increased workflow efficiency
- Real-Time Lens Distortion Correction™ (RTLDC)*
- User privileges settings
- Improved DoF
- Interchangeable lighting
- Imaging Stamping
- Save to Network

* Patent Pending

Have you seen our video
**INSPEX 3 Digital Microscope**

## Visit our Website

For more information please click here

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**Inspex 3** is a powerful, flexible and intuitive HD digital microscope incorating our new 30x HD Camera module.

Unique patented, high-speed imagine processing algorithms for exceptional image quality. Super-fast focus speed and smooth digital zoom. Simpler, easier, more efficient inspection.

# INSPEX 3

| Camera Specifications | | | | | |
|---|---|---|---|---|---|
| | **Lens Type** | **+5** | **+10 Plan 1x** | **+25** | **+50** |
| **Optical** | Magnification Range (X) | 2.1 - 65.6 | 4.1 - 130 | 51.7 - 323.4 | 97.7 - 628 |
| | X-axis FOV (mm) | 240 x 135 | 71x71ø | 4.5 x 4.5ø | 2.1 x 1 |
| | Y-axis FOV (mm) | 8.0 x 4.69 | 4.0 x 2.2 | 1.75 x 0.9 | 2 - 0.6 |
| **Digital** | Magnification Range (X) | 65.6d - 131.6d | 130.5d - 259.9d | 325d - 646.7d | 631.2d - 1256.1d |
| | Min Digital FOV (H x V mm) | 8.0 x 4.69 | 4.0 x 2.2 | 1.75 x 0.9 | 1.2 - 0.44 |
| | Max Digital FOV (H X V mm) | 4.0 x 2.32 | 2.32 x 1.16 | 0.9 x 0.45 | 0.7 - 0.26 |
| | Working Distance (mm) | 195 | 78 | 45 | 36 |
| | Depth of Field (mm) | 80 - 0.5 | 42 - 0.2 | 0.3 - 0.015 | 15um - 4um |
| | Video Latency (milli seconds) | 20 (50Hz)/ 17 (60Hz) | 20 (50Hz)/ 17 (60Hz) | 20 (50Hz)/ 17 (60Hz) | 20 (50Hz)/ 17 (60Hz) |

Specifications obtained using a 24" Monitor. Depth of field measured with optimal image settings.

| Techincal Specification | |
|---|---|
| **Magnification Range (with supplied +5 Lens)** | 2.1 - 131.6x |
| **Camera Resolution** | 1920 x 1080 Pixels |
| **Monitor Connections** | HDMI / DVI |
| **Monitor Requirements** | HD Ready / Full HD (Recommended) |
| **Input / Output** | HDMI Output<br>USB 2.0 (x4 Ports)<br>Mini USB Port<br>General Purpose IO (x3 Ports)<br>DC Power Jack 24V |
| **Internal Storage** | 16GB |
| **Image Capture** | Internal Storage<br>Removable USB Image Storage<br>USB on the Go (PC Connectivity) |
| **Power** | 24W |
| **Dimentions** | 216mm x 165mm x 170mm |
| **Weight** | 1.5kg |
| **Operating Temperature** | Storage 10°C to 60°C<br>Operating 5°C to 40°C |

# INSPEX 3

## What's Included

- Inspex 3
- Quadrant Controllable Ring Light
- Lens +5
- Mouse & Mat
- Keyboard
- Power Supply
- HDMI to HDMI Cable
- Mini USB Cable (for PC connection)
- USB Memory Stick (8gb)
- Grounding Cable
- 2 x Arms Brackets (for stand mounting)
- Arm Receiver
- User Manual
- Cleaning Cloth



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**Inspex 3** is the ideal platform for your manufacturing inspection needs. Digitally transform your inspection process by upgrading from traditional microscopes, improving ergonomics and introducing networking, documentation, reporting and improved training capabilities.

| Included Systems Components | | | |
|---|---|---|---|
| **Lenses** | +5 Lens | | |
| **Lights** | LED Ring light | | |
| **Others** | Wireless Keyboard and Mouse | USB Memory Stick | HDMI Cable |

## Optional Accessories

| Stands & Stages | | | |
|---|---|---|---|
| **Code No** | **Stage** | **Code No** | **Stands** |
| AI 100-011 | XY Stage for Uplight | AI 100-040 | Premium Illuminated Track Stand |
| AI 100-010 | XY Stage | AI 100-043 | Premium Track Stand |
| AI 100-057 | Large XY Stage | AI 100-039 | Articulated Arm Stand |
| | | AI 100-038 | Dual Arm Boom Stand |
| AI 801-414 | Oblique Tilting Stage | | |

| Lenses | |
|---|---|
| **Code No** | **Description** |
| AI 280-150 | +5 Lens |
| AI 100-055 | +10 plan 1x Lens |
| AI 100-053 | +25 Lens |
| AI 801-422 | ASH 360 Rotating Viewer |
| AI 100-041 | Polarising Lens (Analyser) |
| AI 801-835 | Sub-Stage Polarising Film & Analyser |
| AI 801 836 | Substage Polarising Film |
| AI 801-423 | Polarised Ringlight & Anayser (58mm) |

| Lights | |
|---|---|
| **Code No** | **Description** |
| AI 100-045 | Diffused LED Dome Light |
| AI 801-421 | UV Ring Light 367nm |
| A1 801-423 | Polorised Ringlight & Analyser (58mm) |

| Controllers | |
|---|---|
| **Code No** | **Description** |
| FI 806-002 | KPII External Keypad |
| FI 806-003 | KPIII Extended Keypad |

| Others | |
|---|---|
| **Code No** | **Description** |
| AI 100-052 | ASH PC Capture |
| AI 801-416 | 24" Monitor |
| AI 801-414 | Oblique Tilting Stage |
| AI 801-563 | Hard Carry Case |

AI 100-053

# INSPEX 4K

## At a Glance

- Digital Microscope Advanced Inspection

## Features

- Ultra HD Resolution 3840 x 2160 pixels
- 3x-71x optical zoom
- Higher colour depth and superb image quality
- Autofocus
- Image & video capture - using-Windows or OXB PC capture software
- Improve inspection quality
- Ergonomic digital solution
- Faster image response for rework & observing moving parts
- Easily adjustable working height

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## Visit our Website

For more information please click here

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# INSPEX 4K

The **Inspex 4K** is an inspection solution that delivers four times the resolution of full HD inspection systems. Experience crystal clear ultra-high definition video imaging, allowing you to see more detail than ever before.

A simple, intuitive interface empowers the end user to inspect parts with ease, simplicity and comfort.

Speed up your inspection process by identifying defective parts faster, easier and in super high resolution. The Inspex 4K offers features such as high-magnification, auto-focus, manual focus, auto-exposure and white balance.

| Camera Specifications | | |
|---|---|---|
| | **Lens Type** | **+10 Plan 1x** |
| **Optical** | Magnification Range (X) | 10x - 71x |
| | Min. FOV (mm) | 51 x 29 |
| | Max. FOV (mm) | 7.5 X 4.25 |
| **Digital** | Magnification Range (X) | 72d -142d |
| | Min. FOV (mm) | 7.5 X 4.1 |
| | Max. FOV (mm) | 3.75 X 2.25 |
| | Working Distance (mm) | 55 |
| | Depth of Field (mm) | min(11) max(0.2) |

| Techincal Specification | |
|---|---|
| **Zoom Range** | 3x -142x (with a 27" monitor) |
| **Camera Resolution** | 3840 x 2160 pixels |
| **Monitor Connections** | HDMI / DVI |
| **Monitor Requirements** | 4K Monitor |
| **Input / Output** | HDMI Out<br>USB 2.0 (x1 Ports)<br>Mini USB (x1)<br>General Purpose IO (x3 Ports)<br>DC Power Jack 24V |
| **Internal Storage** | N/A |
| **Image Capture** | Capture Card to PC |
| **Power** | 24W/110W |
| **Dimensions** | 216mm x 165mm x 170mm |
| **Weight** | 1.75kg |
| **Operating Temperature** | Storage 10°C to +60°C<br>Operating +5°C to +40°C |

# INSPEX 4K

## What's Included

- Inspex 4K
- Lens +10 Plan 1x
- Power Supply
- 4K Capture Box
- 4K RingLight
- HDMI to HDMI Cable
- Grounding Cable
- 1 Arm Bracket (for stand mounting)
- Arm Receiver
- User Manual
- Cleaning Cloth

## Visit our Website

For more information please click here

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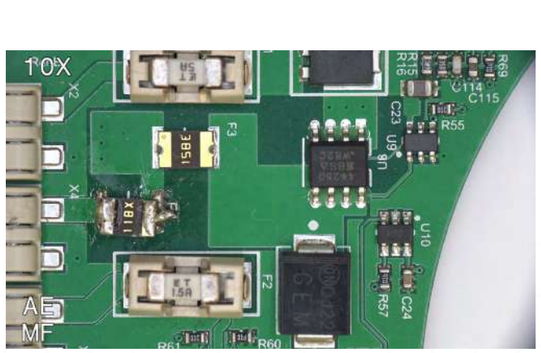
## Optional Accessories

| Lights | |
|---|---|
| **Code No** | **Description** |
| AI 100-045 | Diffused LED Dome Light |
| AI 801-421 | UV Ring Light 367mm |

| Stands | |
|---|---|
| **Code No** | **Description** |
| AI 100-043 | Track Stand |

| Controllers | |
|---|---|
| **Code No** | **Description** |
| FI 806-002 | KPIII Keypad |

| Others | |
|---|---|
| **Code No** | **Description** |
| MR 100-071 | 27" 4K Monitor |



# INSPEX HD Table

## At a Glance

- Digital Microscope Inspection

## Features

- Compact and Portable
- Superb Image Quality
- Zero Video Latency
- Autofocus
- Image Capture
- Working Distance
- Wide Dynamic Range
- On Screen Dimensioning

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## Visit our Website

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The **Inspex HD Table** is a portable full HD digital microscope solution for rapid inspection in manufacturing plants. The fully integrated, compact stand allows it to be used in any part of the production environment. Experience full HD image quality with no delay. The ideal solution for those wishing to digitise and simplify their inspection process.

This inspection system is ergonomically designed, allowing for less operator fatigue and improved production efficiency. Simple, fast, high-quality inspection, the Inspex HD Table is ideal for repair, rework, assembly and quality control in any manufacturing industry.



# INSPEX HD Table

| Technical Information - Magnification | | | | | |
|---|---|---|---|---|---|
| **Lens (Dioptre)** | **2** | **3** | **4** | **5** | **10** |
| **Max Height (mm)** | 500 | 333 | 250 | 200 | 100 |
| **Min Height (mm)** | 405 | 280 | 205 | 170 | 85 |
| **Minimum Magnification*** | 1.1 | 1.3 | 2 | 2.5 | 4 |
| **Maximum Magnification* Optical/Digital** | 29/57 | 36/71 | 50/98 | 62/122 | 121/237 |
| **Field of View at Minimum mag. (mm)** | X: 595<br>Y: 334 | X: 400<br>Y: 225 | X: 280<br>Y: 164 | X: 231<br>Y: 136 | X: 60<br>Y: 50 |
| **Field of View at Maximum mag. (mm)** | X: 20/10<br>Y: 11/5.5 | X: 14/7<br>Y: 8/4 | X: 10/5<br>Y: 6/3 | X: 8/4<br>Y: 5/2 | X: 5/2<br>Y: 3/1 |
| **Maximum Depth of Field** | 176 | 120 | 106 | 78 | 57 |
| **Minimum Depth of Field** | 5 | 4 | 1 | 0.50 | 0.20 |

| Techincal Specification | |
|---|---|
| **Zoom Range (with supplied lens)** | 4D lens – 2x - 98x |
| **Camera Resolution** | HD 1080p, 1920 x 1080 at 50/60 Hz |
| **Monitor Connections** | HDMI / DVI |
| **Monitor Requirements** | HD Ready / Full HD (Recommended) |
| **Power** | 8 Watts |
| **Dimensions** | Table 240mm x 410mm<br>Folded Height 110mm<br>Raised Height 420mm |
| **Weight** | 2.5kg |
| **Operating Temperature** | Storage 10°C to +60°C<br>Operating +5°C to +40°C |
| **Image Capture** | USB 2.0 highspeed |

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# INSPEX HD Table

## What's Included

- Inspex HD 1080p
- +4 Lens
- Power supply
- HDMI to HDMI cable
- Operation Manual
- Grounding Cable
- USB Memory Stick

Have you seen our video
**INSPEX HD Table/Vesa**

## Visit our Website

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# INSPEX HD Table



## Optional Accessories

| Stands & Stages | | | |
|---|---|---|---|
| **Code No** | **Stage** | **Code No** | **Stands** |
| AI 100-010 | XY Stage | AI 100-028 | Track Stand Vesa Flex Cam |
| | | AI 100-019 | Track Stand Vesa & Vesa Short Flex Cam |
| | | AI 100-020 | Track Stand Vesa Short |
| AI 100-011 | XY Stage for Uplight | AI 100-023 | Uplight Track Stand Vesa & Vesa Short Flex Cam |
| AI 801-414 | Oblique Tilting Stage | | |
| AI 801-413 | Height Adjustable Stage | | |
| AI 100-057 | XY Stage Large | | |

| Lenses | |
|---|---|
| **Code No** | **Description** |
| AI 280-150 | +5 Lens |
| AI 100-055 | +10 plan 1x Lens |
| AI 100-053 | +25 Lens |
| AI 801-422 | ASH 360 Rotating Viewer |
| AI 100-041 | Polarising Lens (Analyser) |
| AI 801-835 | Sub-Stage Polarising Film & Analyser |
| AI 801 836 | Substage Polarising Film |
| AI 801-423 | Polarised Ringlight & Anayser (58mm) |

| Others | |
|---|---|
| **Code No** | **Description** |
| AI 100-052 | ASH PC Capture |
| AI 801-416 | 24" Monitor |
| AI 801-563 | Hard Carry Case |
| AI 801-566 | Soft Carry Case |

| Lights | |
|---|---|
| **Code No** | **Description** |
| AI 100-012 | 8-Point LED Ring Light |
| AI 100-000 | Polarizer for 8-Point LED Ring Light |
| AI 100-001 | Diffused LED Dome Light |
| AI 100-033 | LED Fibre Optic Illuminator with Dual Gooseneck |
| **UV Ring Light** | |
| AI 100-026 | 220V 254nm |
| AI 100-005 | 220V 375nm |
| AI 100-035 | 110V 254nm |
| AI 100-034 | 110V 375nm |

| Controllers | |
|---|---|
| **Code No** | **Description** |
| AI 801-414 | KP1 External Keypad - Required to activate dimensioning grids |
| AI 801-415 | Footswitch |

# INSPEX HD Vesa

## At a Glance

- Digital Microscope Inspection

## Features

- HD image resolution
- Available in several configurations, short, long or flexible
- Zero Video Latency
- Image Capture
- Working Distance
- Wide Dynamic Range
- On Screen Dimensioning

## Visit our Website

For more information please click here

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# INSPEX HD Vesa



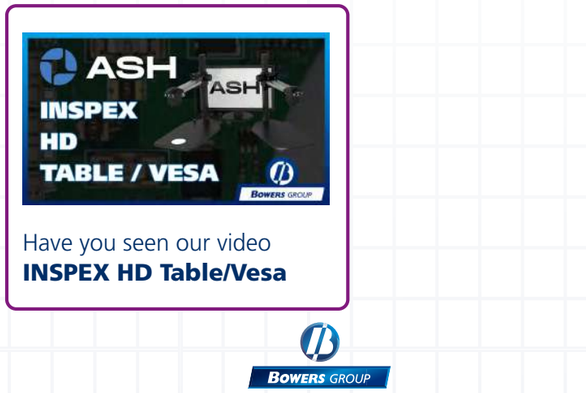
Experience full HD image quality with no delay. The ideal solution for those wishing to digitise and simplify their inspection process.

Ergonomically designed, allowing for less operator fatigue and improved production efficiency.

Simple, fast, high-quality inspection. Ideal for repair, rework, assembly and quality control in any manufacturing industry.

| Technical Information - Magnification | | | | | |
|---|---|---|---|---|---|
| **Lens (Dioptre)** | **2** | **3** | **4** | **5** | **10** |
| **Max Height (mm)** | 500 | 333 | 250 | 200 | 100 |
| **Min Height (mm)** | 405 | 280 | 205 | 170 | 85 |
| **Minimum Magnification*** | 1.1 | 1.3 | 2 | 2.5 | 4 |
| **Maximum Magnification* Optical/Digital** | 29/57 | 36/71 | 50/98 | 62/122 | 121/237 |
| **Field of View at Minimum mag. (mm)** | X: 595<br>Y: 334 | X: 400<br>Y: 225 | X: 280<br>Y: 164 | X: 231<br>Y: 136 | X: 60<br>Y: 50 |
| **Field of View at Maximum mag. (mm)** | X: 20/10<br>Y: 11/5.5 | X: 14/7<br>Y: 8/4 | X: 10/5<br>Y: 6/3 | X: 8/4<br>Y: 5/2 | X: 5/2<br>Y: 3/1 |
| **Maximum Depth of Field** | 176 | 120 | 106 | 78 | 57 |
| **Minimum Depth of Field** | 5 | 4 | 1 | 0.50 | 0.20 |

| Techincal Specification | |
|---|---|
| **Zoom Range (with supplied lens)** | 5D Lens – 2.5x - 122x |
| **Camera Resolution** | HD 1080p, 1920 x 1080 at 50/60 Hz |
| **Monitor Connections** | HDMI / DVI |
| **Monitor Requirements** | HD Ready / Full HD (Recommended) |
| **Power** | 8 Watts |
| **Dimensions** | 370mm x 120mm x 140mm |
| **Weight** | 1.2kg |
| **Operating Temperature** | Storage 10°C to +60°C<br>Operating +5°C to +40°C |
| **Image Capture** | USB 2.0 highspeed |



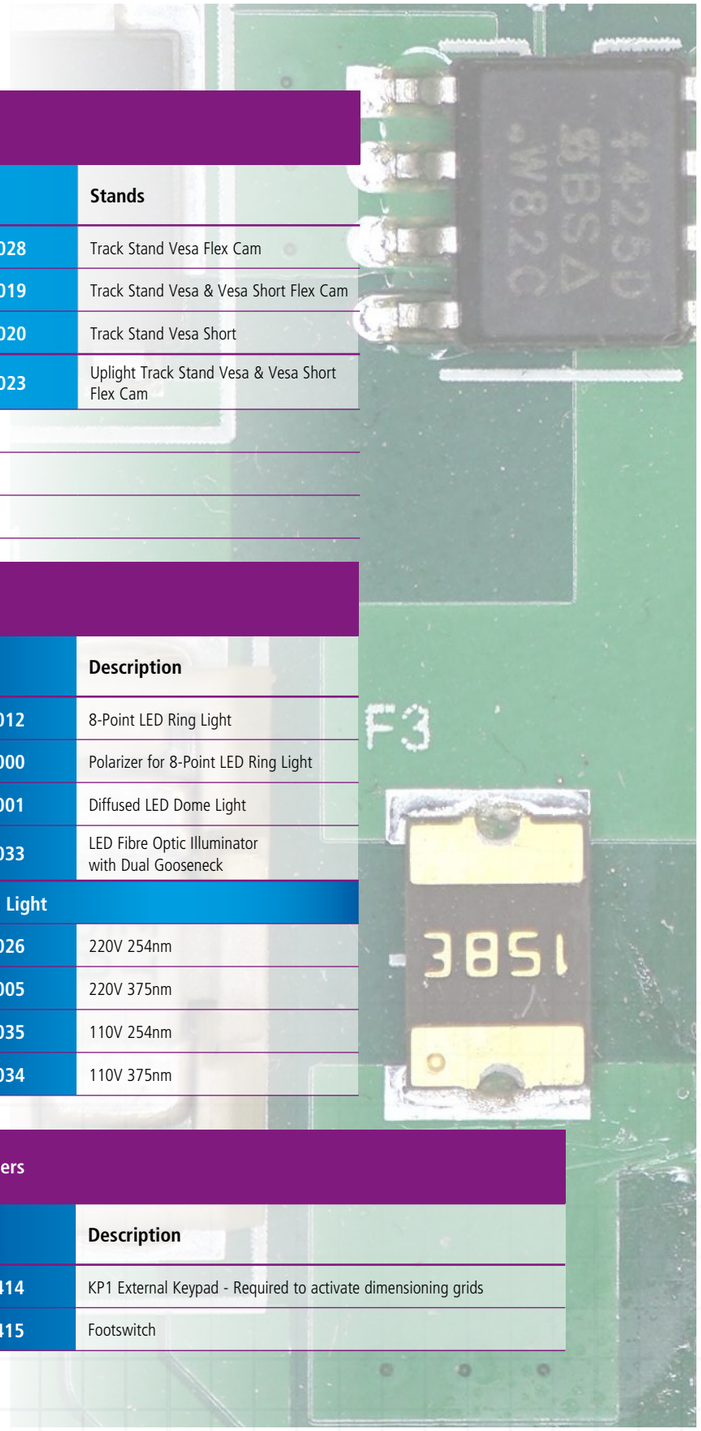

Have you seen our video
**INSPEX HD Table/Vesa**

## What's Included

- Inspex HD Vesa
- +5 Lens
- Power supply
- HDMI to HDMI cable
- Operation Manual
- Grounding Cable
- USB Memory Stick

# INSPEX HD Vesa

## Optional Accessories



| Stands & Stages | | | |
|---|---|---|---|
| **Code No** | **Stage** | **Code No** | **Stands** |
| AI 100-010 | XY Stage | AI 100-028 | Track Stand Vesa Flex Cam |
| | | AI 100-019 | Track Stand Vesa & Vesa Short Flex Cam |
| | | AI 100-020 | Track Stand Vesa Short |
| AI 100-011 | XY Stage for Uplight | AI 100-023 | Uplight Track Stand Vesa & Vesa Short Flex Cam |
| AI 801-414 | Oblique Tilting Stage | | |
| AI 801-413 | Height Adjustable Stage | | |
| AI 100-057 | XY Stage Large | | |

| Lenses | |
|---|---|
| **Code No** | **Description** |
| AI 280-129 | +3 Lens |
| AI 280-125 | +4 Lens |
| AI 280-123 | +5 Lens |
| AI 280-124 | +10 Lens |
| AI 280-145 | Lens Polarizing Filter |
| AI 100-061 | Lens Protectorr |

| Lights | |
|---|---|
| **Code No** | **Description** |
| AI 100-012 | 8-Point LED Ring Light |
| AI 100-000 | Polarizer for 8-Point LED Ring Light |
| AI 100-001 | Diffused LED Dome Light |
| AI 100-033 | LED Fibre Optic Illuminator with Dual Gooseneck |
| **UV Ring Light** | |
| AI 100-026 | 220V 254nm |
| AI 100-005 | 220V 375nm |
| AI 100-035 | 110V 254nm |
| AI 100-034 | 110V 375nm |

| Others | |
|---|---|
| **Code No** | **Description** |
| AI 100-052 | ASH PC Capture |
| AI 801-416 | 24" Monitor |
| AI 801-563 | Hard Carry Case |
| AI 801-566 | Soft Carry Case |

| Controllers | |
|---|---|
| **Code No** | **Description** |
| AI 801-414 | KP1 External Keypad - Required to activate dimensioning grids |
| AI 801-415 | Footswitch |



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# Pfizer

## Packaging Checks at Speed for Pfizer

### Challenge

**Patient Safety & Faster Inspection**

To ensure the safety of pharmaceutical packaging, Pfizer required a sophisticated solution that was reliable and fast. The production process requires inspection and measurement of all pharmaceutical packaging to identify defects or anomalies. This process must be quick and accurate to ensure production levels are maintained. To date, this process was performed on an outdated machine which could not save or share images or reports detailing any findings or defects. In addition, the machine was stored in a facility outside of their department and could not be moved. This unnecessarily created additional operator time for each sample. The old system also took thirty minutes to start up.

### Solution

**Fast, Accurate and Reliable Solution**

The OMNI 3 was the ideal solution for Pfizer. It provided a digitised, capable solution within their department for quick accessibility. This allowed for rapid inspection and measurement of defects. Reports are automatically generated and stored within the Omni 3 or an external USB, streamlining reporting for documentation and traceability. The Ash solution has also complimented their ability to work with international departments through live sharing results from the Omni 3 via video meetings.

### Result

**30X faster inspection increases production throughput**

Originally, Pfizer's process, from start to finish, took thirty minutes – it is now down to less than one minute. All aspects of the process have been improved – better identification, capture, reporting and sharing. The footprint of the new solution is minimal, relevant to the previous, and is sited alongside the production line.

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Other Brands

# DEMM Simmy Concentricity Gauge

## Features

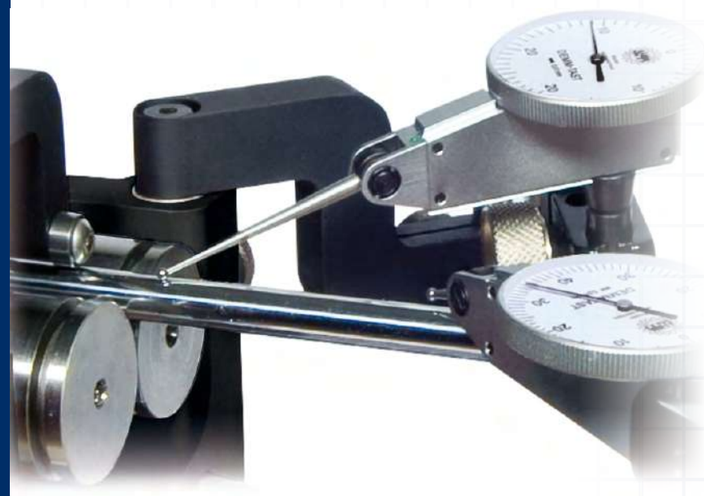
- Compact design with high precision
- Lightweight
- Rotor on hardened stainless steel
- Three different supports for dial gauge
- Movable supports
- Transmission through toothed belt drive system
- Delivery: ABS case
- Dial gauge not included

Concentricity tester SIMMY by DEMM with measuring stands for checking concentricity, roundness and runout.

50-00879

**DEMM Simmy Concentricity Gauge**

| Code No | Range (mm) | Repeatability (mm) | Weight (kg) | Diameter (mm) |
|---|---|---|---|---|
| 50-00879 | 1.5-50 | 0.002 | 8.5 | 1.5-50 |
| 50-00880 | 10-100 | 0.002 | 12.0 | 10-100 |





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# DEMM APOLLO Measuring Frame

## At a Glance

**Range:** 5mm

## Features

- Measuring Frame with Ø 3.5 interchangeable rods
- Accessories in light alloy
- Delivered in wooden case
- Digital indicator available on request

Carbon fibre caliper supplied with a dial gauge 0.01 and rods Ø 3

50-00800



**APOLLO Measuring Frame**

| Code No | Range (mm) | Repeatability (mm) | Weight (kg) |
|---|---|---|---|
| 50-00800 | 0-50 | 0.001 | 0.420 |
| 50-00801 | 50-100 | 0.001 | 0.500 |
| 50-00802 | 100-150 | 0.001 | 0.620 |
| 50-00803 | 150-200 | 0.001 | 0.720 |
| 50-00804 | 200-250 | 0.001 | 0.920 |
| 50-00805 | 250-300 | 0.002 | 1.020 |
| 50-00806 | 300-350 | 0.002 | 1.120 |
| 50-00807 | 350-400 | 0.003 | 1.220 |
| 50-00812 | 400-450 | 0.003 | 1.320 |
| 50-00808 | 450-500 | 0.003 | 1.420 |
| 50-00809 | 500-600 | 0.005 | 2.100 |
| 50-00810 | 600-700 | 0.005 | 2.400 |
| 50-00811 | 700-800 | 0.005 | 2.700 |

# Eclipse Magnetics Magnetic Bases

## Features

- All units are suitable for use with dial indicators and test dial indicators
- 900 and 901 versions both have switchable 'ON/OFF' control
- 905 model has a toggle lever for 'ON/OFF' function
- The base incorporates a vee slot for location on curved surfaces (with the exception of 909)
- 909 Non-switchable (M6 coarse thread)

Fitment & Indicator Sold Separately

E901WF

E905WF

Suitable for use with dial indicators and test dial indicators, Eclipse Magnetic bases feature switchable 'ON/OFF' control and with bases incorporating a vee slot for location on curved surfaces (except 909).

Solid holding of precision measuring equipment:

- For use in the measurement, inspection, and positioning of workpieces with dial indicators
- All stands will clamp onto curved and flat surfaces, with the exception of E909 (flat only)

**Eclipse Magnetics Magnetic Bases**

| Code No | Force (kg) | Length (mm) | Width (mm) | Height (mm) | Weight (kg) | No. of Magnetic Faces |
|---|---|---|---|---|---|---|
| E900WFMW | 30 | 48 | 40 | 50 | 0.5 | 4 |
| E901WFMW | 80 | 64 | 64 | 76 | 1.7 | 4 |
| E905WFMW | 80 | 65 | 50 | 55 | 1.05 | 2 |
| E909MW | 14 | | 35 | 30 | 0.35 | 1 |

Note - E900WFMW, E901WFMW and E905WFMW V is for curved surfaces

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# Eclipse Magnetics Fitments

## Features

- All fitments have M8 x 1.25mm screw thread for fixing
- Compatible with any of the Eclipse range of magnetic bases
- All fitments accept stem or back lug mounting



These fitments are designed to be used in conjunction with the Eclipse Magnetics Magnetic Bases.

RP991BLMW

RP995BLMW

RP72CPMW

RP999MW

**Eclipse Magnetics Magnetic Bases**

| Code No | Description | Type | Notes |
|---|---|---|---|
| RP991BLMW | Fitment only. Column dia - 12mm, length - 175mm. Arm dia - 10mm, length - 165mm | Fine Adjust | Accepts 1/4" I.D Lug Stem / Spigot Dia: 1/8", 1/4", 5/16" and 3/8" |
| RP995BLMW | Fitment only. Column dia - 12mm, length - 175mm. Arm dia - 10mm, length - 165mm | Plain | |
| RP72CPMW | Fitment only. Column dia - 12.5mm, length - 185mm. Arm dia - 6.3mm, length - 150mm | Plain | Accepts 1/4" I.D Lug Stem/Spigot Dia: 5/16" |
| RP999MW | Fitment only. Column dia - 15mm, length - 295mm. | 3 Point Adjustable | Accepts 1/4" I.D Lug and Dovetails Stem / Spigot Dia: 5/16" |

# Kroeplin Calipers

## Features

- Certificate of quality
- Reliable repeatability
- Scales are well arranged and easy to read
- Scale interval from 0.005 mm up (mechanical gauges)
- Numerical interval from 0.001 mm up (electronic gauges)
- Tolerance marks easy to read
- All mechanical gauges are also available in Metric or Imperial
- The electronic gauges can be switched over to metric / imperial
- Measuring contacts are mainly made of carbide
- Electronic gauges with clear analog / digital display
- USB interface
- Bluetooth interface
- Ergonomically designed
- Measuring programs and contacts for different applications
- Absolute and relative measurement
- Red/Green LED for tolerance measurement (electronic gauges)
- Special solutions possible
- Stand holding unit for serial measurement of small parts



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## Precision and Continuity

Ever since its foundation in 1883 Kroeplin have been involved in development and production of handy reliable and precise gauges for the measurement of lengths and thicknesses, especially for the metalworking industry.

Thus the quicktest system was created, which was the basis for all further innovations and also for the electronic dial indicators. Experience is the solid foundation for quality.

12-C450

12-C110T

12-C8100

12-C330T

12-C220

12-C015

# King Brinell Portable Hardness Tester

## At a Glance

**Range:** 3000kgf

## Features

- Wide measuring range to 3000kgf
- Simple handling and low test expenditure
- High accuracy
- Conforms to ASTM and ISO Brinell Standards
- API approved

## Standard Delivery

- Main unit
- 10mm Brinell ball
- Flat, dome and V-anvils"

## Optional Accessories

- Chain adapter
- Test blocks
- Reverse direction adapters
- Low pressure test head
- Video measurement microscope system
- 20x Mircoscope for King Brinell (W-WHB-MIC)

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The **'King' Brinell Portable Hardness Tester** is a lightweight, full load (3000kg) instrument capable of accurately testing a large variety of metal specimens. The testers portability allows it to be used in any plane, conventionally for full load (3000Kg), in-situ Brinell testing of large components.

W-WHB-120

| King Brinell Portable Hardness Tester | |
|---|---|
| **Code No** | **Description** |
| **W-WHB-120** | King Brinell Portable Hardness Tester |
| **W-WHB-MIC** | 20X Microscope for King Brinell |



# TIME 5100 Portable Leeb Hardness Tester

## At a Glance

Excellent portability for testing anywhere, anytime

## Features

- Excellent portability for testing anywhere, anytime
- Automatic gravity compensation for testing at any angle
- Extra large LCD display
- Real-time measurement USB data output
- Mini printer available
- Easy calibration function
- Simple to replace AA batteries



The **TIME5100 Series** provides portable hardness inspection of almost any object, polished parts and heat-treated surfaces. The hardness measurements are made by using the dynamic rebound testing method according to Leeb.

Leeb hardness testing was invented in 1975 in Switzerland and has become one of the most popular portable testing methods currently available.

The TIME Leeb Hardness testers are supplied to the industry since 1991 and can be seen as the current global standard for Portable hardness testing.

W-TIME-5100 W-TIME-5102 W-TIME-5104

| TIME 5100 Portable Leeb Hardness Tester | |
|---|---|
| **Code No** | **Description** |
| **W-TIME-5100** | TIME Portable Hardness Tester, D Probe |
| **W-TIME-5102** | TIME Portable Hardness Tester, C Probe |
| **W-TIME-5104** | TIME Portable Hardness Tester, DL Probe |

# Combination Length Bar Sets

## Features

- Imperial bars manufactured to BS 1790
- Metric bars manufactured to BS 5317

Combination Length Bars are made from the same high grade steel as the gauge blocks.

These length bars are manufactured to BS 1790 (Imperial) and BS 5317 (Metric). The bars have a round section, are hardened to 64Rc and are precision lapped. Reference and calibration length bars are produced with plain ends and Inspection and Workshop grades have internal threaded holes in their end faces. This helps with the assembly of a combination of bars.

A number of standard sets are available as well as individual sizes.

| Combination Length Bar Sets | |
|---|---|
| **Code No** | **Description** |
| **MB8** | Combination Length Bar Sets |



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# Ball V Blocks

## Features

- Enables you to inspect and detect out-of-round conditions and lobes with no damage to parts and no damage to blocks
- Accuracy of Ball 25 millionth of an inch sphericity on small and medium, 50 millionth of an inch on the large set
- Overall accuracy of matched pairs +/- 0.0002"
- Class 40 cast iron used on base and housing, is heat stabilised and seasoned

10-16097

| Ball V Blocks | |
|---|---|
| **Code No** | **Description** |
| **10-16097** | Small pair blocks 2" x 2" x1" (without clamps) and test ball |
| **10-16098** | Medium pair blocks 3¾" x 3¾" x 2¾" (without clamps) and test ball |
| **10-16099** | Large pair block 4¾ " x 4¾" x 2 ¾ " (without clamps) and test blocks |
| **10-16123** | Pair clamps for 10-16097 |
| **10-16124** | Pair clamps for 10-16098 |
| **10-16125** | Pair clamps for 10-16099 |

# Box Angle Plates - Grade A, B

## Features

- All angle plates supplied with a UKAS certificate
- Manufactured from close grained cast iron our high quality Angle Plates are supplied in their Grade A or B

10-10351



**Box Angle Plates - Grade A, B**

| Code No | Description | Size (mm) |
|---|---|---|
| 10-10351 | Grade A | 150(L) x 122(W) x 115(H) |
| 10-10352 | Grade B | 150(H) x 122(W) x 115(L) |
| 10-10353 | Grade A | 225(L) x 175(W) x 150(H) |
| 10-10354 | Grade B | 225(L) x 175(H) x 150(W) |
| 10-10355 | Grade A | 300(L) x 250(W) x 225(H) |
| 10-10356 | Grade B | 300(L) x 250(W) x 225(H) |

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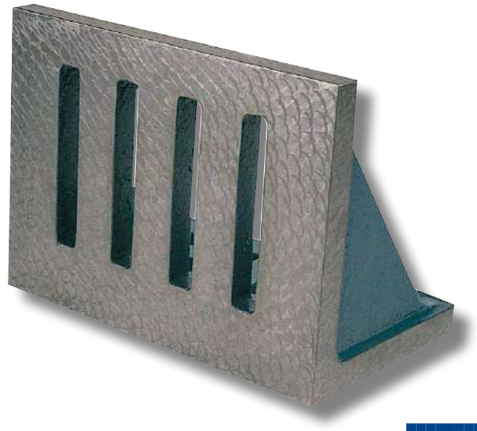
# Webbed Angle Plates - Grade A, B

## Features

- Webbed Angle Plates can be used for rapid mounting fixtures for machine set-up, layout, or inspection.
- Manufactured from close grained cast iron
- Webbed Angle Plates are heavily ribbed for strength and rigidity.
- Grade A or B
- Supplied with UKAS calibration certification as standard
- Manufactured from close grained cast iron





10-10319



**Webbed Angle Plates - Grade A, B**

| Code No | Description | Size (mm) |
|---|---|---|
| 10-10319 | Grade A Webb | 150(L) x 75(W) x 100(H) |
| 10-10321 | Grade B Webb | 150(L) x 75(W) x 100(H) |
| 10-10323 | Grade A Webb | 200(L) x 100(W) x 150(H) |
| 10-10325 | Grade B Webb | 200(L) x 100(W) x 150(H) |
| 10-10327 | Grade A Webb | 275(L) x 150(W) x 200(H) |
| 10-10329 | Grade B Webb | 275(L) x 150(W) x 200(H) |
| 10-10335 | Grade A Webb | 300(L) x 150(W) x 250(H) |
| 10-10337 | Grade B Webb | 300(L) x 150(W) x 250(H) |

# Carbide Slip Gauges - Grade 0, 1, 2

## Features

- Grades and materials all manufactured to BS 4311:1993 or DIN861
- Popular sizes are available in either Imperial or Metric sets and can be made from Steel, Carbide or Ceramic. Individual sizes also available.
- Slip Gauges are supplied either in sets or individually
- Sets are supplied complete in a fitted wooden box with sizes marked. Each set is supplied complete with a calibration certificate of accuracy
- Due to their extra hardness, carbide slips can last up to 5 or 6 times longer and do not suffer from the same potential corrosion problems as their steel counterparts.

561 Steel slips must be cleaned after use to avoid corrosion.

16-2080

### Carbide Slip Gauges - Grade 0, 1, 2

| Code No | Description | Size |
|---|---|---|
| 16-2080 | Grade 0 | M8 (8 pieces) |
| 16-2081 | Grade 1 | M8 (8 pieces) |
| 16-2082 | Grade 2 | M8 (8 pieces) |
| 16-2470 | Grade 0 | M47 (47 pieces) |
| 16-2471 | Grade 1 | M47 (47 pieces) |
| 16-2472 | Grade 2 Grade 2 | M47 (47 pieces) |
| 16-2880 | Grade 0 | M88 (88 pieces) |
| 16-2881 | Grade 1 Grade 1 | M88 (88 pieces) |
| 16-2882 | Grade 2 | M88 (88 pieces) |
| 16-2120 | Grade 0 Grade 0 | M112 (112 pieces) |
| 16-2121 | Grade 1 | M112 (112 pieces) |
| 16-2122 | Grade 2 | M112 (112 pieces) |

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# Steel Gauge Block Sets - Grade 0, 1, 2

## Features

- Grades and materials all manufactured to BS 4311:1993 or DIN861
- Slip Gauges are supplied either in sets or individually
- Sets are supplied complete in a fitted wooden box with sizes marked. Each set is supplied complete with a calibration certificate of accuracy.
- Due to their extra hardness, carbide slips can last up to 5 or 6 times longer and do not suffer from the same potential corrosion problems as their steel counterparts.

16-1081

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### Steel Gauge Block Sets - Grade 0, 1, 2

| Code No | Description | Size |
|---|---|---|
| 16-1081 | Grade 1 | M8 (8 pieces) |
| 16-1470 | Grade 0 | M47 (47 pieces) |
| 16-1471 | Grade 1 | M47 (47 pieces) |
| 16-1472 | Grade 2 | M47 (47 pieces) |
| 16-1880 | Grade 0 | M88 (88 pieces) |
| 16-1881 | Grade 1 | M88 (88 pieces) |
| 16-1882 | Grade 2 | M88 (88 pieces) |
| 16-1120 | Grade 0 | M112 (112 pieces) |
| 16-1121 | Grade 1 | M112 (112 pieces) |
| 16-1122 | Grade 2 | M112 (112 pieces) |
| 16-2121 | Grade 1 | M112 (112 pieces) |
| 16-2122 | Grade 2 | M112 (112 pieces) |

# Granite Tables & Surface Plates

## Features

- Granite Surface Tables are manufactured to BS817:1988
- Finished to the exacting tolerances required
- Every table is supplied complete with a UKAS calibration certificate and a box section frame with adjusting supports
- Tapped inserts and covers can also be supplied as extra
- Surface plates are similar to the Tables in both grade and finish and provide a highly accurate datum surface for smaller inspection departments.

Completely stress free after millions of years of natural stress relieving, high rigidity, corrosion free and non-magnetic, just some of the attributes that makes granite ideal for inspection purposes and anywhere an accurate stable datum is required.

10-10001

**Granite Tables & Surface Plates**

| Code No | Description | Size |
|---|---|---|
| 10-10001 | Grade 0 | 900mm x 600mm (3' x 2') |
| 10-10002 | Grade 1 | 900mm x 600mm (3' x 2') |
| 10-10003 | Grade 2 | 900mm x 600mm (3' x 2') |
| 10-10005 | Grade 0 | 1000mm x 1000mm (3' x 3') |
| 10-10006 | Grade 1 | 1000mm x 1000mm (3' x 3') |
| 10-10007 | Grade 2 | 1000mm x 1000mm (3' x 3') |
| 10-10013 | Grade 0 | 1200mm x 900mm (4' x 3') |
| 10-10014 | Grade 1 | 1200mm x 900mm (4' x 3') |
| 10-10015 | Grade 2 | 1200mm x 900mm (4' x 3') |
| 10-10021 | Grade 0 | 1800mm x 900mm (6' x 3') |
| 10-10022 | Grade 1 | 1800mm x 900mm (6' x 3') |
| 10-10023 | Grade 2 | 1800mm x 900mm (6' x 3') |
| 10-10029 | Grade 0 | 2000mm x 1200mm (6' x 4') |
| 10-10030 | Grade 1 | 2000mm x 1200mm (6' x 4') |
| 10-10031 | Grade 2 | 2000mm x 1200mm (6' x 4') |
| 10-10033 | Grade 0 | 2400mm x 1200mm (8' x 4') |
| 10-10034 | Grade 1 | 2400mm x 1200mm (8' x 4') |
| 10-10035 | Grade 2 | 2400mm x 1200mm (8' x 4') |



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# ACCRETECH SURFCOM Touch

## Features

- Excellent price-performance ratio
- Depending on the application, up to three different feed units can be combined with the evaluation unit
- Automatic detection of the feed unit
- User-friendly, multilingual user software
- USB/Micro USB interface for extended data storage and transfer to the evaluation software (supportware II)
- Evaluation unit with integrated printer
- High-performance battery for mobile use



Simple and self-explanatory user interface with 7-inch touch display.

Entry-level model for surface measurements for various production applications, especially suitable for small and medium-sized companies.

15-S-TCH40A2

**ACCRETECH SURFCOM Touch**

| Code No | Description |
|---|---|
| 15-S-TCH40A2 | Surfcom Touch 40A, R2µm with printer |
| 15-S-TCH45A | Surfcom Touch 45A, R5µm with printer |
| 15-S-TCH50A | Surcom Touch 50A, R2µm with printer |
| 15-S-TCH550-11 | Surfcom Touch 550, bench top |
| 10-16124 | Pair clamps for 10-16098 |
| 10-16125 | Pair clamps for 10-16099 |

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ACCRETECH EUROPE

# ACCRETECH HandySurf+ Portable Surface Measurement

## Features

- Multiple analysis functions
- Profile curve, roughness curve, waviness, roughness motif
- USB connection for USB memory, printer and PC communication
- Optional mini-printer available

## HandySurf E-35+

- Standard type measurements
- Horizontal, inclined, vertical, ceiling surfaces

## HandySurf E-40+

- Retracting stylus type
- Reduces damage to stylus on rough surfaces by raising the pickup before and after measurement

## HandySurf E-45+

- Horizontal Tracing
- The pickup moves sideways for use in narrow areas, such as crankshaft pins and journals



The detachable drive unit enables measurement in a wide range of positions and the 6 button input and new user interface creates an intuitive operator experience.

The detachable drive unit enables measurement in a wide range of positions and the 6 button input and new user interface creates an intuitive operator experience.

With a 16mm Evaluation Length, 0.7 nanometer Resolution, 370µm Z-range and all-new 2.4” colour screen , the next generation Handysurf+ has sophistication and ease of use in equal measures.

15-E35+

**ACCRETECH HandySurf+ Portable Surface Measurement**

| Code No | Description |
|---|---|
| 15-E35+ | Standard unit with 5µm stylus |
| 15-E35/2+ | Standard unit with 2µm stylus |
| 15-E40+ | Retracting unit with 5µm stylus |
| 15-E40/2+ | Retracting unit with 2µm stylus |
| 15-E45+ | Horizontal Tracing unit 5µm stylus |
| 10-16125 | Pair clamps for 10-16099 |

# ACCRETECH Time Surface Roughness Tester - W-3220 and W-3221

## Features

- Large range of parameters and graphical measuring system
- High resolution industrial touch screen
- Digital and analogue filtering methods (2RC, GAUSS)
- Complies to ISO, ASTM, JIS standards
- Can be connected to W-TA230 printer, prints all parameters and graphs
- Built-in standard RS232 interface and USB interface
- Automatic switch off
- Integrated design, simple to use

566

The Surface Roughness Tester is designed for shop floor, industrial and inspection room applications, and offers a versatile solution for all your surface finish measurement requirements.

Specific accessories such as a height support, V-grove support widen the standard field of application. Connectivity via RS232 and USB allow connection to PC or portable devices. Ideal for a wide range of industries including precision bearings, automotive and aerospace engineering, this product has the key attributes that are most important for quality control in today's precision industries;

- Advanced & wide parameter options to suit your application
- V-shaped bottom, means the system can be used on flat or curved surfaces
- Built to last, solid ABS housing
- Large memory plus printer output

W-3220

**Time Surface Roughness Tester - W-3220 and W-3221**

| Code No | Description |
|---|---|
| W-3220 | Surface Roughness Tester Remote - Motor Drive |
| W-3221 | Surface Roughness Tester - Fixed Tracer |

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# Surface Roughness Tester TR-200

The comprehensive, hand-held TR-200 represents the ideal multi-function solution for surface roughness testing.

This compact gauge has a large measuring range, easy-to- read, backlit graphical and text display and is suitable for a wide variety of applications.

## Standard Delivery

- Certificate
- Main unit, Stylus TS100
- Protection nose piece
- Steel support for stand alone use
- Roughness test plate Ra
- Charger
- Carrying case

**Surface Roughness Tester TR-200**

| Code No | Description |
|---|---|
| W-TR200 | TR-200 Surface Roughness Tester |

567

**Optional Accessories**

| Code No | Description |
|---|---|
| Roughness Parameter | Ra - Rz - Ry - Rq - Rt - Rp - Rmax - Rv - Rs - Rsm - Rsk - Rmr |
| Assessed Profiles | Primary profile (P) - Roughness profile (R) - Tp curve (material ratio Mr) |
| Profile Recording Magnification | Vv: 200x - 20000x Vh: 20x- 50x - 200x |
| Standard Conforms | ISO / DIN / JIS / ANSI (menu selectable) |
| Measuring System | Metric µm - imperial µinch |
| Display Resolution | 0.001µm / 0.04 µinch |
| Display Features | Detector stylus position indicator - Battery level indicator - Direct printing - Direct display of parameters and profiles |
| Data Output | RS-232 port |
| Measuring Range | Ra - Rq : 0.0-40.0µm - Rz - Ry - Rp - Rt - R3z : 0.02-160µm - Sm S : 2-4000µm - Tp : 1-100% (% Ry) |
| Cut-off Lengths | 0.25mm / 0.8mm / 2.5mm |
| Evaluation Length Ln | 1-5 cut-off |

# Surface Roughness Tester - R-135

Handheld surface roughness tester for external surfaces and grooves.

The R-135 is a portable, battery-powered instrument for checking surface roughness, with the measured values displayed on a digital readout display. The instrument can be used in laboratory, inspection area, workshop, or wherever on-site surface roughness testing is required.

## Features

- Pocket-sized and economically priced!
- External and internal finish testing with swivelable tracer
- Ra and Rz parameters in one instrument and all available after each individual test
- Standard 9V battery (not included)
- Three cut-off 0.25mm, 0.8mm and 2.5mm, adjustable to 1-3-5 times
- Pi'zo-electric pick-up stylus for external surfaces with diamond tip of 2 micron according to the latest ISO standards
- With data output



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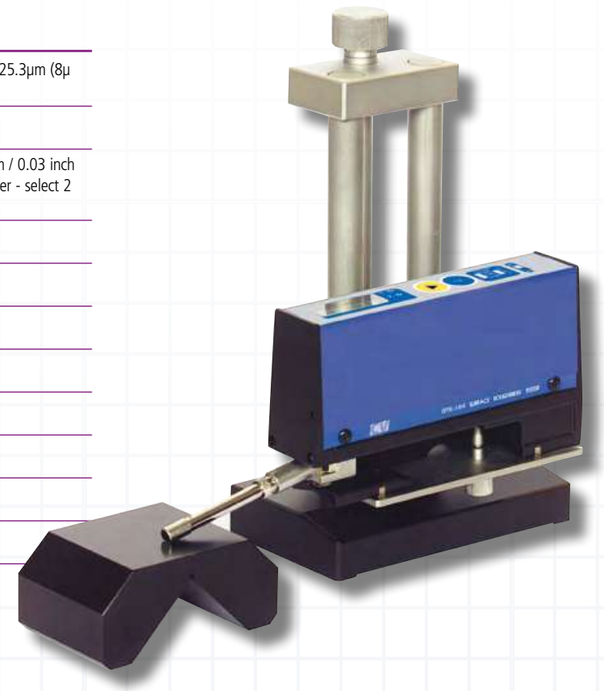
# Surface Roughness Tester - R-135

| Surface Roughness Tester - R-135 | |
|---|---|
| **Code No** | **Description** |
| W-R135 | Surface Roughness Tester + RS-232 output |
| W-TA-220 | Printer for TR200 |
| W-TS-100 | Tracer, standard |
| W-TS-110 | Tracer, narrow skid, special |
| W-TS-120 | Tracer, with skid, bores from 2mm |
| W-TSE/A | Extension arm, 50mm x 10mm |
| W-TS-130 | Tracer, deep grooves <3mm |
| W-TS-131 | Tracer, deep grooves <10mm |
| W-TSE/B | Extension arm, 90°, 70mm x 25mm |
| W-200/0320 | DataView Software - Windows XP |
| W-200/0505 | Granite platform TA610 with 'L' attachment |

| Optional Accessories | |
|---|---|
| **Code No** | **Description** |
| Measuring Ranges | Ra-- 0.03µm ~ 6.35µm (1µ inch~250µ inch) - Rz-- 0.2µm ~ 25.3µm (8µ inch~999µ inch) |
| Display Resolution | 0.01µm / 1µ inch |
| Cut-off | 0.25mm / 0.001 inch - 2RC filter - select 1-3-5 times - 0.8mm / 0.03 inch - 2RC filter - select 1-3-5 times - 2.5mm / 0.01 inch - 2RC filter - select 2 times |
| Display | 3-digit LCD |
| Accuracy | Meets ISO and DIN standards |
| Probe Type | Piezoelectric |
| Maximum Stylus Force | 15.0mN / 1500mgf |
| Stylus Tip Radius | Diamond - 2 micron |
| Power | 9V alkaline battery (not included) |
| Battery capacity | Approx. 3000 measurements |
| Output | RS-232 to pc or printer (only IPX-104) |



# FLEXBAR Surface Roughness Standards

## Features

- Made from solid electroformed nickel
- Markings in AA (microinches) and metric in Ra (micrometers)
- Each type of surface finish is truly and consistently reproduced to give the operator a realistic idea of the feel, appearance and texture of the machined component
- Conforms to S.A.E. and military specifications for visual and tactile inspection
- Set contains 30 Specimens, each 7/8" x 3/8"

Quick and reliable to evaluate your machining work. Used to compare the surface finish on your machined components or parts to the surface of these precision-engineered reference plates.

Ideal for use in the drafting room, engineering department or small shop.

| Surface Roughness Standards | |
|---|---|
| **Code No** | **Description** |
| 10-7524 | 3 Specimens Flat Lapping 2, 4 and 8µ" AA<br>3 Specimens Reaming 16, 32 and 63µ" AA<br>6 Specimens Grinding 2, 4, 8, 16, 32 and 63µ" AA<br>6 Specimens Horizontal Milling 16, 32, 63, 125, 250 and 500µ" AA<br>6 Specimens Vertical Milling 16, 32, 63, 125, 250 and 500µ<br>3 Specimens Flat Lapping 2, 4 and 8µ" AA 3 Specimens Reaming 16, 32 and 63µ" AA<br>6 Specimens Grinding 2, 4, 8, 16, 32 and 63µ" AA<br>6 Specimens Horizontal Milling 16, 32, 63, 125, 250 and 500µ" AA<br>6 Specimens Vertical Milling 16, 32, 63, 125, 250 and 500µ |



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